State Demonstrations Group

December 20, 2023

Michelle Baass
Director & State Interim Medicaid Director
California Department of Health Care Services
1501 Capital Avenue, 6th Floor, MS 0000
Sacramento, CA 95814

Dear Director Baass:

The Centers for Medicare & Medicaid Services (CMS) completed its review of the Summative Evaluation Reports, which are required by the Special Terms and Conditions (STCs), specifically STC #90 "Summative Evaluation Report" of the California section 1115 demonstration, "Medi-Cal 2020" (Project No: 11-W-00193/9). The Medi-Cal 2020 demonstration was approved on December 30, 2015 for a period of performance of December 30, 2015 through December 31, 2020, and subsequently temporarily extended through December 31, 2021. The Summative Evaluation Reports cover the Whole Person Care (WPC) pilots, California Children's Services (CCS) demonstration pilots, Dental Transformation Initiative (DTI), Seniors and Persons with Disabilities (SPD) program, and Out of State (OOS) Former Foster Care Youth (FFY) components. Each report covers the applicable component-specific period of performance during the demonstration approval period. CMS determined that the Evaluation Reports, submitted on December 21, 2021 for SPD and December 30, 2022 for all other components, and revised on March 10, 2022 for SPD and August 21, 2023 for all other components, are in alignment with the CMS-approved Evaluation Design and the requirements set forth in the STCs, and therefore, approves the state's Summative Evaluation Reports.

The Medi-Cal 2020 section 1115 demonstration aimed to improve access, quality of care, and health outcomes for Medicaid beneficiaries. The reports largely complied with the approved Evaluation Designs, utilizing the methods, data sources and measures outlined in the initial designs. The WPC Evaluation Report showed a reduction in emergency department visits, hospitalizations, and overall costs of approximately $99 per enrollee per year when compared to matched comparison groups using difference-in-differences analyses. The WPC component also successfully established infrastructure, engaged partners, and shared data, resulting in sustained enrollment and enhanced services for the population served. The CCS demonstration pilots utilized rigorous qualitative and quantitative analyses, and results showed the program achieved improved care coordination, access to services, client satisfaction, quality of care (e.g., depression screening, diabetes control and childhood vaccination) and cost-effectiveness when

compared to classic CCS[1]. In alignment with the DTI goals, the evaluation report showed improvements in expanding preventative dental services by 4 percent, transforming treatment approaches for early childhood caries, and increased dental service utilization over the demonstration evaluation period. Furthermore, the SPD Evaluation Report showed positive outcomes in implementing managed care among the population, improved process of care measures, increased ambulatory care utilization, and decreased per capita costs during the evaluation approval period. Finally, despite limitations with tracking members and data challenges, several quality improvements were noted in the OOS FFY report. The results indicated a steady increase in the number of FFY participants over time, as well as higher ambulatory care utilization and lower ED rates when compared to a Medi-Cal 2020 peer group.

In accordance with STC #92 "Public Access," the approved Summative Evaluation Reports may now be posted to the state's Medicaid website within 30 days. CMS will also post the Evaluation Reports on Medicaid.gov.

We appreciated our partnership on Medi-Cal 2020 and look forward to our continued partnership with the ongoing California Advancing and Innovating Medi-Cal (CalAIM) section 1115 demonstration. If you have any questions, please contact your CMS demonstration team.

Sincerely,

Danielle Daly -S
Digitally signed by Danielle Daly -S
Date: 2023.12.20 10:45:30 -05'00'

Danielle Daly
Director
Division of Demonstration Monitoring and Evaluation

cc: Cheryl Young, State Monitoring Lead, CMS Medicaid and CHIP Operations Group

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[1] The Classic CCS model was the existing delivery system providing complex case management. This model was used as a comparison group to evaluate the effectiveness of the two CSS demonstration pilots.

California Children's Services Demonstration Project: Final Evaluation Report

Megumi J. Okumura, MD, MAS
Leslie Wilson, PhD
Denis Hulett, MS
Mel Neri
Leslie Ross, PhD
Sally Adams, PhD, RN
Valerie Flaherman, MD, MPH

UCSF

University of California
San Francisco

UCSF Institute for Health Policy Studies
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Acknowledgements

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Executive Summary

Introduction: The 1115 "Bridge to Reform" Waiver of November 2010 was intended to identify and test alternative healthcare delivery models for the California Children's Services (CCS) program. A CCS Demonstration Project (DP) was pursued to test the efficacy of transitioning the CCS program from an FFS-based healthcare delivery model to an organized healthcare delivery model. The CCS DP tested two capitated payment models: (1) a managed care plan (MCP) model implemented in San Mateo County with the Health Plan of San Mateo in April 2013 and (2) an Accountable Care Organization (ACO) model implemented at Rady Children's Hospital-San Diego in July 2018. The MCP model included all CCS-eligible health conditions, whereas the ACO model included only five CCS-eligible health conditions.

Evaluation Design: A mixed-methods design was used to evaluate the CCS DP and its impact on access to care, satisfaction with care, quality of care, care coordination, and costs of care. The evaluators used semi-structured key informant interviews with CCS DP providers, staff, and other stakeholders; interviews with parents of CCS DP clients; phone survey with caregivers of CCS clients; an online provider survey; administrative claims data analysis and cost analysis to evaluate process and outcomes. Comparisons were made among the ACO, MCP, and Classic CCS clients.

Principal Results, Interpretations, and Recommendations by Evaluation Question

Evaluation Question 1: What is the impact of the CCS DP on client's access to CCS services?

Results: Key informants (KIs) reported working closely with CCS staff and families to meet service needs. Parents reported that both DPs improved CCS-related medical services. Claims data showed that the MCP model had higher durable medical equipment (DME) claims, fewer primary care visits, and increased specialist/CCS provider visits. The ACO model had lower DME and pharmacy claims, stable specialty visits, and improved primary care visits.
Interpretation: Both MCP and ACO generally had stable or improved specialty and primary care access and met needs.
Recommendation: Expanding the MCP/ACO model statewide should maintain CCS-related services. Both DPs engagement processes with CCS stakeholders should be replicated to help improve access to care and services.

Evaluation Question 2: What is the impact of the CCS DP on client satisfaction?

Results: Families in the ACO reported higher levels of overall satisfaction with CCS services as compared to Classic CCS clients. Overall satisfaction with CCS services did not differ between MCP and Classic CCS clients. ACO families reported greater satisfaction with specialty care services, therapy services, medical equipment and supplies, and provider communication compared to Classic CCS clients. Within these domains CCS services did not differ between MCP and Classic CCS clients.

Interpretation: The ACO DP was highly successful in improving satisfaction, but the ACO also served only CCS clients with five CCS-eligible conditions, allowing them to implement targeted disease-specific services.
Recommendation: Future models should adopt enhanced case management while keeping a specialty care service foundation similar to what currently exists in Classic CCS.

Evaluation Question 3: What is the impact of the CCS DP on providers' satisfaction with the delivery of and the reimbursement of services?

Result: KIs for both DPs indicated improved care delivery and reimbursement processes. The provider survey reported higher dissatisfaction with pharmacy and DME services.
Interpretation: A culture of quality improvement and collaboration among CCS staff, service providers, families, and ACO/MCP leadership is critical to ensure that the needs of patients and providers are met.
Recommendation: Plans must ensure network adequacy for pediatric specialty care services. Continuous Quality Improvement (CQI) needs to include collaboration among CCS staff, service providers, families, and plan leadership.

Evaluation Question 4: What is the impact of the CCS DP on the quality of care received?

Result: The KIs noted that CQI processes existed before each DP. Parents surveyed noted improvements in quality in all domains measured in both DPs. Parents in the ACO model reported higher quality of care compared to Classic CCS parents. Depression screening improved markedly in both DPs, and no changes were seen in immunizations or diabetes control.
Interpretation: Through CQI processes initiated in both the ACO and MCP models in close collaboration with CCS staff and providers, quality of care was either maintained or surpassed compared to care delivery in Classic CCS.
Recommendation: CQI with robust population health monitoring and close communication between CCS staff, families, service providers, and ACO/MCP leadership is needed to ensure high-quality care.

Evaluation Question 5: What is the impact of the CCS DP on care coordination?

Result: The MCP DP KIs reported that care coordination success was due to subcontracting case management (CM) back to CCS and collocating CCS and MCP staff. The ACO team-oriented approach with nurse Care Navigators led to marked improvements in family-reported care coordination services in the ACO DP compared to the MCP or Classic CCS.
Interpretation: The ACO DP provided specialized case management (CM) for five CCS conditions. This likely led to the improved ACO care coordination experience as compared to the MCP DP and Classic CCS. The families in the MCP DP and Classic CCS reported similar levels of care coordination compared to families in Classic CCS.
Recommendation: Case management augmented to mimic the ACO's complex CM model would support optimal health outcomes. Alternatively, CM responsibilities could be subcontracted back to the local CCS program or met through CalAIM's Enhanced Case Management or Population Case Management programs.

Evaluation Question 6: What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?

Results: The MCP DP showed $1,094 per member per year savings and longer life expectancy and the ACO DP showed $16,225 per member per year savings but had a slightly shortened life expectancy, thus both models were cost-effective.

Interpretation: Both DPs contained costs and aligned financial incentives to providers to ensure appropriate care at reasonable cost.

A. General Background Information

Establishment of California Children's Services

The California Children's Services (CCS) program began in 1927 as the "Crippled Children's Program" to serve children with orthopedically handicapping conditions that were amenable to surgical interventions.[1] It is now a statewide health coverage program that provides diagnostic, treatment, and medical case management services to approximately 185,000 children and young adults (under age 21) with certain CCS-eligible disabilities or chronic health conditions.[2] To be eligible for CCS, children must have certain medical conditions and meet financial and residential criteria. Examples of CCS-eligible medical conditions include cystic fibrosis, hemophilia, cerebral palsy, heart disease, and cancer. The CCS program is administered as a partnership between local county health departments and the California Department of Health Care Services (DHCS).[3] (See Appendix A, "Acronyms," for a complete list of acronyms used in this report.)

Case management is a key aspect of the CCS program; every CCS client receives case management from CCS case managers. A CCS case manager coordinates all of the client's medical care related to their CCS-eligible condition. CCS case management responsibilities may include an initial determination of medical eligibility for the program and subsequent identification of appropriate providers based on the client's medical needs. CCS case managers also authorize medically necessary services and are responsible for coordinating the CCS client's medical care and referrals to other agencies or services in the community, including those provided by county public health departments, schools, or regional centers.[4]

California Children's Services also provides direct physical and occupational therapy rehabilitative services through the CCS Medical Therapy Program (MTP).[5] MTP services are delivered to CCS clients who have MTP-eligible conditions at

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[1] "California Advancing and Innovating Medi-Cal (CalAIM) (formerly 'Medi-Cal 2020')," Centers for Medicare & Medicaid Services (CMS), www.medicaid.gov/medicaid/section-1115-demo/demonstration-and-waiver-list/81046.

[2] *California Children's Services (CCS) Program*, California Dept. of Health Care Services (DHCS), August 2020, https://files.medi-cal.ca.gov/pubsdoco/publications/masters-mtp/part2/calchild.pdf.

[3] "Program Overview," DHCS, last modified March 23, 2021, www.dhcs.ca.gov/services/ccs/Pages/ProgramOverview.aspx.

[4] *The California Children's Services (CCS) Program Administrative Case Management Manual*, DHCS, last modified 2014, www.dhcs.ca.gov/services/ccs/Documents/CCSAdminCaseManManual.pdf; and *Family Handbook: What Parents/Guardians Should Know About California Children's Services*, DHCS, last modified June 2008, www.dhcs.ca.gov/formsandpubs/publications/Documents/CMS/pub387.pdf.

[5] "Medical Therapy Program," DHCS, last modified June 15, 2022, www.dhcs.ca.gov/services/ccs/Pages/MTP.aspx.

public schools in each of California's 58 counties.[6] Although a program within CCS, MTP services are excluded from the Whole Child Model Demonstration Project (as described below) and continue to be administered by the local county public health departments.

Of the approximately 185,000 children served in CCS, approximately 90% are Medi-Cal eligible,[7] meaning many are enrolled in a Medi-Cal managed care plan (MCP) that reimburses authorized CCS services (as well as those services not related to the CCS medically eligible condition), whereas others are enrolled in a Medi-Cal fee-for-service plan. The remaining 10% of children in CCS are ineligible for Medi-Cal and may pay for some healthcare costs on their own or have local health plan or commercial coverage as their primary insurance.

Medi-Cal is the California state Medicaid healthcare program, serving children and adults with limited income and resources. It is funded jointly by the state and federal government. An MCP contracts with established networks of providers or systems of care and accepts capitated payments (a set amount paid for every enrolled member, regardless of the services they obtain) for the services they provide.[8] A Medi-Cal MCP provides care to low-income children and adults through a managed care delivery system, with an emphasis on primary and preventive care. Therefore, many of the children who qualify for CCS and are Medi-Cal eligible may have two public payers for their overall medical care: CCS and their Medi-Cal MCP.

A combination of federal (Title V), state, and county funds finances CCS.[9] Currently, there are some CCS programs carved-in to their county's Medi-Cal MCP whereby the plan has assumed full fiscal responsibility for payment of CCS-eligible services. In most counties, however, CCS care delivery and payments are currently carved out of the Medi-Cal MCPs,[10] which means that the MCPs do not have financial responsibility for payment of CCS services in those counties. Instead, these CCS-eligible services are reimbursed by a combination of state and federal funds on a fee-for-service (FFS) basis in which healthcare providers are paid for each service performed. Through this FFS structure, children in CCS have two separate payer systems: one for care related to their CCS-eligible condition, and another for their primary care and care not related to their CCS-eligible condition. These separate payer systems have the potential to lead to inefficiencies and fragmented services.

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[6] "Program Overview," DHCS.

[7] *CCS Program*, DHCS.

[8] "Managed Care," CMS, www.medicaid.gov/medicaid/managed-care/index.html.

[9] "Program Overview," DHCS.

[10] *CCS Program*, DHCS.

CCS programmatic and administrative functions may be carried out on a state or county level.[11] Counties with populations under 200,000 are known as CCS "dependent" counties, whereby the state Integrated Systems of Care Division (ISCD) shares administrative and medical case management tasks with local county health department staff.[12] The ISCD staff at regional offices in Sacramento and Los Angeles also work with staff of dependent counties to determine financial and residential eligibility and benefits determination, but ISCD alone determines medical eligibility for all dependent counties. In counties with populations greater than 200,000, CCS local county health department staff perform all CCS programmatic, administrative, and case management functions. These counties are known as CCS "independent" counties.[13]

The CCS program has a large fiscal impact on supporting California's chronically ill children. Many infants, children, and adolescents eligible for CCS have multiple medical conditions that require costly, complex care and intensive levels of case management and care coordination that are often beyond the resources available in county, regional, or state program offices.[14] As a result, in Fiscal Year 2009–10, total Medi-Cal FFS expenditures for the CCS program exceeded $487.5 million for the roughly 25,000 children under the age of one that CCS served.[15] For the 133,000 children served who are age one and over, total State Fiscal Year 2009–10 expenditures were $1.33 billion. This is approximately $19,500 per child under age one and $10,000 per child age one or over.[16]

The CCS population has high medical complexity and thus often requires multispecialty and multiagency case management and care coordination. These complexities have potential for ineffective care coordination. So while the Classic CCS model provided complex case management, coordinating between MCPs, Accountable Care Organizations (ACOs), and specialty care, it was determined that this model could be potentially streamlined to improve access to care and to decrease inefficiencies. Therefore, in an attempt to streamline case management and the CCS approval process, DHCS — the agency that oversees CCS — decided to undertake the two Demonstration Projects.

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[11] "Program Overview," DHCS.

[12] *CCS Program*, DHCS.

[13] *CCS Program*, DHCS.

[14] *Section 1115 Comprehensive Waiver/Demonstration Project Technical Workgroup (TWG) Charter California Children's Services (CCS)*, DHCS, www.dhcs.ca.gov/provgovpart/Documents/CCS%20TWG%20charter%20(2).pdf.

[15] Paul Wise et al., *California Children's Services Program Analysis*, Stanford Center for Policy, Outcomes, and Prevention, June 2011, www.dhcs.ca.gov/services/ccs/Documents/CCSFinalReport06_30_11.pdf.

[16] Wise et al., *California Children's Services*.

California's 1115 "Bridge to Reform" Waiver

The [1115 "Bridge to Reform" Waiver](#) (Waiver) renewal of November 2010 was intended to identify and test alternative healthcare delivery models for the CCS program. DHCS worked with various stakeholder groups and determined that four additional models of care needed to be piloted and tested: a Medi-Cal MCP, a Specialty Health Care Plan, an Enhanced Primary Care Case Management Program (E-PCCM), and an ACO.[17]

The ensuing CCS Demonstration Project (DP) was pursued to test the efficacy of transitioning the CCS program from an FFS-based healthcare delivery model to an organized healthcare delivery model with capitated payment and more efficient care coordination. The purpose of this change was to consolidate all pediatric care services under one umbrella that combined specialty/CCS care and primary care. The goals of the DP were to improve access to care, coordination of care, satisfaction with care, health outcomes, utilization, and cost-effectiveness. It focused on identifying and removing roadblocks in access to care while ensuring families received appropriate healthcare services for their child or youth — effectively integrating care for the "whole child" under one accountable entity.

In 2011, a [call for proposals](#) was initiated across California to solicit potential pilot initiatives to test one of the four new models of care delivery for the CCS program. DHCS received proposals and released Letters of Intent to Award contracts to five entities.[18] Two of these pilot proposals were successfully negotiated and implemented, ultimately becoming the CCS DP (see Table 1). Three remaining proposed demonstration pilots were not implemented due to challenges specific to each of the model locations.

DHCS selected Health Plan of San Mateo (HPSM) to participate as the first CCS DP under a full-risk, Medi-Cal MCP model. On April 1, 2013, HPSM, in partnership with San Mateo County Health Services, became the first operational CCS DP under the Waiver. The second CCS DP implemented a new Medi-Cal population-specific plan (PSP) established as part of an ACO at Rady Children's Hospital-San Diego (RCHSD). This DP began over five years later, on July 1, 2018.

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[17] *California Bridge to Reform Demonstration (11-W-00193/9)*, CMS, [www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/ca/Bridge-to-Health-Reform/ca-bridge-to-health-reform-qtrly-rpt-oct-dec-2014.pdf](#).

[18] The entities that submitted proposals were Health Plan of San Mateo (existing Medi-Cal managed care plan), Los Angeles Health Care Plan (Specialty Health Care Plan), Alameda County Health Care Services Agency (Enhanced Primary Care Case Management Program), Rady Children's Hospital-San Diego (Accountable Care Organization), and Children's Hospital of Orange County (Accountable Care Organization).

The 1115 Waiver ultimately led to the approval of California Senate Bill 586. SB 586 authorized DHCS to establish the Whole Child Model (WCM) program in designated County Organized Health Systems (COHS) or Regional Health Authority counties to incorporate CCS-covered services into a Medi-Cal MCP contract.

Whole Child Model Program: From July 1, 2018, through July 1, 2019, California expanded the CCS managed care system by implementing the WCM program in 21 counties. All these counties used an MCP model similar to HPSM. A separate evaluation, reviewing the impact of the WCM program, has just been completed.

Table 1: California Children's Services Demonstration Project in California

Pilot Implementation Date	Date Transitioned to WCM	MCP/ACO	County
April 2013	July 2018	Health Plan of San Mateo (MCP)	San Mateo
July 2018	NA (ended Dec. 31, 2021)	Rady Children's Hospital-San Diego (ACO)	San Diego

Health Plan of San Mateo and Rady Children's Hospital-San Diego: Demonstration Pilots

The overarching goal of the CCS DP was to test two integrated delivery models for the CCS population: a managed care plan (MCP) and an Accountable Care Organization (ACO). The aim was to achieve desired outcomes related to improved access to care, improved patient and family satisfaction, increased provider satisfaction with the delivery of and the reimbursement of services, high-quality care, improved care coordination by reducing inpatient and emergency room care, and reduced total cost of care.

Health Plan of San Mateo, Managed Care Plan Model

Health Plan of San Mateo (HPSM) is a San Francisco Bay Area community-based health plan with a vision that *Healthy is for Everyone*. HPSM began operations in 1987 as a COHS. In a COHS only one MCP operates in that county as the local

Medi-Cal plan and serves almost all members enrolled in that MCP.[19] This means that HPSM is the sole Medi-Cal MCP in San Mateo County and therefore serves nearly all Medi-Cal members in the county (although it does subcontract with a delegated health plan to provide care for some of its CCS clients, as described below). HPSM began with 28,000 Medi-Cal enrollees and today serves more than 130,000 San Mateo County residents through various health programs and initiatives.

San Mateo County CCS was already carved-in to its county's Medi-Cal managed care plan, HPSM, before implementing the DP. This meant that HPSM had already assumed full financial responsibility for the provision of CCS-eligible services well before the implementation of the DP. After the implementation of the DP, HPSM continued to assume full financial risk for its CCS clients, but in a much more coordinated fashion.

When the DP began in April 2013, HPSM was providing comprehensive healthcare coverage to almost 2,000 CCS-eligible clients, of which approximately 1,500 were full-scope Medi-Cal and therefore enrolled in the DP. Of these DP enrollees, approximately 100 were assigned to a delegated health plan.

As noted above, HPSM subcontracted with a delegated health plan to provide care for some of its CCS clients. This means that although HPSM is the CCS client's Medi-Cal MCP, some members receive their healthcare through a separate, delegated health plan. In other words, those CCS clients enrolled with this other, delegated health plan had a primary care provider who was part of that other health plan's network of care. These CCS clients obtained most of their healthcare services through the other plan's provider network, which is to say that the delegated health plan is the CCS client's healthcare provider *through* HPSM. With this arrangement, the client's CCS-eligible services are carved out of the delegated health plan's contract with HPSM. In this arrangement, HPSM was still responsible for those clients' CCS-related claims, utilization management, and care coordination.

The HPSM DP was scheduled to end its three-year pilot on March 31, 2016, but received two one-year extensions from the Centers for Medicare & Medicaid Services (CMS). CMS then effectively extended the HPSM DP to the launch of the Whole Child Model Phase I on July 1, 2018.[20]

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[19] *County Organized Health System Medi-Cal Plans: Managed Care in California Series*, National Health Law Program, no. 3, September 29, 2014, https://healthconsumer.org/wp/wp-content/uploads/2016/10/County-Organized-Health-System-Medi-Cal-Plans.pdf.

[20] As noted earlier, a separate evaluation of the Whole Child Model has also just been conducted.

During this time, HPSM tested a "whole child" approach to care for its CCS clients, the goals of which were to improve access to care, coordination of care, satisfaction with care, health outcomes, and cost-effectiveness. As a part of the DP, HPSM became responsible for the management and coordination of a full range of healthcare services for the whole child, including periodic health assessments, immunizations, primary healthcare services unrelated to the CCS-eligible medical condition, and specialty healthcare services. County CCS retained responsibility for CCS eligibility determinations and appeals as well as the provision of physical and occupational therapy through the CCS Medical Therapy Unit. Although HPSM was initially responsible for CCS clients' case management in the DP, over the course of its DP implementation it was decided that it would be in the best interest of clients to subcontract case management and care coordination responsibilities back to county CCS staff (see Table 2).

Table 2: HPSM DP Service Responsibility: Pre- versus Post-HPSM DP

Service	Pre-HPSM DP		Post-HPSM DP	
	HPSM	CCS	HPSM	CCS
CCS Eligibility Determination and Appeals		X		X
CCS Medical Therapy Unit		X		X
Authorization of CCS-Eligible Services		X	X*	X*
CCS General Case Management		X		X†
CCS Payment/Claims Processing		X	X	
Coverage of CCS-Eligible Specialty Care	X‡		X	
Coverage of Non-CCS-Eligible Primary Care	X		X	

*Initially, authorizations were the responsibility of HPSM in the DP, but eventually this responsibility was transferred back to CCS.
†HPSM subcontracted case management back to CCS for the DP.
‡CCS services were already carved-in to HPSM before implementation of the HPSM DP.

Rady Children's Hospital-San Diego, Accountable Care Organization Model

Rady Children's Hospital-San Diego is a nonprofit, 511-bed, pediatric care facility and clinically integrated delivery system serving children from birth to 18 years old in San Diego, Imperial, and southern Riverside Counties. It provides care to 91% of the region's children and is the largest children's hospital on the West Coast. RCHSD also treats a small number of adults with certain conditions for which specialized services are offered.

As the second of the two CCS DP sites, RCHSD established California Kids Care (CKC) as a new Medi-Cal population-specific plan (PSP) for the ACO-based model. An ACO is a group of doctors, hospitals, and other healthcare providers

that work together to provide coordinated, high-quality care to patients at a lower cost.[21] Provider reimbursements are tied to quality metrics and the cost savings achieved through this model of care. In other words, if an ACO succeeds in delivering high-quality care in a cost-efficient manner, it will share in the cost savings it achieves.

Providers in an ACO collaborate to provide quality care by effectively coordinating care, planning treatment options, and minimizing duplicate or unnecessary services.[22] For an ACO to be successful, it has to seamlessly share information within the organization.[23] CKC adopted many of the hallmarks of an ACO, including collaboration and communication among care teams and a commitment to quality. In the results section of this report, many of the defining qualities of an ACO are touted by key informants (KIs) as being paramount to the success of CKC.

CKC was established as a Medi-Cal PSP that would provide care for children with the following five CCS-eligible conditions: cystic fibrosis, sickle cell disease, diabetes type 1 and 2 (up to age 10), acute lymphoblastic leukemia, and hemophilia. CKC featured a "Medical Home Team"[24] that included a dedicated primary care provider, specialists, a nurse Care Navigator, and a Patient Care Coordinator. The nurse Care Navigator and Patient Care Coordinator positions were created specifically for CKC. In addition, nurse Care Navigators were assigned condition-specific caseloads, which meant they were only responsible for the complex case management of CKC clients who all had the same CCS-eligible condition. Together with the CKC client and their family, the Medical Home Team developed and implemented an individualized, longitudinal care plan to meet the child's specific care needs.

RCHSD began CKC's operations on July 1, 2018, and started enrolling clients who volunteered into the plan on August 1, 2018. The CKC program ceased operations on December 31, 2021, with nearly 400 members enrolled. This meant that the services provided in CKC ended, including the complex, condition-specific case management. As of January 1, 2022, CCS-related care coordination, authorizations, and service coverage once again became the responsibility of San Diego County CCS (see Table 3).

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[21] "Accountable Care Organizations (ACOs)," CMS, last modified December 1, 2021, www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO.

[22] "What Is an ACO?," Natl. Assn. of ACOs, www.naacos.com/what-is-an-aco-.

[23] "Urgent Care," Kaiser Health News, September 14, 2015, https://khn.org/news/aco-accounTable-care-organization-faq/.

[24] "Frequently Asked Questions," California Kids Care, www.cakidscare.org/for-patients-families/faq/.

Table 3: RCHSD DP Service Responsibility: before, during, and after CKC

CCS Service	RCHSD (Pre-CKC)	CCS (Pre-CKC)	CKC	CCS (During CKC)	RCHSD (Post-CKC)	CCS (Post-CKC)
CCS Eligibility Determination and Appeals		X		X		X
CCS Medical Therapy Unit		X		X		X
Authorization of CCS-Eligible Services		X	X			X
CCS General Case Management		X	X			X
Complex Case Management with Nurse Care Navigator			X			
Care Coordination with Patient Care Coordinator			X			
CCS Payment / Claims Processing		X	X			X
Coverage of CCS-Eligible Specialty Care		X	X			X
Coverage of Non-CCS-Eligible Primary Care	X		X		X	

California Children's Service Demonstration Pilot Evaluation

To evaluate the impact of the California Children's Service Demonstration Project (CCS DP) on care and costs, DHCS submitted the CCS DP Evaluation Design for the Medi-Cal 2020 Demonstration on September 19, 2016. CMS approved it on November 17, 2017. At that time, the CCS DP serviced approximately 1,500 CCS clients in HPSM (the MCP) and approximately 375 CCS clients in RCHSD (the ACO) out of the 185,000 CCS clients served across California.

Evaluators from the UCSF Institute for Health Policy Studies responded to the CCS DP Evaluation Design Request for Proposals with a proposal (see Appendix B, "CCS DP Evaluation Proposal") for a robust, mixed-methods approach to evaluate the CCS DP and meet the evaluation goals set by the state (see Appendix C, "CCS Final Evaluation Design"). The evaluation began on July 1, 2019, and examines how these children's healthcare was impacted during the performance period of April 1, 2013, through June 30, 2021, by comparing the CCS DP to Classic CCS counties. (As part of the contracting, UCSF received a contract extension of one year to ensure that UCSF had a full two years of data from RCHSD DP.) (See Section C, "Evaluation Design.")

B. Evaluation Questions and Hypotheses

The UCSF evaluation team developed a conceptual framework to address the questions outlined by Titles XIX and XXI. In addition, the research questions and design were further vetted through the California Department of Health Care Services (DHCS) and its previous and concurrent work with its California Children's Services (CCS) advisory group. The overarching research questions, hypotheses, and specific measures that were developed over an iterative process among DHCS, key stakeholder groups (CCS advisory group, CCS medical directors, and constituents), key informant interviews, and the UCSF evaluation team are provided below. Figure 1 demonstrates the framework of the CCS Demonstration Project (DP) via a driver diagram. Each of the outcomes was then measured in the evaluation as a measurable target for identifying an area of success or a need for improvement.

Figure 1: Framework of CCS Demonstration Project
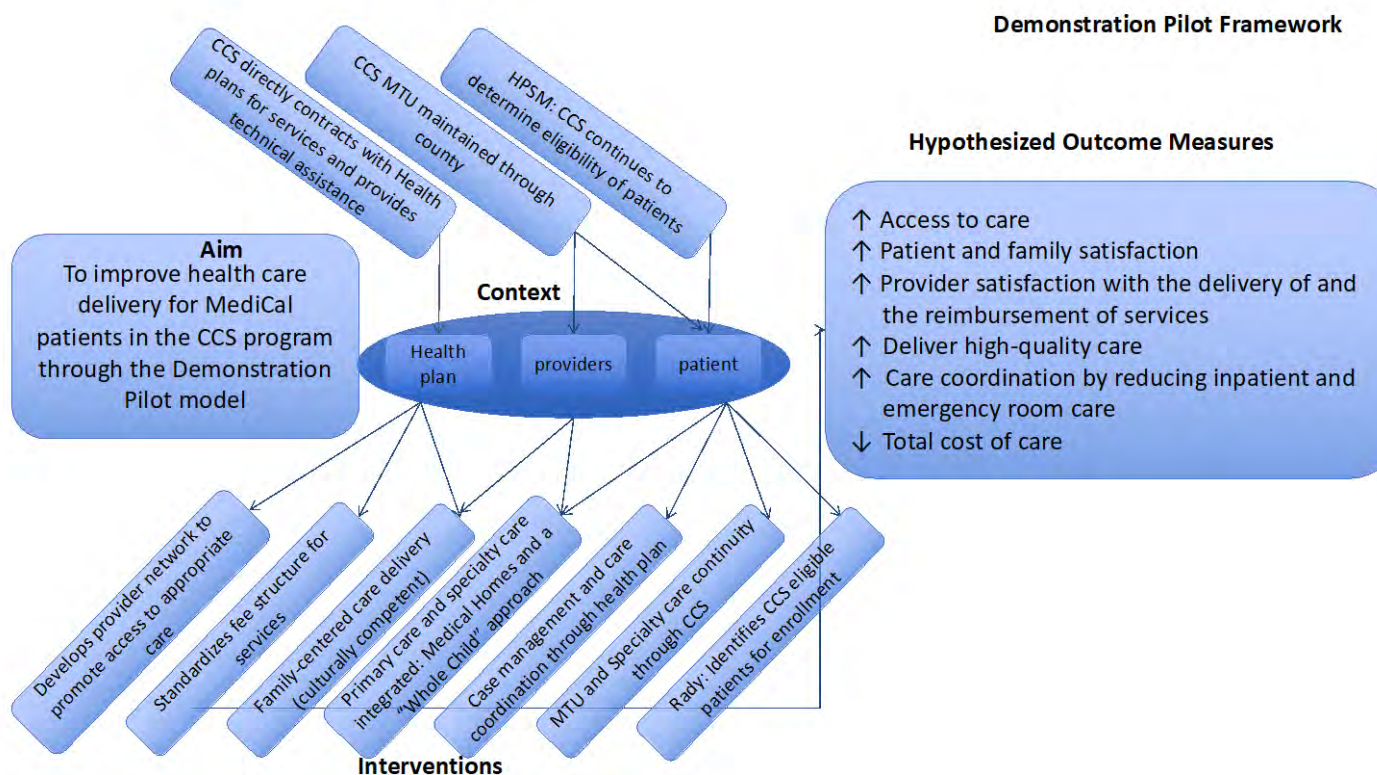
Research Domains, Research Questions, and Hypotheses

The state's overarching goals (evaluation research domains) for the CCS DPs were to:

- Improve access to care
- Improve patient and family satisfaction
- Increase provider satisfaction with the delivery of and the reimbursement of services
- Deliver high-quality care
- Improve care coordination by reducing inpatient and emergency room care
- Reduce the total cost of care

UCSF developed a framework (see Figure 1), and based on this framework, developed six key research questions that correspond to the six goals of the CCS DP listed above:

- Research Question 1: What is the impact of the CCS DP on client access to CCS services?
- Research Question 2: What is the impact of the CCS DP on client satisfaction?
- Research Question 3: What is the impact of the CCS DP on provider satisfaction with the delivery of and the reimbursement of services?
- Research Question 4: What is the impact of the CCS DP on the quality of care received?
- Research Question 5: What is the impact of the CCS DP on care coordination?
- Research Question 6: What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?

The UCSF evaluation team then addressed each of these questions in a quantifiable manner to determine if the overarching goals were met. As part of this process, UCSF developed hypotheses based on the evaluation framework and tested specific measures for each of the research questions (as described below). As detailed above, each DP enhanced services to promote each aspect of care, aiming to address the state's six goals for the DPs. Below, the authors further describe by research question:

- An overview of the intervention's quantifiable targets and outcomes for meeting the state's goals, as well as how the targets and evaluation promote the priorities set by Title XIX (Medicaid) and Title XXI (State Children's Health Insurance Program [CHIP]).
- The research hypothesis generated based on the activities performed by the DP to address the goals and targets identified.
- An overview of the measures used to test the stated hypothesis. Detailed description of measures, data sets, and research methodology are found in the Methodology section (Section C).

Research Question 1: What is the impact of the CCS DP on client access to CCS services?

Overview: This question proposes to evaluate the state's goal of improving access of care. The goal was to improve access through improved case management and streamlined care through either the MCP or ACO model of care. Both are integrated systems of care, and as detailed above, each system devised ways to improve services and to ensure access to specialty and primary care. This research question and hypothesis (below) also address whether the DPs promote the relevant objectives of Title XIX (Medicaid/Medi-Cal), which include access to care, including meeting the needs of the medically needy and ensuring transportation is covered to ensure access.[25] The DP activities address the objectives of Title XXI (CHIP) to "assure that health services purchased by the program are accessible to enrolled children" and to "assure that enrolled children with significant health needs receive access to appropriate care."[26]

Hypothesis: As compared to the existing Classic CCS delivery system, an integrated delivery system (e.g., managed care plan [MCP] or Accountable Care Organization [ACO]) improves access to appropriate primary, specialty, and behavioral healthcare by increasing the number of children and young adults visiting with a primary care provider (PCP) and having a higher proportion of children having met their required well-child visits. UCSF also hypothesizes that families in an integrated delivery system will report lower unmet medical needs (e.g., outpatient services, pharmacy, DME, and mental health services).

Evaluation Measures: UCSF evaluated this question through three modalities, including key informant interviews that assessed provider, stakeholder, and MCP/ACO administrator experiences with access to care, and a statewide telephone

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[25] "Attachment 2.2-A," in *State Plan under Title XIX of the Social Security Act*, DHCS, www.dhcs.ca.gov/formsandpubs/laws/Documents/Attachment-2-2-A-82022-remEQ.pdf.

[26] *Template for Child Health Plan under Title XXI of the Social Security Act: Children's Health Insurance Program*, DHCS, www.dhcs.ca.gov/formsandpubs/laws/Documents/CHIP-State-Plan.pdf.

survey of parents/guardians that measured access to primary care, specialty care, and behavioral healthcare. In addition, measures of transportation and whether transportation hindered access to care were also measured. Finally, claims analyses measured healthcare utilization of primary and specialty care as compared to matched Classic CCS clients who were not enrolled in either DP.

Research Question 2: What is the impact of the CCS DP on client satisfaction?

Overview: This research question addresses the state's goal of improving patient and family satisfaction. The DPs' activities of improved case management and communication with clients, along with the hypothesized improvement in access to care as part of the first goal of the DP (noted above), should lead to improvements in family experience and overall satisfaction. This research question and hypothesis (below) also address whether the DPs promote the relevant objectives of Titles XIX and XXI, which include ensuring (1) timely access to care, (2) ease in contacting the plans, (3) that healthcare providers offer appropriate language services, and (4) that clients' chronic illness care needs are met. Together, these would likely promote increased family and client satisfaction.[27]

Hypothesis: Compared to the existing Classic CCS delivery system, an integrated delivery system (MCP/ACO) improves patient and family satisfaction with primary and subspecialty care, access, and quality of services.

Evaluation Measures: Family satisfaction was measured through parent and guardian interviews and the family survey, which asked questions about primary care services, specialty care services, and mental health services. The evaluation also measured satisfaction with additional chronic illness care services (e.g., durable medical equipment, pharmacy services, and IHSS [In-Home Supportive Services]) as well as whether there were adequate interpretation services when needed. Responses from DP parents/guardians were then compared to a matched cohort of parents/guardians of Classic CCS clients who were not enrolled in either DP.

Research Question 3: What is the impact of the CCS DP on provider satisfaction with the delivery of and the reimbursement of services?

Overview: Research Question 3 addresses the state's goal of increasing provider satisfaction with the delivery of and the reimbursement of services. Providers (e.g., physicians, nurses, and vendors) in both DPs are directly involved in the delivery and reimbursement of services by providing direct care and case management, as well as by submitting claims

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[27] *Template for Child Health Plan*, DHCS.

and requesting authorizations for services. This research question and hypothesis (below) also address whether the DP promotes the relevant objectives of Titles XIX and XXI — namely, to ensure quality of care for clients through the care activities that enable high-quality chronic illness management.

Hypothesis: Compared to the existing Classic CCS delivery system, an integrated delivery system (MCP/ACO) will increase provider (e.g., physician, nurse, hospital, clinic, durable medical equipment [DME] provider) satisfaction with the delivery system and reimbursement of services.

Evaluation Measures: For this research question, providers gave input through key informant interviews on perceived care delivery and receipt and reimbursement of services. Providers and administrators also provided input through an anonymous online provider survey. The survey measured perceived satisfaction across numerous care domains that included payment, pharmacy, general quality of care, and timeliness of care. The full list of questions asked can be found in the Methodology section below.

Research Question 4: What is the impact of the CCS DP on the quality of care received?

Overview: This research question focuses on whether the DP achieved the state's goal of improving quality of care. Quality of care delivery was addressed in the DPs through more streamlined access to care and case management in an effort to decrease duplication of care. The applicable quality-of-care goals are found in Title XIX and within the California Title XXI objectives listed in Section 7 ("Quality and Appropriateness of Care"), which focuses specifically on ensuring high-quality care is provided to all members.[28] This evaluation uses the same suggested quality measures (HEDIS) as outlined by the California CHIP state plan.

Hypothesis: Compared to the existing Classic CCS delivery system, an integrated delivery system (MCP/ACO) delivers higher quality care by ensuring that children receive appropriate and timely access to care, such as childhood immunizations, and that children with diabetes mellitus reduce and/or control their HbA1c levels.

Evaluation Measures: To measure quality of care, UCSF took three approaches: The first was through key informant interview questions that asked about the quality of care and services provided in each DP. The second was through the family survey, which evaluated the quality of care and compared quality of care before and after DP implementation, as well as compared overall quality experienced by the Classic CCS comparison group of CCS clients who were not enrolled

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[28] *Template for Child Health Plan*, DHCS.

in either DP. Questions were also asked about duplication of medical services due to lack of communication between providers. Last, claims were analyzed to determine overall quality of care by using National Quality Forum standards for depression screening, HbA1c measures (diabetes management), and vaccinations through the use of HEDIS measures, state immunization data, and clinical data. This research question also includes well-child visits, since they are both a quality and access measure (this measure was also addressed in Research Question 1).

Research Question 5: What is the impact of the CCS DP on care coordination?

Overview: This research question focuses on whether the DP achieved the state's goal of improving care coordination. Across all the goals of the DP, a core activity was focused on improving care coordination, which directly impacts numerous domains (e.g., patient and family satisfaction, provider satisfaction, access to care, and quality of care). This particular research question addresses whether improving care coordination led to a decrease in hospitalizations and emergency department visits. The DPs used either a disease-specific Enhanced Case Management model (as implemented by the ACO) or a model whereby a Classic CCS case manager was nested within the health plan (as implemented by the MCP). These case management models were designed to promote seamless care coordination between specialist and primary care services to ensure high-quality chronic disease management, with the goal of improving health. Better coordination would then likely lead to decreased poor health outcomes as measured by decreased emergency department visits and hospital use. This research question and the hypothesis below addresses whether the DPs promote the relevant Titles XIX and XXI objective to "assure that enrolled children with significant health needs receive access to appropriate care."[29]

Hypothesis: Care coordination in an integrated delivery system (MCP/ACO), compared to care coordination in the existing Classic CCS delivery system, reduces inpatient and emergency room care and ensures eligible medical conditions are referred to a CCS Special Care Center (SCC) for ongoing services.

Evaluation Measures: This evaluation used KI interviews to provide stakeholder feedback on care coordination and case management within the DPs, and the family survey evaluated the family experience with care coordination. Claims analysis evaluated care coordination claims, 90-day time from referral to Special Care Center visit (timeliness of care), emergency department visits, and hospitalizations. Survey results and claims outcomes of the DP clients were compared to the Classic CCS comparison group of clients who were not enrolled in either DP.

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[29] *Template for Child Health Plan*, DHCS.

Research Question 6: What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?

Overview: This question proposes to evaluate the state's goal of reducing overall cost. This research question and hypothesis below also address whether the DP promotes the relevant objectives of Titles XIX and XXI by measuring the overall cost of care incurred under benchmark coverage (Section 6) by the state while maintaining access to and quality of care.[30] While the research question also addresses indirect and direct cost burden to families, it does not address cost sharing and premium payments but instead examines cost burden that doesn't pertain to the copayment and premium limits under Titles XIX and XXI (Section 8).

Hypothesis: Through the streamlined care provided by each DP, total cost of care (including professional, facility, inpatient and outpatient, pharmacy, lab, radiology, ancillary, and behavioral health services) will be reduced for CCS clients in an integrated delivery system (MCP/ACO) compared to those in the existing Classic CCS delivery system. This reduction in total cost of care will be achieved while still maintaining quality of care. The reported cost burden to families will not change due to the DP.

Evaluation Measures: DHCS capitated payment rates and FFS claims data were used to measure cost per member per month (PMPM) pre- and post-DP. The UCSF evaluation team also measured pre- and post-DP cost changes PMPM while controlling for time and county differences using matched Classic CCS counties not part of either DP. These costs and selected quality outcomes (life years saved and rehospitalizations avoided) were used to determine if the DP savings occurred while maintaining quality of care. A statewide telephone survey of parents/guardians included several questions on the time the family spent on managing their children's care, work and school days missed, and the estimated monthly amount spent on equipment, supplies, and prescription drugs.

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[30] *Template for Child Health Plan*, DHCS.

C. Methodology

Evaluation Design

The California Children's Services Demonstration Project (CCS DP) evaluation includes a process evaluation, an outcomes evaluation, and a cost analysis. For all research activities, UCSF received IRB approval from the California Committee for the Protection of Human Subjects and received UCSF IRB reliance approval to conduct this evaluation (see Appendix D, "CPHS IRB Approval," and Appendix E, "UCSF IRB Reliance").

Process Evaluation

The process evaluation was designed to collect qualitative and semi-structured interview data to assess the implementation of the CCS DP and client/provider satisfaction from the perspective of families, stakeholders, and providers. The process evaluation included an environmental scan of work related to CCS, qualitative parent/guardian interviews, and key informant interviews with Health Plan of San Mateo (HPSM) and Rady Children's Hospital-San Diego (RCHSD), county staff, providers, and other stakeholders. Each of those elements is described below.

- **Environmental Scan:** A review of past analyses and public reports pertaining to the CCS DP was conducted to ensure that this evaluation was built on past research and work.

- **Qualitative Parent/Guardian Interviews:** Twelve qualitative one-on-one interviews were conducted with parents/guardians of CCS DP clients who transitioned to HPSM and RCHSD. Interviews gathered in-depth, qualitative data on clients' experiences with the transition of CCS services in the areas of satisfaction, perceived quality, access to care, and coordination of care. These qualitative data from parents/guardians were used to inform the development of the telephone survey instrument as well as to help with the interpretation of quantitative results. (See Table 5.) Interviews were conducted via telephone, in English and Spanish, and recorded with the interviewee's verbal consent.

- **Qualitative Provider Key Informant Interviews:** Semi-structured key informant interviews were conducted with a broad range of providers and stakeholders (e.g., HPSM and RCHSD representatives, county public health and CCS staff, Medical Therapy Unit [MTU] staff, durable medical equipment [DME] vendors) in both CCS DP counties. The goal of these interviews was to assess provider and other stakeholder perspectives on how the CCS DP is working in their health system and how it has changed healthcare delivery, including the quality of care, access to care, coordination of care, and costs. Semi-structured key informant interviews were conducted via telephone or Zoom and

recorded with the interviewee's verbal consent. During the interviews, respondents were encouraged to provide in-depth explanations of the strengths and weaknesses of the relevant pilot. As needed, interviewers followed up with detailed questions to ensure the accuracy of findings. A total of 19 key informant interviews were completed with 23 respondents. (See Table 5.)

Table 4: Qualitative Interviews, by CCS DP

CCS DP	Model	Key Informant Interviews (Respondents)*	Parent/ Guardian Interviews
Health Plan of San Mateo	MCP	10 (10)	6
Rady Children's Hospital-San Diego	ACO	9 (13)	6
Total		19 (23)	12

*Some key informant interviews were group interviews. This table presents both the number of interviews (first number) and total number of respondents (in parentheses).

Outcomes Evaluation

The outcomes evaluation was designed to assess the impact of the CCS DP program on access to care, quality of care, and care coordination. The outcomes evaluation included a randomized, controlled telephone survey with parents/guardians of CCS clients (comparing CCS DP with Classic CCS); an online provider survey; an analysis of administrative claims data; and a cost analysis. Each of those elements is described below.

- **Telephone Survey of Parents/Guardians:** A quantitative telephone survey, in English and Spanish, of a random sample of parents/guardians of children who transitioned to HPSM or RCHSD or were in Classic CCS. Comparisons across models assessed the impact of the CCS DP on parents/guardians' satisfaction and perceived changes in access to care, quality of care, and coordination of care.
- **Online Provider Survey:** An anonymous online survey, in English, of a convenience sample of physicians, administrators, clinical staff, pharmacists, and DME providers who serve DP and CCS clients. Analysis assessed input about the transition into the DP and perceived outcomes of it.
- **Analysis of Administrative Claims Data:** An analysis of administrative claims and encounter data provided by DHCS. (See data sources, measures, and analyses below for further details.)

- **Cost Analysis:** An analysis to assess overall program costs, cost-effectiveness, and changes in healthcare spending since the transition to CCS DP. The cost analysis incorporated data from the telephone survey with parents/guardians, administrative claims data, DHCS capitation 'blue and white sheets," and health plan revenue/expense reports.

Target and Comparison Populations

Telephone Survey Inclusion Criteria

- **CCS DP Population:** The CCS DP telephone survey inclusion criterion was any CCS-eligible client who was in either HPSM ($n = 376$) or RCHSD ($n = 262$). For the telephone survey comparison group, the inclusion criteria included any child who was enrolled in either HPSM or RCHSD.
- **Classic CCS Population:** For primary comparisons, the UCSF evaluation team included all children who were CCS eligible and enrolled in the Classic CCS counties ($n = 1,005$) that were not participating in the WCM, with the same time frame criteria as the CCS DP population.
- **Both Populations:** Had a valid phone number recorded in their CCS eligibility file.

Telephone Survey Exclusion Criteria

- Children were excluded if they had not been enrolled in CCS for at least six months in the year before implementation of their county's CCS DP program and six months in the year after the transition. This exclusion was not being used for HPSM, however, as its pilot program started long before the RCHSD pilot. The evaluation's goal was for HPSM to have a population sample similar to that of RCHSD and Classic CCS counties with respect to age and severity of medical condition.
- Children were excluded from the analysis if they had been in the CCS program for less than one year overall at the time of the analysis or if they used only MTU services.

Online Provider Survey Inclusion Criteria

- Physicians, administrators, clinical staff, and pharmacists who serve CCS DP and/or CCS clients were included if they are part of a medical group that the Children's Specialty Care Coalition represents.
- Additional providers and DME suppliers who serve CCS DP and/or CCS clients were included if they were members of the Advocacy & Management Group.

Online Provider Survey Exclusion Criteria

Those who did not serve children in HPSM or RCHSD CCS DP.

Description of the Study Group Selection for Analysis of CCS Eligibility and Services (administrative claims data)

As each CCS DP was unique in its implementation and design, the UCSF evaluation team created comparison groups that reflect the features of each pilot. Four study groups were defined for the evaluation of each. Group 1, the pre-DP group, and Group 2, the post-DP group, were created from clients within a pilot's county. Group 3, the Classic CCS pre-DP implementation group, and Group 4, the Classic CCS post-DP implementation group, were also created. Together, the first two groups may be referred to as the "intervention group." Groups 3 and 4 may be referred to as the "comparison group." The four groups not only allow UCSF to evaluate the impact of the DP pre- versus post-implementation within the intervention group, but also allow for comparison to Classic CCS clients over the same period. For both pilots the post-DP group comprised those enrolled in the DP. However, the HPSM DP and RCHSD DP differed in the constructions of the other three groups.

The post-HPSM DP group comprised CCS clients enrolled in the DP between April 2013 and March 2018. The pre-HPSM DP group comprised CCS clients in San Mateo County during the two years before the DP implementation. The comparison groups comprised CCS clients enrolled in counties adjacent to San Mateo that did not participate in a DP or the Whole Child Model (WCM).

The post-RCHSD DP clients were those enrolled in the DP between July 2018 and June 2021. The RCHSD DP had some unique characteristics to address when forming study groups. First, RCHSD DP only enrolled clients with one of five qualifying conditions:

- Acute lymphoblastic leukemia
- Cystic fibrosis
- Diabetes type 1 and 2 (under 10 years of age)
- Hemophilia
- Sickle cell disease

Furthermore, the RCHSD DP was not a countywide initiative and enrolled only about a quarter of the CCS clients in San Diego who had one of the qualifying conditions. However, the distributions of these conditions between the DP clients and

the other qualifying clients were extremely different. UCSF determined that fair comparisons between these two disparate populations could not be achieved. As such, a cohort was created to form the pre-DP group.

Those included in the pre-DP group met the following criteria:
- Were CCS enrollees in San Diego County between July 2016 and June 2018
- Had one of the five qualifying conditions
- Were eventually enrolled in the DP

Since the pre-DP group comprised many of the same clients that later enrolled in the DP, the distribution of their conditions as well as many other characteristics were similar to the post-DP group. Thus, some bias was to be removed from pre- to post-DP comparisons. Any changes observed could more confidently be attributed to the DP and not the differences in the populations.

The remaining CCS clients in San Diego County who had a qualifying condition were included in the Classic CCS comparison groups over the same period as the intervention groups. See Appendix F, "Eligibility File and Study Group Construction for Enrollment and Utilization," for further details of the study group construction.

To further remove bias from comparisons of the Classic CCS groups to the intervention groups, propensity score–matched samples were drawn from the classic comparison groups. These matched samples increased the similarities between the intervention and comparison groups, allowing for more fair comparisons. Descriptions of the propensity score matching can be found in Appendix G, "Propensity Score Matching for the CCS Demonstration Pilot."

Overall Administrative Claims Analysis Inclusion and Exclusion Criteria
- All Medi-Cal children who were CCS eligible within the study time frame were eligible for the claims analysis. The analytic sample did not include those who received only MTU services.
- The UCSF evaluation team excluded those CCS clients not continuously enrolled for at least one year. This excluded children who utilized CCS for procedures or single hospitalizations rather than the CCS DP's integrative system of care.
- The UCSF evaluation team excluded any county if it was participating in the Whole Child Model program during the 1115 Waiver evaluation. These counties implemented changes through the WCM and would have been an inappropriate comparison group. The WCM data are simultaneously being separately reported as mandated by the California Welfare and Institutions Code section 14094.18.

Evaluation Period

The interviews with key informants and parents/guardians were completed between October 2019 and May 2022.

The telephone survey of parents/guardians of children in CCS was completed between March 2020 and June 2020.

The online provider survey was completed between March 2022 and May 2022.

The administrative claims and encounter data include data for two years of pre-enrollment and at least two years of post-enrollment. The cohort starts in April 2011 (two years before the start of the HPSM CCS DP) and includes:
- Health Plan of San Mateo: April 1, 2011, to June 30, 2019
- Rady Children's Hospital-San Diego: July 1, 2016, to June 30, 2021
- Classic CCS: same time windows as HPSM and RCHSD

Evaluation Measures

Domain 1: Access to Care

- **Representative Telephone Survey with Parents/Guardians:** The UCSF evaluation team measured the self-reported access to care via parent/guardians through telephone survey data in the following domains: primary care, specialty care, acute care, behavioral health, pharmacy, medical equipment and supplies, therapies, and transportation. (See Appendix H, "Parent/Guardian Telephone Survey Instrument," for the full survey instrument and Appendix I, "Grid of Telephone Survey Questions by Domain.")
- **Key Informant Interviews:** The UCSF evaluation team asked key informants about their perceptions regarding changes in access to care over the course of each DP.
- **Administrative/Claims Data:** The UCSF evaluation team analyzed the impact of the implementation of the CCS DP on children's access to primary care, specialty care, pharmacy, and behavioral healthcare with data that DHCS provided. These included:
  - **Evaluation of Primary Care Services:**
    - The UCSF evaluation team performed descriptive statistics, pre- and post-implementation of the CCS DP, on the utilization of primary care services (HEDIS [Healthcare Effectiveness Data and Information Set] Well-

Child Visit measures) by children, comparing between CCS DP (HPSM [MCP] and RCHSD [ACO]) and Classic CCS control counties.

- The UCSF evaluation team evaluated the time two years before the reporting period for primary care service use for both the CCS DP and Classic CCS groups in the following age brackets: 12 months–20 years; 12–24 months; 25 months–6 years; 7–11 years; and adolescents 12–20 years.

- **Clinical Depression Screening:**
  - Proportion of children age 12 and over who were screened for clinical depression and received follow-up. The UCSF evaluation team used CPT (Current Procedural Terminology) codes for depression screening and follow-up for HPSM and clinical data (PHQ [Patient Health Questionnaire]) from RCHSD.

- **Utilization of Outpatient Clinics, Pharmacy, and Mild/Moderate Mental Health Services for CCS Children:**
  - Outpatient Visits per 1,000 Member Months
    - Report on primary care, specialty care (includes mental health), and acute care visits
  - Prescriptions and Durable Medical Equipment per 1,000 Member Months
  - Mild to Moderate Mental Health Visits per 1,000 Member Months

Domain 2: Client Satisfaction

- **Representative Telephone Survey with Parents/Guardians:** Parents/guardians of CCS children who participated in the telephone survey were asked questions related to their overall satisfaction with CCS and satisfaction with access and quality of services in specific domains: primary care, subspecialty care, acute care, behavioral health, pharmacy, medical equipment and supplies, therapies, and transportation. (See Appendix I.)

Domain 3: Provider Satisfaction

- **Key Informant Interviews:** Key informants were asked open-ended questions to assess satisfaction with delivery of service, children's access to care, streamlining of care, and reimbursement. (See Appendix J, "Key Informant Interview Guide.")
- **Online Provider Survey:** Providers voluntarily and anonymously responded to an emailed link to an online Qualtrics survey. They were asked closed-ended questions to rate their insights on how or if 13 specific services changed for clients in the DP since it began, how reimbursement compares to before the DP, how overall services provided to clients in the DP compares to FFS, what their primary role and employment setting is, the type of direct patient care

they provide (if applicable), and their county. They were provided an open-ended format to provide any additional comments. (See Appendix K, "Online Provider Survey Instrument.")

Domain 4: Quality of Care

- **Representative Telephone Survey with Parents/Guardians:** Parents/guardians of CCS children who participated in the telephone survey were asked several questions about their perceptions of the quality of care in the following domains: primary care, specialty care, acute care, behavioral health, pharmacy, medical equipment and supplies, therapies, and transportation. (See Appendix I.)
- **Key Informant Interviews:** Key informants were asked about quality of care in their respective DP, including questions on the quality of providers, DME, and medical supplies.
- **Administrative/Claims Data:**
  - **Childhood Immunization Status**
    - The percentage of children two years of age who had appropriate childhood immunizations.
    - The UCSF evaluation team received CAIR2 and CAIR (California Immunization Registry) RIDE data, along with data from MIS/DSS (CPT and vaccine National Drug Codes) to derive the immunization metric using an algorithm to mirror the HEDIS childhood immunization measure; the UCSF evaluation team was unable to gain access to medical chart review and therefore could not perform chart reviews to derive the measures.
  - **Controlling HbA1c Levels**
    - The UCSF evaluation team received HbA1c data from both the RCHSD DP and HPSM DP. This was beneficial because when health plans typically collect these data for HEDIS measures, they are done so only for a sampling of adult patients between age 18 and 75 with diabetes.[31]

Domain 5: Care Coordination

- **Representative Telephone Survey of Parents/Guardians:** Participants in the telephone survey were asked about their experiences with care coordination in the CCS DP or Classic CCS. (See Appendix I.)
- **Key Informant Interviews:** The UCSF evaluation team asked key informants what impact each DP had on the provision of care coordination and complex case management.

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[31] "Comprehensive Diabetes Care (CDC)," Natl. Committee for Quality Assurance (NCQA), www.ncqa.org/hedis/measures/comprehensive-diabetes-care/.

- **Administrative and Claims Data:** This domain assumes that with adequate case management, inpatient and emergency department use would decrease as outpatient services increased or remained stable. Therefore, this evaluation captured all-cause readmissions and utilization of emergency department, inpatient admissions, and Special Care Center use. Using available claims and encounter data of CCS clients, along with survey data, the UCSF evaluation team performed descriptive statistics, basic bivariate analyses, and Difference in Differences analysis of claims and encounter data comparing CCS-MCP, CCS-ACO, and Classic CCS.[32]

  - **Hospitalizations (all-cause)**
    - The UCSF evaluation team performed descriptive statistics on inpatient discharges and reported on reasons for discharge from the Department of Health Care Access and Information (HCAI).[33]
      - The UCSF evaluation team reported inpatient admissions per month. An admission consists of a member and date of admission to a facility. This measure is displayed per 1,000 member months.
    - The UCSF evaluation team reported on admission sources (emergency department vs. other source, such as direct admission vs. facility).
    - The UCSF evaluation team used regression models and Difference in Differences analyses to predict hospitalization and to evaluate pilot counties versus control counties.

  - **All-Cause Readmission**
    - The UCSF evaluation team evaluated 30-day readmissions and modeled the predicted probability of an acute readmission of CCS clients age 1–21. Readmission data focused on the most recent year of data. The UCSF evaluation team used Agency for Healthcare Research and Quality readmission measures as part of the evaluation. Reporting includes:
      - Count of index hospital stays (denominator)
      - Count of 30-day readmissions (numerator)
      - Average adjusted probability of readmission
    - Using multivariable logistic models, the UCSF evaluation team modeled the probability of readmission and performed a Difference in Differences analysis to compare readmission rates to that of the comparison Classic

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[32] *Medi-Cal 2020 Demonstration California Children's Services: Final Evaluation Design*, CMS, www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/ca/medi-cal-2020/ca-medi-cal-2020-ccs-appvd-eval-design-11032017.pdf.

[33] HCAI was previously known as OSHPD (Office of Statewide Health Planning and Development).

CCS counties. This was done by utilizing available health utilization data as well as available demographic information and disease-modifying factors from HCAI, which could impact readmission.

- **Emergency Department (ED) Visits**
  - The UCSF evaluation team performed descriptive statistics on ED visits and is reporting on reasons for ED visitation.
    - The UCSF evaluation team reported the number of ED visits per month. A visit consists of a provider, member, and date of service. This measure is displayed per 1,000 member months.
    - The UCSF evaluation team reported on ED visits with an inpatient (IP) admission. Due to limitations of ED reporting, UCSF reports the number of hospitalizations that originated from an emergency department encounter. The measure is displayed as the proportion of hospitalizations that originated from an ED visit, as well as displayed as counts of hospitalizations that originated from the ED per 1,000 member months.
  - Using multivariable logistic models, the UCSF evaluation team modeled the probability of ED visits and performed a Difference in Differences analysis to compare readmission rates to that of the comparison Classic CCS counties. This was done by using available health utilization data as well as available demographic information and disease-modifying factors from HCAI, which could impact ED visit rates.
- **Special Care Center Use:** The UCSF evaluation team described the numbers of eligible CCS clients who had an initial visit to a Special Care Center (SCC) within 90 days after receiving a request for authorization to an SCC.

Domain 6: Total Cost of Care

- **Randomized Telephone Survey with Parents/Guardians:** Several questions on the family time spent on managing their child's care, work and school days missed, and estimated monthly amounts spent on equipment and supplies and on prescription drugs were included in the telephone survey. These questions related to indirect time consequences affecting parents and families (e.g., missed school days, missed parent workdays, family care management time). These time burdens can be given a cost value by applying a time cost.
  - These data were used to supplement claims data and to assess a family burden not addressed by programmatic requirements. The evaluation team used an average national wage for childcare and national minimal wages. The goal of these data is to help explain what outside burden parents and families might have related to their child's condition that is outside programmatic goals and requirements.
  - The UCSF evaluation team also used these survey data to estimate the families' monthly expenditures on equipment and supplies and on prescription drugs. Their responses were not about cost sharing through premiums or copayments but rather expenses outside this programmatic cost sharing. Data from the telephone

survey allowed the UCSF evaluation team to determine if there was a shifting of costs to the patient for some cost categories if the estimates from DP families were higher than those of classic counties' families. (See Appendix I.)

- **Measurement of Cost of Care through Administrative Claims plus Capitated Amounts:**
  - **Administrative Claims and Capitated Amounts:** Administrative claims were used primarily to determine enrollment and number served under Classic CCS versus capitation, and FFS dollar value of healthcare used. Capitated amounts were used to determine dollar value by health plan for number enrolled under capitation. The UCSF evaluation team analyzed the total utilization and costs of care per member per month (PMPM) over the study period by year, making both pre- and post-transition cost comparisons and Classic CCS versus MCP/ACO cost comparisons. The UCSF evaluation team compared the utilization and estimated costs of both groups for two years before the transition to MCP or ACO (from 2011 for HPSM and 2014 for RCHSD) and annually through 2018. HPSM annual revenue and expense reports were used to estimate cost PMPM by type of cost and applied to claims data utilization for each type of service. The UCSF evaluation team focused on high-cost categories such as inpatient, pharmacy, physician, and ED. Analysis includes descriptive, primarily mean total healthcare use, and costs by type of cost — as well as cost comparisons using Difference in Differences analysis, and random effects regression with robust standard errors to determine predictors of cost and to control for the skewed nature of cost data.
  - **Cost Characteristics:** The UCSF evaluation team collected and included characteristics of CCS programs and counties that may have biased cost comparisons, such as changes in market characteristics (i.e., carve outs; number included in program; percentage remaining in Classic CCS; and number of available hospitals, beds, EDs, or pharmacies). This evaluation also compares the total costs of inappropriate care (such as avoidable rehospitalizations) across care models. These data are used to compare the cost and cost-effectiveness of the two integrated models of care with the Classic CCS care model control.
  - **Cost Comparisons:** The UCSF evaluation team used claims data, capitation amounts, and results from the parent/guardian telephone survey to compare total costs of care across the care models using Difference in Differences analysis, bivariate analysis, and logistic regression analysis. These analyses took into account the data limitations and availability of managed care data versus Classic CCS data and the lack of specific information on supplemental payments.
  - **Focus on Unnecessary Healthcare Costs Differences:** The UCSF evaluation team considered the trade-off between "appropriate" increases in cost (e.g., primary care visits, outpatient visits, and chronic medication use) and a resulting decrease in "inappropriate" uses, such as potentially avoidable hospitalizations and emergency department visits.

- **Cost-Effectiveness Analysis for HPSM and RCHSD:** The major cost-effectiveness outcome comparing each CCS care model was the difference in total mean cost / difference in two main effectiveness outcomes: 30-day readmissions avoided and life years saved.

Data Sources

This section provides information on the data sources (excluding the telephone survey and online provider survey, as described above) used for this evaluation as well as information on efforts to validate and clean the data.

Data Sources

- **Administrative Claims and Encounters Data:** This integrated data set, from a variety of sources, includes all paid CCS authorized claims, non-CCS authorized claims, and managed care encounters for Fiscal Years 2011–21. Data sets include management information system / decision support system (MIS/DSS) and CMSNet. The data sets contain demographic information, geographic information, diagnoses, procedures, and reimbursement information for each claim for every eligible client.
- **Claims Data set:** This includes all FFS paid claims for a client and could include claims from different sources such as Electronic Data Systems, the Department of Developmental Services, Delta Dental, the Child Health and Disability Prevention Program. The evaluation also includes data on CCS-eligible diagnosis, eligibility start and end dates from the CMSNet system or appropriate data from the Medi-Cal Eligibility Data System (MEDS), and the California Medicaid Management Information System (CA-MMIS). Claims data were augmented with the Department of Health Care Access and Information patient discharge data and ED data, which provide comorbidity and clinical data for hospitalizations as well as ED discharges not found in claims data.[34]
- **Clinical Data: HbA1c and Depression Screening Data:**
  - **HbA1c:** Data for people with diabetes in health plans were provided by both HPSM and RCHSD. RCHSD was able to provide HbA1c for both CKC and non-CKC clients as a comparison group.
  - **Depression Screening:** HPSM provided additional Healthcare Common Procedure Coding System and CPT codes from their data systems. RCHSD was able to provide all PHQ2 and PHQ9 screening for both CKC and

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[34] DHCS obtained and extracted the files described in the "Administrative Claims and Encounters Data" and the "Claims Data Set" above and made them available for the UCSF evaluation team to download from DHCS). The UCSF evaluation team assembled the header and detail claims/encounter records and made adjustments as indicated by the claim adjustment fields and the last positive claim indicator.

non-CKC members at RCHSD through their clinical systems. Follow-up data were only available for CKC members.

- **Vaccination Data:** Data were received from the California Department of Public Health's CAIR/CAIR2, https://cairweb.org/).

- **Annual Revenue and Expense Reports:** The annual revenue and expense (R&E) reports specific to the CCS/DP population were available only for HPSM.[35] These R&E reports for HPSM were used to estimate expenses incurred compared to capitated amounts paid per member per month by type of cost. Revenue loss rates were determined by year to calculate the impact on the health plan of the capitated payments across program years. The UCSF evaluation team focused on high-cost categories such as inpatient, pharmacy, physician, and ED use in comparing R&Es for HPSM.

- **Capitation Amounts and Utilization from Cost and Reimbursement Comparison Schedule (CRCS) Sheets ("blue and white sheets"):** DHCS provided the certified annual medical capitation rates from 2011 through 2021. The UCSF evaluation team used the lower-bound rate costs, as that is what is typically paid by the state. DHCS provided capitation rates for RCHSD for years in which RCHSD had moved to the DP as well as average child capitation rates for San Diego County for 2016 and 2017. For HPSM, DHCS provided a "child rate" for 2011 and 2021 and a CCS capitation rate (children qualifying for CCS) for 2013 through 2021. The DHCS three-year capitation estimates for both RCHSD and HPSM were used to determine the final capitation rates for the first year after transition to the DP to estimate the rates in the pre-DP years. DHCS also provided healthcare utilization, unit costs, and PMPM costs by category of cost (e.g., inpatient hospital, outpatient facility, ED, long-term care, physician). These data were used to estimate costs by type of services by year pre- and post-transition to DP. Claims data were used to estimate costs (paid amounts) for those in Classic CCS across all years.

- **FFS Paid Claims:** FFS paid claims were primarily used to estimate costs (paid amounts) for those in Classic CCS counties when paid under FFS, but the UCSF evaluation team also included any FFS paid claims of clients in CCS DPs in addition to the capitation rates if they occurred across all years. Classic CCS counties paid on a capitated rate were assumed to be paid the "specific capitation rate" that was individually coded for each month/year and each county health plan as published on the California Health and Human Services Agency's Medi-Cal Managed Care Capitation Rates Open Data Resources site. These rates do not adequately account for the true cost of a CCS client; however, a capitation rate broken out for CCS clients was not available. Therefore, the coded-specific rates were the best estimate of capitation paid by DHCS for these Classic CCS counties under managed care.

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[30] San Mateo Health Commission and San Mateo Community Health Authority meeting, March 14, 2018, www.hpsm.org/docs/default-source/commission/commission/smhc_meeting_materials-march-14_-2018.pdf.

- **Total Utilization and Costs of Care PMPM:** The UCSF evaluation team analyzed the total utilization and costs of care PMPM over the study period by year, making both pre- and post-DP-transition cost comparisons and Classic CCS versus CCS DP cost comparisons. The UCSF evaluation team compared the utilization and costs of both groups for two years before transition to the CCS DP and annually through July 2021.

Table 6 provides details on the data sources.

Table 5: Source Data: Date Requested for All CCS Clients from April 20, 2011, to June 1, 2021

Data Set	Description	Source Agency
MIS/DSS	Monthly eligibility and plan enrollment data, FFS, and managed care claims data for all services	DHCS
CMSNet	Statewide eligibility, case management, and service authorization application integrated with the Medi-Cal Eligibility Data System (MEDS) and the California Medicaid Management Information System (CA-MMIS) used by CCS	DHCS
Patient Discharge Database	All-payer database of discharges from all non-federal, non-correctional hospitals in the state	HCAI (California Department of Health Care Access and Information)[36]
ED Database	All-payer database of ED visits not resulting in hospitalizations at that hospital	HCAI
CAIR2 /CAIR/RIDE	California Vaccination Registry	CDPH (California Department of Public Health)[37]
Clinical Data	Depression Screening, HbA1c, and Vaccination	RCHSD and HPSM
Referral Data	Health plan authorization data	RCHSD and HPSM
HPSM Revenue/Loss Reports	Capitation rates and total revenue and expenses, medical loss ratio, and revenue and expenses by type of healthcare utilization	2016–21: San Mateo Health Commission and Community Health Authority Meeting

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[36] Since the time of this data retrieval, OSHPD has changed its name to the Dept. of Health Care Access and Information.

[37] *California Immunization Registry (CAIR) by Software Application*, California Dept. of Public Health, Immunization Branch, https://cairweb.org/images/cair5map.pdf; and "California Immunization Registry," California Dept. of Public Health, www.cdph.ca.gov/Programs/CID/DCDC/CAIR/Pages/CAIR-updates.aspx.

Data Set	Description	Source Agency
		2011–13 revenue/loss reports for CCS managed care from HPSM
Blue and White Sheet to CRCS Sheet Reports	Capitation rates for CCS DPs and CCS years and counties and pre-CCS DP capitation estimates	DHCS/CRDD (Capitation Rates Development Division)
Capitation Reports	For CCS managed care years and counties/health plans	DHCS/CRDD

Validating and Cleaning Data

The UCSF evaluation team used the following methods to validate and clean the administrative claims and encounter data, as well as the claims data set:

- DHCS obtained and extracted the files mentioned immediately above to make them available for the UCSF evaluation team to download from DHCS. The UCSF evaluation team assembled the header and detailed claims/encounter records and made adjustments as indicated by the claim adjustment fields and the last positive claim indicator.

- Frequencies of the values in the relevant fields were produced and examined for completeness and reasonableness. The CCS eligibility file was similarly validated, and the eligibility was determined and flagged for each monthly record. Data sets were compared against each other to evaluate if any inconsistencies existed. When this happened, the UCSF evaluation team collaborated with DHCS to rectify or explain any inconsistencies found.

Analytic Methods

The section below identifies the specific analytical methods and statistical testing that was undertaken for each measure (e.g., t-tests, chi-square, odds ratio, ANOVA, and regression analyses as statistically appropriate for the primary comparisons).

Parent/Guardian Qualitative Interview Analytic Methods

Recruitment: Parents/guardians of children in the DPs and CCS were recruited for qualitative interviews via recruitment flyers (distributed at Medical Therapy Programs [MTPs], Medical Therapy Units [MTUs], SCCs, and via key informants) (for the recruitment flyers, see Appendix L, "Recruitment Flyer [HPSM]" and Appendix M, "Recruitment Flyer [Rady Whole Child Model Evaluation]"), via outreach from family advocacy and policy groups; and via direct referrals from key informants and staff at family advocacy groups. Between October 2019 and January 2020, 12 qualitative one-on-one

interviews were conducted via telephone in English and Spanish, with parents/guardians of clients who had transitioned into a DP. Participants received a $50 e-gift card to Target to compensate them for their time.

Interview Questions: Parents/guardians answered questions about satisfaction with the transition into their respective DP as well as about perceived quality, access to care, and coordination of care in their DP. The complete interview guides can be found in Appendix N, "Parent/Guardian Interview Guide (HPSM)," and Appendix O, "Parent/Guardian Interview Guide (Rady Children's Hospital-San Diego)." Sample question prompts that were used to address key research areas can be found in Table 7, below.

Table 6: Research Questions and Sample of Corresponding Question Prompts for Qualitative Parent/Guardian Interviews

Research Question	Question Prompts Used to Address Research Question
Q1. What is the impact of the CCS DP on client's access to CCS services?	• Did the transition impact access to your child's doctors or healthcare providers? How? • Are your services more streamlined than when the services were provided by CCS?
Q2. What is the impact of the CCS DP on client satisfaction?	• Were some things better once your child's care with [name of current health plan] started? What were they? • Were some things worse once your child's care with [name of current health plan] started? What were they? • Tell me about the healthcare services that your child currently receives through [name of current health plan]. Are they meeting your needs? • Do you think that [name of current health plan] has helped your child? Why? • Do you or your child have any needs that are not being met? What are they? • How involved in your child's care are you currently? Do you feel like your current doctors listen to you and take your wishes into account? Does the current health plan take your wishes into account? • What could be improved about the services that you receive?

Research Question	Question Prompts Used to Address Research Question
Q3. What is the impact of the CCS DP on providers' satisfaction with the delivery of and the reimbursement of services?	NA
Q4. What is the impact of the CCS DP on the quality of care received?	• Tell me about the healthcare services that your child currently receives through [name of current health plan]. Are they meeting your needs?
Q5. What is the impact of the CCS DP on care coordination?	• Have you had any interactions with a case manager / care coordinator from [name of current health plan]? What are those interactions like? How do they compare to your interactions with your previous case manager / care coordinator?
Q6. What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?	NA

Analysis: All parents/guardians verbally consented to participating before their interview began. Interviews were one hour long and were conducted by telephone. Audio from the interviews was only recorded with the parent/guardian's consent. The interviews that were recorded were subsequently transcribed by vendors who met UCSF's standards for HIPAA (Health Insurance Portability and Accountability Act) compliance and data security. After developing an initial set of codes, all transcripts and notes were analyzed using the qualitative software Dedoose. Using this software, two researchers on the UCSF evaluation team independently coded the interviews for salient themes, which are reported in the results section.

Key Informant Interview Analytic Methods

Recruitment: Key stakeholders were identified and recruited via websites of managed care plans and county public health departments, via CCS Advisory Group members, and via snowball sampling. Between October 2019 and May 2022, a total of 19 interviews were conducted with 21 key informants for the two DPs. The key informants included staff from each respective health plan as well as county CCS, public health department, and MTP staff. Key informants were not paid for participating.

Interview Questions: Qualitative interviews with key informants (KIs) were used to assess their perspectives on the DPs. They were asked a series of questions related to planning for, transitioning to, and implementing the DP. Topics covered

included perceived impacts of change in case management and care coordination, access to care, satisfaction with care, quality of care, and impacts on service delivery and reimbursement. Additional topics were also discussed as relevant to individual KIs. The complete interview guide can be found in Appendix J and Appendix P, "Key Informant Interview Guide (Rady Children's Hospital-San Diego)." A summary of prompts used to address key research areas are found in Table 8, below.

Table 7: Research Questions and Corresponding Question Prompts for Key Informant Interviews

Research Question	Question Prompts Used to Address Research Question
Q1. What is the impact of the CCS DP on client's access to CCS services?	• Do you think access to care has changed following the transition to the Demonstration Pilot? • How does it affect your ability to deliver high-quality care for your clients?
Q2. What is the impact of the CCS DP on client satisfaction?	• What do you think are the most beneficial aspects of this change to families?
Q3. What is the impact of the CCS DP on providers' satisfaction with the delivery of and the reimbursement of services?	• How do you think costs of care, payments, and/or reimbursements have changed, for providers and for families, since the transition?
Q4. What is the impact of the CCS DP on the quality of care received?	• Do you think the quality of care has changed following the transition to the Demonstration Pilot?
Q5. What is the impact of the CCS DP on care coordination?	• Did families/your clients receive any disruption to their services during the transition?
Q6. What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?	• How do you think costs of care, payments, and/or reimbursements have changed, for providers and for families, since the transition?

Analysis: All KIs verbally consented to participating before their interview began. Interviews were one hour long and conducted via Zoom. Audio from the interviews was recorded only with the KI's consent. The interviews that were recorded were subsequently transcribed by vendors who met UCSF's standards for HIPAA compliance and data security. If a KI did not consent to being recorded, detailed notes were taken by the interviewer or another member of the research team. After developing an initial set of codes, all transcripts and notes were analyzed using the qualitative software Dedoose. Using this software, two researchers on the UCSF evaluation team independently coded the interviews for

salient themes, which are reported in the results section. A full key informant interview report for HPSM and RCHSD can be found in Appendix Q, "HPSM KI Report," and Appendix R, "RCHSD KI Report."

Telephone Survey Analytic Methods

Recruitment Goal: The overall primary recruitment goal was to survey 2,000 parent/guardians from the CCS Demonstration Pilot or the Whole Child Model (as part of the SB 586 analysis) and 1,000 from classic counties to allow statistically significant comparisons between those CCS models. This report *does not* include any data or analysis for the WCM SB 586 evaluation. That report can be requested from DHCS directly. However, recruitment goals were jointly set for this 1115 Waiver Evaluation and the SB 586 Evaluation.

In addition, the secondary recruitment goal was to survey a sufficient number of parents/guardians from each of the CCS groups (as defined below) to allow for statistically significant comparisons between the groups.

Telephone Survey Development: The UCSF evaluation team developed telephone survey questions that would answer the key research questions listed earlier in this report. Telephone survey questions were developed from previously validated surveys that measured child health and family care for children with special healthcare needs. Development of the survey questions was also guided by the qualitative parent/guardian telephone interviews and key informant interviews. These tactics ensured that the UCSF evaluation team included each of the key survey domains as required for this evaluation. The domains that were ultimately developed and measured are listed below:
- Demographics
- Child's general health and functional status
- Healthcare use (primary care, specialty care, emergency room use, and hospitalization)
- Access to specialty care
- Access to prescription medication (and associated out-of-pocket costs)
- Access to behavioral healthcare
- Access to medical equipment and supplies (and associated out-of-pocket costs)
- Provider communication
- Transportation
- Care coordination and case management
- Transition to adult care services

- Household characteristics and employment status (including job loss and school missed)

After the survey was developed and approved in English — including review and insights from DHCS and the CCS Advisory Group — it was translated into Spanish. Both the English and Spanish-language surveys were then pretested to ensure comprehension and flow. Once those steps were completed, the survey telephone vendor pilot tested it. The full administered telephone survey instrument can be found in Appendix H, and with the questions broken down by domain, in Appendix I. Participants were paid $10 for completing the survey. The survey was approved by the California Institutional Review Board.

Power Analysis: The UCSF evaluation team determined that 376 completed surveys were needed from each CCS group to ensure statistically significant comparisons. The power analysis was set to identify a 10% proportional difference with a beta of .8 and alpha of .05.

Group Sample Sizes: The UCSF evaluation team assigned a target quota of 376 HPSM. However, an exception was made for the RCHSD DP. This is because in the RCHSD DP, only 262 people were eligible, so the target was set as 262 with an overall total of 638 from the DP pilots. The overall goal for the Classic CCS group was 1,000 completed surveys.

Original Sampling Methodology: The UCSF evaluation team determined that it was important to ensure that all counties in California were represented in the sampling plan. Thus, they selected the original sample of 3,054 potential participants. The original survey was a stratified sample by county to ensure that each county was adequately represented. For counties with small CCS populations, the floor was set at nine people in the sample per county, and for counties with fewer than nine enrollees, all enrollees were selected for the sample. Ultimately, however, when replacements were chosen, it was done at the group level rather than by county.

Replacement Sampling Methodology: A stratified random sample was used to select replacements for people in the original sample who had incorrect contact information or otherwise could not be reached. The survey vendor did not attempt to account for needed replacement sample within individual counties; replacement sampling was done instead at a group level. Due to the small sample numbers of enrollees, all members of the RCHSD DP were surveyed.

Actual Sample for Completion: A total of 1,446 completed the survey. (See Table 9.)

Table 8: Final CCS DP / Classic CCS Sample Size for Completed Telephone Surveys

CCS Group	# of Completed Surveys

HPSM DP	316
RCHSD DP	125
Classic CCS: Dependent Counties	283
Classic CCS: Independent Counties	722
Total	1,446

Survey Weights for Telephone Survey: To sample across the DP counties and Classic CCS county comparison groups, a stratified statewide sampling was generated. The details of the generation of the survey weights are provided in Appendix S, "Sample Weights Methods."

Analysis Plan and Variables Used for Each Telephone Survey Research Question: The analytic plan described below was used for all research questions.
- Frequency tables were created for each variable by healthcare delivery model being evaluated (MCP, ACO, and CCS). See Table 10 for survey variables by research question.
- Chi-squared or appropriate bivariate analysis was performed to identify differences among each of the healthcare delivery models and, where appropriate, comparisons with the Classic CCS counties.
- Logistic regression was conducted to assess which healthcare delivery system (MCP vs. ACO vs. Classic CCS) predicts better access to care, quality of care, or care coordination.
- Population-based constructed survey weights for all analyses testing significance were utilized.

In addition to the above-mentioned types of analyses, Research Question 6 (related to cost and econometrics) also used descriptive statistics to calculate which healthcare delivery model (MCP vs. ACO vs. Classic CCS) had more family cost burden due to work and school loss as well as out-of-pocket expenditures. This was determined using Bureau of Labor Statistics and survey salaries as well as national average childcare costs and mean survey responses from the telephone survey.

All analyses were conducted in SAS 9.4 (SAS Institute, Cary, NC) or STATA 16 (StataCorp, College Station, TX) using the appropriate survey weights constructed.

Table 9: Research Questions and Variables Used in Telephone Survey

Research Question	Variables Used
Q1. What is the impact of the CCS DP on client's access to CCS services?	**Medical Home / Primary Care** Q10.[38] Do you have one or more people you think of as [CHILD'S NAME]'s personal doctor or nurse? Q12. [Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since you switched to [NAME OF HEALTH PLAN], does [CHILD'S NAME] have the same primary care provider, or did you have to switch to a new primary care provider? Q14. In the past 6 months, how many times did your child visit their primary care provider or nurse? Q16. In the last 6 months, did [CHILD'S NAME] go to the emergency room, even if it was not an emergency, because it was too difficult to see another doctor? Q17. During the last 6 months, did [CHILD'S NAME] need a referral to see any doctors or receive any services? Q18. (If yes) How big of a problem was it to get referrals? Q19. Since the transition to [NAME OF HEALTH PLAN], has [CHILD'S NAME]'s ability to get authorizations for services been better, the same, or worse? **Specialty Care** Q21. Was [CHILD'S NAME] able to see the same specialists after enrolling in [NAME OF HEALTH PLAN]? Q25. In the last 6 months, how often was it easy to get appointments for [CHILD'S NAME] with specialists? Q27. Does [CHILD'S NAME] need any specialist services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? **Therapy Services** Q33. [DP only] Since the transition to [NAME OF HEALTH PLAN] did the site of [CHILD'S NAME]'s therapy change?

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[38] Question numbers (i.e., Q10, Q14) correspond to the question numbers on the telephone survey. The telephone survey, with questions organized by domain, can be found in Appendix D.

Research Question	Variables Used
	Q34. In the last 6 months, how often was it easy to get therapy services for [CHILD'S NAME]?
	Q36. Does [CHILD'S NAME] need any therapy services that he or she currently cannot get?
	Prescription Medication
	Q40. In the last 6 months, how often was it easy to get these prescription medications for [CHILD'S NAME]?
	Q41. In the past 6 months, did you delay or not get a prescription that a doctor prescribed?
	Q43. [Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since switching to [NAME OF HEALTH PLAN], can you go to the same pharmacy, or did you have to switch to a different pharmacy?
	Q44. Does [CHILD'S NAME] need any medications prescribed by a doctor that he or she currently cannot get?
	Behavioral Health
	Q48. In the last 6 months, how often was it easy to get this treatment or counseling for [CHILD'S NAME]?
	Q49. Does [CHILD'S NAME] need any behavioral or mental health services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]?
	Medical Equipment and Supplies
	Q53. In the last 6 months, how often was it easy to get special medical equipment or supplies (including repairs) for [CHILD'S NAME]?
	Q55. Does [CHILD'S NAME] need any medical equipment or supplies that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]?
	Communication
	Q61. [Only if interview conducted in a language other than English] In the last 6 months, if you or [CHILD'S NAME] needed a professional interpreter to help [CHILD'S NAME] speak with his or her doctor, how often did you get one?

Research Question	Variables Used
	Transportation Q64. How often is it easy to get transportation to [CHILD'S NAME]'s doctors or other healthcare providers? Q65. (If declined to answer Q62) How often is it easy to get transportation to [CHILD'S NAME]'s doctors or other healthcare providers? Q66. In the last six months, did [CHILD'S NAME] miss any schedule health or therapy appointments because of transportation problems?
Q2. What is the impact of the DP on the patient's and family's satisfaction?	Global Rating of Healthcare Q80. Overall, how satisfied are you with [NAME OF HEALTH PLAN / COUNTY CCS]? Q81. In the last 6 months, did you file an appeal, grievance, or complaint about [CHILD'S NAME]'s healthcare? Specialty Care Q26. How satisfied are you with the overall specialist services that [CHILD'S NAME] receives? Q27. Does [CHILD'S NAME] need any specialist services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? Therapy Services Q35. How satisfied are you with the therapy services that [CHILD'S NAME] receives? Medical Equipment and Supplies Q54. Overall, how satisfied are you with the medical equipment or supplies (including repairs) that [CHILD'S NAME] receives? Provider Communication Q59. Overall, how satisfied are you with the communication among [CHILD'S NAME]'s doctors and other healthcare providers?

Research Question	Variables Used
Q3. What is the impact of the CCS DP on providers' satisfaction with the delivery of and the reimbursement of services?	NA
Q4. What is the impact of the CCS DP on the quality of care received?	**Demonstration Pilot** Q7. Since the transition to [NAME OF HEALTH PLAN], has the quality of the health services that [CHILD'S NAME] receives been better, the same, or worse? **Medical Home / Primary Care** Q15. [DP only] Since the transition to [NAME OF HEALTH PLAN], have the primary care services that [CHILD'S NAME] receives been better, the same, or worse? **Specialty Care** Q29. [DP only] Since the transition to [NAME OF HEALTH PLAN], have the specialist services that [CHILD'S NAME] receives been better, the same, or worse? **Therapy Services** Q38. [DP only] Since the transition to [NAME OF HEALTH PLAN], have the therapy services that [CHILD'S NAME] receives been better, the same, or worse? **Behavioral Health Services** Q51. [Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the behavioral or mental health services that [CHILD'S NAME] receives been better, the same, or worse? **Medical Equipment and Supplies** Q57. [DP only] Since the transition to [NAME OF HEALTH PLAN], have the medical equipment and supplies that [CHILD'S NAME] receives been better, the same, or worse? **Transportation**

Research Question	Variables Used
	Q67. [DP only] Since the transition to [NAME OF HEALTH PLAN], has the transportation assistance that [CHILD'S NAME] receives (including the process of arranging transportation) been better, the same, or worse?
Q5. What is the impact of the CCS DP on care coordination?	Provider Communication Q60. In the past 6 months, was there ever a time when doctors ordered a medical test or procedure that you felt was unnecessary because the test had already been done? Care Coordination / Case Management Q71. During the past 6 months, how often did you get as much help as you wanted with arranging or coordinating [CHILD'S NAME]'s healthcare? Q72. [DP only] Since the transition to [NAME OF HEALTH PLAN], have the care coordination / case management services that [CHILD'S NAME] receives been better, the same, or worse? Q73. In the last 6 months, has your care coordinator / case manager helped you with any of the following things? Q74. Do you know how to contact your care coordinator / case manager? Q75. In the last 6 months, how often have you talked to or met with [CHILD'S NAME]'s care coordinator / case manager to discuss [CHILD'S NAME]'s healthcare or service needs? Q76. In the past 6 months, how often did the care coordinator / case manager demonstrate knowledge of important information related to [CHILD'S NAME]'s medical history? Q77. How satisfied are you with the care coordination / case management [CHILD'S NAME] received through [NAME OF HEALTH PLAN/COUNTY CCS]? Transition To Adult Services [12+] Q78. [Only children 12+] Did providers talk with you and/or [CHILD'S NAME] about the shift to adult healthcare providers?
Q6. What is the impact of the CCS DP on amounts	Child's General Health and Function Q4. [If age 5+] During the past 6 months, how many days of school did [CHILD'S NAME] miss because of illness?

Research Question	Variables Used
expended on CCS services, and the total cost of care?	Prescription Medicine Q42. Over the past 6 months, about how much did you pay out of pocket / per month for prescription medication ordered by your doctor? Medical Equipment and Supplies Q58. Over the past 6 months, about how much did you pay out of pocket / per month for medical equipment or supplies ordered by your doctor? Household Income and Work Status Q98. In a typical month over the last 6 months, how many days of work for pay per month did you miss due to your child's health condition? Q99. (Only if there are other income earners) How many hours of work for pay per month did all other income earners in your family lose due to your child's health condition? (Probe: Combine all hours missed by all income earners besides yourself.) Q100. Over the past 6 months, about how many hours per month do you spend on activities to arrange your child's healthcare, such as making appointments, paying bills, making calls, filling out forms, getting information, etc.?

Online Provider Survey Analytic Methods

Recruitment: The UCSF evaluation team collaborated with the Children's Specialty Care Coalition (CSCC) and the Advocacy & Management Group (AMG) to recruit for the online provider survey. CSCC emailed the board designee of each of its member medical groups with a short explanation of the purpose of the evaluation, a link to it, and a request to distribute it, as they saw fit, to their member physicians, administrators, pharmacists, and other clinical staff. CSCC subsequently sent a reminder email and also featured the announcement and link in its weekly newsletter, which goes to a broad consortium of physicians and administrators employed at their member medical groups and engaged in CSCC's work.

AMG also sent an email, with a short explanation of the purpose of the evaluation, a link to it, and a request to distribute it in three e-blasts, going to approximately 250 people each time. AMG also provided information about the survey,

including the link to it, in multiple tweets. AMG's membership includes many of the DME and medical supply providers that provide services to CCS clients.

Of note, while there was a broad sampling of providers, the collective pool of providers that contract with HPSM and RCHSD is small.

Recruitment and survey completion occurred between March 2022 and May 2022. All responses were anonymous. Respondents were not paid for participating.

Interview Questions: Closed-ended questions were used to assess providers' insights on how or if 13 specific services changed for clients in the DP since it began, how reimbursement compares to before the DP, how overall services provided to clients in the DP compares to FFS, what their primary role and employment setting is, what type of direct patient care they provide (if applicable), and their county. They were also provided an open-ended format to provide any additional comments. (See Appendix K.) All questions were used to address Research Question 3, "What is the impact of the CCS DP on provider satisfaction with the delivery of and the reimbursement of services?" A summary of questions can be found in Table 11, below.

Table 10: Summary of Questions Used in the Online Provider Survey

Questions in the Online Provider Survey
Do you and/or your practice provide care and/or services for CCS patients who are in the Demonstration Pilot?
Please indicate how you think the (13) services listed below have changed for children in the DP since it began. (Examples include case management / care coordination, mental health services, pharmacy formulary services, and overall timeliness of services.)
How does the overall reimbursement you/your organization receive from the DP compare to reimbursement from the fee-for-service CCS?
How do the overall services you/your organization provide to clients from the DP compare to those in Classic CCS?
Please share any comments about your experience with the DP.

Analysis Plan for the Provider Survey: Frequency tables were generated on the survey items for those who responded. All analyses were conducted using STATA 16 (StataCorp. 2019. *Stata Statistical Software: Release 16*. College Station, TX: StataCorp).

Administrative Claims Data Analytic Methods

Overview

The UCSF evaluation team used the following methods to analyze the claims data:

- Identified primary study groups (HPSM DP and RCHSD DP) and comparison county group for each DP. UCSF then generated propensity score–matched control groups from the Classic CCS comparison county/counties for each demonstration pilot (see below for details on propensity score matching).

- Generated frequency tables for the DPs and control county/counties for enrollment, deaths, and demographic characteristics (age, gender, CCS-qualifying condition, race/ethnicity, and language) for each DP and its respective comparison county/counties.

- Generated frequency tables to describe the demographic and CCS-qualifying condition characteristics of each DP and its respective propensity score–matched control group.

- Generated frequency tables for primary utilization measures (see Table 12 below for a list of variables used in the claims analysis by research question). The majority of measures were reported and analyzed per 1,000 member months unless otherwise specified.

- Compared outcomes pre-intervention between DP and propensity score–matched control group, post-intervention between DP and propensity score–matched control group, and pre- versus post-implementation for each DP and propensity score–matched group.

- Conducted Difference in Differences (DiD) regression analyses, or appropriate regression model for non-time-variant measures, for all primary health and utilization outcomes comparing the DP to the propensity score–matched control group. See Table 13, "Description of Measures Used in Regression Models and Statistical Testing," for the description of the regression models used in this report. Full details of the DiD analyses and full regression models can be found in Appendix T, "Statistical Models for Claims Analyses, for DiD Trend Testing, and Regression Models."

- All descriptive statistics and multivariable analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC) or STATA 16 (StataCorp, College Station, TX).

Details of Propensity Score Match Used to Compare the DPs to Classic CCS County Participants: The UCSF evaluation team performed propensity score matching to generate a case-matched comparison cohort from Classic CCS counties. This was done because the DPs were likely affected regionally in nature and likely varied in client demographics and other variables that may have made direct comparisons of the entire CCS non-pilot population problematic. Therefore, rather than comparing each DP with the entire Classic CCS county population, local counties were identified to

use as comparison cohorts. Further statistical matching was also performed to match by age, condition, language, ethnicity, and comorbidity scores. (Complete methodology is described in detail in Appendix G.) These counties shared similar location and population density as well as healthcare and specialty care resources with the counties to which they were being compared.

Based on the identified counties, the UCSF evaluation team then performed propensity score matching of clients within those counties to develop a comparison cohort. For the purpose of Difference in Differences analyses, the propensity score was based on age, gender, condition, disease severity, and functional limitation. This report focuses on the propensity score–matched control group when statistical comparisons were performed. The data appendix (Appendix U, "Supplementary Claims Data") contains data from the overall Classic CCS county comparison group.

Figure 2, below, shows the county matches that were chosen as comparison counties. The RCHSD DP had low enrollment, and there were therefore sufficient numbers of CCS clients not affiliated with DP to use in the comparison group. The full description of the development of the propensity score weights and variables used to generate the propensity scores can be found in Appendix G.

Figure 2: Map of Comparison Counties

HPSM DP (yellow);
Comparison Counties =
San Francisco and Santa
Clara (orange)

RCHSD DP (green);
Comparison County = San Diego
[non RCHSD population] (green)
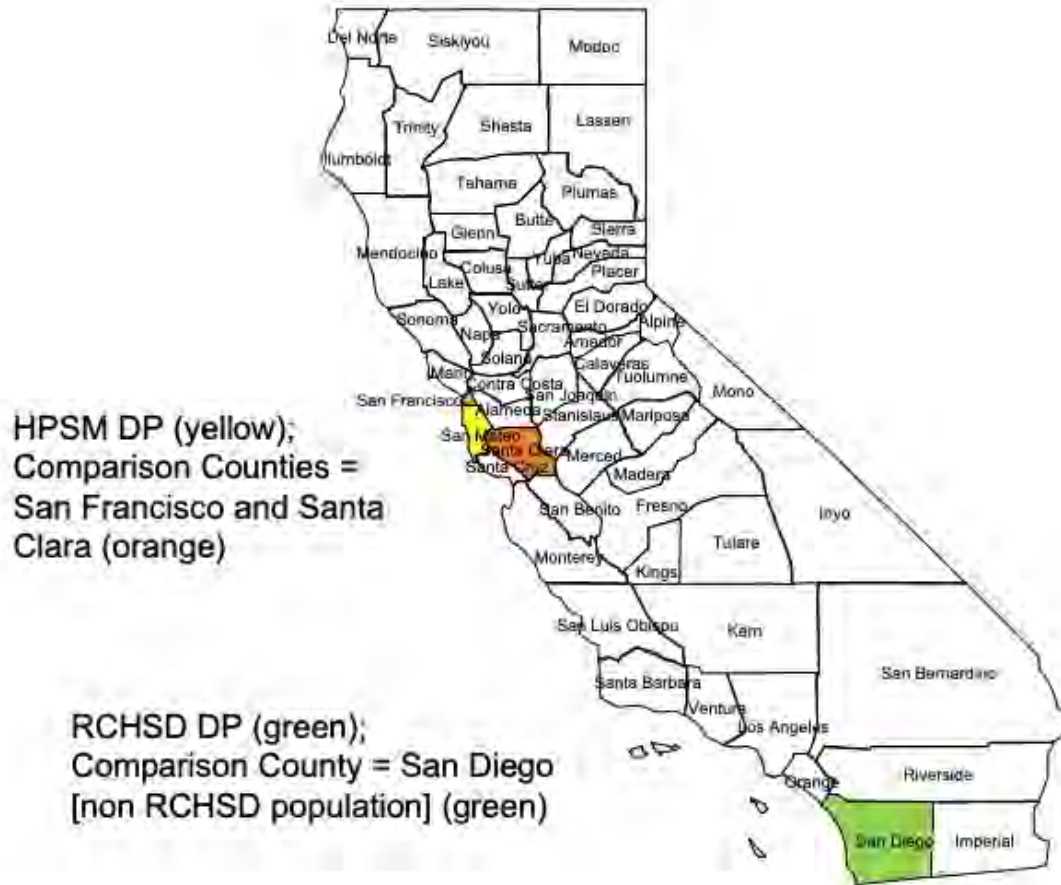
General tables and counts for total Classic CCS county populations presented in this report are based on the matching counties indicated above but are not propensity matched. Propensity score–matched comparisons were used for all analyses for comparisons between the DP and classic county comparison groups. Generally, all comparisons are with propensity score–matched groups, unless otherwise stated, such as in the general demographics section.

Table 11: Variables Used in the Claims Analysis, by Research Question

Research Question	Variables Reported

Q1. What is the impact of the CCS DP on client's access to CCS services?	Service Counts for physician use, supplies, and ancillary services:
	• Primary Care Visits
	• EPSDT/Well-Child Visit
	   • 0- to 15-month-old visits
	   • 0- to 30-month-old visits
	   • 3- to 6-year-old (yearly visit)
	   • 12- to 20-year-old (yearly visit)
	• Specialist Visits
	• CCS Paneled Provider (non–Special Care Center) Visits
	• Mental Health Low/Medium Visits
	• Mental Health High Visits
	• Depression Screening
	• Pharmacy Claims
	• Durable Medical Equipment (DME)
	• In-Home Supportive Services
	• Rehabilitation Claims

Q2. What is the impact of the CCS DP on client satisfaction?	• NA (assessed via family survey)
Q3. What is the impact of the CCS DP on providers' satisfaction with the delivery of and the reimbursement of services?	• NA (assessed via key informant interviews and provider survey)
Q4. What is the impact of the CCS DP on the quality of care received?	• HbA1c • Vaccination (childhood)

Research Question	Variables Reported
Q5. What is the impact of the CCS DP on care coordination?	• Case Management Claims Health outcomes potentially impacted by case management • Emergency Department Visits • Hospitalizations (all-cause) • Hospital Follow-Up (30-day) • Hospital Length of Stay • 30-Day Hospital Readmission • Special Care Center Visits • Being seen in a Special Care Center within 90 days of being referred.
Q6. What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?	Costs: • FFS costs, capitation costs (adjusted for pre-DP periods and unadjusted otherwise), and total costs = FFS cost + capitation costs Demographics: • Age, gender, ethnicity, language, CCS eligibility, diagnosis Effectiveness Outcomes: • 30-day rehospitalization, deaths, hospitalizations Risk/Severity Codes: • NBR_CDPS code (chronic illness disability payment system conditions), Children with Disabilities Algorithm (CWDA) disability

Research Question	Variables Reported
	indicator (children and disabilities algorithm) used for Classic CCS counties paid under managed care capitation
	Program/County Plan Codes: Same as previously described:
	• HPSM and RCHSD DP designated as two years pre- and post-transition to DP
	• Classic CCS counties matched (next door) for same time periods
	• Medi-Cal eligible, Medi-Cal and CCS Aid category, health plan, county, independent/dependent county, year, month

Description of Methods for Enrollment Characteristics and Death in Claims Data

Total and New Enrollments

The UCSF evaluation team was provided eligibility records for CCS enrollees from January 2011 through March 2018 for HPSM and from January 2016 through June 2021 for RCHSD. For clients who did not have an eligibility record in January 2011, the first record for a given client from February 2011 and onward was flagged as a new enrollment. It is common for a child to be enrolled in Classic CCS for a few months before being enrolled in a CCS DP. Therefore, analysis of new enrollees considers a child to have a new enrollment in a CCS DP if this child entered CCS within the prior three months of entry into the CCS DP.

Enrollment into the CCS Program

The UCSF evaluation team was provided data from CMSNet to evaluate referrals and denials into the CCS program. This evaluation describes the numbers of new referrals into DPs and their Classic CCS comparison groups.

Demographics and Study Population Characteristics

Pre- and post-demographics for these study groups were taken from the eligibility records exactly 12 months before and 12 months after the DP implementation. CCS conditions were generated from data from CMSNet. Age was calculated and

the health plan of enrollment was taken at these temporal points. County was taken from the county in which the client was enrolled. If the enrollment county was missing from the record, then the county of residence was used. Comparison counties in the enrollment tables show the propensity-matched demographics used for the analysis. The CCS-eligible conditions and Aid Codes are described. Appendix U shows enrollment numbers for the full Classic CCS comparison counties.

Deaths in CCS

The eligibility records are routinely populated with dates of death from the California State Registrar (the California Department of Public Health). These dates are used to identify deaths within the CCS population. The pre-to-post changes in the proportion of clients who died were calculated separately for the DP and its Classic CCS comparison group. These changes were expressed as a proportion of the clients in the pre-periods. A test of two proportions was employed to determine if the pre- and post-periods were statistically different.

Additional Administrative Claims Tables Not Shown in Main Report

This evaluation reports all enrollment, new enrollment, and death by month — and stratified by each DP and control county. In addition, breakdown of enrollment by Aid Code can be found in Appendix U.

Analytic Methods for the Statistical Models for Administrative Claims Analyses: Difference in Differences and Main Regressions Used in the Report

This section provides the results of the statistical modeling and testing of the outcome measures from the claims data calculated for this evaluation described above (Table 13). Descriptions of how each variable was constructed can be found in Appendix V, "Description and Operationalization of Utilization Measures for 1115 Waiver Report (methodology)." See Table 13 below for descriptions of the dependent and independent variables, covariates, and model parameters. More technical descriptions of the measure operationalization may be found in Appendix V.

Description of Study Groups in the DiD Analyses

The study population comprised four study groups:
- Pre-DP: Intervention group pre-DP implementation
- Post-DP: Intervention group post-DP implementation
- Classic Pre-DP: Classic comparison group pre-DP implementation
- Classic Post-DP: Classic comparison group post-DP implementation

Description of Comparisons

The comparisons of interest are:
- Pre-DP versus post-DP
- Classic pre-DP versus Classic post-DP
- Pre-DP versus Classic pre-DP
- Post-DP versus Classic post-DP
- The Difference in Differences — is the pre-to-post change among the intervention group statistically different than the pre-to-post change among the Classic CCS comparison group?

List of Outcome and Independent/Covariate Measures and Statistical Tests Used

Primary outcome variables (reported in descriptive tables and regression models)
- Case Management Claims
- CCS Paneled Provider Visits
- Deaths
- Durable Medical Equipment Claims
- Emergency Department Visits
- Emergency Department Visits that led to Hospitalization / Inpatient Stay
- Grievances
- Hospital Follow-Up (28-day)
- Hospital Readmission (all-cause 30-day)
- Hospitalizations
- In-Home Supportive Services
- Length of Hospital Stay
- Mental Health Visits
- New Enrollment into Health Plan and CCS
- Pharmacy Claims
- Primary Care Physician Visit

- Special Care Center Visit within 90 Days of Referral
- Specialist Visits
- Special Care Center Visits
- Vaccination (childhood)
- Well-Child Visits 15 months (models not performed for RCHSD DP due to small sample size)
- Well-Child Visits 30 months (models not performed for RCHSD DP due to small sample size)
- Well-Child Visits Age 3–6
- Well-Child Visits Age 12–20

Primary independent variables/covariates used in the regression models

Each model was run with each of the six possible covariates listed below. Covariates were removed if there was no statistical significance noted with that variable. The exception was with Language and Ethnicity, which were always kept in the model unless mentioned otherwise.

- **Chronic Illness and Disability Payment System[39] (CDPS) Score (CDPS_log2):** This variable was used to adjust for disease severity. The measure was log transformed due to skewed distribution of the variable.
- **Ethnicity (ethnic4):** The measure was categorized as Black, Latinx, Other/Unknown, and White. This variable was used to adjust for race and also evaluate impact of race on any associations found in the regression models.
- **Language (lang2):** This variable was categorized as Spanish, Other, and English. This variable was used to adjust for language and evaluate impact of language on outcomes.
- **Age Category (Age_Cat):** This variable was categorized as <12 Months, 1 Year, 2–6 Years, 7–11 Years, and 12–20 Years. This variable was used to adjust for age and to evaluate impact of age on outcomes.
- **Disability derived from the Children with Disabilities Algorithm:** The measure was coded as 0/1 (1 = no disability).[40] This variable was used to adjust for disability in children that may not have been captured with the CDPS score.

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[39] Richard Kronick et al., "Improving Health-Based Payment for Medicaid Beneficiaries: CDPS," *Health Care Financing Review* 21, no. 3 (2000): 29–64, https://hwsph.ucsd.edu/_files/research/CDPS-Paper.pdf.

[40] Alyna T. Chien et al., "Development of the Children with Disabilities Algorithm," *Pediatrics* 136, no. 4 (Oct. 2015): e871–8, https://doi.org/10.1542/peds.2015-0228.

- **Season:** Categorized as winter, spring, summer, fall. This measure was used to adjust for the potential impact of seasonal variation in healthcare use.

Table 12: Description of Measures Used in Regression Models and Statistical Testing

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Case Management	Although there is sometimes more than one case management claim/encounter per month, there were rarely more than 2. Thus, a 0/1 dichotomous variable was modeled. 1 = one or more ED visits in a given month, 0 = none.	Segmented regression repeated measures by month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2	Clients (repeated measure)
CCS Paneled Provider Visits	If there were any visits to a CCS Paneled Provider in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Deaths	Dichotomous 0/1 variable. 1 = died, 0 = did not.	Z-test of two proportions.	The unit of analysis is a month of enrollment.		

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Durable Medical Equipment (DME)	If there were any claim/encounters for DME provision in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat Gender CDPS_log2 CWDA	Clients (repeated measure)
ED Visits	Although there is sometimes more than 1 ED visit per month, there were rarely more than 2. Thus, a 0/1 dichotomous variable was modeled. 1 = one or more ED visits in a given month, 0 = none.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Hospital Admissions Originating in the ED	Hospital admissions originating in the ED.	Logistic regression. The interaction of Intervention group X Period was modeled to test DiD.	The unit of analysis is a hospital admission.	CWDA Ethnic5 Lang4 Age_Cat	
Grievances	Number of grievances per member month.	Logistic regression. The interaction of Intervention group X Period was modeled to test DiD.	The unit of analysis is a month of enrollment.		

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Hospital Readmission (all-cause 30-day)	Readmission to a hospital within 30 day of a hospital discharge.	Segmented regression repeated measures by month in which a discharge occurred. Dist = binary.	The unit of analysis is a hospital discharge.	Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Hospitaliza-tions	Although there is sometimes more than 1 inpatient stay per month, there were rarely more than 2. Thus, a 0/1 dichotomous variable was modeled. 1 = one or more inpatient stays in a given month, 0 = none.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2	Clients (repeated measure)
Hospital Length of Stay	Days in a hospital stay.	Negative binomial regression on count of days in the hospital stay.	The unit of analysis is a hospital admission.	CDPS_log2 Ethnic4 Lang3 Age_Cat	Clients (repeated measure)
In-Home Supportive Services	If there is an IHSS claim in a given month, there is rarely more than 1 or 2. IHSS is routinely billed in 15-day increments, and the number of days of service provision is not available in the MIS/DSS. Thus a 0/1 dichotomous variable was modeled. 1 = one or more IHSS claims in a given month, 0 = none.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Mental Health	This measure included any MH claim/encounter regardless of severity. If there were any MH claims/encounters in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
New Enrollment	Dichotomous 0/1 variable. 1 = newly enrolled into CCS, 0 = not.	Z-test of the difference of 2 proportions: pre-to-post change of the intervention group vs. pre-to-post change of the classic comparison group.	The unit of analysis is a month of enrollment.		
Pharmacy	If there were any claim/encounters for pharmacy provision in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of pharmacy items per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Primary Care Physician Visit	If there were any PCP visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Season Ethnic4 Lang2 Gender Age_Cat CDPS_log2	Clients (repeated measure)
Special Care Center Visit within 90 Days of Referral	If there were any SCC visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by in which a referral to an SCC occurred. Dist = negative binomial.	The unit of analysis is a referral to an SCC.	Season Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Specialist Visit	If there were any specialist visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Gender Age_Cat CDPS_log2	Clients (repeated measure)
Special Care Center Visits	If there were any SCC visits in a given month, it would not be uncommon to have 1, 2, 3, or more. Thus, counts of visits per month were modeled.	Segmented regression repeated measures by enrollment month. Dist = negative binomial.	The unit of analysis is a month of enrollment.	Ethnic4 Lang2 Age_Cat CDPS_log2 CWDA	Clients (repeated measure)
Childhood Vaccination/Immunization	Dichotomous 0/1 variable. 1 = full immunization schedule completed, 0 = not fully complete.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is a month a client turns age 2.	Ethnic4 Lang2	

Measure	Dependent Variable Notes	Model or Statistical Test	Model Notes	Level I Covariates	Level II Covariate
Well-Child Visits, 15 Months	Dichotomous 0/1 variable. 1 = 6 or more well-child visits by age 15 months, 0 = fewer than 6 visits.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is the month a client turns age 15 months.	Ethnic4 Lang2 CDPS_log2 (no covariates used for RCHSD DP)	
Well-Child Visits, 30 Months	Dichotomous 0/1 variable. 1 = 2 or more well-child visits between age 15 and 30 months, 0 = fewer than 2 visits.	Segmented regression repeated measures by enrollment month. Dist = binary.	The unit of analysis is the month a client turns age 30 months.	Ethnic4 Lang2 CDPS_log2 CWDA (no covariates used for RCHSD DP)	
Well-Child Visits, Age 3–6	Dichotomous 0/1 variable. 1 = annual well-child visit among clients age 3 to 6 years, 0 = no annual visit.	Logistic regression. The interaction of group X period was modeled to test DiD.	The unit of analysis is any year in which an enrolled client is between age 3 and 6.	Ethnic4 Lang2 CDPS_log2	
Well-Child Visits, Age 12–20	Dichotomous 0/1 variable. 1 = annual well-child visit among clients age 12 to 20 years, 0 = no annual visit.	Logistic regression. The interaction of group X period was modeled to test DiD.	The unit of analysis is any year in which an enrolled client is between age 12 and 20.	Ethnic4 Lang2 CDPS_log2 CWDA	

Model Description

Most of the following models include multiple observations per client over time and thus most utilize a multilevel design accounting for the within and between client correlation. Multilevel models increase a model's ability to detect differences between groups. However, the number of observations in most of these analyses are very large and thus easily detect statistically significant differences regardless.

Also, most of these models are segmented regressions, regressing the dependent variable by month separately for each study group. Other models were reduced to tests of the means among study groups. Table 13, "Description of Measures Used in Regression Models and Statistical Testing," identifies which model was employed for each measure. Regression models that have a *time-variant* covariate variable are run twice, first with time variant and then without. The model with a time variant provides analysis of trends, and the second model is used to compare means among study groups. Beyond the following results and analyses, details including beta coefficients may be found in Appendix T.

Segmented regressions were conducted using generalized estimating equations (GEE), logistic model for dichotomous outcomes, and negative binomial for count outcomes, to account for confounding and within-subject correlation (exchangeable correlation assumed). For outcomes that were binary, the logit link function was used in the SAS procedure Genmod. The UCSF evaluation team simultaneously estimated intercept and slopes for each group.

Using post-hoc estimate statements in SAS, the team estimated the "Difference in Differences" by first estimating the difference in the slopes of each group and for each time period. The team then compared the difference of those slopes between periods — that is, the adjusted outcome between post-intervention and pre-intervention. Adjusted odds ratios (AOR), and associated 95% confidence intervals, and two-tailed *p*-values were reported. Statistical analysis was performed in SAS 9.4.

For a DiD model to be valid, it is assumed that the pre-period slopes are parallel to each other. If not, one could suggest that the pre- to post-period differences could be due to a trend resulting from something other than the intervention. Such a model may not be entirely invalid, but the interpreter must use caution and discuss how trends might be affecting the results.

Analytic Methods for HbA1c and Depression Screening Clinical Outcomes[41]

HbA1c Analysis

Descriptive statistics were performed on demographic characteristics. A logistic regression model was generated for the primary dichotomous outcome of having HbA1c values >=8 (v. reference: <8) for both DPs and classic counties. To account for repeated measures, a generalized estimating equation (GEE) was generated using the binomial link for dichotomous outcomes. For numeric outcomes, the normal link was used.

For the RCHSD DP, a control group or classic group was included; this was not the case for the HPSM DP. Therefore, for the HPSM DP, unadjusted results presented include time; for the RCHSD DP, unadjusted results include time and group (RCHSD DP vs. Classic).

Models were adjusted to include potential confounders: age (years), gender, race, and language. Using a backward stepwise regression approach, the UCSF evaluation team removed any potential confounders that were not statistically significant. Two-sided *p*-values less than .05 were considered statistically significant.

The UCSF evaluation team presented the estimates (for dichotomous outcomes, odds ratios [OR]) and their associated 95% confidence intervals (CI) along with their *p*-value. The primary outcome, difference between Classic CCS and the RCHSD DP pre- versus post-DP implementation, or DiD was calculated from the model estimate statement in SAS 9.4.

For the HPSM DP, the difference between post- and pre- was also calculated using an estimate statement. The UCSF evaluation team calculated differences within post- and pre- between Classic CCS and the RCHSD DP. Separate analyses were performed for HPSM DP and RCHSD DP cohorts. For the RCHSD DP cohort, propensity score matching on groups was performed as outlined in the section on propensity scores, as described above (see Appendix G).

All the above models were generated using the SAS 9.4 procedure Genmod. For the continuous HbA1c outcome, linear mixed models (with random intercepts) were performed as a sensitivity analysis to compare to the results generated from GEE via proc mixed. The results were similar, and only the GEE results are presented.

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[41] Full methods and descriptions of variables can be found in Appendix O, "Clinical Data DiD Analysis Methods for HbA1c and Depression Screening (full methods report)."

Depression Screening Analysis

Depression screening reporting was different for HPSM and RCHSD. See Appendix W, "Clinical Data DiD Analysis Methods for HbA1c and Depression Screening (full methods report)," for full details. Descriptive statistics were performed on demographic characteristics. A logistic regression model was generated for the primary dichotomous outcome of having a depression screen (v. reference: no depression screen) for both HPSM and matched clients from the classic comparison described above. (See Appendix G for methodology for propensity score matching.)

The Classic CCS comparison was available for the HPSM DP but not for the RCHSD DP. To account for repeated measures, a GEE was generated using the binomial link for the dichotomous outcome: depression screening. Unadjusted results presented include the variable time (dichotomous: pre- vs. post-) or time and group (HPSM vs. Classic). Adjusted models included potential confounders: age (years), gender, race, and language. Using a backward stepwise regression approach, the UCSF evaluation team removed any potential confounders that were not statistically significant. Two-sided p-values less than .05 were considered statistically significant. The UCSF evaluation team presents the odds ratios (OR) and their associated 95% CI and p-value.

For the HPSM DP, the UCSF evaluation team calculated the primary endpoint, difference between groups: RCHSD DP (for PHQ screening) or HPSM versus Classic, during pre- and post-DP implementation periods. Otherwise, DiD refers to the difference between pre- and post- for RCHSD.

The DiD was calculated from the model estimate statement in SAS 9.4. Separate analyses were performed for each cohort: RCHSD DP and HPSM DP. All analyses were performed using the SAS 9.4 procedure Genmod.

Cost Data Analytic Methods

The UCSF evaluation team used the following methods to analyze the cost data:

- Conducted a cost analysis for HPSM and RCHSD, which described mean total healthcare costs by type of cost. The UCSF evaluation team also reported cost comparisons using DiD analysis and random effects regression using robust standard errors.
- Used cost-effectiveness outcomes to compare selected CCS care models with respect to differences in the ratio of total mean cost to two selected program outcomes: 30-day readmission avoided and life years saved.

Methodological Limitations

Strengths

- A strength of this evaluation is its mixed-methods approach. It triangulates qualitative data from key stakeholders and a probabilistic sampling of parents/guardians with survey results from parents, guardians, and providers and a quantitative analysis of claims and encounters augmented by fiscal information from the state and health plans. Therefore, the results of the evaluation include both subjective and objective data, which often will work together to triangulate experiences.

- The evaluation contains a link between survey data and claims/encounters, allowing the UCSF evaluation team to filter survey results by variables contained in the claims and encounters. As an example, the UCSF evaluation team was able to include measures of actual utilization and diagnosis type in survey results, when warranted. This had particular application to the cost analysis, as the telephone survey contained measures related to out-of-pocket costs for CCS families that could be used to apply discrete choice theory to the cost analysis.

- Although this evaluation is focused on CCS, it takes the approach of looking at CCS clients as a whole, rather than just at CCS services. That is, this evaluation looks at all services that a CCS client generally receives, including within Medi-Cal (e.g., EPSDT/well-child visit). Therefore, this analysis can comment on both the impact of the CCS DP on California healthcare in general as well as on the CCS program.

- The UCSF evaluation team employed sophisticated statistical techniques, propensity score matching, and a DiD design to determine impacts of the CCS DPs on healthcare utilization and costs. Propensity scores effectively "match" clients in the CCS DP and in Classic CCS counties based on region, county density, dependent versus independent county, race, gender, language spoken at home, and major CCS-qualifying category. Each propensity score was modeled separately, and the UCSF evaluation team was able to account for potential preexisting differences between the groups. These quasi-experimental methods are considered to be a gold standard in analyses of utilization. DiD analyses can accommodate temporal changes that may occur, such as a global pandemic.

- The UCSF evaluation team procured and analyzed data from many sources, including claims data from the MCP and ACO, administrative claims and encounters data from CCS, the FFS paid claims data set, vaccination data, annual revenue and expense reports, capitation amounts and utilization from Cost and Reimbursement Comparison Sheets, clinical data from the health plans, and primary data collected from surveys of families and providers.

Weaknesses

- The telephone survey with parents/guardians of children in CCS is cross-sectional. This means that it only occurred one time and can only be used to show associations, rather than causation, over time. For differences over time, the UCSF evaluation team used questions that asked respondents to think retrospectively about change, which may not be as accurate as repeating the survey several times — including at baseline before the pilot. In addition, it should be kept in mind that the HPSM DP began six years before the administration of the survey — making retrospective questions even more difficult to accurately answer. The interviews with key stakeholders present similar concerns in that recall before the DP may be limited or biased.

- Due to the difficulty of knowing which providers (i.e., clinicians, pharmacists, durable medical equipment vendors) actually worked with the DP programs and who knew that their clients/patients were served by the respective RCHSD and HPSM plans, finding the proper case base for the provider surveys proved difficult. During initial outreach with KIs, for example, clinicians were unaware of which insurance or coverage plan was responsible for any particular patient. The UCSF evaluation team therefore attempted to glean insight from providers that would have likely served RCHSD or HPSM clients by fielding an online survey. Two well-connected advocacy agencies in California disseminated it to a convenience sample, but very few providers from either of the DPs responded to it. In addition, this method likely led to response bias as well as missing out on learning from providers that may have knowledge of the DPs. Therefore, the UCSF evaluation team used the feedback as qualitative insights into how providers felt about the DPs. The UCSF evaluation team combined these findings with those from the KI interviews to comment on the general views of providers who served the two DPs.

- UCSF used an online survey methodology for physicians to try to reach as many potential providers for the provider survey. Online surveys also are well known to have lower response rates.[42] While the response rate was low, UCSF was able to receive data from a diverse provider pool.

- The UCSF evaluation team received clinical data from the RCHSD (the ACO) for HbA1c and depression screening but had to rely on claims data for these items from HPSM (the MCP). This reliance on claims data may have led to errors stemming from misclassification or misreporting. However, there is also weakness in relying on clinical data, as providers or other staff may have misclassified items during their reporting. The UCSF evaluation team did not have direct access to medical charts, so there was no way to corroborate that.

- Because UCSF does not have access to clinical records of all CCS clients, findings in claims data cannot be corroborated with clinical appropriateness.

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[42] David A. Cook et al., "Incentive and Reminder Strategies to Improve Response Rate for Internet-Based Physician Surveys: A Randomized Experiment," *Journal of Medical Internet Research* 18, no. 9 (Sept. 16, 2016): e244, https://doi.org/10.2196/jmir.6318.

- For analysis of acute care visits, visits codes did not allow UCSF to fully differentiate "acute care" primary care visits versus follow-up or other scheduled non-well-child visits. Therefore, UCSF reports total number of visits to primary care physicians as well as well-child visits to differentiate visits that may be acute care versus well-child / primary care visits.

- To evaluate the number of emergency department visits that led to hospitalization, UCSF was limited to HCAI patient discharge data claims rather than the ED file because if the ED encounter resulted in a same-hospital admission, the ED encounter would be combined with the inpatient record. A separate ED record would not be reported for that scenario. In addition, MIS/DSS also combines ED with hospitalizations, so direct measures of ED visits could not be performed. Instead, UCSF analyzed hospitalizations to report hospitalizations that originated from the ED.

- RCHSD implemented a new Medi-Cal population-specific health plan (PSP), established as part of its ACO. Because of this, they had very small numbers during initial recruitment, which may have caused unstable estimates in some low-frequency measures. While all data were used, the UCSF evaluation team notes that the early claims counts may not reliably reflect healthcare delivered.

- For the Classic CCS counties that were paid under capitation, payments specific to a CCS client weren't available. Instead, there were payments that were averaged across the whole capitation category that was coded for that client. This was the most accurate way to measure this, however, given the data provided. This limitation will not affect the pre- versus post- cost comparisons of making the transition to the DP program. It will also not affect the DiD comparisons.

- It was not possible to study children or youth who were CCS eligible during the evaluation period but had not entered into CCS, even if they were enrolled in either of the health plans affiliated with the DPs. This is because the UCSF evaluation team evaluated data only for children and youth who were actually enrolled in CCS. Therefore, UCSF cannot comment on potential CCS enrollees and limited the analysis to those in CCS.

- COVID-19 may have impacted counts and data. For example, trends for healthcare utilization changed markedly as a result of the global pandemic. The UCSF evaluation team adjusted for this, but even so, there may have been further impact than is currently known on CCS and CCS clients. In addition, each county in California responded to the pandemic in different ways, leading to differences in access to care, quality of care, and more. It would be exceedingly difficult for any evaluator to be able to account for each of the COVID-19 variances, and especially as they were occurring in real time as the evaluation was being conducted.

D. Results

Results are organized by two sections:

Section 1. Demographics and characteristics of the California Children's Services (CCS) study populations (enrollment, deaths, demographics, and CCS-eligible condition profile) and the description of the analytic comparison group developed through the propensity scores.

Section 2. Results of the evaluation, organized by research question.

Each of these sections begins with a brief summary of the topics and analysis covered.

Section 1. Results: Enrollment, New Enrollment, Deaths, and Demographic Profile of Classic CCS and Demonstration Projects

This evaluation describes enrollment patterns into Classic CCS and Demonstration Projects (DPs) by:
- Total enrollment by DP and Classic CCS counties (pre- and post-period, as well as enrollment over time)
- New CCS enrollment referrals into CCS (approved and denied), referrals, and deaths
- Enrollment by CCS Aid Code and qualifying medical condition
- Demographic characteristics (age, race/ethnicity, primary language spoken at home, and county), by DP and Classic CCS counties
- Description of propensity score–matched comparison groups with the DPs used in the analyses addressing research questions

Total Enrollment by DP and Classic CCS Counties (pre- versus post-period, as well as enrollment over time)

Total Enrollment

Table 14 and Table 15, below, show total aggregate enrollment counts for all years combined in the pre- versus post-period for Health Plan of San Mateo (HPSM) DP, Rady Children's Hospital-San Diego (RCHSD) DP, and the comparison

Classic CCS counties. These tables show the total study population counts being used as the analytic sample for the claims evaluation. Propensity score–matched Classic CCS clients were then generated from the population of Classic CCS county clients represented in the tables below. Note that all demographic characteristics that have counts by month are included in Appendix U.

Table 13: Counts of CCS Total Enrollees over the Study Period: HPSM DP and Classic CCS Counties, Pre- versus Post-HPSM DP Implementation

Location	Study Group	Clients	Total Member Months
HPSM DP	Pre-CCS DP	2,925	43,581
	Post-CCS DP	3,931	103,974
Classic CCS Counties	Pre-CCS DP Implementation	13,480	191,820
	Post-CCS DP Implementation	20,567	432,379

- Pre-DP: San Mateo CCS clients between April 2011 and March 2013.
- Post-DP: CCS clients in HPSM DP between April 2013 and March 2018.
- Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
- Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.

Table 14: Counts of CCS Total Enrollees over the Study Period: RCHSD DP and Classic CCS Counties, Pre- versus Post-RCHSD DP Implementation

Location	Study Group	Clients	Total Member Months
RCHSD DP	Pre-CCS DP	387	8,006
	Post-CCS DP	494	7,357
Classic CCS Counties	Pre-CCS DP Implementation	1,448	23,922
	Post-CCS DP Implementation	1,454	21,871

- Pre-DP were those who were enrolled in CCS between July 2016 and June 2021, and eventually enrolled in the RCHSD DP.
- Post-DP were CCS DP clients between July 2018 and June 2021.
- All clients in these study groups have a qualifying condition for enrollment in the RCHSD DP.
- Classic CCS Pre-DP: CCS clients in San Diego County between July 2016 and June 2018.
- Classic CCS Post-DP: CCS clients in San Diego County between July 2018 and June 2021.

Total Enrollment over Time

Figures 3, 4, 5, and 6 describe total enrollment over time.

Enrollment appeared stable across time in the HPSM DP. The RCHSD DP increased enrollment over the first six months of implementation before reaching a steady enrollment state.

The HPSM DP was first implemented in April 2013 and included 2,197 CCS clients in its first year. Between implementation and March 2018, monthly enrollment in the HPSM DP ranged from 1,571 to 1,805 per month. (See Appendix U for month-to-month enrollment counts.)

The RCHSD DP was an opt-in model for enrollment. That is, people in CCS in San Diego County were recruited into the RCHSD DP rather than assigned to the DP. As demonstrated in Figure 5, below, the RCHSD DP began enrollment in July 2018; it took the RCHSD DP approximately six months post-implementation to attain 328 clients. The RCHSD DP enrollment plateaued in early 2019 with a range of 343–378 clients served in any given month after January 1, 2019. (See Appendix U for month-to-month enrollment counts.)

No statistical testing was performed on CCS enrollment before and after implementation of either the RCHSD DP or HPSM DP because such comparisons are inherently biased. All CCS clients in San Mateo County before the implementation of the DP were assigned as members of the intervention group pre-DP. Some proportion of these were enrolled in HPSM and others in Classic CCS. In the post-period, all clients who enrolled in the DP were counted as post-DP clients; however, some portion of these clients remained in Classic CCS even after the implementation of the DP. Figure 3 shows that the CCS enrollees post-DP comprised both clients in the DP and Classic CCS. If a comparison were made of the number of San Mateo enrollees pre-DP to the post-DP (where only those enrolled in the DP were included), a significant pre-to-post decrease would be observed. No such built-in decrease was present in the Classic CCS counties. Thus, any comparisons of pre-to-post client enrollment between the HPSM DP and the Classic CCS clients would not be meaningful.

Statistical testing of the RCHSD DP enrollment comparisons also could not be done without bias. The RCHSD DP study group is a cohort where the pre-RCHSD clients comprised those who eventually enrolled in the DP. New clients could enter the DP in the post-period. Therefore, in the absence of material attrition (which was not observed), enrollment in the DP is expected to increase from the pre-DP baseline (which was observed). Furthermore, because the Classic CCS comparison population is the fee-for-service CCS enrollee in San Diego, and the RCHSD DP enrollees were drawn from the San Diego Classic CCS population, an inverse relationship in the DP and Classic CCS populations is inherent. All considered, any comparisons of client enrollment between the DP cohort and the Classic CCS clients would not be meaningful.

Figure 3: HPSM DP: Enrollment over Time
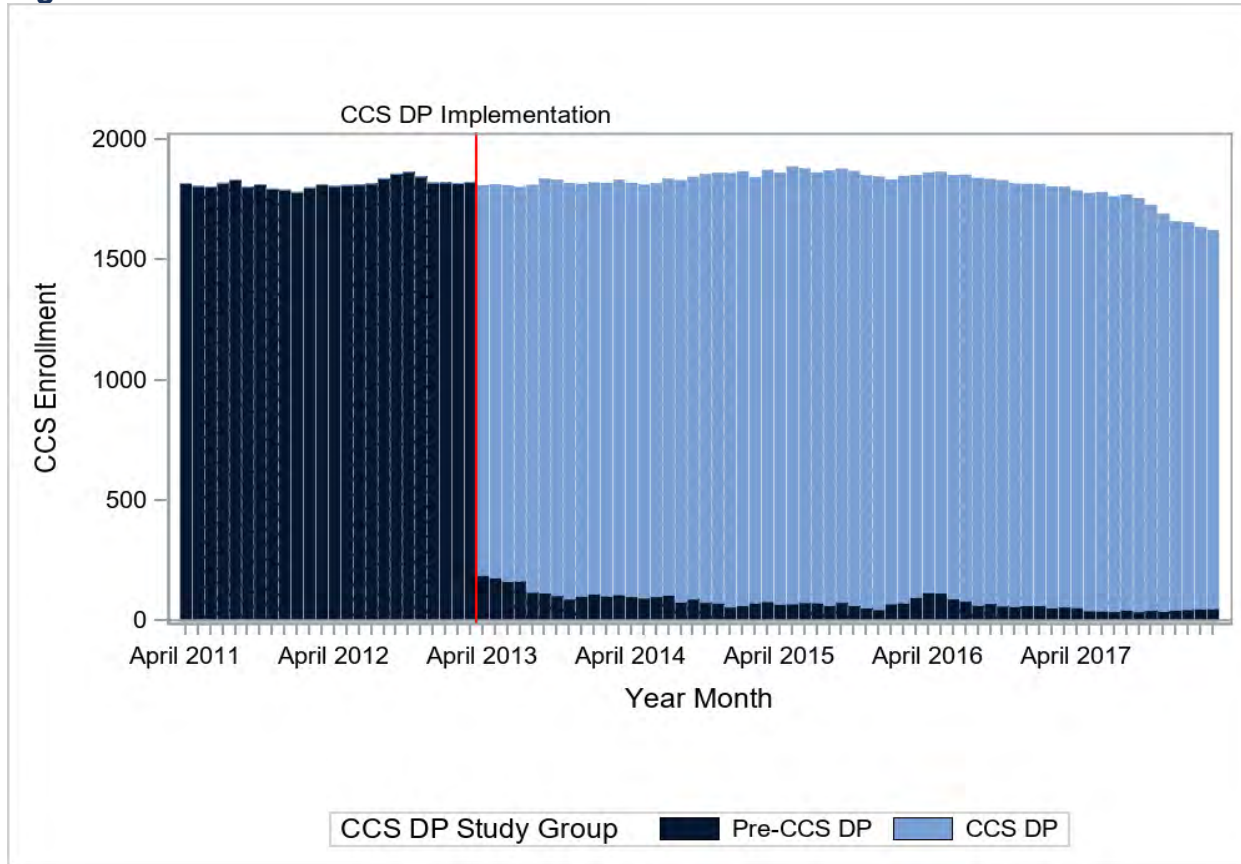
- Pre-DP: San Mateo CCS clients between April 2011 and March 2013.
- Post-DP: CCS clients in HPSM DP between April 2013 and March 2018.
- Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
- Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.
- 61% of the 1,280 San Mateo CCS clients in Classic CCS post-DP implementation eventually entered the HPSM DP.
- Those who eventually entered the HPSM DP spent an average of 3.0 months in Classic CCS before entering the HPSM DP.

Figure 4: HPSM DP: Classic CCS County Comparison, Enrollment over Time
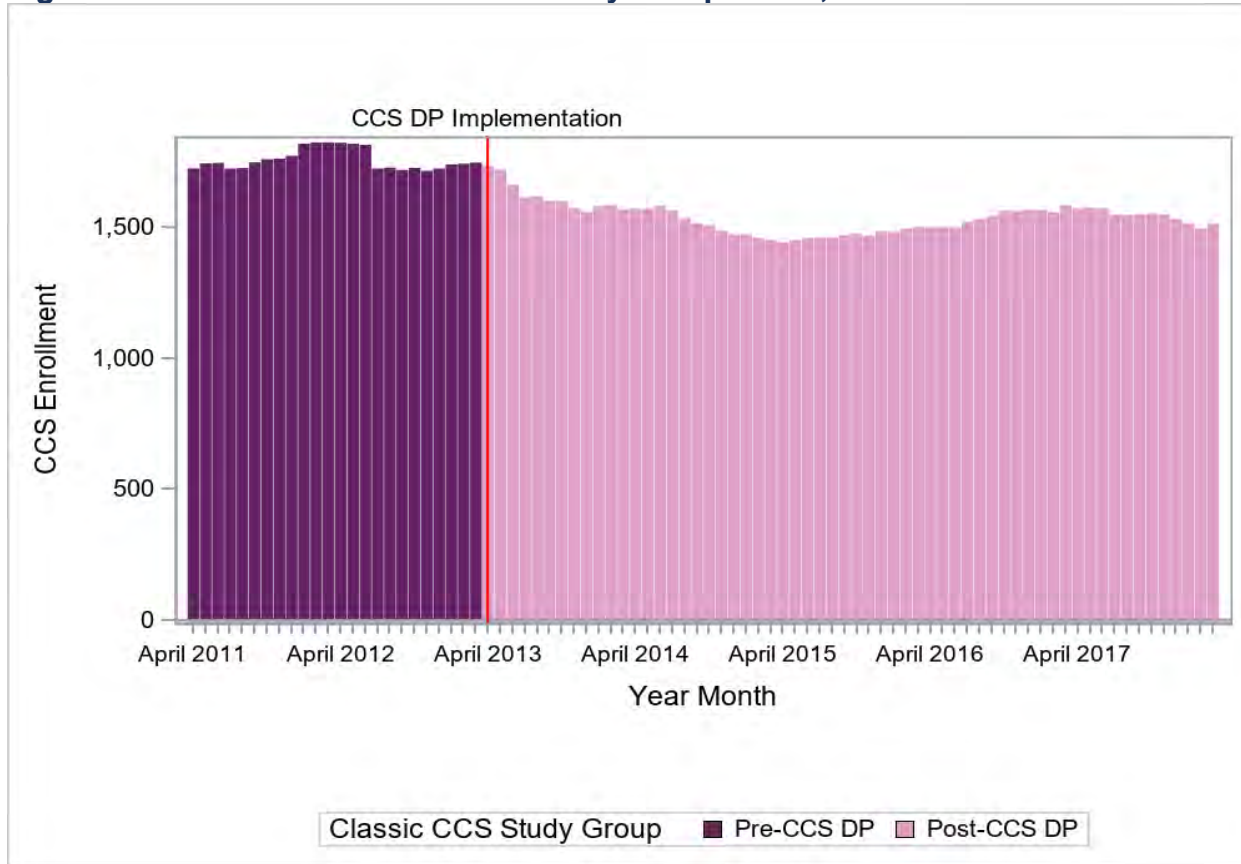
• Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
• Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.

Figure 5: RCHSD DP: Enrollment over Time
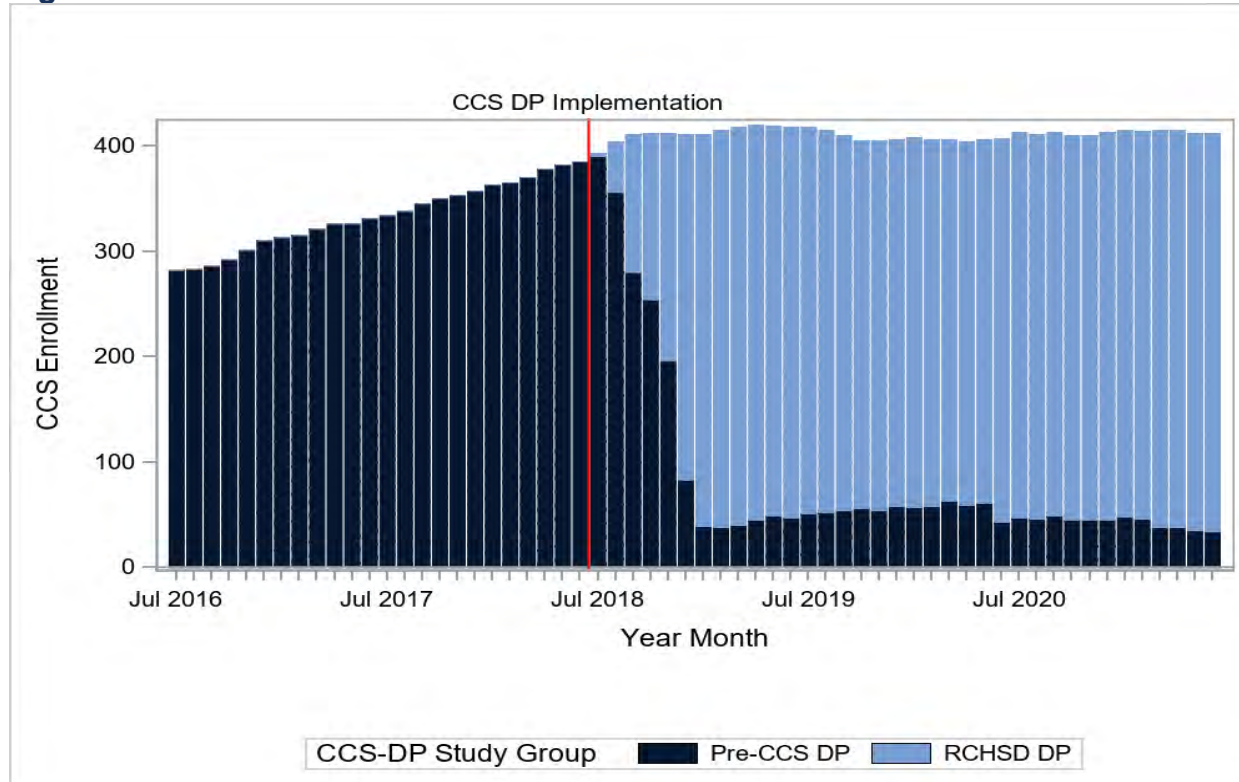
• Pre-DP were those enrolled in CCS between July 2016 and June 2021, and eventually enrolled in the RCHSD DP.
• Post-DP were CCS DP clients between July 2018 and June 2021.

Figure 6: RCHSD DP: Classic CCS County Comparison, Enrollment over Time
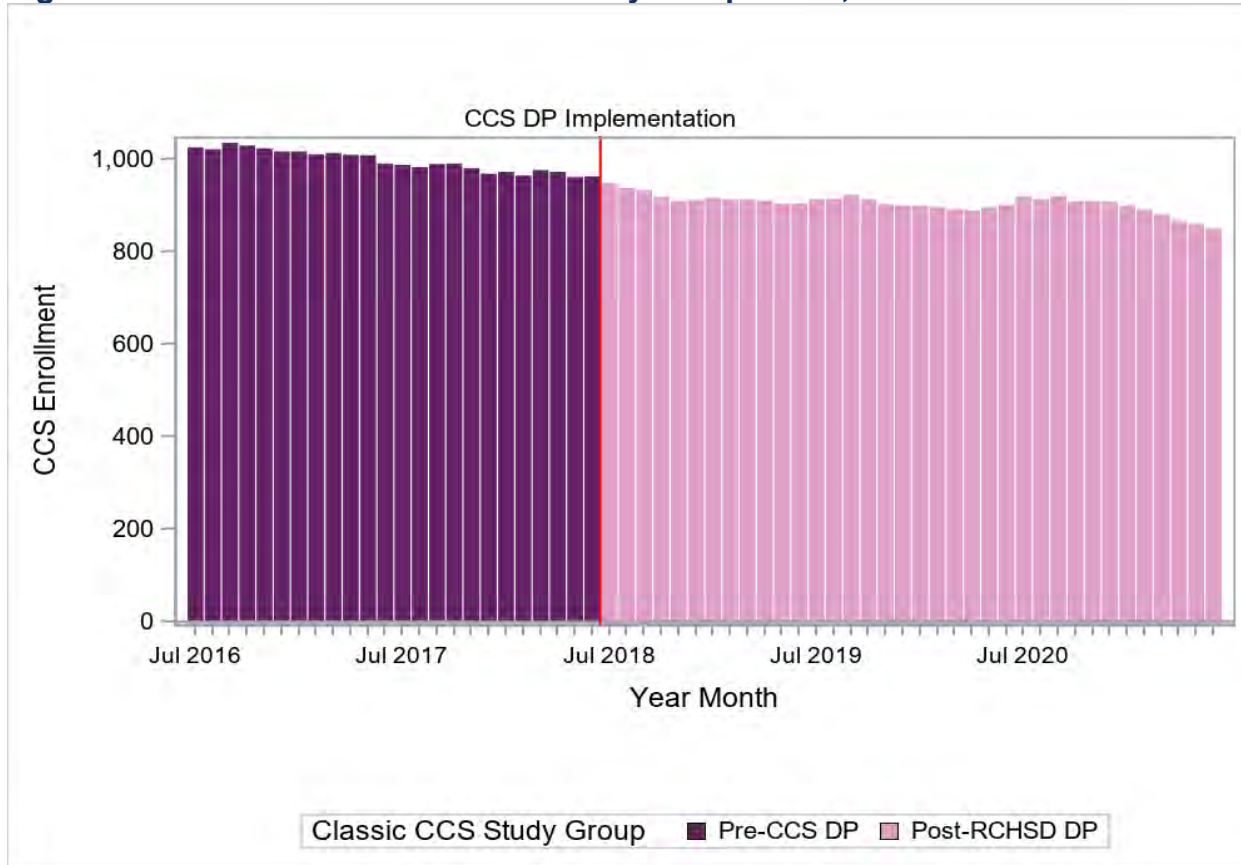
- Classic CCS Pre-DP: CCS clients in San Diego County between July 2016 and June 2018.
- Classic CCS Post-DP: CCS clients in San Diego County between July 2018 and June 2021.
- All clients in these study groups have a qualifying condition for enrollment in the RCHSD DP.

New CCS Enrollment Referrals into CCS (approved and denied), Denials, and Deaths

Enrollment Referrals and Denials

Figures 7 and 8 show the number of new CCS enrollees relative to the proportion of CCS total population, and Tables 16 and 17 describe new referrals into the CCS system (approvals and denials). In the HPSM DP, new enrollment had decreased 2.1-fold relative to Classic CCS counties. The DiD of pre-to-post changes is statistically significant, Z = 4.166, p = <.001.

As noted in the tables for new referrals into the HPSM DP, absolute referral numbers decreased in years 4 and 5 — and the rate of denials was actually lower. Therefore, the decrease seems to be driven by the numbers of referrals entering the HPSM DP. This decrease in absolute referrals into CCS could be due to decreases in numbers of children within San Mateo County.[43] Though comparison counties had mixed population changes (one comparison county was unchanged and the other down by 1.3%), this could potentially account for the change. This analysis is limited by being able to measure only those referred into CCS and not those CCS-eligible people who did not get referred into the HPSM DP. As such, the UCSF evaluation team cannot definitively answer why new enrollment had decreased in the HPSM DP and whether or not this was a problem.

Statistical testing was not performed upon the numbers of total referrals to the CCS program for either DP. To make fair comparisons, the number of referrals should be normalized by the number of enrolled clients. However, the number of enrolled clients is directly related to the number of referrals. As referrals increase so will enrollment, rendering the construction of valid referral raters invalid.

The number of new CCS enrollees entering the RCHSD DP were also low in the post-period. Unlike the HPSM DP where new enrollment in San Mateo County would be defaulted into the HPSM DP, RCHSD DP was an opt-in program. The pre-period for the RCHSD DP shows CCS clients who eventually entered the RCHSD DP. In the post-period, the decrease in new enrollment shown below is likely an effect of new CCS enrollees having an option of entering Classic CCS or the RCHSD DP.

Given the difference in ways to enter CCS in San Diego County (choice of Classic CCS or RCHSD DP) in both pre- and post-periods, the UCSF evaluation team did not perform statistical tests on RCHSD DP, as the difference is fundamentally

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[43] "Our Changing Population: San Mateo County, California," USAFacts, https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/state/california/county/san-mateo-county.

biased and not meaningful. This evaluation does show the figures and counts of new enrollment and enrollment into CCS to illustrate to the reader the enrollment patterns seen in the RCHSD DP and the comparison group from San Diego County. Figure 8 illustrates the high initial numbers of referrals into the CCS program at the beginning of the DP; this rate decreased progressively over time until the program was terminated at the end of 2021 (the third year of the DP).

Figure 7: Percentage of All CCS Clients Newly Enrolled into CCS: HPSM DP versus Classic CCS, by Years Pre- versus Post-HPSM DP Implementation
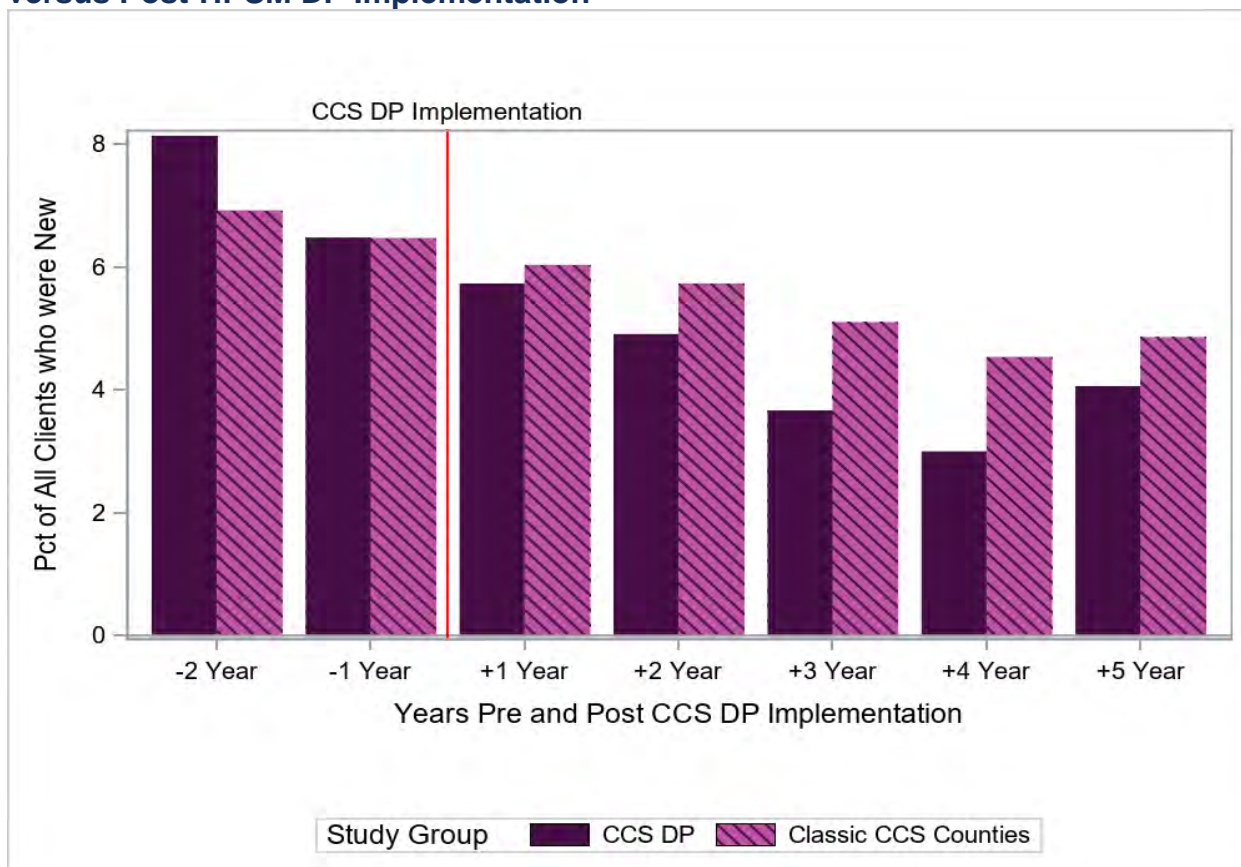
- Pre-DP: San Mateo CCS clients between April 2011 and March 2013.
- Post-DP: CCS clients in HPSM DP between April 2013 and March 2018.
- Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
- Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.

Figure 8: Percentage of All CCS Clients Newly Referred to CCS: RCHSD DP versus Classic CCS, by Years Pre-versus Post-RCHSD DP Implementation
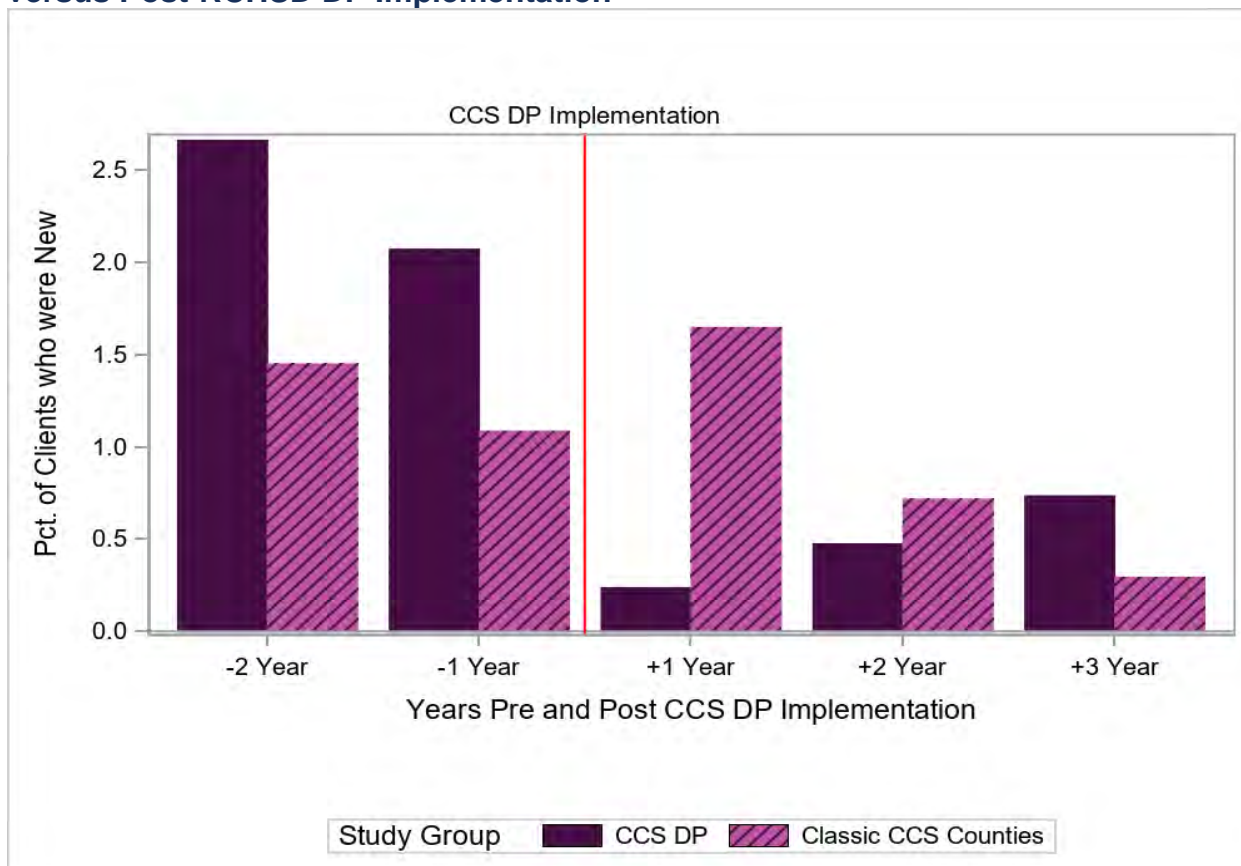
- Pre-DP were those enrolled in CCS between July 2016 and June 2018, and eventually enrolled in the RCHSD DP.
- Post-DP were RCHSD DP clients between July 2018 and June 2021.
- All clients in these study groups have a qualifying condition for enrollment in the RCHSD DP.
- Classic CCS Pre-DP: CCS clients in San Diego County between July 2016 and June 2018.
- Classic CCS Post-DP: CCS clients in San Diego County between July 2018 and June 2021.

Table 15: CCS New Referrals and Denials: HPSM DP versus Classic CCS, by Years Pre- versus Post-HPSM DP Implementation

Study Group	Years Pre- vs. Post-HPSM DP Implementation	Referred	Denied	Percentage Denied
HPSM DP	-1 Year	537	148	27.6
	+1 Year	724	267	36.9
	+2 Year	675	239	35.4
	+3 Year	651	210	32.3
	+4 Year	523	144	27.5
	+5 Year	479	118	24.6
Classic CCS Counties	-1 Year	3,645	1,591	43.6
	+1 Year	3,376	1,192	35.3
	+2 Year	2,687	692	25.8
	+3 Year	3,175	1,026	32.3
	+4 Year	3,937	1,474	37.4
	+5 Year	4,161	1,789	43.0

Table 16: CCS New Referrals and Denials: RCHSD DP versus Classic CCS, by Years Pre- versus Post-RCHSD DP Implementation

Study Group	Years Pre- vs. Post-RCHSD DP Implementation	Referred	Denied	Percentage Denied
RCHSD DP	-2 Year	77	0	0.0
	-1 Year	60	0	0.0
	+1 Year	65	0	0.0
	+2 Year	43	0	0.0
	+3 Year	25	0	0.0
Classic CCS Counties	-2 Year	240	0	0.0
	-1 Year	212	0	0.0
	+1 Year	176	1	0.6
	+2 Year	184	2	1.1
	+3 Year	108	2	1.9

Deaths

Figures 9 and 10, below, show death rates per year per DP. Absolute death counts per month can be found in Appendix U. The figures show there are very few deaths across both Classic CCS counties and CCS DP counties. In the HPSM DP, there were no statistically significant differences in death pre- versus post- compared to Classic CCS counties in the HPSM DP. (DiD of pre-to-post $Z = 0.731$, $p = .606$.)

In the RCHSD DP, enrollment was based on an opt-in method, and the pre-group was made up of clients who were in CCS but joined the RCHSD DP after implementation. Therefore, there are no deaths in the pre-period (as deceased children could not be enrolled into the health plan), and therefore a DiD comparison could not be performed. Figure 10 does show that the death rate appears to be lower than in Classic CCS, but the UCSF evaluation team cautions against any interpretation of this finding given the low counts.

There were exceedingly low numbers of deaths in the RCHSD DP and Classic CCS counties (two members). Due to the opt-in process for the program, comparing the rates of death in the RCHSD DP program versus Classic CCS program would likely be biased. In addition, given the exceedingly low death counts, the UCSF evaluation team was unable to model death to account for potential confounders (i.e., illness severity, age, condition) to provide any estimates of difference in death rate between the RCHSD DP and Classic CCS groups.

Overall death rates are low, and in the HPSM DP, death rates were unchanged as compared to the Classic CCS group.

Figure 9: Percentage of Deaths in HPSM DP versus Classic CCS Comparison Counties, by Years Pre- versus Post-HPSM DP Implementation
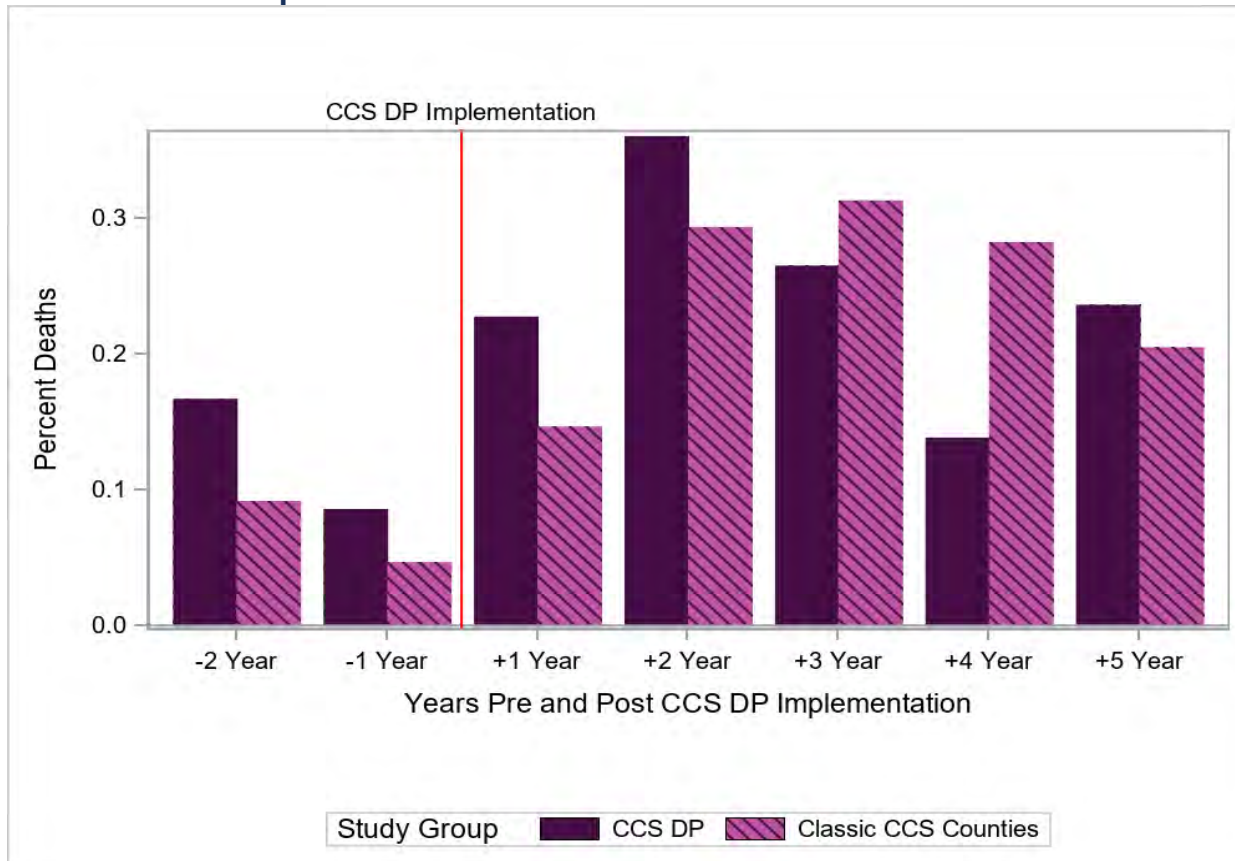
- Pre-DP: San Mateo CCS clients between April 2011 and March 2013.
- Post-DP: HPSM DP clients between April 2013 and March 2018.
- Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
- Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.

Figure 10: Percentage of Deaths in RCHSD DP versus Classic CCS Comparison Counties, by Years Pre- versus Post-RCHSD DP Implementation

- Pre-DP were those enrolled in CCS between July 2016 and June 2018, and eventually enrolled in the RCHSD DP.
- Post-DP were RCHSD DP clients between July 2018 and June 2021.
- All clients in these study groups have a qualifying condition for enrollment in the RCHSD DP.
- Classic CCS Pre-DP: CCS clients in San Diego County between July 2016 and June 2018.
- Classic CCS Post-DP: CCS clients in San Diego County between July 2018 and June 2021.

Enrollment by CCS Aid Code and CCS-Qualifying Medical Condition

Being Medicaid/Medi-Cal eligible and having a CCS-qualifying condition is not the only way to qualify and enter the CCS program. Having a Medical Therapy Unit–only need (physical therapy or occupational therapy) can qualify a person for services. Having a family income too high to qualify for Medicaid/Medi-Cal can also allow one to become CCS eligible because of the diagnosis itself, or if the cost of treating the underlying condition is more than 20% of the family's adjusted gross income.[44,45] In this section, the UCSF evaluation team describes both the fiscal eligibility and condition eligibility of the DP and the Classic CCS comparison counties.

In both the HPSM DP and RCHSD DP, the majority of clients (76% or more) were enrolled under Aid Code 9N (CCS and full-scope Medi-Cal). (See Appendix U for a full breakdown of Aid Codes.) This indicated that the vast majority of those in the DPs and Classic CCS comparison groups had both income eligibility and disease eligibility.

Tables 18 and 19, below, show the breakdown of CCS-eligible conditions categories served in the DP and classic counties in both pre- and post-DP periods. In the pre-DP period, high rates of clients did not have an eligibility diagnosis listed in CMSNet.[46] HPSM and Classic CCS county comparison groups were similar, differing only in prevalence of any condition by a few percent. Classic CCS counties had slightly higher rates of accidents and congenital conditions as compared to the HPSM DP.

The RCHSD DP differed from the HPSM DP, as the RCHSD DP served only one of five conditions. RCHSD DP condition distribution was different than the general CCS San Diego comparison population. There was a higher proportion of acute lymphocytic leukemia, hemophilia, and sickle cell disease clients and a lower rate of clients with diabetes — as would be expected by the distribution of conditions in the general Classic CCS county population. This implies that there was differential enrollment by condition, given this was an opt-in process and so people with some conditions were more successful in enrolling into RCHSD DP than others.

Because of the differences in prevalence of disease seen in both the HPSM DP and the RCHSD DP as compared to their Classic CCS comparison groups, propensity score matching using general CCS-qualifying conditions (and the five

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[44] *Information about California Children's Services (CCS)*, DHCS, April 2017, www.dhcs.ca.gov/formsandpubs/forms/Forms/ChildMedSvcForms/dhcs4480.pdf.

[45] "Find Out If I Qualify," DHCS, last modified March 22, 2019, www.dhcs.ca.gov/services/ccs/Pages/qualify.aspx.

[46] "Overview of CCS Medical Eligibility," DHCS, last modified March 23, 2021, www.dhcs.ca.gov/services/ccs/Pages/medicaleligibility.aspx.

RCHSD DP conditions) was performed to generate a balanced comparison group in the DiD analyses found later in this evaluation.

Table 17: HPSM DP and Classic CCS Counties: Enrollment by CCS-Qualifying Condition, Pre- versus Post-HPSM DP Implementation

	HPSM DP		Classic CCS Counties	
Diagnosis	**% Pre (_n_ = 2,925)**	**% Post (_n_ = 3,931)**	**% Pre (_n_ = 13,480)**	**% Post (_n_ = 20,567)**
Accident	3.2	7.6	5.5	12.9
Circulatory	1.3	3.1	2.2	4.6
Congenital	6.1	14.2	7.9	16.6
Dermatology	0.2	0.5	0.2	0.8
Endocrine-Metabolic-Immune	2.4	7.0	2.3	6.4
GI	3.1	4.0	2.8	3.7
Genitourinary	1.3	2.8	1.6	3.5
Heme	0.9	1.7	1.0	2.2
Infectious Disease	0.3	0.7	0.3	0.8
Mental Health	0.4	2.2	0.5	1.9
Musculoskeletal	3.2	9.4	2.7	6.3
NICU (neonatal ICU)	7.6	13.3	6.5	12.1
Neoplasm	1.0	2.8	1.1	2.8
Neuro	2.3	7.1	2.2	5.3
Ophthalmological	1.7	4.3	3.0	6.9
Other	1.2	1.6	1.1	2.2
Otolaryngological	1.9	7.4	1.4	6.4
Pregnancy	0.0	0.1	0.0	0.1
Respiratory	1.3	3.0	1.5	3.3
Undiagnosed	71.3	38.9	69.8	33.7

- Pre-DP: San Mateo CCS clients between April 2011 and March 2013.
- Post-DP: CCS clients in CCS DP between April 2013 and March 2018.
- Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
- Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.

Table 18: RCHSD DP and Classic CCS Counties: Enrollment by CCS-Qualifying Condition, Pre- versus Post-RCHSD DP Implementation

Diagnosis	RCHSD DP		Classic CCS Counties	
	% Pre (*n* = 387)	% Post (*n* = 494)	% Pre (*n* = 1,448)	% Post (*n* = 1,454)
Acute Lymphoid Leukemia	35.9	34.2	11.6	11.5
Cystic Fibrosis	10.6	9.1	3.6	3.8
Diabetes	30.0	33.0	77.7	79.0
Hemophilia	11.4	10.1	3.9	3.4
Sickle Cell Disease	14.5	14.6	4.7	3.9

- Pre-DP were those enrolled in CCS between July 2016 and June 2018, and eventually enrolled in the RCHSD DP.
- Post-DP were CCS DP clients between July 2018 and June 2021.
- Classic CCS Pre-DP: CCS clients in San Diego County between July 2016 and June 2018.
- Classic CCS Post-DP: CCS clients in San Diego County between July 2018 and June 2021.
- All clients in these study groups have a qualifying condition for enrollment in the RCHSD DP.

Demographic Characteristics (gender, age, race/ethnicity, primary language spoken at home, and county) by DP / Classic CCS Counties for Total and New Enrollment

Total Enrollment Stratified by Demographic Characteristics (tables)

Tables 20 and 21, below, show the overall demographic characteristics by gender, age, ethnicity, primary language spoken at home, and county. Looking at the implementation period, statistically significant differences exist between DPs and Classic CCS counties in certain categories. Specifically, for the HPSM DP, there was a difference in distribution for age, ethnicity, and language spoken at home. The HPSM DP served more Latinx, 6- to 11-year-old, and Spanish-speaking clients than their Classic CCS county counterparts in the post-implementation phase.

For the RCHSD DP, demographic characteristics varied on age and racial distribution, with much higher distribution of 6- to 11-year-olds. The increase in this age group may be due to clients with diabetes being limited to those up to age 10. The RCHSD DP also served a higher proportion of Black clients relative to the comparative Classic CCS county population, but this is likely due to RCHSD DP having enrolled a higher proportion of patients with sickle cell disease (predominantly found in the Black population) as compared to the numbers in the Classic CCS county. No significant

difference were found between gender and language spoken at home between the RCHSD DP and classic counties post-implementation. Due to differences in demographic characteristics, propensity score matching was performed to account for differences as well as controlling for these factors in later regression models (discussed below).

Table 19: Demographics: HPSM DP Pre- versus Post-CCS DP* versus Classic CCS Counties

Dimension	HPSM DP Pre-		HPSM DP Post-		Classic CCS Pre-		Classic CCS Post-		P-value† for post-period between HPSM DP and Classic CCS
	n	Pct	n	Pct	n	Pct	n	Pct	
N	1,805		1,717		8,204		7,202		
Female	833	46.1	794	46.2	3,771	46.0	3,339	46.4	
Male	972	53.9	923	53.8	4,433	54.0	3,863	53.6	.936
Age									
Average Age	*8.9*		*9.1*		*9.0*		*9.2*		
<12 Months	167	9.3	109	6.3	641	7.8	567	7.9	
1 Year	132	7.3	115	6.7	617	7.5	523	7.3	
2–6	455	25.2	453	26.4	2,153	26.2	1,728	24.0	.008
7–11	359	19.9	391	22.8	1,605	19.6	1,478	20.5	
12–20	692	38.3	649	37.8	3,188	38.9	2,906	40.3	
Ethnicity									
Alaskan Native / American Indian	3	0.2	2	0.1	15	0.2	22	0.3	
Asian/PI	75	4.2	53	3.1	183	2.2	160	2.2	
Black	70	3.9	45	2.6	487	5.9	372	5.2	
Latinx	948	52.5	908	52.9	3,995	48.7	3,405	47.3	<.0001
White	206	11.4	195	11.4	735	9.0	694	9.6	
Other/Unknown	503	27.9	514	29.9	2,789	34.0	2,549	35.4	
Primary Language									
Asian Language	32	1.8	28	1.6	1,010	12.3	920	12.8	
English	884	49.0	809	47.1	3,967	48.4	3,542	49.2	<.0001
Spanish	864	47.9	857	49.9	3,064	37.3	2,598	36.1	
Other/Unknown	25	1.4	23	1.3	163	2.0	142	2.0	

Dimension	HPSM DP Pre-		HPSM DP Post-		Classic CCS Pre-		Classic CCS Post-		P-value† for post-period between HPSM DP and Classic CCS
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct	
County									
San Francisco					1,879	22.9	1,738	24.1	NA
San Mateo	1,805	100.0	1,717	100.0					
Santa Clara					6,325	77.1	5,464	75.9	

*Pre- versus post-DP is a month and a year before the implementation, and another month and year after the implementation.
†P-values calculated using chi-square in calculating race; Alaskan Native was merged with "Other."

Table 20: Demographics: RCHSD DP Pre- versus Post-CCS DP* versus Classic CCS Counties

Dimension	RCHSD DP Pre-		RCHSD DP Post-		Classic CCS Pre-		Classic CCS Post-		P-value† for post-period between RCHSD DP and Classic CCS
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct	
N	334		367		988		915		
Female	148	44.3	164	44.7	467	47.3	429	46.9	
Male	186	55.7	203	55.3	521	52.7	486	53.1	.4754
Age									
Average Age	*9.0*		*10.1*		*14.0*		*14.5*		
<12 Mos.	6	1.8	3	0.8	11	1.1	11	1.2	
1 Year	5	1.5	4	1.1	11	1.1	7	0.8	<.0001
2–6	93	27.8	71	19.3	75	7.6	61	6.7	
7–11	139	41.6	164	44.7	148	15.0	108	11.8	
12–20	91	27.2	125	34.1	743	75.2	728	79.6	
Ethnicity									
Alaskan Native / American Indian					6	0.6	3	0.3	<.0001
Asian/PI	1	0.3	2	0.5	8	0.8	1	0.1	
Black	46	13.8	51	13.9	56	5.7	67	7.3	
Latinx	149	44.6	184	50.1	447	45.2	447	48.9	

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Dimension	RCHSD DP Pre-		RCHSD DP Post-		Classic CCS Pre-		Classic CCS Post-		P-value† for post-period between RCHSD DP and Classic CCS
	n	Pct	n	Pct	n	Pct	n	Pct	
White	39	11.7	45	12.3	196	19.8	175	19.1	
Other/Unknown	99	29.6	85	23.2	275	27.8	222	24.3	
Primary Language									
Asian Language	2	0.6	3	0.8	13	1.3	17	1.9	.319
English	200	59.9	229	62.4	654	66.2	600	65.6	
Spanish	114	34.1	117	31.9	275	27.8	257	28.1	
Other/Unknown	18	5.4	18	4.9	46	4.7	41	4.5	
County									
San Diego	334	100.0	367	100.0	988	100.0	915	100.0	NA

*Pre- versus post-DP is a month and a year before the implementation, and another month and year after the implementation.

†P-values were generated using either Fisher's exact test or chi-square. For ethnicity, Alaskan Native was merged with "Other."

Total Enrollment and New Enrollment per Year, Stratified by Age (figures)

Figures 11, 12, 13, and 14, below, show the stratification of total enrollment and new enrollment by age.

For total enrollment, comparing between HPSM DP and Classic CCS counties, age groups did not differ by more than 1%–2%. Both the HPSM DP and Classic CCS counties had decreasing proportions of children under age one, which was more pronounced in the HPSM DP.

The RCHSD DP had an opt-in process, and those who decided to enroll in the RCHSD DP were younger than the Classic CCS comparison county group. The UCSF evaluation team did not put an age cap on clients with diabetes in the control counties, whereas enrollment into the DP had an initial age cap of 10 for children with diabetes. Thus the differences seen here are likely due to enrollment methods rather than fundamental differences in population. Again, propensity score matching accounted for this difference in Classic CCS counties and RCHSD DP for the analytic sample.

For new enrollment, there was a monotonic decrease in new enrollment in the HPSM DP. The decrease in new enrollment, as discussed above, was statistically significant. The decrease in new enrollment numbers was seen across all age groups, and there was a greater decrease in enrollment in adolescents and in children under age one. This is also seen in the Classic CCS comparison groups. Again, it is unclear if the reason for the decrease in new infant enrollment is

due to infants not being recruited into the CCS program or because there are fewer CCS-qualifying infants that need to be referred into the program in the counties.

For the RCHSD DP, due to the nature of recruitment as a new population-specific plan (PSP) established as part of the RCHSD ACO, enrollment grew over time. The RCHSD DP also had a different distribution of age, driven by the opt-in process and that there was an age restriction for those with diabetes in the cohort. As mentioned above, due to the differences in CCS enrollment for Classic CCS counties versus the RCHSD DP, direct comparisons between Classic CCS and the RCHSD DP would be inappropriate; the figures below illustrate new enrollment patterns.

Figure 11: Percentage of CCS Enrollment, by Age: HPSM DP versus Classic CCS Counties, by Years, Pre- versus Post-HPSM DP Implementation
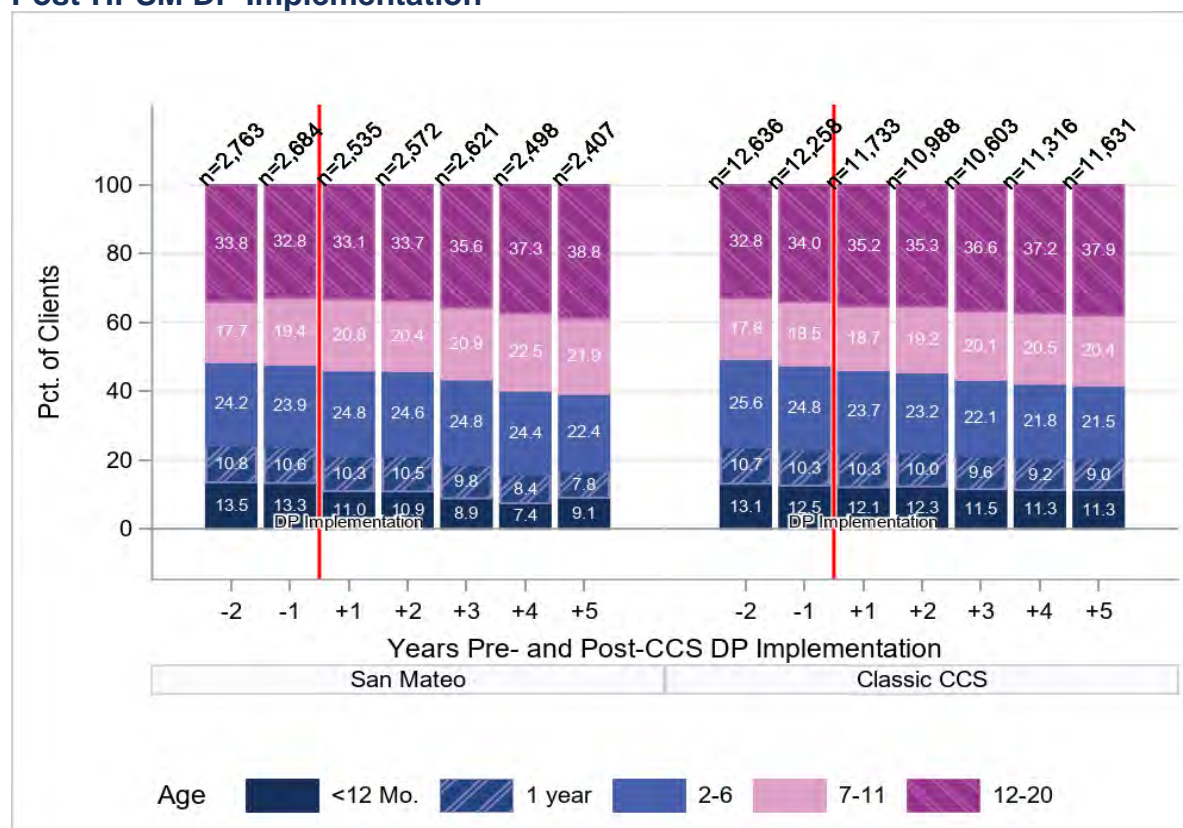
- Pre-DP: CCS clients in San Mateo County between April 2011 and March 2013.
- Post-DP: CCS clients in HPSM DP between April 2013 and March 2018.
- Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
- Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.

Figure 12: Percentage of CCS Enrollment, by Age: RCHSD DP versus Classic CCS Counties, by Years, Pre- versus Post-RCHSD DP Implementation
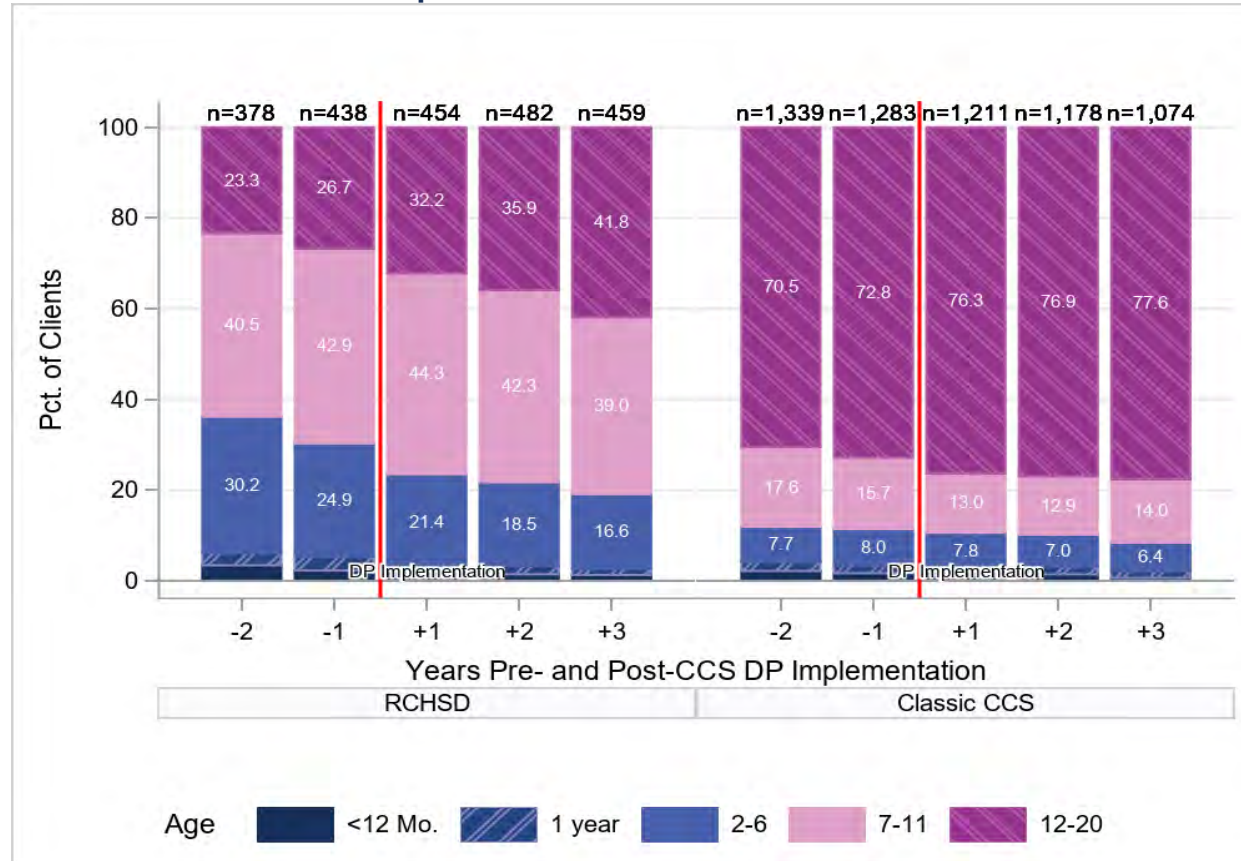
- Pre-DP: San Mateo CCS clients between April 2011 and March 2013.
- Post-DP: CCS clients in RCHSD DP between July 2018 and June 2021.
- Classic CCS Pre-DP: CCS clients in Classic CCS counties between July 2016 and June 2018.
- Classic CCS Post-DP: CCS clients in Classic CCS counties between July 2018 and June 2021.

• Classic CCS clients have an RCHSD DP–qualifying condition.

Figure 13: Percentage of All New CCS Clients, by Age: HPSM DP versus Classic CCS Counties, by Years, Pre- versus Post-HPSM DP Implementation
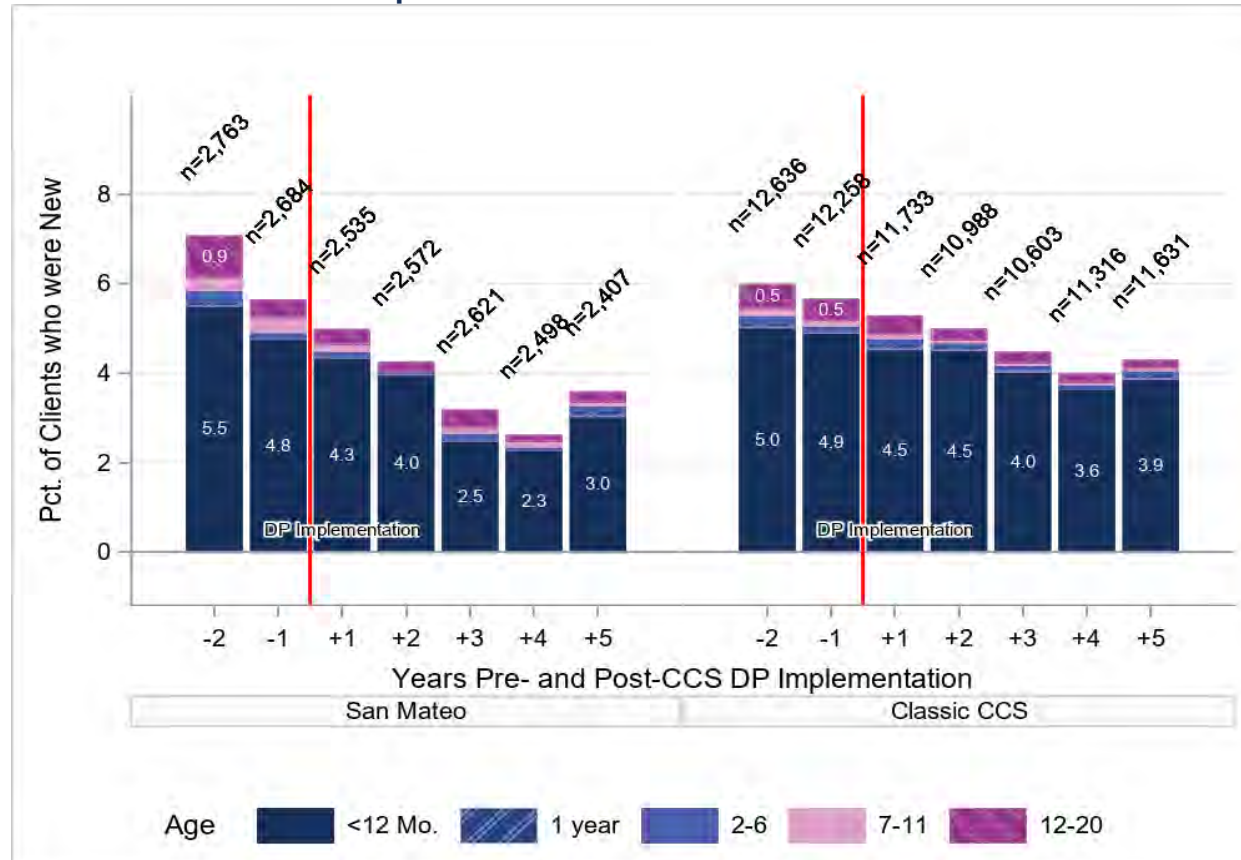
• Pre-DP: CCS clients in San Mateo County between April 2011 and March 2013.
• Post-DP: CCS clients in HPSM DP between April 2013 and March 2018.
• Classic CCS Pre-DP: CCS clients in Classic CCS counties between April 2011 and March 2013.
• Classic CCS Post-DP: CCS clients in Classic CCS counties between April 2013 and March 2018.

Figure 14: Percentage of All New CCS Clients, by Age: RCHSD DP versus Classic CCS Counties, by Years, Pre- versus Post-RCHSD DP Implementation
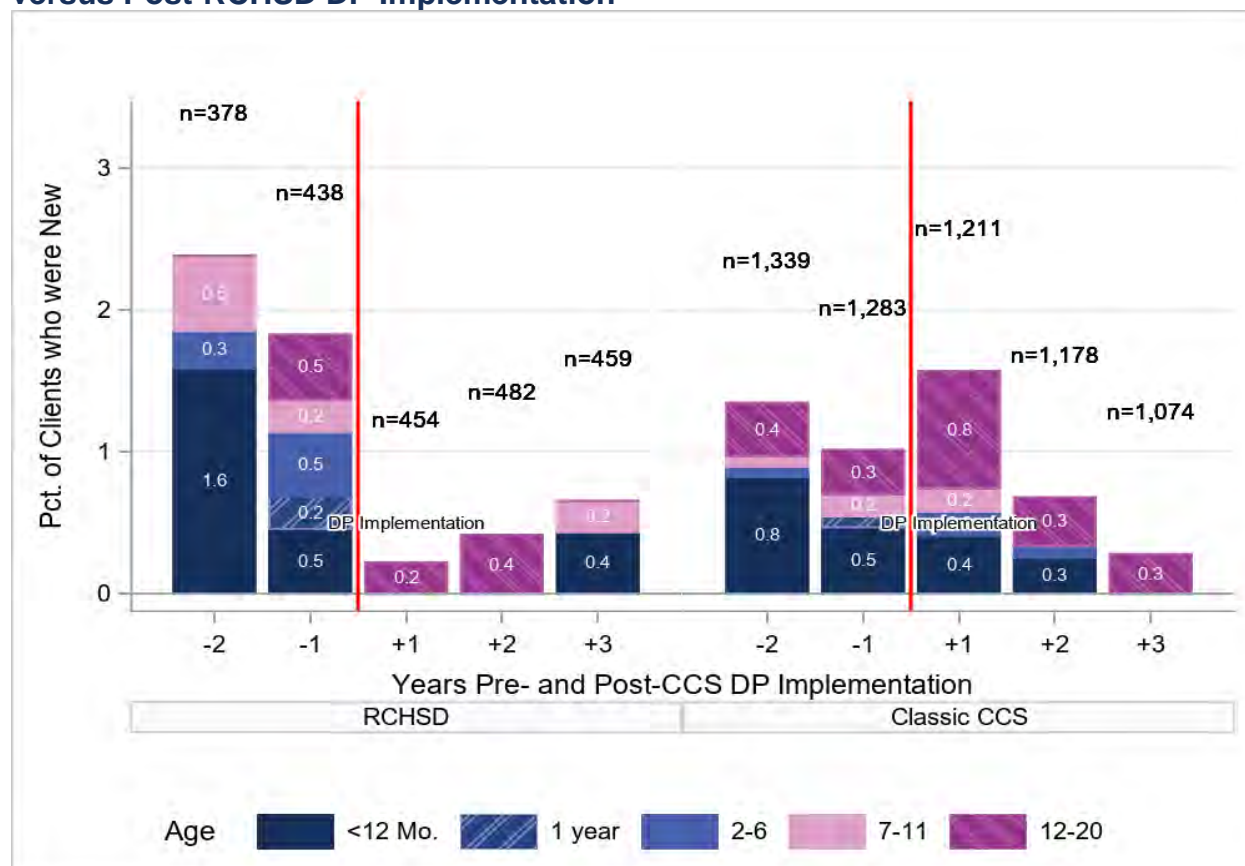
- Pre-DP were those enrolled in CCS between July 2016 and June 2018, and eventually enrolled in the RCHSD DP.
- Post-DP: CCS clients in RCHSD DP between July 2018 and June 2021.
- Classic CCS Pre-DP: CCS clients in San Diego County between July 2016 and June 2018.
- Classic CCS Post-DP: CCS clients in San Diego County between July 2018 and June 2021.
- All children have a qualifying condition for enrollment in the RCHSD DP.

Description of the Propensity Score–Matched Comparison Groups with the DPs Used in the Analyses Addressing Research Questions

Given the differences found between Classic CCS and the DPs, the UCSF evaluation team generated a propensity score–matched group as a comparison for healthcare outcomes to perform the Difference in Differences (DiD) analysis in the claims data and econometric analyses for the evaluation. Propensity score–matched groups allow for more even comparisons between CCS clients in Classic CCS counties that had similar profiles to those in the DP. That is, this allows for a "like versus like" comparison to be made.

As shown above, the distribution of diseases and demographic factors were different and thus could potentially bias the analysis even when controlling for confounding. In addition, differences in geography and local resources may also affect outcomes. Therefore, the UCSF evaluation team matched on geographic, demographic, illness severity, and disability characteristics to generate a matched comparison cohort. The full statistical methods and description of the outcome of the propensity score match is found briefly above in the methods section and fully in Appendix G. The tables presented below are meant to illustrate the final analytic sample used in the following analyses presented in this evaluation. The discussion and characterization of the CCS enrollment patterns and demographics are already discussed above.

Table 21: Counts of CCS Clients: HPSM DP versus Propensity Score–Matched Classic CCS Counties, Pre- versus Post-HPSM DP Implementation

Location	Study Group	Clients	Total Member Months
HPSM DP	Pre-CCS DP	2,925	43,581
	Post-CCS DP	3,931	103,974
Propensity Score–Matched Classic CCS Counties	Pre-CCS DP Implementation	2,875	42,113
	Post-CCS DP Implementation	4,160	92,101

- Pre-DP: San Mateo CCS clients not in CCS DP between April 2011 and March 2013.
- Post-DP: CCS clients in CCS DP between April 2013 and March 2018.
- Classic CCS Pre-DP: Propensity score–matched CCS clients in Classic CCS counties between July 2016 and June 2018.
- Classic CCS Post-DP: Propensity score–matched CCS clients in Classic CCS counties between July 2018 and June 2020.
- See Appendix G for propensity score–matching methodology.

Table 22: Counts of CCS Clients: RCHSD DP versus Propensity Score–Matched Classic CCS Counties, Pre- versus Post-RCHSD DP Implementation

Location	Study Group	Clients	Total Member Months
San Diego (RCHSD DP Cohort)	Pre-CCS DP	387	8,006
	Post-CCS DP	494	7,357
Propensity Score–Matched San Diego (Classic CCS)	Pre-CCS DP Implementation	278	5,352
	Post-CCS DP Implementation	479	6,293

• Pre-DP were those enrolled in CCS between July 2016 and June 2021, and eventually enrolled in the RCHSD DP.
• Post-DP were CCS DP clients between July 2018 and June 2021.
• All clients in these study groups have a qualifying condition for enrollment in the RCHSD DP.
• Classic CCS Pre-DP: Propensity score–matched CCS clients in San Diego County between July 2016 and June 2018 who matched to CCS DP clients on propensity score.
• Classic CCS Post-DP: Propensity score–matched CCS clients in San Diego County between July 2018 and June 2019 who matched to CCS DP clients on propensity score.
• See Appendix G for propensity score–matching methodology.

Demographic Characteristics of Propensity Score Matches

As shown in Tables 24 and 25, below, the propensity score match (which also used disease severity measures, diagnosis, and disability status) was successful in matching cohorts more closely to baseline demographic characteristics, though this did not eliminate all differences. Specifically, there are still statistically significant differences between race and language spoken at home in both DPs, though the differences are not as wide in the propensity score matches as compared to using the full county sample of Classic CCS clients. Due to these continued differences, the UCSF evaluation team included all independent variables in modeling to account for the potential confounding these independent variables may introduce into the analyses.

Table 23: Demographics: HPSM DP versus Propensity Score–Matched Classic CCS Counties, Pre- versus Post-HPSM DP Implementation

Dimension	HPSM DP Pre-		HPSM DP Post-		Classic CCS Pre-		Classic CCS Post-		P-value* for Comparing HPSM DP and Classic CCS in Post-Period
	n	Pct	n	Pct	n	Pct	n	Pct	
N	1,805		1,717		1,819		1,567		
Female	833	46.1	794	46.2	823	45.2	698	44.5	
Male	972	53.9	923	53.8	996	54.8	869	55.5	.418
Age									
Average Age	*8.9*		*9.1*		*8.9*		*9.0*		
<12 Months	167	9.3	109	6.3	164	9.0	132	8.4	
1 Year	132	7.3	115	6.7	146	8.0	105	6.7	.052
2–6	455	25.2	453	26.4	462	25.4	395	25.2	
7–11	359	19.9	391	22.8	345	19.0	311	19.8	
12–20	692	38.3	649	37.8	702	38.6	624	39.8	
Ethnicity									
Alaskan Native / American Indian	3	0.2	2	0.1	4	0.2	6	0.4	
Asian/PI	75	4.2	53	3.1	37	2.0	34	2.2	
Black	70	3.9	45	2.6	91	5.0	57	3.6	.045
Latinx	948	52.5	908	52.9	954	52.4	809	51.6	
White	206	11.4	195	11.4	183	10.1	152	9.7	
Other/Unknown	503	27.9	514	29.9	550	30.2	509	32.5	
Primary Language									
Asian Language	32	1.8	28	1.6	144	7.9	133	8.5	
English	884	49.0	809	47.1	887	48.8	763	48.7	.0001
Spanish	864	47.9	857	49.9	764	42.0	653	41.7	
Other/Unknown	25	1.4	23	1.3	24	1.3	18	1.1	
County									
San Francisco					397	21.8	356	22.7	

Dimension	HPSM DP Pre- n	HPSM DP Pre- Pct	HPSM DP Post- n	HPSM DP Post- Pct	Classic CCS Pre- n	Classic CCS Pre- Pct	Classic CCS Post- n	Classic CCS Post- Pct	P-value* for Comparing HPSM DP and Classic CCS in Post-Period
San Mateo	1,805	100.0	1,717	100.0					
Santa Clara					1,422	78.2	1,211	77.3	

*P-value calculated from comparing HPSM DP versus Classic CCS during post-period using chi-square test.
• Counts represent CCS enrollment for one month that is one year before (pre-) and one year after (post-) CCS DP start.
• Pre-DP clients were in Classic CCS in San Mateo County during April 2012.
• Post-DP clients were in the HPSM DP during April 2014.
• Classic CCS Pre-DP: Propensity score–matched CCS clients in Classic CCS counties during April 2012.
• Classic CCS Post-DP: Propensity score–matched CCS clients in Classic CCS counties during April 2014.
• See Appendix G for propensity score–matching methodology.

Table 24: Demographics: RCHSD DP versus Propensity Score–Matched Classic CCS Counties, Pre- versus Post-RCHSD DP Implementation

Dimension	RCHSD DP Pre- n	RCHSD DP Pre- Pct	RCHSD DP Post- n	RCHSD DP Post- Pct	Classic CCS Pre- n	Classic CCS Pre- Pct	Classic CCS Post- n	Classic CCS Post- Pct	P-value* for comparing RCHSD DP vs. Classic CCS post-period
N	334		367		220		261		
Female	148	44.3	164	44.7	98	44.5	111	42.5	
Male	186	55.7	203	55.3	122	55.5	150	57.5	.591
Age									
Average Age	*9.0*		*10.1*		*9.7*		*10.4*		
<12 Months	6	1.8	3	0.8	6	2.7	7	2.7	
1 Year	5	1.5	4	1.1	6	2.7	4	1.5	
2–6	93	27.8	71	19.3	49	22.3	50	19.2	.1
7–11	139	41.6	164	44.7	82	37.3	95	36.4	
12–20	91	27.2	125	34.1	77	35.0	105	40.2	
Ethnicity									

Dimension	RCHSD DP Pre-		RCHSD DP Post-		Classic CCS Pre-		Classic CCS Post-		*P*-value* for comparing RCHSD DP vs. Classic CCS post-period
	n	Pct	*n*	Pct	*n*	Pct	*n*	Pct	
Alaskan Native / American Indian					2	0.9	2	0.8	.022
Asian/PI	1	0.3	2	0.5					
Black	46	13.8	51	13.9	17	7.7	21	8.0	
Latinx	149	44.6	184	50.1	99	45.0	121	46.4	
White	39	11.7	45	12.3	31	14.1	48	18.4	
Other/Unknown	99	29.6	85	23.2	71	32.3	69	26.4	
Primary Language									
Asian Language	2	0.6	3	0.8	3	1.4	6	2.3	.132
English	200	59.9	229	62.4	138	62.7	178	68.2	
Spanish	114	34.1	117	31.9	69	31.4	68	26.1	
Other/Unknown	18	5.4	18	4.9	10	4.5	9	3.4	
County									
San Diego	334	100.0	367	100.0	220	100.0	261	100.0	

*P-value calculated from comparing RCHSD DP versus Classic CCS during post-period using chi-square test or Fisher's exact test.
Due to small cells, American Indian and Asian were merged into the "Other" category.
• Counts represent CCS enrollment for one month that is one year before (pre-) and one year after (post-) RCHSD DP implementation.
• All clients in this table have an RCHSD DP–qualifying condition.
• Pre-DP clients were in Classic CCS in San Diego during July 2017 and eventually enrolled in the RCHSD DP.
• Post-DP clients were in the RCHSD DP during July 2019.
• Classic CCS Pre-DP: Propensity score–matched in San Diego County during July 2017.
• Classic CCS Post-DP: Propensity score–matched in San Diego County during July 2019.
• See Appendix G for propensity score–matching methodology.

Table 25: Distribution of Diagnoses at CCS Eligibility Determination: HPSM DP versus Propensity Score–Matched Classic CCS Counties, Pre- versus Post-HPSM DP Implementation

Diagnosis	HPSM DP		Classic Counties	
	Pct. Pre-DP (*n* = 2,925)	Pct. Post-DP (*n* = 3,931)	Pct. Pre-DP Implementation (*n* = 2,875)	Pct. Post-DP Implementation (*n* = 4,160)
Accident	3.2	7.6	5.8	11.3
Circulatory	1.3	3.1	2.2	4.4
Congenital	6.1	14.2	8.2	16.9
Dermatology	0.2	0.5	0.3	0.8
Endocrine-Metabolic-Immune	2.4	7.0	2.5	6.7
GI	3.1	4.0	3.2	3.6
Genitourinary	1.3	2.8	1.7	3.5
Heme	0.9	1.7	0.8	1.9
Infectious Disease	0.3	0.7	0.2	0.7
Mental Health	0.4	2.2	0.6	1.7
Musculoskeletal	3.2	9.4	2.8	5.9
NICU	7.6	13.3	7.2	12.5
Neoplasm	1.0	2.8	1.3	2.8
Neuro	2.3	7.1	2.5	5.7
Ophthalmological	1.7	4.3	3.8	6.7
Other	1.2	1.6	1.2	2.3
Otolaryngological	1.9	7.4	1.8	6.7
Pregnancy	0.0	0.1	0.1	0.1
Respiratory	1.3	3.0	1.6	3.5
Undiagnosed	71.3	38.9	68.5	36.6

• Classic Pre-DP: Propensity score–matched CCS clients in classic counties between July 2016 and June 2018.
• Classic Post-DP: Propensity score–matched CCS clients in classic counties between July 2018 and June 2020.
• See Appendix G for propensity score–matching methodology.

Table 26: Distribution of the RCHSD DP's Five Qualifying Conditions: RCHSD DP versus Propensity Score–Matched Classic CCS Counties, Pre- versus Post-RCHSD DP Implementation

Diagnosis	RCHSD DP		Classic CCS	
	Pre- (*n* = 387)	Post- (*n* = 494)	Pre- (*n* = 278)	Post- (*n* = 479)
Acute Lymphoid Leukemia	35.9	34.2	34.2	29.6
Cystic Fibrosis	10.6	9.1	11.5	9.4
Diabetes	30.0	33.0	34.2	45.3
Hemophilia	11.4	10.1	12.2	9.8
Sickle Cell	14.5	14.6	11.5	9.6

- Pre-CCS DP were those enrolled in CCS between July 2016 and June 2021, and eventually enrolled in the RCHSD DP.
- Post-CCS DP were CCS DP clients between July 2018 and June 2021.
- All clients in these study groups have a qualifying condition for enrollment in the RCHSD DP.
- Classic Pre-CCS DP: Propensity score–matched CCS clients in San Diego County between July 2016 and June 2018 who matched to CCS DP clients on propensity score.
- Classic Post-CCS DP: Propensity score–matched CCS clients in San Diego County between July 2018 and June 2019 who matched to CCS DP clients on propensity score.
- See Appendix G for propensity score–matching methodology.

Overall Summary and Commentary of Section 1 (study population), Including Enrollment, New Enrollment into DP and Classic CCS, Conditions, Referrals and Denials into CCS, Demographics, and Propensity Score Match

Enrollment Patterns and Death

Overall Enrollment: Overall enrollment in the HPSM DP and number of CCS clients in San Mateo County remained stable over the course of the HPSM DP. The RCHSD DP was an opt-in program. It was successful in enrolling the majority of its pilot population for the study within the first six months of implementation. Overall counts of CCS clients in RCHSD DP and San Diego County did not change throughout the study period.

New Enrollees and New Referrals and Denials: There was a statistically significant decrease in new enrollment seen in the HPSM DP, with a twofold decrease in new enrollment over time. This seemed to be driven by lower enrollment in those under age one through adolescents, though all age groups were affected.

There were also lower total numbers of new CCS referrals placed into the HPSM DP, with a lower proportion of denials noted. The UCSF evaluation team was contracted to evaluate the CCS population and received data on all CCS children across California, and not all children in the entire Medi-Cal program. Therefore, the UCSF evaluation team could not measure those who never entered the CCS program. The UCSF evaluation team therefore could not answer whether the decrease was due to lower numbers of children in the county — which has been documented — or if infants who qualify for CCS were not being referred into the program, such as with new NICU discharges.

The RCHSD DP was an opt-in program and was recruiting from the general CCS population in San Diego County. Therefore, given the difference in systems, comparing Classic CCS to the RCHSD DP for new referrals would be biased if comparing to the general San Diego County CCS population.

Deaths in CCS: Deaths were very rare in CCS. There were no statistically significant differences in death rates over time in the HPSM DP as compared to CCS comparison counties. The RCHSD DP experienced only two deaths over its three years.

CCS Conditions

Distribution of CCS-eligible-condition categories between the HPSM DP and Classic CCS counties did not differ by more than 1%–2% per individual category. While the difference in RCHSD DP did differ markedly as compared to the general San Diego County distribution of conditions, the difference was due to the opt-in enrollment process of the DP and reflects greater success enrolling among the hematology and oncology groups (e.g., acute lymphoid leukemia and hemophilia) as compared to the diabetes group.

Demographic Characteristics

Overall demographics did differ between the HPSM DP and RCHSD DP as compared to the Classic CCS comparisons groups. The HPSM DP served more Latinx, 6- to 11-year-old, and Spanish-speaking clients than its Classic CCS county counterparts did in the post-implementation phase.

The RCHSD DP served a much higher proportion of 6- to 11-year-old and Black clients. This is likely due to the way the enrollment was set up, as diabetes was limited to those up to age 10, and RCHSD had a higher proportion of people with

sickle cell disease (predominantly affecting Black clients) as compared to Classic CCS counties. Given the differences in demographic characteristics as compared to the total CCS population within comparison classic counties, propensity score matching included all demographic characteristics in order to generate a balanced/comparable comparison group.

Propensity Score–Matched Group Characteristics

Overall, the UCSF evaluation propensity score match worked well to decrease major differences found in the population characteristics noted above. Still, some differences could not be completely matched. Given the potential confounding effect of each of the demographic variables, all statistical models used in analyzing the outcome variables in this report will model all demographic characteristics initially. Final models presented in this evaluation will include only variables that were statistically significant.

Section 2. Results, Organized by Research Question

Research Question 1: What is the impact of the CCS DP on client access to CCS services?

The results for Research Question 1 are organized as follows:
1. Access to CCS services brought up via the key informant interviews
2. Telephone survey results regarding access to primary care and specialty care, by CCS DP
3. Claims analysis comparing DPs and propensity score–matched CCS control county clients, including:
   a. Provider utilization (primary care and specialty care)
   b. Healthcare service support utilization

Access to Care, Brought Up via Key Informant Interviews

The key informants (KIs) at HPSM spoke about increased access to medications as a result of a new CCS-specific pharmacy formulary. They also noted that access to certain services, such as durable medical equipment and pharmacy, increased when prior authorization requirements were removed for those services. Some KIs also spoke about decreased access to care, citing initial policies that did not allow for retroactive Service Authorization Requests and certain services or supplies that still required authorization. KIs also felt that the HPSM provider network was inadequate, which could sometimes lead to delays in care.

The RCHSD KIs noted that as an ACO, California Kids Care (CKC) had the flexibility to work among other departments within RCHSD to increase access to care for CKC patients,[47] often with the help of utilization management tools and metrics. These KIs also spoke about increased access to care through telemedicine, even before the COVID-19 pandemic. These telemedicine appointments were able to help CKC care teams reach vulnerable CKC patients who might not have otherwise been able to access care when needed.

Telephone Survey Results, Regarding Access to Care, by CCS DP

The telephone survey items addressing the first research question, access to CCS services, are drawn from sections of the survey that inquire about:
- Medical home / primary care
- Specialty care
- Therapy services
- Prescription medication
- Behavioral healthcare
- Medical equipment and supplies
- Provider communication
- Transportation

The full telephone survey instrument can be found in Appendix H.

Medical Home / Primary Care

Access to Personal Doctor or Nurse: The majority of respondents in all healthcare delivery models (86%) reported "yes" to having a personal doctor or nurse. The differences between groups were not statistically significant. See Table 28.

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[47] During the interviews, RCHSD key informants noted that they use the term "CKC patient" to refer to CCS clients enrolled in CKC.

Table 27: Access to Personal Doctor or Nurse: HPSM DP, RCHSD DP, and Classic CCS

Do you have one or more people you think of as [CHILD'S NAME]'s personal doctor or nurse? (Q10)[48]				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
No	39	11	142	192
	12.54	9.09	14.43	13.56
Yes	272	110	842	1,224
	87.46	90.91	85.57	86.44
Total	311	121	984	1,416
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	4.00			
P-value	.14			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to the Same Primary Care Provider: The majority of respondents in all healthcare delivery models (88%) were able to continue seeing their same primary care provider. The differences between groups were not statistically significant. See Table 29.

Table 28: Access to Same Primary Care Provider: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since you switched to [NAME OF HEALTH PLAN], does [CHILD'S NAME] have the same primary care provider, or did you have to switch to a new primary care provider? (Q12)			
	HPSM DP	**RCHSD DP**	**Total**
Changed primary care providers	22	9	31
	13.84	10.00	12.45
Kept same primary care provider	137	81	218
	86.16	90.00	87.55
Total	159	90	249

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[48] The items indicated in parentheses refers to the telephone survey item.

	100.00	100.00	100.00
Rao-Scott Chi^2	1.29		
P-value	.26		

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Primary Care Doctor Visits: On average, RCHSD DP respondents (mean = 1.7) saw their primary care provider significantly fewer times than Classic CCS respondents (mean = 2.0) (*p* = .02). HPSM DP respondents reported frequency of primary care doctor visits did not differ from the frequency reported by Classic CCS respondents. See Table 30.

Table 29: Access to Primary Care Doctor Visits: HPSM DP, RCHSD DP, and Classic CCS

MEANS: [Ask all whose personal doctor is a primary care doctor.] In the past 6 months, how many times did your child visit their primary care provider or nurse? (Q14)[49]						
DP Group	N	Nonmissing N	Mean	Standard Deviation	Min	Max
HPSM DP	316.00	193.00	1.99	1.80	0.00	13.00
RCHSD DP	125.00	89.00	1.73	1.37	0.00	6.00
Classic CCS	1,005.00	641.00	1.98	1.94	0.00	30.00

- Values are raw, nonweighted survey results.

Access to Referrals: While not statistically significant, it is notable that RCHSD DP respondents (81%) said it was "not a problem obtaining referrals" compared to Classic CCS respondents (68%). HPSM DP respondents (75%) also indicated getting referrals was "not a problem" compared to Classic CCS respondents. See Table 31.

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[49] Appendix Q includes all analytic tables by research question for each item of the telephone survey.

Table 30: Access to Referrals: HPSM DP, RCHSD DP, and Classic CCS

[If Q17=Yes] DURING THE PAST 6 MONTHS, did [CHILD'S NAME] need a referral to see any doctors or receive any services?] How big of a problem was it to get referrals? (Q18)				
	HPSM DP	RCHSD DP	Classic CCS	Total
Not a problem	97	38	283	418
	75.19	80.85	67.87	70.49
Small problem	19	6	82	107
	14.73	12.77	19.66	18.04
Big problem	13	3	52	68
	10.08	6.38	12.47	11.47
Total	129	47	417	593
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	6.16			
P-value	.19			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Authorizations: Table 32 shows that a large percentage of HPSM DP respondents (38%) stated that they did not know whether there was a change in their ability to obtain authorizations. This is likely because this survey was administered six years after the CCS DP was initiated for HPSM. For those HPSM DP respondents who indicated whether there was a change in getting authorization, a significant majority of HPSM DP (59%) and RCHSD DP (94%) respondents felt it was better or the same after implementation of the DP.

Table 31: Access to Authorizations: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], has [CHILD'S NAME]'s ability to get authorizations for services been better, the same, or worse? (Q19)	HPSM DP	RCHSD DP	Total
Better since the transition	23	30	53
	16.79	61.22	28.49
About the same	58	16	74
	42.34	32.65	39.78
Worse since the transition	4	2	6
	2.92	4.08	3.23
Don't know	52	1	53
	37.96	2.04	28.49
Total	137	49	186
	100.00	100.00	100.00
Rao-Scott Chi^2	68.31		
P-value	<.0001		

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Specialty Care

Access to Specialist Care: The vast majority of both HPSM DP (93%) and RCHSD DP (97%) respondents reported being able to see the same specialists after transitioning to the CCS DP. See Table 33.

Table 32: Access to Specialist Care: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Was [CHILD'S NAME] able to see the same specialists after enrolling in [NAME OF HEALTH PLAN]? (Q21)			
	HPSM DP	**RCHSD DP**	**Total**
No — Had to change to one or more new specialists	14	3	17
	7.04	2.83	5.57
Yes — Still able to see same specialists	185	103	288
	92.96	97.17	94.43
Total	199	106	305
	100.00	100.00	100.00
Rao-Scott Chi^2	4.00		
P-value	.05		

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Getting Appointments with Specialists: Since the implementation of the CCS DP, a significant percentage of RCHSD DP respondents reported that it was "always easy" to get an appointment with specialists (65%) for their child compared to Classic CCS respondents (41%). The ease of obtaining specialist appointments for HPSM DP respondents did not differ from Classic CCS respondents. See Table 34.

Table 33: Access to Getting Appointments with Specialists: HPSM DP, RCHSD DP, and Classic CCS

In the last 6 months, how often was it easy to get appointments for [CHILD'S NAME] with specialists? (Q25)	HPSM DP	RCHSD DP	Classic CCS	Total
Never easy	10	1	34	45
	4.74	0.98	5.15	4.62
Sometimes easy	38	14	106	158
	18.01	13.73	16.06	16.24
Usually easy	79	21	252	352
	37.44	20.59	38.18	36.18
Always easy	84	66	268	418
	39.81	64.71	40.61	42.96
Total	211	102	660	973
	100.00	100.00	100.00	100.00
Rao-Scott Chi²	22.21			
P-value	.00			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Therapy Services

Access to Getting Medical Therapy Service Appointments: Since the implementation of the CCS DP, a significantly greater number of RCHSD DP respondents reported that it was "always easy" to get a medical therapy services appointment (67%) for their child compared to Classic CCS respondents (35%). The ease of obtaining therapy services for HPSM DP respondents did not differ significantly from Classic CCS respondents. See Table 35.

Table 34: Access to Getting Medical Therapy Service Appointments: HPSM DP, RCHSD DP, and Classic CCS

In the last 6 months, how often was it easy to get therapy services for [CHILD'S NAME]? (Q34)	HPSM DP	RCHSD DP	Classic CCS	Total
Never easy	17	1	46	64
	17.53	4.76	16.73	16.28
Sometimes easy	20	2	55	77
	20.62	9.52	20.00	19.59
Usually easy	31	4	77	112
	31.96	19.05	28.00	28.50
Always easy	29	14	97	140
	29.90	66.67	35.27	35.62
Total	97	21	275	393
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	9.51			
P-value	.15			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights and is across all three healthcare models.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Medical Therapy Services: While the majority of respondents in all healthcare delivery models reported that their medical therapy services needs were met (63%), there was a large percentage of respondents who reported unmet needs (37%). The differences between HPSM DP, RCHSD DP, and Classic CCS were not statistically significant. See Table 36.

Table 35: Access to Medical Therapy Services: HPSM DP, RCHSD DP, and Classic CCS

Does [CHILD'S NAME] need any therapy services that he or she currently cannot get? (Q36)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
Needs met	98	20	254	372
	63.64	68.97	62.72	63.27
Has unmet needs	56	9	151	216
	36.36	31.03	37.28	36.73
Total	154	29	405	588
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	0.26			
P-value	.88			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights and is across all three healthcare models.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Prescription Medication

Access to Pharmacy Services: It is notable that the majority of respondents (approximately 87% for both HPSM DP and RCHSD DP) indicated that they were able to keep the same pharmacy. See Table 37.

Table 36: Access to Pharmacy Services: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since switching to [NAME OF HEALTH PLAN], can you go to the same pharmacy, or did you have to switch to a different pharmacy? (Q43)	HPSM DP	RCHSD DP	Total
Switched to a different pharmacy	19	12	31
	12.18	13.64	12.70
Kept same pharmacy	137	76	213
	87.82	86.36	87.30
Total	156	88	244
	100.00	100.00	100.00
Rao-Scott Chi^2	0.17		
P-value	.68		

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Behavioral Health

Access to Behavioral Health Services: RCHSD DP respondents were significantly more likely to report that it was "always easy" to obtain behavioral health treatment and counseling compared to Classic CCS respondents (53% vs. 22%, respectively). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 38.

Table 37: Access to Behavioral Health Services: HPSM DP, RCHSD DP, and Classic CCS

In the last 6 months, how often was it easy to get this treatment or counseling for [CHILD'S NAME]? (Q48)	HPSM DP	RCHSD DP	Classic CCS	Total
Never easy	13	4	39	56
	19.70	21.05	19.12	19.38
Sometimes easy	10	2	54	66
	15.15	10.53	26.47	22.84
Usually easy	22	3	66	91
	33.33	15.79	32.35	31.49

In the last 6 months, how often was it easy to get this treatment or counseling for [CHILD'S NAME]? (Q48)	HPSM DP	RCHSD DP	Classic CCS	Total
Always easy	21	10	45	76
	31.82	52.63	22.06	26.30
Total	66	19	204	289
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	13.17			
P-value	.04			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Behavioral Health Unmet Needs: The majority of respondents (71%) in all healthcare delivery models reported that their behavioral or mental health services needs have been met. The differences between groups were not statistically significant. See Table 39.

Table 38: Behavioral Health Unmet Needs: HPSM DP, RCHSD DP, and Classic CCS

Does [CHILD'S NAME] need any behavioral or mental health services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q49)	HPSM DP	RCHSD DP	Classic CCS	Total
Needs met	41	13	128	182
	78.85	72.22	68.09	70.54
Has unmet need	11	5	60	76
	21.15	27.78	31.91	29.46
Total	52	18	188	258
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	2.07			
P-value	.36			

Medical Equipment and Supplies

Access to Medical Equipment: Since transitioning into the RCHSD DP, a significantly greater number of respondents from that DP (56%) reported that it was "always easy" to obtain medical equipment compared to Classic CCS respondents (23%). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 40.

Table 39: Access to Medical Equipment: HPSM DP, RCHSD DP, and Classic CCS

In the last 6 months, how often was it easy to get special medical equipment or supplies (including repairs) for [CHILD'S NAME]? (Q53)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
Never easy	17	1	63	81
	13.71	2.56	18.21	15.91
Sometimes easy	33	5	77	115
	26.61	12.82	22.25	22.59
Usually easy	44	11	128	183
	35.48	28.21	36.99	35.95
Always easy	30	22	78	130
	24.19	56.41	22.54	25.54
Total	124	39	346	509
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	21.64			
P-value	<.01			

Unmet Needs for Medical Equipment: RCHSD DP respondents (8%) were less likely to report having unmet needs for medical equipment and supplies compared to Classic CCS respondents (26%). This difference was statistically significant. The difference between HPSM DP and Classic CCS respondents was not significant. See Table 41.

Table 40: Unmet Needs for Medical Equipment: HPSM DP, RCHSD DP, and Classic CCS

Does [CHILD'S NAME] need any medical equipment or supplies that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q55)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
No, needs met	86	33	228	347
	79.63	91.67	73.55	76.43
Yes, has unmet need	22	3	82	107
	20.37	8.33	26.45	23.57
Total	108	36	310	454
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	7.17			
P-value	.03			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Provider Communication

Access to Interpreter Services: The majority of respondents in all healthcare delivery models (79%) reported that, if needed, they were "usually" or "always" able to have a professional interpreter. See Table 42.

Table 41: Access to Interpreter Services: HPSM DP, RCHSD DP, and Classic CCS

[Only if interview is conducted in a language other than English] In the last 6 months, if you or [CHILD'S NAME] needed a professional interpreter to help [CHILD'S NAME] speak with his/her doctor, how often did you get one? (Q61)	HPSM DP	RCHSD DP	Classic CCS	Total
Never	2	0	8	10
	2.70	0.00	3.00	2.63
Sometimes	14	5	51	70
	18.92	12.82	19.10	18.42
Usually	9	2	30	41
	12.16	5.13	11.24	10.79
Always	49	32	178	259
	66.22	82.05	66.67	68.16
Total	74	39	267	380
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†			
P-value				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Transportation Services

Access to Transportation Services: Since transitioning into the RCHSD DP, a significantly greater number of respondents in that DP (68%) reported that it is "always easy" to get transportation for their child's healthcare appointments compared to Classic CCS respondents (21%). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 43.

Table 42: Access to Transportation Services: HPSM DP, RCHSD DP, and Classic CCS

How often is it easy to get transportation to [CHILD'S NAME]'s doctors or other healthcare providers? (Q64)	HPSM DP	RCHSD DP	Classic CCS	Total
Never easy	3	3	13	19
	8.11	13.64	12.62	11.73
Sometimes easy	14	3	39	56
	37.84	13.64	37.86	34.57
Usually easy	9	1	29	39
	24.32	4.55	28.16	24.07
Always easy	11	15	22	48
	29.73	68.18	21.36	29.63
Total	37	22	103	162
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	17.59			
P-value	.01			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Access to Transportation Services — Missed Appointments: While not statistically significant, it is of interest to note that a large majority of RCHSD DP respondents (87%) did not miss health or therapy appointments because of transportation problems. Also, though 61% of HPSM DP respondents reported not missing health or therapy appointments because of transportation problems, a sizeable number of respondents from this DP (39%) did indeed report doing so. See Table 44.

Table 43: Access to Transportation Services — Missed Appointments: HPSM DP, RCHSD DP, and Classic CCS

In the last 6 months, did [CHILD'S NAME] miss any scheduled health or therapy appointments because of transportation problems? (Q66)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
No	25	20	79	124
	60.98	86.96	68.70	69.27
Yes	16	3	36	55
	39.02	13.04	31.30	30.73
Total	41	23	115	179
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	3.67			
P-value	.16			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Nonsignificant Telephone Survey Items

The telephone survey items that pertained to access to the healthcare services listed below did not have any significant differences between healthcare delivery models:

- **Medical Home / Primary Care:** There were no significant differences between the groups for going to the emergency department because it was too difficult to see another doctor (Q16). There were also no significant differences between HPSM DP and Classic CCS, nor were there significant differences between RCHSD DP and Classic CCS for needing a referral to see any doctor or to receive services (Q17). See Appendix X, "Complete Telephone Survey Report for CCS DP."

- **Specialty Care:** There were no significant differences between the groups for needing any specialist services that could not be obtained through their current health plan (Q27). See Appendix X.

- **Therapy Services:** There were no significant differences between the groups for having a change in therapy site since the transition (Q33). See Appendix X.

- **Access to Prescription Medications:** There were no significant differences between the groups for getting prescription medications (Q40), having to delay filling prescriptions (Q41), or having unmet prescription needs (Q44). See Appendix X.

Summary of Telephone Survey Results for Research Question 1

The telephone survey results demonstrated that for a number of measures assessing access to care, such as obtaining referrals, ease of getting appointments with specialists, or easier access to medical equipment, RCHSD DP respondents indicated better ease of access than Classic CCS respondents. This may be because the RCHSD DP is an ACO and therefore directly involved with its clinics rather than how a managed care plan functions, in which access to care can be dependent on authorization and availability of providers.

In general, the HPSM DP provided access to care similar to that of Classic CCS.

When evaluating the HPSM DP, it is important to keep in mind that a large percentage of respondents indicated "don't know" to many of the survey questions; this is likely related to the survey being administered six years after HPSM initiated its CCS DP.

The majority of respondents in both CCS DPs reported being able to maintain their relationship with their primary care provider and specialist. This continuity of care and having access to the same primary care physician and specialist could suggest that the transition from Classic CCS to the CCS DP model of care for HPSM and RCHSD was seamless.

Administrative Data Analysis for Research Question 1: Comparing Healthcare Visits and Services between Demonstration Projects and Classic CCS Comparison Groups during the Pre- and Post-Implementation Evaluation Periods

The visit and service claims analysis results are organized by key domains and subgroup analyses, as listed below.

1. Utilization of healthcare visits
   a. Primary care provider visits (all types, including well-child visits, acute care, and follow-up visits)
      i. Primary care visits by age
   b. Well-child visits (specific to healthcare maintenance visits)
      i. HEDIS (Healthcare Effectiveness Data and Information Set) well-child visit 0–15 months
      ii. HEDIS well-child visit 0–30 months
      iii. HEDIS well-child visit 3–6 years
      iv. HEDIS well-child visit 12–20 years
   c. Specialist visits

d. CCS Paneled Provider visits (non–Special Care Center) (see Research Question 6 for CCS Paneled Providers use in Special Care Centers)

e. Mental health visits

  i. High-level and low-level visits combined in tables

   (a) Depression screening 12- to 20-year-olds

2. Access to ancillary services

a. Durable medical equipment

b. In-Home Supportive Services (IHSS)

c. Pharmacy claims

This section presents the results for the outcomes included in the two categories listed above, comparing healthcare visits, services, and claims between the DPs and the matched Classic CCS control county comparison groups, with:

1. Table 45 presenting HPSM pre- and post-period counts for clients and member months and counts for specific types of provider visits per 1,000 member months

2. Table 46 presenting RCHSD pre- and post-period counts for clients and member months and counts for specific types of provider visits per 1,000 member months

3. Results from HPSM DP of utilization evaluation of each healthcare visit type comparing the DP intervention group to the comparison group changes from pre- to post-implementation, including:

a. Tables and text comparing differences in DP and matched Classic CCS visit counts individually for the HPSM DP and RCHSD DP may include:

  i. Comparisons of DP intervention visits to Classic CCS comparison visits at pre- and post-period, and significance levels for each.

  ii. Comparisons of visits from pre- to post-period implementation for the HPSM DP and Classic CCS comparison groups separately and their significance of differences, and further comparison of the size of the changes from pre- to post- to determine if visit rates changed significantly more in the HPSM DP group than in the Classic CCS comparison group.

  iii. Figure of a bar graph indicating age group differences in visits between the pre- and post-implementation periods for the HPSM DP group and for the Classic CCS comparison group, separately with accompanying narrative.

iv. A scatter plot and summary of visit count trends for both the intervention and comparison groups across the individual years of the pre- and post-implementation periods.

v. DiD regression goodness of fit description.

vi. Narrative describing any demographic differences in visit changes (i.e., age; gender; race/ethnicity; language spoken at home; condition severity [Chronic Illness and Disability Payment System (CDPS) score]; disability [Children with Disabilities Algorithm (CWDA)] disability indicator; and season [winter, spring, summer, fall]).

vii. Joint HPSM and RCHSD summary for Research Question 1 outcomes.

Tables 45 and 46 (see below) describe the number of clients; member months; and the number of outpatient, primary care, other medical, specialty care, CCS Paneled Provider, well-child, and mental health visits.

Table 44: HPSM County Counts of Clients; Member Months; Outpatient, Primary Care, Other Medical, Specialist, CCS Paneled Provider, Well-Child, and Mental Health (low/med and high) Visits per 1,000 Member Months

	HPSM DP Year							Classic CCS Counties Year						
Measure	-2	-1	+1	+2	+3	+4	+5	-2	-1	+1	+2	+3	+4	+5
Number of Clients and Member Months														
Clients	2,395	2,329	2,197	2,219	2,263	2,167	2,116	2,321	2,360	2,236	1,988	1,914	2,066	2,097
Member Months	21,663	21,918	20,249	21,103	21,479	21,068	20,075	21,139	20,989	19,389	18,163	17,623	18,468	18,492
Visits/Service by Provider Type per 1,000 Member Months														
Outpatient	1,105	1,165	1,280	1,006	927	857	832	1,369	1,416	1,438	1,504	1,541	1,496	1,341
Primary Care	497	514	557	416	352	355	355	308	255	339	395	406	400	355
Other Medical	322	270	378	333	262	300	290	293	307	343	275	261	292	275
Specialist	202	210	226	400	474	446	458	454	426	488	540	482	547	575
CCS Paneled Provider	124	140	154	432	575	553	557	591	528	638	679	639	701	678

Measure	HPSM DP Year							Classic CCS Counties Year						
	-2	-1	+1	+2	+3	+4	+5	-2	-1	+1	+2	+3	+4	+5
Well-Child Visit	69	83	90	83	60	68	77	83	81	120	144	147	136	88
Mental Health Low/Med	98	127	158	129	138	160	143	169	182	199	190	230	242	190
Mental Health High	0	0	0	1	0	1	1	5	2	2	6	1	3	0

Table 45: RCHSD Counts of Clients; Member Months; Outpatient, Primary Care, Other Medical, Specialist, CCS Paneled Provider, Well-Child, and Mental Health (low/med and high) Visits per 1,000 Member Months

Measure	RCHSD DP Year					Classic CCS Counties Year				
	-2	-1	+1	+2	+3	-2	-1	+1	+2	+3
Number of Clients and Member Months										
Clients	338	386	416	419	407	227	272	336	344	349
Member Months	3,686	4,320	3,127	4,230	4,437	2,446	2,906	3,075	3,218	3,801
Visits/Services by Type of Provider per 1,000 Member Months										
Outpatient	1,206	1,366	1,234	1,102	951	1,597	1,496	1,390	1,394	1,387
Primary Care	411	390	838	857	821	678	572	793	858	765
Other Medical	149	155	179	264	247	312	284	326	388	329
Specialist	1,152	1,231	860	742	536	1,837	1,651	1,642	1,300	1,137
CCS Paneled Provider	1,138	1,204	1,065	923	720	1,902	1,720	1,947	1,553	1,296
Well-Child Visit	53	46	31	43	53	75	51	54	58	47
Mental Health Low/Med	77	114	135	139	140	113	170	205	182	245
Mental Health High	0	0	0	0	0	0	0	0	0	13

Primary Care Provider Visit Results

PCP visits results for HPSM

Table 47 provides the comparison of differences in primary care provider (PCP) visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP periods. During the pre-DP period, the odds of an HPSM DP intervention client having a PCP visit were 1.56 times greater compared to those in the Classic CCS comparison group ($p < .001$). There was no difference between the HPSM DP and Classic CCS groups in the post-DP period.

Table 46: HPSM DP Primary Care Physician Visits per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- and Post-Period

Period	Primary Care Visits per 1,000 Member Months		Adjusted Odds Ratios	
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	*P*-value
Pre-DP Implementation	505	281	1.60 (1.49, 1.73)	<.001
Post-DP Implementation	406	378	1.04 (0.98, 1.11)	.167

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS).

Table 48 provides comparisons of the pre- to post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. Among the HPSM DP group, the odds of a client having a PCP visit during the post-DP period decreased by 12% from the pre-DP period ($p < .001$). In the Classic CCS comparison group, the odds of a PCP visit in the post-DP period were 1.32 times that of the pre-DP period ($p < .001$). Difference in Differences from pre-DP to post-DP periods between the HPSM DP and Classic CCS comparison group is significant, with the HPSM intervention group having a lower odds of having a PCP visit as compared to the increase in the Classic CCS comparison group during the post-DP period.

Table 47: Primary Care Physician Visits per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Primary Care Visits per 1,000 Member Months | | Adjusted Odds Ratios | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM DP Group	505	406	0.88 (0.83, 0.93)	<.001
Classic CCS Comparison Group	281	378	1.36 (1.28, 1.44)	<.001
Difference in Differences			0.65 (0.60, 0.71)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS).

Figure 15: HPSM CCS County Primary Care Visits by Age, per 1,000 Member Months (includes 12 months and under)
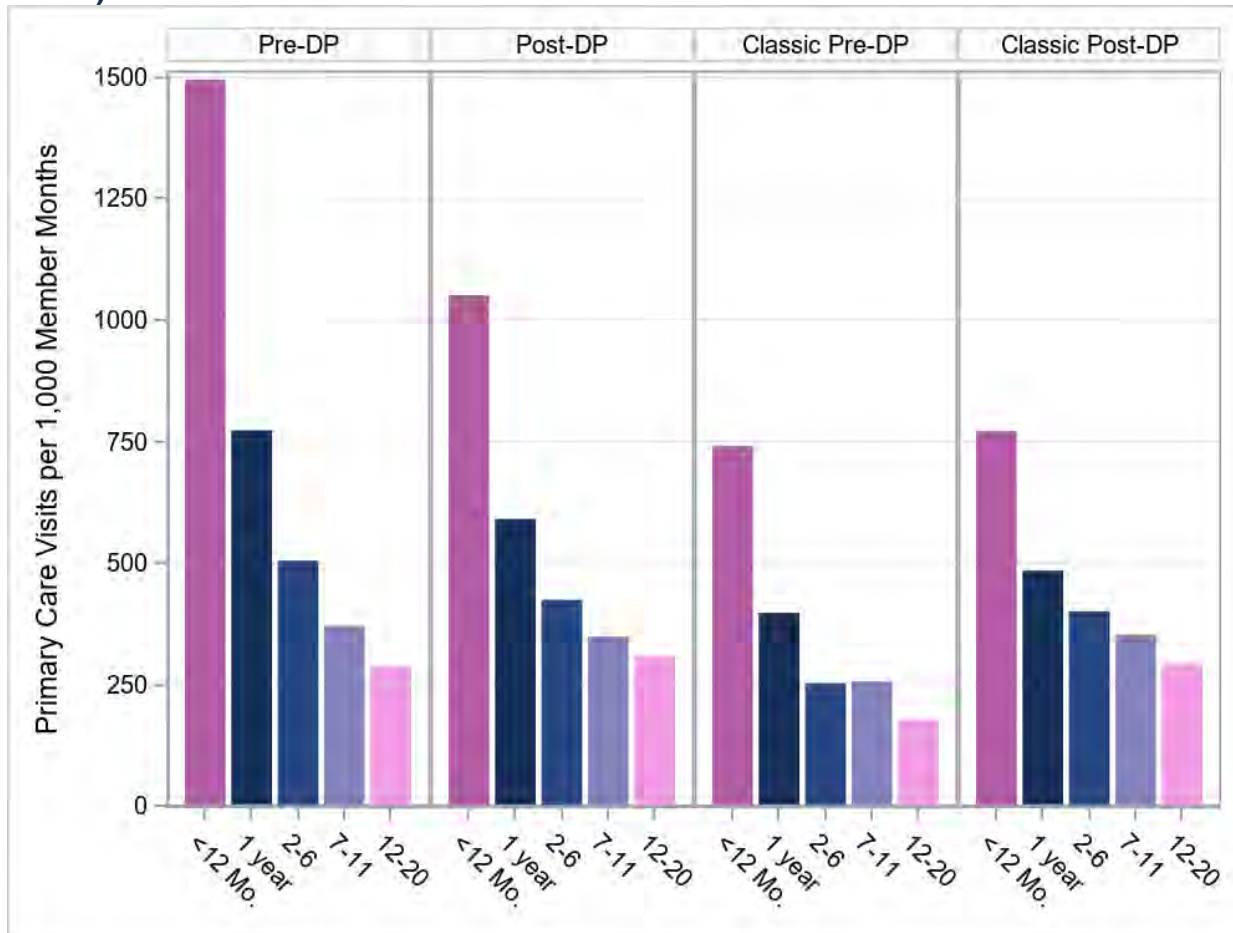
Overall, younger age groups have greater frequency of PCP visits per member months; this decreases in a monotonic fashion with each advancing age category for both DPs and Classic CCS comparison groups. Overall, when looking at aggregate pre- versus post-DP implementation periods, younger age groups appear not to have any statistically significant change in use of PCP visits for HPSM DP — except where there is an increase in adolescents (please see Appendix U for counts).

Figure 16: Primary Care Visits per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
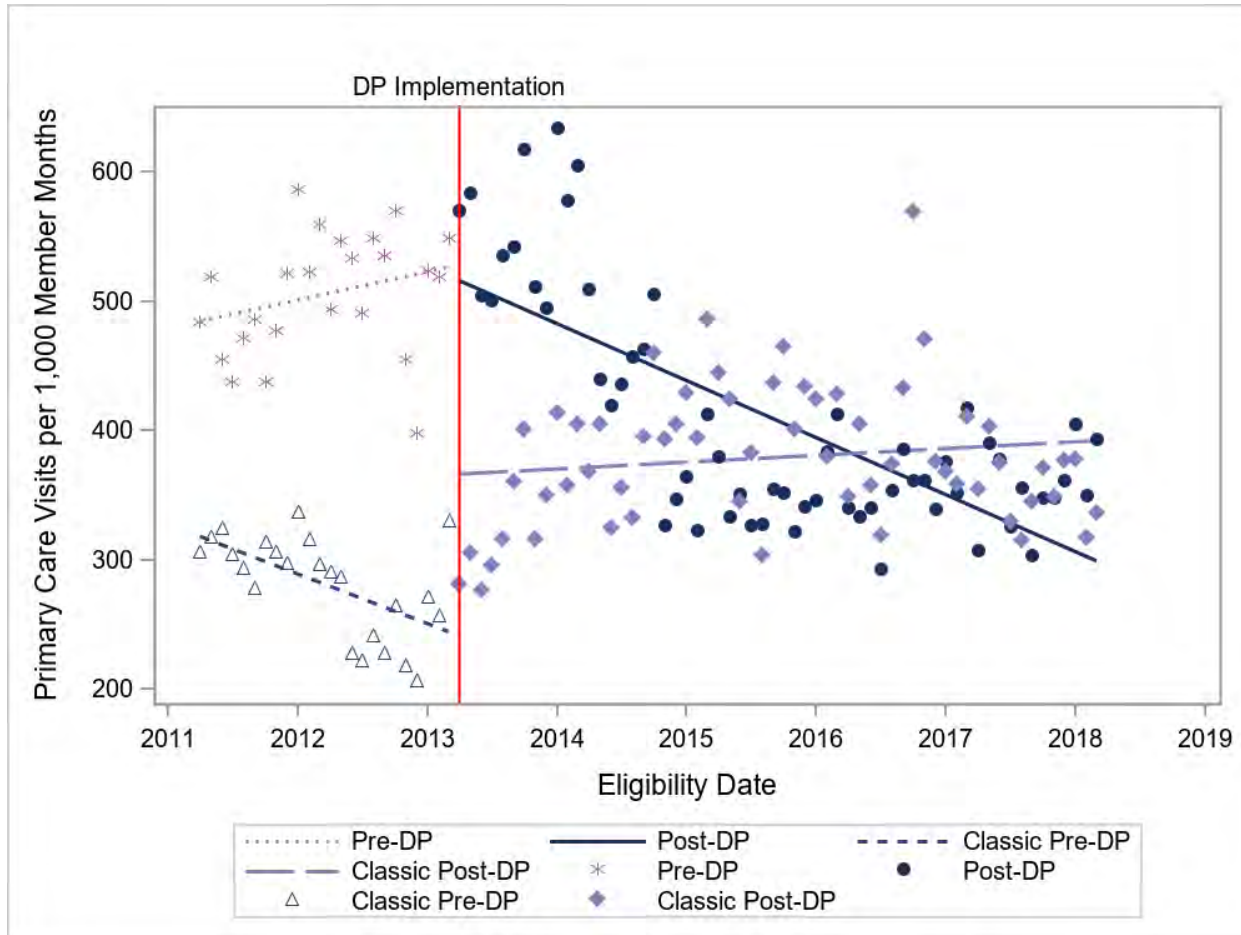
HPSM DP Goodness of Fit: In the pre-DP period, slopes of the HPSM DP group and Classic CCS comparison group are statistically different ($p = .038$), and thus the parallel slopes assumption of the DiD model is not satisfied. As such, the pre-to-post differences may be due to underlying trends and not the result of the DP implementation. Results should be interpreted with caution.

HPSM DP Independent Variables Associated with PCP Visit Outcomes: In the HPSM regression model for PCP, Latinx, "other" race, and Spanish speakers had higher rates of PCP use, while those less than 12 months of age had statistically significant lower rates of PCP use. (See Appendix T.)

PCP visits results for RCHSD

Table 49 provides comparisons of differences in PCP visits between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an RCHSD DP client having a PCP visit were about 34% lower compared to the Classic CCS comparison group ($p < .001$). There was no difference between the RCHSD DP and Classic CCS comparison groups in the post-DP period.

Table 48: Primary Care Physician Visits per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Primary Care Visits per 1,000 Member Months | | Adjusted Odds Ratios | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	400	620	0.66 (0.55, 0.79)	<.001
Post-DP Implementation	886	807	1.07 (0.92, 1.24)	.402

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS).

Table 50 provides comparisons of the pre-DP to the post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. Visits increased in the pre- versus post-DP periods for both groups. In the RCHSD DP group, the odds of a PCP visit during the post-DP period were 2.57 times higher as compared to the pre-DP period ($p < .001$). In the Classic CCS comparison group, the odds of post-DP visits were 1.59 times higher from the pre-DP period ($p < .001$). The Difference in Differences from pre-DP to post-DP periods between the RCHSD DP and Classic CCS comparison groups showed RCHSD had a statistically significant higher rate of PCP visits post-DP implementation.

Table 49: Primary Care Physician Visits per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Primary Care Visits per 1,000 Member Months | | Adjusted Odds Ratios | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	400	886	2.57 (2.27, 2.91)	<.001
Classic CCS Comparison Group	620	807	1.59 (1.36, 1.87)	<.001
Difference in Differences			1.62 (1.32, 1.97)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS).

Figure 17: RCHSD Primary Care Visits by Age, per 1,000 Member Months (includes 12 months and under)
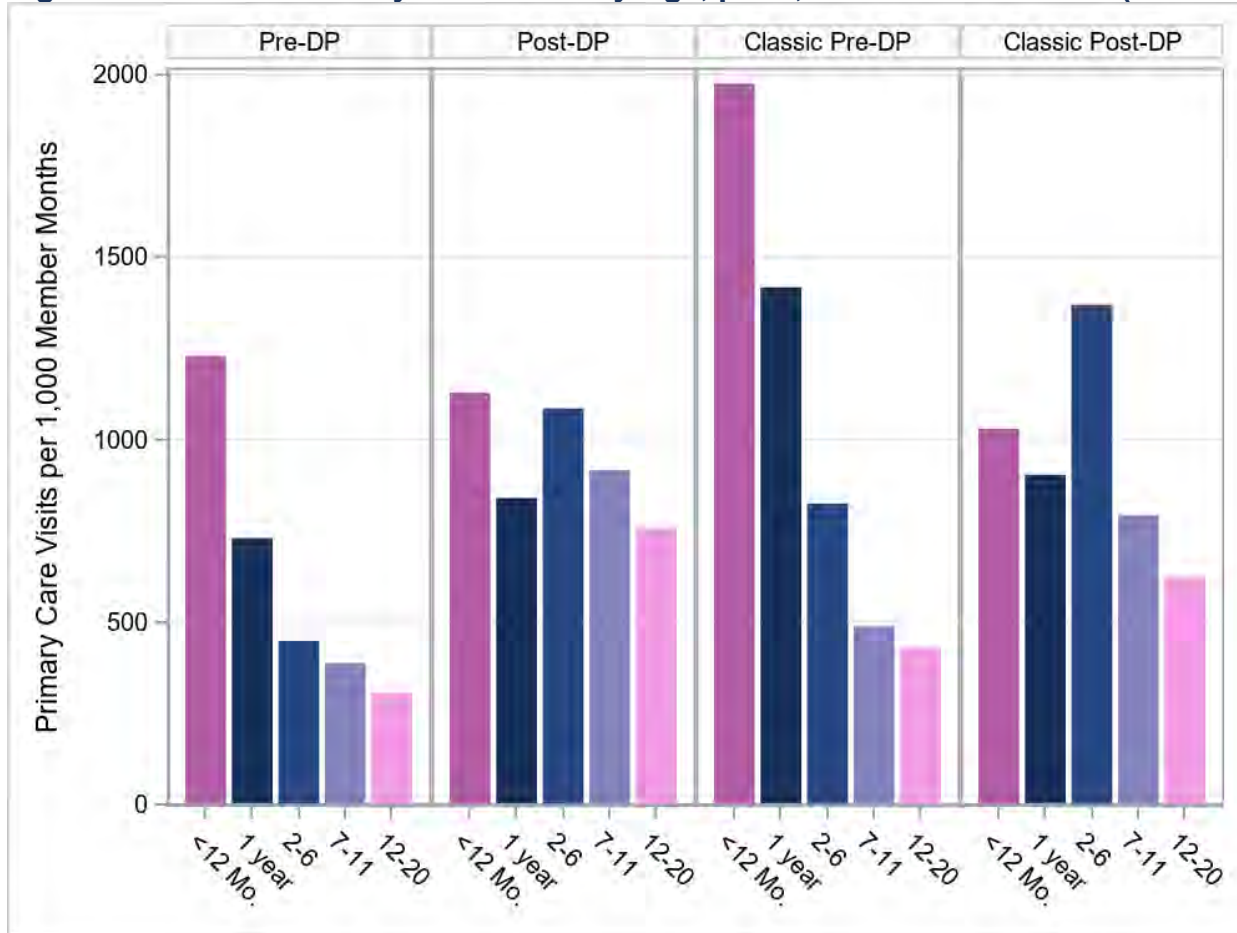
In RCHSD and Classic CCS county comparisons, there was a relative drop in infant visits overall in the post-DP period. Overall, there was an improvement in primary care use among the other age groups.

Figure 18: Primary Care Visits per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
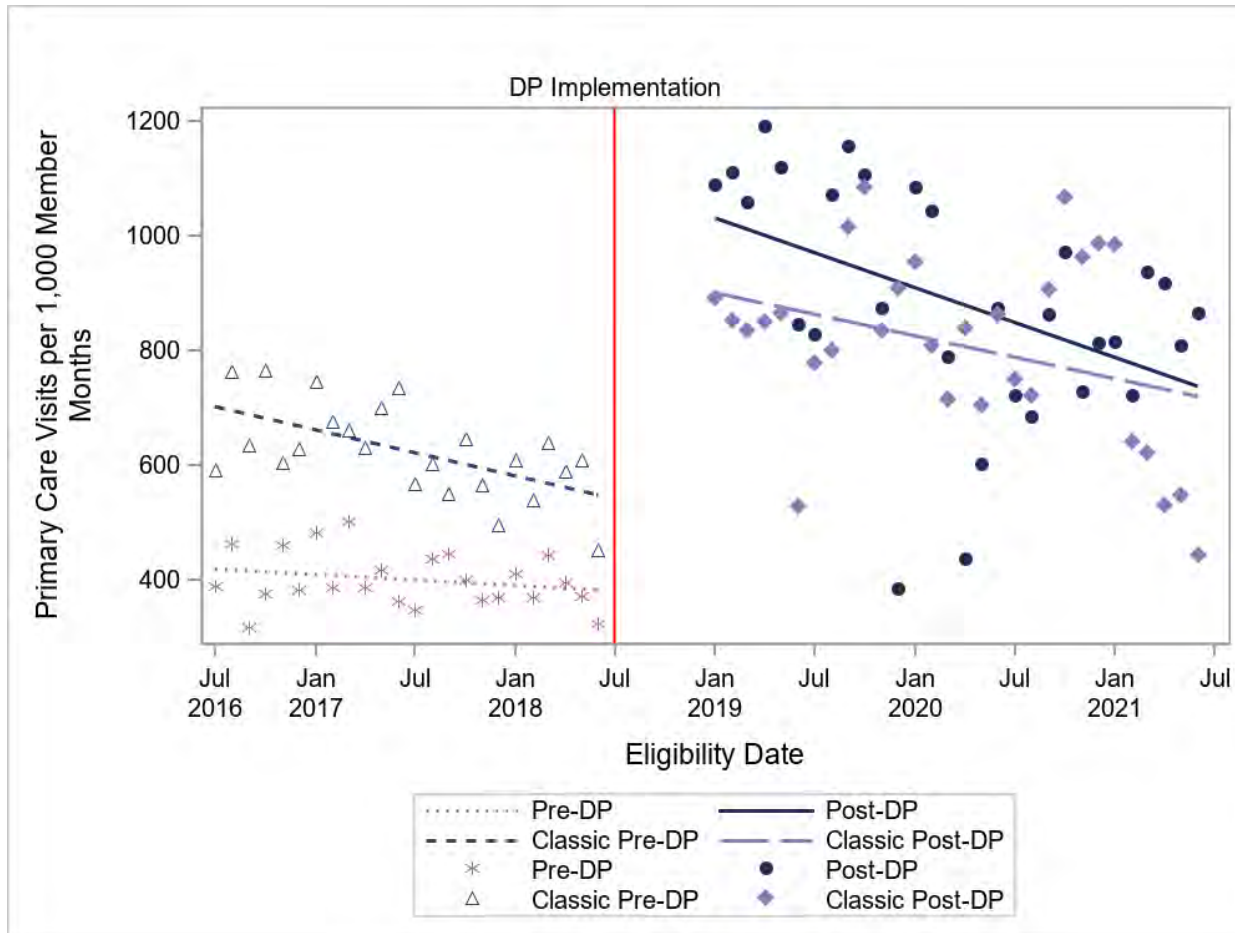
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variable Associations to PCP Visit Outcomes: In the regression model for PCPs, being one year of age or older than age 7 (as compared to <12 months and other ages), and having higher disease severity (CDPS

score), were both associated with statistically significant lower odds of PCP use. Being female or Spanish speaking (as compared to English speaking) was associated with higher odds. (See Appendix T for full regression model.)

Summary for HPSM DP and RCHSD DP PCP visit findings

At HPSM, PCP visits in the HPSM DP decreased in the post-DP period. In the DiD, HPSM had a significantly lower rate of PCP visits compared to the Classic CCS comparison group post-DP implementation. At RCHSD, PCP visits increased significantly for both the RCHSD DP and Classic CCS comparison groups in the post-DP period. PCP visit rates increased significantly more in the RCHSD DP as compared to the Classic CCS comparison group post-DP implementation.

Analyses for Well-Child Visits

The UCSF evaluation team reported on four separate Healthcare Effectiveness Data and Information Sets in the National Committee for Quality Assurance (HEDIS/NCQA) measures of well-child visits. This was done to examine the quality of care for health maintenance visits for children, as this measures healthcare maintenance and primary care delivery where primary care physician visits can include acute care visits and follow-up visits, which are difficult to separate out by coding alone.[50] Each DP had four measures shown by age stratification. These age stratifications, as defined HEDIS/NCQA, include:

- 0–15 months (six well-child visits)
- 0–30 months (two well-child visits)
- 3–6 years (one annual visit)
- 12–20 years (one annual visit)

Six or more well-child visits per 100 0- to 15-month-olds results

Table 51 provides comparisons of the number of 0- to 15-month-old clients with at least six well-child visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an HPSM DP client having six or more well-child visits were about 30% lower compared to the Classic CCS comparison group (p = .21). Likewise, during post-DP, the odds of an HPSM DP client having six or more well-child visits were about 30% lower than in the Classic CCS group (p = .01).

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[50] "Child and Adolescent Well-Care Visits (W30, WCV)," NCQA, www.ncqa.org/hedis/measures/child-and-adolescent-well-care-visits/.

Table 50: Six or More Well-Child Visits per 100 (0- to 15-month-olds): Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | Six or More Well-Child Visits per 100 (0- to 15-month-olds) | | Adjusted Odds Ratios | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM Group vs. Classic CCS	P-value
Pre-DP Implementation	38	46	0.71 (0.41, 1.22)	.208
Post-DP Implementation	37	46	0.71 (0.55, 0.93)	.012

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 52 provides comparisons of the pre-DP to post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. Among the HPSM DP group, the odds of a client having six or more well-child visits during the post-DP period did not differ significantly from the pre-DP period ($p = .80$). Likewise, in the Classic CCS comparison group, the odds of a client having six or more well-child visits in the post-DP period did not differ between the pre-DP and post-DP periods ($p = .76$). Difference in Differences from pre-DP to post-DP periods between the HPSM DP and Classic CCS comparison groups is not significant ($p = .97$).

Table 51: Had Six or More Well-Child Visits per 100 (0- to 15-month-olds): Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Six or More Well-Child Visits per 100 (0- to 15-month-olds) | | Adjusted Odds Ratios | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	38	37	0.95 (0.61, 1.46)	.803
Classic CCS Comparison Group	46	46	0.94 (0.61, 1.44)	.761
Difference in Differences			1.01 (0.55, 1.85)	.971

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 19: Had Six or More Well-Child Visits per 100 (0- to 15-month-olds) over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
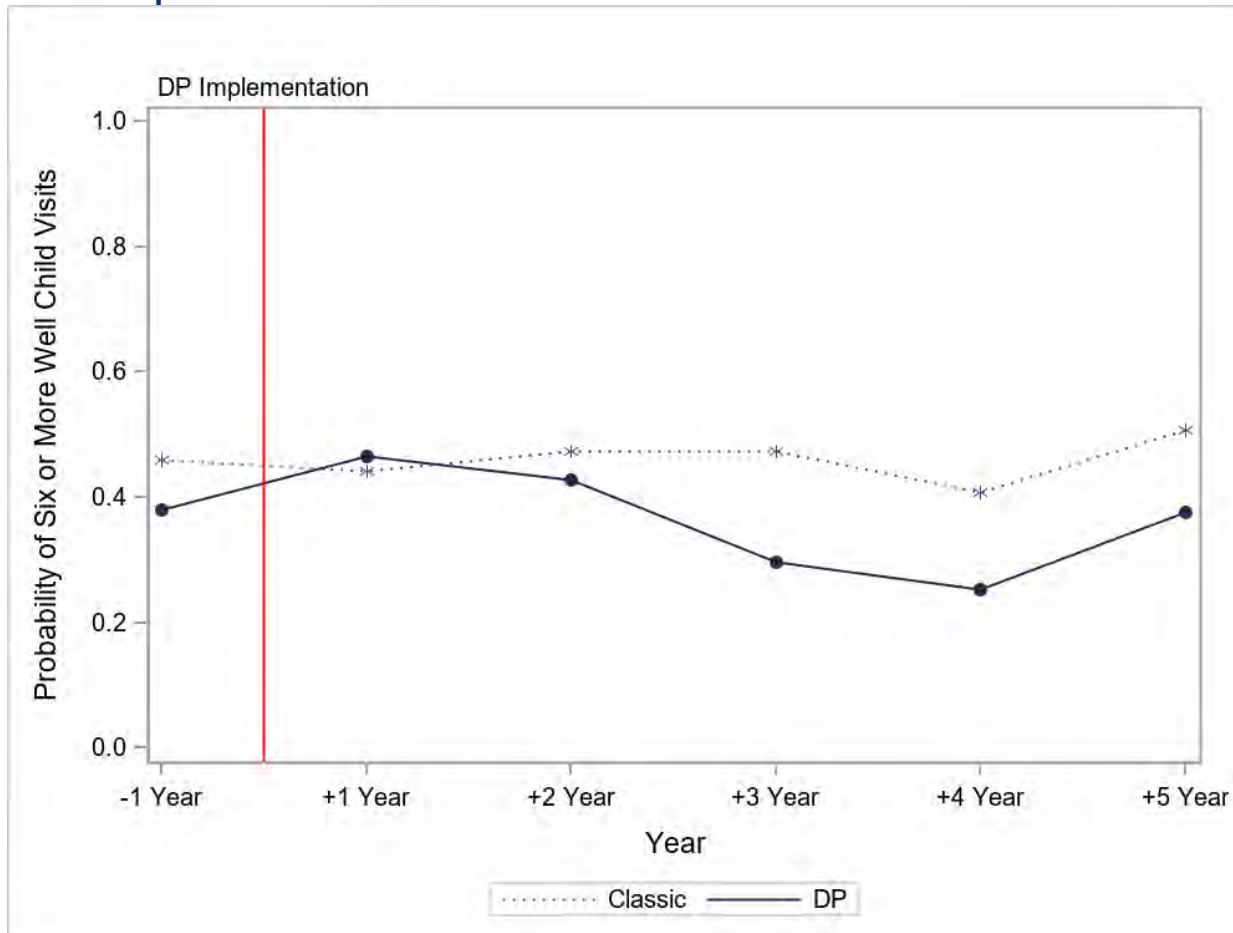
HPSM DP Independent Variable Associations to Six or More Well-Child Visits for 0- to 15-Month-Olds: In the HPSM DP DiD analyses for well-child visits for age 0–15 months, clients from Spanish-speaking households had statistically significant higher rates of well-child visits. (See Appendix T for full regression model.)

Table 53 provides comparisons of the number of 0- to 15-month-old clients with six or more well-child visits between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods. During the pre-DP period, the odds of an RCHSD DP client having six or more well-child visits were 7.5 times higher compared to the Classic CCS comparison group (*p* = .06). During the post-DP period, the odds of an RCHSD DP client having six or more well-child visits were 30% lower than in the Classic CCS group (*p* = .24). Because of the small sample size, findings should be considered more descriptive than conclusive, relative to the other multivariable statistical models presented in this report.

Table 52: Had Six or More Well-Child Visits per 100 (0- to 15-month-olds): Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

Period	Six or More Well-Child Visits per 100 (0- to 15-month-olds)		Odds Ratios* (95% CI) RCHSD DP Group vs. Classic	P-value
	RCHSD DP Group	Classic CCS Comparison Group		
Pre-DP Implementation	63	18	7.50 (0.92, 61.05)	.060
Post-DP Implementation	38	67	0.30 (0.04, 2.20)	.236

*Due to small sample size, no covariates could be included in this model.

Table 54 provides differences between the post-DP and pre-DP implementation periods for the RCHSD DP and Classic CCS comparison groups. Among the RCHSD DP groups, the odds of a client having six or more well-child visits during the post-DP period did not differ significantly from the pre-DP period (*p* = .32). However, among the Classic CCS comparison group, the odds of a client having six or more well-child visits in the post-DP period were 9.0 times greater than in the pre-DP period (*p* = .04). Difference in Differences from pre-DP to post-DP periods between the RCHSD DP and Classic CCS comparison groups is significant, with the RCHSD DP group having a lower odds of having six or more well-child visits as compared to significant increase in odds in the Classic CCS comparison group post-DP implementation (*p* = .03).

Table 53: Had Six or More Well-Child Visits per 100 (0- to 15-month-olds): Comparing RCHSD DP Pre- versus Post-Period, Classic CCS County Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Six or More Well-Child Visits per 100 (0- to 15-month-olds) | | Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	63	38	0.36 (0.05, 2.73)	.323
Classic CCS Comparison Group	18	67	9.00 (1.14, 71.04)	.037
Difference in Differences			0.04 (0.00, 0.72)	.029

*Due to small sample size, no covariates could be included in the model.

Figure 20: Had Six or More Well-Child Visits per 100 (0- to 15-month-olds) over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
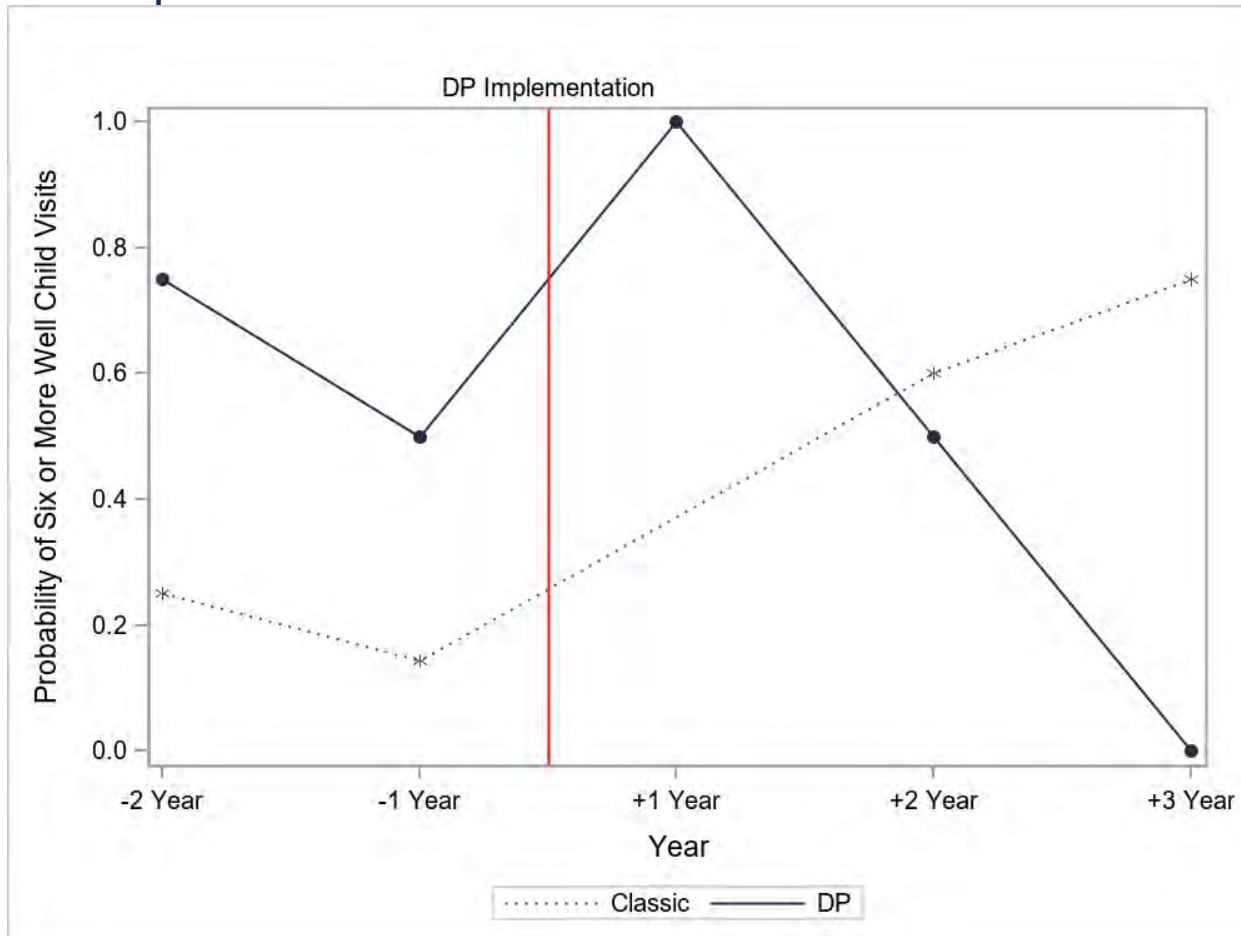
Summary of well-child visits for 0 to 15 months

At HPSM, there were no significant changes in well-child visits for clients age 0–15 months. At RCHSD, the RCHSD DP had a nonsignificant decrease in visits and the Classic CCS comparison group had a significant increase in visits during the post-DP implementation period, and the Difference in Differences is significant.

Two or more well-child visits per 100 0- to 30-month-olds results

Table 55 provides comparisons of the number of 0- to 30-month-old clients with two or more well-child visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During pre-DP, the odds of a client having two or more well-child visits did not differ significantly between the HPSM DP and Classic CCS comparison groups (*p* = .66). However, during post-DP, the odds of a HPSM DP client having two or more well-child visits were 35% lower than in the Classic CCS comparison group (*p* = .01).

Table 54: Had Two or More Well-Child Visits per 100 (0- to 30-month-olds): Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | Two or More Well-Child Visits per 100 (0- to 30-month-olds) | | Adjusted Odds Ratios | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM Group vs. Classic CCS	*P*-value
Pre-DP Implementation	75	71	1.16 (0.61, 2.19)	.657
Post-DP Implementation	74	81	0.65 (0.47, 0.89)	.008

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 56 provides comparisons of the pre-DP to the post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. In the HPSM DP group, the odds of a client having two or more well-child visits during the post-DP did not differ significantly from the pre-DP period (*p* = .99). However, in the Classic CCS comparison group, the odds of a client having two or more well-child visits in the post-DP period were 1.79 times greater than in the pre-DP period (*p* = .03). Difference in Differences from pre-DP to post-DP periods between the HPSM DP and Classic CCS comparison groups is not significant (*p* = .11).

Table 55: Had Two or More Well-Child Visits per 100 (0- to 30-month-olds): Comparing HPSM DP Pre- versus Post-Period, Classic CCS County Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Two or More Well-Child Visits per 100 (0- to 30-month-olds) | | Adjusted Odds Ratios | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	75	74	1.00 (0.61, 1.63)	.999
Classic CCS Comparison Group	71	81	1.79 (1.06, 3.01)	.029
Difference in Differences			0.56 (0.27, 1.14)	.111

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 21: Had Two or More Well-Child Visits per 100 (0- to 30-month-olds) over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
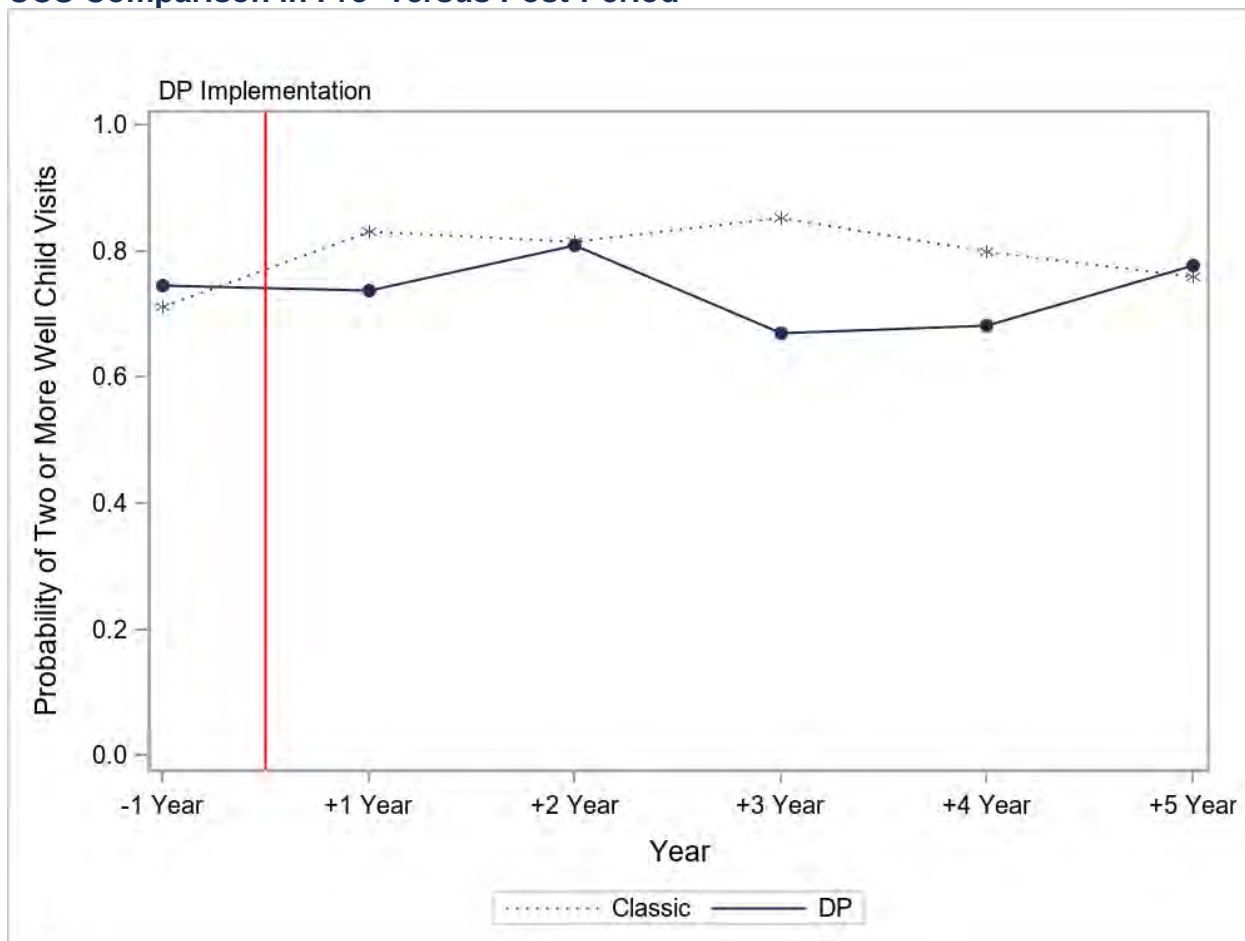
HPSM DP Independent Variable Associations to Two or More Well-Child Visits for 0- to 30-Month-Olds: In the HPSM DP DiD analyses for well-child visits, those who were 0–30 months of age and in a Spanish-language household had significantly higher rates of well-child visits; those without a disability had lower rates. (See Appendix T for full regression model.)

Table 57 provides comparisons of number of 0- to 30-month-old clients with two or more well-child visits between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP, the odds of an RCHSD DP versus a Classic CCS comparison client having two or more visits did not differ significantly ($p = .74$). Likewise, during post-DP period, the odds of an RCHSD DP client having two or more well-child visits versus those of a Classic CCS comparison client did not differ significantly ($p = .78$).

Table 56: Had Two or More Well-Child Visits per 100 (0- to 30-month-olds): Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

Period	Two or More Well-Child Visits per 100 (0- to 30-month-olds)		Odds Ratios* (95% CI) RCHSD DP Group vs. Classic CCS	P-value
	RCHSD DP Group	Classic CCS Comparison Group		
Pre-DP Implementation	36	43	0.76 (0.15, 3.86)	.742
Post-DP Implementation	67	71	0.80 (0.16, 3.88)	.782

*Due to small sample size, no covariates could be included in the model.

Table 58 provides comparisons of clients having two or more well-child visits between the pre- and post-implementation periods for the RCHSD DP and Classic CCS comparison groups separately. Among the RCHSD DP, the odds of pre-DP to post-DP period visits did not differ significantly ($p = .13$). Likewise, among the Classic CCS comparison group, the odds of a client having two or more well-child visits pre- versus post-DP periods did not differ significantly ($p = .13$). Difference in Differences from pre- to post-implementation periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .97$).

Table 57: Had Two or More Well-Child Visits per 100 (0- to 30-month-olds): Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Two or More Well-Child Visits per 100 (0- to 30-month-olds)		Odds Ratios* (95% CI) Post- vs. Pre-Periods	P-value
	Pre-DP Implementation	Post-DP Implementation		
RCHSD DP Group	36	67	3.50 (0.68, 17.89)	.132
Classic CCS Comparison Group	43	71	3.33 (0.69, 16.02)	.133
Difference in Differences			1.05 (0.11, 10.10)	.966

*Due to small sample size, no covariates could be included in the model.

Figure 22: Had Two or More Well-Child Visits per 100 (0- to 30-month-olds) over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
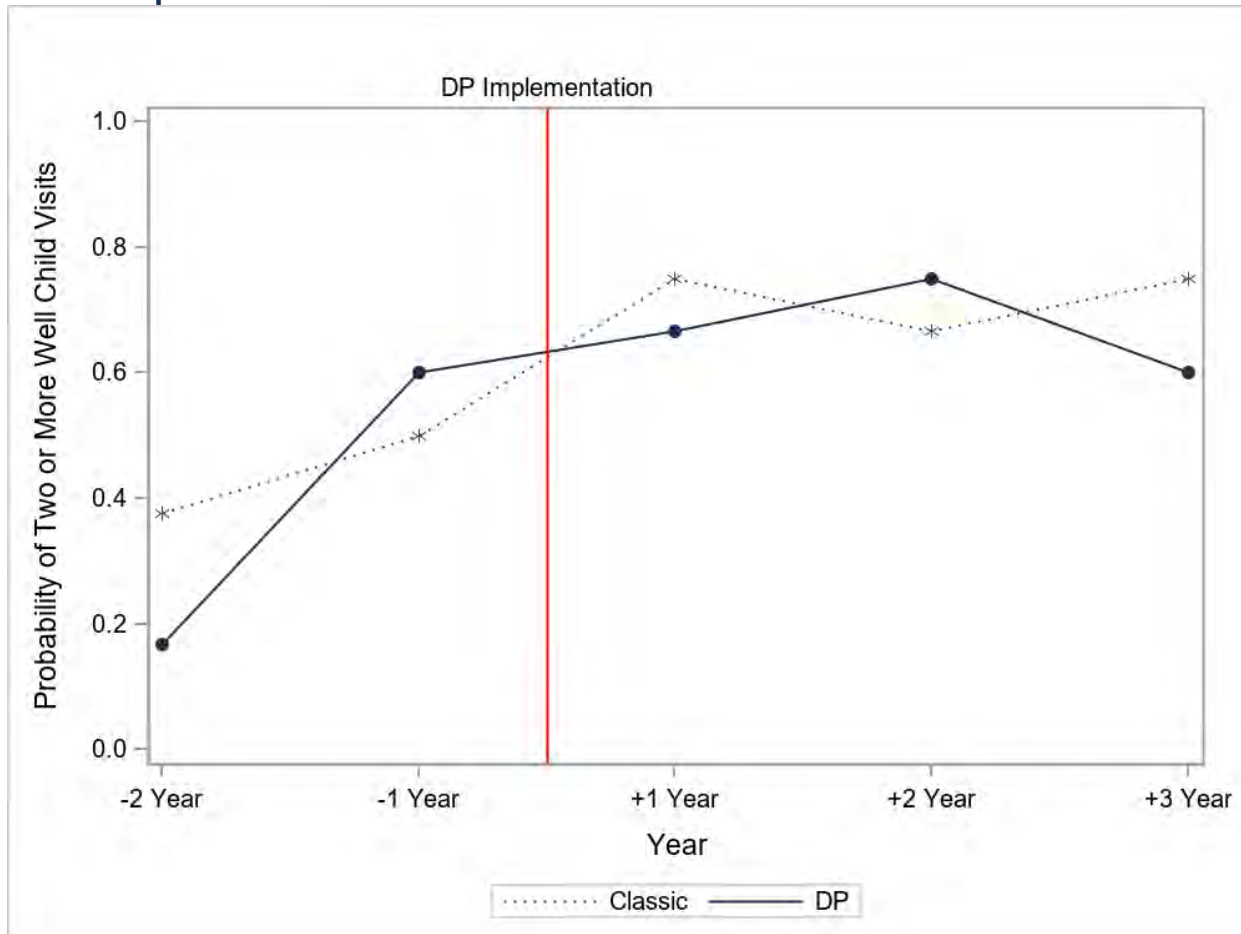
Summary of well-child visits for 0 to 30 months

Overall, there is no significant change in well-child visits for clients age 0–30 months from the pre-DP to the post-DP implementation periods within the HPSM DP or the RCHSD DP.

Annual well-child visits for 3- to 6-year-olds results

Table 59 provides comparisons of the number of 3- to 6-year-old clients with an annual well-child visit between the HPSM DP and Classic CCS comparison groups in the pre-DP 158 versus the post-DP implementation periods separately. During the pre-DP period, the odds of an HPSM DP client having an annual well-child visit did not differ significantly from those for a client in the Classic CCS comparison group ($p = .06$). However, during the post-DP period, the odds of an HPSM DP client having an annual well-child visit were about 30% lower than those in the Classic CCS group ($p < .001$).

Table 58: Annual Well-Child Visits per 100 (3- to 6-year-olds): Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | Annual Well-Child Visits per 100 (3- to 6-year-olds) | | Adjusted Odds Ratios* | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM DP Group vs. Classic CCS	*P*-value
Pre-DP Implementation	68	63	1.23 (0.99, 1.52)	.063
Post-DP Implementation	66	73	0.71 (0.62, 0.82)	<.001

*Adjusted for language, race/ethnicity, and illness severity (CDPS).

Table 60 provides comparisons of a client having an annual well-child visit between the post-DP and pre-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP, the odds of a client having an annual well-child visit did not differ significantly between the post-DP and pre-DP periods ($p = .25$). However, in the Classic CCS comparison group, the odds of a client having an annual well-child visit in the post-DP period were 1.55 times greater than during the pre-DP period ($p < .001$). Difference in Differences from post-DP to pre-DP periods between the HPSM DP and Classic CCS comparison groups is significant, with the HPSM DP group having slightly lower odds of having an annual well-child visit at the post-DP period compared to a significant increase in odds of a well-child visit during the post-DP period in the Classic CCS comparison group ($p < .001$).

Table 59: Annual Well-Child Visits per 100 (3- to 6-year-olds): Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Annual Well-Child Visits per 100 (3- to 6-year-olds) | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM Group	68	66	0.90 (0.75, 1.08)	.254
Classic CCS Comparison Group	63	73	1.55 (1.29, 1.86)	<.001
Difference in Differences			0.58 (0.45, 0.75)	<.001

*Adjusted for language, race/ethnicity, and illness severity (CDPS).

Figure 23: Annual Well-Child Visits per 100 (3- to 6-year-olds) over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
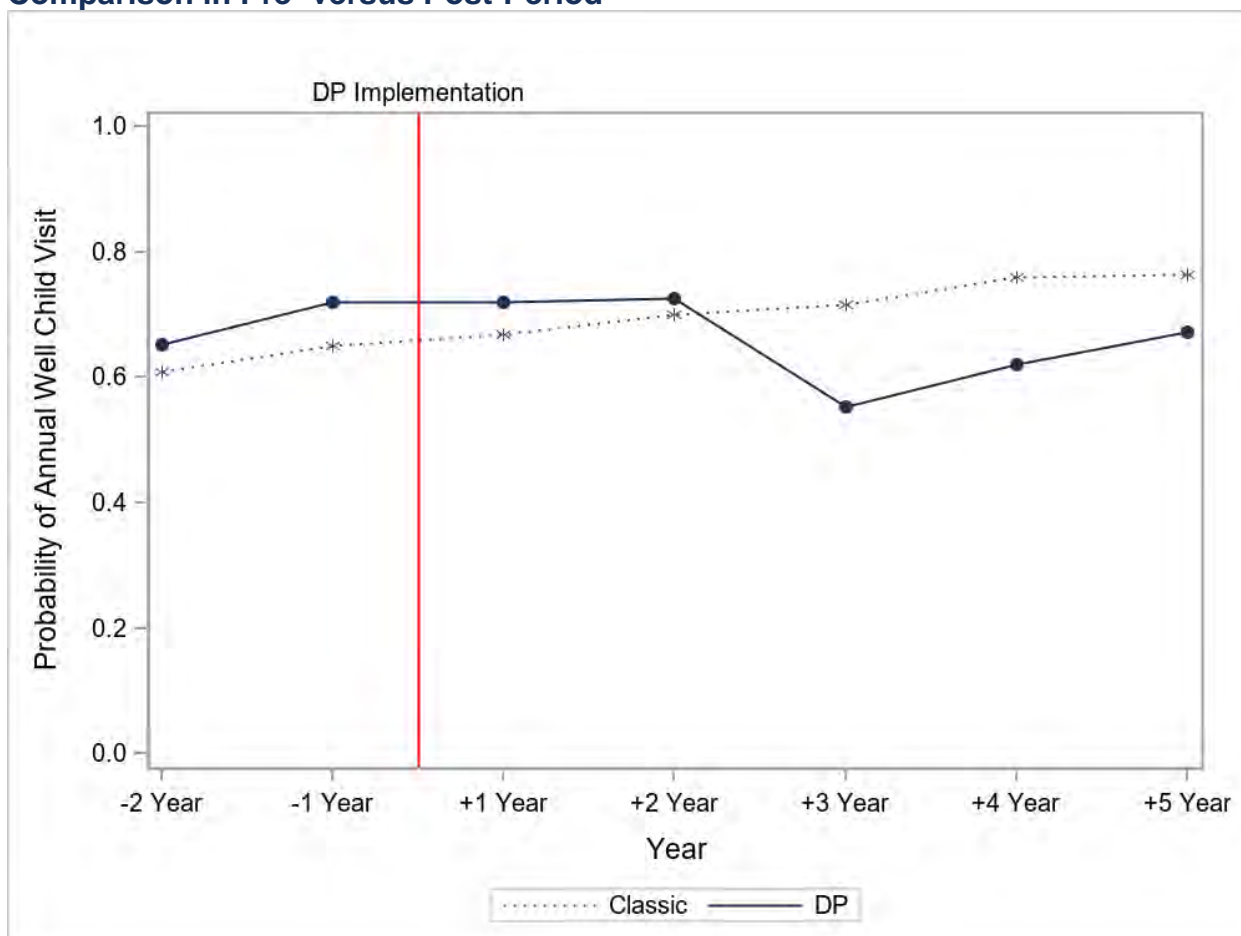
HPSM DP Independent Variable Associations to an Annual Well-Child Visit for 3- to 6-Year-Olds: In the HPSM DP DiD analyses for well-child visits for those age 3–6 years, those who were Latinx and "other" race, had a high-illness severity, and those from Spanish-language homes had statistically significant higher rates of well-child visits. (See Appendix T for full regression model.)

Table 61 provides comparisons of the number of 3- to 6-year-old clients with an annual well-child visit between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an RCHSD DP client having an annual well-child visit did not differ significantly from those in the Classic CCS comparison group ($p = .96$). However, during the post-DP period, the odds of an RCHSD DP client having an annual well-child visit were 45% lower than those in the Classic CCS comparison group ($p = .01$).

Table 60: Annual Well-Child Visits per 100 (3- to 6-year-olds): Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Annual Well-Child Visits per 100 (3- to 6-year-olds) | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP Group vs. Classic	P-value
Pre-DP Implementation	48	46	0.99 (0.58, 1.69)	.956
Post-DP Implementation	53	67	0.55 (0.34, 0.88)	.012

*Adjusted for language, race/ethnicity, and illness severity (CDPS).

Table 62 provides comparisons of annual well-child visits during the post-DP to the pre-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. In the RCHSD DP group, the odds of a client having an annual well-child visit did not differ significantly from the post- to the pre-DP periods ($p = .17$). However, among the Classic CCS comparison group, the odds of a client having an annual well-child visit in the post-DP period were 2.39 greater than those of the pre-DP period ($p = .004$). Despite increases in the Classic CCS comparison group at post-DP period, the Difference in Differences from post-DP to pre-DP periods between the RCHSD DP and Classic comparison groups is not significant ($p = .11$).

Table 61: Annual Well-Child Visits per 100 (3- to 6-year-olds): Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Annual Well-Child Visits per 100 (3- to 6-year-olds)		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	48	53	1.33 (0.89, 1.99)	.170
Classic CCS Comparison Group	46	67	2.39 (1.33, 4.28)	.004
Difference in Differences			0.56 (0.27, 1.13)	.106

*Adjusted for language, race/ethnicity, and illness severity (CDPS).

Figure 24: Annual Well-Child Visits per 100 (3- to 6-year-olds) over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
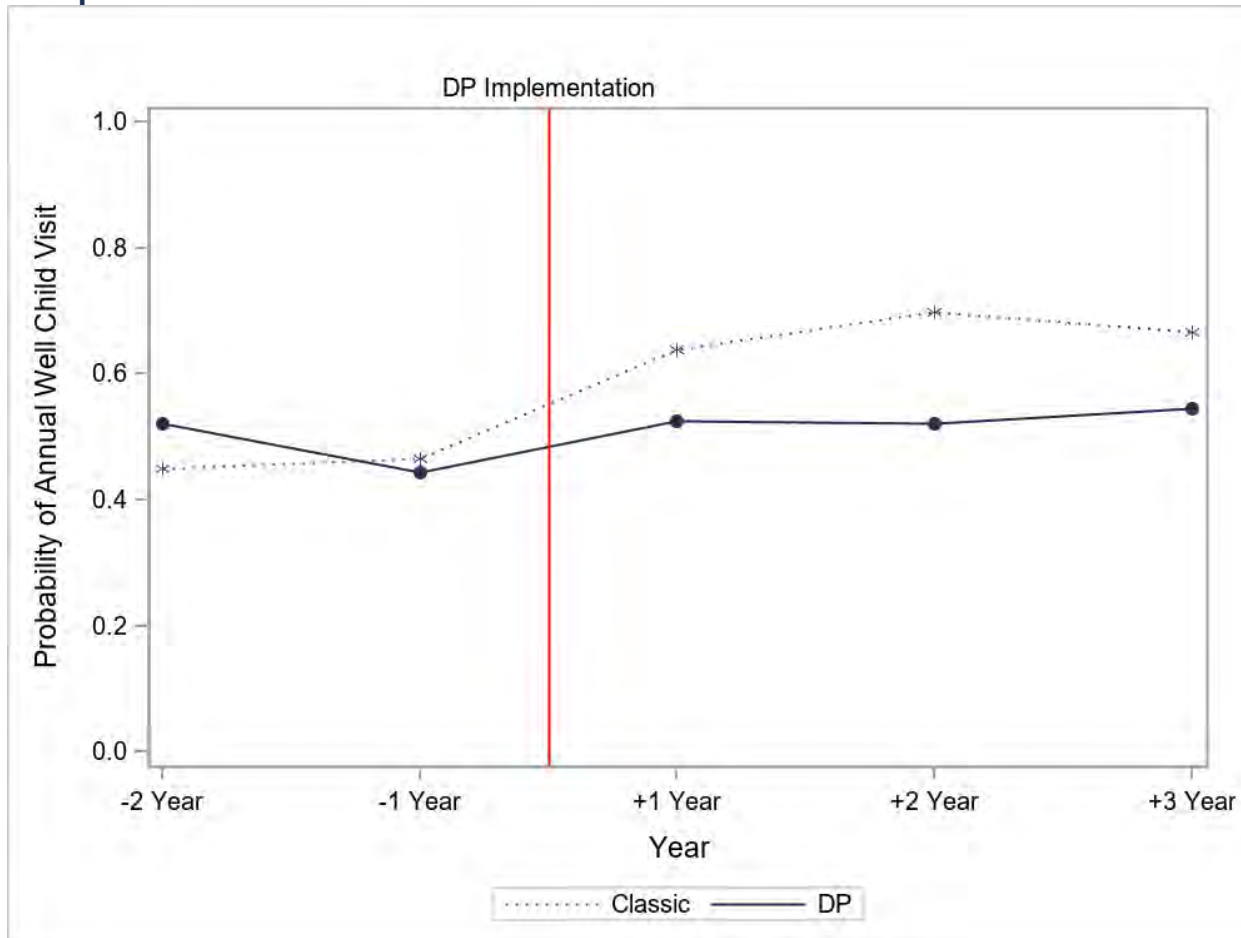
RCHSD DP Independent Variable Associations to an Annual Well-Child Visit for 3- to 6-Year-Olds: In the RCHSD DP DiD analysis of well-child visits for children age 3–6 years, Black, Latinx, and those who spoke Spanish at home had statistically significant higher rates of well-child visits. (See Appendix T for full regression model.)

Summary for DiD analysis for well-child visits, age 3–6 years

At HPSM, annual well-child visits increased significantly during the post-DP period for the Classic CCS comparison group but did not increase significantly in the HPSM DP. However, the Difference in Differences between the HPSM DP and Classic CCS comparison groups is significant. At RCHSD, annual well-child visits increased significantly in the Classic CCS comparison group but did not increase significantly in the RCHSD DP. However, the Difference in Differences between the RCHSD DP and Classic CCS comparison group is not significant.

Annual well-child visits for 12- to 20-year-olds results

Table 63 provides comparisons of 12-to 20-year-old clients with an annual well-child visit between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an HPSM DP client having an annual well-child visit were about 15% lower compared to the Classic CCS comparison group ($p = .04$). Likewise, during the post-DP period, the odds of an HPSM DP client having an annual well-child visit were about 20% lower than in the Classic CCS comparison group ($p < .001$).

Table 62: Annual Well-Child Visits per 100 (12- to 20-year-olds): Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

Period	Annual Well-Child Visits per 100 (12- to 20-year-olds)		Adjusted Odds Ratios* (95% CI)	
	HPSM DP Group	Classic CCS Comparison Group	HPSM Group vs. Classic CCS	*P*-value
Pre-DP Implementation	33	36	0.86 (0.73, 0.99)	.043
Post-DP Implementation	45	50	0.81 (0.74, 0.89)	<.001

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 64 provides comparisons of 12- to 20-year-old clients with an annual well-child visit from the post-DP to pre-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. Among the HPSM DP group, the odds of a client having an annual well-child visit during the post-DP period were 1.65 times more likely than in the pre-DP period ($p < .001$). Likewise, the odds of a Classic CCS comparison client having an annual visit were 1.73 times more likely in the post-DP period ($p < .001$). Difference in Differences from pre-DP to post-DP implementation periods between the HPSM DP and Classic CCS comparison groups is not significant ($p = .56$).

Table 63: Annual Well-Child Visits per 100 (12- to 20-year-olds): Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Annual Well-Child Visits per 100 (12- to 20-year-olds) | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM DP Group	33	45	1.65 (1.45, 1.87)	<.001
Classic Comparison Group	36	50	1.73 (1.54, 1.96)	<.001
Difference in Differences			0.95 (0.80, 1.13)	.564

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 25: Annual Well-Child Visits per 100 (12- to 20-year-olds) over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
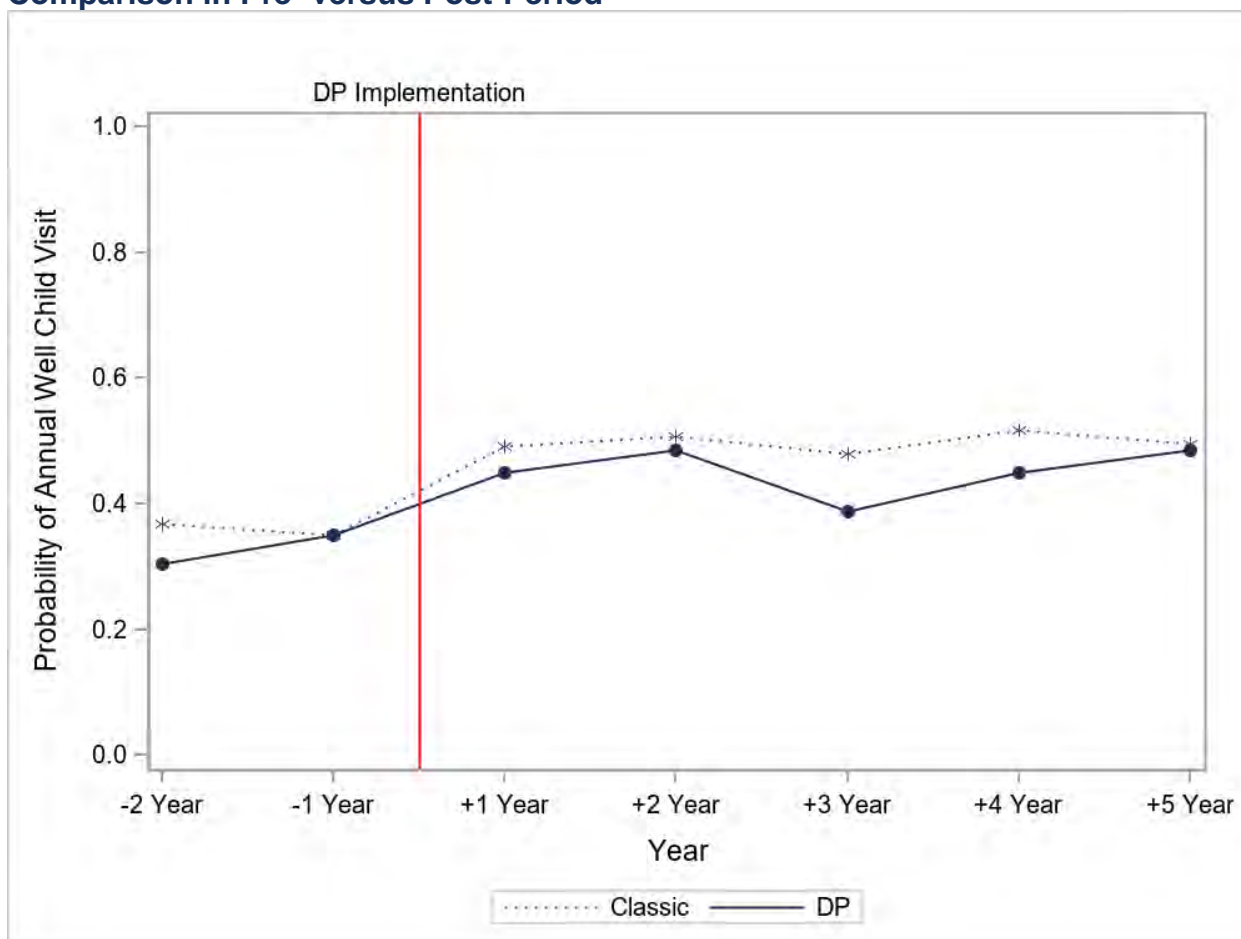
HPSM DP Independent Variable Associations to Well-Child Visits for 12- to 20-Year-Olds: In the HPSM DP DiD analysis for well-child visits, those who were 12–20 years old, Black, Latinx, and "other" races as well as having higher disease severity (CDPS) had higher rates of well-child visits, while not having a disability was associated with statistically significant lower rates of well-child visits for those 12–20 years of age. (See Appendix T for full regression model.)

Table 65 provides comparisons of the number of 12- to 20-year-old clients with an annual well-child visit between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an RCHSD DP client having an annual well-child visit did not differ significantly in comparison to those of a Classic CCS comparison client (*p* = .20). Likewise, during the post-DP period, the odds of an annual visit did not differ significantly between RCHSD DP and Classic CCS comparison groups (*p* = .61).

Table 64: Annual Well-Child Visits per 100 (12- to 20-year-olds): Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Annual Well-Child Visits per 100 (12- to 20-year-olds) | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP Group vs. Classic CCS	*P*-value
Pre-DP Implementation	40	45	0.76 (0.50, 1.16)	.203
Post-DP Implementation	43	44	0.93 (0.71, 1.22)	.605

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 66 provides comparisons of the pre-DP to post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. In the RCHSD DP group, the odds of a client having an annual well-child visit did not differ significantly between the post-DP and pre-DP periods (*p* = .62). Likewise, in the Classic CCS comparison group, the odds did not differ significantly between the post-DP and pre-DP periods (*p* = .53). Difference in Differences from pre-DP to post-DP periods between the RCHSD DP and Classic CCS comparison groups is not significant (*p* = .42).

Table 65: Well-Child Visits per 100 (12- to 20-year-olds): Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Annual Well-Child Visits per 100 (12- to 20-year-olds) | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	40	43	1.09 (0.77, 1.53)	.621
Classic CCS Comparison Group	45	44	0.89 (0.61, 1.29)	.534
Difference in Differences			1.23 (0.74, 2.02)	.423

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 26: Annual Well-Child Visits per 100 (12- to 20-year-olds) Over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
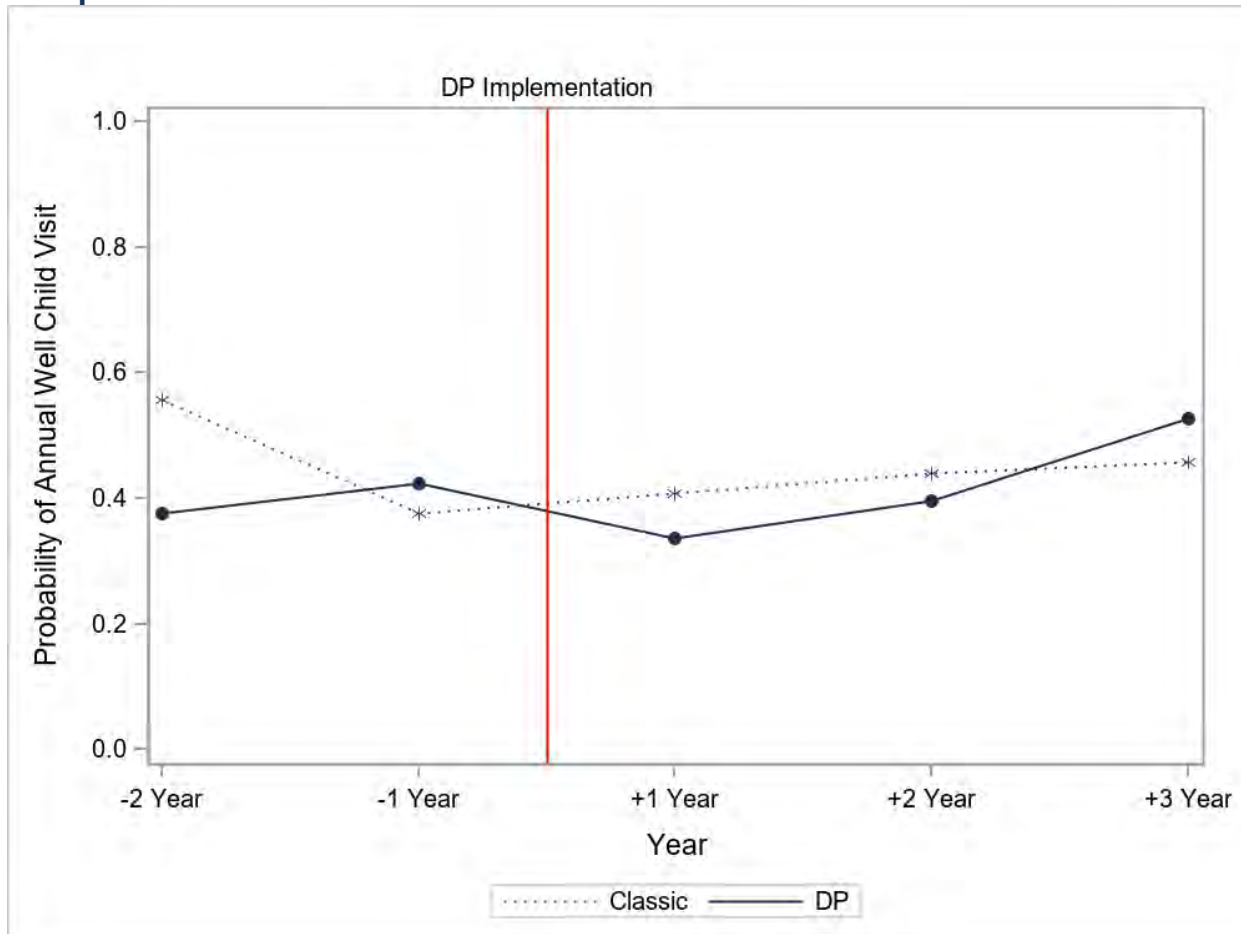
RCHSD DP Independent Variable Associations to Well-Child Visits for 12- to 20-Year-Olds: In the RCHSD DP DiD analysis for annual well-child visits for age 12–20 years, there were no statistically significant differences within demographic categories of the independent variables. (See Appendix T for full regression model.)

Summary for well-child visits age 12–20 years

At HPSM, the HPSM DP and Classic CCS comparison groups both significantly increased well-child visits during the post-DP period for 12- to 20-year-olds, and the Difference in Differences between the groups is not significant. At RCHSD, neither the RCHSD DP nor the Classic CCS comparison group had significant changes in visits between the pre-DP and post-DP implementation periods. Again, the Difference in Differences is not significant.

Specialist Visits Results

Table 67 provides comparisons of the number of specialist visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an HPSM DP specialist visit were about 50% lower than those for a Classic CCS comparison visit ($p = .001$). Likewise, during post-DP implementation, the odds of an HPSM DP client having a specialist visit were about 25% lower than those for a Classic CCS comparison client visit ($p < .001$).

Table 66: Specialist Visits per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
Period	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Pre-DP Implementation	206	440	0.50 (0.45, 0.55)	<.001
Post-DP Implementation	402	527	0.76 (0.71, 0.81)	<.001

*Adjusted for age, gender, language, race/ethnicity, and illness severity (CDPS).

Specialist visits per 1,000 member months: comparing HPSM DP pre- versus post-period, Classic CCS comparison pre- versus post-period, and DiD analysis

Table 68 provides comparisons of the number of clients having a specialist visit between the pre-DP and post-DP implementation period for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP, the odds of a client having a specialist visit were 1.81 times greater during the post-DP period ($p < .001$). Likewise, among the Classic CCS comparison group, the odds of a client having a specialist visit were 1.19 times greater during the post-DP period ($p < .001$). Given higher increases in visits for the HPSM DP group, Difference in Differences from pre-DP to post-DP implementation periods between the HPSM DP and Classic CCS comparison groups is significant ($p < .001$).

Table 67: Specialist Visits per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Specialist Visits per 1,000 Member Months		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	206	402	1.81 (1.66, 1.97)	<.001
Classic CCS Comparison Group	440	527	1.19 (1.12, 1.26)	<.001
Difference in Differences			1.52 (1.37, 1.70)	<.001

*Adjusted for age, gender, language, race/ethnicity, and illness severity (CDPS).

Figure 27: Specialist Visits per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
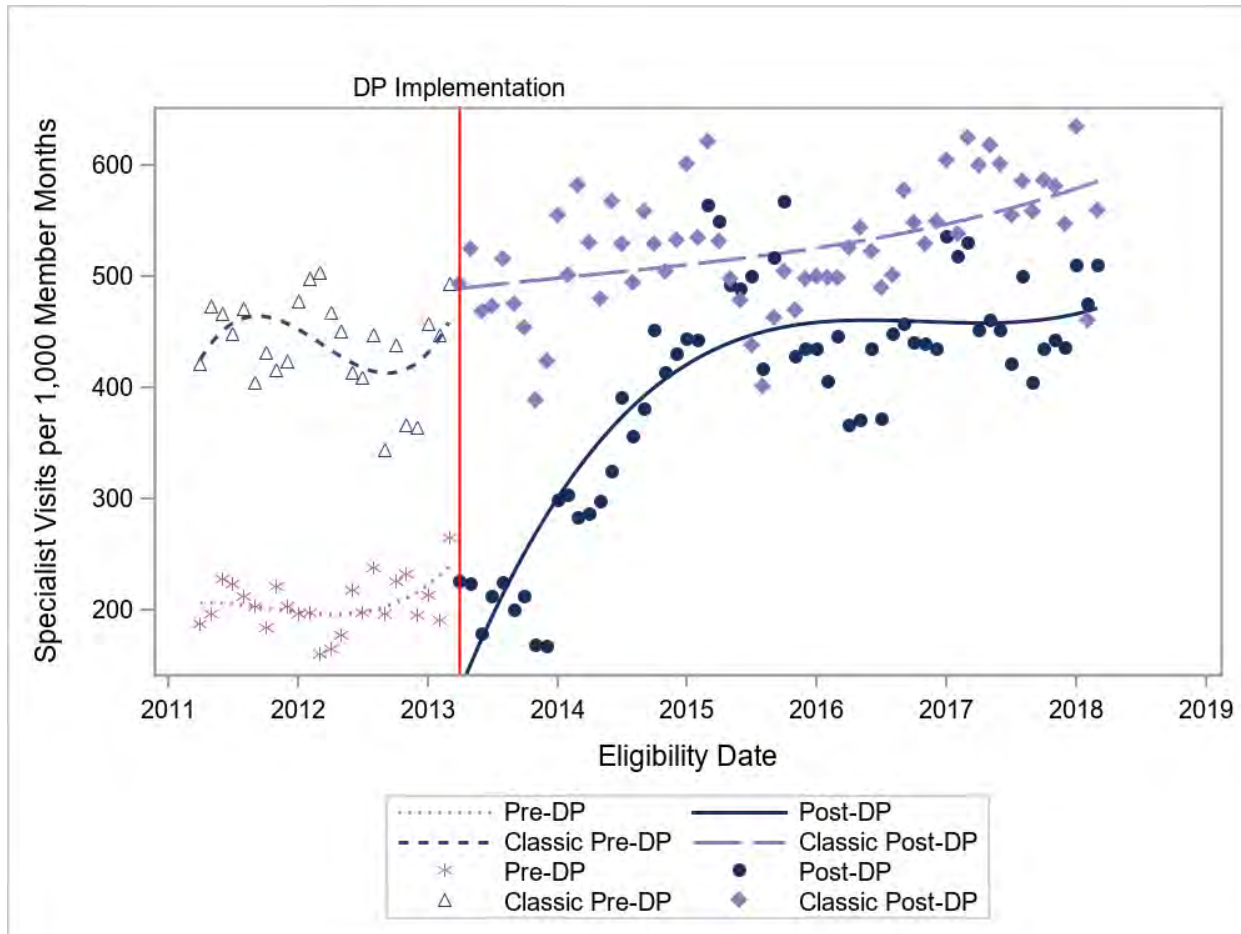
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variable Associations to Specialist Visits: In the regression model for specialist visits claims, higher illness severity, being female and "other" race as compared to White, were associated with statistically significant

higher rates of specialist visits. Those who were 1–11 years old had statistically significant lower rates of specialist use. (See Appendix T for full regression model.)

Specialist visits per 1,000 member months: comparing RCHSD DP to Classic CCS in pre- versus post-period

Table 69 provides comparisons of the number of specialist visits between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an RCHSD DP visit were about 30% lower than those for a Classic CCS comparison visit ($p < .001$). Likewise, during the post-DP period, the odds of an RCHSD DP client having a specialist visit were about 40% lower than those for a Classic CCS comparison client visit ($p < .001$).

Table 68: Specialist Visits per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Specialist Visits per 1,000 Member Months | | Adjusted Odds Ratios* (95% CI) RCHSD DP vs. Classic CCS | P-value |
	RCHSD DP Group	Classic CCS Comparison Group		
Pre-DP Implementation	1,194	1,736	0.71 (0.58, 0.86)	<.001
Post-DP Implementation	730	1,306	0.61 (0.49, 0.76)	<.001

*Adjusted for age, gender, language, race/ethnicity, and illness severity (CDPS).

Table 70 provides comparisons of the number of clients having a specialist visit between the pre-DP and post-DP implementation period for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP, the odds of a client having a specialist visit were about 20% lower during the post-DP period, a significant decrease ($p = .014$). Among the Classic CCS comparison group, the odds of a client having a specialist visit were not significantly different during the post-DP period. The Difference in Differences from post-DP to pre-DP implementation periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .26$).

Table 69: Specialist Visits per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Specialist Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
RCHSD DP Group	1,194	730	0.78 (0.64, 0.95)	.014
Classic CCS Comparison Group	1,736	1,306	0.90 (0.77, 1.06)	.214
Difference in Differences			0.87 (0.67, 1.11)	.264

*Adjusted for age, gender, language, race/ethnicity, and illness severity (CDPS).

Figure 28: Specialist Visits per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
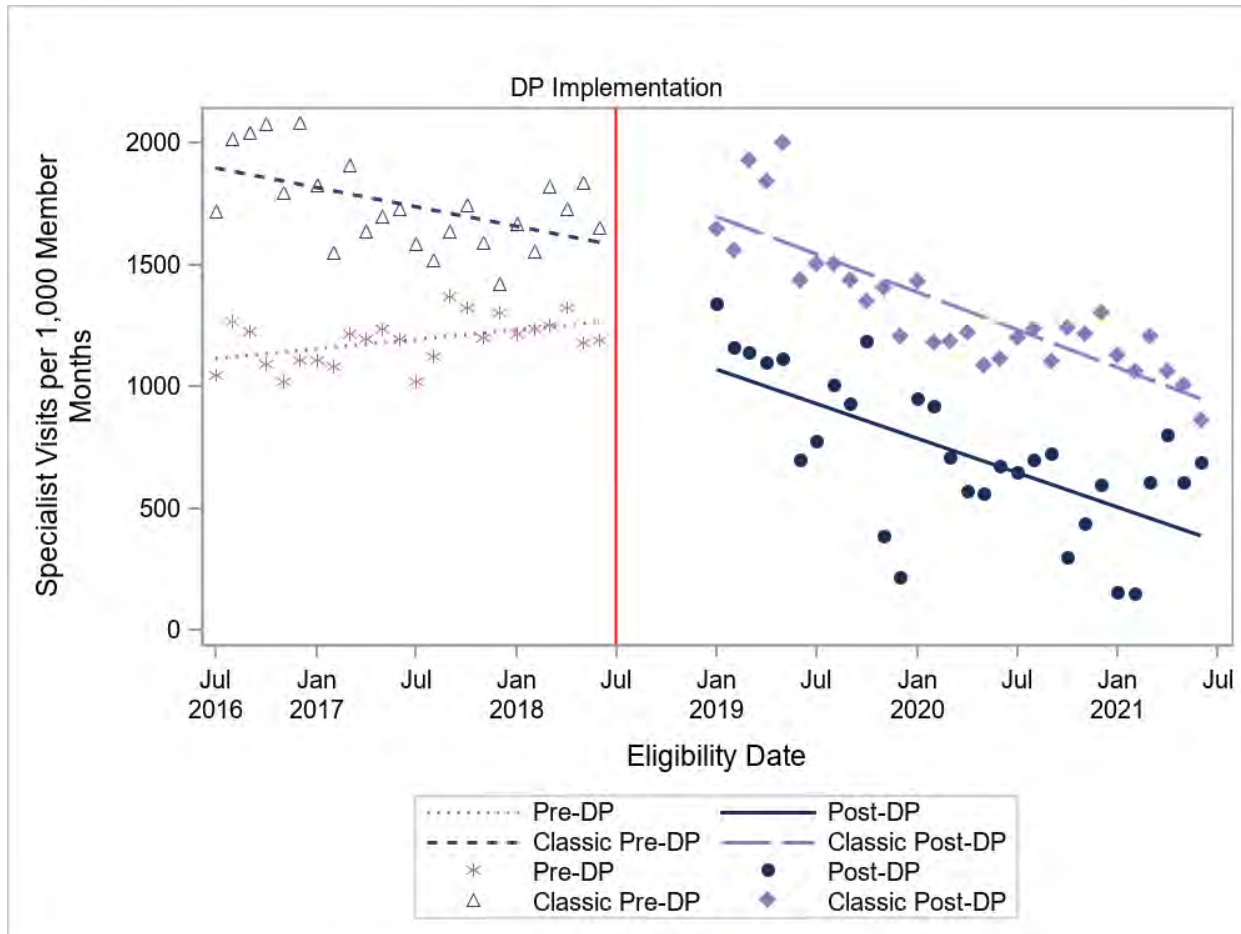
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variable Associations to Specialist Visits: In the regression model for specialist visits, those with higher illness severity and who were female had statistically significant higher rates of specialist use; being one year

old as compared to being less than one was associated with statistically significant lower rates of specialist use. (See Appendix T for full regression model.)

Overall summary of specialty visits results, HPSM DP and RCHSD DP

At HPSM, the HPSM DP and Classic CCS groups both had significant increases in specialty visits, and due to the higher increase in the HPSM DP group, the Difference in Differences is significant. At RCHSD, the RCHSD DP group had decreases at post-DP while the Classic CCS comparison group had no change, with no Difference in Differences.

CCS Paneled Provider Visits Results

Overview: A CCS "Paneled Provider" is a healthcare provider whom the CCS program has determined meets the advanced education, training, and/or experience requirements for their provider type to render services to a CCS applicant or client. Not all pediatric specialists are paneled.

Table 71 provides comparisons of the number of CCS Paneled Provider visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an HPSM DP visit were about 75% lower than those for a Classic CCS comparison visit ($p < .001$). Likewise, during the post-DP period, the odds of an HPSM DP client having a CCS Paneled Provider visit were 30% lower than those for a Classic CCS comparison client visit ($p < .001$).

Table 70: CCS Paneled Provider Visits per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | CCS Paneled Provider Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Pre-DP Implementation	132	560	0.26 (0.23, 0.28)	<.001
Post-DP Implementation	456	667	0.68 (0.64, 0.72)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 72 provides comparisons of clients having a CCS Paneled Provider visit between the pre-DP and post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP, the odds of a client having a CCS Paneled Provider visit during the post-DP period were 3.20 times greater than those for the pre-DP period ($p < .001$). Likewise, among the Classic CCS comparison group, the odds of a client having a CCS Paneled

Provider visit were 3.20 times greater during the post-DP period ($p < .001$). Given the greater increase in visits in the HPSM DP group, Difference in Differences from pre-DP to post-DP implementation periods between the HPSM DP and Classic CCS comparison groups is significant ($p < .001$).

Table 71: CCS Paneled Provider Visits per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | CCS Paneled Provider Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	132	456	3.20 (2.93, 3.50)	<.001
Classic CCS Comparison Group	560	667	1.21 (1.14, 1.28)	<.001
Difference in Differences			2.64 (2.38, 2.94)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 29: CCS Paneled Provider Visits per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
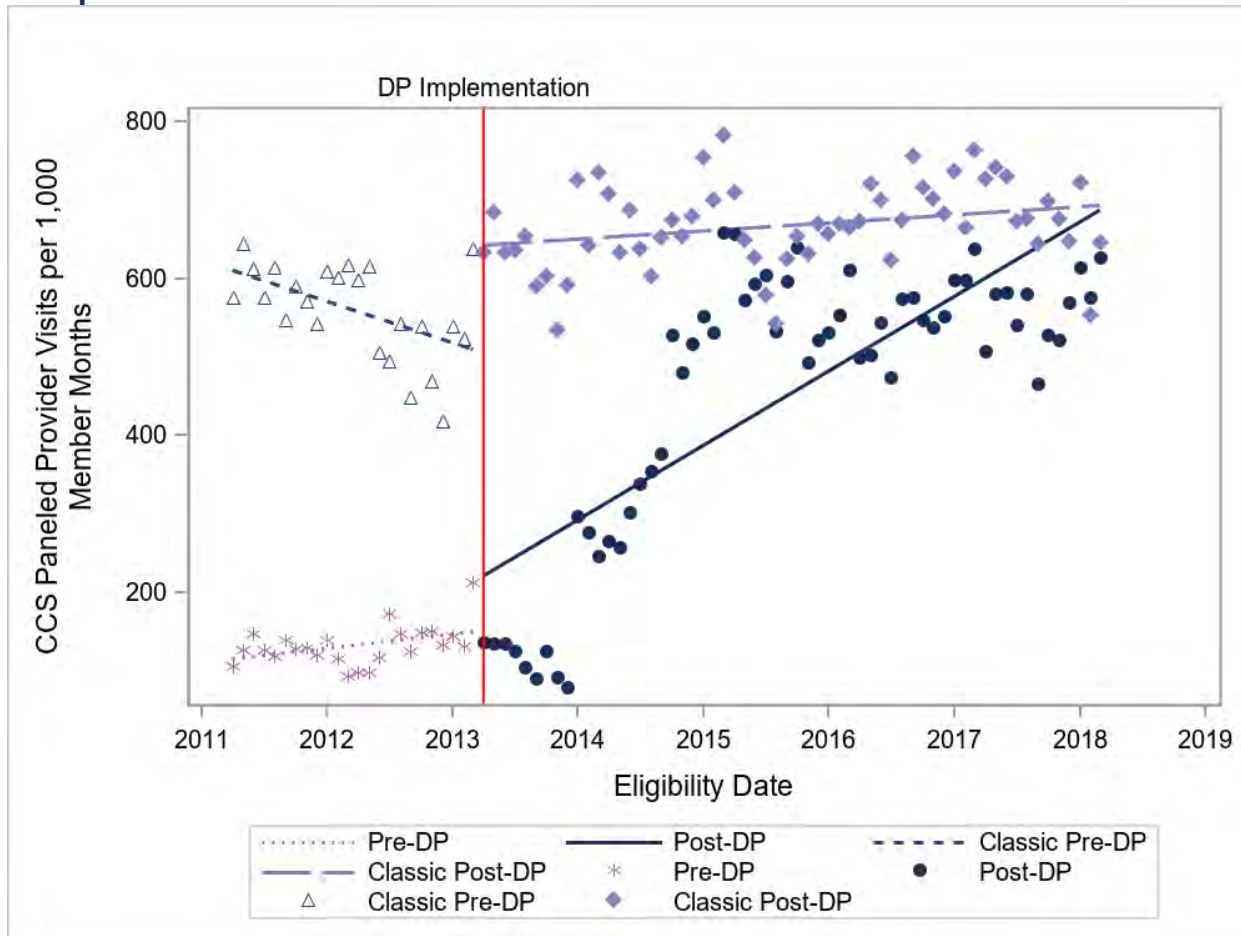
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP and Classic CCS comparison groups are statistically different ($p = .0036$), and thus the parallel slopes assumption of the DiD model is not satisfied. As such, the pre-to-post differences may be due to underlying trends and not the result of the DP implementation. Results should be interpreted with caution.

HPSM DP Independent Variable Associations to CCS Paneled Provider Visits: In the regression model for CCS Paneled Providers, those with higher illness severity, spring months, Spanish speaking, and of "other"/unknown race had statistically significant higher rates of CCS Paneled Provider use. Not having a disability, and being 1–20 years old, were associated with lower CCS Paneled Provider use. (See Appendix T for full regression model.)

Table 73 provides comparisons of the number of CCS Paneled Provider visits between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of a CCS Paneled Provider visit for the RCHSD DP group were about 30% lower than for the Classic CCS comparison group ($p < .001$). Likewise, during post-DP period, the odds of a CCS Paneled Provider visit for the RCHSD DP group were about 30% lower than for the Classic CCS comparison group ($p < .001$).

Table 72: CCS Paneled Provider Visits per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | CCS Paneled Provider Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	1,174	1,803	0.72 (0.60, 0.87)	<.001
Post-DP Implementation	925	1,527	0.67 (0.57, 0.79)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 74 provides comparisons of clients having a CCS Paneled Provider visit between the pre-DP and post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP, the odds of a client having a CCS Paneled Provider visit were not significantly different during the post-DP period. Likewise, among the Classic CCS comparison group, the odds of a client having a CCS Paneled Provider visit were not significantly different during the post-DP period. Difference in Differences from the pre- to post-DP periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .48$).

Table 73: CCS Paneled Provider Visits per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | CCS Paneled Provider Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
RCHSD DP Group	1,174	925	0.90 (0.78, 1.04)	.139
Classic CCS Comparison Group	1,803	1,527	0.97 (0.83, 1.13)	.694
Difference in Differences			0.93 (0.75, 1.15)	.476

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 30: CCS Paneled Provider Visits per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
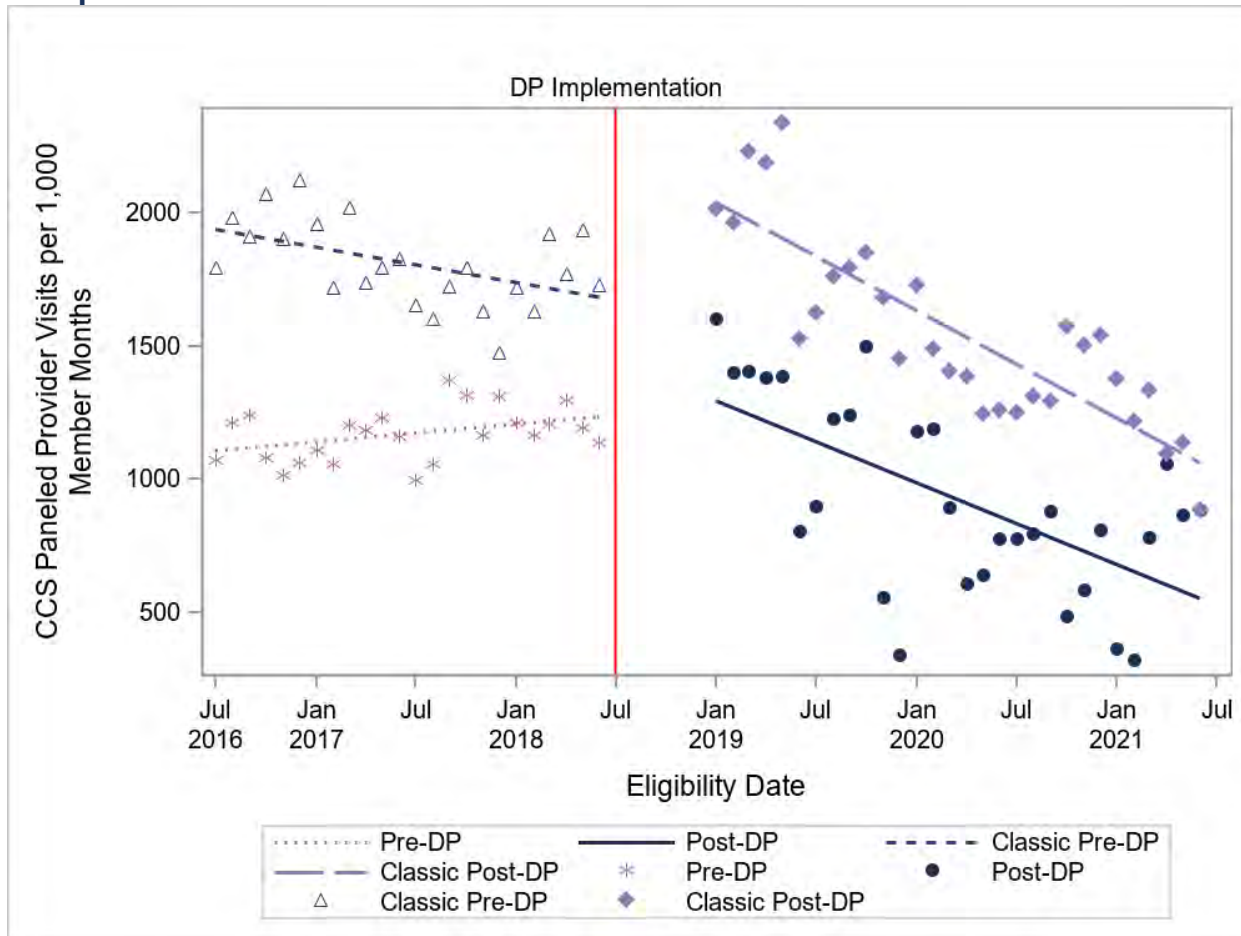
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes for the line indicating CCS Paneled Provider visits over time for both the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variable Associations to CCS Paneled Provider Visits: In the regression model for CCS Paneled Provider use, those with higher illness severity and fall or spring season had statistically significant higher odds of using a CCS Paneled Provider; those one year as compared to those younger than one year and not having a disability had significantly lower odds of having a CCS Paneled Provider visit. (See Appendix T for full regression model.)

Summary of CCS Paneled Provider use results, HPSM DP and RCHSD DP

At HPSM, CCS Paneled Provider visits increased significantly during the post-DP period for the HPSM DP and Classic CCS comparison groups. Given greater increases in the HPSM DP group than in the Classic CCS group, Difference in Differences is significant. At RCHSD, both the RCHSD DP and Classic CCS comparison groups had no significant changes in visits, and the Difference in Differences is not significant.

Mental Health Provider Visits Results

The DiD analyses for mental health visits utilized a combined sample of low and moderate mental health–severity visits, and of high mental health–severity visits.

Table 75 provides comparisons of the number of mental health visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of a mental health visit for the HPSM DP group were about 50% lower than those for the Classic CCS comparison group ($p < .001$). Likewise, during the post-DP period, the odds of a mental health visit in the HPSM DP were about 40% lower than those for the Classic CCS comparison group ($p < .001$).

Table 74: Mental Health Visits per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| | Mental Health Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
| | HPSM Group | Classic CCS Comparison Group | (95% CI) HPSM vs. Classic CCS | |
Period				P-value
Pre-DP Implementation	129	213	0.52 (0.40, 0.68)	<.001
Post-DP Implementation	164	245	0.59 (0.48, 0.74)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and season.

Table 76 provides comparisons of clients having a mental health visit between the pre- and post-implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP, the odds of a client having a

mental health visit were 1.23 times greater during the post-DP period (p = .04). However, in the Classic CCS comparison groups, differences in mental health visits between the pre-DP and post-DP periods did not differ significantly (p = .38). Difference in Differences in mental health visits from pre-DP to post-DP periods between the HPSM DP and Classic CCS comparison groups is not significant (p = .31).

Table 75: Mental Health Visits per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Mental Health Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM Group	129	164	1.23 (1.01, 1.48)	.036
Classic CCS Comparison Group	213	245	1.08 (0.91, 1.27)	.383
Difference in Differences			1.14 (0.89, 1.47)	.311

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and season.

Figure 31: Mental Health (all severity) Visits per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
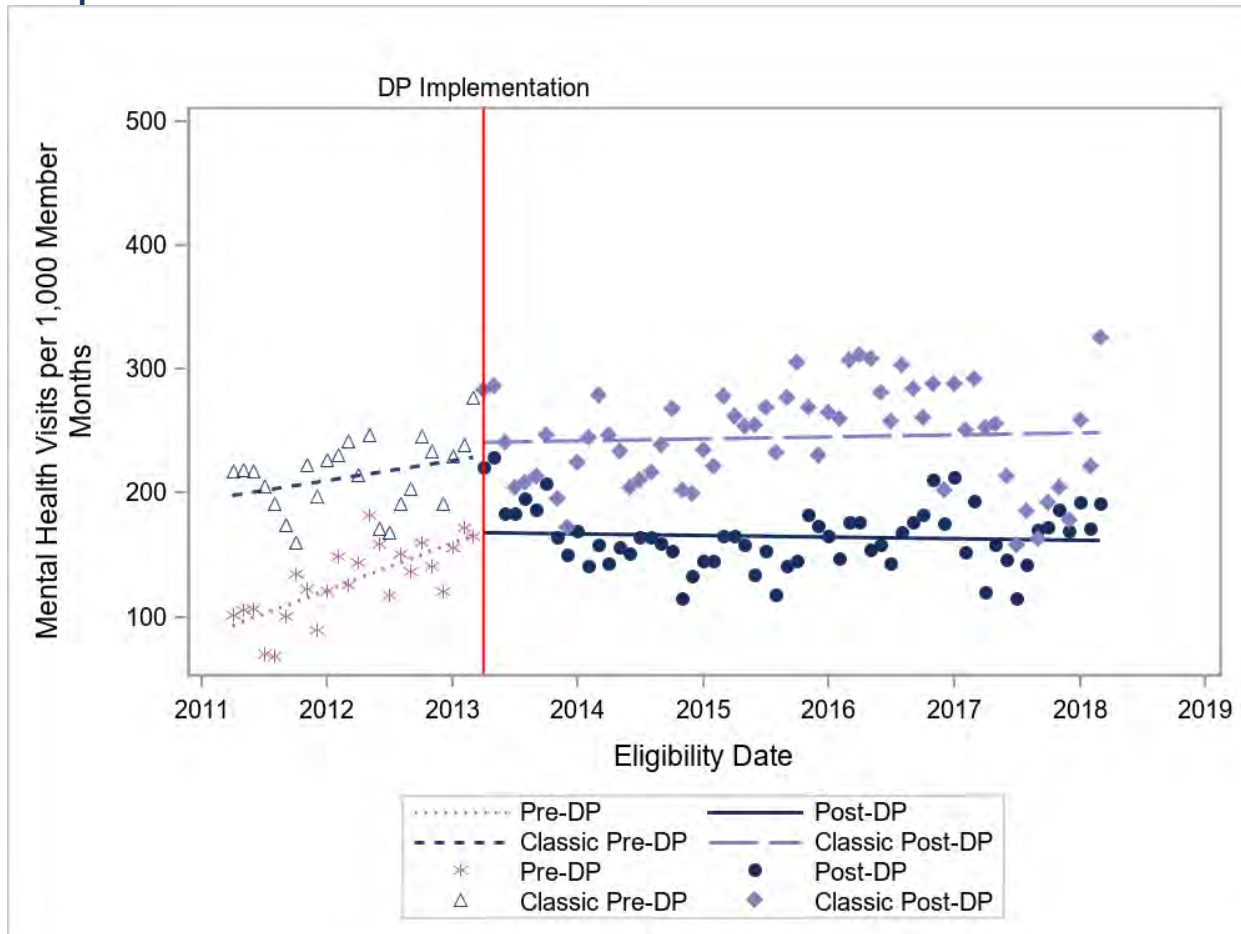
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variable Associations to Mental Health Visits: In the regression model for mental health visits, spring and fall seasons, and higher illness severity were associated with statistically significant higher rates of mental

health visits, while speaking an Asian and "other"/unknown language and being 2–11 years of age showed fewer mental health visits. (See Appendix T for full regression model.)

Table 77 provides comparisons of the number of mental health visits between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the difference in odds of a mental health visit between the RCHSD DP and Classic CCS comparison groups was not significant ($p = .14$). However, in the post-DP period, the RCHSD DP odds of a mental health visit were about 60% lower than those for the Classic CCS comparison group ($p = .01$).

Table 76: Mental Health Visits per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Mental Health Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	100	155	0.59 (0.29, 1.19)	.138
Post-DP Implementation	146	228	0.41 (0.22, 0.79)	.007

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and season.

Table 78 provides comparisons of clients having a mental health visit between the pre- and post-implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP, the odds of a client having a mental health visit did not increase significantly during the post-DP period ($p = .71$). Likewise, in the Classic CCS comparison group, the odds of a mental health visit did not increase significantly during the post-DP period ($p = .10$). Difference in Differences in mental health visits from pre-DP to post-DP periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .42$).

Table 77: Mental Health Visits per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Mental Health Visits per 1,000 Member Months		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	100	146	1.13 (0.59, 2.16)	.707
Classic CCS Comparison Group	155	228	1.61 (0.91, 2.86)	.104
Difference in Differences			0.70 (0.30, 1.67)	.424

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and season.

Figure 32: Mental Health Visits per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
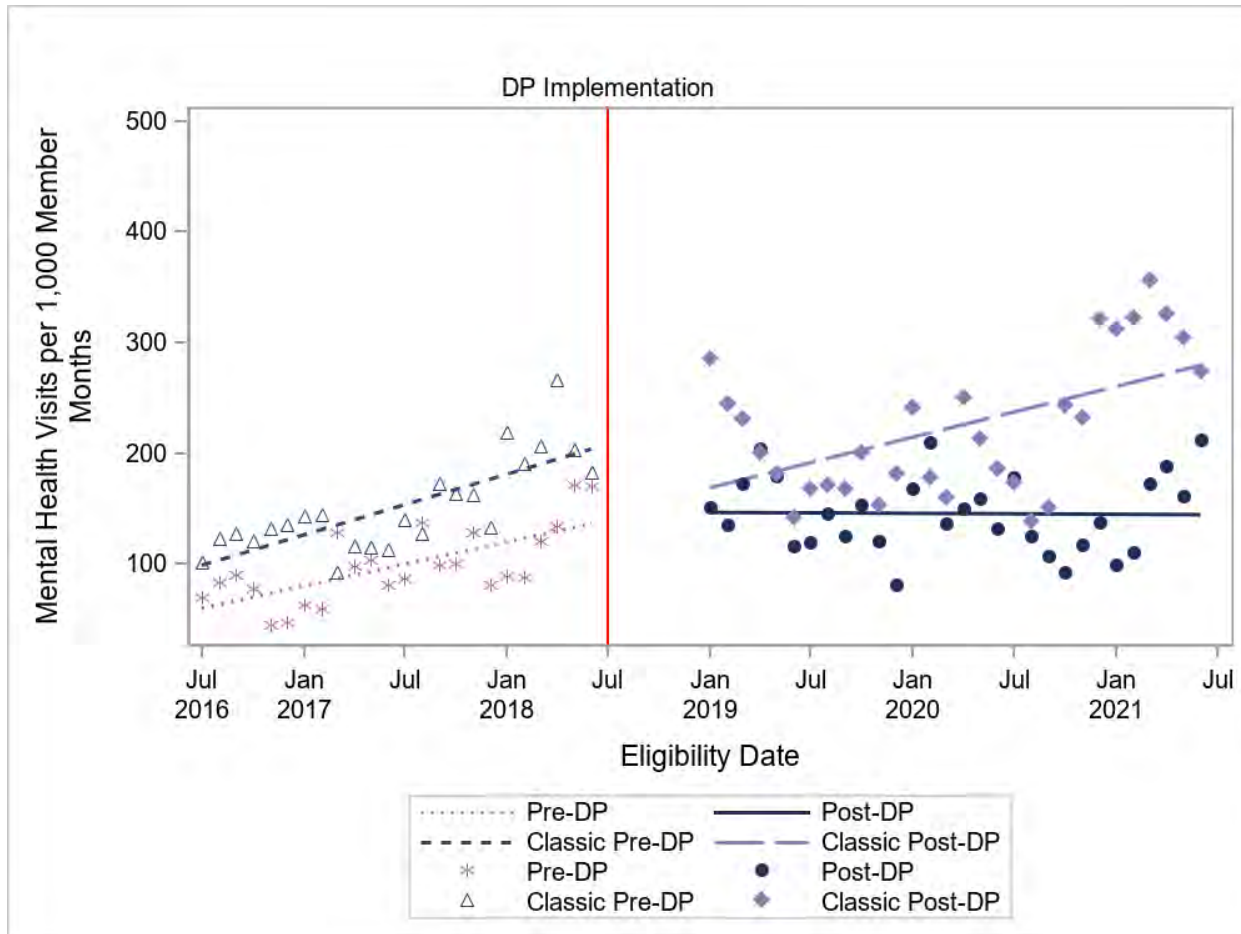
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variable Associations to Mental Health Visits: In the regression model for mental health visits, higher illness severity and speaking an Asian language were associated with statistically significant higher rates of

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mental health visits; the 2–6 age group had statistically significant lower rates of use as compared to adolescents. (See Appendix T for full regression model.)

Summary of mental health visits results, HPSM DP and RCHSD DP

At HPSM, the HPSM DP group had a significant increase in mental health visits, and the Classic CCS comparison group did not. Difference in Differences between the groups is not significant. At RCHSD, both the RCHSD DP and Classic CCS comparison groups had nonsignificant increases in mental health visits during the post-DP period. The Difference in Differences is not significant for the groups.

Depression Screening Results

Clinical depression screening, HPSM

Table 79 provides comparisons of the percentage of 12- to 20-year-olds screened for depression between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of a depression screening did not differ significantly between the HPSM DP and Classic CCS comparison groups ($p = .07$). However, during the post-DP period, the odds of depression screening in HPSM DP were 12.2 times greater than in the Classic CCS comparison group ($p < .0001$).

Table 78: HPSM DP Depression (HEDIS) Screening (12- to 20-year-olds): Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | HPSM DP Depression (HEDIS) Screening Rates (12- to 20-year-olds) | | Adjusted Odds Ratios* (95% CI) | |
	HPSM DP Group	Classic CCS Comparison Group	HPSM vs. Classic CCS	P-value
Pre-DP Implementation	0.05	0.39	0.14 (0.017, 1.13)	.065
Post-DP Implementation	41.55	5.61	12.20 (10.26, 14.49)	<.0001

*Adjusted for language and race/ethnicity.

Table 80 provides comparisons of the percentage of 12- to 20-year-olds screened for depression from pre-DP to post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of a depression screening increased from the pre-DP to the post-DP period significantly ($p < .0001$). Likewise, in the Classic CCS comparison group, depression screening increased from the pre-DP to the post-DP period significantly ($p <$

.0001). Given the greater depression screening increase in HPSM DP compared to the Classic CCS comparison groups, the Difference in Differences is significant ($p < .0001$).

Table 79: Depression Screening (HEDIS) Screening (12- to 20-year-olds): Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Depression (HEDIS) Screening Percentage (12- to 20-year-olds) | | Adjusted Odds Ratios* | P-value |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	
HPSM DP Group	0.05	41.55	1,356.12 (190.53, 9652.2)	<.0001
Classic CCS Comparison Group	0.39	5.61	15.4 (7.22, 32.88)	<.0001
Difference in Differences			87.9 (10.74, 720.)	<.0001

*Adjusted for language and race/ethnicity.

Clinical depression screening, RCHSD

Table 81 provides comparisons of the percentage of 12- to 20-year-olds screened for depression between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of a depression screening did not differ significantly between the HPSM DP and Classic CCS comparison groups ($p = .73$). However, during the post-DP period, the odds of depression screening in HPSM DP were 1.62 times greater than in the Classic CCS comparison group ($p = .03$).

Table 80: Percentage of Depression Screening (PHQ): Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Depression (PHQ) Screening Rates (12- to 20-year-olds) | | Adjusted Odds Ratios* | P-value |
	RCHSD DP	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	
Pre-DP Implementation	48.48	47.53	0.92 (0.57, 1.48)	.73
Post-DP Implementation	81.28	71.43	1.62 (1.05, 2.50)	.028

*Adjusted for age and language.

Table 82 provides comparisons of the percentage of 12- to 20-year-olds screened for depression in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of a depression screening were 4.92 times greater during the post-DP period compared to the pre-DP period ($p < .0001$). Likewise, in the Classic CCS comparison group, the odds of depression screening were 2.79 times greater during the post-DP period compared to the pre-DP period ($p < .0001$). Given the greater depression screening increase in RCHSD DP compared to the Classic CCS comparison groups, the Difference in Differences is significant ($p = .03$).

Table 81: Depression (PHQ) Screening Rates: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Depression (PHQ) Screening Rates (12- to 20-year-olds) | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	48.48	81.28	4.92 (3.51, 6.90)	<.0001
Classic CCS Comparison Group	47.53	71.43	2.79 (1.91, 4.08)	<.0001
Difference in Differences			1.76 (1.059, 2.94)	.029

*Adjusted for age and language.

Depression screenings with appropriate follow-up (HEDIS) results

Table 83 provides pre-DP to post-DP comparisons of follow-up of those screened for depression in RCHSD. The odds of follow-up among those screened for depression during the post-DP period were 3.41 times greater than for those during the pre-DP period ($p < .0001$). This evaluation did not include comparison groups.

Table 82: RCHSD Pre- versus Post-Period Rates of Follow-Up Among Clients Who Were Screened for Depression (RCHSD DP Group Only)

| Group | Depression Screening with Follow-Up | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	40.85	59.15	3.41 (2.43, 4.77)	<.0001

*Adjusted for age and language.

Summary of HPSM DP and RCHSD DP depression screening findings

At HPSM, both the HPSM DP and Classic CCS comparison groups had increased depression screening rates at post-DP periods. The HPSM DP increases were larger than those in the Classic CCS comparison group; hence, the Difference in Differences is significant. At RCHSD, both the RCHSD DP and Classic CCS comparison groups' depression screening increased significantly, and due to greater increases in the RCHSD DP, the Difference in Differences is significant.

Access to Ancillary Services

1. Durable medical equipment
2. In-Home Supportive Services
3. Pharmacy claims

Table 84 and 85 (see below) illustrate clients; clients with claims (i.e., children served); member months; and number of DME, IHSS, pharmacy, and rehabilitation usages, by claims, per 1,000 member months for each year of each DP studied. The actual individual statistical analysis that compared pre- and post- and between comparisons for each outcome over time was performed using the DiD analysis; these are summarized by individual measure below.

Table 83: HPSM DP Clients, Claims, Member Months, and Number of Services by Claims, per 1,000 Member Months

Measure	HPSM DP Year							Classic CCS Counties Year						
	-2	-1	+1	+2	+3	+4	+5	-2	-1	+1	+2	+3	+4	+5
Clients	2,395	2,329	2,197	2,219	2,263	2,167	2,116	2,321	2,360	2,236	1,988	1,914	2,066	2,097
Member Months	21,663	21,918	20,249	21,103	21,479	21,068	20,075	21,139	20,989	19,389	18,163	17,623	18,468	18,492
Service per 1,000 Member Months														
Durable Medical Equipment	137	146	232	208	122	125	131	88	98	88	61	68	63	64
In-Home Supportive Services	238	249	281	282	292	293	298	212	212	227	245	266	272	270
Pharmacy	1,260	1,703	2,260	1,251	1,186	1,143	1,139	1,489	1,305	1,352	1,433	1,384	1,400	1,291
Rehabili-tation	1	1	0	1	1	0	0	9	12	10	11	10	10	9

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Table 84: RCHSD DP Clients, Claims, Member Months, and Number of Services by Claims, per 1,000 Member Months

Measure	RCHSD DP Year					Classic CCS Counties Year				
	-2	-1	+1	+2	+3	-2	-1	+1	+2	+3
Clients	338	386	416	419	407	227	272	336	344	349
Member Months	3,686	4,320	3,127	4,230	4,437	2,446	2,906	3,075	3,218	3,801
Service per 1,000 Member Months										
Durable Medical Equipment	96	97	54	65	48	226	204	191	241	233
In-Home Supportive Services	109	126	116	129	139	183	176	203	200	182
Pharmacy	3,633	3,481	1,479	2,864	2,392	4,175	3,879	3,835	4,484	4,839
Rehabilitation	2	3	0	0	0	7	19	14	20	8

Results for Durable Medical Equipment Provision Claims

Table 86 provides comparisons of the number of DME provisions between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds for provision of DME were 1.52 times greater for the HPSM DP group than for the Classic CCS comparison group ($p < .001$). Likewise, during post-DP period, the odds for DME provision were 2.57 times greater for the HPSM DP group than for the Classic CCS comparison group ($p < .001$).

Table 85: Durable Medical Equipment Provision per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

Period	DME Provision per 1,000 Member Months		Adjusted Odds Ratios*	
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Pre-DP Implementation	142	93	1.52 (1.25, 1.87)	<.001
Post-DP Implementation	163	69	2.57 (2.18, 3.04)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 87 provides comparisons of the pre-DP to post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. Among the HPSM DP group, the odds of DME provision during the post-DP period were 1.17 times greater than in the pre-DP period ($p = .001$). In the Classic CCS comparison group the odds of DME provision

were about 30% less during the post-DP period compared to the pre-DP period ($p < .001$). Given the increase at the post-period in DME for the HPSM DP and decrease in DME for the Classic CCS comparison group, the Difference in Differences from pre-DP to post-DP implementation periods between the HPSM DP and Classic CCS comparison groups is significant ($p < .001$).

Table 86: DME Provision per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	DME Provision per 1,000 Member Months		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	142	163	1.17 (1.06, 1.28)	.001
Classic CCS Comparison Group	93	69	0.69 (0.59, 0.81)	<.001
Difference in Differences			1.69 (1.41, 2.02)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

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Figure 33: DME Claims per 1,000 Member Months over Time for HPSM DP and Classic Comparison in Pre- versus Post-Period
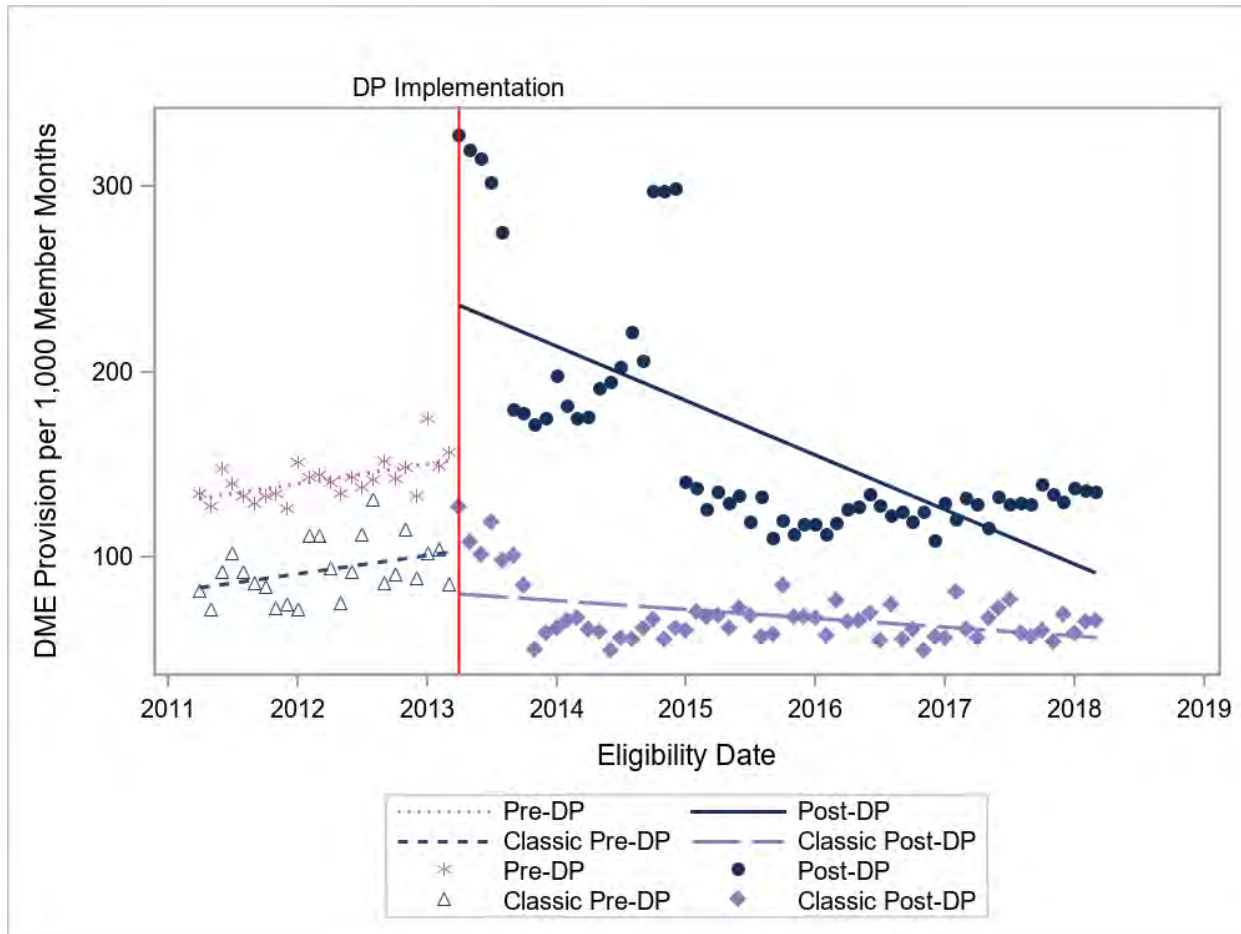
HPSM Goodness of Fit: In the pre-DP period, the slopes for the line indicating DME use over time for both the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variable Associations to DME Provision: In the regression model for DME, having no disability, being Black, Latinx, or "other" race, as compared to White, were associated with statistically significant lower rates of DME. Higher illness severity or being older than 12 months was associated with statistically significant higher rates of DME. (See Appendix T for full regression model.)

Table 88 provides comparisons of DME provisions between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds for provision of DME for the RCHSD DP were about 45% lower than the odds for the Classic CCS comparison group (p = .01). Likewise, during the post-DP period, the odds for DME provision were 70% lower for the RCHSD DP compared to the odds for the Classic CCS comparison group (p < .001).

Table 87: DME Services per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| | DME Provision per 1,000 Member Months | | Adjusted Odds Ratios* | |
| | RCHSD DP Group | Classic CCS Comparison Group | (95% CI) RCHSD DP vs. Classic CCS | P-value |
Period				
Pre-DP Implementation	97	214	0.54 (0.35, 0.83)	.005
Post-DP Implementation	60	229	0.30 (0.20, 0.45)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 89 provides comparisons of the pre-DP to post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. Among the RCHSD DP group, the odds of DME provision during the post-DP period were about 30% lower than in the pre-DP period (p = .01). In the Classic CCS comparison group, the odds of DME provision did not change significantly (p = .07). Given declines in the RCHSD DP and slight increases in the Classic CCS comparison group, Difference in Differences from pre-DP to post-DP periods between the RCHSD DP and Classic CCS comparison groups is significant (p < .001).

Table 88: DME Provision per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD analysis

| Group | DME Provision per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
RCHSD DP Group	97	60	0.69 (0.52, 0.90)	.006
Classic CCS Comparison Group	214	229	1.25 (0.99, 1.57)	.065
Difference in Differences			0.55 (0.39, 0.78)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 34: DME Claims per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre-versus Post-Period
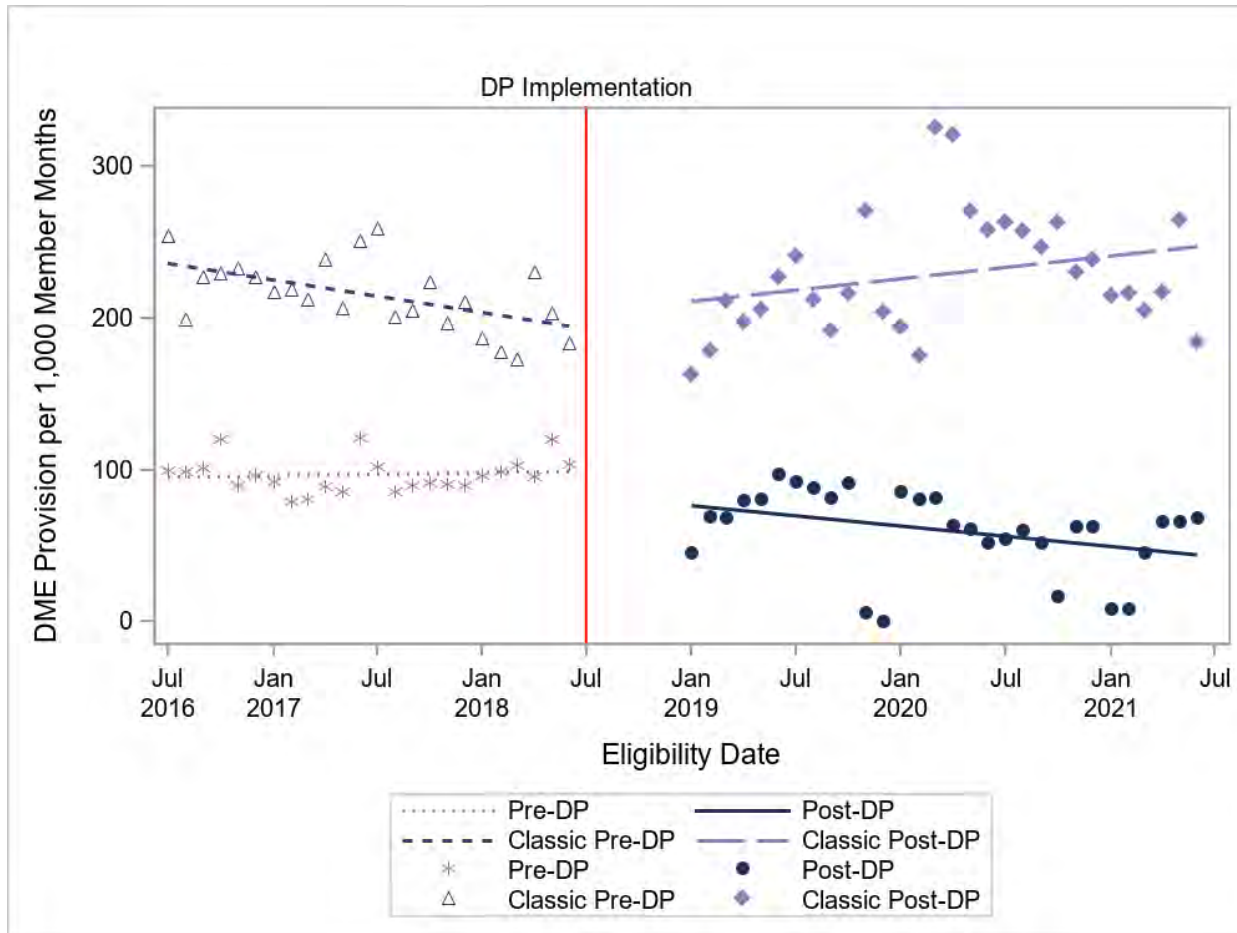
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes for the line indicating DME use over time for both the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied

RCHSD DP Independent Variable Associations to DME Provision: In the regression model for DME, higher illness severity, female gender, and being age 2–6 years as compared to being <12 months were associated with statistically significant higher rates of DME. Having no disability and being Black were associated with significantly lower rates of DME use. (See Appendix T for full regression model.)

Summary of DME use, HPSM DP and RCHSD DP

At HPSM, DME provision increased in the HPSM DP group and decreased for the Classic CCS comparison group, and Difference in Differences is significant. At RCHSD, DME provision decreased in the RCHSD DP and increased slightly in the Classic CCS group, resulting in a Difference in Differences.

In-Home Supportive Services Results

Table 90 provides comparisons of In-Home Supportive Services (IHSS) provision between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of IHSS provision for the HPSM DP were 1.34 times greater than for the Classic CCS comparison group ($p < .001$). Likewise, during the post-DP period, the odds of the HPSM DP were 1.3 times greater than for the Classic CCS comparison group ($p < .001$).

Table 89: In-Home Supportive Services per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | IHSS per 1,000 Member Months | | Adjusted Odds Ratios* | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Pre-DP Implementation	161	129	1.34 (1.15, 1.54)	<.001
Post-DP Implementation	183	155	1.30 (1.13, 1.49)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 91 provides comparisons of IHSS provision in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. Among the HPSM DP group, the odds of DME provision during the post-DP period did not differ significantly from the pre-DP period ($p = .21$). In the Classic CCS comparison group, the odds of IHSS provision during post-DP were 1.07 times greater than for the pre-DP period ($p = .05$). Difference in Differences in changes in the HPSM DP and Classic CCS comparison groups is not significant ($p = .60$).

Table 90: In-Home Supportive Services per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | IHSS per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	161	183	1.05 (0.98, 1.12)	.209
Classic CCS Comparison Group	129	155	1.07 (1.00, 1.15)	.049
Difference in Differences			0.97 (0.88, 1.07)	.598

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 35: IHSS per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
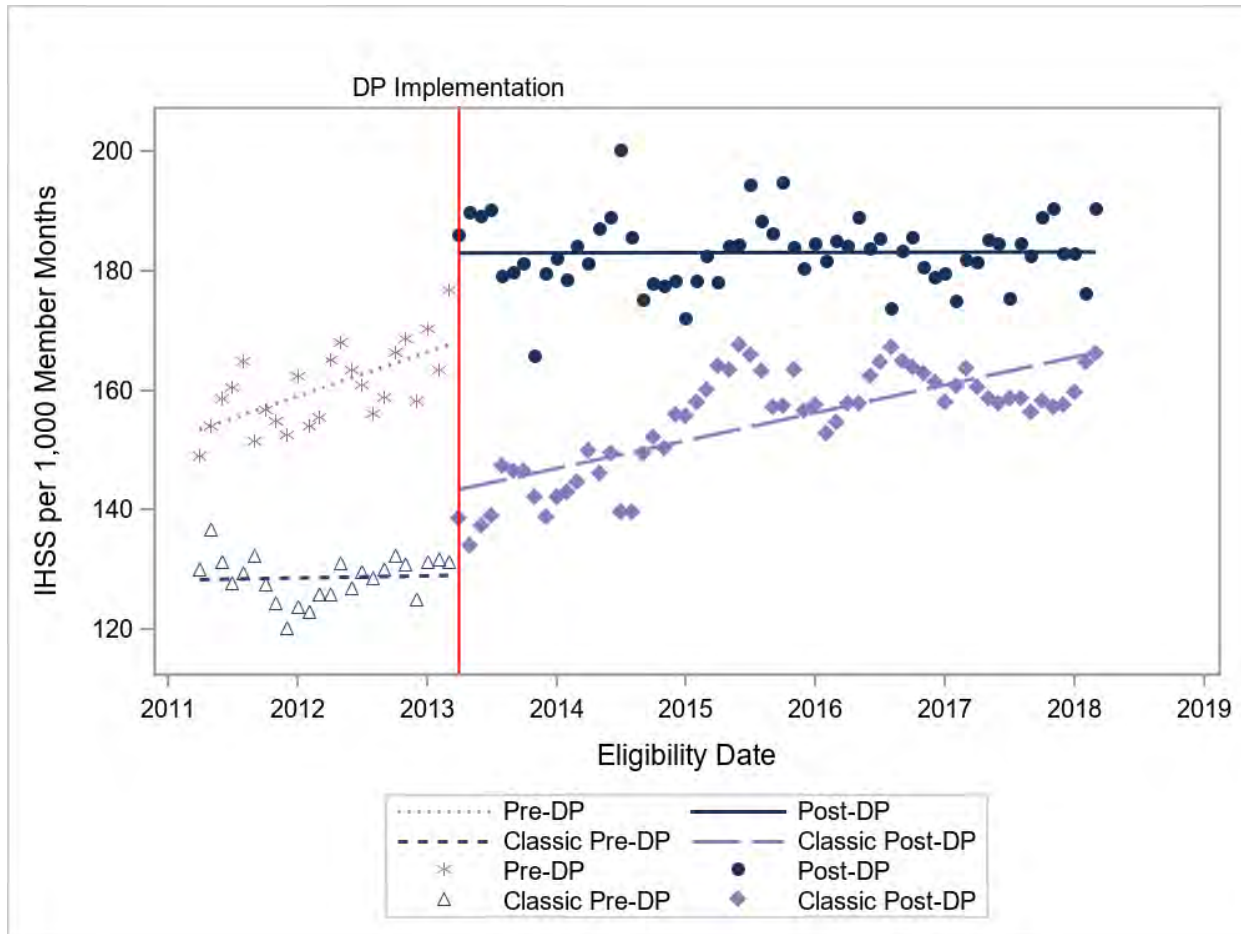
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP and Classic CCS comparison groups are statistically different ($p = .02$), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix T). As such, the pre-to-post differences may be due to underlying trends and not the result of the DP implementation. Results should be interpreted with caution.

HPSM DP Independent Variable Associations to IHSS Provisions Outcome: In the regression model for IHSS, higher illness severity and age groups above two years were associated with statistically significant higher rates of IHSS, while winter as compared to summer; Black, Latinx, and "other" race as compared to White; and Spanish speaking versus English speaking; and being one year old as compared to less than one year old were all associated with statistically significant lower IHSS use. (See Appendix T for full regression model.)

Table 92 provides comparisons of IHSS provision between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of IHSS provision for the RCHSD DP were about 30% lower than those for the Classic CCS comparison group ($p < .001$). Likewise, during the post-DP period, the odds of IHSS provision in the RCHSD DP were about 30% lower than those for the Classic CCS comparison group ($p < .001$).

Table 91: In-Home Supportive Services per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre-versus Post-Period

| Period | IHSS per 1,000 Member Months | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	67	99	0.69 (0.60, 0.78)	<.001
Post-DP Implementation	77	111	0.72 (0.65, 0.80)	<.001

*Adjusted for illness severity (CDPS) and disability (CWDA).

Table 93 provides comparisons of IHSS provision in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of IHSS provision during the post-DP period were 1.39 times greater than odds in the pre-DP period ($p < .001$). Likewise, in the Classic CCS comparison group, the odds of IHSS provision were 1.33 times greater in the post-DP period than those for the pre-DP period ($p < .001$). Difference in Differences from pre- to post-DP implementation periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .60$).

Table 92: In-Home Supportive Services Provision per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | IHSS per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	67	77	1.39 (1.23, 1.56)	<.001
Classic CCS Comparison Group	99	111	1.33 (1.18, 1.50)	<.001
Difference in Differences			1.05 (0.88, 1.24)	.604

*Adjusted for illness severity (CDPS) and disability (CWDA).

Figure 36: IHSS per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
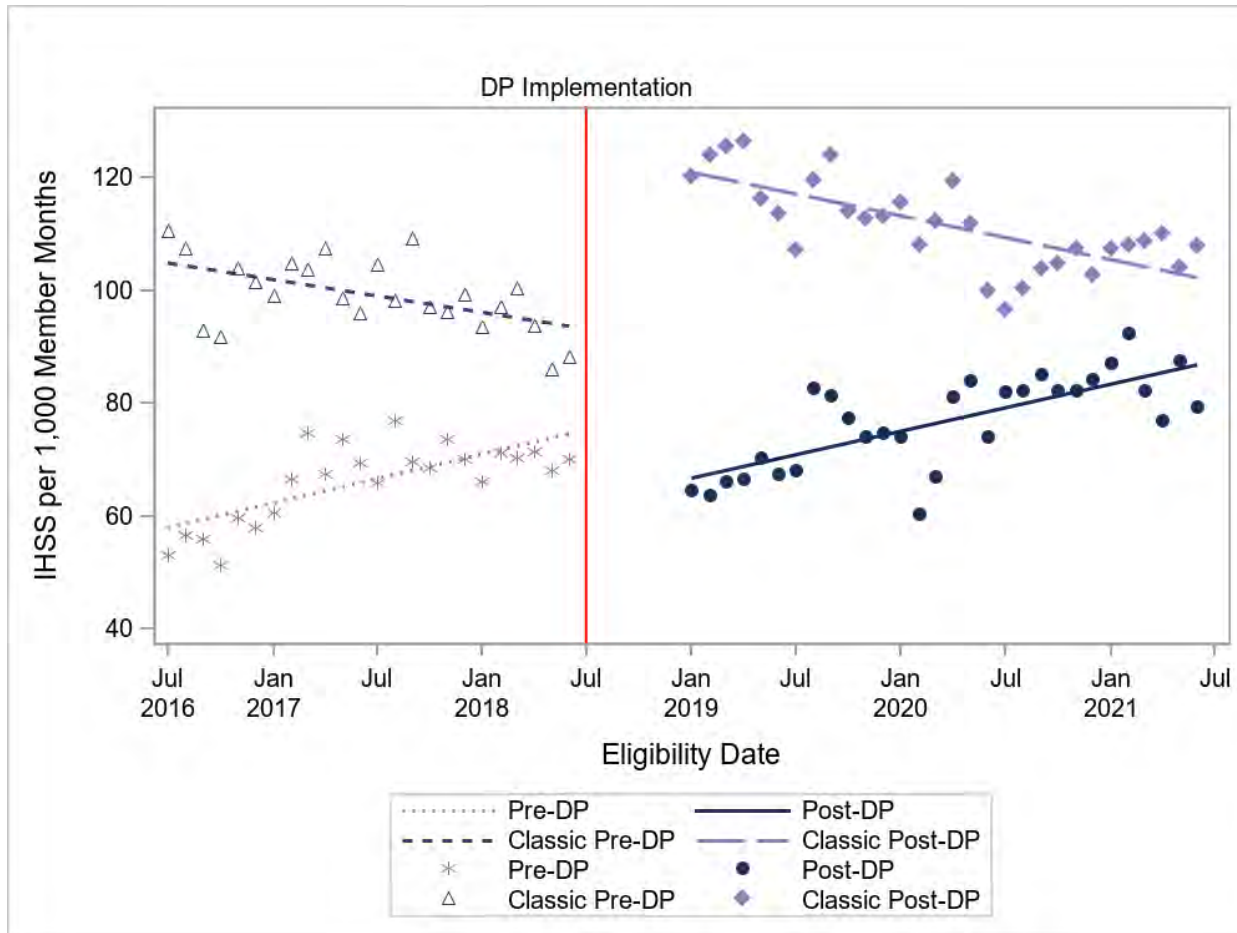
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes for the line indicating IHSS claims over time for both the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variable Associations to IHSS Provision Outcome: In the regression model for IHSS, those with higher illness severity had statistically significant odds of having IHSS services and those not having a disability had significantly lower odds of having IHSS. (See Appendix T for full regression model.)

Summary of IHSS use, HPSM DP and RCHSD DP

At HPSM, IHSS provision increases were significant in Classic CCS comparison group only, and Difference in Differences is not significant. At RCHSD, IHSS provision increased significantly for both the RCHSD DP and Classic CCS comparison groups, and Difference in Differences is not significant.

Pharmacy Claims Results

Table 94 provides comparisons of pharmacy provision claims between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of pharmacy provision for the HPSM DP and Classic CCS comparison groups did not differ significantly ($p = .58$). Likewise, during the post-DP period, the odds of pharmacy provision did not differ significantly between the HPSM DP and Classic CCS comparison groups ($p = .06$).

Table 93: Pharmacy Provision Claims per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Periods

| Period | Pharmacy Provisions per 1,000 Member Months | | Adjusted Odds Ratios* | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Pre-DP Implementation	1,483	1,397	1.03 (0.94, 1.12)	.575
Post-DP Implementation	1,391	1,372	1.08 (1.00, 1.17)	.061

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 95 provides comparisons of pharmacy provision claims in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of pharmacy provision from the pre-DP period to the post-DP period did not differ significantly ($p = .23$). Likewise, odds of pharmacy provision did not differ significantly between the pre-DP and post-DP in the Classic CCS comparison group ($p = .58$). Difference in Differences from pre-DP to post-DP periods between the HPSM DP and Classic CCS comparison groups is not significant ($p = .22$).

Table 94: Pharmacy Provision Claims per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Pharmacy Provisions per 1,000 Member Months		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM DP Group	1,483	1,391	1.03 (0.98, 1.09)	.232
Classic CCS Comparison Group	1,397	1,372	0.98 (0.93, 1.04)	.575
Difference in Differences			1.05 (0.97, 1.14)	.217

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 37: Pharmacy Claims per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
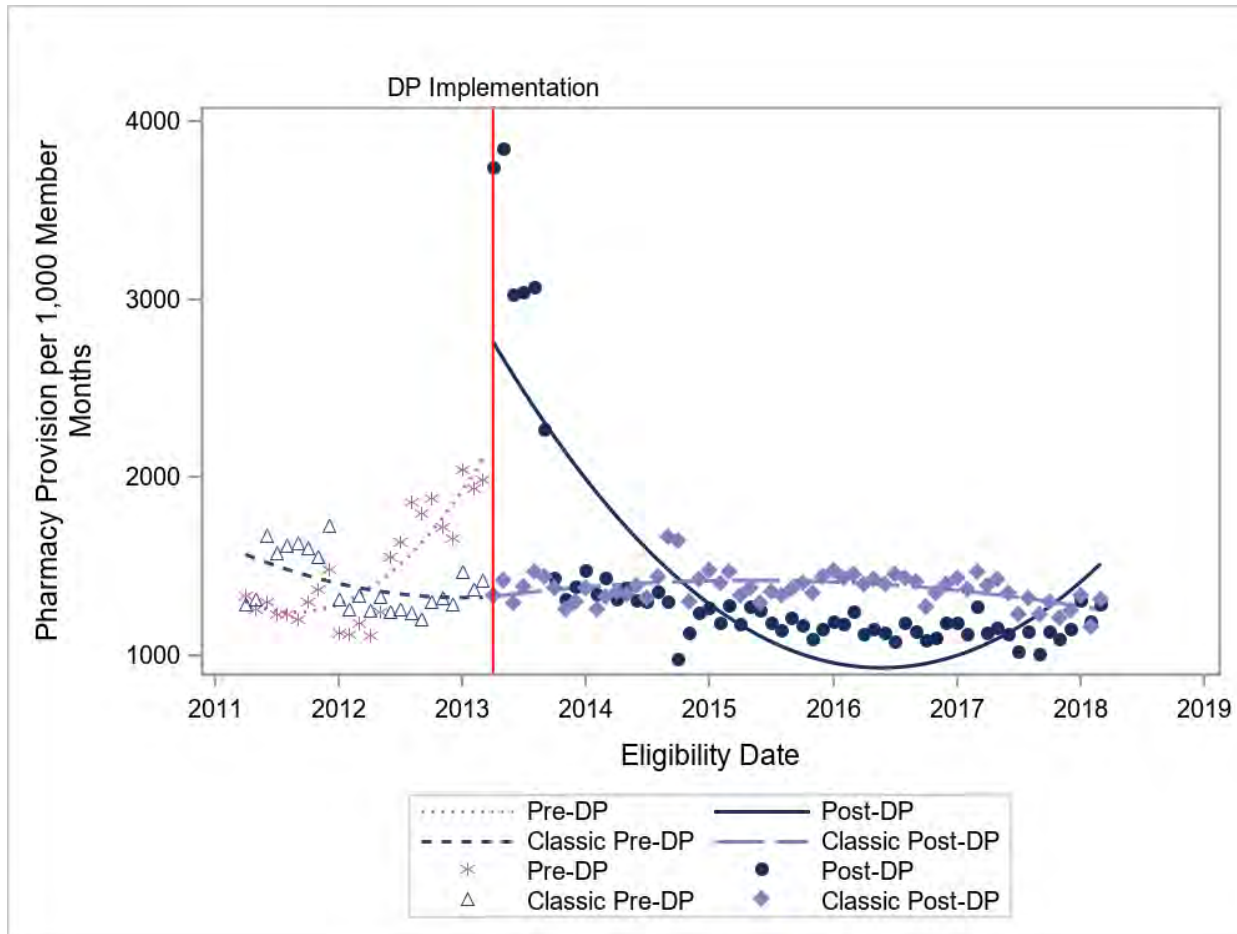
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variable Associations to Pharmacy Provision Claims: In the regression model for pharmacy use, higher illness severity, female gender, age over two years as compared to infants, and spring versus summer were

associated with statistically significant higher rates of pharmacy use, while no disability, winter over summer months, Latinx and "other" race as compared to White were associated with a statistically significant decreased odds of pharmacy use. (See Appendix T for full regression model.)

Table 96 provides comparisons of pharmacy provisions between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of pharmacy provision for the RCHSD DP and Classic CCS comparison groups did not differ significantly ($p = .85$). However, during the post-DP period, the odds of pharmacy provision for the RCHSD DP were about 40% lower than those for the Classic CCS comparison group ($p < .001$).

Table 95: Pharmacy Provision Claims per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Periods

| | Pharmacy Provisions per 1,000 Member Months | | Adjusted Odds Ratios* | |
Period	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	3,551	4,014	0.98 (0.84, 1.16)	.849
Post-DP Implementation	2,500	4,518	0.59 (0.51, 0.69)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 97 provides comparisons of pharmacy provision in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of pharmacy provision during the post-DP were 30% lower than those during the pre-DP period ($p < .001$). The odds of pharmacy provision for the Classic CCS comparison group from pre-DP to post-DP periods were 1.17 times greater ($p = .02$). Given the decreases for the RCHSD DP and the increases for the Classic CCS comparison groups at the post-DP period, the Difference in Differences from pre-DP to post-DP implementation periods between the RCHSD DP and Classic CCS comparison groups is significant ($p < .001$).

Table 96: Pharmacy Provision Claims per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Pharmacy Provisions per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	3,551	2,500	0.70 (0.65, 0.75)	<.001
Classic CCS Comparison Group	4,014	4,518	1.17 (1.02, 1.33)	.021
Difference in Differences			0.60 (0.52, 0.69)	<.001

*Adjusted for age, gender, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 38: Pharmacy Provision Claims per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
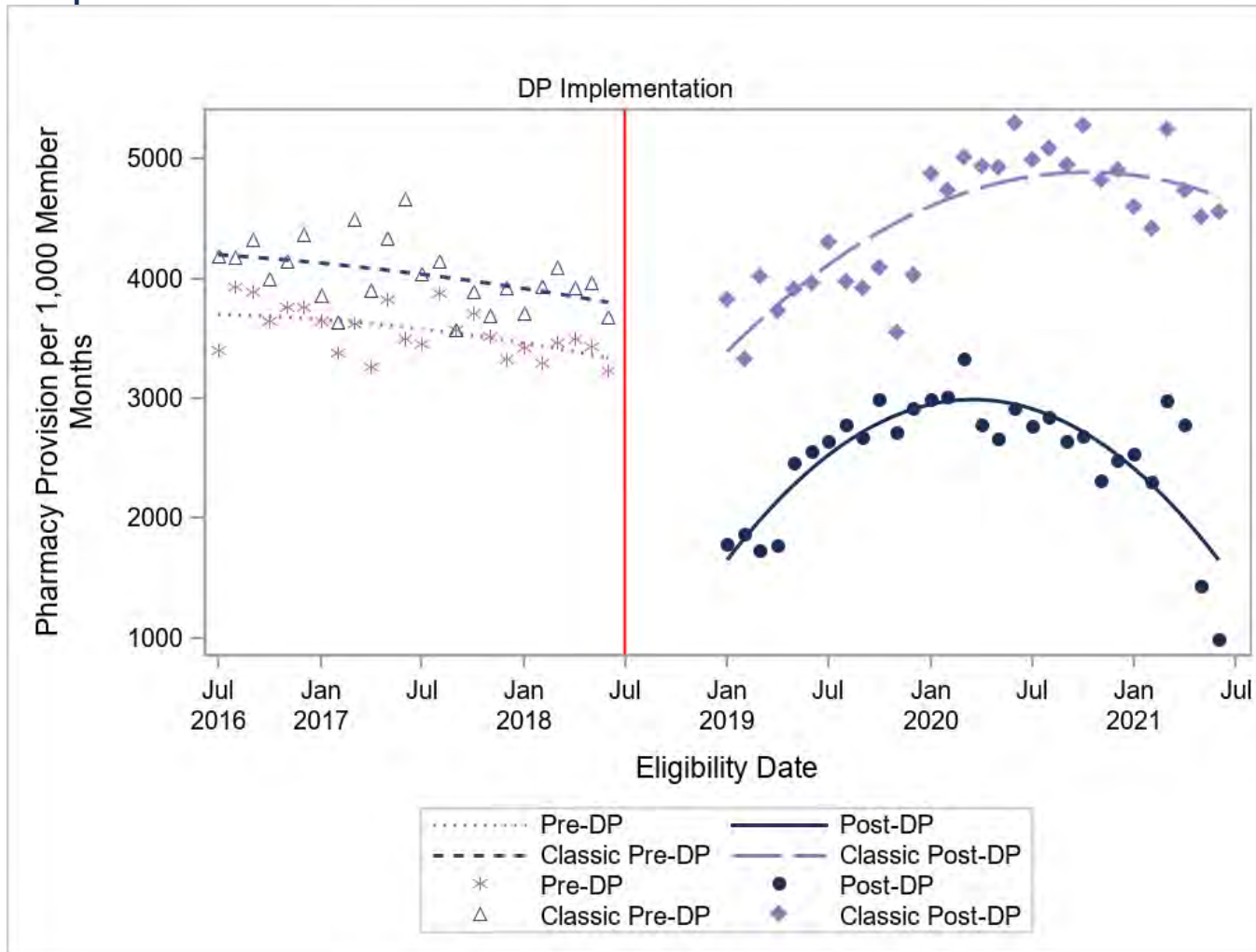
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variable Associations to Pharmacy Provision Claims: In the regression model for pharmacy use, higher illness severity, female gender, and age over 2 years and less than 12 years, as compared to children less than 12 months old, and spring versus summer, were associated with statistically significant higher rates of pharmacy use. Having no disability, winter and fall as compared to summer months, and Black race as compared to White, were associated with a statistically significant decreased odds of pharmacy use. (See Appendix T for full regression model.)

Summary of pharmacy provision findings, HPSM DP and RCHSD DP

At HPSM, neither the HPSM DP nor the Classic CCS comparison groups had significant changes at the post-DP period. At RCHSD, the RCHSD DP group decreased in pharmacy provision during the post-DP period. The Classic CCS comparison group had increased pharmacy provision, and the Difference in Differences is significant.

Summary and Commentary on Claims and Depression Screening Results for Research Question 1

Overall, outcomes were mixed on provider and healthcare utilization. It is important to note that direct comparisons between HPSM DP and RCHSD DP is difficult, especially in comparing outpatient healthcare visits and provider access, given the impact of the COVID-19 pandemic on the RCHSD DP. As noted in the DiD summaries above, while a DiD analysis was performed on propensity score–matched cases, it is still difficult to control for all mitigating factors that may impact a family's decision to receive care in the midst of a pandemic. That said, there are important points to make with the DP services:

- Primary care was mixed. In HPSM, primary care visit rates decreased in the pre- to post-implementation period, and the likelihood of having a primary care visit was lower in the HPSM DP as compared to the Classic CCS comparison group. Primary care visits increased in the RCHSD DP as compared to the classic comparison group. Well-child visits were mostly unchanged except in children 3–6 years of age in the HPSM, where well-child visits decreased. There was largely no change in well-child visits in the RCHSD DP. While a decrease in well-child visits for 0- to 15-month-olds was seen in the analysis, the sample size was extremely small, and no regression adjustment was able to be performed.

- Specialist provider use increased in the HPSM DP while remaining unchanged in the RCHSD DP when compared to the Classic CCS comparison group.

- CCS paneled provider use increased for HPSM DP while remaining unchanged for the RCHSD DP as compared to Classic CCS comparison groups.

- Both pilots were remarkably successful in initiating depression screening (as measured by claims data) to children in CCS as compared to controls.

- Mental health services stayed the same or improved (HPSM DP).

- Overall, most ancillary services remained mostly unchanged. Most notable changes were the decreases that were found in DME and pharmacy claims in RCHSD, though the reports from families do not indicate dissatisfaction and in fact, surveys would indicate lower unmet need and high satisfaction in these two categories with RCHSD DP. (See survey results section above.) More work would likely need to be done to investigate if the decrease in these claims were causing problems for clients. Based on the family survey, there was no indication that DME was deficient, but further work would be needed to evaluate if there was higher efficiency (e.g., fewer unnecessary DME orders).
- Overall, it seems that both DPs were able to maintain visits and increase measures of access, with some exceptions. The COVID pandemic did appear to impact outpatient visits, and RCHSD DP stayed consistent with classic counties in regards to health access measures.

Research Question 2: What is the impact of the CCS DP on client satisfaction?

The results for Research Question 2 are organized as follows:
1. Qualitative parent/guardian interviews results
2. Telephone survey results

Qualitative Parent/Guardian Interview Results

The main goals of the qualitative parent/guardian interviews were to gain the perspective of families as they transitioned into one of the CCS DPs and to aid in the development of the telephone survey instrument used in the randomized control trial of this evaluation. (See "Telephone Survey Results — Impact on the Patient's and Family's Satisfaction," below.)

During these interviews, parents/guardians were asked a series of questions to ascertain their satisfaction with their CCS DP. Their responses varied and depended on if their children received needed services and how straightforward or difficult it was for parents to navigate the process of obtaining those services. Results of the qualitative parent/guardian interviews can be found in Appendix Y, "Qualitative Results of Preliminary HPSM Parent/Guardian Telephone Interviews" and Appendix Z, "Qualitative Results of Preliminary RCHSD Parent/Guardian Telephone Interviews." They are in appendices rather than the body of this report due to their intentionally small sample size. Quantitative findings about the impact of the CCS DPs on the client's and family's satisfaction can be found in the following section.

Telephone Survey Results — Impact on the Patient's and Family's Satisfaction

The telephone survey items addressing the second research question, the impact that the CCS DP had on the patient's and family's satisfaction,[51] are the satisfaction items found in the following sections:

1. Global rating of healthcare
2. Specialty care
3. Therapy services
4. Medical equipment and supplies
5. Provider communication

Global Rating of Healthcare

Overall Satisfaction with Healthcare Delivery Model: Since transitioning into the RCHSD DP, significantly fewer RCHSD DP respondents (12%) reported being "very dissatisfied + dissatisfied + neither satisfied nor dissatisfied" with their health plan compared to Classic CCS respondents (17%) ($p = .01$). The difference between HPSM DP and Classic CCS respondents was not significant. It should also be noted that the majority of respondents (84%) report being "satisfied + very satisfied" with their health plan. See Table 98.

Table 97: Overall Satisfaction with Healthcare Delivery Model: HPSM DP, RCHSD DP, and Classic CCS

Overall, how satisfied are you with [NAME OF HEALTH PLAN / COUNTY CCS]? (Q80)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
Very dissatisfied	13	6	56	75
	4.21	4.88	5.77	5.35
Dissatisfied	3	2	32	37
	0.97	1.63	3.30	2.64
Neither satisfied nor dissatisfied	26	7	74	107
	8.41	5.69	7.62	7.63

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[51] For several items for this research question, a weighted chi-square could not be computed because one of the response cells had zero responses. This tended to occur with the RCHSD DP responses because of the relatively small sample size. In these situations where there were four response categories, two response categories were computed and used for subsequent analyses. For example, items with response options of "very dissatisfied," "dissatisfied," "neither satisfied nor dissatisfied," "satisfied," and "very satisfied" were collapsed into two categories: "Very dissatisfied + dissatisfied + neither satisfied nor dissatisfied" versus "satisfied + very satisfied."

Overall, how satisfied are you with [NAME OF HEALTH PLAN / COUNTY CCS]? (Q80)				
	HPSM DP	RCHSD DP	Classic CCS	Total
Satisfied	147	40	396	583
	47.57	32.52	40.78	41.55
Very satisfied	120	68	413	601
	38.83	55.28	42.53	42.84
Total	309	123	971	1,403
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	22.00			
P-value	.005			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-squared analysis used appropriate survey sample weights.
- The p-value represents the significance of the analysis. A p-value less than .05 is considered significant.

Appeals, Grievances, and Complaints: The majority of respondents (97%) did not file an appeal, grievance, or complaint about their child's healthcare. The differences between groups were not statistically significant. See Table 99.

Table 98: Appeals, Grievances, and Complaints: HPSM DP, RCHSD DP, and Classic CCS

In the last six months, did you file an appeal, grievance, or complaint about [CHILD'S NAME]'s healthcare? (Q81)				
	HPSM DP	RCHSD DP	Classic CCS	Total
No	298	121	963	1,382
	96.44	97.58	97.27	97.12
Yes	11	3	27	41
	3.56	2.42	2.73	2.88
Total	309	124	990	1,423
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	0.49			
P-value	.78			

Specialty Care

Satisfaction with Specialty Services: Since transitioning into the RCHSD DP, a significantly greater number of RCHSD DP respondents (95%) reported being "satisfied + very satisfied" with the specialist services they receive compared to Classic CCS respondents (89%) (*p* = .04). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 100.

Table 99: Satisfaction with Specialty Services: HPSM DP, RCHSD DP, and Classic CCS

How satisfied are you with the overall specialist services that [CHILD'S NAME] receives? (Q26)			
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
Very dissatisfied	14	4	40	58
	6.76	3.92	5.99	5.94
Dissatisfied	3	0	9	12
	1.45	0.00	1.35	1.23
Neither satisfied nor dissatisfied	7	1	27	35
	3.38	0.98	4.04	3.58
Satisfied	75	31	223	329
	36.23	30.39	33.38	33.67
Very satisfied	108	66	369	543
	52.17	64.71	55.24	55.58
Total	207	102	668	977
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†			
P-value				

Unmet Need for Specialty Services: The majority of respondents in all healthcare delivery models reported that their specialist services needs have been met (87%). However, significantly fewer RCHSD DP respondents (5%) reported few unmet needs compared to Classic CCS respondents (15%). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 101.

Table 100: Unmet Need for Specialty Services: HPSM DP, RCHSD DP, and Classic CCS

Does [CHILD'S NAME] need any specialist services that he or she currently cannot get through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q27)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
No, he or she gets all the specialist services he or she needs.	209	99	629	937
	87.08	95.19	85.35	86.68
Yes, there are specialist services he or she needs but cannot get through current plan.	31	5	108	144
	12.92	4.81	14.65	13.32
Total	240	104	737	1,081
	100.00	100.00	100.00	100.00
Rao-Scott Chi²	6.48			
P-value	.04			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Therapy Services

Satisfaction with Therapy Services: The majority of survey respondents in all healthcare delivery models (73%) were "satisfied + very satisfied" with the therapy services they were receiving. While there were not statistically significant differences between the groups, RCHSD DP respondents (86%) tended to show greater satisfaction compared to Classic CCS respondents (71%). See Table 102.

Table 101: Satisfaction with Therapy Services: HPSM DP, RCHSD DP, and Classic CCS

How satisfied are you with the therapy services that [CHILD'S NAME] receives? (Q35)				
	HPSM DP	RCHSD DP	Classic CCS	Total
Very dissatisfied	10	1	41	52
	5.78	3.57	9.11	7.99
Dissatisfied	16	2	36	54
	9.25	7.14	8.00	8.29
Neither satisfied nor dissatisfied	16	0	52	68
	9.25	0.00	11.56	10.45
Satisfied	84	11	177	272
	48.55	39.29	39.33	41.78
Very satisfied	47	13	143	203
	27.17	46.43	31.78	31.18
Decline to answer	0	1	1	2
	0.00	3.57	0.22	0.31
Total	173	28	450	651
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†			
P-value				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Equipment

Satisfaction with Medical Equipment: Since transitioning into the RCHSD DP, a significantly greater number of RCHSD DP respondents (95%) reported being "satisfied + very satisfied" with the medical equipment or supplies they received compared to Classic CCS respondents (73%) ($p = .01$). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 103.

Table 102: Satisfaction with Medical Equipment: HPSM DP, RCHSD DP, and Classic CCS

Overall, how satisfied are you with the medical equipment or supplies (including repairs) that [CHILD'S NAME] receives? (Q54)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
Very dissatisfied	8	0	23	31
	6.50	0.00	6.53	6.03
Dissatisfied	9	1	30	40
	7.32	2.56	8.52	7.78
Neither satisfied nor dissatisfied	8	1	40	49
	6.50	2.56	11.36	9.53
Satisfied	72	14	149	235
	58.54	35.90	42.33	45.72
Very satisfied	26	23	108	157
	21.14	58.97	30.68	30.54
Decline to answer	0	0	2	2
	0.00	0.00	0.57	0.39
Total	123	39	352	514
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†			
P-value				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Provider Communication

Satisfaction with Communication with Doctor and Other Healthcare Providers: Since transitioning into the RCHSD DP, a significantly greater number of RCHSD DP respondents (52%) reported being "very satisfied" with the communication they have with their doctors and healthcare providers compared to Classic CCS respondents (38%) (*p* = .02). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 104.

Table 103: Satisfaction with Communication with Doctor and Other Healthcare Providers: HPSM DP, RCHSD DP, and Classic CCS

Overall, how satisfied are you with the communication among [CHILD'S NAME]'s doctors and other healthcare providers? (Q59)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
Very dissatisfied	18	6	68	92
	5.90	4.88	6.91	6.52
Dissatisfied	7	5	27	39
	2.30	4.07	2.74	2.76
Neither satisfied nor dissatisfied	14	5	70	89
	4.59	4.07	7.11	6.30
Satisfied	143	43	442	628
	46.89	34.96	44.92	44.48
Very satisfied	123	64	377	564
	40.33	52.03	38.31	39.94
Total	305	123	984	1,412
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	15.26			
P-value	.05			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The p-value represents the significance of the analysis. A p-value less than .05 is considered significant.

Summary — Research Question 2: What is the impact of the CCS DP on the patient's and family's satisfaction?

Overall, on a majority of measures of satisfaction, RCHSD DP respondents showed greater satisfaction with the new healthcare delivery model compared to how Classic CCS respondents felt in theirs. HPSM DP and Classic CCS did not significantly differ from each other on items assessing satisfaction.

Research Question 3: What is the impact of the CCS DP on provider satisfaction with the delivery of and the reimbursement of services?

The results for Research Question 3 are organized as follows:

1. Online provider survey results
2. Key informant interview results

Online Provider Survey Results Overall

As stated in the "Methodological Limitations" section, the response rate for the online provider/administrator survey was small ($n = 6$); this is due in part to the challenge of finding providers knowledgeable about which of their patients were in the DP versus Classic CCS. Results, therefore, should be considered a qualitative assessment of provider views. However, the key informant interview results provide detailed and nuanced information about the specific issues that providers faced.

HPSM DP

Provider input shows that their responses to the HPSM DP were mixed, with most reporting no change or improved services. The exceptions were found with pharmacy, DME services, timeliness of services, quality of care, and access to care, which leaned more negatively in comparison to the other services measured.

Table 104: Provider Survey Respondent Characteristics

What is your primary role in your agency?	% ($n = 6$)
Administrator	33.3
Finance	16.7
Other (registered nurse case manager)	33.3
Service provider (e.g., home health / durable medical equipment)	16.7
What is the employment setting where you spend the majority of your time?*	
Academic medical center	66.7
DME provider	16.7

*Total does not add up to 100%, as 16.7% was missing.

Table 105: Change in Services Since DP Began

Please indicate how you think the services listed below have changed for children in the Pilot Program since it began (*n* = 6)	Much Improved / Improved %	No Change %	Worse / Much Worse %	Missing %
Case Management / Care Coordination	33.3	16.7	33.3	16.7
Mental Health Services	16.7	16.7	16.7	50.0
Pediatric Specialty Care Services	16.7	50.0	16.7	16.7
Primary Care Services	16.7	50.0	16.7	16.7
Durable Medical Equipment Services	16.7	0.0	66.7	16.7
Pharmacy Formulary	16.7	0.0	66.7	16.7
Transportation Services	16.7	0.0	33.3	50.0
Occupational Therapy	16.7	0.0	33.3	50.0
Physical Therapy	16.7	16.7	33.3	33.3
Transition from Pediatric to Adult Services	16.7	33.3	16.7	33.3
Overall Timeliness of Services	16.7	0.0	66.7	16.7
Overall Quality of Services	16.7	0.0	66.7	16.7
Overall Access to Services	16.7	0.0	66.7	16.7

Table 106: Reimbursement and Overall Services: Comparing DP to Fee-for-Service CCS

	Better %	No Different %	Worse %	NA/Unsure %	Missing %
How does the overall reimbursement you / your organization receive from the Pilot Program compare to reimbursement from the fee-for-service CCS?	0.0%	33.3%	16.7%	33.3%	16.7%
How do the overall services you / your organization provide to clients from the Whole Child Model or Pilot Program compare to those in fee-for-service CCS?	16.7%	33.3%	0.0%	50.0%	0.0%

Online Provider Survey Results, RCHSD DP

There was only one respondent from RCHSD for the provider survey. Of note, the RCHSD DP contracted with only four DME providers and pharmacies, and their providers were all internal. Therefore, there was a very small pool of providers and representatives who would have been eligible for this survey.

Given that only one provider responded to the survey, the UCSF evaluation team did not include that person's responses in this evaluation. However, it is valuable to note that this provider submitted the following comment with their survey: "CKC [RCHSD DP] Care Navigators and the overall program had a significant positive impact for our patients with hemophilia. Services were invaluable, especially with PCP care, specialty referrals, medication adherence, education, and access to care."

Key Informant Interview Results

With the implementation of the HPSM DP, KIs from HPSM identified some challenges when contracting with delegated health plans to provide care for CCS clients. This was especially an issue when CCS clients experienced a lapse in their annual Medi-Cal reenrollment and, as a result, would get disenrolled or terminated from Medi-Cal.

The RCHSD KIs noted that being an ACO helped to facilitate more expeditious care delivery due to the increased efficiency of the authorization process, since authorizations were under the purview of CKC (the RCHSD DP) instead of CCS. By virtue of being an ACO, the RCHSD DP also experienced some benefits related to reimbursement and billing. One RCHSD KI noted that since CKC was new Medi-Cal coverage, it could utilize the established Medi-Cal fee schedule. Doing so minimized the time RCHSD spent negotiating reimbursement rates. The RCHSD DP providers also had the advantage of being directly reimbursed for claims by RCHSD instead of having to submit these claims to the state for payment.

Research Question 4: What is the impact of the CCS DP on the quality of care received?

The results for Research Question 4 are organized as follows:
1. Key informant interview results
2. Telephone survey results
3. Analysis of administrative data (as measured by vaccinations and HbA1c control)

Key Informant Interview Results

When HPSM KIs were asked about the quality of care in the DP, respondents spoke mainly about the quality of medical supplies. More than one CCS KI heard directly from CCS families that the quality of the diapers in the HPSM DP were not as good as the ones that Classic CCS provided. This was attributed to the development of a new HPSM DP CCS formulary, which provided different brands of diapers to CCS clients.

Rady Children's Hospital-San Diego already had quality improvement measures, plans, and interventions systematically embedded within their healthcare infrastructure by virtue of being an ACO. With the creation of its DP, patients were able to benefit from this previously established system of care. Many of the RCHSD KIs spoke of how the care provided at RCHSD was driven by quality metrics and improving performance. Both RCHSD and CKC (RCHSD DP) staff were continually "working on our quality measures and our quality outcomes" as well as addressing gaps in primary care and preventive care. The RCHSD DP also implemented a quality improvement project related to diabetes, which proved successful in reducing HbA1c levels for patients in the RCHSD DP with diabetes.

Telephone Survey Results — Impact on Quality of Care

The survey items addressing the fourth research question, the impact CCS DP had on the quality of care received,[52] are drawn from sections of the survey that inquire about:

1. Whole Child Model
2. Medical home / primary care
3. Specialty care
4. Therapy services
5. Prescription medication
6. Behavioral health
7. Medical equipment and supplies

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[52] The majority of survey items addressing Research Question 4, "What is the impact of the CCS DP on the quality of care received?," were asked only of respondents in the HPSM DP and RCHSD DP (as opposed to also being asked of those in Classic CCS counties). Approximately one-fifth to two-thirds of HPSM DP respondents routinely answered "don't know" to questions in this domain, which complicated the interpretation of the results for each question. This is likely because the HPSM DP was implemented more than six years before to administration of the survey. Because results of the chi-square analyses can be skewed with the high percentage of HPSM respondents indicating "don't know," additional analyses were conducted excluding "don't know" responses. The tables presented in this report retain the "don't know" responses to help contextualize the results.

8. Transportation

"Whole Child" Approach

Overall Quality of Health Services: Since transitioning into the RCHSD DP, a significant number of RCHSD DP respondents (51%) indicated that the quality of health services improved; 44% thought health services were "about the same." The majority of HPSM respondents (39%) were more likely to respond that the quality of health services were "about the same"; only 20% responded that health services were "better since the transition." See Table 108.

Table 107: Overall Quality of Health Services: HPSM DP and RCHSD DP

Since the transition to [NAME OF HEALTH PLAN], has the quality of the health services that [CHILD'S NAME] receives been better, the same, or worse? (Q7)			
	HPSM DP	**RCHSD DP**	**Total**
a. Better since the transition	62	63	125
	19.87	50.81	28.67
b. About the same	121	55	176
	38.78	44.35	40.37
c. Worse since the transition	8	3	11
	2.56	2.42	2.52
d. Don't know	121	3	124
	38.78	2.42	28.44
Total	312	124	436
	100.00	100.00	100.00
Rao-Scott Chi^2	112.92		
P-value	<.0001		

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-squared analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Home / Primary Care

Quality of Primary Care Services: While not statistically significant, it is notable that the majority of respondents for both the HPSM DP and RCHSD DP (48%) indicated that primary care services were "about the same." A majority of RCHSD DP respondents (64%) indicated services were "about the same," and 32% indicated primary care services were "better

since the transition." A significant percentage of HPSM DP respondents (36%) indicated "don't know" regarding the primary care services that clients received since the transition. HPSM DP respondents (42%) indicated services were "about the same," and 21% indicated primary care services were "better since the transition." Very few HPSM DP or RCHSD DP respondents indicated primary care services were "worse since the transition (1% and 4%, respectively). See Table 109.

Table 108: Quality of Primary Care Services: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the primary care services that [CHILD'S NAME] receives been better, the same, or worse? (Q15)			
	HPSM DP	**RCHSD DP**	**Total**
Better since the transition	57	36	93
	21.11	31.58	24.22
About the same	113	73	186
	41.85	64.04	48.44
Worse since the transition	4	5	9
	1.48	4.39	2.34
Don't know	96	0	96
	35.56	0.00	25.00
Total	270	114	384
	100.00	100.00	100.00
Rao-Scott Chi^2	†		
P-value			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Specialty Care

Quality of Specialty Care: Since transitioning into the RCHSD DP, a significant number of RCHSD DP respondents (89%) indicated that the quality of specialty services was "better since the transition." HPSM respondents (31%) were more likely than not to respond that the quality of specialty services were "better since the transition." Approximately 67%

of the HPSM DP respondents indicated "don't know." That is, almost two-thirds of the HPSM DP respondents were unable to state whether there was a change in the quality of specialist services. See Table 110.

Table 109: Quality of Specialty Care: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the specialist services that [CHILD'S NAME] receives been better, the same, or worse? (Q29)	HPSM DP	RCHSD DP	Total
Better since the transition	49	42	91
	31.41	89.36	44.83
About the same	4	2	6
	2.56	4.26	2.96
Worse since the transition	4	2	6
	2.56	4.26	2.96
Don't know	103	3	106
	66.03	6.38	52.22
Total	156	47	203
	100.00	100.00	100.00
Rao-Scott Chi^2	77.45		
P-value	<.0001		

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Therapy Services

Quality of Therapy Services: Although a statistical significance test could not be computed because of a zero response for one of the response categories, it is still illuminating to look at how respondents viewed the quality of therapy services. A majority of RCHSD DP respondents (47%) indicated that services were "about the same," and (38%) felt that therapy service were "better since the transition." HPSM DP respondents (41%) indicated that services were "about the same;" fewer (14%) felt that therapy service were "better since the transition." Approximately 40% of the HPSM DP respondents were unable to state whether there was a change in the quality of therapy services or that the services were unchanged. See Table 111.

Table 110: Quality of Therapy Services: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the therapy services that [CHILD'S NAME] receives been better, the same, or worse? (Q38)			
	HPSM DP	**RCHSD DP**	**Total**
Better since the transition	25	12	37
	13.97	37.50	17.54
About the same	74	15	89
	41.34	46.88	42.18
Worse since the transition	9	0	9
	5.03	0.00	4.27
Don't know	71	5	76
	39.66	15.63	36.02
Total	179	32	211
	100.00	100.00	100.00
Rao-Scott Chi^2	†		
P-value			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Prescription Medication

Quality of Pharmacy Services: The majority of respondents in both the HPSM DP and RCHSD DP (53%) indicated that pharmacy services were "about the same" since the transition. RCHSD DP respondents (30%) indicated the quality of pharmacy services improved, whereas 15% of HPSM DP indicated an improvement. It is important to note that a significant percentage of HPSM DP respondents (34%) responded "don't know." See Table 112.

Table 111: Quality of Pharmacy Services: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the prescription/pharmacy services that [CHILD'S NAME] receives been better, the same, or worse? (Q46)			
	HPSM DP	**RCHSD DP**	**Total**
Better since the transition	29	27	56
	14.87	30.00	19.65
About the same	92	58	150
	47.18	64.44	52.63
Worse since the transition	7	5	12
	3.59	5.56	4.21
Don't know	67	0	67
	34.36	0.00	23.51
Total	195	90	285
	100.00	100.00	100.00
Rao-Scott Chi^2	†		
P-value			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Medical Equipment and Supplies

Quality of Medical Equipment and Supplies: After the implementation of the CCS DPs, few respondents (2%) reported that medical equipment and supplies that their child received were worse. While a significant number of RCHSD DP respondents (43%) indicated that medical equipment and supplies services improved, a majority (55%) indicated that these services were unchanged. HPSM DP respondents (47%) were more likely to respond that medical equipment and supplies services were "about the same," compared to the 11% who indicated that services were "better since the transition." Approximately 40% of the HPSM DP respondents were unable to state whether there was a change in the quality of medical equipment and supplies services or that the services were unchanged. See Table 113.

Table 112: Quality of Medical Equipment and Supplies: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the medical equipment and supplies that [CHILD'S NAME] receives been better, the same, or worse? (Q57)	HPSM DP	RCHSD DP	Total
Better since the transition	14	17	31
	11.29	42.50	18.90
About the same	58	22	80
	46.77	55.00	48.78
Worse since the transition	3	1	4
	2.42	2.50	2.44
Don't know	49	0	49
	39.52	0.00	29.88
Total	124	40	164
	100.00	100.00	100.00
Rao-Scott Chi^2	†		
P-value			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Behavioral Health Services

Quality of Behavioral Health Services: Half (50%) of the RCHSD DP respondents indicated that behavioral health services were "about the same" since the transition. Approximately 27% of the RCHSD DP respondents said that behavioral health services were "better since the transition." A significant number of HPSM DP (49%) stated "don't know" on whether behavioral health services were "better," "the same," or "worse," and 36% indicated that services were "about the same" since the transition. See Table 114.

Table 113: Quality of Behavioral Health Services: HPSM DP and RCHSD DP

[Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the behavioral or mental health services that [CHILD'S NAME] receives been better, the same, or worse? (Q51)			
	HPSM DP	**RCHSD DP**	**Total**
Better since the transition	8	6	14
	10.67	27.27	14.43
About the same	27	11	38
	36.00	50.00	39.18
Worse since the transition	3	2	5
	4.00	9.09	5.15
Don't know	37	3	40
	49.33	13.64	41.24
Total	75	22	97
	100.00	100.00	100.00
Rao-Scott Chi^2	15.54		
P-value	.001		

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Transportation Services

Quality of Transportation Services: Since the transition to CCS DP, an equal number of RCHSD DP respondents indicated that transportation assistance is "better since the transition" (41%) or "about the same" (41%). A sizeable number of HPSM respondents (48%) indicated "don't know" when asked if transportation assistance improved since the transition. The next most frequent response from HPSM DP respondents regarding transportation services was that it was "about the same" (26%). See Table 115.

Table 114: Quality of Transportation Services: HPSM DP and RCHSD DP

[DP only] Since the transition to [NAME OF HEALTH PLAN], has the transportation assistance that [CHILD'S NAME] receives (including the process of arranging transportation) been better, the same, or worse? (Q67)	HPSM DP	RCHSD DP	Total
Better since the transition	8	9	17
	19.05	40.91	26.56
About the same	11	9	20
	26.19	40.91	31.25
Worse since the transition	3	1	4
	7.14	4.55	6.25
Don't know	20	3	23
	47.62	13.64	35.94
Total	42	22	64
	100.00	100.00	100.00
Rao-Scott Chi^2	12.82		
P-value	<.01		

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Summary — Research Question 4: What is the impact of the CCS DP on the quality of care received?

In general, since transitioning to the CCS DP, RCHSD DP respondents indicated that the quality of care received was "about the same." Exceptions to this were responses to improved overall quality of health services and specialty services, where a majority of RCHSD DP respondents indicated services were "better since the transition."

Approximately one-fifth to two-thirds of HPSM DP respondents routinely answered "don't know" to the items assessing quality of care, which complicated the interpretation of the results for each question. The HPSM DP was implemented more than six years before administration of the survey; this likely contributed to the high percentage of "don't know" responses. Taking this caveat into consideration, HPSM DP respondents indicated that, for the majority of items evaluated, the quality of care received was "about the same." The exception to this were responses to quality of specialty services, where a majority of HPSM DP respondents indicated services were "better since the transition."

Administrative Claims Results — Impact on Quality of Care

1. Childhood vaccinations
2. HbA1c ≥ 8

Childhood Vaccination Results

Vaccination status is reported in Table 116 and Table 117 below for the HPSM and RCHSD DPs, respectively. The tables describe the cumulative number of completed vaccines (range: 0–10). The range is based on the 10 different vaccine components that comprise successful completion of the HEDIS childhood immunization schedule: "The percentage of children two years of age who had four diphtheria, tetanus, and acellular pertussis (DTaP); three polio (IPV); one measles, mumps and rubella (MMR); three haemophiles influenza type B (HiB); three hepatitis B (HepB); one chicken pox (VZV); four pneumococcal conjugate (PCV); one hepatitis A (HepA); two or three rotavirus (RV); and two influenza (flu) vaccines by their second birthday."[53] (See Appendix V.) Tables for each individual vaccine by DP and Classic CCS comparison group can be found in Appendix AA, "Supplemental Childhood Immunization Descriptive Tables."

Tables 116 and 117 below illustrates the number of "completed vaccines" for individual components of the childhood immunization measure listed above. This ranges from 0 to 10. Having a "0" would indicate a child received no vaccines, and 10 would indicate that all 10 vaccines were completed (met the childhood immunization measure). Less than 14% of CCS clients in HPSM DP or the Classic control had no vaccinations in the Classic comparison group. Between 29% and 45% in pre-DP, post-DP, and classic counties received the full vaccine series. There was a statistically significant difference in proportions by chi-square for HPSM DP and classic county proportions of completing the childhood vaccine series. In RCHSD, there were very few babies that qualified for vaccines and thus, there was no statistically significant difference that could be told by the counts in RCHSD DP. See Appendix AA for the proportion of children vaccinated by individual vaccine.

In evaluating individual vaccines, the lowest immunization rates were found with PCV (down to 52% vaccinated in the Classic CCS group in the post-period) and rotavirus (where only about half the children had claims/vaccine reporting for this vaccine). Not having the rotavirus vaccine or PCV completed was the primary driver of having not met the full childhood immunization criteria. See Appendix AA for proportion of children vaccinated by individual vaccine.

Tables 116 and 117 provide the percentages of clients receiving vaccines at HPSM (Table 116) and at RCHSD (Table 117).

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[53] "Childhood Immunization Status (CIS)," NCQA, www.ncqa.org/hedis/measures/childhood-immunization-status/.

Table 115: HPSM DP: Percentage of Those by the 24th-Month Birthday Receiving Target Vaccination Schedule by Number of Completed Schedules

Number of Vaccines	Pre-DP (*n*%)	Post-DP (*n*%)	Classic Pre-DP (*n*%)	Classic Post-DP (*n*%)	Total
0	15 10.00	18 4.80	20 14.08	24 7.08	77
1	0 0.00	6 1.60	3 2.11	11 3.24	20
2	5 3.33	2 0.53	1 0.70	11 3.24	19
3	7 4.67	11 2.93	5 3.52	18 5.31	41
4	11 7.33	10 2.67	9 6.34	27 7.96	57
5	3 2.00	19 5.07	5 3.52	21 6.19	48
6	7 4.67	12 3.20	6 4.23	23 6.78	48
7	6 4.00	22 5.87	11 7.75	14 4.13	53
8	11 7.33	29 7.73	12 8.45	25 7.37	77
9	34 22.67	77 20.53	27 19.01	66 19.47	204
10	51 34.00	169 45.07	43 30.28	99 29.20	362
Total	150	375	142	339	1,006

Table 116: RCHSD DP: Percentage of Those by the 24th-Month Birthday Receiving Target Vaccination Schedule by Number of Completed Schedules

Number of Vaccines	Pre-DP (n%)	Post-DP (n%)	Classic Pre-DP (n%)	Classic Post-DP (n%)	Total
0	0 0.00	0 0.00	1 10.00	1 9.09	2
1	1 10.00	0 0.00	1 10.00	1 9.09	3
3	0 0.00	0 0.00	0 0.00	1 9.09	1
5	1 10.00	0 0.00	0 0.00	0 0.00	1
6	1 10.00	0 0.00	0 0.00	0 0.00	1
7	1 10.00	0 0.00	1 10.00	0 0.00	2
8	0 0.00	1 14.29	0 0.00	0 0.00	1
9	0 0.00	1 14.29	5 50.00	4 36.36	10
10	6 60.00	5 71.43	2 20.00	4 36.36	17
Total	10	7	10	11	38

Table 118 provides comparisons of scheduled immunizations completed between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of completed immunizations in the HPSM DP and Classic CCS comparison groups did not differ significantly ($p = .46$). However, during the post-DP period, the odds of completed immunizations for the HPSM DP were 2.06 times greater than those of the Classic CCS comparison group ($p < .001$).

Table 117: Childhood Vaccination Completions (two-year-olds) per 100 Members: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | Immunization Schedule Met per 100 (2-year-olds) | | Adjusted Odds Ratios* | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM Group vs. Classic CCS	P-value
Pre-DP Implementation	35	30	1.21 (0.73, 2.01)	.464
Post-DP Implementation	45	29	2.06 (1.50, 2.83)	<.001

*Adjusted for language and race/ethnicity.

Table 119 provides comparisons of immunization completions in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of immunization completion during the post-DP were 1.51 times greater than those during the pre-DP period (p = .05). The odds of immunization completions for the Classic CCS comparison group from pre-DP to post-DP periods did not differ significantly (p = .59). The Difference in Differences in the pre-DP to post-DP implementation periods between the HPSM DP and Classic CCS comparison groups is not significant (p < .08).

Table 118: Childhood Vaccination (2-year-olds) Completion per 100 Members: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Immunization Schedule Met per 100 (2-year-olds) | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	35	45	1.51 (1.00, 2.27)	.048
Classic CCS Comparison Group	30	29	0.89 (0.57, 1.37)	.591
Difference in Differences			1.70 (0.94, 3.10)	.081

*Adjusted for language and race/ethnicity.

Figure 39: Childhood Immunizations per 100 Members over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
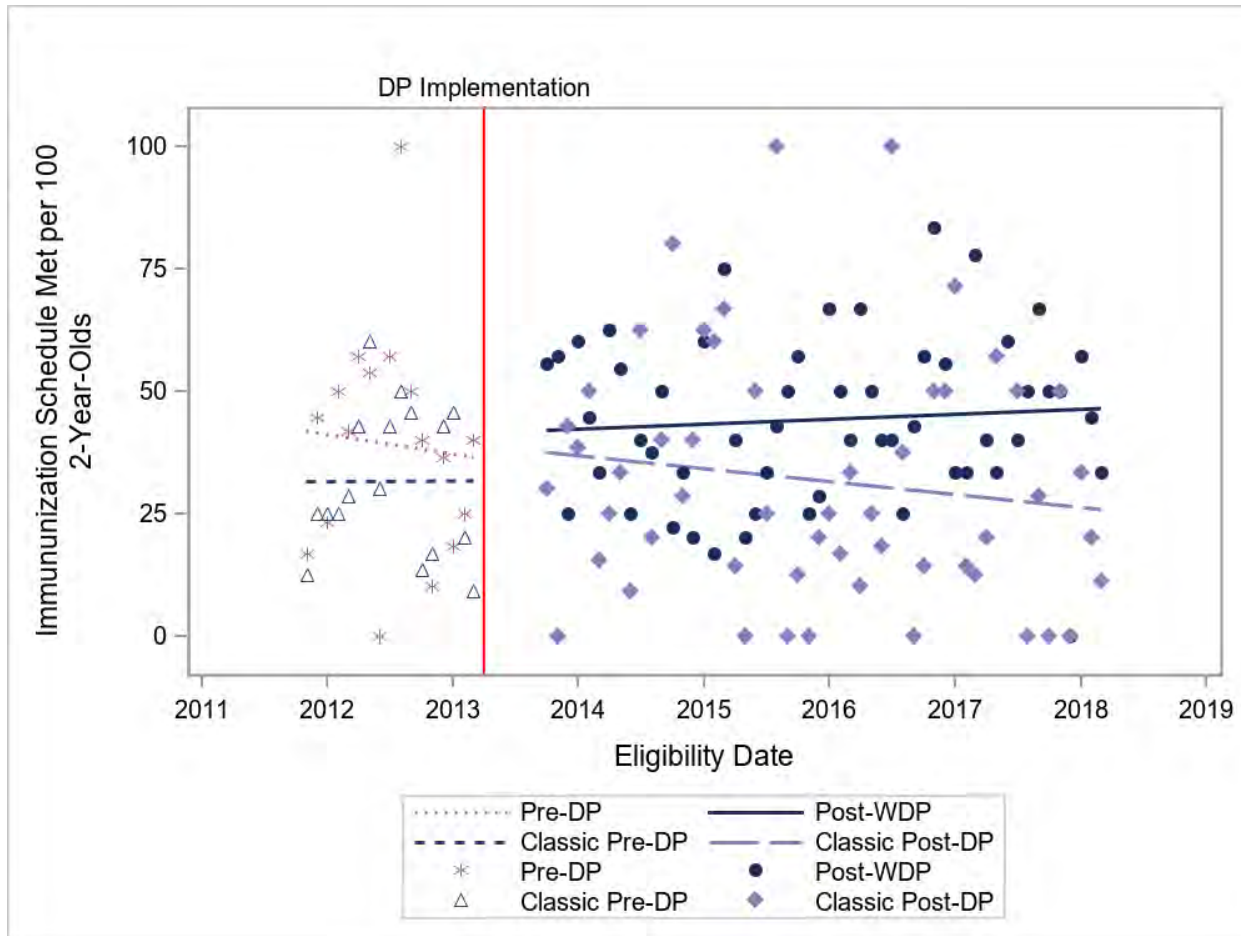
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variables Associated with Vaccination Status: In the regression model for completing the childhood vaccination series in the HPSM DP, Spanish-speaking status was associated with statistically significant higher rates of vaccination. (See Appendix T for full regression model.)

Table 120 provides comparisons of scheduled immunizations completed between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of completed immunizations for the RCHSD DP and those of the Classic CCS comparison groups did not differ significantly ($p = .19$). Likewise, during the post-DP period, the odds of completed immunizations for the RCHSD DP and of the Classic CCS comparison groups did not differ significantly ($p < .16$).

Table 119: Childhood Vaccinations (two-year-olds) per 100 Members: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Immunization Schedule Met per 100 (2-year-olds) | | Unadjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP Group vs. Classic CCS	P-value
Pre-DP Implementation	50	20	4.00 (0.50, 31.98)	.191
Post-DP Implementation	71	36	4.37 (0.56, 33.95)	.158

*No covariates were used due to small sample size and overspecification of the model.

Table 121 provides comparisons of immunization completions in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of immunization completion during the post-DP did not differ significantly from those of the pre-DP period ($p = .40$). The odds of immunization completion for the Classic CCS comparison group from pre-DP to post-DP periods did not differ significantly ($p = .41$). The Difference in Differences pre-DP to post-DP periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .95$).

Table 120: Childhood (two-year-olds) Vaccination Completion per 100 Clients: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Immunization Schedule Met per 100 (2-year-olds) | | Unadjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
RCHSD DP Group	50	71	2.50 (0.29, 21.40)	.403
Classic CCS Comparison Group	20	36	2.29 (0.32, 16.51)	.413
Difference in Differences			1.09 (0.06, 20.26)	.952

*No covariates were used due to small sample size and overspecification of the model.

Figure 40: Childhood Immunizations per 100 Members over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
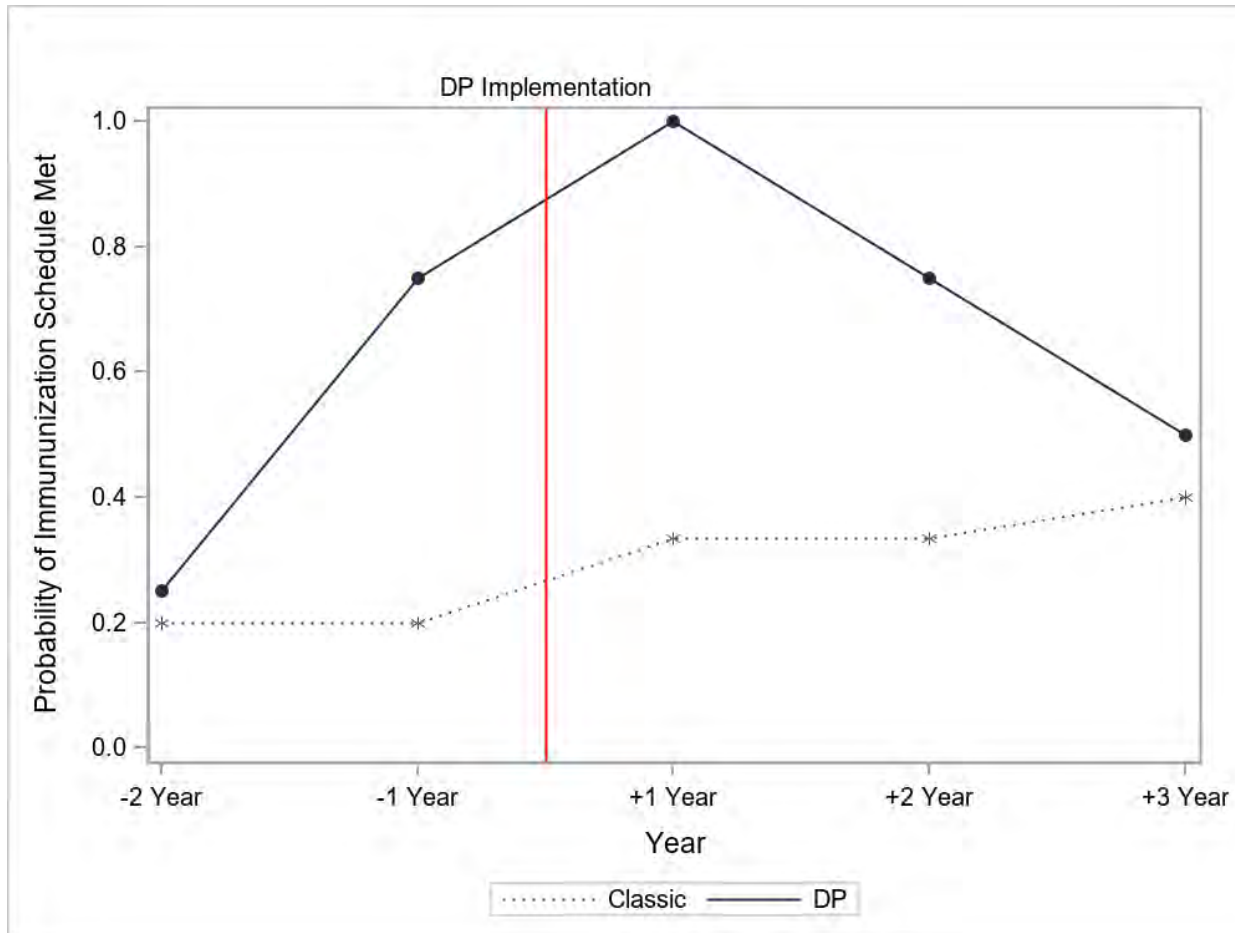
RCHSD DP Goodness of Fit: Not calculated due to small sample size that precluded time-variant analysis.

Overall summary for vaccinations in HPSM and RCHSD

At HPSM DP, vaccination rates in the HPSM DP increased significantly during the post-DP period, and there were no significant increases in the Classic CCS comparison group. The Difference in Differences is not significant. At RCHSD,

neither the RCHSD DP nor the Classic CCS comparison group had significant changes over time, and the Difference in Differences is not significant.

Diabetes Management: HbA1c ≥8 Results

Overview: HbA1c is a measure of glucose control in people with diabetes. An HbA1c of eight or over would indicate poor glucose control.

As Table 122 indicates, HPSM DP did not have a comparison group for this outcome. At HPSM, having a poor HbA1c outcome did not differ significantly pre- and post-intervention (p = .51). UCSF received very few HbA1c values (which were attained from outside labs) from HPSM, as many children likely receive their HbA1c at clinics that provide point of care testing.

Table 121: Comparison of Pre- versus Post- of the Likelihood of Having an HbA1c ≥ 8 in HPSM DP

| Group | % HbA1c ≥ 8 | | Adjusted Odds Ratios* (95% CI) | |
	Pre-DP Implementation	Post-DP Implementation	Post- vs. Pre- Periods	*P*-value
HPSM DP Group	33.3	22.7	0.74 (0.31,1.81)	.51

*Adjusting for age and language.

Table 123 provides comparisons between RCHSD DP and Classic CCS comparison groups for the pre-DP and post-DP implementation periods separately. During the pre-DP period, the odds of tests of HbA1c ≥ 8 in RCHSD DP and Classic CCS comparison groups did not differ significantly (p = .13). Likewise, during the post-DP period, the odds of HbA1c ≥ 8 for RCHSD DP and Classic CCS comparison groups did not differ significantly (p = .85).

Table 122: Comparison of Pre- versus Post- of the Likelihood of Having an HbA1c ≥ 8 in RCHSD DP, and the DiD Analysis Comparing RCHSD to Changes in the Classic CCS Comparison Group

| Period | HbA1c ≥ 8 | | Adjusted Odds Ratios* | |
	RCHSD DP	Classic CCS Comparison Group at RCHSD	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	62.83	79.25	0.92 (0.14, 1.3)	.13
Post-DP Implementation	59.36	54.79	1.08 (0.44, 2.66)	.85

*Adjusted for gender.

Table 124 provides the comparisons of HbA1c ≥ 8 in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of HbA1c ≥ 8 during the post-DP did not differ significantly from those of the pre-DP period ($p = .42$). The odds of HbA1c ≥ 8 for the Classic CCS comparison group from pre-DP to post-DP periods did not differ significantly ($p = .06$). The Difference in Differences pre-DP to post-DP periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .17$).

Table 123: Probability of Having a HbA1c ≥8: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Group at RCHSD Pre- versus Post-Period, and DiD Analysis

| Group | % of HbA1c ≥8 | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	Comparing Post- vs. Pre-Period	P-value
RCHSD DP Group	62.83	59.36	0.80 (0.47, 1.37)	.42
Classic CCS Comparison Group at RCHSD	79.25	54.79	0.32 (0.095, 1.05)	.06
Difference in Differences			2.53 (0.68, 9.42)	.17

*Adjusted for gender.

Summary of HbA1c ≥ 8 results at HPSM DP and RCHSD DP

For HPSM, HbA1c rates did not change significantly during the post-DP period. For RCHSD, both the RCHSD DP and Classic CCS comparison groups had nonsignificant decreases in HbA1c ≥ 8 during the post-DP period, and the Difference in Differences between the groups is not significant.

Research Question 4: Summary and Commentary on Quality of Care (vaccination, HbA1c) Measures

For RCHSD DP, HbA1c and vaccination outcomes were no different from controls. HPSM DP also had no change in vaccination rates as compared to controls, and there was no difference in A1c outcomes in the HPSM when comparing

the pre- and post-intervention periods (there was no comparison group for the HPSM DP HbA1c analysis). Vaccinations are a commonly used measure for population health, and as noted, vaccination rates went up pre- to post-intervention for HPSM and RCHSD but were not statistically significant from controls in the DiD model. HbA1c also did not improve in either DP.

Unlike in adults, where diabetes is often cared for in primary care settings with population-based interventions, pediatric diabetes care is based out of Special Care Centers and requires significant input from care teams and families.[54] Primary care physicians normally do not directly manage diabetes in children. Therefore, HbA1c measures would likely measure quality of the Special Care Center as opposed to the quality interventions of the managed care pan or ACO, where population management is often used for adults with type 2 diabetes. Factors such as retinopathy screening or number of A1c measurements or number of quarterly visits to a diabetes center may be more sensitive measures for health plan–level interventions for children with diabetes.

Research Question 5: What is the impact of the CCS DP on care coordination?

The results for Research Question 5 are organized as follows:
1. Key informant interview results
2. Telephone survey results
3. Analysis of administrative data for care coordination and health outcomes

Key Informant Interview Results

Care coordination in the HPSM DP was eventually contracted back to the county CCS program. This meant that HPSM staff was not responsible for the CCS clients' care coordination in the HPSM DP and instead, case management for CCS clients remained with the CCS case managers after the transition to the HPSM DP. Most HPSM KIs felt that this was a huge benefit for CCS clients and their families because the CCS case managers' historical knowledge, clinical expertise, and intimate relationship with their clients would not be lost. Some noted that this was especially important when coordinating care for clients with high needs or more complex health conditions. This contractual arrangement for care coordination to remain a responsibility of CCS was ultimately beneficial for both CCS clients and their families in the HPSM DP, as one HPSM KI surmised that CCS clients in the HPSM DP may have received more attention from CCS case managers than if the care coordination responsibilities had remained with HPSM.

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[54] "Children and Adolescents: Standards of Medical Care in Diabetes–2020," *Diabetes Care* 43, Suppl. 1 (Dec. 16, 2019): S163–82, https://doi.org/10.2337/dc20-S013.

"I think the children and families really win because there're so many Health Plan [of San Mateo] kids and there's so few CCS kids. And so, the ratio of [HPSM] nurses to CCS kids is, for case management, so much higher if they [HPSM] do it. I think they wouldn't get nearly the attention if it [case management] were done by Health Plan [of San Mateo]." (HPSM KI)

In addition to contracting care coordination back to CCS, the CCS staff was also physically located in the same building as the HPSM staff. One KI noted how this colocation helped to optimize care coordination because many of those involved in the CCS clients' care, whether from HPSM or CCS, could more easily and readily discuss client needs in person.

Although the continuity of care coordination was seen as a benefit for CCS clients, it initially translated into more work for CCS case managers. This was because CCS case managers were responsible for *all* CCS clients' care coordination (including those clients who did not have full-scope Medi-Cal and were not in the HPSM DP). In addition, HPSM KIs noted that the HPSM DP care coordination activities could still be fragmented among various CCS staff (e.g., benefits analyst, nurse, social worker), HPSM departments, and various healthcare entities (e.g., a delegated health plan or an SCC).

The CKC care coordination was a unique aspect of the RCHSD DP because unlike in Classic CCS (or in the HPSM DP) where CCS nurse case managers were responsible for care coordination, in CKC this task was carried out by a combination of nurse Care Navigators, Patient Care Coordinators, and RCHSD case managers who were not involved with CKC patients. Two of these positions, the nurse Care Navigator and Patient Care Coordinator, were new positions at RCHSD and were created specifically for CKC. In addition, nurse Care Navigators were assigned condition-specific caseloads, which meant they were responsible for CKC patients who all had the same CCS condition, and they were familiar with the full range of services that could be provided to address all the CKC patient's healthcare needs.

Patient Care Coordinators helped with some of the administrative aspects of care coordination and did so among all CKC patients, regardless of their CCS-eligible condition. Patient Care Coordinators were not nurses, and as such they helped exclusively with nonclinical CKC tasks such as appointment scheduling, referrals, and follow-up with authorizations.

Again, certain features of an ACO proved to be beneficial for some aspects of CKC care coordination. Many KIs noted that the collaborative working relationship integrated within the ACO structure helped to facilitate the team approach to CKC care coordination. One KI reflected that because CKC was part of an integrated system of care as an ACO, their care coordination was "really a team effort" and that families "probably feel more like it's their doctors and nurses working

together as opposed to a health plan. Even though it is a health plan" (RCHSD KI). In addition, many RCHSD KIs described the collaboration as beneficial for all the care teams involved.

The RCHSD KIs shared how proud they were of the care coordination and complex case management they were able to provide to their CKC patients. Many RCHSD KIs felt that the CKC model of complex case management "improves outcomes ... and is the right thing for the kids" (RCHSD KI). With this model, one KI stated they could "demonstrate that we're making a difference."

Telephone Survey Results — Impact on Care Coordination

The telephone survey inquired about care coordination, including items drawn from sections of the survey that inquire about:
1. Care coordination / case management services
2. Care coordination with the quality of communication
3. Transition to adult care

Care Coordination / Case Management

Impact on Help Coordinating Care: The majority of respondents in all healthcare delivery models (73%) reported they were "usually" or "always" able to get as much help as they wanted with arranging or coordinating healthcare. A significantly greater percentage of RCHSD DP respondents (82%) reported "usually" or "always" getting better access to help coordinating care compared to Classic CCS respondents (69%) ($p = .05$, not shown). HPSM DP respondents (76%) reported "usually" or "always" getting better access to help coordinating care and did not significantly differ from Classic CCS respondents. See Table 125.

Table 124: Impact on Help Coordinating Care: HPSM DP, RCHSD DP, and Classic CCS

DURING THE PAST 6 MONTHS, how often did you get as much help as you wanted with arranging or coordinating [CHILD'S NAME]'s healthcare? (Q71)				
	HPSM DP	RCHSD DP	Classic CCS	Total
Always	25	32	74	131
	37.88	62.75	42.77	45.17
Usually	25	10	45	80
	37.88	19.61	26.01	27.59
Sometimes	13	9	28	50

DURING THE PAST 6 MONTHS, how often did you get as much help as you wanted with arranging or coordinating [CHILD'S NAME]'s healthcare? (Q71)				
	HPSM DP	RCHSD DP	Classic CCS	Total
	19.70	17.65	16.18	17.24
Never	3	0	26	29
	4.55	0.00	15.03	10.00
Total	66	51	173	290
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†			
P-value				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Quality of Care Coordination / Case Management Services: A majority of RCHSD DP respondents (67%) indicated that care coordination / case management services were "better since the transition," and (31%) felt that they were "about the same." HPSM DP respondents (15%) felt that care coordination / case management services were "better since the transition," and (27%) indicated they were "about the same." Approximately 55% of the HPSM DP respondents indicated they didn't know if there had been a change in the quality of care coordination / case management services. See Table 126.

Table 125: Impact on Quality of Care Coordination / Case Management Services: HPSM DP and RCHSD DP

Q72. [Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the care coordination / case management services that [CHILD'S NAME] receives been better, the same, or worse? (Q72)			
	HPSM DP	RCHSD DP	Total
Better since the transition	11	35	46
	15.49	67.31	37.40
About the same	19	16	35
	26.76	30.77	28.46

Q72. [Asked only of respondents enrolled in HPSM DP or RCHSD DP] Since the transition to [NAME OF HEALTH PLAN], have the care coordination / case management services that [CHILD'S NAME] receives been better, the same, or worse? (Q72)			
	HPSM DP	RCHSD DP	Total
Worse since the transition	2	0	2
	2.82	0.00	1.63
Don't know	39	1	40
	54.93	1.92	32.52
Total	71	52	123
	100.00	100.00	100.00
Rao-Scott Chi²	†		
P-value			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Care Coordination Assistance with Activities: The survey asked respondents if the care coordinator / case manager assisted with the following type of activities: arranging appointments with doctors or therapists; arranging transportation and helping with transportation reimbursements; helping obtain authorizations; calling after a hospitalization, emergency department visit, or other health event; or other activities. RCHSD DP respondents indicated that their care coordinator / case manager helped them with significantly more care coordination activities (2.3 tasks) than Classic CCS respondents (1.8 tasks). The difference between HPSM DP and Classic CCS was not statistically significant for the average number of care coordination activities. See Table 127.

Table 126: Impact on Care Coordination Assistance with Activities: HPSM DP, RCHSD DP, and Classic CCS

MEANS: In the last 6 months, has your care coordinator / case manager helped you with any of the following things? (Check all that apply) (Q73)						
DP Group	N	Nonmissing N	Mean	Standard Deviation	Min	Max

HPSM DP	45	271	1.91	1.06	1.00	4.00
RCHSD DP	49	76	2.29	1.14	1.00	5.00
Classic CCS	121	884	1.81	0.97	1.00	5.00

• Values are raw, nonweighted survey results.

Impact on Care Coordination Communication: RCHSD DP respondents reported that, overall, they spoke with or met with their care coordinator / case manager more frequently compared to Classic CCS respondents. For example, significantly more RCHSD DP respondents (40%) indicated that they spoke with or met with their care coordinator / case manager "more than once a month" or "about once a month," in comparison to Classic CCS respondents (26%). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 128.

Table 127: Impact on Care Coordination Communication: HPSM DP, RCHSD DP, and Classic CCS

In the last 6 months, how often have you talked to or met with [CHILD'S NAME]'s care coordinator / case manager to discuss [CHILD'S NAME]'s healthcare or service needs? (Q75)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
More than once a month	6	7	18	31
	10.71	14.89	10.78	11.48
About once a month	6	12	26	44
	10.71	25.53	15.57	16.30
Every few months	23	27	69	119
	41.07	57.45	41.32	44.07
Never	21	1	54	76
	37.50	2.13	32.34	28.15
Total	56	47	167	270
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	14.94			
P-value	.02			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Impact on Care Coordination Knowledge of Child's Medical History: RCHSD DP respondents ("usually" + "always" = 82%) indicated that a care coordinator / case manager demonstrated knowledge of important medical history of their child significantly more often than Classic CCS respondents ("usually" + "always" = 66%). The difference was not significant between HPSM DP and Classic CCS. See Table 129.

Table 128: Impact on Care Coordination Knowledge of Child's Medical History: HPSM DP, RCHSD DP, and Classic CCS

(Only if Q75 = "More than once a month," "About once a month," "Every few months," or "Never") In the past 6 months, how often did the care coordinator / case manager demonstrate knowledge of important information related to [CHILD'S NAME]'s medical history? (Q76)				
	HPSM DP	RCHSD DP	Classic CCS	Total
Never	6	2	18	26
	15.00	4.44	15.13	12.75
Sometimes	12	6	22	40
	30.00	13.33	18.49	19.61
Usually	8	11	30	49
	20.00	24.44	25.21	24.02
Always	14	26	49	89
	35.00	57.78	41.18	43.63
Total	40	45	119	204
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	11.49			
P-value	.07			

• First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
• The Rao-Scott chi-square analysis used appropriate survey sample weights.
• The p-value represents the significance of the analysis. A p-value less than .05 is considered significant.

Impact on Care Coordination Satisfaction: Since transitioning into the RCHSD DP, a significantly greater number of RCHSD DP respondents (94%) reported being "satisfied" or "very satisfied" with the care coordination / case management they received compared to Classic CCS respondents (72%) ($p < .002$, not shown). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 130.

Table 129: Impact on Care Coordination Satisfaction: HPSM DP, RCHSD DP, and Classic CCS

How satisfied are you with the care coordination / case management [CHILD'S NAME] received through [NAME OF HEALTH PLAN / COUNTY CCS]? (Q77)	HPSM DP	RCHSD DP	Classic CCS	Total
Very dissatisfied	6	0	15	21
	10.53	0.00	9.43	7.84
Dissatisfied	3	1	12	16
	5.26	1.92	7.55	5.97
Neither satisfied nor dissatisfied	8	2	17	27
	14.04	3.85	10.69	10.07
Satisfied	27	18	70	115
	47.37	34.62	44.03	42.91
Very satisfied	13	31	45	89
	22.81	59.62	28.30	33.21
Total	57	52	159	268
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	†			
P-value				

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- †The Rao-Scott chi-square analysis could not be computed because at least one cell had zero frequency.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Provider Communication

Impact on Care Coordination of Medical Procedures: The majority of respondents in all healthcare delivery models (95%) reported that their doctors did not order medical tests or procedures that were unnecessary because they had already been done. The difference between healthcare models was not significant. See Table 131.

Table 130: Impact on Care Coordination of Medical Procedures: HPSM DP, RCHSD DP, and Classic CCS

In the past 6 months, was there ever a time when doctors ordered a medical test or procedure that you felt was unnecessary because the test had already been done? (Q60)	HPSM DP	RCHSD DP	Classic CCS	Total
No	295	118	913	1,326
	96.72	97.52	94.51	95.26
Yes	10	3	53	66
	3.28	2.48	5.49	4.74
Total	305	121	966	1,392
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	7.49			
P-value	.02			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents he significance of the analysis. A *p*-value less than .05 is considered significant.

Research Question 5 — Nonsignificant Telephone Survey Items

The following survey items that pertained to access to healthcare services did not have any significant differences between healthcare delivery models:

- **Care Coordination / Case Management:** There were no significant differences between the groups for knowing how to contact their care coordination / case management (Q74). See Appendix X.
- **Transition to Adult Services [12+]:** There were no significant differences between the groups for a provider speaking with the respondent about shifting to adult healthcare providers (Q78). See Appendix X.

Summary — Research Question 5: What is the impact of the CCS DP on care coordination?

The telephone survey results for the impact of the CCS DP on care coordination demonstrated that, for a majority of items, RCHSD DP respondents indicated that care coordination was better or improved since their transition compared to Classic CCS respondents. For example, RCHSD respondents indicated that since the transition, the quality of care coordination was better, they were more satisfied with the care coordination, they received more help with care

coordination, and they had a higher frequency of communication with their care coordinator / case manager. It might be of interest to pursue additional study to determine how greater contact between patients and care coordinator / case managers might influence the quality of care coordination. The HPSM DP care coordination was similar to what Classic CCS was providing.

Analysis of Administrative Data for Care Coordination / Case Management and Health Outcomes

Overview

This section has evaluations of case management and health outcomes that could potentially have been affected by case management. The outcomes are arranged as follows:
1. Case management claims
2. Health outcomes and Special Care Center visits
3. ED visits
4. Hospitalizations
5. Hospital Length of Stay
6. Readmissions
7. ED visits that result in hospitalizations
8. Special Care Center (SCC) use
9. SCC visit within 90 days of referral to an SCC

Case Management Claims Results

Table 131: HPSM Case Management Claims per 1,000 Member Months

Measure	HPSM DP Year							Classic CCS Counties Year						
	-2	-1	+1	+2	+3	+4	+5	-2	-1	+1	+2	+3	+4	+5
Clients	2,395	2,329	2,197	2,219	2,263	2,167	2,116	2,321	2,360	2,236	1,988	1,914	2,066	2,097
Member Months	21,663	21,918	20,249	21,103	21,479	21,068	20,075	21,139	20,989	19,389	18,163	17,623	18,468	18,492
Case Management	56	49	49	65	66	62	73	68	78	87	93	111	115	86

Table 132: RCHSD Case Management Claims per 1,000 Member Months

Measure	RCHSD DP Year					Classic CCS Counties Year				
	-2	-1	+1	+2	+3	-2	-1	+1	+2	+3
Clients	338	386	416	419	407	227	272	336	344	349
Member Months	3,686	4,320	3,127	4,230	4,437	2,446	2,906	3,075	3,218	3,801
Service per 1,000 Member Months										
Case Management	17	22	29	63	35	15	36	12	28	48

Table 134 provides comparisons of case management claims between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During both the pre- and post-DP periods, the odds of having a case management claim in the HPSM DP group were not significantly different than for the Classic CCS comparison group. However, during the post-DP period, the odds of a case management claim in the HPSM DP were lower than in the Classic CCS comparison group ($p < .001$).

Table 133: Case Management Claims per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | Case Management Claims per 1,000 Member Months | | Adjusted Odds Ratios* | |
	HPSM Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Pre-DP Implementation	52	73	0.60 (0.46, 0.79)	<.001
Post-DP Implementation	63	98	0.57 (0.46, 0.70)	<.001

*Adjusted for age, language, ethnicity, CDPS score.

Table 135 provides comparisons of case management claims in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of having a case management claim were 1.37 times greater during the post-DP period compared to the pre-DP period (p = .026). For the Classic CCS comparison group, the odds of having a case management claim were higher during the post-DP period compared to the pre-DP period. The HPSM DP did not differ from Classic CCS when comparing rates in the pre- to post-DP implementation periods.

Table 134: Case Management Claims per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Case Managements per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM Group	52	63	1.18 (1.02, 1.36)	.026
Classic CCS Comparison Group	73	98	1.25 (1.00, 1.56)	.045
Difference in Differences			0.94 (0.72, 1.22)	.643

*Adjusted for age, language, ethnicity, CDPS score.

Figure 41: Case Management Claims per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
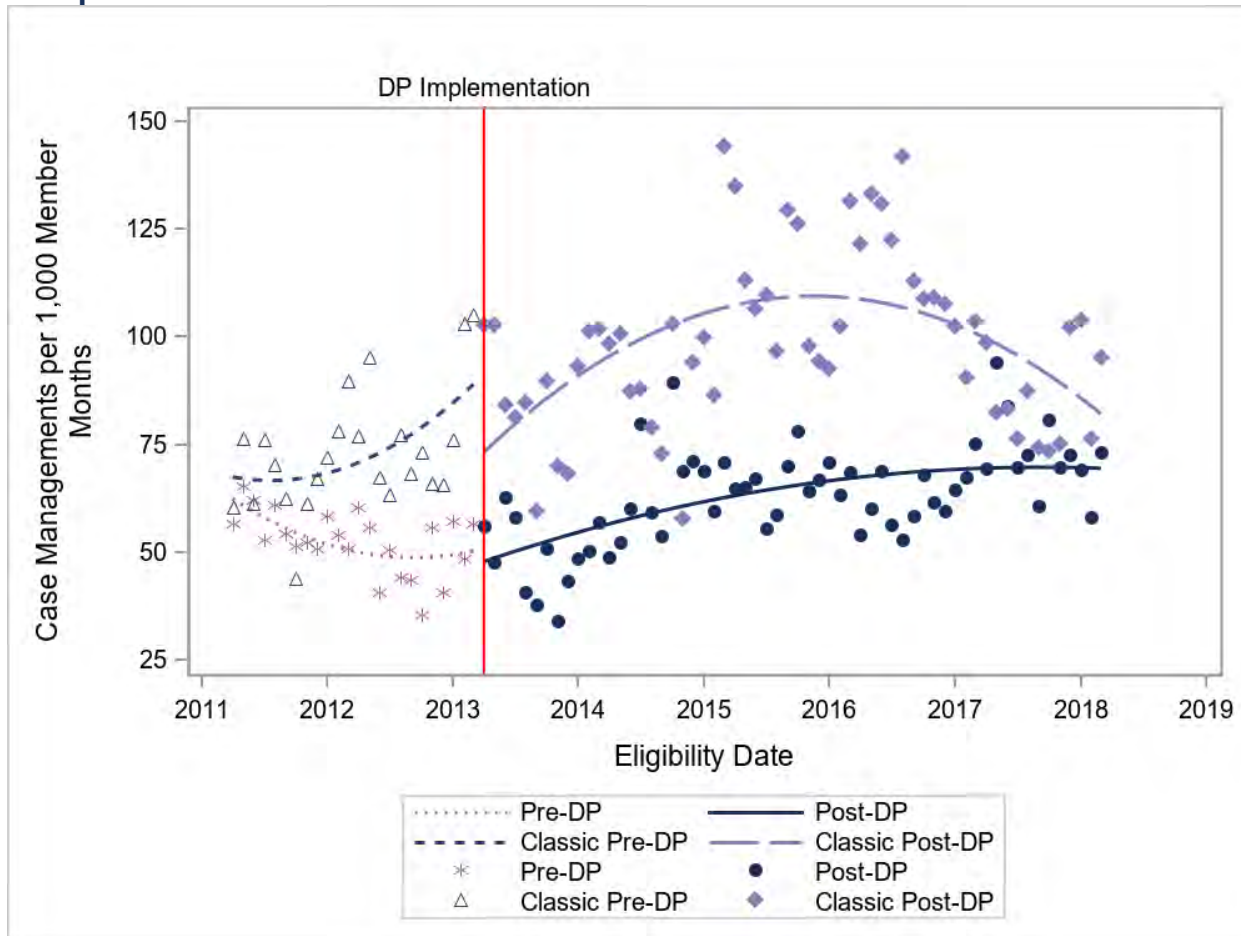
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variables associated with Case Management Claims: In the regression model for case management, any race compared to White, Spanish speaking, and higher illness severity (CDPS) all had statistically

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significant higher rates of case management claims, while being 1–20 years old as compared to being less than 12 months old was associated with significantly lower rates of case management claims. (See Appendix T for full regression model.)

Table 136 provides comparisons of case management claims between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During pre- and post-DP implementation, the odds of having a case management claim in the RCHSD DP group versus those for the Classic CCS comparison group were not significantly different.

Table 135: Case Management Claims per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre-versus Post-Period

| Period | Case Management claims per 1,000 Member Months | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	20	26	0.48 (0.11, 2.06)	.325
Post-DP Implementation	47	34	1.42 (0.95, 2.13)	.088

*Adjusted for age, language, race/ethnicity, illness severity (CDPS).

Table 137 provides comparisons of case management claims in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of a case management claim during the post-DP were 3.61 times greater than those during the pre-DP period ($p < .023$). The odds of a case management claim in the Classic CCS comparison group from pre-DP to post-DP periods did not differ significantly. The Difference in Differences pre-DP to post-DP implementation periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .14$).

Table 136: Case Management Claims per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Case Managements per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
RCHSD DP Group	20	47	3.61 (1.19, 10.95)	.023
Classic CCS Comparison Group	26	34	1.22 (0.50, 2.98)	.655
Difference in Differences			2.95 (0.71, 12.24)	.136

*Adjusted for age, language, race/ethnicity, illness severity (CDPS).

Figure 42: Case Management Claims per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
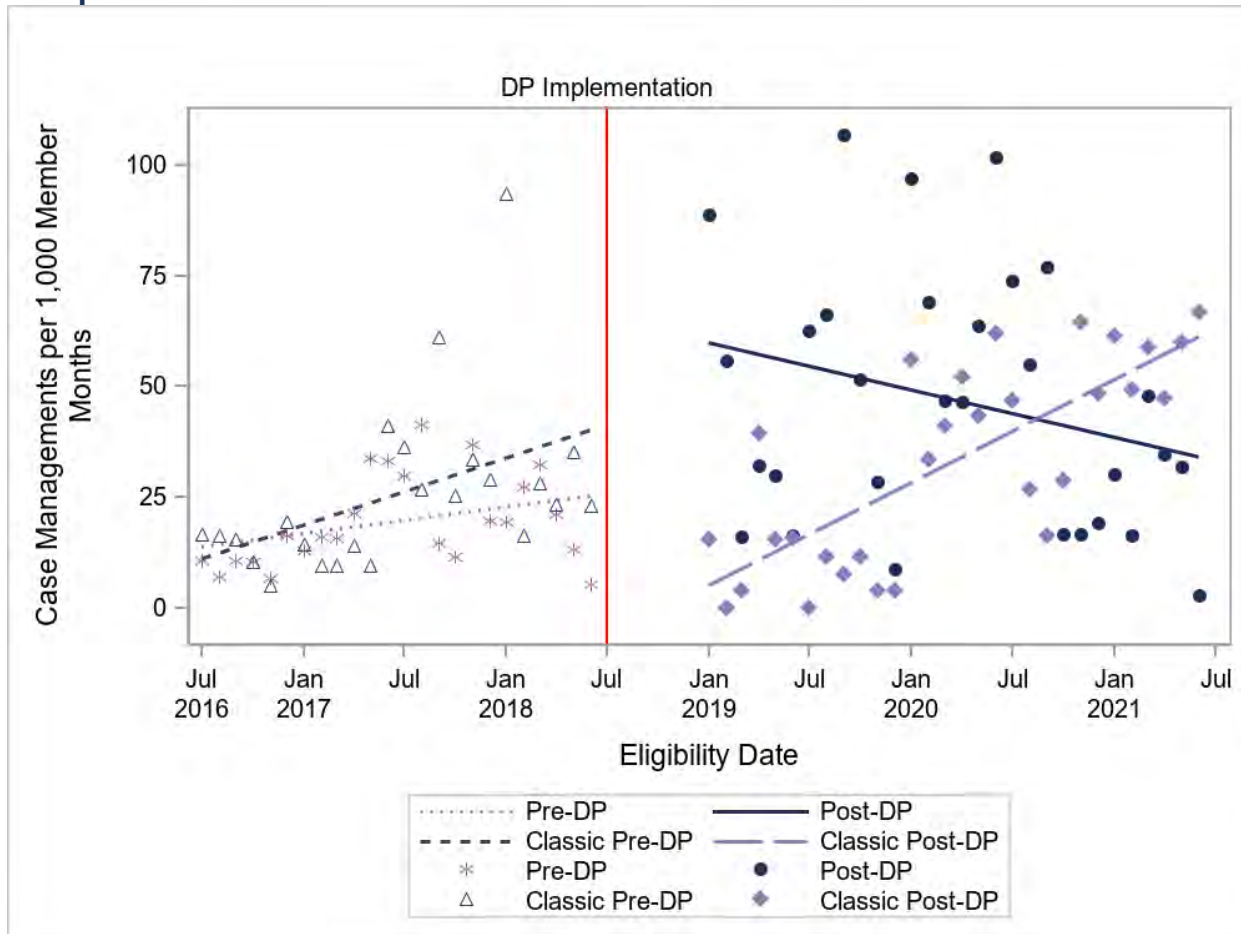
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variables Associated with Case Management Claims Outcomes: In the regression model for case management, having a higher CDPS score was associated with higher case management. (See Appendix T for full regression model.)

Summary for case management claims results for HPSM DP and RCHSD DP

At HPSM, the HPSM DP and Classic CCS comparison groups both had case management claims increases during the post-DP period. The Difference in Differences is not significant. At RCHSD, the RCHSD DP had significant increases in case management claims during the post-DP period, and the Classic CCS comparison group did not. The Difference in Differences is not significant.

Emergency Department Visits, Hospitalizations, Special Care Center Visits Results

Tables 138 and 139 provide claims for emergency department visits, inpatient hospitalizations, and Special Care Center visits.

Table 137: HPSM DP Emergency Department, Inpatient, NICU Discharges, and Special Care Center Utilization

Measure	HPSM Year							Classic CCS Counties Year						
	-2	-1	+1	+2	+3	+4	+5	-2	-1	+1	+2	+3	+4	+5
Clients	2,395	2,329	2,197	2,219	2,263	2,167	2,116	2,321	2,360	2,236	1,988	1,914	2,066	2,097
Member Months	21,663	21,918	20,249	21,103	21,479	21,068	20,075	21,139	20,989	19,389	18,163	17,623	18,468	18,492
Service per 1,000 Member Months	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emergency Department	65	68	80	80	73	71	76	75	62	75	71	66	74	71
Inpatient (not NICU)	17	14	12	17	24	20	19	31	25	26	29	26	28	22
NICU	3	4	0	0	0	0	1	4	3	5	4	4	4	3
NICU Pending DP Enrollment	0	0	3	4	2	2	1	0	0	0	0	0	0	0
Special Care Center	22	20	31	29	26	41	204	218	230	235	257	279	299	323

Table 138: RCHSD DP Emergency Department, Inpatient, NICU Discharges, and Special Care Center Utilization

Measure	RCHSD Year					Classic CCS Counties Year				
	-2	-1	+1	+2	+3	-2	-1	+1	+2	+3
Clients	338	386	416	419	407	227	272	336	344	349
Member Months	3,686	4,320	3,127	4,230	4,437	2,446	2,906	3,075	3,218	3,801
Service per 1,000 Member Months	0	0	0	0	0	0	0	0	0	0
Emergency Department	104	106	90	81	46	105	108	106	81	59
Inpatient (not NICU)	63	65	45	43	33	94	79	77	66	49
NICU	1	0	0	0	0	2	0	1	1	1
NICU Pending DP Enrollment	0	0	0	0	0	0	0	0	0	0
Special Care Center	635	623	474	568	606	713	639	581	589	604

Emergency Department Visits

Table 140 provides comparisons of the number of ED visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an ED visit did not differ significantly between the HPSM DP and Classic CCS comparison groups ($p = .99$). Likewise, during the post-DP period, the odds of an ED visit did not differ significantly between the HPSM DP and Classic CCS comparison groups ($p = .13$).

Table 139: ED Visits per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

Period	ED Visits per 1,000 Member Months		Adjusted Odds Ratios*	
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Pre-DP Implementation	54	53	1.00 (0.91, 1.09)	.992
Post-DP Implementation	62	58	1.06 (0.98, 1.13)	.127

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 141 provides comparisons of the number of ED visits in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, during the post-DP period, the odds of an ED visit were 1.17 times greater than during the pre-DP period ($p < .001$). Likewise, for the Classic CCS comparison

group, the odds of an ED visit during the post-DP period were 1.10 times greater compared to the odds during the pre-DP period (p = .01). Given increases in both groups, the Difference in Differences is not significant (p = .27).

Table 140: ED Visits per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	ED Visits per 1,000 Member Months		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	54	62	1.17 (1.09, 1.25)	<.001
Classic CCS Comparison Group	53	58	1.10 (1.02, 1.19)	.009
Difference in Differences			1.06 (0.96, 1.17)	.270

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 43: Emergency Department Visits per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
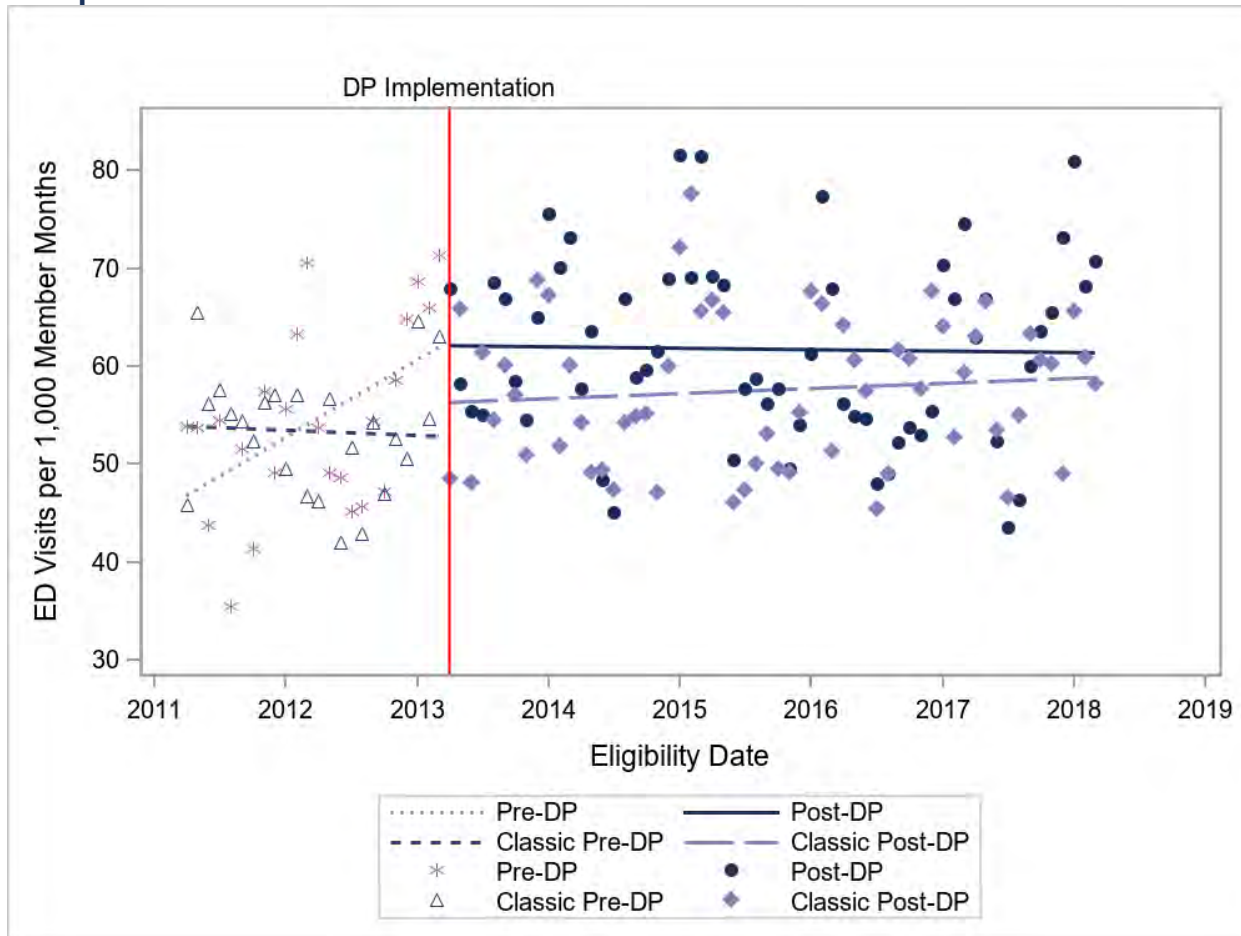
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are statistically different ($p = .014$), and thus the parallel slopes assumption of the DiD model is not satisfied (see Appendix T). As such, the pre- versus post- differences may be due to underlying trends and not the result of the DP implementation. Results should be interpreted with caution.

HPSM DP Independent Variables Associated with the ED Visits Outcomes: In the regression model for having an ED visit, higher Illness severity, Black and Latinx race as compared to White, not having a disability, age groups over two years (compared to age less than one), and all seasons as compared to summer had statistically significant higher rates of ED visits, while Spanish speaking was associated with a statistically significant lower use of the ED. (See Appendix T for full regression model.)

Table 142 provides comparisons of the number of ED visits between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an ED visit did not differ significantly between the RCHSD DP and Classic CCS comparison groups (p = .83). Likewise, during the post-DP period, the odds of an ED visit did not differ significantly between the RCHSD DP and Classic CCS comparison groups (p = .20).

Table 141: ED Visits per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | ED Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	*P*-value
Pre-DP Implementation	85	87	0.98 (0.79, 1.20)	.829
Post-DP Implementation	61	66	0.89 (0.75, 1.06)	.203

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 143 provides comparisons of the number of ED visits in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, during the post-DP period, the odds of an ED visit were about 25% lower than those during the pre-DP period (p < .001). For the Classic CCS comparison group, the odds of an ED visit during post-DP period did not differ significantly from those during the pre-DP period (p = .06). Given decreases during the post-DP period in both groups, the Difference in Differences is not significant (p = .41).

Table 142: ED Visits per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | ED Visits per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	85	61	0.77 (0.68, 0.88)	<.001
Classic CCS Comparison Group	87	66	0.84 (0.71, 1.01)	.062
Difference in Differences			0.91 (0.73, 1.14)	.414

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 44: Emergency Department Visits per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
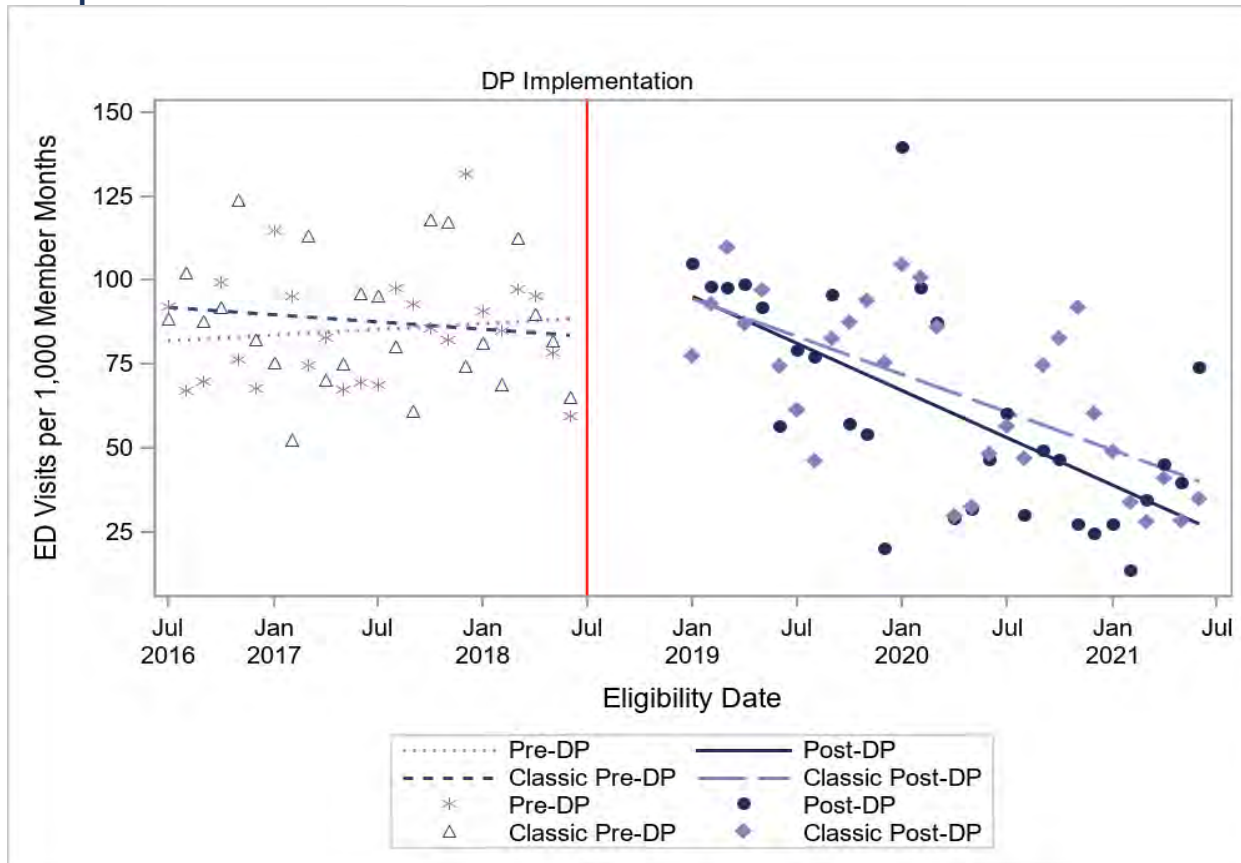
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes for the line indicating ED use over time for both the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variables Associated with ED Visits Outcome: In the regression model for ED visit, higher disease severity (CDPS score), fall and winter season (as compared to summer), Black race, and age groups over two

years (as compared to age < 12 months) had statistically significant higher rates of ED visit. Not having a disability was associated with a significant decrease in ED visits. (See Appendix T for full regression model.)

Summary for ED visits results for HPSM DP and RCHSD DP

At HPSM, both the HPSM DP and Classic CCS comparison group had significant increases in ED visits during the post-DP period, thus the Difference in Differences is not significant. At RCHSD, the RCHSD DP had a significant decrease in ED visits; however, the Classic CCS comparison group did not have significant changes at the post-DP period. The Difference in Differences is not significant.

Hospitalizations (inpatients stays) Results

Figure 45: Top 10 Primary Reasons for Hospitalizations by Major Diagnostic Category in the HPSM DP
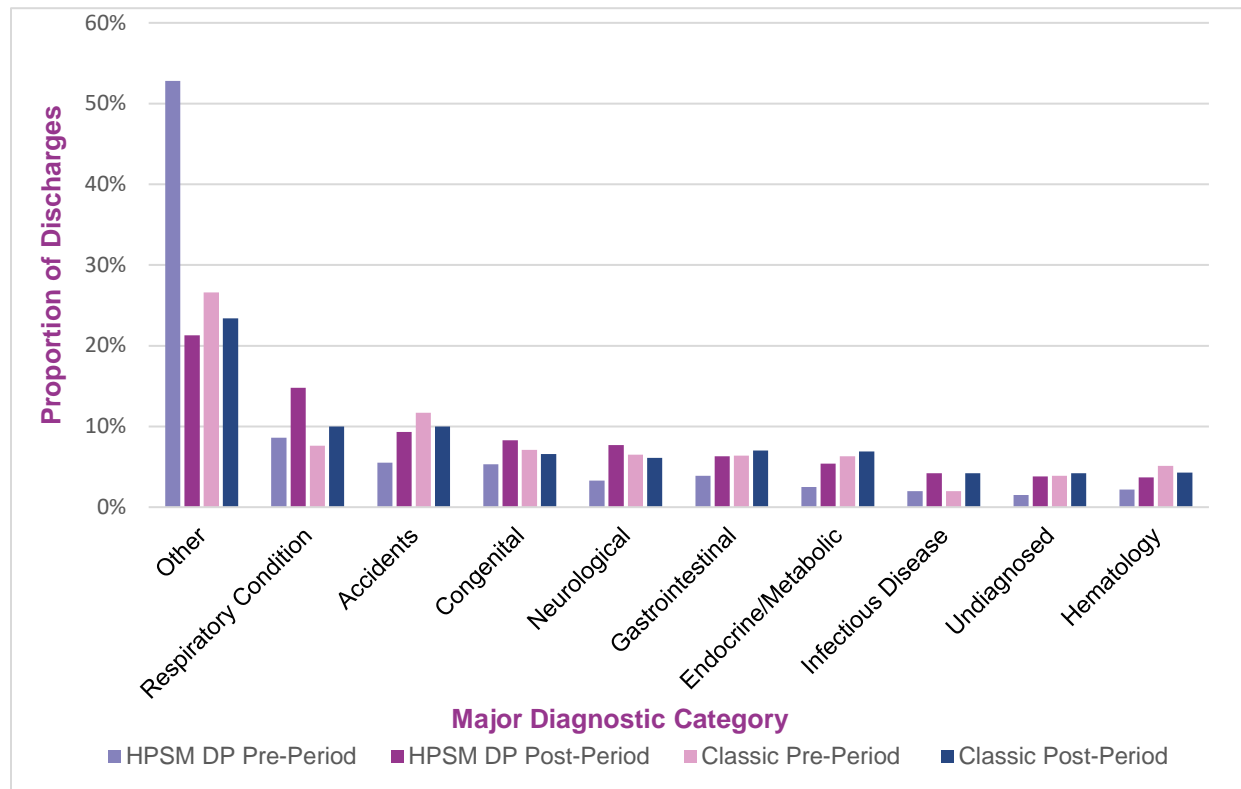
Figure 46: Top 10 Primary Reasons for Hospitalizations by Major Diagnostic Category in the RCHSD DP
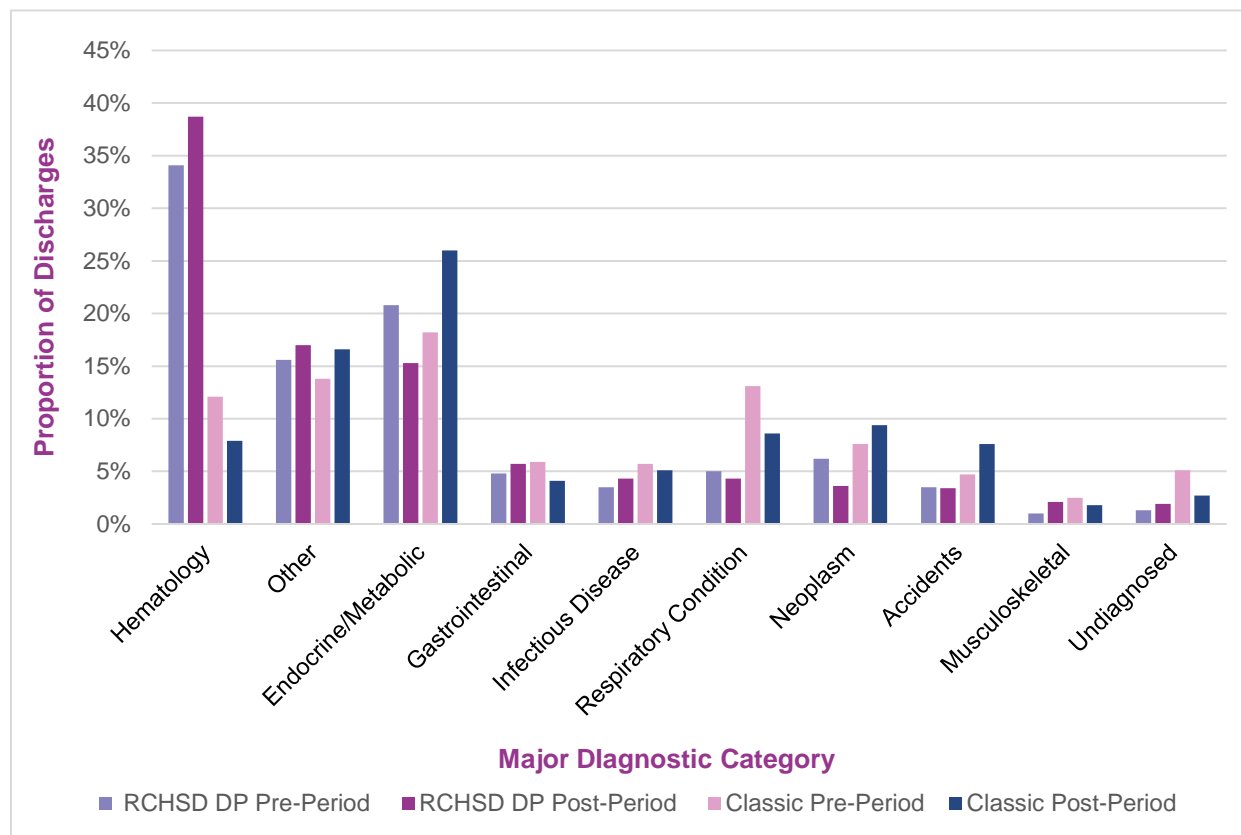
Reason for hospitalization admissions (all-cause, all ages)

Figures 45 and 46 describe the top 10 primary reasons for admission in the HPSM DP and RCHSD DP by major CCS diagnostic category.

In the HPSM DP, the "other" category was the most frequently coded reason for admission, followed by respiratory conditions (e.g., asthma exacerbation) and accidents. The "other" category included births, external causes of morbidity,

factors influencing health status and contact with health services, and symptoms not classified elsewhere. The reasons for hospitalization in HPSM mirrored findings from the general pediatric population.

In the RCHSD DP, the distribution of diagnostic categories is markedly different from that seen in the HPSM because the RCHSD DP focused only on five health conditions, and thus the reasons for admission aligned with the five conditions (sickle cell disease, diabetes, cystic fibrosis, leukemia, and hemophilia). Not surprisingly, the most common major disease categories reported as reasons for admission in the RCHSD DP were related to hematology (complications of sickle cell disease and hemophilia), followed by "other" and then by endocrine (diabetes). Looking at the period after implementation of the demonstration pilot, in the HPSM, the most common single diagnosis reason for admission was chemotherapy (ICD 10: Z5111) with 7.5% of encounters, followed by birth / newborn care (ICD 10: Z3801/Z3800) with (6.7%), and then diabetic ketoacidosis (ICD 10: E1010) with 2.6% of encounters. For RCHSD, the most common primary diagnosis for admission was sickle cell disease with crisis (ICD 10: D5700) with 18.1% of admissions, followed by chemotherapy (ICD 10: Z5111) with 14.9% of admissions, cystic fibrosis exacerbation (ICD 10: E840) with 8.1% of admissions, pancytopenia due to chemotherapy (ICD 10: D61810) with 6.2%, and then diabetic ketoacidosis (ICD 10: E1010) with 4.9% of admissions.

Table 144 provides comparisons of hospitalizations between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds for a hospitalization in HPSM DP were about 50% lower than those for the Classic CCS comparison group ($p < .001$). Likewise, during the post-DP period, the odds of a hospitalization in the HPSM DP were about 30% lower than those in the Classic CCS comparison group ($p < .001$).

Table 143: Hospitalizations (inpatient stays) per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | Inpatient Stays per 1,000 Member Months | | Adjusted Odds Ratios* | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	*P*-value
Pre-DP Implementation	13	23	0.49 (0.41, 0.58)	<.001
Post-DP Implementation	16	22	0.69 (0.61, 0.78)	<.001

*Adjusted for age, language, race/ethnicity, and illness severity (CDPS).

Table 145 provides comparisons of hospitalizations in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of a hospitalization during the post-DP period were 1.32 times greater than those during the pre-DP period ($p < .001$). The odds of a hospitalization in the Classic CCS comparison group from pre-DP to post-DP periods did not differ significantly ($p = .28$). The Difference in Differences pre-DP to post-DP implementation periods between the HPSM DP and Classic CCS comparison groups is significant ($p < .001$).

Table 144: Hospitalizations / Inpatient Stays per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Inpatient Stays per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	13	16	1.32 (1.14, 1.51)	<.001
Classic CCS Comparison Group	23	22	0.94 (0.83, 1.06)	.284
Difference in Differences			1.41 (1.17, 1.69)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS).

Figure 47: Hospitalizations per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
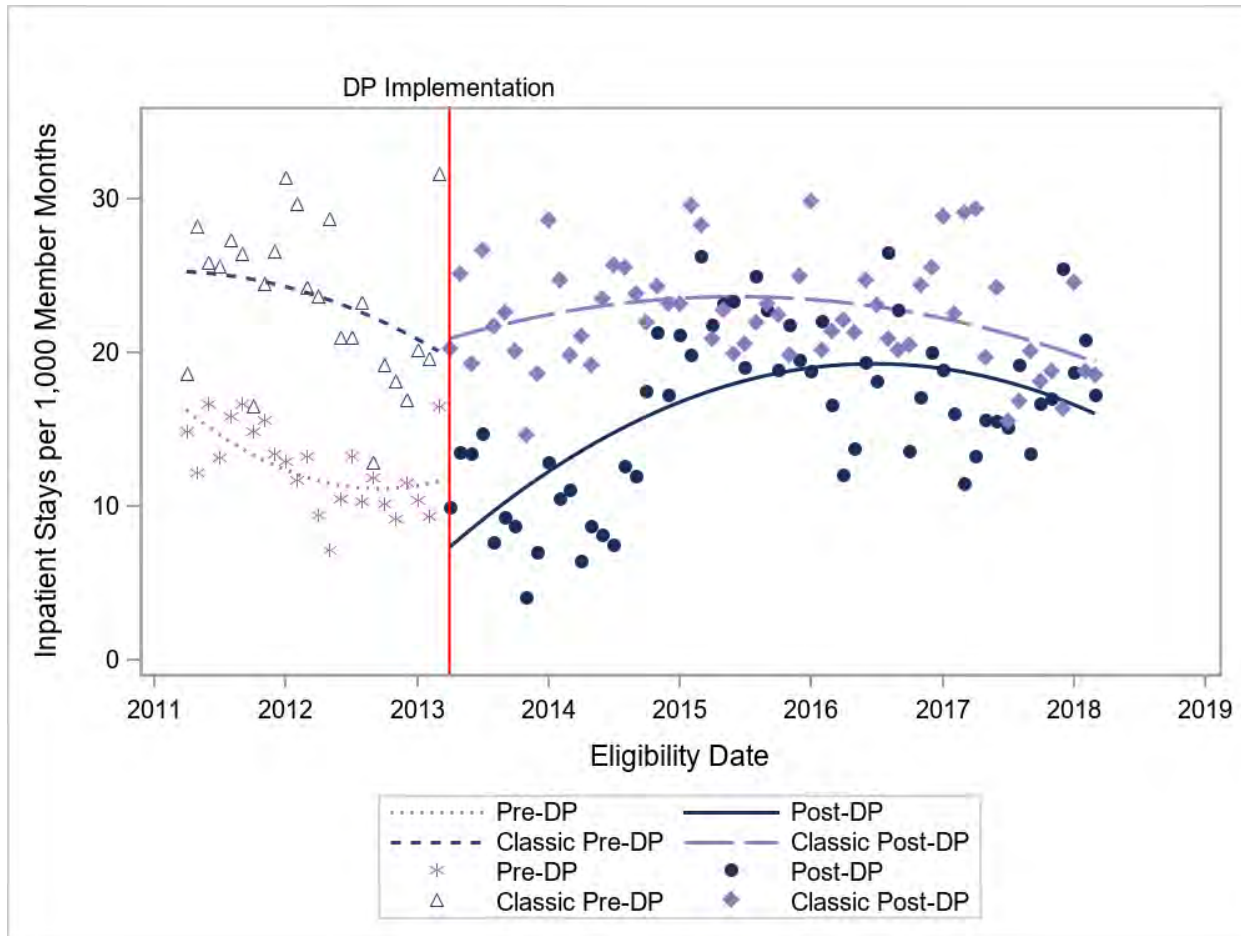
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variables Associated with Hospitalization Outcomes: In the regression model, higher illness severity (CDPS score), other ethnicity (as compared to White), and age greater than two (as compared to infants under one year) had statistically significant higher rates of hospitalization, while age 12–24 months and Spanish language were associated with lower likelihood of admission. (See Appendix T for full regression model.)

Table 146 provides comparisons of hospitalizations between the RCHSD DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During pre-DP implementation, the odds for a hospitalization at RCHSD DP were about 25% lower than those for the Classic CCS comparison group ($p = .04$). Likewise, during the post-DP period, the odds of a hospitalization in the RCHSD DP were about 40% lower than those in the Classic CCS comparison group ($p < .001$).

Table 145: Hospitalizations / Inpatient Stays per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

Period	Inpatient Stays per 1,000 Member Months		Adjusted Odds Ratios*	
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	53	72	0.73 (0.54, 0.99)	.040
Post-DP Implementation	34	51	0.60 (0.46, 0.80)	<.001

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 147 provides comparisons of hospitalizations in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of a hospitalization during the post-DP period were 30% lower than those during the pre-DP period ($p < .001$). The odds of a hospitalization in the Classic CCS comparison group from pre-DP to post-DP periods did not differ significantly ($p = .18$). The Difference in Differences pre-DP to post-DP implementation periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .23$).

Table 146: Hospitalizations/Inpatient Stays per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Inpatient Stays per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	53	34	0.70 (0.56, 0.86)	<.001
Classic CCS Comparison Group	72	51	0.85 (0.66, 1.08)	0.175
Difference in Differences			0.82 (0.60, 1.14)	0.238

*Adjusted for language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 48: Inpatient Stays per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
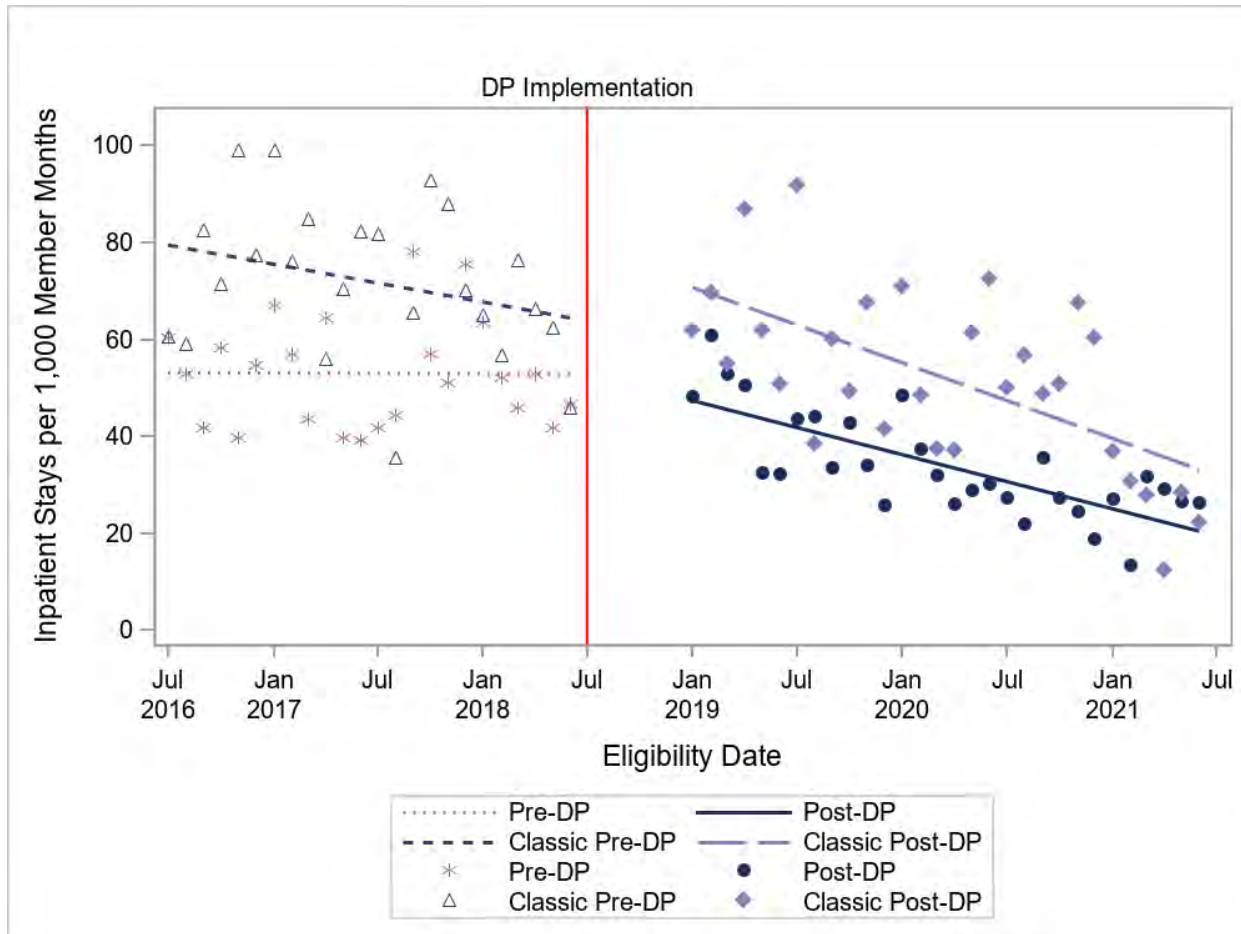
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes for the line indicating hospitalizations over time for both the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variables Associated with Hospitalization Outcomes: In the regression model, not having a disability was associated with statistically significant lower rates of hospitalizations, and having higher illness severity was associated with higher rates of hospitalization. (See Appendix T for full regression model.)

Summary of hospitalizations for HPSM DP and RCHSD DP

At HPSM, hospitalizations increased significantly in the HPSM DP during the post-DP period and did not change significantly in the Classic CCS comparison group. Difference in Differences is not significant. At RCHSD, in the RCHSD DP, hospitalizations decreased significantly and did not change significantly in the Classic CCS comparison group. The Difference in Differences is not significant.

Hospital Length of Stay

Table 148 provides comparisons of average length of hospital stay between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the average length of stay did not differ significantly between the HPSM DP and Classic CCS comparison group ($p = .80$). During the post-DP period, the average length of stay was significantly shorter in the HPSM DP than in the Classic CCS comparison group ($p < .001$).

Table 147: Average Length of Stay per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| | Average Days of Stay | | Adjusted Odds Ratios* | |
| | | | (95% CI) | |
Period	HPSM DP Group	Classic CCS Comparison Group	HPSM DP vs. Classic CCS	*P*-value
Pre-DP Implementation	7.0	7.9	0.98 (0.83, 1.16)	.801
Post-DP Implementation	5.7	9.3	0.77 (0.69, 0.86)	<.001

*Adjusting for CDPS score, ethnicity, language, age.

Table 149 provides comparisons of hospitalizations in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the average length of stay did not differ significantly ($p = .08$). Likewise, for the Classic CCS comparison group, the average length of stay from pre-DP to post-DP periods did not differ significantly ($p = .08$). Given slight decreases in length of stay in the HPSM DP and slight increases in the Classic CCS comparison group, the Difference in Differences pre-DP to post-DP periods between the HPSM DP and Classic CCS comparison groups is significant ($p = .01$).

Table 148: Average Length of Stay per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Average Days of Stay | | Adjusted Odds Ratios* (95% CI) | |
	Pre-DP Implementation	Post-DP Implementation	Post- vs. Pre-Periods	P-value
HPSM DP Group	7.0	5.7	0.88 (0.77, 1.01)	.076
Classic CCS Comparison Group	7.9	9.3	1.12 (0.99, 1.27)	.083
Difference in Differences			0.79 (0.65, 0.95)	.014

*Adjusting for CDPS score, ethnicity, language, age.

HPSM DP Independent Variables Associated with Length of Stay Outcomes: Being Spanish speaking as compared to English speaking and being in any age category over age one year were also associated with shorter length of stay.

Table 150 provides comparisons of average length of hospital stay between the RCHSD DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the average length of stay did not differ significantly between the RCHSD DP and Classic CCS comparison group ($p = .054$). During the post-DP period, the average length of stay was significantly shorter in the RCHSD DP than in the Classic CCS comparison group ($p = .01$).

Table 149: Average Length of Stay: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Average Days of Stay | | Adjusted Odds Ratios* (95% CI) | |
	RCHSD DP Group	Classic CCS Comparison Group	RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	6.3	10.0	0.82 (0.66, 1.00)	.054
Post-DP Implementation	6.5	9.0	0.74 (0.59, 0.92)	.008

*Adjusted for CDPS score, disability (CWDA), ethnicity, language, and age.

Table 151 provides comparisons of the average length of stay in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the difference in average length of stay in the pre- versus post-DP period was not significant ($p = .48$). Likewise, for the Classic CCS comparison group, the average length of stay from pre- to post-DP periods did not differ significantly ($p = .72$). The Difference in Differences pre- to post-DP implementation periods between the RCHSD DP and Classic CCS comparison groups is not significant ($p = .47$).

Table 150: Average Length of Stay: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Average Days of Stay		Adjusted Odds Ratios* (95% CI)	
	Pre-DP Implementation	Post-DP Implementation	Post- vs. Pre-Periods	P-value
RCHSD DP Group	6.3	6.5	0.94 (0.79, 1.12)	.480
Classic CCS Comparison Group	10.0	9.0	1.04 (0.83, 1.30)	.716
Difference in Differences			0.90 (0.68, 1.19)	.466

*Adjusted for CDPS score, disability (CWDA), ethnicity, language, and age.

RCHSD DP Independent Variable Associations to Length of Stay Outcome: Other language as compared to English was significantly associated with longer length of stay, while being in age groups of 1–4 and 5–11 years old, as compared to under age 1, was associated with shorter length of stay. (See Appendix T for full regression model.)

Summary of average length of stay findings at HPSM DP and RCHSD DP

At HPSM, for the HPSM DP, the length of stay deceased significantly during the post-DP period, and for the Classic CCS comparison group, length of stay increased significantly during the post-DP period. The Difference in Differences between the groups is significant. At RCHSD, neither the RCHSD DP nor the Classic CCS comparison group had significant changes at the post-DP period. The Difference in Differences is not significant.

Hospital Readmissions within 30 Days Results

Table 152 provides comparisons of readmissions within 30 days between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of readmission for the HPSM DP group were 1.75 greater than those for the Classic CCS comparison group (p = .03). During the post-DP period, the odds of readmission for HPSM DP and those of Classic CCS comparison groups did not differ significantly (p = .37).

Table 151: Readmissions per 100 Discharges: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | Readmissions per 100 Discharges | | Adjusted Odds Ratios* | |
	HPSM DP Group	Classic CCS Comparison Group	(95% CI) HPSM Group vs. Classic CCS	P-value
Pre-DP Implementation	44	31	1.75 (1.05, 2.92)	.031
Post-DP Implementation	35	36	0.88 (0.68, 1.16)	.366

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 153 provides comparisons of readmissions in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of readmission during the post-DP period were 30% lower than those during the pre-DP period ($p = .04$). In the Classic CCS comparison group, the odds of readmission were 1.38 times greater during the post-DP period than during the pre-DP period ($p = .01$). Given that the post-DP period rates decreased for the HPSM and increased for the Classic CCS comparison group, the Difference in Differences is significant ($p = .002$).

Table 152: Readmissions per 100 Discharges: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Readmissions per 100 Discharges | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM DP Group	44	35	0.70 (0.49, 0.98)	.039
Classic CCS Comparison Group	31	36	1.38 (1.07, 1.78)	.012
Difference in Differences			0.50 (0.33, 0.78)	.002

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 49: Readmissions per 100 Discharges over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
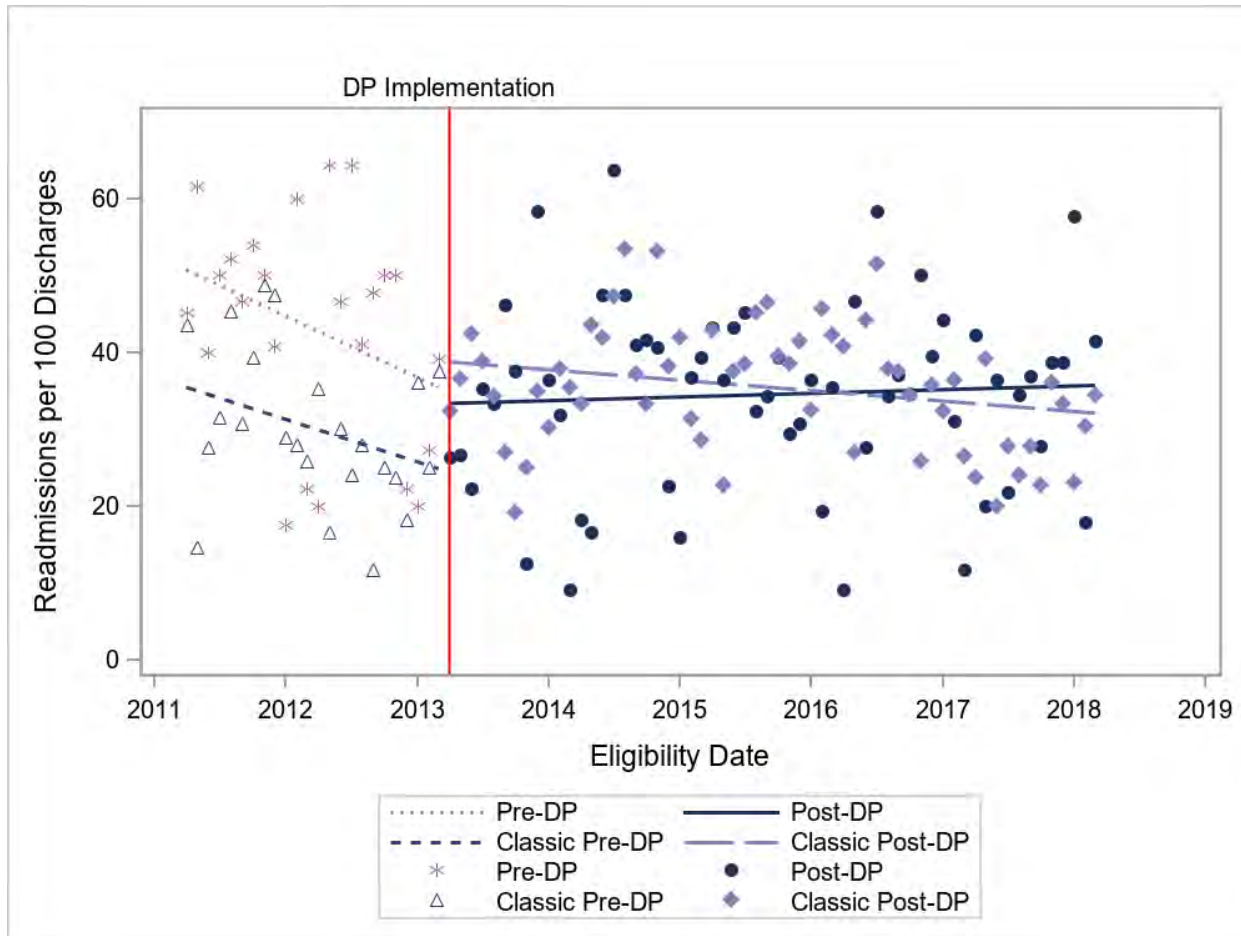
HPSM DP: Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variables Associated with Hospital Readmissions Outcomes: In the regression model for readmission, higher illness severity and being 2–6 years old had statistically significant higher rates of readmission. (See Appendix T for full regression model.)

Table 154 provides comparisons of readmissions between the RCHSD DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During pre-DP implementation, the odds of readmission did not differ significantly between the RCHSD DP and Classic CCS comparison groups (p = .32). Likewise, during the post-DP period, the odds of readmission between RCHSD DP and Classic CCS comparison groups did not differ significantly (p = .57).

Table 153: Readmissions per 100 Discharges: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | Readmissions per 100 Discharges | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP Group vs. Classic CCS	P-value
Pre-DP Implementation	41	46	0.80 (0.51, 1.24)	.315
Post-DP Implementation	42	40	0.88 (0.57, 1.36)	.569

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 155 provides comparisons of readmissions in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of readmission did not differ significantly between pre-DP and post-DP periods (p = .27). Likewise, for the Classic CCS comparison group, the odds of readmission did not differ significantly between the pre-DP and post-DP periods (p = .69). The Difference in Differences between the groups is not significant (p = .70).

Table 154: Readmissions per 100 Discharges: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Readmissions per 100 Discharges		Adjusted Odds Ratios*	
	Pre-DP Implementation	**Post-DP Implementation**	**(95% CI) Post- vs. Pre-Periods**	*P*-value
RCHSD DP Group	41	42	1.20 (0.87, 1.64)	.265
Classic CCS Comparison Group	46	40	1.08 (0.73, 1.59)	.691
Difference in Differences			1.11 (0.67, 1.83)	.696

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 50: Readmissions per 100 Discharges over Time for RCHSD DP and Classic CCS Comparison in Pre-versus Post-Period
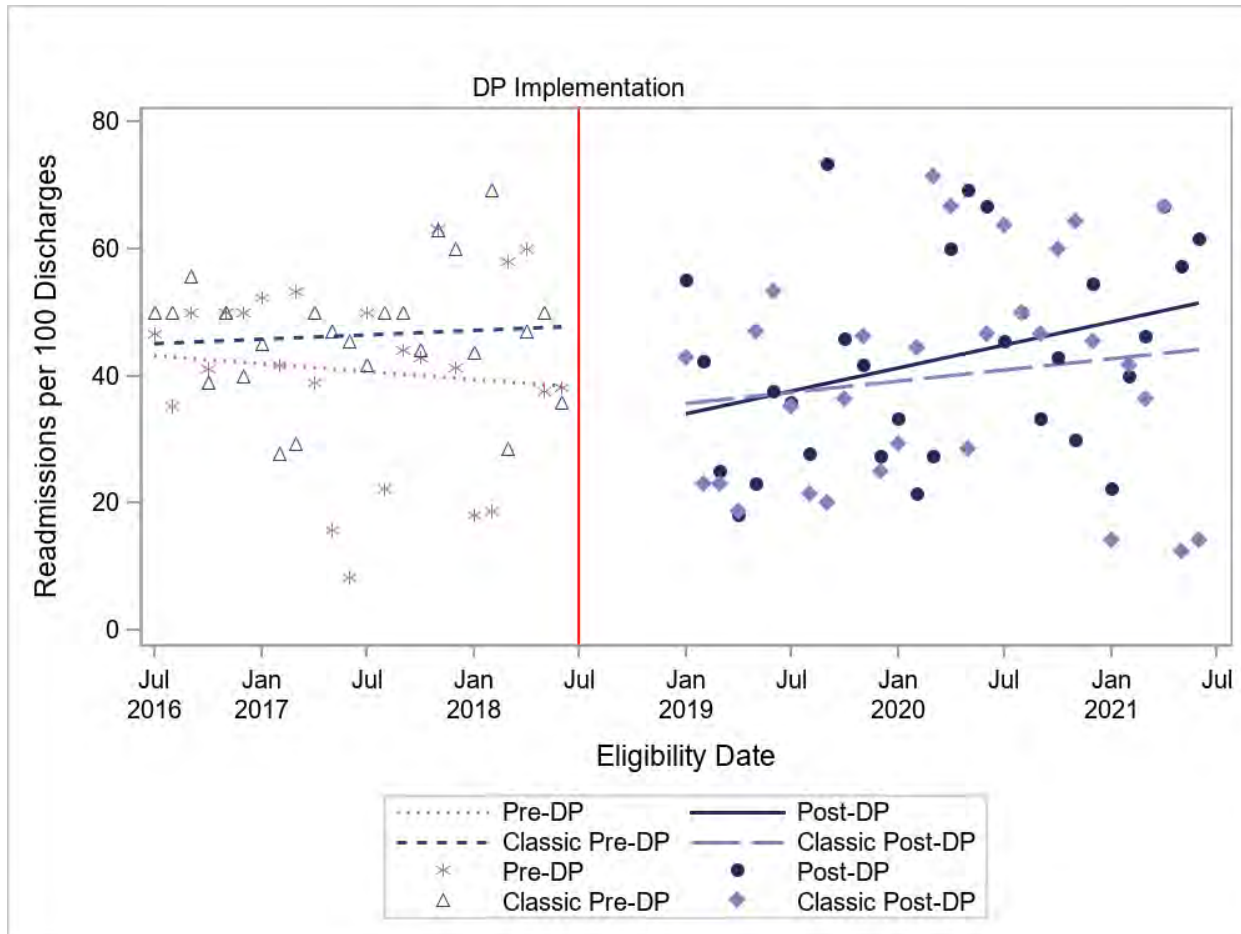
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the RCHSD DP group and Classic CCS comparison group are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variables Associated with Hospital Readmissions Outcomes: In the regression model for readmission, no covariates were associated with statistically significant higher rates of readmission. (See Appendix T for full regression model.)

Summary of hospital readmissions outcomes for HPSM DP and RCHSD DP

At HPSM, the HPSM DP had significantly fewer readmissions during the post-DP period and the Classic CCS comparison group had significantly more readmission during the post-DP period. The Difference in Differences is significant. At RCHSD, neither the RCHSD DP nor the Classic CCS comparison group had significant change at the post-DP period. The Difference in Differences is not significant.

Emergency Department Visits That Resulted in Hospitalizations Results

Table 156 provides comparisons of ED visits that resulted in hospitalizations between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During pre-DP implementation, the odds of an ED visit resulting in hospitalization were 25% lower in the HPSM DP compared to the Classic CCS comparison groups ($p = .04$). Likewise, during the post-DP period, the odds of an ED visit resulting in hospitalization were 35% lower in the HPSM DP in comparison to the Classic CCS comparison group ($p < .001$).

Table 155: ED Visits Resulting in Hospitalization: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

Period	Inpatient Admits from ED per 100 Admissions		Adjusted Odds Ratios*	
	HPSM Group	Classic CCS Comparison Group	(95% CI) HPSM Group vs. Classic CCS	P-value
Pre-DP Implementation	33.4	38.6	0.75 (0.57, 0.99)	.040
Post-DP Implementation	30.8	39.1	0.65 (0.53, 0.81)	<.001

*Adjusted for age, disability (CWDA), race/ethnicity, and language.

Table 157 provides comparisons of ED visits that resulted in hospitalization from the pre-DP to the post-DP periods for HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of ED visits resulting in hospitalization did not differ significantly between pre-DP and post-DP periods ($p = .44$). Likewise, for the Classic CCS comparison group, the odds of ED visits resulting in hospitalization did not differ significantly between the pre-DP and post-DP periods ($p = .75$). The Difference in Differences between the groups is not significant ($p = .42$).

Table 156: ED Visits Resulting in Hospitalization: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	Inpatient Admits from ED per 100 Admissions		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
HPSM Group	33.4	30.8	0.90 (0.69, 1.18)	.436
Classic CCS Comparison Group	38.6	39.1	1.04 (0.84, 1.28)	.746
Difference in Differences			0.87 (0.62, 1.22)	.415

*Adjusted for age, disability (CWDA), ethnicity, and language.

HPSM DP Independent Variables Associated with ED Visits Resulting in Hospitalization: Being Black versus White and age 12–20 was associated with higher likelihood of being hospitalized from the ED. Spanish speaking versus English speaking was associated with lower likelihood of having a hospitalization from the ED.

Table 158 provides comparisons of ED visits that resulted in hospitalization between the RCHSD DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During pre-DP implementation, the odds of an ED visit resulting in hospitalization did not differ significantly between the RCHSD DP and Classic CCS comparison groups ($p = .12$). Likewise, during the post-DP period, the odds of an ED visit resulting in hospitalization did not differ significantly between the RCHSD DP and Classic CCS comparison groups ($p = .49$).

Table 157: ED Visits Resulting in Hospitalization: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

Period	Inpatient Admits from ED per 100 Admissions		Adjusted Odds Ratios*	
	RCHSD Group	Classic CCS Comparison Group	(95% CI) RCHSD Group vs. Classic CCS	P-value
Pre-DP Implementation	46.5	36.5	1.30 (0.93, 1.80)	.121
Post-DP Implementation	47.4	40.7	1.13 (0.80, 1.59)	.491

*Adjusted for ethnicity and language.

Table 159 provides comparisons of ED visits that resulted in hospitalization from the pre-DP to the post-DP periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of ED visits resulting in hospitalization did not differ significantly between the pre-DP and post-DP periods ($p = .92$). Likewise, for the Classic CCS

comparison group, the odds of ED visits resulting in hospitalization did not differ significantly between the pre-DP and post-DP periods (p = .47). The Difference in Differences between the groups is not significant (p = .56).

Table 158: ED Visits Resulting in Hospitalization: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | Inpatient Admits from ED per 100 Admissions | | Adjusted Odds Ratios* (95% CI) | |
	Pre-DP Implementation	Post-DP Implementation	Post- vs. Pre-Periods	*P*-value
RCHSD Group	46.5	47.4	0.98 (0.72, 1.35)	.922
Classic CCS Comparison Group	36.5	40.7	1.13 (0.81, 1.58)	.472
Difference in Differences			0.87 (0.55, 1.38)	.555

*Adjusting for ethnicity and language.

RCHSD Independent Variables Associated with ED Visits Resulting in Hospitalization Outcomes: Being Black versus White and having higher illness severity were associated with higher likelihood of being hospitalized from the ED.

Summary of ED visits resulting in hospitalization for HPSM DP and RCHSD DP

At HPSM, ED visits that resulted in hospitalization did not change significantly from the pre-DP to the post-DP period for either the HPSM DP or the Classic CCS comparison groups. Likewise, at RCHSD, the change from pre-DP to post-DP periods was not significant for either the RCHSD DP or Classic CCS comparison group, and Difference in Differences is not significant.

Special Care Center Visit Results

Table 160 provides comparisons of the number of Special Care Center (SCC) visits between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an SCC visit in the HPSM DP were 90% lower than those of the Classic CCS comparison group (p < .001). Likewise, during the post-DP period, the odds of an SCC visit in the HPSM DP were about 75% lower than those of the Classic CCS comparison group (p < .001).

Table 159: Special Care Center Visits per 1,000 Member Months: Comparing HPSM DP to Classic CCS in Pre- versus Post-Periods

| | SCCs per 1,000 Member Months | | Adjusted Odds Ratios* | |
	HPSM Group	Classic CCS Comparison Group	(95% CI) HPSM vs. Classic CCS	P-value
Period				
Pre-DP Implementation	21	224	0.10 (0.08, 0.12)	<.001
Post-DP Implementation	65	278	0.25 (0.22, 0.28)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 161 provides comparisons of the number of SCC visits in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, during the post-DP period, the odds of an SCC visit were about 2.84 times greater than those during the pre-DP period (p = <.001). For the Classic CCS comparison group, the odds of an SCC visit during the post-DP period increased by 18% from those during the pre-DP period (p = .01). Given post-DP increases in the HPSM DP and little change in the Classic CCS comparison group, the Difference in Differences is significant (p < .001).

Table 160: Special Care Center Visits per 1,000 Member Months: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| | SCCs per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	P-value
Group				
HPSM Group	21	65	2.84 (2.44, 3.30)	<.001
Classic CCS Comparison Group	224	278	1.18 (1.04, 1.34)	.011
Difference in Differences			2.40 (1.98, 2.92)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 51: Special Care Center Visits per 1,000 Member Months over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
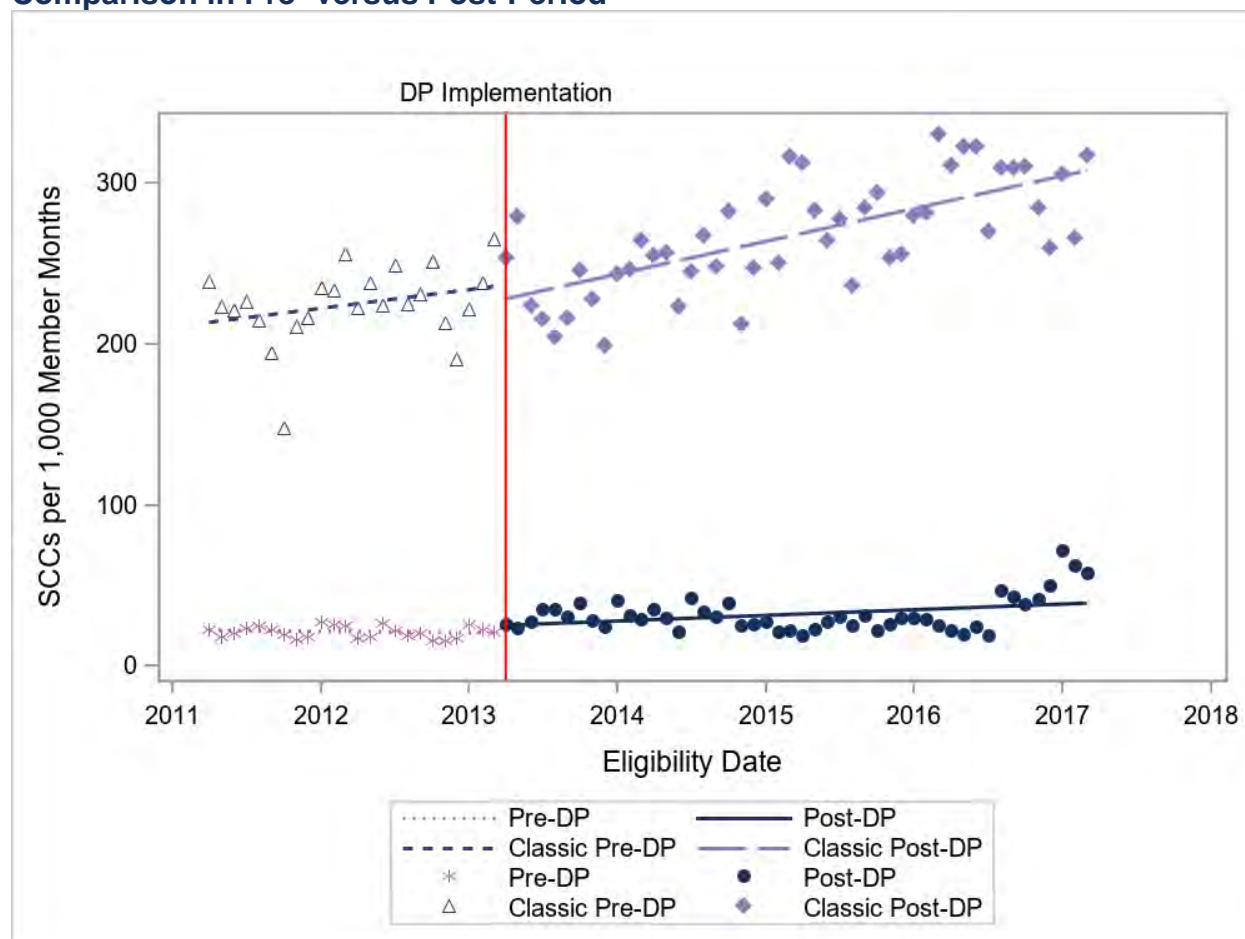
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP group and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variables Associated with Special Care Center Visits Outcomes: In the regression model for SCC visit, higher disability level, and being Latinx as compared to White, and older than two as compared to less than one

were all associated with statistically significant higher SCC visits. Not having a disability and being one year old as compared to less than one was associated with lower SCC use. (See Appendix T for full regression model.)

Table 162 provides comparisons of the number of SCC visits between the RCHSD DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an SCC visit in the RCHSD DP and Classic CCS comparison groups did not differ significantly. Likewise, during the post-DP period, the odds of an SCC visit did not differ significantly between the RCHSD DP and Classic CCS comparison groups.

Table 161: Special Care Center Visits per 1,000 Member Months: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | SCCs per 1,000 Member Months | | Adjusted Odds Ratios* | |
	RCHSD DP Group	Classic CCS Comparison Group	(95% CI) RCHSD DP vs. Classic CCS	P-value
Pre-DP Implementation	629	675	0.97 (0.82, 1.14)	.694
Post-DP Implementation	601	599	1.03 (0.87, 1.21)	.725

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Table 163 provides comparisons of the number of SCC visits in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of an SCC visit during the post-DP period did not differ significantly from those of the pre-DP period. Likewise, for the Classic CCS comparison group, the odds of an SCC visit during the post-DP period did not differ significantly from those during the pre-DP period. Given little change in the RCHSD DP and Classic CCS comparison groups, the Difference in Differences is not significant.

Table 162: Special Care Center Visits per 1,000 Member Months: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | SCCs per 1,000 Member Months | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	629	601	1.09 (0.98, 1.21)	.128
Classic CCS Comparison Group	675	599	1.02 (0.88, 1.18)	.806
Difference in Differences			1.07 (0.89, 1.27)	.481

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), and disability (CWDA).

Figure 52: Special Care Center Visits per 1,000 Member Months over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
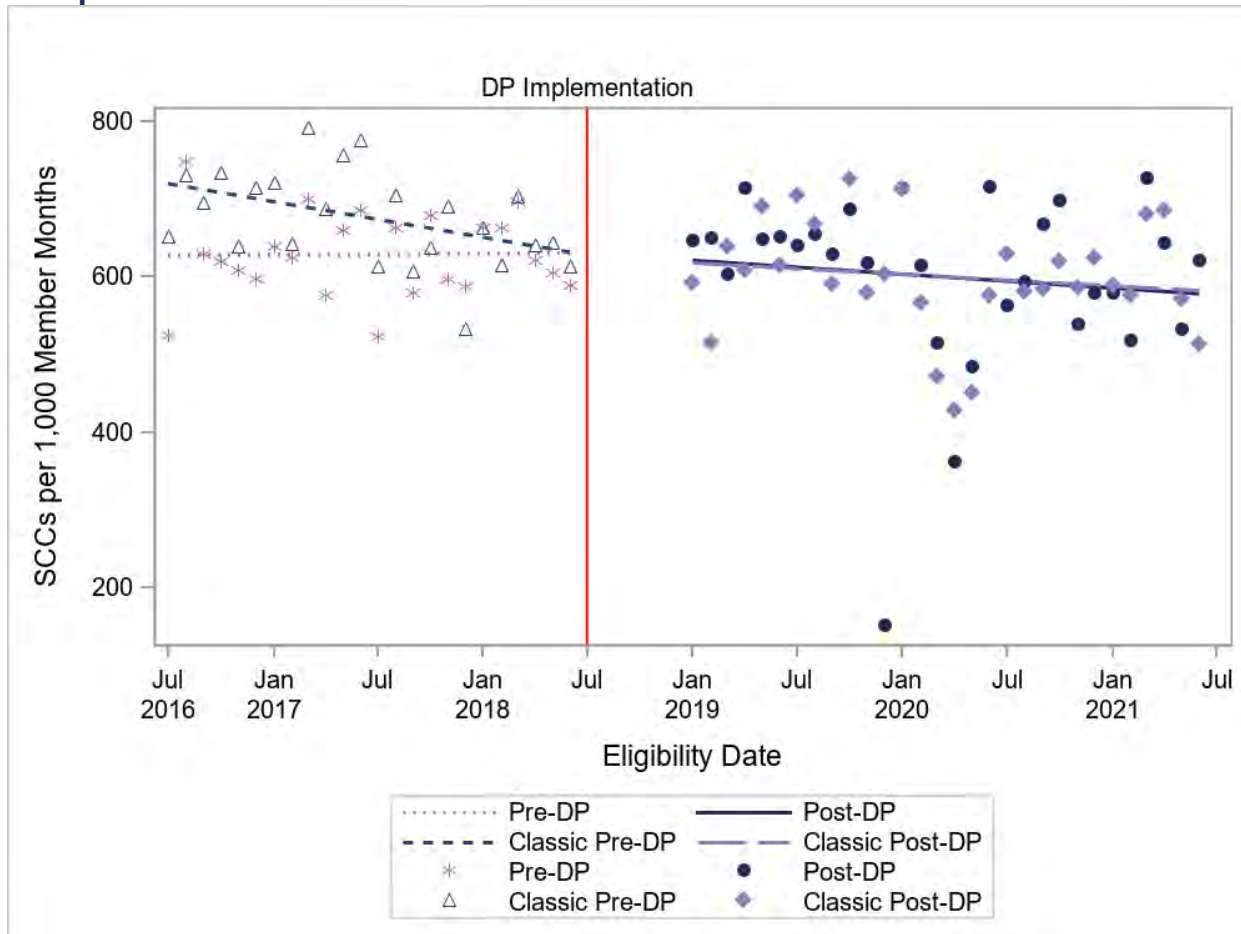
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the RCHSD DP and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variables Associated with Special Care Center Visits Outcomes: In the regression model for SCC visit, higher illness severity, and being age two to six as compared to less than one, were associated with

statistically significant higher rates of SCC visits, while having no disability was significantly associated with lower rates of SCC visits. (See Appendix T for full regression model.)

Summary for specialty center care visits for HPSM DP and RCHSD DP

At HPSM, the HPSM DP had a significant increase in SCC visits during the post-DP period. The Classic CCS comparison group did not have any significant change. The Difference in Differences between the groups is significant. At RCHSD, neither the RCHSD DP nor the Classic CCS comparison group had significant changes in the post-DP period, and the Difference in Differences is not significant.

SCC Visit within 90 Days of an SCC Referral Results

Table 164 provides comparisons of the number of SCC visits within 90 days of a referral between the HPSM DP and Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an SCC visit within 90 days of referral in the HPSM DP were 1.52 times greater than those in the Classic CCS comparison group ($p < .001$). Likewise, during the post-DP period, the odds of an SCC visit within 90 days of referral were 1.36 times greater in the HPSM DP than in the Classic CCS comparison groups ($p < .001$).

Table 163: Special Care Center Referrals Seen within 90 Days per 1,000 Referrals: Comparing HPSM DP to Classic CCS in Pre- versus Post-Period

| Period | SCC Referral Seen within 90 Days per 1,000 Referrals | | Adjusted Odds Ratios* (95% CI) | |
	HPSM Group	Classic CCS Comparison Group	HPSM Group vs. Classic CCS	P-value
Pre-DP Implementation	646	550	1.52 (1.28, 1.80)	<.001
Post-DP Implementation	668	582	1.36 (1.19, 1.55)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 165 provides comparisons of number of SCC visits within 90 days of a referral in the pre- versus post-DP implementation periods for the HPSM DP and Classic CCS comparison groups separately. For the HPSM DP group, the odds of an SCC visit within 90 days of a referral during the post-DP period did not differ significantly from those of the pre-DP period. Likewise, for the Classic CCS comparison group, the odds of an SCC visit within 90 days of a referral during the post-DP period did not differ significantly from those during the pre-DP period. Given little change in the HPSM DP and Classic CCS comparison groups, the Difference in Differences is not significant.

Table 164: Special Care Center Referrals Seen within 90 Days per 1,000 Referrals: Comparing HPSM DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

Group	SCC Referral Seen within 90 Days per 1,000 Referrals		Adjusted Odds Ratios*	
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
HPSM Group	646	668	0.98 (0.85, 1.13)	.767
Classic CCS Comparison Group	550	582	1.09 (0.96, 1.25)	.189
Difference in Differences			0.89 (0.74, 1.09)	.263

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 53: Special Care Center Referrals Seen within 90 Days per 1,000 Referrals over Time for HPSM DP and Classic CCS Comparison in Pre- versus Post-Period
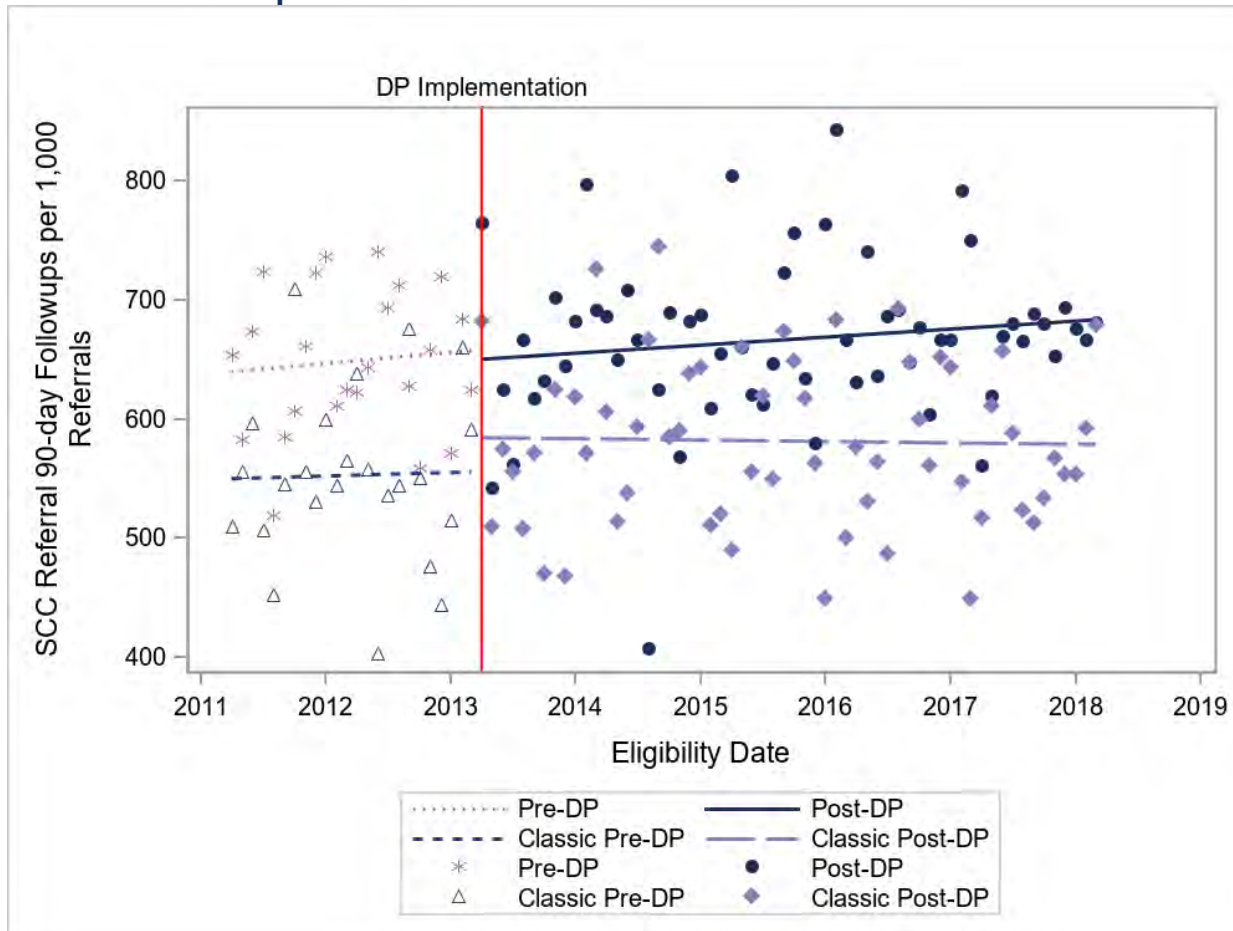
HPSM DP Goodness of Fit: In the pre-DP period, the slopes of the HPSM DP and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

HPSM DP Independent Variables Associated with SCC Visit Referrals within 90 days: In the regression model for having an SCC visit within 90 days of placing a referral, higher illness severity, being Black or Latinx as compared to

White, being 2–11 years old as compared to being less than one year old, or being Spanish speaking as compared to English speaking, was associated with having statistically significant higher rates of having a Special Care Center visit within 90 days. Having no disability or being less than age one was associated with a significantly significant decrease in being seen within a 90-day period after a referral was placed. (See Appendix T for full regression model.)

Table 166 provides comparisons of the number of SCC visits within 90 days of a referral between the RCHSD DP versus Classic CCS comparison groups in the pre- versus post-DP implementation periods separately. During the pre-DP period, the odds of an SCC visit within 90 days of referral did not differ significantly between the RCHSD DP and Classic CCS comparison groups ($p = .77$). However, during the post-DP period, the odds of an SCC visit within 90 days of referral were 2.6 times greater in the RCHSD DP than in the Classic CCS comparison group ($p < .001$).

Table 165: Special Care Center Referrals Seen within 90 Days per 1,000 Referrals: Comparing RCHSD DP to Classic CCS in Pre- versus Post-Period

| Period | SCC Referral 90-Day Follow-Ups per 1,000 Referrals | | Adjusted Odds Ratios* (95% CI) RCHSD DP Group vs. Classic CCS | P-value |
	RCHSD DP Group	Classic CCS Comparison Group		
Pre-DP Implementation	830	831	1.06 (0.73, 1.52)	.771
Post-DP Implementation	916	760	2.66 (1.88, 3.76)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Table 167 provides comparisons of the number of SCC visits within 90 days of a referral in the pre- versus post-DP implementation periods for the RCHSD DP and Classic CCS comparison groups separately. For the RCHSD DP group, the odds of an SCC visit within 90 days of a referral during the post-DP period were 2.07 times greater than those in the Classic CCS comparison group ($p < .001$). For the Classic CCS comparison group, the odds of an SCC visit within 90 days of a referral during the post-DP period did not differ significantly from those during the pre-DP period. Given the significant increase in the RCHSD DP and the slight decrease in the Classic CCS comparison group, the Difference in Differences is significant ($p < .001$).

Table 166: Special Care Center Referrals Seen within 90 Days per 1,000 Referrals: Comparing RCHSD DP Pre- versus Post-Period, Classic CCS Comparison Pre- versus Post-Period, and DiD Analysis

| Group | SCC Referral 90-Day Follow-Ups per 1,000 Referrals | | Adjusted Odds Ratios* | |
	Pre-DP Implementation	Post-DP Implementation	(95% CI) Post- vs. Pre-Periods	*P*-value
RCHSD DP Group	830	916	2.07 (1.48, 2.90)	<.001
Classic CCS Comparison Group	831	760	0.82 (0.60, 1.12)	.207
Difference in Differences			2.52 (1.60, 3.97)	<.001

*Adjusted for age, language, race/ethnicity, illness severity (CDPS), season, and disability (CWDA).

Figure 54: Special Care Center Referrals Seen within 90 Days per 100 Referrals over Time for RCHSD DP and Classic CCS Comparison in Pre- versus Post-Period
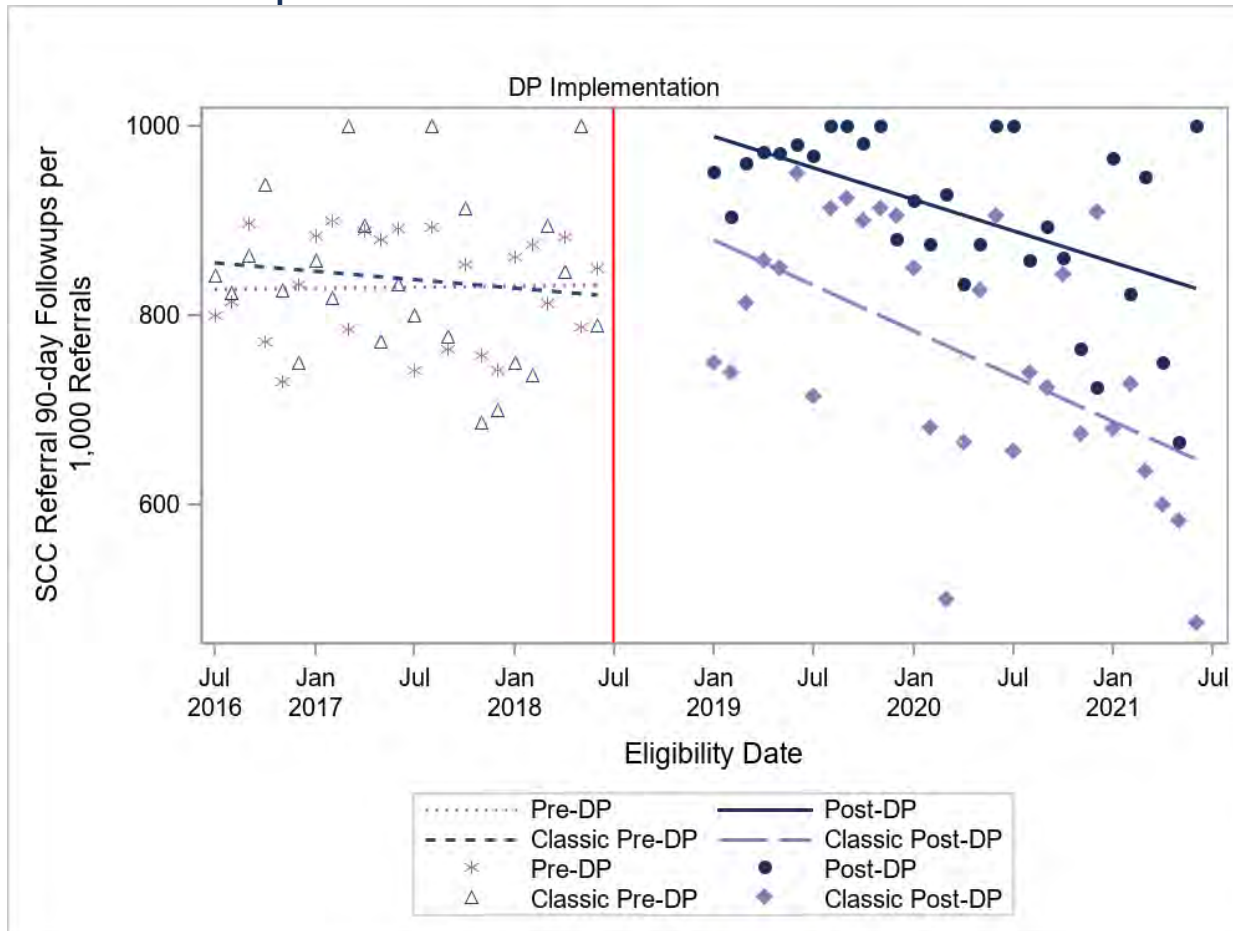
RCHSD DP Goodness of Fit: In the pre-DP period, the slopes of the RCHSD DP and Classic CCS comparison groups are not statistically different, and thus the parallel slopes assumption of the DiD model is satisfied.

RCHSD DP Independent Variables Associated with Having an SCC Visit within 90 Days of a Referral: In the regression model for having an SCC visit within 90 days of a referral, having higher levels of disability was significantly

associated with higher rates of having a Special Care Center visit within 90 days of referral placement, while older age, and no disability, were associated with lower rates of having an SCC visit within 90 days (See Appendix T for full regression model.)

Summary of having an SCC visit within 90 days of a referral

At HPSM, neither the HPSM DP nor the Classic CCS comparison groups had significant increases in SCC visits within 90 days of a referral, and the Difference in Differences is not significant. At RCHSD, the RCHSD DP had an increase in SCC visits within 90 days of a referral. There was no change in these visits in the Classic CCS comparison group, and the Difference in Differences is significant.

Research Question 5: Summary of Claims Analysis for Care Coordination and Health Outcomes

- Case management claims improved in both DPs post-DP implementation, but there was no statistically significant difference found in either the HPSM DP or RCHSD DP when comparing with the Classic CCS comparison groups.
- RCHSD and HPSM had no change in ED visits as compared to Classic CCS controls post-implementation.
- HPSM DP clients had higher odds of hospitalization as compared to controls post-implementation, and there was no difference in hospitalization rates found in the RCHSD DP post-implementation as compared to controls.
- ED visits and hospital use were highly impacted by the COVID-19 pandemic in the RCHSD DP evaluation. While there was a drop in ED visits overall during the pandemic, the proportion of hospitalizations that came in through the ED did not change pre- versus post-, implying that people were not delaying emergency department care when there was life-threatening situation.
- There was no change in hospital readmissions in the RCHSD DP. The HPSM DP had lower readmission rate.
- Hospital length of stay in the HPSM DP was lower relative to controls post-implementation, while there was no difference between the RCHSD DP and controls.
- The HPSM DP had a higher increase in SCC use (2.4 fold increase in odds) while Rady noted no change in SCC post-implementation as compared to the control group.
- The RCHSD DP had marked improvement in 90-day SCC referral to visit time (2.47 fold increase in odds). This level of improvement was not seen in the HPSM DP.

Research Question 6: What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?

The results for Research Question 6 are organized as follows:

1. Telephone survey results, including indirect losses, costs, and out-of-pocket payments
2. Four different economic analyses of PMPM amounts that DHCS paid (based on fee-for-service [FFS] claims, Classic CCS capitated costs, CCS DP capitation rates, and HPSM revenue and expense reports data). These analyses include:
   a. Mean paid by DHCS, by diagnosis and predictors of payments
   b. Cost-effectiveness analysis, comparing costs with two measures of outcome
   c. Difference in Differences (DiD) analysis of mean paid costs PMPM
   d. Revenue and expense comparisons for HPSM

Telephone Survey Results, Regarding Amounts and Cost of Care Burden to Families

The telephone survey included questions related to the direct out of-pocket (OOP) and indirect cost burden to families of children in the CCS/CCS DP programs. The items are drawn from sections of the survey that inquired about:

- The child's lost days at school
- Out-of-pocket expenses for medications, medical equipment, and supplies
- Work status and work loss by caregivers and all others in the household due to the child's health status

Child's General Health and Function

School Days Missed: HPSM DP respondents indicated that their children missed significantly more days of school due to illness compared to children in Classic CCS. HPSM DP respondents (51%) indicated the client missed more than "0–3 days" of school due to illness compared to 41% of Classic CCS clients. The difference between RCHSD DP and Classic CCS respondents was not significant. See Table 168.

Table 167: School Days Missed: HPSM DP, RCHSD DP, and Classic CCS

[If age 5+] During the past 6 months, how many days of school did [CHILD'S NAME] miss because of illness? (Q4)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
0–3 days	111	70	438	619
	48.90	60.34	59.27	57.21
4–6 days	45	21	119	185
	19.82	18.10	16.10	17.10
7–15 days	41	16	108	165
	18.06	13.79	14.61	15.25
16–30 days	8	5	34	47
	3.52	4.31	4.60	4.34
31–60 days	11	1	19	31
	4.85	0.86	2.57	2.87
61 or more days	11	3	21	35
	4.85	2.59	2.84	3.23
Total	227	116	739	1,082
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	21.72			
P-value	.017			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Prescription Medication

Prescription Out-of-Pocket Expenses: Significantly more RCHSD DP respondents (84%) indicated having no out-of-pocket expenses ("$0 per month") for prescription medications than Classic CCS (72%) (*p* = .043, not shown). The difference between HPSM DP and Classic CCS respondents was not significant. See Table 169.

Table 168: Prescription Out-of-Pocket Expenses: HPSM DP, RCHSD DP, and Classic CCS

Over the past 6 months, about how much did you pay out-of-pocket / per month for prescription medication ordered by your doctor? (Q42)				
	HPSM DP	**RCHSD DP**	**Classic CCS**	**Total**
$0 per month	146	75	396	617
	75.65	84.27	72.00	74.16
$1–$100 per month	36	10	126	172
	18.65	11.24	22.91	20.67
More than $100 per month	11	4	28	43
	5.70	4.49	5.09	5.17
Total	193	89	550	832
	100.00	100.00	100.00	100.00
Rao-Scott Chi^2	5.97			
P-value	.20			

- First row has frequencies from raw, nonweighted survey results. The second row has column percentages.
- The Rao-Scott chi-square analysis used appropriate survey sample weights.
- The *p*-value represents the significance of the analysis. A *p*-value less than .05 is considered significant.

Indirect Costs and Out-of-Pocket Medical Expenses

Work status

Families reported their current work status across a number of categories. RCHSD DP families had the highest percentage of "work for pay" (46%), while families from the HPSM DP and Classic CCS counties had similar proportions working (38.5% and 38%, respectively). Also, a high percentage of RCHSD DP families reported not working for pay due to their child's health (17%); this was much lower for families in the HPSM DP (9%) and Classic CCS (6%). In addition, more RCHSD DP families reported looking for paid work (2.4%) compared to only 1.7% for families in the HPSM DP and 1.9% for families in Classic CCS counties.

Work- and school-loss costs and out-of-pocket costs

Families were asked about work loss for the child's main caregiver and also other income earners in the family due to the child's health. Paid work loss was highest for families in Classic CCS counties (8.48 hours/month), slightly lower for the HPSM DP (8.22 hours/month), and the lowest for families in the RCHSD DP (6.67 hours/month).

Families also reported their total 2019 household income, before taxes, from selected income categories, for all household earners. The average actual hourly salary reported for families in the HPSM DP was higher ($24.73) than for those in the RCHSD DP, which was lowest ($15.81). For families in Classic CCS counties it was ($18.24).

With that information, the UCSF evaluation team used the standardized family-reported mean income across all counties from each income category and the actual mean hours of work loss reported to determine average family income lost due to their child's health condition, per member per month, for the HPSM DP, the RCHSD DP, and Classic CCS counties. Total family work loss burden, PMPM, was $341.67 for the HPSM DP and $269.91 for the RCHSD DP. For Classic CCS county families it was $310.29. In conclusion, the HPSM DP had somewhat higher lost-work costs compared to Classic CCS counties, and the RCHSD DP had lower lost-work costs compared to Classic CCS counties.

The UCSF evaluation team also calculated a financial burden from reported school losses of children in the various CCS healthcare delivery models. Families reported mean school-loss days PMPM of 1.69 for the HPSM DP, fewer for the RCHSD DP (1.09 days PMPM), and in between the two for those in the Classic CCS counties (1.24 days PMPM).

Cost burden was estimated as an average public insurance cost of care per day for a child with special needs. The average cost range was from $64 to $137.28. Using an average cost of $100/day, the school-loss burden, PMPM, was again highest for those in the HPSM DP ($168.65), lowest for those in the RCHSD DP ($108.69), and in between the two for those in Classic CCS counties ($125.32).

Families reported out-of-pocket costs, PMPM, for prescription medications, equipment, and supplies. See Table 170. The UCSF evaluation team also used the standardized salary to calculate the cost of reported family time spent on management activities for their child's health. The standardized salary is an average reported salary across all of the DP and matched with Classic CCS county survey respondents. The total PMPM cost burden for this was highest for families in Classic CCS counties ($266.26), slightly lower for those in the HPSM DP ($253.12), and lowest for those in the RCHSD DP ($170.57).

Table 169: Out-of-Pocket Expenses: By Health Plan and Category of Cost

Family Economic Burden per Member per Month (PMPM)	HPSM DP	RCHSD DP	Classic CCS
Total Monthly Family Work Loss Burden (PMPM)	$341.67	$269.91	$310.29
Hours/month of paid work caregiver lost due to child's health	8.22	6.67	8.48
Hours/month of paid work (all other) lost due to child's health	9.21	7.11	7.36
Average hourly salary (actual)	$24.73	$15.81	$18.24
Average hourly salary (standardized)	$19.59	$19.59	$19.59
Total cost of caregiver work loss hours/month (standardized salary)	$161.16	$130.67	$166.11
Total cost of (all other) work loss hours/month (standardized salary)	$180.51	$139.24	$144.18
Total Monthly School-Loss Burden (PMPM)	$168.65	$108.69	$125.32
School days lost PMPM	1.69	1.09	1.25
Average cost for school-loss care per day	$100	$100	$100
Total cost range of school-loss days PMPM ($64.18–$137.28)	$108–$232	$70–$149	$80–$172
Total Monthly Out-of-Pocket Cost Burden (PMPM)	$253.12	$170.57	$266.26
Prescription medications $PMPM	$39.12	$14.04	$30.64
Equipment/supplies $PMPM	$26.23	$7.89	$67.23
Time spent on activities for child's health	$187.77	$148.64	$168.39

Nonsignificant Telephone Survey Items

The following survey items that pertained to access to healthcare services did not have any significant differences between healthcare delivery models:

- **Medical Equipment and Supplies:** The difference was not significant between HPSM DP, RCHSD DP, and Classic CCS respondents for medical equipment out-of-pocket expenses (Q58). See Appendix X.

- **Household Income and Work Status:** The difference was not significant between HPSM DP, RCHSD DP, and Classic CCS respondents in hours of work for pay that were lost for the respondent (Q98) or other income earners (Q99) in the household due to the child's health condition. The difference in hours per month spent on activities to arrange the child's healthcare needs (Q100) was also not significant between HPSM DP, RCHSD DP, and Classic CCS respondents. See Appendix X.

Summary of Results from Telephone Survey for Research Question 6

The impact of the CCS DPs on dollar amount expended on healthcare services and impact of cost of care is mixed

HPSM DP respondents indicated that their children missed significantly more days of school due to illness compared to children in Classic CCS. However, the hours of work for pay that were lost for the respondent or other income earners in the household due to the child's health condition did not significantly differ between HPSM DP, RCHSD DP, and Classic CCS respondents.

Out-of-pocket expenses for prescription medications among RCHSD DP respondents were significantly lower than among Classic CCS respondents. The difference for out-of-pocket expenses for prescription medications between HPSM DP and Classic CCS respondents was not significant. Indirect cost burden to these families is relatively high PMPM, but there seem to be no important differences due to the type of DP care model itself. Differences seen in the indirect economic burden were likely more due to existing socioeconomic differences found in the counties being compared.

Results from Four Different Economic Analyses of PMPM Amounts That DHCS Paid (based on FFS claims, Classic CCS capitated costs, CCS DP capitation rates, and HPSM revenue and expense reports data)

Mean Paid Amounts by DHCS

DHCS bases total PMPM costs on the amount that DHCS pays for the care of CCS clients. This amount includes FFS claims payments if a child is not in a capitated system or if there are FFS paid claims while the child is in a capitated system. It also includes a capitated pay rate estimated from DHCS records of paid amounts for the DPs (if they are capitated managed care programs) and for Classic CCS counties (if they are paid as capitated managed care programs). Capitated lower-bound rates specific to CCS clients that DHCS used to set payments were used as the capitated rates for all DP program years.

To make DP county comparisons equitable for this evaluation, the UCSF evaluation team was able to estimate the capitated amounts in the two years before the DP was implemented for the DP counties being paid under capitation or for those DP counties paid by a combination of FFS and capitation during those years. The UCSF evaluation team did this by using the DHCS estimated costs used to estimate the capitated payment in the first year of the DP program. In this way, the pre- versus post-DP county cost comparisons are accurate.

However, for Classic CCS counties, CCS did not estimate CCS child-specific rates. Managed care programs in these counties were paid a range of less specific rates, including rates for children, adults, aged and disabled, nondual, disabled dual, aged dual, BCCTP (Breast and Cervical Cancer Treatment Program), long-term care (LTC) dual, LTC nondual, and optional expansion. For this analysis, the UCSF evaluation team chose one of these rates based on the child's specific Aid Code in the eligibility data file for capitation of CCS clients in Classic CCS counties paid under capitation.

The UCSF evaluation team acknowledges that this rate is low and also represents costs of a mixture of healthy children or disabled adults (or others in each category), but DHCS recommended that UCSF use the Aid Code capitated rates as the best category to use. However, most CCS clients in Classic CCS counties were paid under FFS or under a combination of capitation and FFS, so the cost-lowering effect was not great. Because these rates were lower, however, the UCSF evaluation team was not able to compare costs of Classic CCS counties with those of DP counties, but just the pre- and post-DP rate of CCS DP counties and the pre- and post-DP rates of Classic CCS counties.

The majority of comparisons for this evaluation are pre- versus post-DP counties and pre- versus post-Classic CCS counties — this evaluation does not directly compare costs of DP counties with Classic CCS counties. In addition, the Difference in Differences analysis allowed the UCSF evaluation team to control for variation to determine the trend in cost effects of each type of program. To the knowledge of the UCSF evaluation team, other state program analyses have compared only the FFS populations, avoiding this issue of the need to compare FFS and capitated rates. Therefore, this evaluation makes the best possible estimates using actual DHCS payments made, including both FFS and capitated amounts, in order to make a complete comparison. The DHCS Cost and Reimbursement Comparison Schedule sheet reports used for these estimates are available from DHCS but are not shared here because they are confidential.

Propensity Score Matchings

Cost analyses were reported both with and without propensity score (PS) matching. Unadjusted or unmatched allows presentation of actual amounts paid, while the presentation of costs when propensity score–matched allows a more fair comparison across like counties and population characteristics. In most cases, propensity score–matching adjustments had only a small effect on DP and Classic CCS county costs PMPM; these differences were in both directions and generally small across all phases. This report primarily discusses results using the PS adjusted costs for comparisons; unadjusted cost comparisons primarily can be found in Appendix G.

Interpretation of DHCS Reimbursements, PMPM, Pre- and Post-DPs

As Table 171 shows, total DHCS payments PMPM for HPSM were $2,252 before and slightly less ($2,161) after the DP program. Payments that DHCS made to RCHSD were higher ($5,798 PMPM) before the RCHSD DP program and $4,446

PMPM in the years after the DP implementation. DHCS saved money for both care models with the introduction of the DP program.

The HPSM DP saved DHCS $91 PMPM compared to the pre-DP period. During the same period, using non-PS matched Classic CCS counties as a comparator, DHCS had higher payments ($459 PMPM) during the DP period compared to the pre-HPSM DP period.

The RCHSD DP saved DHCS even more money ($1,352 PMPM) than in the pre-DP period. During the same period, using non-PS matched Classic CCS counties as a comparator, DHCS had an increase in spending ($348 PMPM) in the post-DP period compared to the pre-RCHSD DP period. The same comparisons using PS matching showed similar results.

In conclusion, both the HPSM and RCHSD DPs showed savings compared to the pre-DP periods. This savings is in contrast with the increase in DHCS payments made during the same comparison periods for Classic CCS county comparators.

Table 170: Per Member per Month DHCS Reimbursements, Pre- and Post-CCS Demonstration Pilot (PS matched and PS unmatched)

Study Group	Time Period	Observations Unadjusted	Mean Total PMPM DHCS Reimbursement (FFS + Capitation)	Median Total PMPM DHCS Reimbursement (FFS + Capitation)	Standard Deviation	DP Savings Difference*
Raw Comparisons						
HPSM DP	Pre-DP	48,569	$2,252	$1,384	$15,977	$91
	Post-DP	108,655	$2,161	$1,646	$7,126	
Classic CCS	Pre-DP	191,820	$1,620	$100	$7,663	($459)
	Post-DP	454,599	$2,079	$234	$13,412	
RCHSD DP	Pre-DP	11,005	$5,798	$1,006	$22,202	$1,352
	Post-DP	11,794	$4,446	$2,427	$10,237	
Classic CCS	Pre-DP	23,922	$3,271	$980	$15,245	($348)
	Post-DP	32,602	$3,619	$953	$15,834	
Propensity Score–Matched						

Study Group	Time Period	Observations Unadjusted	Mean Total PMPM DHCS Reimbursement (FFS + Capitation)	Median Total PMPM DHCS Reimbursement (FFS + Capitation)	Standard Deviation	DP Savings Difference*
HPSM DP	Pre-DP	48,569	$2,252	$1,384	$15,977	$91
	Post-DP	108,655	$2,161	$1,646	$7,126	
Classic CCS	Pre-DP	42,120	$1,727	$157	$7,923	($547)
	Post-DP	96,670	$2,275	$279	$13,146	
RCHSD DP	Pre-DP	10,828	$5,843	$1,020	$22,348	$1,397
	Post-DP	11,794	$4,446	$2,427	$10,237	
Classic CCS	Pre-DP	5,520	$5,609	$854	$17,043	($206)
	Post-DP	10,189	$5,815	$871	$21,454	

*Differences are calculated pre- minus post-DP.

Mean DHCS Reimbursements by Diagnosis

The UCSF evaluation team also compared mean DHCS reimbursements by diagnosis to determine if costs differed pre- versus post-DP periods for those with different diagnoses. For the HPSM DP, all diagnoses had lower DHCS payments post-DP than pre-DP, except for infectious diseases. For the RCHSD DP there was not one overall pattern of higher or lower costs by diagnosis from the pre- to post-DP periods, with some diagnoses (infectious diseases, neurology, ophthalmology, cardiovascular, congenital, accidents, NICU) showing an increased post-DP PMPM cost; the rest showed a decrease.

The capitated payments still showed less variability than the Classic CCS fee-for-service payments, but less so than in the HPSM DP. This is most likely due to the restricted diagnoses admitted to the RCHSD DP.

In conclusion, for both the HPSM DP and RCHSD DP, the capitated payments of the DP acted to decrease the variability in payments across diagnoses compared to the Classic CCS fee-for-service payments during the pre-DP period. (See Table 172.)

Table 171: Mean per Member per Month DHCS Reimbursements, by Diagnosis, Pre- and Post-CCS Demonstration Pilot

Diagnoses	Pre-HPSM DP Obser-vations	Total Reimbursed PMPM Pre-HPSM DP	Post-HPSM DP Obser-vations	Total Reimbursed PMPM Post-HPSM DP	Pre-RCHSD DP Obser-vations	Total Reimbursed PMPM Pre-RCHSD DP	Post-RCHSD DP Obser-vations	Total Reimbursed PMPM Post-RCHSD DP
Infectious Disease	202	$1,534	683	$2,453	177	$6,614	264	$6,690
Neoplasm	426	$5,108	2,735	$1,976	2,012	$5,517	2,792	$3,102
Endocrine, Metabolic, and Immune Disorders	993	$2,820	7,180	$1,930	3,533	$3,823	4,298	$2,925
Hematology	280	$5,229	1,373	$3,838	2,442	$5,961	2,619	$5,803
Mental Health	223	$14,665	1,950	$3,228	239	$7,553	286	$6,580
Neurology	911	$6,494	7,280	$2,164	260	$5,899	335	$9,906
Ophthalmology	748	$10,640	3,948	$1,992	320	$2,725	179	$2,915
Otolaryngology	1,118	$2,073	8,408	$1,769	160	$6,060	227	$3,324
Cardiovascular	526	$10,920	2,773	$1,958	121	$5,797	173	$10,108
Respiratory	502	$9,881	2,497	$2,398	564	$4,175	538	$4,430
Gastrointestinal	1,045	$5,328	3,428	$1,913	599	$5,524	649	$4,905
Genitourinary	524	$7,189	2,906	$1,918	326	$3,432	193	$2,693
Pregnancy	14	$1,882	60	$1,772	0	$0	0	$0
Dermatology	86	$2,008	395	$1,828	95	$8,728	61	$2,757
Musculoskeletal	1,404	$4,751	9,929	$1,941	419	$9,354	466	$5,614
Congenital	2,681	$6,988	14,107	$1,822	350	$5,576	368	$7,236
Accident	1,002	$4,051	4,395	$2,057	413	$5,857	474	$6,260
NICU	3,366	$8,017	10,068	$1,924	312	$3,506	435	$3,955
Other	4,402	$6,696	27,079	$1,947	2,376	$4,205	2,520	$3,422
Average Reimbursed		$6,120		$2,149		$5,279		$4,875

Diagnoses	Pre-HPSM DP Obser-vations	Total Reimbursed PMPM Pre-HPSM DP	Post-HPSM DP Obser-vations	Total Reimbursed PMPM Post-HPSM DP	Pre-RCHSD DP Obser-vations	Total Reimbursed PMPM Pre-RCHSD DP	Post-RCHSD DP Obser-vations	Total Reimbursed PMPM Post-RCHSD DP
Sum	$20,453		$111,194		$14,718		$16,877	
Post-/Pre-DP Ratio (cost to charge ratio)		0.35				0.92		
Pre-/Post-DP		2.85				1.08		

Note: Children can have more than one diagnosis.

Table 172: CCS Demonstration Pilot versus Classic CCS Cost-Effectiveness Analysis: Propensity Score–Matched (cost/life year saved)

Study Group	Time Period	Mean Total Reim-bursement per Member per Year	Cost Differ-ence*	Mean Age	Probability of Death CCS Population	Total Annual Mortality: Age Sex Race (ASR) Controlled + Disease-Specific Mortality	Total Life Expect-ancy (LE)* Due to ASR + Excess Disease	LE Differ-ence[†]	CEA[‡] = $ Change / LE Change
HPSM DP	Pre-DP	$27,028	($1,094)	8.75	0.0002	0.014305	69.91	0.36850	Post-HPSM DP is dominant
	Post-DP	$25,933		9.48	0.0002	0.014230	70.28		
Classic CCS	Pre-DP	$20,729	$6,566	8.82	0	0.014205	70.40	-0.18539	Classic CCS post-DP is dominated
	Post-DP	$27,295		9.44	0.0003	0.014242	70.21		

Study Group	Time Period	Mean Total Reimbursement per Member per Year	Cost Difference*	Mean Age	Probability of Death CCS Population	Total Annual Mortality: Age Sex Race (ASR) Controlled + Disease-Specific Mortality	Total Life Expectancy (LE)* Due to ASR + Excess Disease	LE Difference†	CEA‡ = $ Change / LE Change
RCHSD DP	Pre-DP	$70,122	$16,774	9.38	0.0001	0.014255	70.15	0.08195	$204,683
	Post-DP	$53,348		10.33	0.0002	0.014271	70.07		
Classic CCS	Pre-DP	$67,314	$2,466	9.58	0.0005	0.014455	69.18	0.07977	$30,915
	Post-DP	$69,780		10.64	0.0007	0.014438	69.26		

*Controlled LE for age.
†Differences are calculated post- minus pre-DP.
‡Cost-effectiveness analysis

Analysis of Cost-Effectiveness: Comparing Cost Changes per Change in Units of Effectiveness (pediatric quality measures)

The cost-effectiveness analysis (CEA) compares changes in the costs of two alternatives divided by the changes in effectiveness of the two alternatives to determine the additional costs of the new alternative per each unit of effectiveness. It gives an indication if any costs changed and if they caused changes in the quality of care.

For this analysis, the UCSF evaluation team compared the mean cost PMPM of the pre-DP and post-DP period of both DP programs. The same was done for the pre- and post-DP time period of the Classic CCS counties. There were two main effectiveness measures used for the CEA comparisons: life expectancy differences and 30-day readmissions in those one year or older.

Cost-Effectiveness Analysis Results and Interpretation: Cost-Effectiveness Analysis by Life Expectancy for CCS DPs

HPSM DP (Table 173)

- The HPSM DP pre- versus post- cost-effectiveness comparison shows that the HPSM DP post-DP period saved DHCS $1,094 per member per year as compared to the pre-DP period. Also, the HPSM DP post-DP period had slightly fewer deaths and therefore a slightly longer life expectancy (LE) (0.368 years) than the pre-HPSM DP period. Therefore, the HPSM DP program post-period dominates the pre-period, being both less expensive and having a longer life expectancy. Therefore, it is the cost-effective choice.

- The Classic CCS counties that were propensity score–matched with the HPSM DP pre- versus post- cost-effectiveness comparison shows that the Classic CCS counties post-period was more costly ($5,500) than the Classic CCS pre-period (unlike for the HPSM DP, which saved money). At the same time, the Classic CCS post-period had slightly more deaths and therefore a shorter LE (0.62 years) than the Classic CCS pre-period. Therefore, the cost-effectiveness analysis shows that the pre-period dominated the post-period for the Classic CCS counties. This is because the post-period was more costly and had shorter LE than the pre-periods for the Classic CCS counties. This means that the Classic CCS counties in the pre-period were more cost-effective. This is in contrast to the HPSM DP program, which was more cost-effective in the post-period.

RCHSD DP

- The RCHSD DP pre- versus post- cost-effectiveness comparison (using life expectancy) shows that the RCHSD post-DP period saved DHCS $16,225 per member per year as compared to the pre-period. At the same time, the RCHSD DP post-period had slightly more deaths and therefore a shorter LE (0.082 years) than did the RCHSD pre-period. Therefore, when calculating the incremental cost-effectiveness ratio (ICER), it shows that the RCHSD pre-DP period spent an extra $198,000 for each added life year that it saved, which is likely not cost-effective at a willingness to pay (WTP) of $100,000 / life year saved. This means that the RCHSD DP program was the more cost-effective program because the pre-DP period was not cost-efficient.

- The Classic CCS counties that were propensity score–matched with the RCHSD pre- versus post- cost-effectiveness comparison show that the Classic CCS post-period was more costly ($4,172) than the Classic CCS pre-period (unlike for the DP program, which saved money). However, the Classic CCS post-period had slightly fewer deaths and therefore a slightly longer LE (0.42 years) than the Classic CCS pre-period. Therefore, when calculating the ICER, it shows that the RCHSD matched Classic CCS county post-period cost an additional $9,945 for each added life year that it saved, which makes the Classic CCS county post-period cost-effective with a WTP of $100,000 / life year saved compared with the pre-period.

In conclusion, when using life expectancy as an effectiveness measure of the DPs, the HPSM DP and RCHSD DP were both cost-effective compared with their pre-DP programs. This cost-effectiveness is in contrast to their propensity-matched comparator counties, which were either not cost-effective or were less cost-effective for the same pre- and post-periods.

Table 173: Cost-Effectiveness Analysis Using Cost/Readmission Avoided (age >= 1 year): Propensity Score–Matched

Study Group	Time Period	Mean Total PMPM Reimburse-ment	Cost Differ-ence*	Mean Age	Readmissions PMPM	Difference* in Readmissions PMPM	CEA = $ Change / 30-Day Hospital Readmission Change	Comments
HPSM DP	Pre-DP	$1,609	($557)	9.88	0.0049	-0.0001	HPSM DP is dominated	
	Post-DP	$2,166		10.05	0.0050		Pre-HPSM DP is preferred	Post-HPSM DP is dominated
Classic CCS	Pre-DP	$1,519	($482)	9.72	0.0061	0.0002	Classic post-DP is dominated	
	Post-DP	$2,001		10.17	0.0063		Classic CCS pre-DP is preferred	Classic CCS post-DP is dominated
RCHSD DP	Pre-DP	$5,842	$1,390	9.53	0.0247	0.0084	RCHSD DP is dominant	Post-RCHSD DP is dominant
	Post-DP	$4,452		10.4	0.0163		Post-RCHSD DP is preferred	
Classic CCS	Pre-DP	$5,588	($236)	9.88	0.0335	0.0165	($14,303)	Classic CCS post-DP

Study Group	Time Period	Mean Total PMPM Reimburse-ment	Cost Differ-ence*	Mean Age	Readmissions PMPM	Difference* in Readmissions PMPM	CEA = $ Change / 30-Day Hospital Readmission Change	Comments
	Post-DP	$5,824		10.81	0.0170		Classic CCS post-DP is preferred	costs $14,303 for every readmission it avoids

*Differences are calculated pre- minus post-implementation.

Cost-Effectiveness Analysis with 30-Day Readmission Avoided (in age > = one year) for CCS DPs

HPSM DP (Table 174)

- HPSM DP pre- versus post-DP cost-effectiveness comparison shows that the HPSM DP post-DP period cost DHCS $557 more per member per year than the pre-DP period for the population over one year old. In addition, the HPSM DP post-period also had slightly more 30-day readmissions (0.0001 more) than the pre-HPSM DP period. Therefore, the HPSM DP program post-period is dominated by the pre-DP period, being both more expensive and having more readmissions. Therefore, the HPSM DP program is not cost-effective, with the pre-HPSM DP period being the more cost-effective choice using this effectiveness metric.

- The Classic CCS counties that were propensity score–matched with the HPSM DP pre- versus post- cost-effectiveness comparison showed a similar CEA pattern. The Classic CCS counties' post-period was more costly ($482) than the Classic CCS pre-period and had slightly more 30-day readmissions than the Classic CCS pre-period. Therefore, the cost-effectiveness analysis shows that the Classic CCS county post-period was dominated by the pre-period because the post-period was both more costly and also had more 30-day readmissions than the pre-DP period. Therefore, for the Classic CCS counties also, the pre-period was the more cost-effective period — similar to that of the HPSM DP comparison.

RCHSD DP

- RCHSD DP pre- versus post-DP cost-effectiveness comparison (using 30-day readmissions) shows that the RCHSD DP post-period saved DHCS $1,390 per member per year from the pre-period. At the same time, the RCHSD DP

post-period also had fewer 30-day readmissions. Therefore, the RCHSD DP program was dominant, being less costly and having fewer 30-day readmissions — making it the more cost-effective program.

- The Classic CCS counties that were propensity score–matched with the RCHSD pre- versus post- cost-effectiveness comparison using 30-day readmissions as the effectiveness measure shows that the Classic CCS post-period was more costly ($236) than the Classic CCS pre-period. However, the Classic CCS post-period also had fewer 30-day readmissions than the Classic CCS pre-period. Therefore, when calculating the incremental cost-effectiveness ratio (ICER), it shows that the RCHSD matched classic county post-period cost an additional $14,303 for each 30-day readmission that it avoids. Given that a hospital admission often costs more than $14,000, this makes the Classic CCS county post-period likely cost-effective compared with the pre-period.

In conclusion, when using 30-day readmission as an effectiveness measure of the DP programs, the HPSM DP was not cost-effective compared to the pre-DP period. However, the RCHSD DP program was cost-effective compared with the pre-DP when using 30-day readmissions avoided as the outcome measure. The cost-effectiveness of the Classic CCS counties for both programs had the same outcome as their matched DP programs. Therefore, overall the cost-effectiveness analysis shows a mixed picture, depending on the outcome chosen. Since deaths and 30-day readmissions are relatively rare in this population, it would be important to have more information for a more stable outcome measure.

HPSM Net Income Revenue, Loss, Capitation Rates, Administrative Expenses, and Service Expenses[55]

Table 174: HPSM Net Income Revenue/Loss by Annual Period, Pre- and Post-HPSM DP

Period	Date Range	Average HPSM Net Income Revenue/Loss per Member Count	Years Pre- and Post-DP	Average Revenue/Loss per Member Count Pre- and Post-HPSM DP
Pre-HPSM DP	April 2011 to March 2012	$27.05	-2	$51.17
Pre-HPSM DP	April 2012 to March 2013	$75.30	-1	
Post-HPSM DP	April 2013 to March 2014	$178.48	0	$121.02
Post-HPSM DP	April 2014 to March 2015	$236.75	+1	
Post-HPSM DP	April 2015 to March 2016	$275.40	+2	
Post-HPSM DP	April 2016 to March 2017	$275.44	+3	
Post-HPSM DP	April 2017 to March 2018	$238.10	+4	
Post-HPSM DP	April 2018 to March 2019	-$16.86	+5	
Post-HPSM DP	April 2019 to March 2020	-$283.78	+6	
Post-HPSM DP	April 2020 to March 2021	-$10.26	+7	
Post-HPSM DP	April 2021 to March 2022	$195.95	+8	

Interpretation of HPSM net income revenue/loss by annual period, pre- and post-HPSM DP

Based on published reports, revenue/loss per member count was positive in both the pre- and post-HPSM DP periods. During years +5 through +7, there was a deficit; losses ranged from $10 to $284 per member counted.

Based on HPSM published revenue/loss reports, the revenue that DHCS provided to HPSM compared to their expenses was more in the post-HPSM DP period than in the pre-DP period.

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[55] The UCSF evaluation team was able to obtain only publicly available revenue/loss reports specific to the CCS population for HPSM. Therefore, evaluation could be conducted only on the effect of DHCS capitated payments for CCS children in HPSM on their revenue in relation to their expenses reflected in these published reports. Revenue/loss reports were not specific to the CCS population for RCHSD and the Classic CCS comparator health plans; for this reason, the UCSF evaluation team was not able to make these same comparisons for them.

Overall, the HPSM DP program covered its expenses in most years with the revenue that DHCS provided to it because its program revenue exceeded its expenses.

Table 175: HPSM Capitation Rates per Member per Month by Annual Period, Pre- and Post-HPSM DP

Period	Date Range	Average HPSM Net Capitation Rates per Member per Month	Percentage Change	Years Pre- and Post- HPSM DP
Pre-HPSM DP	April 2011 to March 2012	$1,258.66	-	-2
Pre-HPSM DP	April 2012 to March 2013	$1,460.56	16%	-1
Post-HPSM DP	April 2013 to March 2014	$1,573.93	8%	0
Post-HPSM DP	April 2014 to March 2015	$1,652.63	5%	+1
Post-HPSM DP	April 2015 to March 2016	$1,600.12	-3%	+2
Post-HPSM DP	April 2016 to March 2017	$1,526.72	-5%	+3
Post-HPSM DP	April 2017 to March 2018	$1,670.09	9%	+4
Post-HPSM DP	April 2018 to March 2019	$1,764.72	6%	+5
Post-HPSM DP	April 2019 to March 2020	$1,912.71	8%	+6
Post-HPSM DP	April 2020 to March 2021	$1,638.30	-14%	+7
Post-HPSM DP	April through December 2021	$1,588.73	-3%	+8

Interpretation of HPSM capitation rates per member per month by annual period, pre- and post-HPSM DP

As shown above in Table 176, DHCS capitation rates PMPM that were paid to HPSM varied by year across the pre- and post-DP time frame. They increased by 16% (not inflation controlled) from the first to the second year pre-HPSM DP. In addition, they continued to increase by 8% in the first year of the DP and by 5% in its second year.

During years +2 and +3, the capitation rates decreased slightly and then increased in years +4 and +5.

In the last two years post-HPSM DP, the DHCS capitation rates PMPM decreased again, first by 14% and then by 3%.

Overall, DHCS seems to be responding to each year's experiences in its rate development for HPSM, which results in providing both increases and decreases in capitation rates to HPSM across the years. This can be further examined for HPSM by using the revenue and expense reports available online and broken out for the CCS program. These reports were not available for the RCHSD DP.

Table 176: HPSM Total Medical/Hospital and Administrative Expenses per Member per Month by Annual Period, Pre- and Post-HPSM DP

Period	Date Range	Average Total Medical/ Hospital Expenses per Member per Month	Average Total Administrative Expenses per Member per Month	Administrative Expense as % of Total Expenses	Years Pre- and Post-HPSM DP
Pre-HPSM DP	April 2011 to March 2012	$1,147.99	$66.97	6%	-2
Pre-HPSM DP	April 2012 to March 2013	$1,283.02	$52.72	4%	-1
Post-HPSM DP	April 2013 to March 2014	$1,238.22	$53.76	4%	0
Post-HPSM DP	April 2014 to March 2015	$1,245.12	$68.06	5%	+1
Post-HPSM DP	April 2015 to March 2016	$1,206.44	$66.02	5%	+2
Post-HPSM DP	April 2016 to March 2017	$1,144.15	$96.03	8%	+3
Post-HPSM DP	April 2017 to March 2018	$1,287.38	$132.49	9%	+4
Post-HPSM DP	April 2018 to March 2019	$1,468.60	$135.52	8%	+5
Post-HPSM DP	April 2019 to March 2020	$1,580.68	$143.18	8%	+6
Post-HPSM DP	April through December 2020	$1,451.06	$172.86	12%	+7

Interpretation of HPSM total medical/hospital and administrative expenses per member per month by annual period, pre- and post-HPSM DP

As shown above, in Table 177, total medical and hospital expenses (not inflation controlled) remained relatively stable across the pre- and post-DP — until after year +3 when mostly they steadily increased. These figures are based on the HPSM published revenue/cost reports.

Administrative expenses followed a similar pattern of stability across the pre- and post-DP program periods. The overall industry goal to keep administrative expenses below 8% of total medical costs was primarily adhered to both pre- and post-HPSM DP. However, during the post-HPSM DP period, the ratio of administrative to total medical expenses was higher than in the pre-HPSM DP periods, with 9% in year +4 and 12% in the first nine months of year +7.

Overall, the HPSM DP program administrative expenses are higher than they were previously as a percentage of total healthcare expenses.

Table 177: HPSM Total Expenses per Member per Month by Selected Services and by Annual Period, Pre- and Post-HPSM DP

Period	Months	Average Total Hospital Inpatient Expenses per Member per Month	Average Total Pharmacy Expenses per Member per Month	Average Total Provider Expenses per Member per Month	Years Pre- and Post-HPSM DP
Pre-HPSM DP	April 2011 to March 2012	$433.26	$174.54	$48.06	-2
Pre-HPSM DP	April 2012 to March 2013	$439.84	$207.59	$49.85	-1
Post-HPSM DP	April 2013 to March 2014	$330.67	$261.02	$41.76	0
Post-HPSM DP	April 2014 to March 2015	$377.75	$287.51	$42.10	+1
Post-HPSM DP	April 2015 to March 2016	$320.94	$318.71	$41.46	+2
Post-HPSM DP	April 2016 to March 2017	$209.97	$344.73	$66.29	+3
Post-HPSM DP	April 2017 to March 2018	$253.65	$356.41	$107.08	+4
Post-HPSM DP	April 2018 to March 2019	$398.86	$343.86	$122.59	+5
Post-HPSM DP	April 2019 to March 2020	$418.69	$368.05	$119.80	+6
Post-HPSM DP	April 2020 to March 2021	$414.97	$414.25	$128.02	+7
Post-HPSM DP	April through December 2021	$465.21	$443.49	$131.23	+8

Interpretation of HPSM total expenses per member per month by selected services and by annual period, pre- and post-HPSM DP

Inpatient hospital expenses were variable across years, ranging from $210 to $465 (not inflation controlled) per member per month, but on average were higher pre-HPSM DP ($437) than across the post-DP period ($354). This and the following data are based on published HPSM revenue and expense reports.

Pharmacy expenses per member per month rose steadily (not inflation controlled) from an average of $191 per member per month in the pre-HPSM DP period to $285 in the post-HPSM DP period. However, from January to March 2022, pharmacy expenses did not appear in the revenue/expense reports (either indicating a carve-out or that they would be resolved by year's end). Provider expenses included various categories across years as the reporting changed, but generally included capitated amounts, Classic CCS payments, and incentive payments. During and after year +4 of the HPSM DP, the physician expenses almost doubled. On average, the pre-HPSM DP physician expenses were $49 per member per month; the post-HPSM DP physician expenses averaged $89 per member per month.

Overall, the HPSM DP program saw a decrease in hospital expenses per member per month; this may have resulted in the shifting to physician expenses, which increased. In addition, there was an increase in pharmacy expenses per member per month with the HPSM DP program.

Table 178: Random Effects Regression (GLM): HPSM Propensity Score–Matched Post-DP versus Classic CCS Propensity Score–Matched Post-DP

	HPSM Propensity Score–Matched Post-DP						Classic CCS Propensity Score–Matched Post-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Age	108.40	64.98	1.67	0.10	-18.96	235.75	-63.76	23.66	-2.69	0.01	-110.14	-17.37
Ethnicity (Alaskan Native / American Indian)												
Asian / Pacific Islander	155.98	644.21	0.24	0.81	-1,106.65	1,418.62	1,416.91	528.78	2.68	0.01	380.51	2,453.31

	HPSM Propensity Score–Matched Post-DP						Classic CCS Propensity Score–Matched Post-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Black	158.20	663.22	0.24	0.81	-1,141.68	1,458.08	-24.90	769.87	-0.03	0.97	-1,533.81	1,484.02
Latinx	153.31	639.70	0.24	0.81	-1,100.48	1,407.10	1,297.12	432.55	3.00	0.00	449.33	2,144.91
White	-32.82	660.38	-0.05	0.96	-1,327.15	1,261.51	1,046.67	648.27	1.61	0.11	-223.94	2,317.25
Other/ Unknown	212.84	640.77	0.33	0.74	-1,043.05	1,468.74	1,266.76	482.66	2.62	0.01	320.76	2,212.75
Language (Any Asian)												
English	115.64	116.45	0.99	0.32	-112.59	343.59	-214.44	384.22	-0.56	0.58	-967.50	538.63
Spanish	35.20	125.58	0.28	0.78	-210.93	281.34	-778.27	428.80	-1.81	0.07	-1,618.70	62.16
Other/ Unknown	-1.96	194.42	-0.01	0.99	-379.10	383.03	-1,237.61	608.78	-2.03	0.04	-2,430.81	-44.42
Gender												
Male	-73.56	192.18	-0.38	0.70	-450.23	303.11	456.56	228.95	1.99	0.05	-7.82	905.29
ED	389.89	207.78	1.88	0.06	-17.36	797.14	2,015.50	349.75	5.76	0.00	1,330.01	2,701.00
Pharmacy	18.49	13.41	1.38	0.17	-7.79	44.76	-57.77	72.52	-0.80	0.43	-199.89	84.36
Mental Health High	530.99	433.17	1.23	0.22	-318.02	1,379.99	-17.20	116.81	-0.15	0.88	-211.74	246.13
Readmits	3,179.95	2,763.54	1.15	0.25	-2,236.48	8,596.38	16,071.05	2,359.52	6.81	0.00	11,446.49	20,695.62
Died	-251.41	450.34	-0.56	0.58	-1,134.05	631.23	27,258.47	19,269.80	1.41	0.16	-10,509.63	65,026.58
DP County	981.75	966.48	1.02	0.31	-912.51	2,876.01	0	(omitted)				
Constant	0	(omitted)					1,750.97	651.60	2.69	0.01	473.86	3,028.08
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sigma _u	7,983.8						7,929.28					
sigma _e	5,452.65						11,841.35					
Rho	0.68	(fraction of variance due to U_i)					0.31	(fraction of variance due to U_i)				

Table 179: Random Effects Regression (GLM): HPSM Propensity Score–Matched Post-DP versus HPSM Propensity Score–Matched Pre-DP

	HPSM Propensity Score–Matched Post-DP						HPSM Propensity Score–Matched Pre-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Age	108.40	64.98	1.67	0.10	-18.96	235.75	-309.70	45.14	-6.86	0.00	-398.18	-221.22
Ethnicity (Alaskan Native / American Indian)												
Asian / Pacific Islander	155.98	644.21	0.24	0.81	-1,106.65	1,418.62	2,273.77	1,024.09	2.22	0.03	266.58	4,280.96
Black	158.20	663.22	0.24	0.81	-1,141.68	1,458.08	1,615.98	875.70	1.85	0.07	-100.37	3,332.32
Latinx	153.31	639.70	0.24	0.81	-1,100.48	1,407.10	2,237.48	945.68	2.37	0.02	383.98	4,090.97
White	-32.82	660.38	-0.05	0.96	-1,327.15	1,261.51	1,736.53	790.13	2.20	0.03	187.90	3,285.16
Other/ Unknown	212.84	640.77	0.33	0.74	-1,043.05	1,468.74	1,721.66	843.27	2.04	0.04	68.89	3,374.44
Language (Any Asian)												
English	115.64	116.45	0.99	0.32	-112.59	343.59	-762.22	891.72	-0.85	0.39	-2,509.96	985.51
Spanish	35.20	125.58	0.28	0.78	-210.93	281.34	650.68	1,023.74	0.64	0.53	-1,355.81	2,657.16
Other/ Unknown	-1.96	194.42	-0.01	0.99	-379.10	383.03	37.94	1,496.46	0.03	0.98	-289,505	2,970.95
Gender												
Male	-73.56	192.18	-0.38	0.70	-450.23	303.11	218.81	929.69	0.24	0.81	-1,603.35	2,040.97
ED	389.89	207.78	1.88	0.06	-17.36	797.14	548.74	190.79	2.88	0.00	174.80	922.68

	HPSM Propensity Score–Matched Post-DP						HPSM Propensity Score–Matched Pre-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Pharmacy	18.49	13.41	1.38	0.17	-7.79	44.76	-48.63	37.66	-1.29	0.20	-122.44	25.18
Mental Health High	530.99	433.17	1.23	0.22	-318.02	1,379.99	15,924.66	5,290.49	3.01	0.00	5,555.49	26,293.83
Readmits	3,179.95	2,763.54	1.15	0.25	-2,236.48	8,596.38	1,868.45	1,295.06	1.44	0.15	-669.82	4,406.71
Died	-251.41	450.34	-0.56	0.58	-1,134.05	631.23	4,149.22	4,228.08	0.98	0.33	-4,137.68	12,436.11
DP County	981.75	966.48	1.02	0.31	-912.51	2,876.01	6,129.92	1,487.74	4.12	0.00	3,213.99	9,045.84
Constant	0	(omitted)					0	(omitted)				
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sigma _u	7,983.8						33,278.29					
sigma _e	5,452.65						11,142.05					
rho	0.68	(fraction of variance due to U_i)					0.899	(fraction of variance due to U_i)				

Table 180: Random Effects Regression (GLM): RCHSD Propensity Score–Matched Post-DP versus Classic CCS Propensity Score–Matched Post-DP

	RCHSD Propensity Score–Matched Post-DP						Classic CCS Propensity Score–Matched Post-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Age	126.88	76.66	1.66	0.10	-23.37	277.14	348.33	117.20	2.97	0.00	118.16	578.03
Ethnicity (Alaskan Native / American Indian)	0	(empty)										
Asian / Pacific Islander	1,105.59	908.74	1.22	0.22	-675.50	2,886.69	3,790.52	3,725.31	1.02	0.31	-3,510.96	11,092.00
Black	1,026.80	955.61	-1.07	0.28	-846.15	2,899.76	4,493.68	3,560.02	1.26	0.21	-2,483.82	11,471.19
Latinx	2,232.91	1,119.26	1.99	0.05	39.21	4,426.61	5,516.44	3,563.56	1.55	0.12	-1,468.00	12,500.88
White	1,700.11	972.68	1.75	0.08	-206.31	3,606.52	5,735.36	3,571.34	1.61	0.11	-1,264.33	12,735.05
Other/ Unknown	1,100.29	872.64	-1.26	0.21	-610.05	2,810.63	5,251.14	3,502.84	1.50	0.13	-1,614.31	12,116.58
Language (Any Asian)												
English	-462.19	508.31	-0.91	0.36	-1,458.47	534.09	-8,270.31	4,689.99	-1.76	0.08	-17,462.52	921.90
Spanish	194.93	570.84	0.34	0.73	-923.89	1,313.75	-6,827.99	5,008.98	-1.36	0.17	-16,645.42	2,989.44
Other/ Unknown	-752.45	595.74	-1.26	0.21	-1,920.08	415.18	-9,257.80	4,453.21	-2.08	0.04	-17,985.94	-529.66
Gender												
Male	2,554.25	616.63	4.14	0.00	1,345.67	3,762.83	1,341.50	1,131.52	1.19	0.24	-876.23	3,559.24
ED	384.77	402.12	0.96	0.34	-403.62	1,172.90	3,284.73	1,018.03	3.23	0.00	-1,289.43	5,280.02
Pharmacy	151.34	39.07	3.87	0.00	74.76	227.92	643.68	372.96	1.73	0.08	-87.31	1,374.68
Mental Health High	-203.99	542.23	-0.38	0.71	-1,266.74	858.75	1,383.71	207.19	6.68	0.00	977.62	1,789.80

	RCHSD Propensity Score–Matched Post-DP						Classic CCS Propensity Score–Matched Post-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Readmits	819.16	1,425.38	0.57	0.57	-1,974.54	3,612.85	12,476.07	3,707.58	3.37	0.00	5,209.36	19,742.78
Died	-1,581.37	1,650.61	-0.96	0.34	-4,816.51	1,653.77	-7,364.10	4,431.10	-1.66	0.10	-16,048.89	1,320.70
DP County	0	(omitted)					638.44	6,290.83	0.10	0.92	-11,691.36	12,968.24
Constant	0	(omitted)					0	(omitted)				
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sigma _u	7,702.99						9,688.88					
sigma _e	7,068.95						16,517.50					
rho	0.54	(fraction of variance due to U_i)					0.26	(fraction of variance due to U_i)				

Table 181: Random Effects Regression (GLM): RCHSD Propensity Score–Matched Post-DP versus RCHSD Propensity Score–Matched Pre-DP

	RCHSD Propensity Score–Matched Post-DP						RCHSD Propensity Score–Matched Pre-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Age	126.88	76.66	1.66	0.10	-23.37	277.14	486.82	158.44	3.24	0.00	203.29	824.36
Ethnicity (Alaskan Native / American Indian)	0	(empty)					0	(empty)				
Asian / Pacific Islander	1,105.59	908.74	1.22	0.22	-675.50	2,886.69	-4,850.94	2,158.17	-2.25	0.03	-9,080.87	-621.02
Black	1,026.80	955.61	-1.07	0.28	-846.15	2,899.76	-5,315.21	2,352.14	-2.26	0.02	-9,925.33	-705.10
Latinx	2,232.91	1,119.26	1.99	0.05	39.21	4,426.61	-4,250.28	2,119.35	-2.01	0.05	-8,404.14	-96.42
White	1,700.11	972.68	1.75	0.08	-206.31	3,606.52	-5,435.06	2,714.39	-2.00	0.05	-10,755.16	-114.95
Other/ Unknown	1,100.29	872.64	-1.26	0.21	-610.05	2,810.63	-4,846.95	2,288.91	-2.12	0.03	-9,333.14	-360.77
Language (Any Asian)												
English	-462.19	508.31	-0.91	0.36	-1,458.47	534.09	359.51	565.78	0.64	0.53	-749.40	1,468.43
Spanish	194.93	570.84	0.34	0.73	-923.89	1,313.75	2,242.82	1,172.11	1.91	0.06	-54.48	4,540.12
Other/ Unknown	-752.45	595.74	-1.26	0.21	-1,920.08	415.18	-515.05	697.32	-0.74	0.46	-1,881.76	851.67
Gender												
Male	2,554.25	616.63	4.14	0.00	1,345.67	3,762.83	2,746.80	1,143.51	2.40	0.02	505.56	4,988.05
ED	384.77	402.12	0.96	0.34	-403.62	1,172.90	3,847.98	596.82	6.45	0.00	2,678.22	5,017.73
Pharmacy	151.34	39.07	3.87	0.00	74.76	227.92	817.30	244.09	3.35	0.00	338.89	1,295.72
Mental Health High	-203.99	542.23	-0.38	0.71	-1,266.74	858.75	-4,044.84	327.74	-12.34	0.00	-4,687.19	-3,402.49

	RCHSD Propensity Score–Matched Post-DP						RCHSD Propensity Score–Matched Pre-DP					
	Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval		Co-efficient	Robust Standard Error	z	P>|z|	95% Confidence Interval	
Readmits	819.16	1,425.38	0.57	0.57	-1,974.54	3,612.85	8,212.43	1,398.13	5.87	0.00	5,472.16	10,952.71
Died	-1,581.37	1,650.61	-0.96	0.34	-4,816.51	1,653.77	-447.70	958.63	0.47	0.64	-1,431.18	2,326.59
DP County	0	(omitted)					0	(omitted)				
Constant	0	(omitted)					0	(omitted)				
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sigma _u	7,702.99						13,344.66					
sigma _e	7,068.95						14,906.57					
rho	0.54	(fraction of variance due to U_i)					0.44	(fraction of variance due to U_i)				

Regression Analysis

Random effects regression analysis was performed with total reimbursements PMPM as the dependent variable and selected population characteristics (age, ethnicity, language, gender) and healthcare utilization variables (emergency use or not, high mental health needs or not, number of 30-day readmissions, and death or not) — as well as being a DP county or not — as the independent variables to determine what effect these variables had on reimbursed costs.

The UCSF evaluation team compared the regressions between the post-HPSM DP period and the post-Classic CCS counties period. In addition, regressions were compared between the post-HPSM DP period and the pre-HPSM DP period. (See Tables 179 and 180.) Tables 181 and 182 provide the regression results of these same two comparisons for the RCHSD programs and periods.

Interpretation of logistic regression for CCS DPs

HPSM DP

When comparing the post-HPSM DP with the Classic CCS post-DP period in the propensity scored–matching groups (Table 179), the post-HPSM DP showed that no variables were significant — and that only emergency department visits were almost significant at *p* = .061, increasing reimbursement by $390 PMPM.

On the other hand, during the post-period, the Classic CCS counties showed the following:
- Each additional year of age added $64
- Being Asian added $529
- Being Latinx added $432
- Having an emergency department visit added $250 in reimbursements
- Each readmission added $2,369 in reimbursements

This comparison of regressions demonstrates that the HPSM DP program acted to decrease the variability in reimbursement across different individual characteristics and healthcare utilization characteristics demonstrated clearly in the same period of the Classic CCS counties.

When comparing the post-HPSM DP with pre-HPSM DP periods in propensity scored–matching groups (see Table 180), the HPSM post-DP was the same as described above, with no independent variables significantly associated with reimbursements PMPM, reflective of the capitated payment structure being the same PMPM.

The pre-HPSM DP period regression with the primarily Classic CCS payment method showed many significant variables associated with reimbursements. For example, each one-year increase in age decreased costs by $310. Also, compared to being Alaskan Native / American Indian, being Asian / Pacific Islander increased reimbursement by $2,274, while being Latinx increased reimbursement by $3,327 and being White increased reimbursement by $1,736. In addition, having an emergency department visit increased reimbursement by $549 and having a high mental health need increased reimbursed costs by $13,925. Classic CCS fee-for-service payments once again show much more variability by each one-year increase in age; they show a decrease in reimbursement by $312.
- All ethnicities except White and Black increased reimbursement by approximately $1,800.
- An ED visit increased reimbursement by $1,418.
- Classification as "mental health high needs" increased reimbursement by $16,008.

Therefore, these regression comparisons demonstrate that the FFS payment structure shows much more variability by population and healthcare use characteristics than does the capitated payment structure of Classic CCS county comparators, because the payments are the same per child under the capitated payment structure. This does not mean

that these children don't consume different amounts of resources, but that the capitated payment masks this by its payment structure.

RCHSD DP

When comparing the RCHSD post-DP and Classic CCS post-DP periods in the propensity scored–matching groups, regressions showed more significant variables in the Classic CCS fee-for-service payment of the Classic CCS counties than in the RCHSD DP. (See Table 180.) However, the RCHSD DP period did show some significant variables with reimbursements, including:

- Latinx ethnicity significantly increasing reimbursement by $2,232
- Male gender increasing reimbursement by $2,554
- Pharmacy use significantly increasing reimbursement by $151

The Classic CCS post-period had significance in only three variables, including:

- Visiting the emergency department, which significantly increased reimbursement by $3,285
- Having high mental health needs, which significantly increased reimbursement by $1,384
- Having a readmission, which increased cost by $3,707

This pattern is likely related to RCHSD's decision to include only children with five selected health conditions in the DP instead of those with any CCS-eligible condition.

When comparing the post-RCHSD DP with pre-RCHSD DP in propensity-matched analysis, there are more demographic and healthcare variables that have significant associations with reimbursed costs. Surprisingly, all ethnic groups showed a significant negative association with reimbursements. For example, it was shown that there were decreasing costs by $2,900 for those who are Black and by $5,435 for those who are White; this is in comparison to the reimbursements of the baseline group of Alaskan Natives / American Indians. This may be due to small numbers of this post-group comparator.

- Being male showed a significant relationship with reimbursement, adding $2,747; going to the emergency department added $3,848; pharmacy use added $818; having mental health needs decreased reimbursement by $4,000; and a hospital readmission significantly increased reimbursement by $8,212. These associations in the pre-DP period show more associations with the Classic CCS fee-for-service payment. The particular smaller and highly selective diagnoses included in the program also likely affected these regression results.

Again, it is demonstrated that the Classic CCS fee-for-service payment structure is able to show a greater variation in payment associations than the capitated payments, which mask these variations caused by population and healthcare utilization differences. In addition, the RCHSD program is highly selective and is a small population, which likely also allows the associations shown in these regression comparisons.

Table 182: HPSM DP Difference in Differences Analysis: Not Propensity Score–Matched

Total Reimbursement		Co-efficient	Robust Standard Error	Z	p>|Z|	95% Confidence Interval	
Time		169.24	47.8	3.54	0.00	75.56	262.92
Treated		1,176.54	148.35	7.93	0.00	885.78	1,467.3
Time x Treated		-782.91	189.38	-4.13	0.00	-1,154.09	-411.72
Constant		1,575.47	9.25	170.32	0.00	1,557.33	1,593.6
sigma_u	8,640.42						
sigma_e	10,234.62						
rho	0.416						

Table 183: HPSM DP Difference in Differences Analysis: Propensity Score–Matched

Total Reimbursement		Co-efficient	Robust Standard Error	Z	p>|Z|	95% Confidence Interval	
Time		86.83	11.76	7.38	0.00	-63.77	109.89
Treated		300.42	77.30	3.89	0.00	148.93	451.92
Time x Treated		393.00	141.40	-2.78	0.01	-115.92	670.08
Constant		1,501.98	11.12	135.08	0.00	1,480.19	1,523.78
sigma_u	8,269.84						
sigma_e	10,207.60						
rho	0.396						

Interpretation of Difference in Differences analysis (HPSM DP)

Difference in Differences (DiD) analysis is a method to add a control to a "before and after" study design when randomization is not possible. DiD is used to estimate the effect of a specific intervention by comparing the changes in outcome (reimbursed cost in this example) over time (pre- and post- time periods) between a population enrolled in the program (DP program in this example) and a population not enrolled in the program. This approach removes biases in post-intervention period comparisons between the treatment and control groups as well as biases from comparisons over time in the treated DP group that could be a result of trends due to other causes of the outcomes. For this evaluation's DiD analysis, a comparison was conducted to examine changes in reimbursement in the pre- and post- time periods as well as changes in reimbursement for the DP program and Classic CCS counties.

There was a significant difference between the pre- and post-DP periods. There was also a significant difference between the HPSM counties and the Classic CCS counties. There was also a significant difference (at $p = .005$) in the post-HPSM DP compared to pre-DP even after accounting for the differences in the counties being compared.

Table 184: RCHSD DP Difference in Differences Analysis: Not Propensity Score–Matched

Total Reimbursement		Co-efficient	Robust Standard Error	Z	p>|Z|	95% Confidence Interval	
Time		1,167.03	304.82	3.83	0.00	569.58	1,764.47
Treated		3,871.78	1,250.48	3.1	0.00	1,420.88	6,322.68
Time x Treated		-1,549.34	761.32	-2.04	0.04	-3,041.51	-57.17
Constant		1,579.59	9.21	171.56	0.00	1,561.54	1,597.63
sigma_u	8,640.6						
sigma_e	10,234.63						
rho	0.416						

Table 185: RCHSD DP Difference in Differences Analysis: Propensity Score–Matched

Total Reimbursement		Co-efficient	Robust Standard Error	Z	p>|Z|	95% Confidence Interval	
Time		7.69	14.06	0.55	0.58	-19.86	35.24
Treated		2,832.54	736.50	3.85	0.00	1,389.04	4,276.06
Time x Treated		234.89	318.67	0.74	0.46	-389.70	859.48
Constant		1,841.30	17.17	107.23	0.00	1,807.65	1,874.96
sigma_u	11,132.00						
sigma_e	10,827.17						
rho	0.414						

Interpretation of Difference in Differences analysis (RCHSD DP)

There was no significant difference between the pre- and post- time periods. There was a significant difference between the DP counties and the Classic CCS counties. There was no significant difference in the RCHSD DP compared to pre-DP after accounting for the differences between the DP counties and the Classic CCS counties.

Overall Economic Summary, Results, and Interpretation

HPSM DP

The HPSM DP, an MCP model, showed a mostly positive economic picture. DHCS spent less money after the DP was implemented than before, despite an increase in spending during the same period for comparative counties. When taking health outcomes into account, the HPSM DP was highly cost-effective when comparing life expectancy outcomes and 30-day readmissions avoided. Both showed a cost-effectiveness dominance, demonstrating both financial savings and better health outcomes.

The MCP program period also showed less variability across costs by diagnosis and within regressions than did the pre-period, where the MCP period moderated the effects of population characteristics and healthcare utilization on total payments.

When accounting for both pre- versus post-HPSM DP and county characteristics together in DiD analysis of costs, the HPSM DP showed a significant decrease in DHCS payments. Finally, even in HPSM-specific revenue/cost comparisons,

revenue exceeded costs in most years post-HPSM DP implementation — and they generally showed administrative expenses remained low compared to expenditures.

Out-of-pocket expenses overall were lower for the HPSM DP families than for those in comparable counties. However, some pharmacy expenses were higher for HPSM DP families than for families in comparable counties. There were also higher school-loss costs for HPSM DP families than families in the comparable counties. School losses add additional burden because families either must miss work or pay for a caregiver for that child on each of those days.

Recommendation: The HPSM DP (MCP model) showed a positive economic picture. From an economic point of view, DHCS could consider continuing this program.

RCHSD DP

The RCHSD DP, an ACO model, showed mostly a positive economic picture. DHCS spent less money after the DP was implemented than before, despite an increase in spending during the same period for comparative counties.

When taking health outcomes into account, the RCHSD DP was also cost-effective when comparing life expectancy outcomes and an even stronger dominating cost-effectiveness when accounting for 30-day readmissions avoided.

Families also reported significant indirect cost burden due to indirect factors such as work loss of self and others in the family, as well as costs incurred due to missed school days for the child — which requires paying a caregiver, missing work, or missing leisure time. In addition, despite these families having good Medi-Cal coverage, they reported high out-of-pocked (OOP) expenses for prescription pharmacy, medical equipment, and medical supplies. The UCSF evaluation team recommends exploration of support programs for these indirect expenses and OOP costs.

The ACO program period also showed less variability across costs by diagnosis and within regressions, where the ACO period moderated the effects of population characteristics and healthcare utilization on total payments. Finally, when accounting for both pre- versus post-RCHSD DP and county characteristics together in DiD analysis of costs, the RCHSD DP showed a significant decrease in DHCS reimbursements compared to the pre-DP period.

This analysis examined reimbursed amounts from the perspective of DHCS. For the RCHSD DP, the UCSF evaluation team was unable to examine if these reimbursed amounts were adequate revenue to the health system to cover the expenses of the DP clients as done for the HPSM DP because of a lack of revenue/expense reports specific to the CCS clients. Therefore, it will be important to conduct an economic analysis from the health system viewpoint as well to see if these capitated amounts were adequate. The CEA did allow the evaluators to determine that the changes in costs from

pre- to post-DP periods were not at the expense of poorer outcomes but that they maintained strong positive health outcomes.

Recommendation: The RCHSD DP (ACO model) showed a positive economic picture. From an economic point of view, DHCS should consider continuing this program.

Summary of Key Research Findings by Research Question

Overview

Client satisfaction with the CCS DPs was high, the DPs overall improved access to CCS services and care coordination, and both DPs were cost-effective. Below, key findings of the report are summarized, including results of analyses of key informant interviews (KIIs), the family survey, and claims. Please refer to the main methods and results section for the full description of all variables measured and results.

Research Question 1: What is the impact of the CCS DP on client access to CCS services?

Results Summary: Overall, both CCS DPs improved care coordination and access to CCS services. Key activities performed by each pilot program, such as removing prior authorization for CCS-related services and developing a CCS-specific formulary, led to family reports of improvement in access to services. Claims analysis showed improved or stable utilization for specialty and CCS providers for both DPs with the exception of primary care access, which decreased in the HPSM. Primary care access improved in the RCHSD DP. Comprehensive reporting on all these measures can be found in the "Results from Key Informant Interviews," "Results from Telephone Survey of Families," and "Results from Claims Analysis" sections below). Of note, one limitation of the analysis was that during the DP, the COVID-19 pandemic impacted some outpatient visits for both the DP and the comparison groups, curtailing the ability to determine the impact of the DP on outpatient utilization.

Results from Key Informant Interviews

- **Reenrollment:** Key informants reported that reenrollment after a lapse in coverage was challenging during the DP because reenrollment in Medi-Cal was required before enrollment in the DP health plan. During the time spent waiting for reenrollment into the DP health plan, CCS clients could experience costly disruptions in their continuity of care. To address this, KIs recommended that when Medi-Cal coverage lapses, CCS clients should automatically be reenrolled with their last health plan of record, even if it is a delegated health plan. KIs also recommended that preventive measures should be implemented during CCS annual medical reviews to ensure there are no lapses in Medi-Cal coverage.

- **Eligibility:** The RCHSD DP limited enrollment to five CCS-eligible health conditions purposely chosen because they were the most costly, prevalent, and high-risk conditions for CCS clients in San Diego. KIs reported that the RCHSD DP improved care for patients with these five conditions but did not impact CCS beyond these five conditions. KIs therefore recommended expanding eligibility

criteria to include additional CCS conditions so these improvements could be sustained for other CCS clients.

- **Authorized Services:** KIs reported that access to certain services (such as specialty care referrals) in the HPSM DP increased when the prior authorization requirements were removed for these services.
- **Network Adequacy:** KIs in the HPSM DP reported that inadequate provider networks for speech therapists and inpatient pediatric rehabilitation led to delays in care.
- **Pharmacy:** The development of a new CCS-specific pharmacy formulary increased access to certain medications in the HPSM DP.

Results from Telephone Survey of Families

- **Authorizations for CCS-Related Services:** In the HPSM DP, 16.8% of clients reported the authorization process for CCS-related services was better post-DP implementation, while 61% of clients in the RCHSD DP reported the authorization process was better post-implementation.
- **Access to Referrals for Specialty Services:** Neither DP clients nor Classic CCS clients reported a problem with referrals to receive specialty medical services, and there was no difference between the DP and Classic CCS groups with respect to problems with referrals.
- **Medical Home:** A majority of CCS clients in both the DP and Classic CCS had a personal doctor or nurse (>87%).
- **Continuity of Providers:** The majority of families in both DPs were able to keep their same primary care physicians (>86%) and specialists (>93%) after the implementation of each DP.
- **Mental Health / Behavioral Health Services Access:** Mental health services were always easy to attain for 31.8% of HPSM DP clients, 52.6% of RCHSD DP clients, and 22.1% of Classic CCS clients. The difference between RCHSD DP and Classic CCS clients was statistically significant ($p = .04$).
- **Unmet Mental Health / Behavioral Services Need:** Unmet mental health and behavioral health needs remained high for both DPs and for Classic CCS (20%–31%). The proportion of clients with unmet health needs was not statistically different between RCHSD and HPSM or between the DPs and Classic CCS.
- **Access to Durable Medical Equipment:** The RCHSD DP improved ease of access to DME, but the HPSM DP did not. For clients who required DME, 25% of HPSM DP clients, 56% of RCHSD DP clients, and 26% of Classic CCS clients reported it was "always easy" to receive DME and supplies.
- **Unmet DME Need:** There were lower unmet DME needs in both RCHSD (8.3%) and HPSM (20.4%) as compared to classic counties (26.5%); it was statistically significant (chi-square $p = .03$).
- **Access to Pharmacy Services:** Most CCS clients in both DPs (>86%) kept the same pharmacy after the change in the DP. No differences were found between

either DP and Classic CCS clients for getting prescription medications, having to delay filling prescriptions, or having unmet prescription needs (see Appendix X).

- **Medical Therapy Services:** Ease of receiving medical therapy services ("always easy") was higher in the RCHSD DP (67%) than in the HPSM DP (30%) or Classic CCS (35%), and the difference between RCHSD DP and Classic CCS was significant, while the difference between HPSM and Classic CCS was not. Despite the high ease of attaining medical therapy services in the RCHSD DP, the level of unmet medical therapy service need was high across both HPSM DP and RCHSD DP and classic counties (31%–37%). The level of unmet need for medical therapy services did not differ between the two DPs or between each DP and Classic CCS.

- **Transportation Services:** Ease of obtaining transportation services ("always easy") was higher in the RCHSD DP (68.2%) than in the HPSM DP (29.7%), or in Classic CCS counties (21.5%, chi-square $p = .01$).

- **Access to Translation Services:** Translation services were always available for most clients in the HPSM DP (66%), RCHSD DP (82%), and Classic CCS comparison group (67%).

Results from Claims Analysis

Access to clinical services was measured by evaluating the referral patterns into CCS, primary care / EPSDT visits, specialty care visits, CCS provider visits, mental health visits, DME claims, and pharmacy claims. The results show the Difference in Differences analysis comparing change in the DP post-intervention period as compared to the propensity score–matched Classic CCS comparison group.

- **Access to the CCS Program (enrollment):** Overall enrollment into the CCS program through HPSM DP decreased over time. Newborn enrollment also decreased over time in the HPSM DP relative to the Classic CCS counties. As noted during KIIs described above, improvement is needed in DP enrollment processes to ensure and maintain enrollment for CCS clients.

- **Primary Care and EPSDT / Well-Child Care Visits:** HPSM DP primary care visits decreased post-DP implementation, and the Difference in Differences shows a 35% decrease in odds of having a primary care visit as compared to the Classic CCS comparison group post-implementation. Both the RCHSD DP and Classic CCS increased primary care visits post-DP implementation. The Difference in Differences analyses showed that the RCHSD DP had 1.62 higher odds ($p < .001$) of having a primary care visit as compared to the Classic CCS comparison group. Well-child visits were largely unchanged by implementation of either the HPSM DP or the RCHSD DP when temporal changes were compared to Classic CCS using Difference in Differences analysis. However, the HPSM DP did experience a decrease in well-child visits specifically in the 0- to 15-month age group (29% lower odds, $p = .012$) and 3- to 6-year age group (42% lower odds, $p < .001$) relative to Classic CCS counties in the Difference in Differences analysis.

- **Specialist Visits:** There was a significant increase in the specialist visits in the HPSM DP post-implementation when compared to the Classic CCS counties (AOR 1.52, $p < .001$). There was no statistically significant change in specialty visits in the RCHSD DP post-implementation when compared to the Classic CCS counties.

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- **CCS Paneled Provider Visits:** There was a significant increase in the CCS provider visits in the HPSM DP post-implementation when compared to the Classic CCS counties (AOR 2.64, *p* < .001). There was no statistically significant change in visits in the RCHSD DP post-implementation when compared to the Classic CCS counties.

- **Mental Healthcare Visits:** Overall, the absolute number of mental health visits per member month were lower in both DPs as compared to Classic CCS clients. However, in the DiD analysis, this was not statistically significant.

- **Durable Medical Equipment Claims:** The odds of a DME claim were 69% higher (*p* < .001) in the HPSM DP than Classic CCS, while the odds of a DME claim were 45% lower (*p* = .0007) in the RCHSD DP than Classic CCS controls.

- **Pharmacy Claims:** Compared to Classic CCS, the RCHSD DP decreased the odds of pharmacy claims by 40% (*p* < .001), while the HPSM DP did not impact pharmacy claims.

- **COVID-19 Pandemic Impact on Access to Care:** The COVID-19 pandemic interrupted healthcare services during the time period of the RCHSD DP evaluation. Both the RCHSD DP and comparison Classic CCS counties demonstrated marked decrease in outpatient use. The RCHSD DP and Classic CCS group findings mirror findings seen nationally in decreases in outpatient care during this time. HPSM DP was implemented in 2013 and ended in 2018, and thus was not affected by the COVID-19 pandemic.

Research Question 2: What is the impact of the CCS DP on client satisfaction?

Results Summary: Client satisfaction regarding CCS services and providers, specialty and mental health services, DME, communication, and therapy services was high in both DPs as evaluated through family survey of DP parents and, when appropriate, compared to satisfaction of Classic CCS parents. Client satisfaction in the RCHSD DP was higher than in HPSM and Classic CCS, and did not differ between the HPSM DP and Classic CCS. Comprehensive reporting on all these measures can be found in the "Telephone Survey of Families" section below.

Telephone Survey of Families

- **Overall Satisfaction with CCS Services:** 38.8% of HPSM DP clients and 55% of RCHSD DP clients reported being very satisfied with their overall CCS services, while 42% of Classic CCS clients reported being very satisfied. These differences in satisfaction were statistically significant (chi-square *p* = .005). In addition, 9% of Classic CCS clients reported dissatisfaction with their overall CCS services, while less than 6.5% of either DP's clients reported dissatisfaction.

- **Satisfaction with DME:** Satisfaction with DME was much higher with RCHSD DP than in Classic CCS, with more clients reporting being satisfied or very satisfied (95% vs. 73%, *p* = .01). HPSM DP clients did not differ from Classic CCS clients in their level of satisfaction with DME.

- **Satisfaction with CCS Providers:** Satisfaction with CCS providers was higher in the RCHSD DP than in Classic CCS (52% vs. 38%, p = .02), with no difference between the HPSM DP and Classic CCS.
- **Satisfaction with Specialty Services:** Since transitioning into the RCHSD DP, a significantly greater number of RCHSD DP respondents (95%) reported being "satisfied" or "very satisfied" with the specialty services they received, which compared favorably to Classic CCS respondents (87%) (p = .04). The HPSM DP did not differ from Classic CCS with respect to satisfaction with specialty services.
- **Satisfaction with Mental Health Services:** 10.7% of HPSM and 27.2% of RCHSD clients reported improved satisfaction with mental health services after DP implementation, while 9% of RCHSD clients and only 4% of HPSM DP members indicated mental health services were worse. When comparing the HPSM DP and RCHSD DP, the differences were statistically significant (chi-square p = .001).
- **Satisfaction with Communication and Medical Therapy Services:** There were no statistically significant differences in satisfaction with communication or with medical therapy services either between the two DPs or between the DPs and Classic CCS comparison group.

Research Question 3: What is the impact of the CCS DP on provider satisfaction with the delivery of and the reimbursement of services?

Results Summary: Provider satisfaction with delivery of and reimbursement of services improved after implementation of the RCHSD DP and worsened after implementation of the HPSM DP. Overall improvements in authorizations and reimbursement were noted with the RCHSD program, while DME and pharmacy services became more problematic with the HPSM program. The need to improve reenrollment processes was noted by providers in key informant interviews from both DPs. Comprehensive reporting on measures can be found in the "Key Informant Interviews" section below describing analysis of data obtained through KIIs and in the "Provider Survey" section below describing an anonymous online survey of providers recruited through the California Children's Specialty Care Coalition.

Key Informant Interviews

- **Authorizations:** The RCHSD DP's ACO structure helped to facilitate more expeditious care delivery due to all processes being carried out within one integrated system. For example, the RCHSD KIs noted increased efficiency of the authorization process because authorizations were under the purview of the RCHSD DP instead of CCS.
- **Reimbursement:** The RCHSD DP also granted benefits to providers related to reimbursement and billing because, as a new health plan, RCHSD simply utilized the established Medi-Cal fee schedule, eliminating the need for providers' staff to negotiate fees.

- **Reimbursement:** The RCHSD DP providers reported benefitting from being directly reimbursed for claims by RCHSD instead of having to submit these claims to the state for payment.
- **Delegated Health Plans:** Delegated health plans were reported to be a problematic component of the HPSM DP, which assigned some clients to a delegated health plan. If a client in the delegated health plan was temporarily disenrolled from Medi-Cal, their HPSM coverage also lapsed. During this lapse in HPSM coverage, appointments related to the client's CCS condition were often canceled because of confusion regarding how to bill Medi-Cal for CCS services. While clients were waiting for reassignment to a delegated health plan, they were unable see their providers, causing a major barrier to access to care.

Provider Survey

- **Reimbursement:** Satisfaction with reimbursement was largely unchanged in the DPs as compared with Classic CCS.
- **Delivery of Services:** HPSM DP providers reported worse DME services and pharmacy formulary after implementation, relative to the other aspects of care measured (case management, mental health services, primary care services, transportation services, occupational therapy, physical therapy, transition from pediatric to adult services, timeliness of services, and overall quality of services).

Research Question 4: What is the impact of the CCS DP on the quality of care received?

Results Summary: The DPs improved quality of care as measured by KIIs; with staff and telephone surveys of families that assessed changes in the quality of healthcare services (primary care services, specialty care services, medical therapy services, pharmacy, DME, behavioral health, and transportation services) after DP implementation; and as measured by claims analysis of outcomes including HEDIS measures of depression screening, HbA1c control and childhood vaccination rates (for those under two years old). KIs from both DPs described robust quality improvement initiatives within each DP. Overall, clients in the RCHSD DP reported high rates of perceived quality of care for almost all measures, with the majority stating that the quality of most service measures had improved post-implementation. HPSM DP clients mostly reported same or improved quality of services with the DP. During the DPs, depression screening improved markedly, while HbA1c and vaccination rates did not change as compared to Classic CCS. Comprehensive reporting on all quality-of-care measures can be found in the "Key Informant Interviews," "Telephone Survey of Families," and Claims Analysis" sections below.

Key Informant Interviews

- **Quality Metrics:** As an ACO, RCHSD already had quality improvement measures, plans, and interventions systematically embedded within its healthcare infrastructure, which was reported to enhance quality of care as reported in KIIs.

Many of the RCHSD KIs spoke of how the care provided at RCHSD was driven by quality metrics and improving performance.

- **Utilization Management Tools:** Patients in the RCHSD DP were able to benefit from existing RCHSD utilization management tools that tracked and addressed medication adherence. This was especially helpful for identifying patients who might need a modified intervention or re-education.

- **Diabetes Quality Improvement Project:** The RCHSD DP also implemented a quality improvement project related to diabetes. This particular project proved successful in reducing HbA1c levels for RCHSD patients with diabetes.

Telephone Survey of Families

- **Overall Healthcare Quality:** Healthcare quality improvement was reported by both HPSM DP and RCHSD DP respondents. In the RCHSD DP, 51% of clients stated that their overall healthcare services improved after DP implementation, while 20% reported similarly in the HPSM DP. Less than 3% of either DP stated that their overall healthcare quality was worse after DP implementation.

- **Quality of Primary Care Services:** Quality of primary care services was reported to be improved after DP implementation by both HPSM DP and RCHSD DP respondents. In the RCHSD DP, 32% of clients stated their primary care services had improved, while 21% reported similarly in the HPSM DP. Less than 4% of respondents in either DP stated that the quality of their primary care services was worse after DP implementation.

- **Quality of Specialty Care Services:** Quality of specialty care services was reported to be improved after DP implementation by both HPSM DP and RCHSD DP respondents. In the RCHSD DP, 89% of clients stated their specialty care services had improved, while 31% in the HPSM DP stated their specialty care services had improved. Less than 4% of respondents in either DP stated that the quality of their specialty care services was worse after DP implementation.

- **Quality of Medical Therapy Services:** Quality of medical therapy services was reported to be improved after DP implementation for both HPSM DP and RCHSD DP respondents. In the RCHSD DP, 38% of clients stated their medical therapy services had improved, while 14% in the HPSM DP stated their medical therapy services improved. Only 5% of clients in the HPSM DP and no clients in the RCHSD DP stated that the quality of medical therapy services was worse after DP implementation.

- **Quality of Pharmacy Services:** Quality of pharmacy services was reported to be improved after DP implementation for both HPSM DP and RCHSD DP respondents. In the RCHSD DP, 30% of clients stated their pharmacy services had improved, while 15% in the HPSM DP stated their pharmacy services had improved after DP implementation. Only 4% of clients in the HPSM DP and 6% of clients in the RCHSD DP stated that their pharmacy services were worse after DP implementation.

- **Quality of Durable Medical Equipment Services:** Quality of DME services was reported to be improved after DP implementation for both HPSM DP and RCHSD

DP respondents. In the RCHSD DP, 43% of clients stated that their DME services had improved, while 11% in the HPSM DP stated their DME services had improved after DP implementation. Only 2% of clients in the HPSM DP and 3% of clients in the RCHSD DP stated that their DME services were worse after DP implementation.

- **Quality of Behavioral Health Services:** Quality of behavioral health services was generally reported to be improved for both HPSM DP and RCHSD DP respondents. In the RCHSD DP, 27% of clients stated that their behavioral health services had improved, while 11% in the HPSM DP stated their behavioral health services improved after DP implementation. Only 4% of HPSM DP and 9% of RCHSD DP clients reported that behavioral health services were worse after DP implementation.

- **Quality of Transportation Services:** Quality of transportation services was reported to be improved for both HPSM DP and RCHSD DP respondents. In the RCHSD DP, 41% of clients stated that their transportation services had improved, while 19% in the HPSM DP stated their transportation services improved after DP implementation. Only 7% of HPSM DP clients and 5% of RCHSD DP clients stated that their transportation services were worse after DP implementation.

Claims Analysis

Quality of care for depression screening improved markedly for both DPs, while HbA1c and vaccinations rates remained stable.

- **Depression Screening:** Screening for depression markedly improved for both DPs as compared to their respective Classic CCS comparison groups. The HPSM DP had significantly higher ($p < .001$) depression screening as compared to classic counties' post-pilot implementation. RCHSD DP screening with appropriate follow-up improved pre- to post- (AOR 3.4, $p < .001$), but there was no comparison group available. PHQ screening was higher in the RCHSD DP as compared to Classic CCS controls (AOR 1.76, $p = .029$).

- **Diabetes Control:** The DPs did not impact diabetes control as measured by HbA1c, a marker of blood sugar levels in people with diabetes. In the RCHSD DP, while the proportion of people with a marker of poor diabetes control (HbA1c >= 8) did decrease, the rate of having poor HbA1c did not differ as compared to Classic CCS clients seen at RCHSD post-DP implementation. The HPSM DP did not impact HbA1c.

- **Vaccination Rates:** Vaccination rates improved post-implementation in both DPs, but this DP improvement did not differ from improvement in Classic CCS, indicating that the changes were not due to implementation of the DPs and instead due to other broader quality improvement efforts.

Research Question 5: What is the impact of the CCS DP on care coordination?

Results Summary: The DPs improved care coordination compared to Classic CCS. Each DP had unique care coordination characteristics contributing to improvement. In

the evaluation of the effectiveness of the DPs for improving care coordination, it is important to keep in mind that each DP had strengths and weaknesses in this area. For example, HPSM DP respondents highly valued the contracting of case management back to CCS. While the HPSM DP did experience higher hospitalization as compared to the Classic CCS comparison group, the HPSM DP saw reduced readmission rates and shorter length of stay not seen in the RCHSD DP. Family satisfaction with case management and communication was notably high in the RCHSD DP, in part because of its enhanced case management. A limitation of the RCHSD DP was that the pilot was limited to five qualifying health conditions, while the HPSM DP was open to all CCS-qualifying conditions. Thus it is unclear whether the marked improvements seen in the RCHSD DP could be sustained across all CCS conditions. Comprehensive reporting on all care coordination measures can be found in the "Key Informant Interviews," "Telephone Survey of Families," and "Claims Analysis" sections below.

Key Informant Interviews

- **Case Management Contracted Back to CCS:** In the HPSM DP, case management was contracted back to CCS. KIs reported that this was beneficial because the CCS case managers' historical knowledge, clinical expertise, and intimate relationship with the CCS clients was not lost during DP implementation. KIs also reported that this approach streamlined care coordination because one entity, CCS, maintained responsibility for both care coordination and authorizations.

- **Colocation of CCS Staff with HPSM Staff:** KIs reported that the HPSM DP facilitated more comprehensive case management by physically colocating CCS staff in the same building as HPSM staff. This allowed staff from HPSM and CCS to easily discuss the needs of any particular CCS client.

- **CCS Case Manager Workload:** CCS case managers in the HPSM DP reported increased workloads after the implementation of the DP, due mainly to continued case management responsibilities for non-HPSM DP clients, as well as to the administration of a new health risk assessment for the HPSM DP clients.

- **Fragmentation of Care Coordination:** In the HPSM DP, KIs noted that despite the DP streamlining some care coordination activities, other care coordination activities remained fragmented among various CCS staff, HPSM departments, and other healthcare entities. KIs felt that care coordination was not necessarily as streamlined or as efficient as it could be.

- **Nurse Care Navigators:** In the RCHSD DP, complex case management was condition-specific and the responsibility of nurse "Care Navigators" who had expertise and knowledge in one of the five CCS conditions required for enrollment into the RCHSD DP. KIs reported that this condition-specific expertise and knowledge improved care coordination.

- **Patient Care Coordinators:** As part of the RCHSD DP, a new position, "Patient Care Coordinator," was created. Patient Care Coordinators helped with some of the administrative aspects of care coordination and did so among all RCHSD patients, regardless of their CCS-eligible condition (unlike the condition-specific responsibilities of the nurse Care Navigators). Patient Care Coordinators were not

nurses, and as such, they helped exclusively with nonclinical RCHSD tasks such as appointment scheduling, referrals, and follow-up with authorizations.

- **Team Approach to Complex Case Management:** The RCHSD nurse Care Navigators worked with the Patient Care Coordinators and other (non-CKC) RCHSD case managers to help manage CKC patients' care. Together, they were able to provide CKC patients with needed support above and beyond what an RCHSD case manager alone might be able to give.

Telephone Survey of Families

- **Getting Needed Case Management / Care Coordination:** The majority of respondents in all healthcare delivery models (73%) reported they were "usually" or "always" able get as much help as they wanted with arranging or coordinating healthcare. A significantly greater percentage of RCHSD DP respondents (82%) reported "usually" or "always" getting better access to care coordinating help than did Classic CCS respondents (69%) ($p = .05$). HPSM DP respondents (76%) reporting "usually" or "always" getting better access to care coordinating help did not significantly differ from Classic CCS respondents. Only 5% of HPSM members stated they never received the care coordination they needed, and no RCHSD DP clients reported never receiving the care coordination they needed.

- **Impact of the DP on Care Coordination / Case Management:** Case management services improved for both DPs after implementation. The majority of RCHSD DP respondents (67%) reported that case management services improved, while 15% of HPSM DP respondents stated improvement post-DP implementation. Only 3% of HPSM DP respondents reported worse case management services, and no RCHSD DP respondents reported worse case management services.

- **Case Management Communication:** Case management was higher in the RCHSD DP as compared to the HPSM DP or with the Classic CCS comparison group. Only 2% of RCHSD DP clients stated that they never communicated to discuss their child's needs, while 38% of HPSM DP and 32% of Classic CCS clients never spoke to a care manager about their child's needs.

- **Care Coordination Knowledge of Child's Medical History:** In the RCHSD DP, 82% of respondents indicated that a care coordinator / case manager "usually" or "always" demonstrated knowledge of important medical history of their child, while only 66% of Classic CCS respondents did so ($p = .07$). The HPSM DP and Classic CCS did not differ with respect to this metric.

Claims Analysis

- **Care Coordination / Claims Management:** Case management claims were higher in the HPSM DP as compared to the Classic CCS program. Care coordination claims were higher in the post-implementation period for both DPs, and the change was statistically significant as compared to Classic CCS for the HPSM DP (AOR 1.24, $p = .021$). There was no statistically significant difference in care coordination claims in the RCHSD DP as compared to the Classic CCS

comparison group (the Classic CCS comparison group also saw improvements over time).

- **ED Visits:** DP implementation did not impact ED utilization.

- **ED Visits That Led to Hospitalization:** DP implementation did not impact the number of ED visits that led to hospitalization.

- **COVID-19 Pandemic and ED Visits:** The RCHSD DP noted an absolute decrease in ED visits post-implementation, while the HPSM DP did not. However, it is important to note that during the time of data collection for this analysis, the RCHSD DP was affected by the COVID-19 pandemic, while the HPSM DP was not. This analysis's Difference in Differences method comparing change in DP outcomes following DP implementation to change in Classic CCS outcomes following DP implementation was designed to account for temporal changes. However, the unexpected impact of the pandemic was partly specific to geographic location, and thus the Difference in Differences approach may not fully account for all pandemic impacts.

- **All-Cause Hospitalizations:** The probability of being hospitalized was higher in the HPSM DP (AOR 1.41, $p < .001$) than in Classic CCS but did not differ between the RCHSD DP and Classic CCS.

- **30-Day All-Cause Hospital Readmission Rates:** The HPSM DP was associated with 50% ($p = .002$) lower odds of hospital readmission than Classic CCS. Readmission rates were unaffected by implementation of the RCHSD DP.

- **Hospital Length of Stay (LOS):** The HPSM DP had a 21% lower LOS (AOR 0.79, $p = .014$) as compared to the Classic CCS control group, while there was no change in LOS with the RCHSD DP.

- **Special Care Center Use:** Special Care Center visits increased for the HPSM DP compared to Classic CCS counties (AOR 2.4, $p < .001$). There was no difference in Special Care Center visits between the RCHSD DP and Classic CCS.

- **Special Care Center Visits within 90 Days after Referral Being Placed:** The numbers of clients seen in an SCC within 90 days of a referral being placed increased in the RCHSD DP compared to Classic CCS (AOR 2.5, $p < .001$), while an increase was not seen in the HPSM DP as compared to the Classic CCS.

Research Question 6: What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?

Results Summary: Overall, both DPs were cost-effective compared to Classic CCS.

- Overall, unadjusted reimbursements per member per month (PMPM) by DHCS during the pilot demonstration for both HPSM and RCHSD were lower after the start of DP, while they were higher during the same time period for each of their matched classic counties.

- Based on the telephone survey reported work loss and an average salary, those in HPSM had the highest work loss cost burden PMPM ($342), while RCHSD had the

lowest ($270). Classic counties reported work loss cost burden in between these two ($310).

- The financial burden from reported school losses of children was highest ($169 PMPM) for HPSM and lowest for RCHSD ($109 PMPM), while it was $125 PMPM in Classic CCS.

- Out-of-pocket PMPM costs reported by families, including prescription medications and equipment and supplies, did not increase compared to the classic county comparator. These costs were highest for Classic CCS ($266), slightly lower for HPSM ($253), and lowest for RCHSD ($171). Note that these costs are not meant to measure premiums and copayments and may include the cost of noncovered items.

- In the HPSM DP, reimbursements by diagnosis fell during the DP compared to the two prior years, although reimbursements for infectious diseases rose over that same period. In the RCHSD DP, there were some increases and some decreases in diagnosis-specific reimbursement compared to the period just before the DP.

- Cost-effectiveness analysis of unadjusted cost relative to changes in life years saved for HPSM showed that the HPSM DP both saved costs and improved life expectancy. For RCHSD, the DP program also showed cost savings, but also a slightly shorter life expectancy, resulting in an incremental cost-effectiveness ratio of $204,683 per life year saved. This ratio is higher than standard willingness to pay (WTP), and therefore the RCHSD DP program is still preferred over Classic CCS. Thus, both DPs were shown to be cost-effective during DP implementation even as matched classic counties experienced decreased cost-effectiveness during DP implementation.

- Cost-effectiveness analysis of unadjusted cost relative to changes in 30-day readmissions avoided (for those >= one year old) for HPSM showed the HPSM DP program dominated, having both higher reimbursed costs and avoiding slightly fewer readmissions, not cost-effective by this metric. The RCHSD DP showed cost-effectiveness with both reimbursement savings and also fewer readmissions. Classic CCS counties also had both reimbursement savings as well as fewer readmissions.

- Revenue/loss comparisons of actual reported experience for HPSM showed an average positive gain in revenue in the pre-DP period ($51), which was lower than in the post-DP period ($121).

- The revenue/expense reports showed a variation in percentage change from -5% to +16% in capitation across each annual period, both increasing and decreasing, likely responding to the reported experience of HPSM in caring for these children during the DP program. HPSM largely stayed below the desired 8% for administrative expenses as a percentage of total expenses.

- Comparisons of reimbursements across children's characteristics and care outcomes for HPSM in the pre-DP period showed significant payment variation in many variables — age, ethnicity, ED visits, and high mental health needs. However, after capitated payment was introduced with the HPSM DP program, none of these or other characteristics in the regression significantly explained

payments, showing that capitation payments generally masked the ability to demonstrate payment variations across these factors. Classic counties continued to show variations across population characteristics in the post-DP period.

- Comparisons of reimbursements across children's characteristics and care outcomes for RCHSD in the pre-DP period also showed significant payment variation in many variables — age, ethnicity, Spanish language, male gender, ED visits, pharmacy use, high mental health needs, and readmissions. However, after capitated payment was introduced within the RCHSD DP program, fewer population and healthcare use characteristics in the regression significantly explained payments, but some did, including Latinx ethnicity, male gender, and pharmacy use. So although DP capitation payments generally masked the ability to demonstrate payment variations across these factors, some continued.

- Difference in Differences (DiD) comparisons of payments were done to determine if pre- versus post-DP comparisons in DHCS payments remained after accounting for unexplained differences in classic versus DP program counties. DiD for HPSM showed there were significant differences in payment amounts both pre- and post-DP and between HPSM and classic counties, but the DiD payments were still significantly different, indicating that the DP program's lower payments remained. For RCHSD, DHCS payments for the DP program were not significantly different from the pre-period, but the DP counties and classic counties payments were significantly different, and the DiD comparison was also not significant. This indicates that the differences in payment for RCHSD DP were not significantly different independently of each other.

E. Conclusions

Overall Conclusions

The DPs met most of their goals and objectives laid out in the 1115 Waiver to pilot a transition of the California Children's Services fee-for-service delivery system into one based either on a Medicaid managed care plan (MCP) or an Accountable Care Organization (ACO). Overall, the evaluation team reports that both the MCP model (HPSM DP) and ACO model (RCHSD DP) were successful in improving access to care, client satisfaction, provider satisfaction, quality of care, and care coordination, with total cost of care savings to the state. Family satisfaction with the DPs were positive in all domains measured, with families reporting improvement with their CCS care and care coordination in both model systems.

Although the DPs were successful overall, this analysis identified a few demonstrative findings that indicate areas of concern and need for improvement. First, enrollment in the HPSM DP decreased over time as compared to Classic CCS county enrollment. This may have been due to a decrease in the birth rate seen in San Mateo County. Another possibility was that there was a decrease in the referrals from the NICU into CCS and the High Risk Infant Follow-up program. Rates of primary care visits as well as well-child visits for age 0–15 months and 3–6 years also decreased in the HPSM DP as compared to Classic CCS; unfortunately, the data available to UCSF are unable to reveal insights into this decrease. Second, while specialty clinic access measures remained stable in the HPSM DP, hospitalizations rates were higher in the HPSM DP than in Classic CCS. Further investigations are needed to determine the reason for the drop in enrollment, use of primary care services, and increase in hospitalizations.

Of note, the RCHSD DP had significantly improved patient satisfaction and significantly higher satisfaction with CCS services as compared to Classic CCS. In this way, the RCHSD DP actually improved upon the CCS program, while the HPSM DP was able to maintain Classic CCS levels of services and satisfaction. In interpreting these findings, it is important to note that the HPSM DP and RCHSD DP were unique entities and were implemented very differently in structure, time frame, and duration. For example, the HPSM DP utilized two one-year extensions that provided additional time to implement its DP and to make needed changes and improvements. RCHSD DP included only five CCS conditions (cystic fibrosis, sickle cell disease, hemophilia, acute lymphoid leukemia, and diabetes up to age 10) and had a limited implementation period (2019–21). It is therefore impossible to know if the success of the RCHSD DP could have been sustained if all CCS-eligible conditions were included, if it continued for a longer period, or both.

Conclusions by Evaluation Question

Research Question 1: What is the impact of the CCS DP on client access to CCS services?

Both DPs were successful in either improving or maintaining access to care for both CCS specialty services as compared to Classic CCS comparison groups (under Section 2, "Results, Organized by Research Question," see Section "Research Question 1"). Visits to primary care providers increased in the RCHSD DP. Visits to primary care providers decreased in the HPSM DP, with decreased well-child visit rates among 0- to 15-month-olds and 3- to 6-year-olds as compared to the Classic CCS comparison group post-implementation. As compared to Classic CCS families, families in both DPs reported either similar or improved access to specialty care referrals, authorizations, durable medical equipment (DME), pharmacy, mental health services, interpretation services, and transportation services. Families in the RCHSD DP reported higher levels of satisfaction in almost all domains as compared to families in the HPSM DP or Classic CCS program. HPSM DP clients had higher DME claims as compared to the Classic CCS comparison group in the post-implementation period. Families in the HPSM DP reported similar access to DME as experienced by families in Classic CCS. In the RCHSD DP, both pharmacy claims and DME claims decreased compared to Classic CCS. Despite the decrease in DME claims, RCHSD DP families reported marked improvement in DME and pharmacy services and low unmet medical need. This finding suggests that the decrease in DME and pharmacy utilization does not indicate poorer access to care, but instead indicates that DME and pharmacy needs were being met in the RCHSD DP, while the DP was simultaneously decreasing the need for DME and pharmacy orders.

Despite family-reported improvements or stable access to behavioral health in both DPs, families in both DPs and Classic CCS reported high unmet mental health needs (20%–31%). Therefore, mental health access could be further improved for all CCS clients.

Research Question 2: What is the impact of the CCS DP on client satisfaction?

The DPs were successful in improving or maintaining client satisfaction with CCS-related services (under Section 2, "Results, Organized by Research Question," see Section "Research Question 2"). Most families felt that the services they received in the HPSM DP and RCHSD DP were equal to or better than the services they had before transitioning to each respective DP. A large proportion of RCHSD DP clients (65%) felt that their CCS medical care was better after transition to the DP, while 21% of HPSM DP clients thought that services improved after transition to the DP. The HPSM DP was implemented more than six years before administration of the survey; this likely contributed to the high percentage of "don't know" responses when clients were asked to compare their pre- and post-implementation experiences. There were high rates of

satisfaction with CCS services experienced by clients in the RCHSD DP (55% reporting "very satisfied") as compared to clients in Classic CCS counties (42% reporting "very satisfied") and in HPSM (39% reporting "very satisfied"). Less than 17% of CCS clients stated that they were "dissatisfied" / "very dissatisfied" or "neither satisfied or dissatisfied" with CCS across both DPs and Classic CCS.

Research Question 3: What is the impact of the CCS DP on provider satisfaction with the delivery of and the reimbursement of services?

Both DPs had some positive impacts in provider satisfaction with delivery and reimbursement of services (under Section 2, "Results, Organized by Research Question," see Section "Research Question 3"). The RCHSD DP was reported to provide more expeditious care delivery through a more efficient authorization process. The HPSM DP providers reported largely neutral satisfaction with reimbursement of services; provider satisfaction with DME and pharmacy were lowest among all the provider satisfaction domains measured in the HPSM DP. The HPSM DP was implemented more than six years before the evaluation; this likely impacted responses from providers when they were asked to compare their pre- and post-implementation experiences. Of note, DME and pharmacy barriers were also experienced by families in the HPSM DP. Combined findings from the provider survey and family telephone survey show that plans should work closely with CCS staff, medical providers, DME providers, and pharmacy providers during implementation to ensure network adequacy for DME and other healthcare services.

Research Question 4: What is the impact of the CCS DP on the quality of care received?

The DPs were successful in maintaining or improving quality of medical care post-implementation (under Section 2, "Results, Organized by Research Question," see Section "Research Question 4"). Over 90% of clients in both ACO and MCP models reported higher or the same level of healthcare quality post-implementation; 51% of RCHSD DP clients and 20% of HPSM DP clients stated their quality of care improved after the DP was implemented. A small proportion of people in HPSM (10%) stated their care was worse after implementation. The HPSM DP was implemented more than six years before administration of the survey. This likely impacted responses when clients were asked to compare their pre- and post-implementation experiences, as almost 50% answered "Do not know" to the quality question. There was marked improvement in depression screening across both DPs as compared to Classic CCS. Patient-level outcomes such as HbA1c and vaccinations did not differ between the DPs and Classic CCS.

Research Question 5: What is the impact of the CCS DP on care coordination?

The DPs successfully implemented and initiated care coordination / case management that was at least as good as Classic CCS case management (under Section 2, "Results, Organized by Research Question," see Section "Research Question 5"). The levels of HPSM DP case management satisfaction were improved compared to Classic CCS, probably because the HPSM DP model contracted case management back to its county's CCS staff.

The RCHSD DP had significantly higher rates of satisfaction in the care coordination domain, with lower unmet need, as compared to Classic CCS. This was likely because the RCHSD DP had developed an enhanced disease-specific, complex case management model. Claims analysis results for case management showed an increase in case management claims for both DPs post-implementation. This was not statistically different as compared to Classic CCS comparisons for either the HPSM DP or RCHSD DP.

Health outcomes experienced by clients in the DPs were mixed. Clients in the RCHSD DP experienced no change in hospital readmissions, ED visits, ED visits that led to hospitalizations, and all-cause hospitalizations. While there was no change in ED visits or hospitalizations from ED in the HPSM DP, it did have statistically significant higher odds of experiencing hospitalization (AOR 1.41, $p < .001$) in the post-DP implementation period as compared to the Classic CCS comparison group. While hospitalizations may have been higher relative to the comparison group, HPSM DP also experienced significantly lower hospital length of stay as compared to the Classic CCS comparison group (AOR 0.79, $p = .014$). Of note, KIs reported higher caseloads for case managers in the HPSM DP after DP implementation, and families in the HPSM DP reported higher levels of having their case management needs met as compared to Classic CCS, though claims did not show any difference in case management claims between the HPSM DP and Classic CCS. Therefore, it is unlikely that the change in hospitalizations experienced at the HPSM DP can be fully attributed to a lack of care coordination.

Clients in the RCHSD DP reported high rates of case management engagement and low levels of unmet care coordination need. But despite the reported positive family response to the enhanced case management model, there was no change in hospitalization or ED visit rates experienced by clients in the RCHSD DP as compared to Classic CCS controls. Overall, continued population management for hospitalizations (monitoring and review of ED visits and hospitalizations, with follow-up / case management by health plans) is needed to develop strategies to improve health outcomes.

Research Question 6: What is the impact of the CCS DP on amounts expended on CCS services, and the total cost of care?

The RCHSD DP and HPSM DP showed mostly positive economic outcomes (under Section 2, "Results, Organized by Research Question," see Section "Research Question 6"). The DPs decreased DHCS spending, despite increases in spending during the same period in Classic CCS counties. When taking outcomes into account, the DPs were cost-effective when comparing life expectancy outcomes and accounting for 30-day readmissions avoided.

The HPSM DP and RCHSD DP also showed less variability by sex, race/ethnicity, and other demographic characteristics across reimbursed costs by diagnosis and within regressions, and across population and healthcare utilization variables. This is likely due to the nature of capitated payments, which provide the same amount regardless of these characteristics. Thus overall, the HPSM DP and RCHSD DP showed a positive economic picture and, from an economic point of view, should be continued.

The HPSM DP showed a cost-effectiveness domination, meaning that it demonstrated both cost savings and better outcomes. In addition, revenue exceeded costs in most years after the HPSM DP was implemented, and HPSM's administrative expenses remained within the desired range of 8% or less of expenditures. Finally, out-of-pocket expenses overall were lower for the HPSM DP families than for those in comparable classic counties, although some pharmacy expenses were higher and there may have been higher school-loss costs, requiring families to provide child care for that missed day.

RCHSD had the lowest indirect cost burden and lowest out-of-pocket expenses compared to the comparator classic counties and to HPSM, although it did not show cost-effectiveness domination. Overall, both the HPSM DP and RCHSD DP demonstrated significant economic benefits to DHCS and to families and, from an economic point of view, should be continued.

F. Interpretations, Policy Implications, and Interactions with Other State Initiatives

Background

The 1115 "Bridge to Reform" Waiver of November 2010 was intended to identify and test alternative healthcare delivery models for the California Children's Services (CCS) program. Historically, children who qualified for Classic CCS received care from a variety of different delivery systems. For example, depending on the county, these children could have been enrolled in a Medi-Cal managed care plan (MCP) for primary care, yet receive specialty care case management through local county-based programs and subspecialty care through a fee-for-service (FFS) arrangement. Some CCS enrollees needed to access care, the cost of which was paid by multiple state payer systems (e.g., California Children's Services, County Medi-Cal, Medi-Cal Dental Program, Child Health and Disability Prevention, Regional Center Systems). The need to navigate disparate providers and services in arranging care for their children could present significant challenges for families.

A CCS Demonstration Project (DP) was pursued to test the efficacy of transitioning the CCS program from an FFS-based healthcare delivery model to an organized healthcare delivery model. The CCS DP tested two capitated payment models: an MCP model (Health Plan of San Mateo, or HPSM) and an Accountable Care Organization model (Rady Children's Hospital-San Diego, or RCHSD). Goals of the CCS DP were to test each of these models to determine to what extent it:

- Improved coordination of care and removed delivery of fragmented healthcare
- Improved health outcomes
- Improved patient and provider satisfaction
- Established clear provider and state accountability
- Maintained a family-centered delivery system
- Preserved the existing CCS Regional Provider Network

The evaluation of the CCS DP tested the efficacy of capitated models, including MCP and ACO, as compared to Classic CCS. This involved the collection and triangulation of data from key informant (KI) interviews, statewide surveys of families and care providers, and analyses of claims and clinical data. Findings showed that, overall, the ACO model achieved the goal of increasing or sustaining access to care for CCS primary care, specialty care, and mental health services. The MCP model maintained or improved specialty care and mental healthcare, though MCP model clients had lower odds of having primary care services as compared to classic control groups. There were improvements in coordination of care and family satisfaction while cost was decreased (see the "Summary of Results" section).

CalAIM

In 2020, California embarked on an even more aggressive plan to streamline care and reduce complexity for Medi-Cal consumers. The state introduced California Advancing and Innovating Medi-Cal (CalAIM). CalAIM is an ambitious effort that includes a wide range of initiatives that will impact children with complex medical conditions such as cancer, epilepsy, and congenital heart disease. Such children are traditionally covered under the CCS program. CalAIM has three primary goals (www.dhcs.ca.gov/provgovpart/Documents/CalAIM-Proposal-Updated-1-8-21.pdf):

- Identification and management of member risk and need through whole-person care approaches and addressing social determinants of health (SDOH)

- Movement of Medi-Cal to a more consistent and seamless system by reducing complexity and increasing flexibility

- Improving quality outcomes, reducing health disparities, and initiating delivery system transformation and innovation through value-based initiatives, modernization of systems, and payment reform

This section describes several CalAIM initiatives, including the transition to statewide mandatory Medi-Cal managed care, implementation of Enhanced Care Management, Community Supports, population health management, and enhanced oversight of CCS. Further, the section describes how results of the CCS DPs can directly inform these initiatives.

Statewide Mandatory Medi-Cal Managed Care

The California Department of Health Care Services (DHCS) is proposing standardization and reduction in complexity by implementing administrative and financial efficiencies across the state, and by aligning delivery systems to provide more predictability and to reduce differences across counties. These reforms stretch across managed care, behavioral health, dental, and other county-based services. To achieve such goals, DHCS proposes to transition all FFS Medi-Cal enrollees to Medi-Cal managed care plans with standardized benefits (and regional rates) statewide. This will begin January 2022.

How CCS DP Results Can Inform the Transition to Statewide Mandatory Medi-Cal Managed Care for CCS-Eligible Children

If the transition to Medi-Cal managed care plans statewide includes the specialty care services provided by the current CCS program, then there are many ways that the CCS DP results can inform how MCPs can prepare for and implement this transition.

Results of the CCS DP evaluation (which compared two organized healthcare delivery system models to Classic CCS) bolster the justification for transitioning CCS clients to organized delivery systems. Indeed, when results from the ACO and MCP DPs are combined and then compared with Classic CCS, it is apparent that organized delivery system models led to improved client satisfaction, quality of care, and care coordination,

as well as reduced costs. Areas of mixed results included lower primary care visit rates in the MCP as compared to Classic CCS. Organized delivery systems were better than Classic CCS in the following ways:

- **Access to services**
  - In KI interviews, ACO and MCP KIs spoke about increased access to medications as a result of a new CCS-specific pharmacy formulary. They also noted that access to certain services increased when prior authorization requirements were removed for these services. In addition, ACO KIs specifically noted increased access to care for their patients through the use of telemedicine, with some reporting that telemedicine appointments were able to help care teams reach vulnerable patients who might not have otherwise been able to access care when needed.
  - The parents' survey demonstrated that respondents from both the ACO and the MCP experienced improved primary care, specialty care, and pharmacy services in the context of the transition to the new model. In addition, clients in both models indicated greater ease in obtaining mental health services as compared with clients in Classic CCS.
  - Administrative claims analysis showed stable specialty care utilization in the ACO, with improved Special Care Center and specialist visit utilization in the MCP model. Primary care was stable in the ACO, but visits decreased in the MCP.

- **Client satisfaction**
  - In parent surveys, client satisfaction in the MCP did not vary with Classic CCS, and it improved markedly in the ACO model (see ACO comments below).

- **Quality of care**
  - In KI interviews, KIs in both the ACO and MCP noted continuous quality-of-care improvement cycles, allowing for changes that led to improvement in care for CCS clients. While the MCP worked closely with CCS staff to improve quality of care, both systems had significant support from leadership as well as a collaborative culture that helped facilitate quality of care improvements.
  - In parent surveys, both systems indicated greater improvement and satisfaction in quality overall, with very few noting worse quality.
  - In claims and clinical measures, there was marked improvement in depression screening in both the ACO and MCP model system.

- **Care coordination**
  - KI interviews revealed that care coordination improved in both the ACO and MCP healthcare delivery models. In the MCP DP, care coordination was contracted back to CCS case managers, who were more knowledgeable about the care and needs of their CCS clients and who had years of experience working with their clientele. In the ACO DP, nurse case managers (i.e., nurse

Care Navigators), who had expertise and knowledge in the specific ACO DP conditions, were responsible for the complex case management of their CCS clients. Additionally, Patient Care Coordinators were responsible for assisting with nonclinical tasks including referrals and appointment scheduling.

- In parent surveys and claims, while absolute claims for care coordination did not change, parents in both pilots indicated improvements in coordination, with very few parents stating they never received the care coordination they needed.
- Claims analyses indicated improved or no change in the use of care coordination in the MCP and ACO, with higher rates of care coordination experienced in the MCP versus Classic CCS (AOR 2.09, $p < .001$).
- Care coordination may impact health outcomes such as hospitalization and subsequent length of stay. MCP clients did experience higher odds of having a hospitalization as compared to Classic CCS clients. There was no change in the odds of being hospitalized in the ACO.

- **Costs**
  - Overall, the state saved money through the implementation of both pilot programs.
  - KI interviews also revealed that both models of care undertook cost-saving measures: The MCP DP implemented new private duty nursing guidelines in an effort to improve the cost-effectiveness of these services, without increasing costs to CCS clients and their families. The ACO DP, in order to mitigate financial risk, proactively made financial investments in pharmaceutical costs, anticipating future cost savings as a result.

In some areas, the MCP model outperformed both the Classic CCS and ACO models. These are important lessons that can inform any future expansion of the MCP model. The MCP outperformed the ACO and Classic model in the following ways:

- **Access:** The MCP increased Special Care Center utilization as compared to Classic CCS.
- **Health outcomes:**
  - **Hospital Readmissions:** Claims analyses showed there were lower rates of readmission in the MCP model (50% reduction in odds) as compared to Classic CCS. There was no change in hospital readmissions in the ACO model.
  - **Hospital Length of Stay:** Hospital length of stay decreased in the MCP by 21% and was unchanged in the ACO model post-implementation as compared to the comparison group.

Lastly, it is important to note that the ACO DP model outperformed both the Classic CCS and MCP model in many areas. This may have been due to the enhanced care coordination program that was initiated. The disease-specific case management led to significantly improved access and subsequent family satisfaction with the program. To be sure, the ACO model at RCHSD was unique, given that there were only five health

conditions that the program focused on, and there was significant investment by clinical program at RCHSD for case management delivery. Therefore, the ACO model may not be feasible for the state to replicate statewide. That being recognized, areas where the ACO outperformed the MCP provide important data that can inform any future mandatory MCP implementation.

The ACO outperformed the MCP in the following ways:
- **Access:** The RCHSD DP had significantly higher family-reported satisfaction in access to durable medical equipment (DME) services and pediatric specialist services, as well as less unmet DME need, as compared with both MCP and Classic CCS. In addition, the ACO model allowed for a decrease in the wait time for being seen by a specialty care provider.
- **Parent Satisfaction:** Overall, the ACO had higher rates of satisfaction for specialty services, DME access, and provider communication, as compared with both MCP and Classic CCS.
- **Care Coordination:** While both ACO and MCP demonstrated an improvement in case management and care coordination overall, actual satisfaction with case management was higher with the ACO model. The MCP and Classic CCS each had the same level of satisfaction with care coordination and case management services.

MCP Challenges: While this evaluation showed many improvements in outcomes and services, patients in the MCP model pilot experienced an increase in the rates of hospitalization and decreased primary care visits and well-child visits for children age 0–15 months and 3–6 years. (Patients in the ACO model showed no change in rates of hospitalization or primary care utilization when compared to the Classic CCS client group.) There were no differences in death or readmission rates, and most other quality measures remained stable. Therefore, the exact reason for the increase in hospitalizations and decrease in primary care use is unclear, and it remains to be determined whether this change can be impacted by changes at the health plan. Certainly, if the MCP model is to be expanded, there must be robust monitoring of hospitalizations and primary care use — viewed in the context of the goal of ongoing pediatric quality improvement so as to ensure appropriate population management.

Implications: In implementing statewide mandatory Medi-Cal managed care, administrators of MCP plans (which may eventually serve CCS clients) can learn from what the HPSM DP and RCHSD DP models did well and:
- Consider contracting case management back to local county CCS programs
- Emulate the ACO model of complex case management, especially disease-specific enhanced case management, for high-utilization, high-morbidity diseases
- Emulate the ACO DP in the delivery of specialty care services and primary care services. (These services, found in the ACO model, likely led to the high rates of client satisfaction reported by patients in the areas of care coordination, DME services, and pediatric specialty care services. Additionally, this model will likely decrease levels of unmet need while maintaining cost-effectiveness.)

Enhanced Care Management

DHCS is establishing a new statewide Enhanced Care Management (ECM) benefit. The new Enhanced Care Management benefit will provide a whole-person approach to care management. This approach addresses the clinical and nonclinical circumstances of high-need Medi-Cal enrollees. ECM is designed as a new Medi-Cal benefit for MCP enrollees who are high utilizers and who meet specific eligibility criteria. It is important to note that the ECM is not provided by the MCP itself. Rather, the MCP must recruit community-based organizations that are then contracted as ECM providers. Proposed ECM target populations include:

- Children or youth with complex physical, oral, behavioral, or developmental health needs (e.g., California Children's Services, foster care, youth with clinical high-risk syndrome, or first episode of psychosis)

- People experiencing acute or chronic homelessness, or at risk of becoming homeless

- High healthcare utilizers (i.e., those with frequent hospital admissions, short-term skilled nursing facility stays, or emergency room visits)

- People at risk for institutionalization and eligible for long-term care services

- Nursing facility residents who wish to transition to the community

- People at risk for institutionalization as a result of serious mental illness, children with serious emotional disturbance, or people with substance use disorder with co-occurring chronic health conditions

- People transitioning from incarceration (adult or juvenile facilities) who have significant complex physical or behavioral health needs requiring immediate transition to community-based services

How the CCS DP Results Can Inform ECM

CCS clients are an active target population for ECM, which could possibly enhance current CCS or MCP case management (www.dhcs.ca.gov/CalAIM/Documents/CalAIM-ECM-a11y.pdf). Results of the CCS DP highlight areas where the MCP and ACO improved care management compared to Classic CCS:

- According to the telephone survey, RCHSD DP clients viewed care coordinators as significantly more knowledgeable of the child's medical history as compared with survey reports from HPSM DP and Classic CCS clients.

- While claims data did not show difference in case management claims, the telephone survey showed a higher proportion of RCHSD DP clients receiving case management as compared with HPSM DP and Classic CCS clients.

- Of those receiving case management, respondents from the RCHSD DP had higher frequency of contact/communication with a case manager in a six-month period as compared to patients receiving either HPSM DP or Classic services.

- RCHSD DP reported higher rates of "always" or "usually" having all care coordination needs met. This was higher than both the HPSM DP and Classic CCS. This led to much higher rates of satisfaction with care coordination and case management in the ACO model; 67% of families in the RCHSD DP reported

improvement with care coordination and case management since implementation of the DP. This level of improvement was not mirrored in the MCP.

- ACO and MCP models both provided cost savings to the state. The ACO pre- versus post- cost-effectiveness comparison (using life expectancy) shows that the RCHSD DP post-period saved DHCS $16,225 per member per year from the pre-period. The MCP pre- versus post- cost-effectiveness comparison shows that the MCP post-DP period saved DHCS $1,094 per member per year from the pre-DP period. However, the HPSM DP post-period also had slightly fewer deaths and therefore a slightly longer life expectancy (0.368 years) than the pre-HPSM DP period. Therefore, the HPSM DP program period dominates the pre-period, being both less expensive and having a longer life expectancy. Therefore, it is the cost-effective choice.

- KIs from the ACO DP reported increased access to care through telemedicine, particularly for vulnerable patients experiencing housing insecurity.

There are also lessons learned from Classic CCS care management. The HPSM DP (MCP) contracted with county CCS for case management responsibilities and reported:

- Success in maintaining continuity of care

- More efficiency for CCS in being responsible for both authorizations and case management

- Ability to leverage the CCS case managers' knowledge, training, and years of experience working with CCS clients — none of which could be readily or easily replicated in the MCP case management structure

Implications: CCS already has a robust, county-based pediatric specialty care–focused case management system. It includes well-trained case managers who have significant expertise in pediatric specialty care management, and who maintain strong, often long-term relationships with their provider network and CCS clients and families. In addition, CCS had a robust case management data sharing system (albeit one fully accessible only to CCS staff). The ACO DP showed there is room for improvement in the existing Classic CCS case management structure — improvement that can occur while saving the state money. Managed care plans would do well to consider contracting with existing county CCS case management staff to provide ECM to CCS clients. This would include implementing strategies performed in the ACO model (e.g., pediatric-focused specialized case management) while also investing in a more robust data system that would allow for useful and efficient data sharing (i.e., MCPs having full access to CCS case management notes as opposed to read-only access to the statewide CMSNet CCS case management system) (see www.dhcs.ca.gov/services/ccs/cmsnet/Pages/CMSNetProviderEDI.aspx). Short of contracting with existing CCS case management providers, MCPs should ensure that any contracted ECM provider has significant training and experience in pediatric disease management, and expertise and experience coordinating care for children with special healthcare needs.

Community Supports ("In Lieu of Services")

MCPs have implemented an optional service called Community Supports (formerly called "In Lieu of Services"). These are flexible wraparound services that a Medi-Cal managed care plan can choose to provide. Community Supports (CS) are provided as a substitute for, or to avoid, other covered services, such as a hospitalization, skilled nursing facility admission, or a discharge delay. MCPs can determine which of the CS services to provide and integrate these services with care management for members at high levels of risk. CS are intended to fill gaps in medical services, or to mitigate social determinants of health not currently covered by Medi-Cal State Plan benefits. Unlike ECM, these are not a standardized benefit but an optional service that MCPs can choose to provide. But similar to ECM, MCPs will contract with outside CS agencies to provide these services. The current list of CS that an MCP can choose from are listed below:

> Housing Transition Navigation Services • Housing Deposits • Housing Tenancy and Sustaining Services • Short-Term Post-Hospitalization Housing • Recuperative Care (Medical Respite) • Respite Services • Day Habilitation Programs • Nursing Facility Transition / Diversion to Assisted Living Facilities, such as Residential Care Facilities for Elderly and Adult Residential Facilities (ARF) • Community Transition Services / Nursing Facility Transition to a Home • Personal Care and Homemaker Services • Environmental Accessibility Adaptations (Home Modifications) • Meals / Medically Tailored Meals • Sobering Centers • Asthma Remediation

How the Results of the CCS DP Can Inform the Implementation of CS

Community Supports are an optional service that MCPs can use to fill gaps in current Medi-Cal coverage and ensure that Medi-Cal enrollees have the supports they need to avoid institutionalization or poor health outcomes. The CCS DP results identified many areas where organized delivery systems such as MCPs and ACOs can fill gaps to mitigate both unmet medical and social determinants of health — for example:

- Many families reported work loss due to child illness. Respite care services / providing child care: Work and school loss are proxies for family supports in caring for a child with a chronic disease. With the improvements in care delivery, case management, and support, the RCHSD DP had the lowest impact to paid work loss and school loss as compared with Classic CCS and the HPSM DP.

- Other SDOH that are still problems for CCS clients (even in organized delivery systems) include continuing racial disparities in health outcomes (resulting, for example, from higher ED use and less utilization of preventive primary care) by Black and Latinx patients.

Implications: As DHCS and MCPs determine which CS to provide, program administrators should consider services that would fill the gaps identified in the research. Indeed, children in the CCS program could be assisted greatly by various Community Supports for families:

- DHCS should consider expanding respite care services for families of children who cannot attend school. This would serve to mitigate family work loss, and services could include short-term child care / parent support for a sick child, or supports

(such as the subsidization of internet services or technology assistance) to allow parents to work from home or use video visits. This support may be especially important for families with lower income, who are disproportionately affected by inadequate access to communication technology.[56]

- As suggested for ECM providers, MCPs would do well to contract with existing CCS county care management organizations, as these organizations have experience providing services to this highly specialized and medically fragile population.

Population Health Management

Medi-Cal managed care plans will develop and maintain a whole-system, person-centered population health management strategy. The strategy will involve a cohesive plan of action for addressing member needs — based on data-driven risk stratification, predictive analytics, and standardized assessment processes — across the continuum of care. Each managed care plan shall provide, at a minimum, a description of how it will:

- Keep all members healthy, with a focus on preventive and wellness services

- Identify and assess members' ongoing risks and needs

- Manage member safety and outcomes during transitions, across delivery systems or settings, through effective care coordination

- Identify and mitigate social determinants of health, and reduce health disparities or inequities

How the Evaluation Results Can Inform Population Health Management Strategies for Medically Frail Children

Population Health Management (PHM) is an important step that involves using data analytics to identify the most at-risk CCS clients and to provide these clients the medical care, services, and supports they need. The CCS DP identified several techniques for determining populations, within the larger CCS population, at risk for inequities and health disparities and should inform population health management algorithms — for example:

- ED utilization rates (which, for Black and Latinx CCS clients, remain high).

- Using illness severity scores such as the Chronic Illness and Disability Payment System (CDPS) scores, which were correlated with increased ED use and hospitalization.

- Using Children With Disabilities algorithm or similar pediatric measure for disability and chronic disease. (The evaluation found that these children were more vulnerable. Having higher disability was associated with higher ED visits, hospitalizations, and care utilization.)

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[56] Bisakha "Pia" Sen et al., "Disparities in Telehealth Utilization in a Population of Publicly Insured Children During the COVID-19 Pandemic," *Population Health Management* 25, no. 2 (Apr. 2022): 178–85, http://doi.org/10.1089/pop.2021.0343.

Implications: As MCPs develop population health management strategies, it is important to include algorithms to identify the most at-risk CCS clients. This report's results would strongly suggest that any PHM system include ED utilization, hospitalization, race/ethnicity, language, illness severity, and child disability level. In addition, capturing data, such as information regarding case management encounters and summaries, may alert the state in instances where no appropriate case management has been activated for high-risk patients. Risk stratification for pediatric-focused care and family supports can then allow MCPs to focus on these higher-risk clients to ensure that health disparities are addressed. For example, DME and pharmacy use were lower among Black clients. Therefore, case management was tailored to ensure that all medical needs were met and that any potential barriers (e.g., lack of transportation) were minimized to decrease measured disparities.

Enhanced Oversight of County Eligibility and Enrollment Processes

Today, California delegates many functions of CCS and Medi-Cal, including the determination of eligibility for Medi-Cal, to counties. Under CalAIM, DHCS proposes further measures to ensure that county eligibility and enrollment processes are compliant with federal and state regulations.

How the CCS DP Results Can Inform Enhanced Oversight and Enrollment Strategies for Medically Frail Children

- KIs from both the MCP and the ACO noted that after a patient lost Medi-Cal coverage, the Medi-Cal reenrollment process was inefficient and time-consuming. The delays could lead to disruptions in care because the patient would have to first reenroll in Medi-Cal and then wait to be reenrolled in the health plan. During the wait to be reassigned health plan coverage, patients experienced a loss in continuity of care with plans and providers.
- There is variation in the degree to which counties successfully fulfill state and federal requirements for these functions.
- Claims data demonstrated a decrease in CCS enrollment with the pilots; thus, efforts at recruitment into the CCS system could potentially be enhanced.
- NICU (neonatal intensive care unit) discharges decreased. NICU discharges are usually where children enter into CCS for high-risk infant follow-up, where they are monitored for complications of being born premature. These children were disproportionally not seen and enrolled into the MCP as compared to Classic CCS counties.

Implications: As DHCS designs a system with enhanced oversight, results of this evaluation can inform the focus on CCS programs.

- Streamlining the Medi-Cal reenrollment process and ensuring continuity in care (i.e., automatic and immediate enrollment into the previous health plan on record) would minimize disruptions in care.
- Overall enrollment for CCS-qualifying conditions could also be screened through population management with enhanced oversight to ensure that all potentially CCS-eligible children in the health plan are screened for CCS enrollment.
- Systematically screening children discharged from the NICU to ensure that any high-risk infant follow-up need is met (ensure monitoring for appropriate early development) may be a way to mitigate the decrease in NICU enrollment seen in the pilot.
- Further work with the NICUs and CCS would be needed to generate a robust referral system of NICU discharge monitoring and enrollment beyond what can be found in CMSNet (the current online California statewide CCS case management and referral system).

Standardizing Medi-Cal across Counties

Conclusion: For the State of California, results of the current CCS DP evaluation suggest that the transition of the CCS population to an MCP or an ACO has potential for success along measurable aspects of access, quality, and cost. In order to facilitate improved access to and quality of care, the state will need to continue to focus on improved data systems, accuracy, and completeness — including case management notes and actual clinical data.

This work offers clear implications beyond the boundaries of California. Indeed, states can utilize managed care organizations and Accountable Care Organizations as intermediaries, and they can do so without measurable sacrifices in access, quality, or cost. A state's Waiver for introducing managed care should be conditioned on ensuring that the appropriate regulations and robust data collection are in place. Working with established pediatric programs (e.g., state Title V programs), which have extensive experience in caring for children with significant chronic illness, is critical to the success of any implementation process.

In addition to requiring concrete targets for implementation and improvement, the Centers for Medicare & Medicaid Services (CMS) on a national level should emphasize approaches and interventions that have succeeded in managed care implementation for children across the country — particularly approaches that have succeeded in demonstrating improved access and quality of care while maintaining cost neutrality.

G.Lessons Learned and Recommendations

Lessons Learned and Recommendations Related to CCS and the CCS DPs

Lesson Learned 1a

Both California Children's Services (CCS) Demonstration Projects (DPs) required significant high-level investment, commitment, and collaboration with dedicated staff and time — and reliance on the strong infrastructure that has existed within CCS for almost 100 years.

Recommendation 1a

When implementing a new model of healthcare delivery for children in California with complex or chronic conditions, it is imperative that the entities involved are committed to investing in collaborative relationships with providers, organizations, health plans, family advisory committees, and other partners that work within the pediatric specialty care network and provide specialized care to these children.

Lesson Learned 2a

Specialized and experienced staff who have been working with CCS clients and their families have a tremendous knowledge base and level of expertise. This includes the medical complexity of many clients and their need for multiple durable medical equipment (DME) and specialty pharmacy items that may not be part of a traditional health plan. When shifting from one model of care to another — that is, from Classic CCS to an Accountable Care Organization (ACO) or managed care plan MCP), it is critical that this specialized pediatric expertise is not lost and is passed on to ensure that clients do not experience any gaps in care.

Recommendation 2a

Hire, colocate, contract, and/or consult with staff from CCS when transitioning to a new model of healthcare delivery to ensure maximum continuity of care and minimal interruption of care for CCS clients and their families.

Lesson Learned 3a

There are inherent differences in healthcare delivery among Classic CCS, MCPs, and ACOs.

Recommendation 3a

Recognize the differences in how Classic CCS, an MCP, and an ACO deliver healthcare. The MCP model has benefits with general population management but has limited scope within specialty care clinics. ACO models work more closely with actual clinics and thus can impact and measure clinical outcomes more readily than an MCP. As such, customize how policies, procedures, and guidelines for transitioning clients from one model of care to another are developed.

Lesson Learned 4a

There is value in initiating a Demonstration Project to learn what successes it can have when covering only a small subset of health conditions.

Recommendation 4a

After determining that a model that addresses a limited number of health conditions has had initial success, expand this model of care to determine if that success can be replicated with additional health conditions and/or for a longer period of time.

Recommendation 4b

After determining that the ACO model that addressed a limited number of specific health conditions has had initial success, determine how it may be incorporated into a larger or statewide population-based ACO healthcare delivery system.

Lesson Learned 5a

CCS clients whose Medi-Cal enrollment lapse are disenrolled from Medi-Cal and CCS — and reenrollment is a time-consuming process. As a result, these clients' continuity of care within their previous plan is disrupted, which can lead to delayed access to needed care and services.

Recommendation 5a

Develop a mechanism whereby, when a CCS client's Medi-Cal enrollment lapses and they are disenrolled from Medi-Cal then reenrolled, they can more easily be reenrolled into their most recent health plan to avoid costly gaps in care and delayed access to care.

Lesson Learned 6a

Complex case management is the lynchpin that enables the identification and provision of timely, needed healthcare services and supports for children with chronic or complex

conditions. However, the definition of case management differed between the MCP model (more traditional basic navigation, though adapted to a CCS case management framework), the ACO model (clinic-level complex case management), and CCS (pediatric-focused complex case management).

Recommendation 6a

Regardless of the model of care or delivery system, ensure that all CCS clients with chronic or complex conditions receive complex case management services from case managers who are knowledgeable about and have experience working with CCS-eligible conditions, and be knowledgeable about the pediatric specialty resources that CCS clients require. General DME knowledge and pharmacy knowledge in adults, for example, would not be sufficient in caring for these children without significant onboarding and training in pediatric-specific needs.

Recommendation 6b

Identify the complexity of a child's condition to go beyond simply seeking a referral or specialist — embrace the role that county CCS workers played in helping families navigate the medical system, procure transportation, secure appointments, and more. This can be done by contracting with or hiring county CCS staff, through ECM, Community Supports, or other programs that supports pediatric-specific chronic care management.

Recommendation 6c

Implement a clinic-based or condition-specific model of complex case management for CCS clients or others with complex or chronic health conditions when possible. The ACO model was successful in managing disease-level case management while being cost-effective. This may be a lesson learned for MCPs, which could trial implementation of specialty-based case management for select high-risk conditions such as those included in the RCHSD pilot, pilot a tiered case management program on a risk-stratified sample of CCS clients, or expand the MCP's population health management program for pediatric-specific conditions.

Lesson Learned 7a

Case management data entry systems used by CCS are often incompatible with data entry systems used by other health plans, leading to workflow inefficiencies and inadequate, labor-intensive sharing of data and medical records between the counties and health plans.

Recommendation 7a

Improve, centralize, and consolidate data systems used between county CCS programs and the health plans that serve CCS clients to enable a more efficient and streamlined data sharing process.

Lesson Learned 8a

The creation of CCS-specific formularies for services, procedures, medications, equipment, and supplies that CCS clients use more frequently helped to expedite access to them by removing the prior authorization requirement.

Lessons Learned and Recommendations Related to the Evaluation

Lesson Learned 1a

Hosting regularly scheduled check-ins with each of the DPs provided valuable context to the data and allowed the UCSF evaluation team to inquire about data that were missing or seemed inaccurate.

Recommendation 1a

Collaborate in a transparent way with the health plans to generate greater clarity in models of care being evaluated to ensure accuracy of data and learn more about implementation nuances. In setting up this relationship, make it clear that the evaluation is independent and that the meetings are for learning about and clarifying the data and model of care. As an independent evaluation team, it is critical to get information not available in claims for a robust analysis. The state can continue to facilitate the relationships between evaluator and plans for transparency and clarity of the analysis and outcomes and ensure an unbiased and neutral assessment.

Lesson Learned 2a

Conducting a survey evaluation of the HPSM CCS DP parents/guardians would have been more effective if it had been conducted closer to the time that the DP was implemented. Respondents to the telephone survey from San Mateo County had a difficult time with recall and comparing pre- and post-HPSM DP; this is evidenced by the high number of "don't know" responses.

Recommendation 2a

Conduct future evaluations concurrently to the demonstration being evaluated or immediately after the demonstration has concluded.

Lesson Learned 3a

Contact information for CCS clients is imperfect. The UCSF evaluation team encountered more "unusable sample" than anticipated when conducting the telephone survey. "Unusable sample" refers to CCS enrollees who were chosen for the survey but could not be contacted because their telephone number or mailing address was incorrect.

Recommendation 3a

Gather more contact information from CCS clients (e.g., secondary email addresses, additional personal contacts) so there is a greater likelihood of reaching CCS clients. Until an improved contact system is created, procure contact information (sample) for more respondents than is anticipated being needed. This will save time caused by needing to gain approvals for additional data pulls and transfers.

Lesson Learned 4a

Even with the best intentions, not every single factor can be anticipated in a multiyear evaluation. The COVID-19 pandemic was unanticipated and likely impacted the results of the telephone survey, which was conducted during the three first months of California's shelter-in-place orders.

Recommendation 4a

When such an unanticipated event occurs, ensuring data capture of process measures that may impact health may be of use to future monitoring. UCSF's use of the Difference in Differences analysis was critical to assist in the data analysis during the pandemic. The UCSF evaluation team was limited in its ability to control for factors such as whether there was county-to-county variation in home clinical support resources impacted by COVID-19 or if there were differences in delivery systems such as telehealth capacity. Examples of measures that would support future evaluations would be measures of telehealth capacity and social measures such as capacity to work from home, both of which could affect utilization and outcomes but were not able to be measured.

Recommendation 4b

When such an unanticipated event occurs, determine how to pivot in terms of data collection — for example:
- The pandemic may have caused respondents to answer questions differently than they would have before the pandemic. When asked about receipt of services, for example, some CCS clients may not have received the same level of "nonurgent" services as they would have received in other years. Conversely, other CCS

clients may have been more susceptible to the virus and therefore received additional services related to it, such as hospitalizations.

- The pandemic caused confusion about how to answer some original survey questions. Respondents were unsure how to answer questions about employment status, for example, if they had recently lost their job because of pandemic-related economic slowdowns. Additionally, the survey asked whether clients had to receive therapy services in a different location as a result of transitioning into a DP — but it may have been that the location changed because many Medical Therapy Programs are housed in public schools — all of which shut down during California's shelter-in-place orders.
- The pandemic caused the UCSF evaluation team to modify the script that survey interviewers used so they could encourage respondents to think about circumstances immediately before the pandemic began.

Lesson Learned 5a

Health plans have variable data capture systems for clinical measures, such as labs for measuring diabetes control or depression screening. Clinical systems (e.g., clinics and health systems) with electronic medical records have robust data capture capacity, as seen with the ACO model evaluated (the RCHSD DP) as compared to the MCP. Thus, the UCSF evaluation team was able to provide a more meaningful analysis of clinical measures than with the MCP. HEDIS (Healthcare Effectiveness Data and Information Set) measures, which are derived from clinical systems, are often based on sampling rather than on every patient, therefore limiting the ability to capture quality measures on CCS children, who comprise a small subset of the general population.

Recommendation 5a

Having the state work more broadly with clinical systems (e.g., health systems and clinical laboratories) for data capture would improve monitoring of health outcomes in the CCS population.

Recommendation 5b

An alternative strategy to working directly with a clinical delivery system would be to oversample CCS clients to ensure clinical outcome measures are sufficiently measured for monitoring.

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Evaluation of the Dental Transformation Initiative

Final Evaluation Report

June 13, 2023

Sean Orzol, Laurie Felland, Jessica Laird, Martha Kovac, Victoria Peebles, Cara Orfield, and Cindy Alvarez

Submitted to:

Medi-Cal Dental Services Division
Department of Health Care Services
1501 Capitol Avenue, MS 4900
Sacramento, CA 95814
Attention: Adrianna Alcala-Beshara
             May Saeteurn

Submitted by:

Mathematica
220 East Huron Street
Ann Arbor, MI 48104-1912
Project Director: Sean Orzol

Acknowledgements

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Executive Summary

The Dental Transformation Initiative (DTI) is one component of California's multifaceted Medi-Cal 2020 section 1115 waiver program (Medi-Cal 2020). DTI combined statewide strategies and county-based components that promoted the use of preventive dental services, prevention and management of early childhood caries, and continuity of care to advance the overall health and well-being of children enrolled in Medi-Cal. The state hoped that DTI, together with several other important policy and program changes focused on oral health for families with low incomes, would boost historically low rates of provider participation and improve access to dental services.

The DTI had four components, or domains:

- **Domain 1** aimed to increase use of preventive services among Medi-Cal beneficiaries ages 1 to 20. It operated statewide starting January 2016. Dental offices received incentive payments of varying amounts for meeting or exceeding certain benchmark rates of increasing the number of Medi-Cal children who receive preventive services in a year over the intervention. All dental offices that participated in Medi-Cal could receive the incentive payments, but Federally Qualified Health Centers and other Safety Net Clinics were required to opt in and use a special claims form to receive credit for the services they provided.

- **Domain 2** tested a new approach to reducing dental caries and improving oral health among beneficiaries younger than age 7. It began operating in 11 counties in January 2017 and expanded to another 18 counties in January 2019, for a total of 29 counties. Incentives were paid to dental providers for using a bundled package of services that included a caries risk assessment (CRA) and related educational and motivational interventions for patients and caregivers. To be eligible for incentive payments, dental providers were required to opt into this domain and participate in training. Beneficiaries were entitled to a varying number of follow-up visits based on their CRA.

- **Domain 3** aimed to improve continuity of care by rewarding dental offices with incentive payments when a Medi-Cal beneficiary age 20 or younger received care in the same office location from year to year. It began operating in 17 counties in January 2016 and expanded to another 19 counties in January 2019, for a total of 36 counties. All dental offices that participated in Medi-Cal were eligible to receive these incentive payments. Safety Net Clinics were required to opt in and use a special claims form. Incentives were paid annually to practices' billing offices, and the incentive payments increased incrementally with each year of additional continuity an office achieved for a given beneficiary. The incentive payment in 2021 was the same amount offered in 2020.

- **Domain 4** tested alternative strategies for achieving the goals of Domains 1, 2, and 3. The 13 applicants selected to implement Local Dental Pilot Projects (LDPPs) conducted activities such as strengthening the capacity of the dental provider workforce, furthering the integration of oral health into primary care, and promoting the use of telehealth technology to improve access to dental care in rural and other underserved areas. The pilot program began in February 2017. Funding to LDPPs ended on December 31, 2020.

A. Overview of the evaluation

Mathematica conducted a five-year mixed-methods evaluation of DTI. This final report summarizes all evaluation findings and assesses how DTI contributed to California's progress in improving access to dental care for children participating in Medi-Cal. It focuses on evaluation activities that occurred during the second phase of the evaluation, including (1) in-depth qualitative interviews with dental providers, managed care organizations, state officials, and other key informants in Fall 2021; (2) dental provider surveys in fall 2019; (3) beneficiary interviews in Spring 2021; (4) descriptive analyses of administrative data and DTI monitoring and performance data; (5) multivariate impact analyses using administrative data; and (6) case study data for Domain 4 LDPPs.

B. Findings by domain

1. Domain 1

Overall, Domain 1 made considerable progress towards its goal of increasing preventive dental services among children enrolled in Medi-Cal by 10 percentage points. Mathematica found that before 2020, Domain 1 increased the use of preventive dental services by approximately 4 percentage points. These effects occurred before the COVID-19 pandemic began to influence health care use. This increase was primarily driven by dental providers increasing the number of Medi-Cal beneficiaries they served rather than more providers serving Medi-Cal beneficiaries. Mathematica also found evidence of increased use of other dental services, with small but statistically significant impacts on any dental exams, treatment services, and restorative services in the years before 2020.

The impact of Domain 1 on preventive dental services might be limited; because a few aspects of the structure and rollout of the Domain 1 incentives limited dental providers' interest and ability to treat more children than they had before DTI. These aspects include that the incentives were not intuitive and were better suited for dental providers serving small numbers of children enrolled in Medi-Cal. In addition, there were several barriers beyond reimbursement rates, such as capacity constraints and concerns with treating infants and toddlers, that limited the extent to which dental providers could treat more children.

2. Domain 2

We found evidence that Domain 2 changed the way many dental providers assess and treat early childhood caries among children enrolled in Medi-Cal. About one-quarter of Medi-Cal beneficiaries eligible for Domain 2 received an assessment for early childhood caries during the intervention period, with use of CRAs increasing over the intervention periods. Services that Domain 2 incentivized also increased after the start of the interventions in Domain 2 pilot and expansion counties. Children who we assessed as high risk based on dental claims from the previous year were more likely to receive CRAs in the following year than children we assessed as low risk, suggesting that CRAs were focused on the appropriate population. Children at higher risk levels received substantially more treatment dental services than children at lower risk levels.

By the end of the intervention, Domain 2 increased total dental service use by 1.2 services per beneficiary in Domain 2 pilot counties, and 1.3 services per beneficiary in Domain 2 expansion counties. Although most of the increase is attributable to use of the services that Domain 2 incentivized, we found evidence that preventive dental service use (not including services incentivized by Domain 2) increased by 0.3 services per beneficiary per year in Domain 2 pilot counties and 0.2 in Domain 2 expansion counties.

One reason that not all children eligible for Domain 2 with a dental visit received a CRA is that participation by dental providers was limited, with the percentage of active Medi-Cal dental providers who participated (provided at least one CRA) never exceeding 40 percent. However, dental providers that participated in Domain 2 found the CRA bundle worked well in their practice; they reported it was easy to implement, the training on the CRA bundle was helpful, and the payments were satisfactory. Key informants and providers interviewed reported that implementing the bundle of services went well overall. The California Department of Health Care Services (DHCS) designed the domain with input from dental experts across the state to include an appropriate set of services, which helped build support for them.

3. Domain 3

We found impacts of Domain 3 on continuity of care that are less than 1 percentage point. Although continuity of care increased for Domain 3 counties before 2020 (and before the disruptions in health care related to COVID-19), continuity of care also increased for children enrolled in Medi-Cal in counties that did not participate in Domain 3, and in Domain 3 expansion counties before the start of the Domain 3 expansion. This finding is consistent across several outcome measures designed to capture continuity of care.

Although we found limited evidence that Domain 3 substantially increased continuity of care for beneficiaries, results from our provider survey and key informant and provider interviews suggest that Domain 3 incentives motivated many dental providers to take steps to improve continuity of care for the children they serve enrolled in Medi-Cal and gave dental providers the resources to do it. Despite motivating some providers to take steps to improve continuity of care, for others, findings from the provider survey indicate that the payments were not the providers' focus, which might help explain the limited effects on beneficiaries' outcomes of continuity of care and dental service use. In addition, many of the additional steps taken by providers to improve continuity of care, such as increasing outreach activities and follow-up visits for children enrolled in Medi-Cal, are likely insufficient to address key outside factors related to Medi-Cal beneficiaries' challenges accessing dental care, such as life stressors that make dental appointments a lower priority for some families.

4. Domain 4

Nearly all LDPPs built on prior investments, efforts, and partnerships in children's dental care when developing their models. We found that LDPPs' strategies fit into five common components, with each LDPP working on multiple components: (1) offering care coordination services, (2) conducting oral health outreach and education, (3) enhancing the dental provider workforce, (4) providing services virtually, and (5) facilitating medical–dental integration. Across LDPPs, we found that some components were easier to implement than others. Nearly all LDPPs successfully implemented care coordination activities, which played a critical role in identifying and connecting children in need to dental care. LDPPs had difficulty facilitating medical-dental integration, because these activities required substantial investments in process and systems changes.

LDPPs' efforts to try new ways of providing dental care in the community showed promise in expanding and improving the overall structure and capacity of the dental safety net, but LDPPs faced several challenges that limited their effectiveness. First, LDPPs faced issues recruiting and retaining staff; some LDPPs reported long hiring processes, hiring delays, and high levels of staff turnover, which led to many

extended vacancies in LDPP positions. Second, the COVID-19 pandemic introduced a myriad of challenges that delayed or halted some LDPP activities.

C. Discussion

As DTI came to a close, key informants saw the program positively overall—particularly its goals, objectives, and effects on oral health care for children. Key informants thought DTI complemented the state's other efforts to improve the dental components of the Medi-Cal program, such as Proposition 56 supplemental payments; administrative refinements to promote provider participation; and outreach efforts of the Smile, California campaign and California Department of Public Health's California Oral Health Plan. At the same time, key informants came away from the DTI experience with recognition of some of the barriers to success of the initiative, particularly the design and allocation of Domain 1 provider incentives and the implementation of the LDPPs. They also offered several ideals for what might have improved DTI's implementation and impacts, such as conducting a more explicit provider recruitment effort and implementing strategies to proactively steer Medi-Cal beneficiaries to dental providers. Lessons from the LDPPs suggest that more collaboration between DHCS and dental experts, providers, and community agencies and organizations is vital to assess and improve the effectiveness of new strategies to improve oral health for Medi-Cal beneficiaries.

The results of our evaluation suggest that DTI helped California make considerable progress in improving access to dental care for children enrolled in Medi-Cal. In designing and implementing the next waiver— the California Advancing and Innovating Medi-Cal (CalAIM)— DHCS has already taken steps to address aspects of DTI that might have limited the impact of the initiative—most notably, simplifying the incentive structure to encourage preventive dental care and continuity of dental care. Our evaluations findings suggest that providing enhanced reimbursement can improve some aspects of access to dental care among children enrolled in Medi-Cal. However, the structure of the provider incentives and the persistence of other barriers are likely to play an important role in the success of initiatives like DTI. As DHCS continues its implementation, it should consider additional lessons from DTI to further address and improve oral health care for children participating in Medi-Cal and other beneficiaries.

I. Introduction

The Dental Transformation Initiative (DTI) is one component of California's multifaceted Medi-Cal 2020 Section 1115 waiver program (Medi-Cal 2020). Medi-Cal 2020 was a six-year program that spanned 2016 through 2021.[1] It aimed to transform and improve access, quality and efficiency of health care for the more than 13 million Medi-Cal members. California's Department of Health Care Services (DHCS) contracted with Mathematica to conduct a five-year evaluation of DTI from July 1, 2018, through June 30, 2023.[2]

In this report, we provide final evaluation findings for the six-year DTI demonstration program. An interim evaluation report (Harrington et al. 2019) to DHCS in fall 2019 summarized findings from (1) the first round of qualitative interviews with providers and other key informants conducted in spring 2019, and (2) selected descriptive quantitative findings on implementation progress and provider participation, using DHCS/DTI reporting data. This final report builds on interim report findings and incorporates findings from all evaluation components. It focuses on activities that occurred after the interim evaluation report was written, including (1) a second round of in-depth qualitative interviews with dental providers, managed care organizations, state officials, and other key informants in fall 2021; (2) dental provider surveys in fall 2019; (3) beneficiary interviews in spring 2021; (4) descriptive analyses of administrative data, and DTI monitoring and performance data; (5) multivariate impact analyses using administrative data; and (6) case study data for Domain 4 Local Dental Pilot Projects (LDPPs).

A. Overview of DTI

To accelerate improvements in dental care and oral health for children eligible for Medi-Cal, California tested strategies through a multifaceted set of interventions. DTI combined statewide strategies and targeted county-based components that together provided a strong foundation for evaluating the effectiveness of various approaches to improving the access and quality of oral health care for children. The original waiver period for the DTI demonstration spanned five years, from January 2016 through December 2020. However, given delays implementing the planned California Advancing and Innovating Medi-Cal (CalAIM) initiative brought on by the COVID-19 pandemic, Domains 1, 2, and 3 were extended to include a sixth program year that ended December 31, 2021. Domain 4 was allowed to end as scheduled on December 31, 2020.

The DTI had four components, or domains, described below and summarized in Table I.1:

- **Domain 1** attempted to increase the use of preventive services among Medi-Cal beneficiaries ages 1 through 20. It operated statewide starting January 2016. Dental offices received incentive payments of varying amounts for meeting or exceeding certain benchmark rates of increasing the number of children enrolled in Medi-Cal who receive preventive services in a year over the intervention. All dental offices that participated in Medi-Cal were eligible to receive the incentive payments. However, Federally Qualified Health Centers and other Safety Net Clinics were required to opt in and use a special claims form to receive credit for the services they provided.[3]

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[1] The Centers for Medicare & Medicaid Services approved Medi-Cal 2020 on December 30, 2015, and the initiative ran through December 31, 2020. DHCS received a 12-month waiver extension for Medi-Cal 2020 until December 31, 2021.
[2] The original contract with DHCS to conduct the DTI evaluation was to span four years, from July 1, 2018, through June 30, 2022. However, because of the 12-month extension to the DTI program, DHCS extended Mathematica's evaluation contract another 12 months for a fifth year, and it will run through June 30, 2023.
[3] Because Safety Net Clinics billed for dental services differently than other providers, they had to agree to use a special claims form that was developed for the demonstration for the services they provided.

- **Domain 2** tested a new approach to reducing dental caries and improving oral health among beneficiaries younger than age 7. It began operating in 11 counties in January 2017 and expanded to an additional 18 counties in January 2019, for a total of 29 counties. Incentives were paid to dental providers for using a bundled package of services that included a caries risk assessment (CRA) and related educational and motivational interventions for patients and caregivers. To be eligible for incentive payments, dental providers were required to opt into this domain and participate in training. Beneficiaries were entitled to a varying number of follow-up visits based on their CRA.

- **Domain 3** aimed to improve continuity of care by rewarding dental offices with incentive payments when a Medi-Cal beneficiary age 20 or younger received care in the same office location from year to year. It began operating in 17 counties in January 2016 and expanded to an additional 19 counties in January 2019, for a total of 36 counties. All dental offices that participated in Medi-Cal were eligible to receive these incentive payments. Safety Net Clinics were required to opt in and use a special claims form. Incentives were paid annually to practices' billing offices. Payments increased incrementally with each year of additional continuity an office achieved for a given beneficiary. The incentive payment in 2021 was the same amount offered in 2020.

- **Domain 4** tested alternative strategies for achieving the goals of Domains 1, 2, and 3. The 13 applicants selected to implement LDPPs conducted activities such as strengthening the capacity of the dental provider workforce, furthering the integration of oral health into primary care, and promoting the use of telehealth technology to improve access to dental care in rural and other underserved areas. The pilot program began in February 2017. Individual project agreements were finalized on a rolling basis; the first was finalized in April 2017, and 11 more LDPPs were approved by the end of 2017. The 13th and final LDPP project was added in early 2018. Funding to LDPPs ended on December 31, 2020.

Table I.1. Details on DTI domains

Domain	1	2	3	4
Goal	To increase the percentage of children enrolled in Medi-Cal who receive preventive services in a year by 10 percentage points	To reduce dental caries and improve oral health among children enrolled in Medi-Cal ages 0 to 6	To improve continuity of care by rewarding dental offices when a child received care in the same office location from year to year	To test alternative strategies for achieving the goals of Domains 1, 2, and 3
Timing	January 2016 through December 2021	January 2017 through December 2021	January 2016 through December 2021	February 2017 through December 2020
Locations	Operated statewide	Began operating in 11 counties in January 2017: Glenn, Humboldt, Inyo, Kings, Lassen, Mendocino, Plumas, Sacramento, Sierra, Tulare, Yuba Expanded to an additional 18 counties in January 2019: Contra Costa, Fresno, Imperial, Kern, Los Angeles, Madera, Merced, Monterey, Orange, Riverside, San Bernardino, San Diego, San Joaquin, Santa Barbara, Santa Clara, Sonoma, Stanislaus, Ventura	Began operating in 17 counties in January 2016: Alameda, Del Norte, El Dorado, Fresno, Kern, Madera, Marin, Modoc, Nevada, Placer, Riverside, San Luis Obispo, Santa Cruz, Shasta, Sonoma, Stanislaus, Yolo Expanded to an additional 19 counties in January 2019: Butte, Contra Costa, Imperial, Merced, Monterey, Napa, Orange, San Bernardino, San Diego, San Francisco, San Joaquin, San Mateo, Santa Barbara, Santa Clara, Solano, Sutter, Tehama, Tulare, Ventura	Pilot program began in mid-February 2017. Individual project agreements were finalized on a rolling basis. The first was finalized in April 2017, and 11 more LDPPs were approved by the end of 2017. The 13th LDPP project was added in early 2018. LDPPs included Alameda County, California Rural Indian Health Board, Inc. (CRIHB), [a] California State University Los Angeles, First 5 San Joaquin, First 5 Riverside, Fresno County, Humboldt County, Orange County, Sacramento County, San Luis Obispo County, San Francisco City and County Department of Public Health, Sonoma County, and University of California Los Angeles.
Incentives[b]	Dental offices received incentive payments of varying amounts for meeting or exceeding certain benchmark rates of increase in number of Medi-Cal children receiving preventive services.	Dental providers received incentives for providing a bundled package of services that included a caries risk assessment and related educational and motivational interventions for patients and caregivers.	Dental offices received incentives that increased incrementally with each year of additional continuity an office achieved for a given child enrolled in Medi-Cal.	Not applicable; LDPPs were not eligible for incentives and submitted quarterly invoices for costs incurred.
Eligibility	All participating Medi-Cal dental offices were eligible to receive the incentive payments. Safety Net Clinics were required to opt in and use a special claims form.[c]	Dental providers in the Domain 2 counties were required to opt into this domain and complete training to become eligible for incentive payments.	All participating Medi-Cal dental offices in Domain 3 counties were eligible to receive incentive payments. Safety Net Clinics were required to opt in and use a special claims form.[c]	Lead entities submitted project proposals to apply for LDPP funding.

[a] CRIHB operated in many counties.

[b] More details on DTI incentives by domain are available at https://www.dhcs.ca.gov/provgovpart/Pages/dti.aspx.

[c] Because Safety Net Clinics billed for dental services differently than other providers, they had to agree to use a special claims form that was developed for the demonstration for the services they provided.

B. The evaluation

As required under conditions of the waiver program, DHCS submitted an evaluation design for the DTI to the Centers for Medicare & Medicaid Services (CMS). It was finalized and approved by CMS in September 2017 (California Department of Health Care Services 2017). Mathematica's evaluation approach built and expanded on that design document.[4]

Mathematica conducted an independent evaluation of DTI to assess the DTI theory of change. That is, it examined whether offering dental providers financial incentives increased provider capacity and facilitated increased demand for care, resulting in more children enrolled in Medi-Cal receiving more preventive dental care and fewer restorative services.

Table I.2 highlights several key research questions, listed by domain, that this final evaluation report addresses. Appendix A, Table A.I.1 summarizes all the hypotheses and detailed evaluation questions, as well as the data sources and analytic methods we used to address the questions. The appendix table also indicates whether findings were available for both the interim and final evaluation reports, or for only the final evaluation report. Throughout this report, we highlight additional details of our evaluation methods in callout boxes.

Table I.2. Key research questions for the independent evaluation of DTI

Relevant domains	Research question
Domain 1	• Do Domain 1 incentive payments lead to an increase in Medi-Cal provider participation? • Do Domain 1 incentive payments lead to higher usage rates for preventive services? • What factors other than the Domain 1 incentive payments influence the volume of preventive services provided to children enrolled in Medi-Cal?
Domain 2	• Do Domain 2 incentive payments lead providers to perform carries risk assessments (CRAs) for the focus population, and to provide the CRA bundle to manage early childhood caries? • How does the volume of dental related services change over time for children enrolled in Medi-Cal receiving services offered through Domain 2? • How do providers view the reimbursement amounts for CRA and related Domain 2 services?
Domain 3	• Are incentive payments effective in promoting continuity of care for children enrolled in Medi-Cal? • What are providers and practices doing to increase continuity of care?
Domain 4	• What types of approaches (components, activities, and strategies) are Local Dental Pilot Projects (LDPPs) using to meet the goals of Domains 1, 2, and 3? • What lessons on improving access to and quality of dental care for children did the Department of Health Care Services and other policymakers learn from the LDPPs?
Domains 1, 2, 3, 4	• What barriers other than payment amounts influence providers' ability or willingness to increase the number of children enrolled in Medi-Cal they serve? • How do providers view the role of the incentive payments in influencing their decision to become a Medi-Cal dental provider?

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[4] In February 2019, Mathematica submitted a plan for implementing the independent evaluation of DTI and preparing the interim and final evaluation reports.

To answer these research questions, we engaged in the following core evaluation components:

- In-depth **qualitative interviews with a sample of dental providers, provider associations, managed care organizations, state officials, advocacy organizations, and other key informants** about experiences with and perceptions of the DTI as well as contextual and other factors influencing the implementation and outcomes of the demonstration. We conducted an initial set of 21 interviews in spring 2019, and another round of 12 interviews in fall 2021.

- A web-based **survey of a statewide sample of Medi-Cal dental providers** that generated quantitative descriptive data to complement findings from the qualitative interviews and provided context for the analyses of outcomes and impacts. The provider survey was fielded in fall 2019 with 532 providers.

- **Telephone interviews with parents and caregivers of a sample of children enrolled in Medi-Cal** to learn about their experiences with various aspects of the demonstration and their views on dental care.[5] Interviews were conducted in spring 2021 with 58 families of children enrolled in Medi-Cal.

- A **descriptive analysis** of administrative data and DTI monitoring and performance data. Administrative data included Medi-Cal eligibility and enrollment, claims, and encounter data that enabled us to examine trends in provider participation, beneficiaries' use of services, expenditures, continuity of care, and related outcomes. DTI monitoring and performance data provided by DHCS supplemented the findings from the administrative data and included incentive payments made at the office and provider level for all domains.

- A **multivariate impact analysis** using administrative data and appropriate comparison designs that assessed the impact of DTI interventions on service use, expenditures, continuity of care, and related outcomes.

- **Case studies** of the 13 Domain 4 LDPP demonstrations that explored in greater depth how the pilot projects were implemented and implications for the broader initiative. In fall 2020, we conducted 48 interviews, including with each LDPP's lead entity and its key partners. In addition, we reviewed background materials on each LDPP provided to us by DHCS, including its DTI Domain 4 applications and the annual and quarterly reports it submitted to DHCS.

C.   Road map for this report

In Section II, we describe findings from a review of the literature, qualitative interviews with key informants and providers, and our 2019 survey of dental providers about the state of dental care for children enrolled in Medi-Cal. We also summarize factors external to DTI that might have influenced dental outcomes targeted by the demonstration, including important Medi-Cal program and policy changes that occurred during the intervention period. Section III presents findings from our analysis of Medi-Cal administrative data and provider survey data, including estimates of the causal impacts of DTI on access to dental care and use of dental services among children enrolled in Medi-Cal. We also incorporate perceptions and experiences of key informants, providers, and families of children enrolled in Medi-Cal. In Section IV, we present results from our case studies on the 13 LDPPs. Section V identifies

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[5] The original design plan involved a computer-assisted telephone survey of a statewide sample of parents and caregivers of children enrolled in Medi-Cal receiving services through one or more of the DTI domains. In May 2020, after receiving approval from DHCS, we revised our approach to conduct telephone interviews with parents and caregivers of children served by the LDPPs. We revised our approach because we thought the LDPPs would have more current contact information than Medi-Cal administrative data sources and qualitative interviews with families familiar with the LDPP and DTI services would allow for richer data collection.

and describes key lessons learned about the design and implementation of DTI. In addition the implications of DTI on the future of oral health for children enrolled in Medi-Cal. Section VI concludes with a discussion of the findings from the evaluation.

II. Context: Oral Health Care for Children Enrolled in Medi-Cal

This section provides background on contextual issues that shaped the oral health care landscape for children enrolled in Medi-Cal throughout the implementation of DTI. It discusses challenges these children faced accessing dental care, barriers to participation for Medi-Cal dental providers, and notable program and policy changes in Medi-Cal during the DTI intervention period.

A. Access to dental care for children enrolled in Medi-Cal

Before DTI, children enrolled in Medi-Cal received fewer preventive dental services than children in the nation as a whole and in many other states. From 2011 to 2015, 36 to 38 percent of children (ages 1 to 20) enrolled in Medi-Cal received a preventive dental service each year. The national average for children of the same age enrolled in Medicaid programs ranged from 44 to 46 percent across the same years. During this period, California ranked in the bottom 10 of states providing children enrolled in Medicaid with preventive dental services (Center for Medicaid and CHIP Services 2020). In addition, a 2015 analysis of state Medi-Cal data found that 29 percent of children (ages 1 to 20) continuously enrolled in Medi-Cal in 2011 and 2012 received no dental services, and an additional 49 percent did not receive all required dental services (Office of Inspector General 2016).

Since 1974, most children enrolled in Medi-Cal have accessed dental services through a fee-for-service (FFS) delivery system. There are exceptions: since 1995, most children living in Sacramento County enrolled in Medi-Cal must enroll in managed care plans for their dental care, while children living in Los Angeles County have the option to enroll in managed dental care. Dental providers who contract with Medi-Cal FFS and managed care plans include Federally Qualified Health Centers and other Safety Net Clinics that provide both medical and dental care, large dental practices that focus on the Medi-Cal population, and private practice dental offices that treat people with a variety of insurance types.

1. Barriers to oral health care for children enrolled in Medi-Cal

Within this context, children enrolled in Medi-Cal and their families face several common barriers to accessing dental services. Key informants and dental providers we interviewed reported that a combination of a lack of education and awareness about the importance of oral health (in other words, low oral health literacy), as well as socioeconomic factors (commonly known as social determinants of health), limit the extent to which families enrolled in Medi-Cal seek and obtain dental care for their children (see accompanying text box). In particular, many of these families are unaware that very young children need dental care. Common social determinants of health affecting oral health care include challenges finding transportation to appointments (although the Medi-Cal program

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Common barriers to oral health care for children enrolled in Medi-Cal

Dental providers and key informants reported several key barriers to oral health that are relevant to all DTI domains:

- Awareness and education
  - Low oral health literacy
  - Misconceptions about the need for dental care for young children and for baby teeth
- Social determinants of health
  - Difficulty with transportation to appointments
  - Work schedules that prevent families from attending appointments
  - Financial difficulties purchasing oral health supplies
  - Other life stressors that take precedence over dental care
- Inability to find dentists who will accept Medi-Cal coverage

Source: Mathematica interviews with key informants and dental providers conducted in spring 2019. ◢

offers assistance with transportation), inflexible work schedules that prevent families from going to appointments, inability to pay for oral health supplies, and other stressors that take precedence over oral health and dental care. Further, key informants noted that many families face challenges finding dental providers who will accept their Medi-Cal coverage, as the supply of dental providers participating in the program is inadequate to meet the needs of children across the state.

Methods: Interviews with key informants and Medi-Cal dental providers

Mathematica interviewed key informants and Medi-Cal dental providers in California about their experiences with and perceptions of the DTI demonstration. Researchers interviewed 11 dental providers and 12 key informants in Spring 2019 and interviewed another 12 key informants (some the same individuals and others different) in Fall 2021. These interviews were separate from the survey of dental providers, as described below in the next methods box. We randomly selected dental providers for interviews in a diverse set of eight counties participating in Domain 2 (Mendocino, Inyo, Sacramento, Tulare) or 3 (Alameda, Fresno, Kern, Riverside). For the key informant interviews, following a review of program documents and background information on the development and rollout of DTI, we drafted a comprehensive list of potential respondents. Mathematica then selected (with input from DHCS) leaders from provider associations, dental health plans participating in Medi-Cal, state officials, advocacy organizations, and others with a broad statewide or multi-regional perspective on DTI and oral health for children.

To avoid potential bias in our sample of key informants, Mathematica first identified organizations and people we thought could provide a range of perspectives on the implementation and outcomes of DTI through research of the program data and online resources. After discussions with DHCS and further research, Mathematica removed some from our interview list because we learned that they had less current insight into the topics of interest. Most of the people Mathematica invited for interviews agreed to participate, and we heard a range of opinions about DTI. Mathematica conducted an in-depth interview with each respondent by telephone using semi-structured discussion guides customized to respondents' areas of expertise. The 2019 interviews covered topics including the context in which DTI was implemented (such as the factors affecting provider participation in Medi-Cal and Medi-Cal beneficiaries' access to care) and the role of the DTI incentives in changing provider behavior and organizational strategies aimed at meeting the goals of DTI for the four domains. The 2021 interviews covered changes in these topics over the course of DTI's implementation, barriers and facilitators to their implementation and effects, lessons learned and feedback for DHCS and other states, and plans for sustaining changes made under DTI. All interviews were recorded and professionally transcribed.

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2. Challenges to provider participation in Medi-Cal

Across state Medicaid programs, dentists commonly cite low payment rates, administrative requirements, and patient issues, such as frequently missed appointments, as the reasons why they do not treat more patients enrolled in Medicaid (U.S. General Accounting Office 2000). Dental providers in California have long faced similar challenges to participating in Medi-Cal. In our survey of dental providers fielded from October 2019 to March 2020, we asked dentists what affects provider willingness to treat children enrolled in Medi-Cal, as well as what state or local changes could encourage more providers to provide dental care to children enrolled in Medi-Cal (see methods box below).

Many dental providers' concerns about treating children enrolled in Medi-Cal center on the belief that they are more difficult to treat because of socioeconomic challenges and lower oral health literacy. Indeed, 73 percent of dentists surveyed reported that missed scheduled appointments among Medi-Cal patients (which, as noted earlier, can be related to transportation challenges, inflexible work schedules,

and other life stressors) are a barrier to providers' willingness to treat Medi-Cal beneficiaries, and 56 percent of providers pointed to these patients not understanding the importance of oral health care (see accompanying text box on the next page). One provider said this lack of understanding can result in children's oral health deteriorating to a point at which dentists fear they will not be able to fix the children's dental problems. Of the providers surveyed, 67 percent thought that educating parents on the importance of good oral health and receiving preventive care could encourage more providers to provide dental care to children enrolled in Medi-Cal. A few key informants and dental providers said some providers inaccurately perceive that Medi-Cal beneficiaries are less committed to oral health and less compliant with dental treatment; these perceptions that could be related to stigma, implicit bias, and racism.

Low reimbursement rates relative to the costs of providing care is another key barrier to dental provider participation in Medi-Cal. In 2016, compared with other states with FFS dental programs, California had the lowest Medicaid FFS reimbursement for child dental services as a percentage of fees charged, at 30.8 percent (Gupta et al. 2017). Although the state implemented policy changes to address some of these concerns (discussed below in Section II.B), low reimbursement rates have remained a key barrier to provider participation. While 58 percent of providers surveyed named low reimbursement as a barrier to dental providers' willingness to treat children enrolled in Medi-Cal, 83 percent of providers surveyed said that raising reimbursement would encourage more providers to provide care to this population.

Perceptions of barriers affecting providers' willingness to treat children enrolled in Medi-Cal in their communities

(Percentage of providers surveyed indicating each as a barrier)

Missed appointments	73%
Low payment levels/reimbursement rates	58%
Parents not understanding importance of oral health care	56%
Administrative burden, payment delays or denials	33%
Patients' low compliance with prevention and treatment	32%
Patients switching providers frequently	31%

Source: Mathematica fielded a survey of 532 dental providers from October 2019 through March 2020. ◢

Methods: Survey of Medi-Cal dental providers

Survey of Medi-Cal dental providers. We conducted a survey with 532 dental providers to learn about their experiences providing dental care to children in the Medi-Cal dental program. The 20-minute survey was administered as a web and paper survey organized into three sections: (1) dental service provision and continuity of care, (2) caries risk assessment and oral disease management, and (3) provider demographics.

Survey timing, sample, and response rate. The survey was fielded from October 2019 to March 2020 to 1,160 providers from practices in counties participating in Domains 1, 2, and 3. The overall weighted response rate for the survey was 47.6 percent.

Analytic methods. We conducted a descriptive analysis of the survey data using frequencies and means, weighted for sampling and nonresponse, and compared provider responses overall, by domain participation, by percentage of their patient population that is children enrolled in Medi-Cal (for example, less than 25 percent, less than 50 percent, more than 50 percent, more than 75 percent), and by respondent type (dentist or non-dentist).

Appendix B further describes the survey content, sample, and methods. It also includes the survey instrument and additional analysis tables.

Additional state and local efforts that could encourage more providers to provide dental services to children enrolled in Medi-Cal

(Percentage of providers surveyed)

Increase reimbursement rates	83%
Educate parents on importance of good oral health and receiving preventive care	67%
Make billing and payments more efficient	57%
Make application process easier	50%
Provide better marketing and advertising to providers	32%
Provide more instruction for how to work effectively with children	23%
Offer more student loan repayment opportunities	19%

Source: Mathematica fielded a survey of 532 dental providers from October 2019 through March 2020. ◢

Other common challenges related to participating as a Medi-Cal provider are administrative burden and receiving reimbursement for services provided. DHCS has taken steps such as streamlining the Medi-Cal provider application several years ago, transitioning to an online provider application and portal, allowing online claims submissions, and efforts to shorten response time to authorization requests for treatment. However, these issues persist. Of the providers surveyed, 50 percent of providers said making the enrollment process easier and 57 percent said making billing and payments more efficient could encourage more provider participation. Specifically, the process of applying to become a Medi-Cal dental provider has been lengthy and difficult, the process to request treatment authorization has been complex and stringent, and the time it takes to receive payment is slow compared with commercial insurers. One dental provider described Medi-Cal's rules as a source of frustration, saying "Rules change, and then you don't get paid."

The dental providers we interviewed said that given these issues, the main reason they participate in Medi-Cal is because they have a mission to care for underserved people. Yet providers' ability and capacity to serve children enrolled in Medi-Cal also limits their participation. Some providers lack training and confidence in treating young children, especially infants and toddlers. Of providers surveyed, 23 percent said that providing more instruction for how to work effectively with children would encourage more providers to treat the Medi-Cal population. Further, Safety Net Clinics and other clinics that already serve many Medi-Cal beneficiaries often face financial constraints that limit their ability to expand their facilities and staff to take in more children. It is unclear how expanding dental benefits to adults enrolled in Medi-Cal in 2018 (discussed further below) will affect provider supply: it could spur more providers to participate in Medi-Cal, ultimately benefitting children, or it could exacerbate capacity challenges.

B.   Additional Medi-Cal changes to improve access to dental care

Over the course of DTI, California implemented several additional policy and program changes to encourage Medi-Cal families to seek preventive dental services for their children and for dental providers to offer these services. Key informants thought most of these efforts were helpful complements to DTI to improve access to and provision of dental care for children enrolled in Medi-Cal. See Figure II.1 for a timeline of key activities and developments.

Figure II.1. Timeline of key events shaping the oral health landscape in California
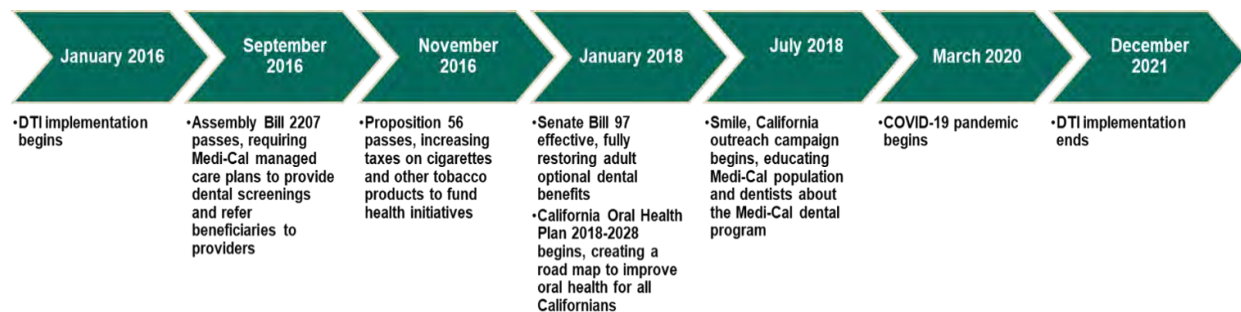
Rebranding dental benefits. Traditionally, dental coverage in the Medi-Cal program was referred to as Denti-Cal. However, the state became concerned that using a separate term to refer to these dental benefits created confusion among the Medi-Cal population, who thought they needed to enroll in a separate program. California, therefore phased out the term Denti-Cal and informed beneficiaries of the dental benefits available through their regular Medi-Cal coverage. The state now refers to these benefits as Medi-Cal Dental.

Assembly Bill 2207. In 2016, California passed Assembly Bill 2207, which started requiring Medi-Cal managed care plans to provide dental screenings for Medi-Cal beneficiaries during their initial health assessments, and then refer these beneficiaries to Medi-Cal dental providers. (Medi-Cal managed care plans manage medical benefits; dental benefits, as described earlier, are administered separately.) Per Medi-Cal enrollment data reported through December 2021, 92 percent of children enrolled in Medi-Cal were enrolled in a Medi-Cal managed care plan (California Department of Health Care Services 2022a). This law might have led to some level of integration and coordination of medical and dental care.

Proposition 56. In November 2016, the state passed Proposition 56, the California Healthcare Research and Prevention Tobacco Tax Act. This law increased state taxes on cigarettes and other tobacco products with most of the revenue earmarked to support health care programs for Californians with low incomes. California used this revenue to establish supplemental payments for Medi-Cal providers, including for several dental billing codes, starting July 1, 2017 (California Department of Health Care Services 2022b). Although the dental rate increases apply primarily to billing codes not affected by DTI (and mostly for adult services), key informants thought that Proposition 56 complemented DTI well in that both initiatives increased the amount of reimbursement dental providers could receive; this "package" made them more receptive to being a Medi-Cal provider.

Senate Bill 97. Effective January 2018, Senate Bill 97 fully restored dental benefits for adults that the state had eliminated in 2009 and partially restored in 2014. The partially restored Medi-Cal services included basic preventive, diagnostic, and restorative care; anterior tooth endodontic treatment; complete dentures; and complete denture relining and repair (Fletcher 2018; California Department of Health Care Services 2022c). The restoration of partial benefits and ultimately full benefits might have led to more parents seeking dental care for themselves and their children (Lipton 2020; Lipton et al. 2021). And, as noted above, greater access for adults might also boost access for children or exacerbate existing capacity problems.

Outreach campaign. In 2018, the state initiated an outreach campaign called "Smile, California," to educate populations eligible for Medi-Cal about Medi-Cal dental benefits and to improve access to care.

The campaign seeks to raise awareness of the importance of oral health and using dental benefits through culturally appropriate messaging conveyed through various communication channels, including community-based organizations. Other features include efforts to encourage dentists to participate in Medi-Cal, including one-on-one assistance to help dentists enroll in the program, and a website that connects Medi-Cal beneficiaries to available providers through a provider database (California Department of Health Care Services 2021a). One key informant described the website as a "one-stop shop" for beneficiaries to learn about the Medi-Cal dental program. According to another key informant, the campaign was responsive to feedback about how to improve, such as by translating website information and materials into various languages.

California Oral Health Plan 2018–2028. In 2014, the California State Legislature charged the California Department of Public Health (CDPH) with preparing an assessment of the burden of oral diseases in California and developing an oral health plan based on its findings (California Department of Public Health 2018). In response, CDPH and DHCS convened an advisory committee to develop the California Oral Health Plan 2018–2028. This plan involves a road map for improving oral health for all California residents (not just the Medi-Cal population) by addressing insufficient infrastructure to promote culturally sensitive community-based oral health programs, insufficient data to inform interventions, barriers to access to care, and a lack of consistent and effective messaging to encourage improvements in oral health, among other issues. Through the plan, the state established a public health infrastructure and capacity to improve oral health, including conducting assessments and increasing fluoride treatments and oral health literacy.

The California Oral Health Plan also provides funding from Proposition 56 for Local Oral Health Programs across the state. These programs provide clinical interventions to improve oral health. In one example, community health workers incorporate oral health promotion into their home visits with patients. The local programs also collaborate with Smile, California, including on the Back Tooth School campaign, which focused on identifying children in low-income schools who need dental services. However, some of these local programs were suspended due to the COVID-19 public health emergency (PHE).

C. Emergence of the COVID-19 pandemic

In March 2020, during the final year of DTI's implementation, the governor of California issued a stay-at-home order to "protect the health and well-being of all Californians and to establish consistency across the state in order to slow the spread of COVID-19 (Office of Governor Gavin Newsom 2020)." Although dental offices were considered essential services, most closed per recommendations and guidance from the Centers for Disease Control and Prevention and local health departments. Offices postponed routine and preventive dental care and limited patient treatment to emergency care (California Dental Association 2020; Reese 2020).

The pandemic affected all DTI domains and effectively shortened the demonstration period, as many services were curtailed or halted. Key informants reported that the PHE and stay-at-home order "wreaked havoc" on dental services usage as dental providers closed their offices. Even after offices were allowed to reopen on June 15, 2021, dental providers faced challenges obtaining personal protective equipment, and their capacity declined because of the time needed to adhere to COVID-19 protocols between patients. Parents also had safety concerns about in-person dental care, reducing demand for dental services.

However, providers' and states' responses to the pandemic might have mitigated some of the disruptions to dental care access and for DTI specifically. To maintain contact during the PHE with children enrolled in Medi-Cal, dental providers tried new strategies that were not a part of DTI but might have helped advance the goals of DTI. These strategies included "drive-through" screenings and applications of fluoride varnish that limited patient and staff contact. Patients received treatment in clinic parking lots either in their cars or on foot. In addition, although dental providers could deliver dental services via telehealth before the COVID-19 pandemic, they did not typically do so (Libersky et al. 2020). Once the pandemic began, some providers began using telehealth to encourage and monitor dental habits in their patients' homes and to triage cases to determine treatment. DHCS began allowing dental providers to bill for remote triage, which involves screening patients remotely to determine their condition and the care needed. This was a "sea change for dentistry" according to a key informant. Another key informant said that the pandemic also "cleaned the window," so the state could better see the inequities in preventive care for children enrolled in Medi-Cal that still need to be addressed.

D. DTI extension

In response to the COVID-19 pandemic, DHCS submitted a request to CMS for federal approval to extend the Medi-Cal 2020 Waiver, including DTI Domains 1 through 3, for 12 months ending on December 31, 2021. On December 29, 2020, CMS approved DHCS' request for an extension. However, the state did not extend Domain 4, so the LDPPs ended as originally scheduled on December 31, 2020. This decision led to some key informants from LDPPs reporting that they did not have enough time to fully implement their strategies and demonstrate progress on their implementation and impact. The LDPPs reported that the decision against providing them with an extra year significantly hindered their ability to regain the momentum they lost during the PHE and to demonstrate more progress toward their goals.

III. Effect of DTI on Provider and Beneficiary Outcomes and Perceptions and Experiences of Key Informants, Providers, and Beneficiaries

A. Introduction

In this section, we present findings from the quantitative and qualitative components of the evaluation that assess whether DTI is meeting its objectives and improving children's access to and use of dental care in the Medi-Cal program. Sections III.B, III.C, and III.D organize findings by domain, and Section III.E presents results on the total benefits and costs of DTI.

B. Domain 1. Improving use of preventive dental services among children enrolled in Medi-Cal

🔑 Key takeaways

Overall, Domain 1 made considerable progress towards its goal of increasing preventive dental services among children enrolled in Medi-Cal by 10 percentage points (a 23 percent increase over the pre-DTI rate). We found that before 2020, Domain 1 increased the use of preventive dental services by approximately 4 percentage points. We also found evidence that Domain 1 had favorable spillover effects on other dental services, with small impacts on any dental exams, treatment dental services, and restorative dental services. These effects occurred before the COVID-19 pandemic began to influence health care use. Use of preventive dental services increased over time starting in 2017 and increased when compared with older Medi-Cal beneficiaries and Medicaid beneficiaries from other states. This increase was primarily due to dental providers increasing the number of Medi-Cal beneficiaries they served rather than more providers serving Medi-Cal beneficiaries. The impact of Domain 1 might be limited because a few aspects of the structure and rollout of the Domain 1 incentives limited dental providers' interest and ability to treat more children than they had before DTI. These aspects include that the incentives were not intuitive and were better suited for dental providers serving small numbers of children enrolled in Medi-Cal. In addition, there were several persistent barriers, beyond the Domain 1 incentives, that limited the extent to which dental providers could treat more children. These included limited capacity within their practices, administrative challenges related to billing Medi-Cal, and lack of confidence treating very young children. ◢

1. Descriptive results on preventive dental service use

Use of preventive dental services among Medi-Cal beneficiaries ages 1 to 20 increased from 2017 through 2019. Beginning in 2020, the COVID-19 pandemic led to a substantial decline in the use of all dental services (including preventive services) halting this favorable trend. Figure III.1 shows the percentage of Medi-Cal beneficiaries ages 1 to 20 who had a preventive dental visit, including Safety Net Clinics and not including Safety Net Clinics, by year. The percentage declined from 43 percent in 2014 and 2015 to 42 percent in 2016 (the first year of the

Beneficiaries reported experiencing delays in care due to COVID-19

Twenty-four of the parents interviewed reported experiencing some delays in care due to COVID-19. Practices were closed for a number of months, and appointments at this time were canceled. Once practices reopened, it was harder for parents to schedule appointments, as some offices limited their appointments to emergencies or appointments for adults. A couple parents reported being directed to another provider's office. One parent reported that because their child is immunocompromised, they do not feel comfortable taking that child to the dentist.

Source: Interviews with 58 Medi-Cal parents and caregivers in LDPP counties in February through May 2021. ◢

Comparison with DHCS findings

Analyses conducted by DHCS (California Department of Health Care Services 2021b) show similar trends in use of preventive dental services in estimates that exclude Safety Net Clinics (a 2- percentage point increase from 2014 to 2019). However, they found a 10- percentage point increase in results that include Safety Net Clinics, because they compared use in 2019 that included Safety Net Clinics (48 percent) with use in 2014 that didn't include Safety Net Clinics (38 percent). DHCS took this approach because it was difficult to map ICD-10 codes for dental services to ICD-9 codes in 2014 and 2015. Using CMS's general equivalence mappings, we determined that 43 percent of children enrolled in Medi-Cal received preventive dental services (including Safety Net Clinics) in the baseline period (2014 and 2015). ◢

intervention). However, after this initial decline, the percentage increased to 47 percent by 2019, a 4 -percentage point increase from the pre-DTI period. With the emergence of the COVID-19 pandemic, the percentage of beneficiaries who had a preventive visit declined to 38 percent in 2020 and increased to 40 percent in 2021. The increases in preventive visits from 2017 through 2019 were primarily driven by care delivered by Safety Net Clinics, because preventive visits without including encounter data from these clinics did not increase substantially after the start of Domain 1 (a 1 percentage point increase from 2015 to 2019). We did not find evidence that Domain 1 had substantially different effects on children with different backgrounds enrolled in Medi-Cal (see Appendix A, Figure A.III.1).

Methods: Understanding the effect of Domain 1 on beneficiary outcomes and dental providers' participation in Medi-Cal

Beneficiary sample. We use Medi-Cal enrollment data from 2014 to 2021 to identify Medi-Cal beneficiaries ages 1 to 20 with at least three consecutive months of enrollment in Medi-Cal in a calendar year.

Provider sample. We use Medi-Cal claims data to identify dental providers who billed a dental service in a calendar year for at least one child aged 1 to 20 enrolled in Medi-Cal.

Outcomes. The primary beneficiary outcome of interest is whether a beneficiary had a preventive dental service in a calendar year. We also examined secondary dental service measures and dental expenditures to determine whether DTI was effective in advancing the overall health and well-being of children enrolled in Medi-Cal.

Analytic methods. To estimate the causal impacts of Domain 1 on use of dental services among children enrolled in Medi-Cal, we conducted a difference-in-differences analysis comparing changes in outcomes among those affected by DTI (children ages 1 to 20 enrolled in Medi-Cal) with a comparison group that was not impacted by DTI. The two comparison groups are adults ages 26 to 34 enrolled in Medi-Cal and Medicaid beneficiaries ages 1 to 20 in states near California (Arizona, Nevada, Oregon, and Washington). When we used adults enrolled in Medi-Cal as the comparison group, we ran a linear probability model regression at the beneficiary year level that estimated the difference-in-differences impact controlling for beneficiary characteristics. When we used Medicaid beneficiaries outside of California as the comparison model, we calculated the difference-in-differences estimates as differences in changes of average use among the treatment and comparison sample.

See the main text for more details on the analytic methods and Appendix C for more details on the data, analytic methods, and methodological limitations.

Figure III.1. Preventive dental service use before and after the start of DTI
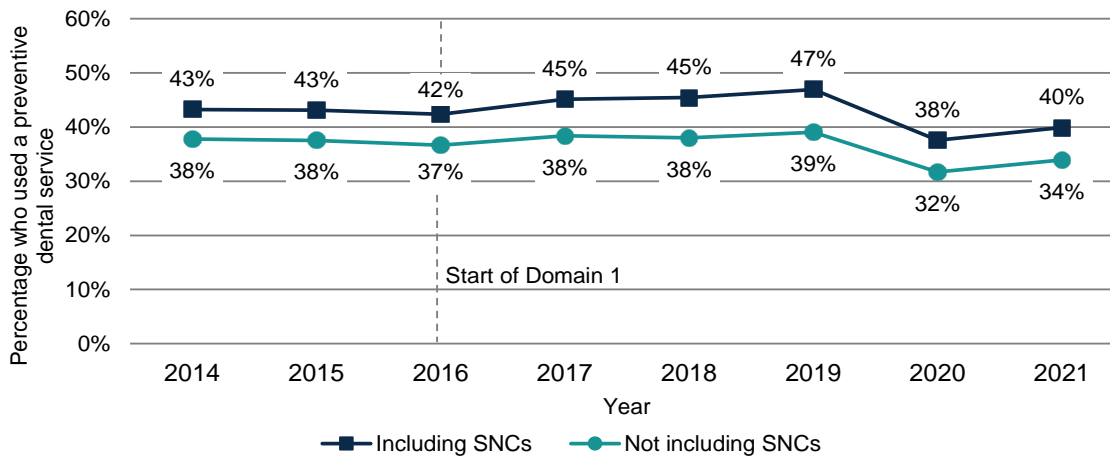
Note: The dark blue line represents the percentage of the sample who used a preventive dental service in that year using data that includes visits to both offices and SNCs. The teal line includes only office visits. See Appendix C for details on how we constructed use of preventive dental services from claims. The sample is restricted to Medi-Cal beneficiaries ages 1 to 20 who were enrolled in Medi-Cal for three consecutive months in the calendar year.

DTI = Dental Transformation Initiative; SNC = Safety Net Clinics.

2.   Impact results on use of preventive dental services

Estimates across a range of strategies suggest that Domain 1 led to an increase in Medi-Cal beneficiaries ages 1 to 20 who had a preventive visit compared with comparison groups. The impact varied between 0 to 4 percentage points, depending on the year and comparison group, and lasted through 2019. It appears unlikely that even without the COVID-19 pandemic, Domain 1 would have achieved a 10 percent increase in preventive visits by December 2021.[6] Although, descriptive findings suggest that Domain 1 led to more children enrolled in Medi-Cal receiving preventive dental services before COVID-19; it is unclear whether these changes in preventive dental use are directly related to the intervention or due to unrelated factors that influenced the use preventive dental services among children enrolled in Medi-Cal.

To understand whether Domain 1 caused the changes in preventive use, we implemented two separate identification strategies. First, we conducted a difference-in-differences analysis comparing changes in preventive use among California Medi-Cal beneficiaries who were impacted by Domain 1 with those who were never affected (that is, beneficiaries ages 26 to 34). Although, this comparison group has the benefit of living in the same state and being enrolled in Medi-Cal, use of dental services is much lower than among children enrolled in Medi-Cal. Second, because of the limitations of the within-California comparison group, we compared changes in preventive use among Medi-Cal beneficiaries ages 1 to 20 with Medicaid beneficiaries ages 1 to 20 in states near California (Arizona, Nevada, Washington, and

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[6] If impacts followed a similar trajectory during 2020 and 2021 (that is, an increase of about 1 percentage point in use of preventive dental services per year), we would project them to be around 6 percentage points.

Oregon) using state-reported data from the Percentage of Eligibles Who Received Preventive Dental Services quality measure.[7]

Figure III.2, shows preventive dental service use over time for treatment and comparison groups from the first strategy: children ages 1 to 20 enrolled in Medi-Cal and adults ages 26 to 34 enrolled in Medi-Cal. The figure lines suggest that preventive dental service use increased more for Medi-Cal beneficiaries younger than 21 than it did for the sample of older beneficiaries. To explore this descriptive evidence further, we used a standard difference-in-differences regression framework.

Figure III.2. Trends in preventive dental service use for Medi-Cal beneficiaries, by beneficiary age groups
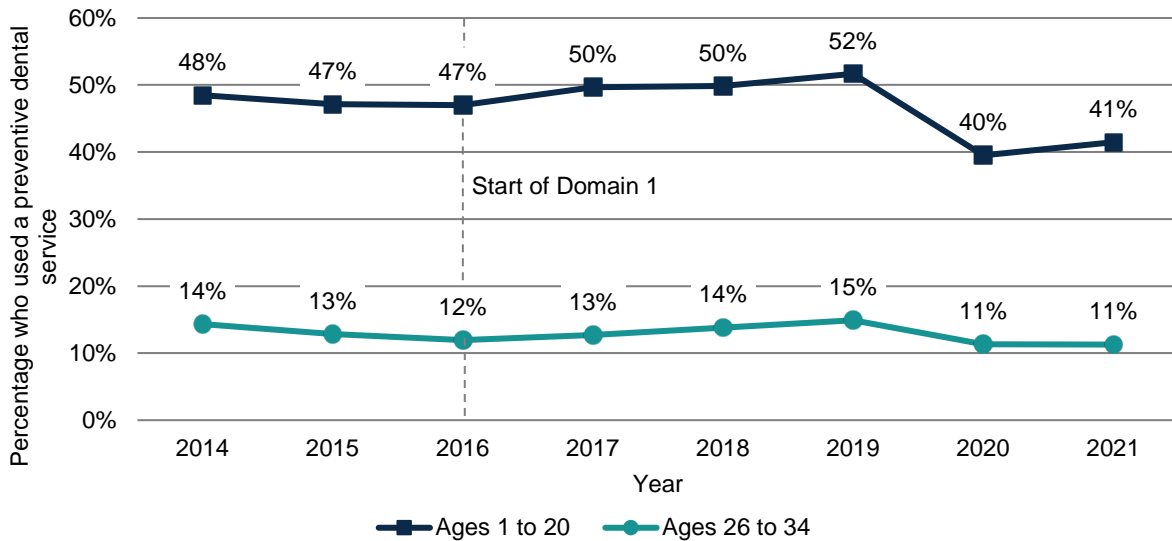
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Each line represents the percentage of the age group who had a preventive dental service in that year. See Appendix C for details on how we constructed preventive dental service use from claims. The sample is restricted to Medi-Cal beneficiaries who were enrolled in Medi-Cal for the full calendar year.

Table III.1, the Column labeled (1), reports the difference-in-differences estimates by year when we used the first comparison group, beneficiaries ages 26 to 34, and included standard controls.[8] Impact estimates are from linear probability model regressions that estimate the difference in use between the treatment and comparison group in a given calendar year relative to that difference in the year before the start of

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[7] For this analysis, we chose states based on their proximity to California to account for potential regional trends in health care use, such as those related to the COVID-19 pandemic. While this strategy might help account for regional trends, these states could be different from California on other key factors that affect trends in Medi-Cal members' use of dental services, such as Medicaid benefits, Medicaid program delivery systems, and demographics. This is a limitation and could confound our results. Notwithstanding these potential differences, we found the geographic approach to overall be the best suited for this evaluation.

[8] Controls include language fixed effects, ethnicity fixed effects, county fixed effects, dental health plan fixed effects, age by Medicaid eligibility aid code fixed effects, and a cost of the average reimbursement for an average fixed bundle of services in that year.

Domain 1 (2015).[9] There is some evidence of significant pre-trend differences between the samples, indicated by the -0.5 percentage point estimate in 2014 that is statistically significant at the 10 percent level. This finding suggests that children enrolled in Medi-Cal were increasing preventive service use before the intervention compared with the adult comparison group. If these trends continued, our estimates for the intervention period would have overestimated the impact of Domain 1.

We found that during the intervention years 2016 through 2019, use of preventive dental services increased by 2 to 4 percentage points for beneficiaries ages 1 to 20 compared with beneficiaries ages 26 to 34, with the largest effect in 2017 and 2019 (4 percentage points). However, we found that in 2020 and 2021, use of preventive dental services decreased, by 4 and 2 percentage points, respectively, for the treatment group relative to the comparison group compared with their levels in 2015. This finding is likely due to COVID-19 having a larger impact on parents' decisions to not seek dental care for their children during the pandemic compared with adults enrolled in Medi-Cal, rather than a true impact of Domain 1. Therefore, we do not interpret the estimates for 2020 and 2021 as an impact of DTI.

> ### Difference-in-differences assumptions
>
> The key assumption of the difference-in-differences strategy is that service use for the treatment group would have followed the same trends as the comparison group absent the intervention. Although we cannot test that assumption directly, we can see whether trends were different before the start of the intervention, indicated by the estimates for years before the baseline year. These estimates calculate the difference between the treatment and comparison group in the year compared with the baseline year. Negative estimates suggest that service use for the treatment group was already increasing relative to the comparison group before the intervention, and if we expect the factors that generated these trends to continue, our impact estimates could be overestimates. Alternatively, positive estimates indicate that service use for the treatment groups was decreasing relative to the comparison group before the intervention, and that our impact estimates could be underestimates. More broadly, large and significant pre-trends indicate that our comparison group might not the best counterfactual, and additional sensitivity tests might be needed. ◢

We found similar results across a series of robustness tests we conducted to explore the consistency of the impact estimates. Results were not sensitive to changes in modeling (not including controls, or using a logistic regression), changes in data (not including claims from Safety Net Clinics), and changes in sample restrictions (instead using beneficiaries who were enrolled for only three consecutive months, dropping Domain 2 pilot and expansion counties, dropping Domain 3 pilot and expansion counties, and using samples of Medi-Cal beneficiaries closer in age), see Appendix A, Table A.III.1.

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[9] DHCS uses 2014 as its baseline to estimate effect of DTI on dental outcomes. We used 2015 as our baseline because of concerns about how California's partial restoration of dental benefits to adults (2014) and the implementation of the Affordable Care Act impacted adult service use between 2014 and 2015. We conducted robustness checks using 2014 as our baseline period, and our estimates are not sensitive to this change.

Table III.1. Domain 1 difference-in-difference estimated impacts (in percentage points) on preventive dental service use, for children enrolled in Medi-Cal

	Ages 26–34 comparison group		AZ, NV, OR, WA comparison group
	Coefficient (1)	SE (2)	Estimate (3)
2014	-0.5*	(0.3)	0.7
2015	-	-	-
2016	1.7***	(0.2)	-0.5
2017	3.9***	(0.2)	1.5
2018	3.4***	(0.3)	0.9
2019	4.4***	(0.4)	2.6
2020	-3.9***	(0.7)	0.0
2021	-1.6***	(0.6)	NA
Number of observations	44,309,711	44,309,711	

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014-2021, and state-reported PDENT-CH quality measure data 2014–2020. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Impact estimates from the column labeled (1) are in percentage point units and regression-adjusted using a difference-in-difference analysis that reflects the difference in the percentage of Medi-Cal beneficiaries ages 1 to 20 who used a preventive dental service in the year with the percentage in the baseline year (2015), relative to the same difference over time for Medi-Cal beneficiaries ages 26 to 34, while controlling for language fixed effects, ethnicity fixed effects, county fixed effects, dental health plan fixed effects, age by Medicaid eligibility aid code fixed effects, and the cost of a fixed bundle of dental services control. The sample is restricted to beneficiaries who were enrolled in Medi-Cal for the full calendar year. Standard errors in Column (2) are from the same regression as the impact estimates, which clusters standard errors at the age level. Column (3) reports the difference-in-difference estimate that reflects the difference in the percentage of the sample who used a preventive dental service in the year for Medi-Cal beneficiaries ages 1 to 20 with the average in the baseline year (2015), relative to the same difference over time for Medicaid beneficiaries ages 1 to 20 in Arizona, Nevada, Oregon, and Washington. The sample for Column (3) is restricted to Medi-Cal beneficiaries who were enrolled in Medi-Cal for three consecutive months in the year. See Appendix C for details on how we constructed preventive dental service use from claims.

Cells shaded gray indicate that the year does not overlap with the intervention.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

AZ = Arizona; NA = not available; NV = Nevada; OR = Oregon; PDENT-CH = Percentage of Eligibles Who Received Preventive Dental Services; SE = standard error; WA = Washington.

Figure III.3, shows use of preventive dental services over time for treatment and comparison groups from the second strategy: children ages 1 to 20 enrolled in Medicaid in California, and in states near California. The figure suggests that, as with the in-California strategy, children enrolled in Medi-Cal increased their use of preventive services more than the children from nearby states before COVID-19. This finding is reflected in the difference-in-difference estimates in Column (3) of Table III.1. The estimates using the nearby states comparison group range from 0 to 3 percentage points during the intervention period. There is evidence of small pre-trends in the prior period, but the magnitude is smaller than the estimate for 2019 (3 percentage points).

Figure III.3. Trends in preventive dental service use for children enrolled in Medicaid, by region
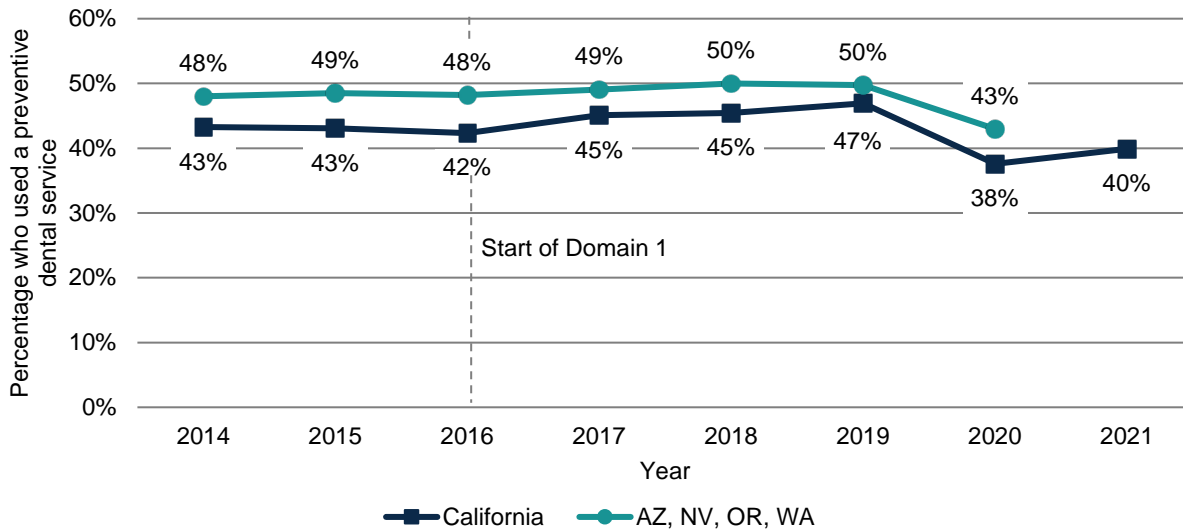
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021, and state-reported PDENT-CH quality measure data 2014–2020. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Each line represents the percentage of Medicaid beneficiaries in each geographical region who used a preventive dental service in that year. We calculated the percentage for Arizona, Nevada, Oregon, and Washington as the average of each state's percentage, weighted by the number of beneficiaries in the state in the year. See Appendix C for details on how we constructed preventive dental service use from claims. The sample is restricted to Medicaid beneficiaries ages 1 to 20 who were enrolled in Medicaid for three consecutive months in the year.

AZ = Arizona; NV = Nevada; OR = Oregon; PDENT-CH = Percentage of Eligibles Who Received Preventive Dental Services; WA = Washington.

3. Effect of Domain 1 on other dental services and dental expenditures

We found some evidence that Domain 1 increased dental expenditures, and some other dental services. However, the magnitude is small and present only through 2019. By increasing access to dental care, Domain 1 could have had spillover effects on other dental services and expenditures.

We saw a similar increase in dental exams and use of fluoride as preventive services after the introduction of DTI through 2019 (Appendix A, Figure A.III.2). However, dental sealants, use of treatment dental services,[10] and use of restorative dental services show flat trends, until the start of the COVID-19 pandemic, when use decreased.

To understand whether receipt of other dental services and dental expenditures increased because of Domain 1, we compared changes in use by Medi-Cal beneficiaries ages 1 to 20 with those ages 26 to 34. Consistent with the effects on any use of preventive dental services, we found small positive impacts on the number of preventive dental services received before the COVID-19 pandemic, ranging from an increase of 0.09 in 2016 to 0.33 in 2019 (see Appendix A, Table A.III.2). We also found similar effects on any dental visits to the impacts on preventive dental service use, with impacts on any service use being

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[10] Throughout the report, we exclude the Domain 2 incentivized service (motivational interviewing) from the measure of treatment dental services.

at most 1 percentage point larger than any preventive dental service use. Impacts on any dental exams, treatment dental services, and restorative dental services ranged from 0 to 2 percentage points in the pre-COVID-19 intervention period, suggesting some small impacts on these dental services, as well. We also found evidence that Domain 1 increased expenditures before the COVID-19 pandemic, with estimates ranging from $10 to $33 per beneficiary per year.

4. Provider participation and key informant perspective results

We found little descriptive evidence that Domain 1 increased the number of dental providers servicing children enrolled in Medi-Cal. Instead, the increases we observed in number of beneficiaries receiving preventive dental services were likely driven by providers already participating in Medi-Cal increasing the number of children they serve enrolled in Medi-Cal. DHCS hypothesized that the Domain 1 incentive payments would lead to an increase in the number of dental providers participating in Medi-Cal by 5 percent (over the presumed five-year intervention period). Figure III.4 shows the number of dental providers that served children enrolled in Medi-Cal any dental services in a year, the number that administered preventive dental services to children enrolled in Medi-Cal, and the number that administered preventive dental services to at least 10 children enrolled in Medi-Cal. We observed little evidence of a consistent upward trend in the number of dental practitioners providing children enrolled in Medi-Cal during the DTI intervention. For both the total number of dental practitioners providing any service and preventive dental services, there was a decline of about 5 percent from 2015 to 2016, and then slow growth from 2016 to 2019 back to 2015 levels. There was an additional decline in 2020—likely due to the COVID-19 pandemic. We found similar trends in the number of dental offices serving children enrolled in Medi-Cal (Appendix A, Table A.III.3).

Figure III.4. Trends in the number of dental providers administering preventive dental services to children enrolled in Medi-Cal
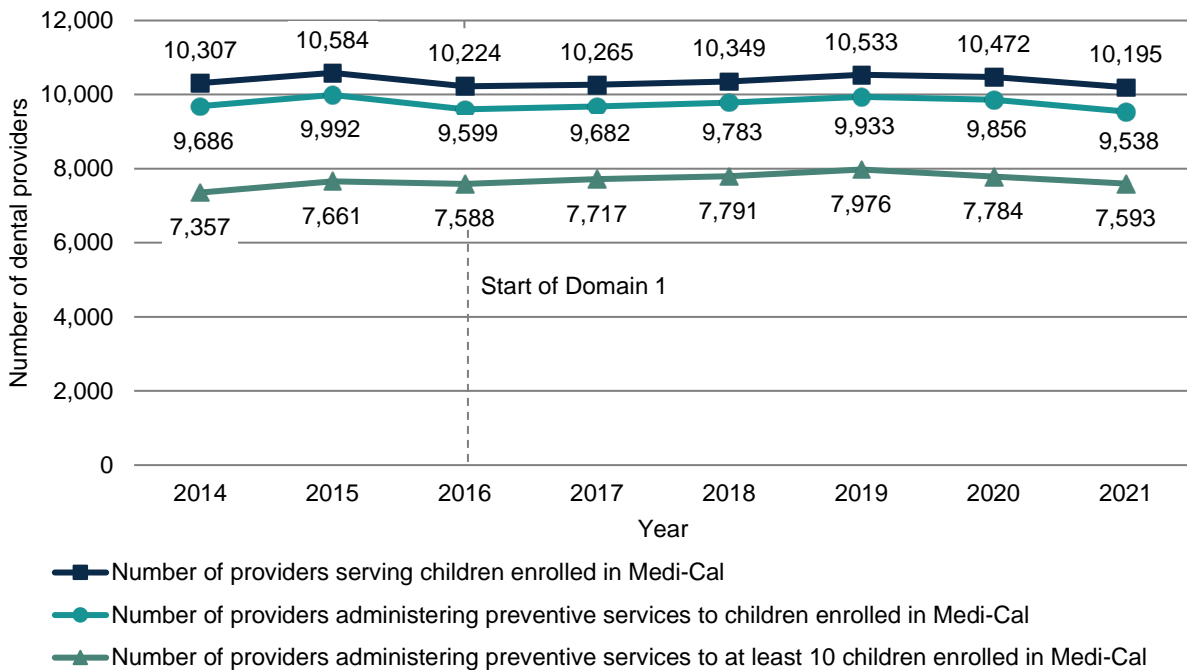
Figure III.4 (*continued*)

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: The number of dental providers serving children enrolled in Medi-Cal is based on the providers who billed a dental service in the calendar year for at least one child age 1 to 20 enrolled in Medi-Cal. The number administering preventive dental services to children enrolled in Medi-Cal is based on the number who billed a preventive dental service in the calendar year for at least one child ages 1 to 20 enrolled in Medi-Cal. The number administering preventive dental services to at least 10 children enrolled in Medi-Cal is based on the number who billed a preventive dental service in the calendar year for at least 10 children ages 1 to 20 enrolled in Medi-Cal.

The decline from 2015 to 2016 was driven by both an increase in the number of dental practitioners that stopped providing preventive dental services to children enrolled in Medi-Cal from 15 to 17 percent, and a decrease in the number of dental providers that started providing these children with preventive dental services from 13 to 10 percent (Appendix A, Figure A.III.3). In the other years, the percentage of dental providers newly starting and newly stopping their participation in Medi-Cal was similar (between 12 and 15 percent), with an exception in 2021 (possibly due to incomplete claims data). In addition, when looking at participation in Medi-Cal as a proportion of all active dentists, we observed little evidence that DTI increased participation in Medi-Cal (see Appendix A, Table A.III.4 for more details).

Together, these results suggest that Domain 1 did not encourage a larger proportion of dental providers to participate in Medi-Cal by serving children. Evidence from interviews of key informants and dental providers suggest that underlying barriers to participation persisted, such as providers' perceptions about difficulties in enrolling to become a Medi-Cal provider, billing for services, and serving the Medi-Cal population. Plus, dental providers were wary not only of the state potentially discontinuing the incentive payments after DTI, but also that the state might reduce its payment rates, which has happened in the past (California Department of Health Care Services 2018).[11]

Although the number of providers serving any children enrolled in Medi-Cal did not increase because of Domain 1, the number of dental practitioners serving at least 10 children enrolled in Medi-Cal increased from 7,661 in 2015 to 7,976 in 2019 (4 percent, see Figure III.4). Key informants and dental providers speculated that Domain 1 incentives provided a "financial buffer" to enable participating dental providers to serve more children enrolled in Medi-Cal. However, this financial buffer might not have been sufficient to incentivize enough Medi-Cal providers to increase the number of children enrolled in Medi-Cal they served to meet Domain 1's goal. This finding is supported by the provider survey: only 13 percent of respondents reported that the DTI incentive payments influenced them to increase the number of children they served enrolled in Medi-Cal.

A few aspects of the structure and rollout of the Domain 1 incentives limited dental providers' interest and ability to treat more children than they had before DTI, according to key informants and providers interviewed. These aspects include the following:

- **Incentives were not intuitive.** Measuring performance against a benchmark to determine the size of the incentive payment was more complicated than increasing base FFS payments**.** It took time for DHCS to create the benchmarks and to notify and educate each dental provider about their benchmark and how many additional services they would need to provide to obtain incentives. Still, it was difficult for dental providers to anticipate how much of an incentive they would receive, and the lag in receiving the incentive relative from when the services were provided made it difficult to reflect on

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[11] For example, in October 2013, DHCS implemented a ten percent provider payment reduction retroactive for services performed on or after June 1, 2011. The policy changed in November 2013 to apply to prospective payments only.

how specific changes they made might have affected their payments. Larger dental practices and Safety Net Clinics were more likely than smaller ones to have the financial savvy and staffing to understand the incentives and incorporate them into their planning and practice.

- **Safety Net Clinics faced more challenges benefiting from the Domain 1 incentives than did other dental practices.** Although dental practices automatically received Domain 1 incentives through their regular Medi-Cal billing process, Federally Qualified Health Centers and other Safety Net Clinics that had a different Medi-Cal billing structure were required to first opt into Domain 1 and proactively document the services they provided that were eligible for incentive payments. It took time for the state to develop a new process and special claims form for the Safety Net Clinics to use. Despite these challenges, our descriptive evidence suggests that participation by Safety Net Clinics was critical to the 4 -percentage point increase in the number of children enrolled in Medi-Cal who received preventive dental services between 2015 and 2019 (see Section III.B.1).

- **Incentives were better suited for dental providers serving small numbers of children enrolled in Medi-Cal.** An objective of Domain 1 was to increase the number of dental providers participating in Medi-Cal and the number of dentists serving 10 or more children enrolled in Medi-Cal. However, because the incentive's benchmark structure was based on increases in the *percentage* of children served, Domain 1 provided smaller rewards to dental providers who had been long-standing, large providers for children enrolled in Medi-Cal and who already served many children with Medi-Cal. In the survey, dental providers serving fewer Medi-Cal beneficiaries reported being more influenced by the incentives to increase participation than those providers already serving many Medi-Cal beneficiaries.

Key informants and providers we interviewed reported several persistent barriers, beyond the Domain 1 incentives, that limited the extent to which dental providers could treat more children. Capacity constraints limited the number of additional children some dental providers could see. Some dental providers continued to lack confidence in how to treat very young children, have concerns about scheduling patients who might not be able to keep their appointments, and face administrative challenges billing and receiving reimbursement for the care they provided. In addition, although the incentives (along with Proposition 56 supplemental payments) raised the level of reimbursement for dentists, Medi-Cal payments still lagged those of commercial payers. And the supplemental payments through Proposition 56 for treating adults might have led some dental providers to prioritize treating adults over children, particularly if these providers were not aware of the Domain 1 incentives, thought they would be temporary, or found them to be negligible.

C. Domain 2. Reducing incidence of dental caries among beneficiaries ages 0 to 6

Key takeaways

Approximately one in four Medi-Cal beneficiaries eligible for Domain 2 received an assessment for early childhood caries during the intervention period, with use of CRAs increasing over the intervention periods. Domain 2 incentivized services also increased after the start of the interventions in both Domain 2 pilot and expansion counties. Children who we assessed as high-risk using dental claims from the previous year were more likely to receive CRAs in the following year than children assessed as low risk, suggesting that CRAs were focused on the appropriate population. Children at high risk

received substantially more treatment dental services than children at lower risk levels; however, they did not receive as many services as the treatment plan allowed.

By the end of the intervention, Domain 2 increased total dental service use by 1.2 services per beneficiary in Domain 2 pilot counties, and 1.3 services per beneficiary in Domain 2 Expansion counties. Although most of the increase is due to use of the Domain 2 incentivized services, we found evidence that preventive dental service use (not including Domain 2 incentivized services) increased by 0.3 services per beneficiary per year in Domain 2 pilot counties and 0.2 in Domain 2 expansion counties. One reason not all beneficiaries who had a dental visit in Domain 2 counties received CRAs is that participation by dental providers was limited, with the percentage of active Medi-Cal dental providers who participated (provided at least one CRA) never exceeding 40 percent; participation in Domain 2 was more common among providers who served more children enrolled in Medi-Cal. Dental providers who did participate found the CRA bundle worked well in their practice; they reported it was easy to implement, the training on the CRA bundle was helpful, and the payments were satisfactory. Key informants and providers interviewed reported that implementing the bundle of services went well overall. DHCS designed the domain with input from dental experts across the state to include an appropriate set of services, which helped build support for them. ◢

Methods: Understanding the effect of Domain 2 on beneficiary outcomes and provider participation

Beneficiary sample. We used Medi-Cal enrollment data from 2014 to 2021 to identify Medi-Cal beneficiaries ages 1 to 6 with at least three consecutive months of enrollment in Medi-Cal in a calendar year. We grouped beneficiaries based on whether their address is within a Domain 2 pilot, expansion, or non-Domain 2 county.

Provider sample. We used Medi-Cal claims data to identify dental providers who billed a dental service in a calendar year for at least one child ages 1 to 20 enrolled in Medi-Cal. To assess dental provider participation in Domain 2, we used Medi-Cal claims data to identify providers that billed at least one CRA in a calendar year. We grouped providers based on whether their business address is within a Domain 2 pilot, expansion, or non-Domain 2 county using data from the National Plan & Provider Enumeration System.

Outcomes. To assess participation in Domain 2, beneficiary outcomes include having any CRA in a year and the number of Domain 2 incentivized services received in a year, both overall and by risk level. We also examined secondary dental service measures, such as total dental services received and dental expenditures to determine whether the DTI was effective in advancing the overall health and well-being of children enrolled in Medi-Cal.

Analytic methods. To estimate the causal impacts of Domain 2 on use of dental services among children enrolled in Medi-Cal, we conducted difference-in-differences and triple-difference analyses comparing changes in outcomes among those affected by Domain 2 with comparison groups that were not impacted by DTI. The two main comparison groups are children ages 7 to 10 in the same county, and children ages 1 to 6 in counties that never participated in Domain 2.

See the main text for more details on the analytic methods and Appendix C for more details on the data, analytic methods, and methodological limitations.

1. Descriptive results

Approximately one in four Medi-Cal beneficiaries eligible for Domain 2 received a billed assessment for early childhood caries by the end of DTI, compared with close to 0 percent before Domain 2. The uptake for CRAs was slower and less complete for Domain 2 pilot counties than it was for Domain 2 expansion counties. The goals of Domain 2 were to diagnose early childhood caries by using CRAs; to treat early childhood caries as a chronic disease; and to introduce a model that proactively prevents and mitigates oral disease. Figure III.5, shows the percentage of Medi-Cal beneficiaries ages 1 to 6 with a CRA in each year for Domain 2 pilot counties and Domain 2 expansion counties. Before the intervention, for both Domain 2 pilot and expansion counties, the percentage of beneficiaries receiving CRAs was essentially 0, reflecting that dental providers were not allowed to bill Medi-Cal for these services. For Domain 2 pilot counties, this percentage increased progressively during the first three years of the intervention—from 8 percent in 2017, to 19 percent in 2019 (there were slight declines in 2020 and 2021, likely related to COVID-19). The impact in Domain 2 expansion counties was more immediate, rising to 21 percent in the first year (2019), and increasing to 23 percent in 2020 and 28 percent in 2021. This finding was surprising given the impact of the COVID-19 pandemic on use of dental services. Even among beneficiaries ages 1 to 6 who visited the dentist, not all received CRAs. By the last year of the intervention, 45 percent of Medi-Cal beneficiaries ages 1 to 6 who had at least one claim in Domain 2 pilot counties received a CRA, and 67 percent received a CRA in Domain 2 expansion counties (see Appendix A, Figure A.III.4).

Figure III.5. Trends in the percentage of Medi-Cal beneficiaries ages 1 to 6 with a CRA by Domain 2 pilot and expansion counties
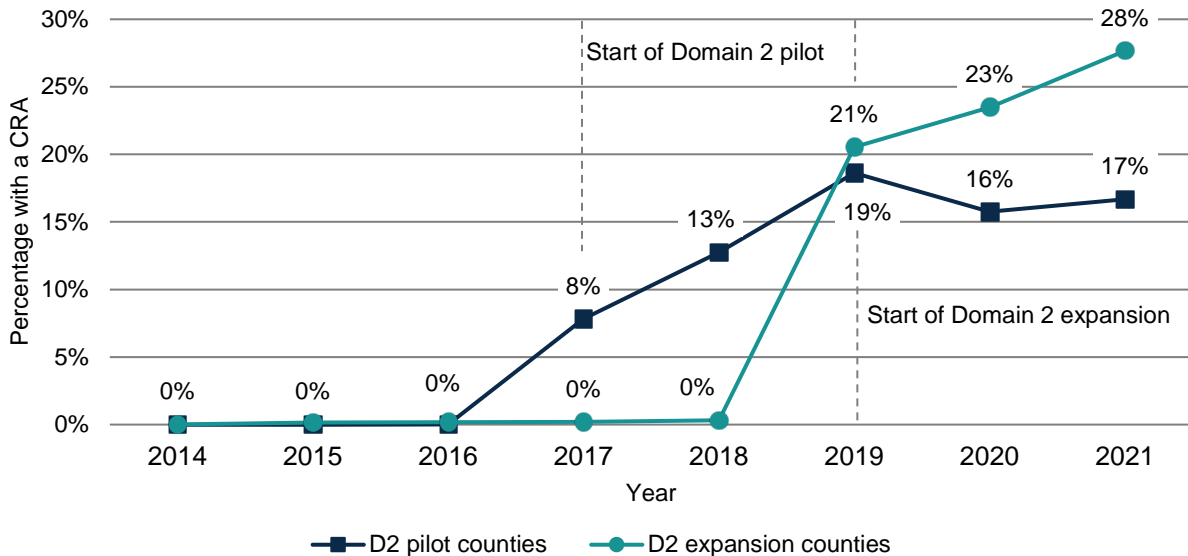
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Each line represents the percentage of Medi-Cal beneficiaries in the geographical area (indicated by the color of the line) who had at least one CRA in the calendar year. See Appendix C for details on how we identified CRA claims. The sample is restricted to Medi-Cal beneficiaries ages 1 to 6 who were enrolled in Medi-Cal for three consecutive months in the calendar year. The Domain 2 pilot started in January 2017, and the Domain 2 expansion started in January 2019.

CRA = caries risk assessment; D2 = Domain 2.

Most children enrolled in Medi-Cal who received CRAs were evaluated as being at high risk for caries. Across all years and counties, on average, 64 percent of those with a CRA were evaluated as high-risk, 18 percent were evaluated as medium-risk, and 19 percent were evaluated as low-risk (Figure III.6). This finding suggests the need for assessment of caries risk among the eligible population was high.

Figure III.6. CRA use and assessed risk status for caries among Medi-Cal beneficiaries ages 1 to 6 during the intervention period for both Domain 2 original pilot and expansion counties

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2017–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: The gray bar represents the percentage of children ages 1 to 6 enrolled in Medi-Cal who received a CRA per year during the intervention years, combining the Domain 2 pilot and expansion interventions (weighting by the number of beneficiaries in each intervention and year). Non-gray bars represent the percentage who were assessed at each risk level, where risk levels are assessed for only the 22 percent of children who received a CRA. Beneficiaries who received multiple CRAs in a year and were assessed at two or more risk levels are assigned the highest risk level they were assessed at in that calendar year. See Appendix C for details on how we constructed the CRAs and CRA risk levels from claims. The sample is restricted to Medi-Cal beneficiaries who were enrolled in Medi-Cal for three consecutive months in a calendar year.

CRA = caries risk assessment.

CRAs appear to focus on children at higher risk for dental caries.[12] Because not all beneficiaries received CRAs, it is important to understand how the beneficiaries who received them differed from those that did not. Using non-CRA claims-based measures of risk,[13] we found that beneficiaries who we identified as high-risk in the previous year received 39 percent more CRAs than those who were low-risk in Domain 2 pilot counties, and 33 percent more CRAs than those who were low-risk in expansion counties (Appendix A, Figure A.III.5).

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[12] This focus remains even when we require children in the group to have had at least one claim, so it is not just because children who are at high risk for caries are more likely to go to the dentist.
[13] We used claims-based measures of risk, rather than CRA measures, to include all beneficiaries who had a claim in the previous year in the analysis, not just those who received a CRA.

Children assessed at different risk levels were authorized to receive different services:

- Children at low risk could visit their Medi-Cal dental provider every six months (the same as those who do not receive a CRA), receive nutritional counseling, and participate in a motivational interview.

- Children at medium risk could visit their provider every four months and receive the same services.

- Children at high risk could visit their provider every three months, receive the same services, and obtain interim caries arresting medication. ◢

Although Domain 2 aimed to decrease the risk of caries over time, the percentage of beneficiaries who received CRAs and who were evaluated as high-risk increased over the intervention years, particularly between the first and second years (Appendix A, Table A.III.5). The increase in the percentage of beneficiaries who were evaluated as high-risk might reflect that the composition of the patient population receiving CRAs changed over time to include more high-risk patients, or that dental providers changed their standards for evaluation over time (possibly recognizing the benefit that beneficiaries assigned a higher risk status were allowed more frequent visits).

Mirroring CRA uptake, use of Domain 2 incentivized services—including nutritional counseling, motivational interviews, and interim caries arresting medication—increased after the start of the interventions in both Domain 2 pilot and expansion counties (see Appendix A, Figure A.III.6). As part of the Domain 2 intervention, children who received a CRA were eligible to receive additional services, with children at a higher risk eligible to receive more additional services (see accompanying text box). Based on the allowable services by risk tier, we would expect children at high risk could receive twice as many services as children at low risk and 30 percent more than children at medium risk (not including the additional interim caries arresting medication).

Children at high risk received more Domain 2 incentivized services than children at lower risk, but not as many as the treatment plan allowed. Figure III.7 shows the average number of services beneficiaries received by their CRA-assessed risk status in that year across Domain 2 pilot and expansion counties and all intervention years (see Appendix A, Table A.III.6 for data broken out by year and Domain 2 pilot versus expansion status). The figure also includes those who did not receive a CRA but did have at least one dental claim in that year. Children at high risk received 3.0 Domain 2 incentivized services, on average, compared with 2.6 for children at medium risk, and 2.3 for children at low risk. As expected, children without a CRA received no Domain 2 incentivized services.

Figure III.7. Frequency of dental service use by assessed risk status for caries among Medi-Cal beneficiaries ages 1 to 6 in Domain 2 counties

Legend: ■ CRA: High risk ■ CRA: Medium risk □ CRA: Low risk ■ No CRA

Domain 2 incentivized services: 3.0, 2.6, 2.3, 0.0
Preventive services: 3.4, 2.9, 2.6, 2.1
Dental exams: 1.6, 1.4, 1.3, 1.2
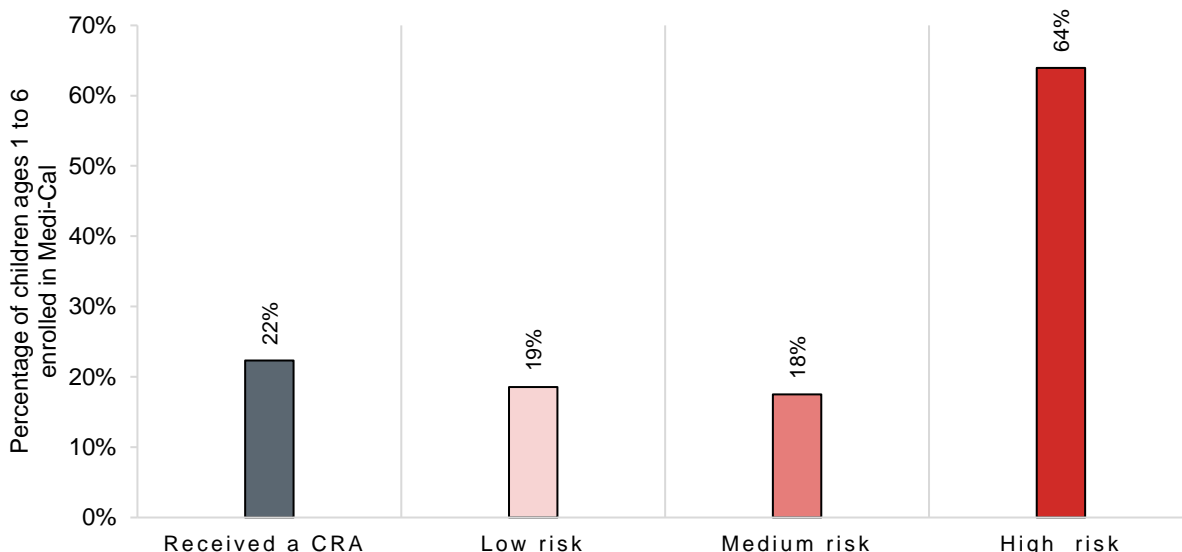Treatment services: 4.0, 0.6, 0.4, 2.0
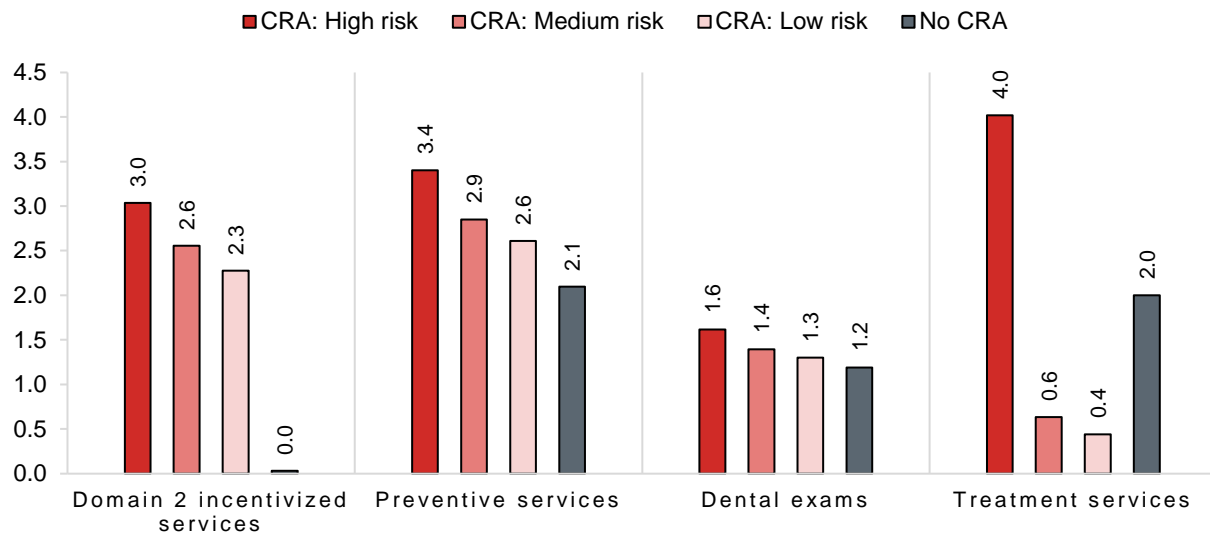
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2017–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Each bar represents the average number of dental services per year beneficiaries ages 1 to 6 received during the Domain 2 intervention years, combining Domain 2 pilot and expansion counties, by risk status for caries (indicated by the color of the bar). Domain 2 incentivized services include nutritional counseling, motivational interviews, and interim caries arresting medication. Preventive dental services and treatment dental services do not include those Domain 2 incentivized services. See Appendix C for details on how we constructed the CRA risk levels and dental service use outcomes from claims. The sample is restricted to Medi-Cal beneficiaries who were enrolled in Medi-Cal for three consecutive months in the calendar year and had at least one dental service in the calendar year.

CRA = caries risk assessment.

Children at high risk also received more non-Domain 2 incentivized related dental services than children at lower risk. Use of preventive dental services and dental exams among children at high risk (not including Domain 2 incentivized services) was 14 to 60 percent higher than it was among children at medium and low risk and those who did not receive a CRA but had at least one dental claim (see Figure III.7). Treatment use (not including CRA-incentivized services) was 7 to 10 times higher for children at high risk compared with children at medium and low risk. This finding is not surprising given that children at higher risk are likely to need more treatment dental services. Treatment use for those who did not receive a CRA but had at least one claim was, 3 to 5 times higher than it was for children at medium or low risk; even though these children received fewer preventive and dental exam services. This finding suggests that the children who did not receive a CRA but had at least one claim, might be at higher risk for caries than those who were evaluated as medium or low risk, and they would benefit from receiving a CRA and additional preventive dental services.

The ratio of total preventive to restorative visits increased after the start of the Domain 2 intervention in both Domain 2 pilot and expansion counties, but there were no noticeable changes in other measures of costly restorative procedures. The goal of Domain 2 was to manage the disease of caries using preventive dental services and non-invasive treatment approaches instead of more invasive and costly restorative procedures. In Domain 2 pilot counties, the ratio of preventive to restorative

services increased from 1.5 in 2016 to 2.5 in 2019 through 2021. In Domain 2 expansion counties, it increased from 1.8 in 2018 to 2.6 in 2020 and 2.8 in 2021 (Table III.2). This finding is likely due to the large increase in the Domain 2 incentivized services that are preventive dental services (that is, nutritional counseling and interim caries arresting medication). There was no noticeable effect on the percentage of beneficiaries who had dental surgery under general anesthesia, which stayed constant at 2 percent in Domain 2 pilot counties and 1 percent in Domain 2 expansion counties, or the average expenditures for services that require general anesthesia (which rose substantially over time for all counties).

Table III.2. Trends in select dental service outcomes for Medi-Cal beneficiaries ages 1 to 6, by Domain 2 pilot and expansion counties

	2015	2016	2017	2018	2019	2020	2021
Domain 2 pilot counties							
Ratio of preventive to restorative dental services	1.4	1.5	1.8	2.0	2.5	2.5	2.5
Percentage with a dental service that requires general anesthesia	2.0%	2.0%	2.0%	2.4%	2.1%	2.1%	2.0%
Average expenditures for services that require general anesthesia	$3.90	$5.07	$5.35	$8.83	$10.28	$14.52	$13.26
Domain 2 expansion counties							
Ratio of preventive to restorative dental services	1.7	1.7	1.9	1.8	2.3	2.6	2.8
Percentage with a dental service that requires general anesthesia	0.9%	0.8%	0.7%	0.7%	0.8%	0.9%	1.1%
Average expenditures for services that require general anesthesia	$1.14	$1.06	$1.15	$2.88	$5.47	$6.77	$8.04

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2015–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: This table shows average outcomes per beneficiary by year for Medi-Cal beneficiaries ages 1 to 6 who are in Domain 2 pilot and expansion counties. Preventive dental services include Domain 2 incentivized services of nutritional counseling and interim caries arresting medication. See Appendix C for details on how we constructed the dental outcomes from claims. The sample is restricted to Medi-Cal beneficiaries who were enrolled in Medi-Cal for three consecutive months in the calendar year.

Cells shaded gray indicate that the year does not overlap with the intervention.

2. Impact results on dental service use

Domain 2 increased the average number of dental services received by beneficiaries. Although, Domain 2 increased use of incentivized services, the impact on the total number of services received is unclear. Total services might not increase if providers substituted for Domain 2 incentivized services for other services they were previously providing.

We used several strategies to assess whether Domain 2 increased services. First, we conducted a difference-in-differences analysis that estimated the difference in changes in dental service use from before to after the interventions for children ages 1 to 6 in Domain 2 pilot and expansion counties compared with children in counties that never participated in Domain 2. Figure III.8 shows the total number of services received by Medi-Cal beneficiaries ages 1 to 6 by the county types over time.

Figure III.8. Trends in the number of dental services received by children ages 1 to 6 enrolled in Medi-Cal, by county type
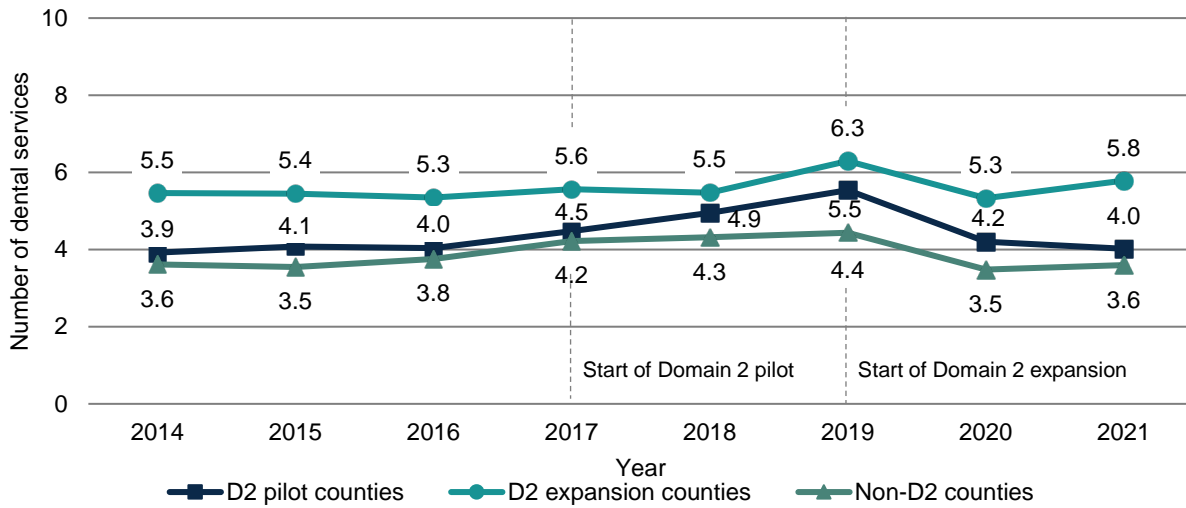
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Each line represents the average number of dental services received per Medi-Cal beneficiary ages 1 to 6 by year for different geographical areas. Observations are weighted by the fraction of months in the year the beneficiary is enrolled in Medi-Cal. See Appendix C for details on how we constructed the number of dental services from claims. The sample is restricted to Medi-Cal beneficiaries ages 1 to 6 who were enrolled in Medi-Cal for three consecutive months in the calendar year.

D2 = Domain 2.

Second, we conduct a within-county differences-in-differences analysis that estimates the difference in changes in dental service use from before to after the interventions for children ages 1 to 6 compared with children ages 7 to 10. The first panel of Figure III.9 plots the average number of services in each year for the two age groups in Domain 2 counties, and the second plots it for Domain 2 expansion counties (see Appendix A, Table A.III.7 for more details). The third panel of Figure III.9 plots average number of services for children ages 1 to 6 and ages 7 to 10 in non-Domain 2 counties (see Appendix A, Table A.III.7 for more details). Third, we combine the first two strategies for a triple-differences analysis that estimates the differences in the change in number of services between children ages 1 to 6 and those ages 7 to 10 in intervention counties with the differences in the change in number of services for children ages 1 to 6 and those ages 7 to 10 in non-Domain 2 counties. This approach enables us to identify any trends specific to age group and county group and remove them from our estimates.

Figure III.9. Trends in the number of dental services received by children ages 1 to 6 and 7 to 10 enrolled in Medi-Cal, by county type
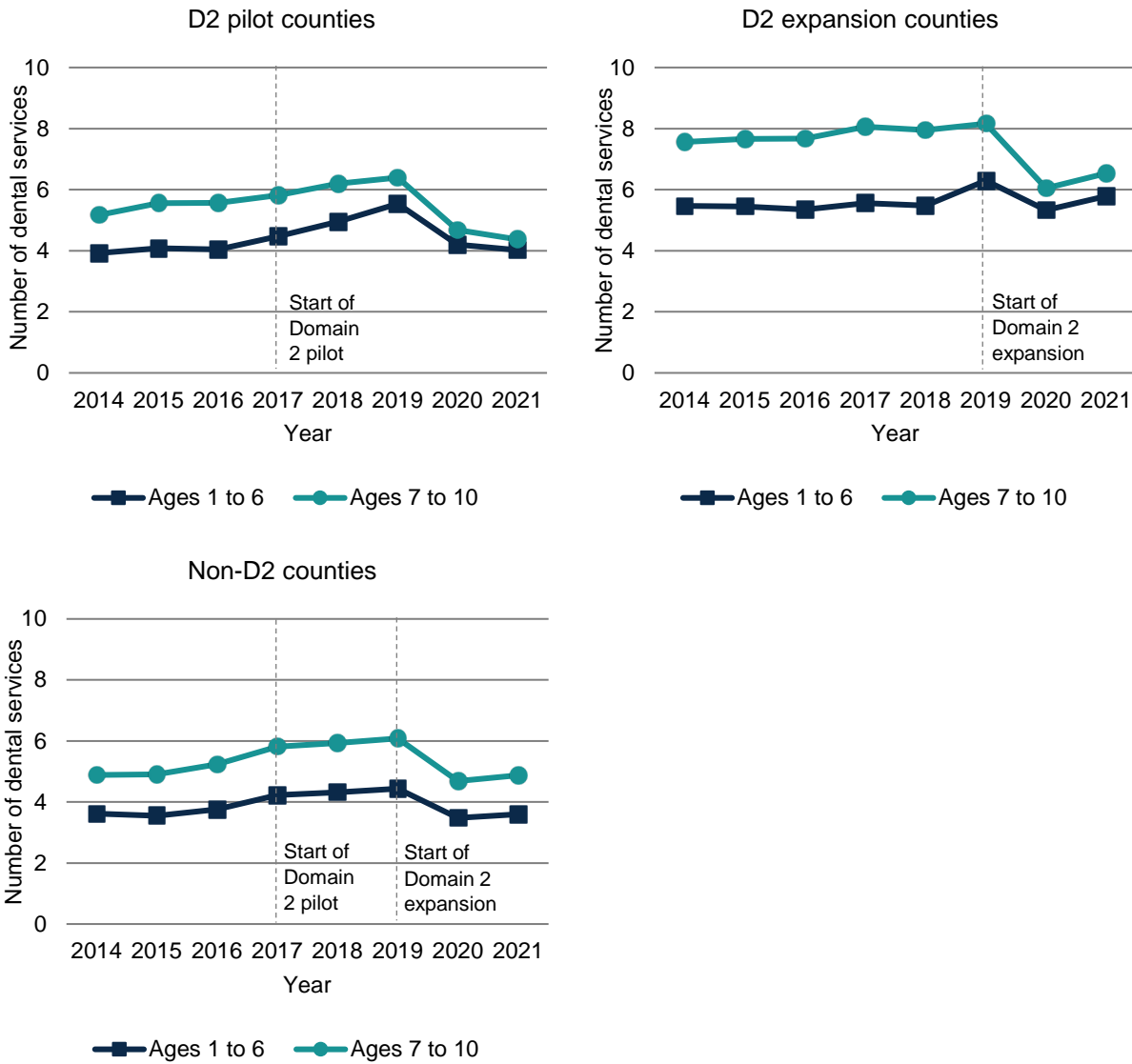
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Each line represents the average number of dental services received per Medi-Cal beneficiary by year by age group. Observations are weighted by the fraction of months in the year the beneficiary is enrolled in Medi-Cal. See Appendix C for details on how we constructed the number of dental services from claims. The sample is restricted to Medi-Cal beneficiaries ages 1–10 who were enrolled in Medi-Cal for three consecutive months in the calendar year.

D2 = Domain 2.

Across intervention years and methodologies, we found that the average number of dental services received increased by 0 to 1.1 services in Domain 2 pilot counties and by 0.5 to 1.5 services in Domain 2 expansion counties, with impacts growing larger over time. Table III.3 provides the impact estimates and standard errors by year from regressions across the strategies for Domain 2 pilot counties, and for Domain 2 expansion counties. All regressions include controls.[14]

The first panel reports result for Domain 2 pilot counties. The Column labeled as (1) reports the difference-in-difference estimates by year for the model using non-Domain 2 counties as the comparison group. For Domain 2 pilot counties, we found some evidence for pre-trends, and found evidence that Domain 2 increased services use by 0.9 services relative to the comparison group in 2019. This effect diminished in 2020 and 2021, perhaps because of differences in the impact of the COVID-19 pandemic across the two sets of counties. When we used the age-based comparison group (Column (3)), we found evidence for pre-trends in 2014, and then found increasing estimated impacts from 2017 (0.2 services) to 2021 (1.0 services). The effects are not always statistically significant, but the effects in 2020 and 2021 are significant at the 1 percent level. When we used the triple-difference strategy (Column (5)), we found impacts during the intervention period are similar to the other two strategies, and we found no evidence of differential pre-trends. Impact estimates in 2021 suggest an increase of 1.1 services per beneficiary, which is statistically significant at the 5 percent level.

Table III.3. Domain 2 estimated impacts on number of dental services by empirical strategy

	DD county-based impact		DD age-based impact		DDD impact	
	Coefficient (1)	SE (2)	Coefficient (3)	SE (4)	Coefficient (5)	SE (6)
Domain 2 pilot counties						
2014	0.1	(0.2)	0.3***	(0.1)	0.1	(0.4)
2015	0.3***	(0.1)	0.1	(0.1)	0.0	(0.2)
2016	-	-	-	-	-	-
2017	0.0	(0.1)	0.2***	(0.1)	0.3	(0.2)
2018	0.3	(0.2)	0.2	(0.2)	0.4	(0.4)
2019	0.9***	(0.3)	0.5**	(0.3)	0.9	(0.6)
2020	0.5**	(0.2)	0.9***	(0.2)	0.9*	(0.5)
2021	0.2	(0.2)	1.0***	(0.2)	1.1**	(0.5)
Number of observations	13,260,218	13,260,218	2,002,038	2,002,038	24,064,701	24,064,701
Domain 2 expansion counties						
2016	0.4**	(0.1)	0.3***	(0.1)	0.0	(0.3)
2017	0.2*	(0.1)	0.1	(0.1)	0.0	(0.2)
2018	-	-	-	-	-	-
2019	0.8***	(0.1)	0.5***	(0.2)	0.6***	(0.2)
2020	0.8***	(0.1)	1.5***	(0.3)	1.3***	(0.3)
2021	1.0***	(0.2)	1.4***	(0.2)	1.3***	(0.4)
Number of observations	13,260,218	13,260,218	19,300,449	19,300,449	24,064,701	24,064,701

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

[14] Regressions include Medicaid eligibility aid code fixed effects, language fixed effects, dental health plan fixed effects, cost of fixed bundle of dental services control, and ethnicity by age by county fixed effects.

Table III.3 (*continued*)

Note: Impact estimates from the coefficient column labeled (1) are regression-adjusted using a difference-in-difference analysis that reflects the difference in the average number of dental services received for Medi-Cal beneficiaries ages 1 to 6 in Domain 2 counties in the year to the average in the baseline year, relative to the same difference over time for Medi-Cal beneficiaries in non-Domain 2 counties. Standard errors in Column (2) are from the same regression as the impact estimates, which clusters standard errors at the county level. Impact estimates from Column (3) are regression-adjusted using a difference-in-difference analysis that reflects the difference in the average number of dental services received for Medi-Cal beneficiaries ages 1 to 6 in Domain 2 counties in the year to the average in the baseline year, relative to the same difference over time for Medi-Cal beneficiaries ages 7 to 10 in the same counties. Standard errors in Column (4) are from the same regression as the impact estimates, which clusters standard errors at the age level. Impact estimates from Column (5) are regression-adjusted using a triple-difference analysis that reflects the difference in (a) the difference in the average number of dental services received for Medi-Cal beneficiaries ages 1 to 6 in Domain 2 counties in the year to the average in the baseline year, relative to the same difference over time for Medi-Cal beneficiaries ages 7 to 10 in the same counties, and (b) the difference in the average number of dental services received for Medi-Cal beneficiaries ages 1 to 6 in non-Domain 2 counties in the year to the average in the baseline year, relative to the same difference over time for Medi-Cal beneficiaries ages 7 to 10 in the same counties. Standard errors in Column (6) are from the same regression as the impact estimates, which clusters standard errors at the county-age level. The sample is restricted to beneficiaries who are enrolled for three consecutive months in Medi-Cal, and observations are weighted by the fraction of months beneficiaries are enrolled in Medi-Cal in the calendar year. All regressions control for Medicaid eligibility aid code fixed effects, language fixed effects, dental health plan fixed effects, the cost of a fixed bundle of dental services control, and ethnicity by age by county fixed effects. See Appendix C for details on how we constructed the number of dental services from claims.

Cells shaded gray indicate that the year does not overlap with the intervention.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

DD = difference-in-differences; DDD = triple-differences; SE = standard error.

The second panel reports result for Domain 2 expansion counties. Using the non-Domain 2 county comparison group, we found some significant pre-trends. After the start of the intervention in 2019, we estimate an effect of 0.8 and an effect of 1.0 in the last year, which are statistically significant at the 1 percent level. Using the age-based comparison group (Column (3)), we found a significant pre-trend in 2016 of 0.3, and in the year the intervention started (2019), an effect of 0.5. This value increased to 1.5 in 2020, then decreased slightly to 1.4 in 2021. Using the triple-difference strategy, we found no-significant pre-trends; an effect of 0.6 in 2019, the year the intervention started; and an effect of 1.3 in 2020 and 2021. All these values are significant at the 1 percent level.

The consistency of the results across all three strategies, gives us even more confidence that Domain 2 increased dental service use among children eligible for the intervention.[15] Because of the consistency of results and the lack of pre-trends, we prefer the triple-difference strategy and used it to analyze additional outcomes.

3.   Effect of Domain 2 on other dental outcomes

We found that impacts on total services were primarily driven by increases in Domain 2 incentivized services. However, there are some small impacts on preventive dental services that are not part of the Domain 2 incentivized services, suggesting some spillover of the intervention on overall preventive dental services. Domain 2 might have affected services that were not incentivized by Domain 2 for a couple reasons. First, as mentioned previously, those who receive a CRA and are

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[15] We also found consistency within the triple-difference strategy across modeling decisions (not including controls), changes in data (not including encounter data from Safety Net Clinics), and changes in sample restriction (restricting to beneficiaries who are enrolled all 12 months). See Appendix A, Table A.III.8.

evaluated as high or medium risk are allowed more frequent visits. Second, the CRA tool might help diagnose problems that require treatment dental services. Third, under the goal of better management of oral health, providers might deliver more non-CRA related preventive dental services and non-invasive treatment dental services than they would have otherwise.

Figure III.10 plots the impact estimates for Domain 2 pilot and expansion counties from the triple-differences regression by year for total dental services, treatment dental services, preventive dental services, and dental exams. To isolate these impacts from the impacts on Domain 2 incentivized services, we excluded Domain 2 incentivized services from the treatment and preventive dental services. For the Domain 2 pilot counties (first panel of Figure III.10), all estimates are calculated relative to 2016, which is by construction set at zero. As reported in the Table III.3, there is an increase in total services from the start of the intervention in 2017 until 2021. There is no noticeable effect on treatment dental services, or dental exams, but there is a small positive effect on preventive dental services. We estimate that by 2021, Domain 2 resulted in 0.3 more preventive dental services, which is statistically significant at the 10 percent level (see Appendix A, Table A.III.9).

Figure III.10. Domain 2 triple-differences estimated impacts on selected dental outcomes for Domain 2 pilot counties by year
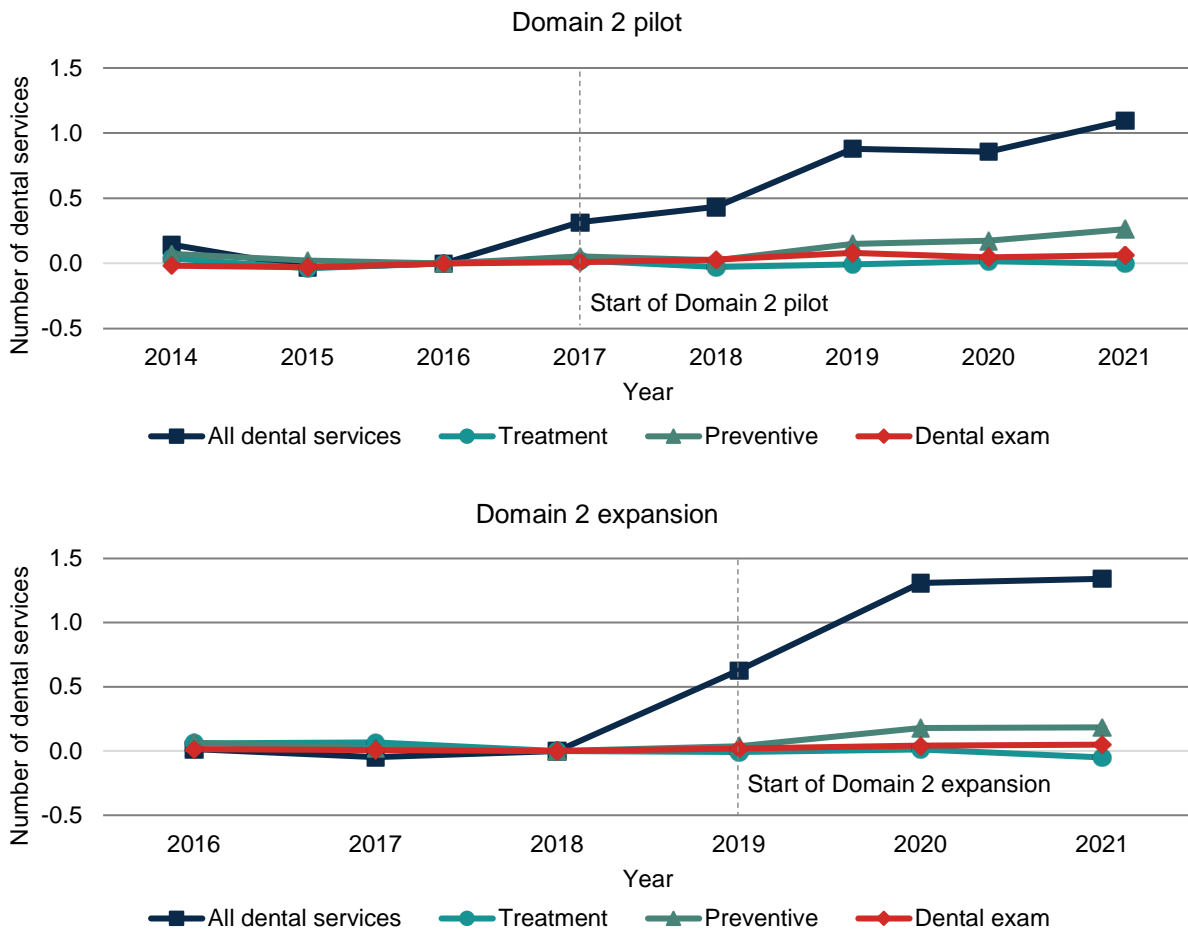
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Figure III.10 (*continued*)

Note: Each line represents the triple-difference regression-adjusted estimated Domain 2 pilot impact on particular outcomes. Treatment and preventive dental services do not include Domain 2 incentivized services. Impact estimates reflect the difference in (a) the difference in the average outcome received for Medi-Cal beneficiaries ages 1 to 6 in Domain 2 pilot (first panel) or expansion (second panel) counties in the year to the average in the baseline year, relative to the same difference over time for Medi-Cal beneficiaries ages 7 to 10 in the same counties, and (b) the difference in the average number of dental services received for Medi-Cal beneficiaries ages 1 to 6 in non-Domain 2 counties in the year to the average in the baseline year, relative to the same difference over time for Medi-Cal beneficiaries ages 7 to 10 in the same counties. The regression sample is restricted to Medi-Cal beneficiaries who are enrolled for three consecutive months of Medi-Cal and observations are weighted by the fraction of months beneficiaries are enrolled in Medi-Cal in the calendar year. Regressions control for Medicaid eligibility aid code fixed effects, language fixed effects, dental health plan fixed effects, the cost of a fixed bundle of dental services control, and ethnicity by age by county fixed effects. See Appendix C for details on how we constructed the dental service measures from claims.

We found similar results for Domain 2 expansion counties (second panel of Figure III.10). Although, total services increased sharply after the start of the intervention, treatment dental services and dental exams stayed fairly constant. There is a small impact on preventive dental services of 0.2, which is statistically significant at the 1 percent level in 2020 and significant at the 5 percent level in 2021 (Appendix A, Table A.III.9).[16]

DHCS hypothesized that using the CRA tool to diagnose early childhood caries and treating early childhood caries like a chronic disease would reduce invasive restorative treatment. However, we found no large impacts among children eligible for the Domain 2 intervention on restorative visits or surgery under general anesthesia (Appendix A, Table A.III.9).[17]

Given the increase in dental service use, it is not surprising that we also found an increase in dental expenditures, particularly for Domain 2 expansion counties (Appendix A, Table A.III.9). In Domain 2 expansion counties, we estimate a significant increase in expenditures of $33 per beneficiary per year in 2019, $40 per beneficiary per year in 2020, and $58 per beneficiary per year in 2021. Because of larger standard errors for the Domain 2 pilot county estimates, we cannot reject that there was zero impact, nor can we reject that there was a similar effect as that on Domain 2 expansion counties.

4.   Beneficiaries' perspectives

Parents reported the use of the CRA form and education encouraged children to limit sugary food and drinks.[18] When asked about the CRA form, parents described questions that asked about whether the child drinks soda or juice, eats sugar, is allergic to medication, and has general health conditions. One parent reported, "It asks me which vegetables he eats, which fruit, if he eats cookies or fried foods, yogurt, cheese, eggs, if he drinks in a baby bottle, if he drinks from a cup, if he can already use a spoon, all those types of things. Also, the growth stage he's in, whether he can crawl, walk, run, that kind of thing." Parents noted the education they received also focused on limiting sugary food and drinks and

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[16] Note that here, preventive services do not include Domain 2 incentivized services (whereas in Table III.2, they do).

[17] In our design for implementing the independent evaluation of DTI, we included plans to assess the impact of DTI on emergency room use for dental-related reasons. Data limitation concerns arose regarding the medical (emergency department) claims we received and prevented us from analyzing these measures. Appendix C provides more details on the administrative data, outcome measures, and limitations.

[18] In interviews with beneficiaries, parents did not recognize the terms "caries risk assessment," or "CRA," which suggests CRAs were not introduced to the parent, or the process of administering the CRA bundle was integrated into the visit, rather than a separate step. However, when asked about components of the CRA—such as completing assessment forms, receiving general care coordination, education, or more frequent visits—parents spoke favorably.

encouraging the child to brush and floss regularly. Parents who spoke Spanish noted the forms and education were translated to Spanish, which they appreciated. Most parents reported the education was helpful, and a couple of parents noted that because they did not grow up in the United States, this information was new to them. For example, one parent reported, "I learned quite a lot, because he's the first kid that I've been doing things this way with, because my other children were born in El Salvador, and they never provided this kind of information for my baby—like what to do [and] what to avoid keeping his teeth healthy. I think the conversations I have with them there are really interesting."

A few parents in our sample reported the dentist or dental hygienist encouraged their child to visit the dentist more frequently than every six months. Parents who were visiting the dentist more frequently found these visits helpful to ensure that the children were not developing additional caries and put parents at ease.

Methods: Interviews with parents and caregivers of Medi-Cal beneficiaries

Recruitment. Mathematica researchers interviewed parents and caregivers with children enrolled in Medi-Cal who received dental care in 2019 or 2020 and received services from an LDPP. We received 207 names and contact information of families who met our inclusion criteria across 10 of the 13 LDPPs. We reached out to all 207 families in our sample, calling as many as three times to recruit them for an interview. To encourage participation, we offered to conduct interviews in English or Spanish and to provide respondents with $40 incentive payments. The final sample included 58 interviews (21 in English and 37 in Spanish) conducted from February to May 2021.

Data collection. We conducted a 30-minute in-depth interview with each respondent by telephone using a semi-structured interview protocol. Interview topics and questions covered their child's regular source of dental care, dental emergencies, perceptions of care and satisfaction with dental providers, unmet dental needs, and the impacts of the COVID-19 pandemic on dental health. For beneficiaries located in Domain 2 counties, we also asked whether the beneficiary was involved in aspects of the CRA.

Analysis. The 37 interviews conducted in Spanish were translated to English for coding and analysis. We used NVivo software to code and organize the interview transcripts to identify themes.

Characterizing interview data. When characterizing responses from the beneficiary interviews, we used "couple" to denote two respondents, "few" to denote three to four respondents, "several" to denote more than five respondents but fewer than one-quarter of respondents, "many" to denote more than one-quarter of respondents but fewer than three-fourths of relevant respondents, and "most" to indicate more than three-fourths of respondents.

5. Provider participation and key informant perspective results

One reason not all children eligible for Domain 2 with a dental visit received a CRA is that participation by dental providers was limited. However, those who participated generally remained in the program. Table III.4 reports the number of dental providers in Domain 2 pilot counties in each year who served children enrolled in Medi-Cal (ages 1 to 20), and the percentage who provided at least

one CRA. In Domain 2 pilot counties, 15 percent of Medi-Cal dental providers (81 providers) billed for CRAs in the first year of the intervention in 2017, and by 2021, the percentage participating increased to 38 percent (210 providers). In Domain 2 expansion counties, 21 percent (1,870) of dental providers billed for CRAs in the first year of the intervention in 2019, and by 2021, this value increased to 27 percent (2,286). Although, the percentage of dental providers in expansion counties providing CRAs was lower than in pilot counties, expansion counties included many more Medi-Cal dental providers, resulting in an overall large expansion in number of dental providers offering CRAs. Although, participation remained relatively low as a percentage of all dental providers participating in Medi-Cal, of those that billed for a CRA, 84 percent also did so in the following year.

Table III.4. Trends in dental provider participation in Domain 2, by Domain 2 original pilot and expansion counties

	2016	2017	2018	2019	2020	2021
Domain 2 pilot counties						
Total number of dental providers	511	523	579	592	575	555
Number of dental providers with at least one CRA	n.a.	81	143	196	202	210
Percentage of dental providers with at least one CRA	n.a.	15%	25%	33%	35%	38%
Percentage of participating providers who gave a CRA in year following	n.a.	81%	80%	75%	79%	n.a.
Domain 2 expansion counties						
Total number of dental providers	8,567	8,563	8,598	8,773	8,732	8,427
Number of dental providers with at least one CRA	n.a.	n.a.	n.a.	1,870	2,253	2,286
Percentage of dental providers with at least one CRA	n.a.	n.a.	n.a.	21%	26%	27%
Percentage of participating providers who gave a CRA in year following	n.a.	n.a.	n.a.	87%	80%	n.a.

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2016–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: The total number of dental providers is based on the providers who billed a dental service in the calendar year for at least one child ages 1 to 20 enrolled in Medi-Cal in the Domain 2 pilot and expansion counties. Provider's county was assigned based on the county of the majority of beneficiaries ages 1 to 20 they served in that year. The number of dental providers with at least one CRA is based on the providers who billed at least one CRA to a Medi-Cal beneficiary ages 1 to 6 in each calendar year. The percentage of participating providers who gave a CRA in year following is based on the percentage of dental providers billing at least one CRA to a Medi-Cal beneficiary ages 1 to 6 in the associated year who also billed a CRA to a Medi-Cal beneficiary ages 1 to 6 in the year following.

Cells shaded gray indicate that the year does not overlap with the intervention.

CRA = caries risk assessment; n.a. = not applicable.

Among the DTI domains, Domain 2 required the most planning by the state and extra effort from dental providers for them to receive the incentives. It took time to design and implement a standard approach to training, onboarding, and service provision for Domain 2. The state set up the Treating Young Kids Everyday (TYKE) training for Domain 2 in collaboration with the California Dental Association, including developing and launching the new opt-in attestation form and adding the training to regular provider training seminars and outreach. The requirement to participate in training and complete forms, coupled with confusion about the documentation needed to bill to receive the incentive payment, might have limited some providers' initial participation. One key informant observed that the biggest challenge to provider participation in Domain 2 was that general dentists wanted to be able to refer patients to a

pediatric dentist if they encountered a risk factor they were not comfortable managing on their own. Related to the challenges with dental providers' participation in Medi-Cal discussed previously, key informants reported that general dentists face challenges finding pediatric and other dental specialists who will accept patients covered by Medi-Cal. Still, key informants reported that provider education and dentists' realization that the training and certification was neither excessively time consuming nor difficult likely helped boost provider participation over time.

Looking into how participating dental providers differed from those who did not participate, we found that participation in Domain 2 was more common among providers who served more children enrolled in Medi-Cal. Table III.5 shows the average characteristics of dental providers during intervention years in Domain 2 pilot and expansion counties by whether they provided a CRA in that year. Dental providers who billed at least one CRA were much more likely to serve at least 10 Medi-Cal beneficiaries in a year (94 to 95 percent versus 68 percent). In addition, key informants mentioned that it was easier to recruit dental providers who already were treating children enrolled in Medi-Cal than those who were new to serving this population, because new dentists had to first enroll in Medi-Cal and then enroll in Domain 2, which could be daunting. In expansion counties, dental providers who administered CRAs also had a higher preventive (not including CRA services) to restorative ratio (8.6 versus 4.5). This was not true in Domain 2 pilot counties, where CRA providers had a lower average ratio (4.9 versus 6.0).

Table III.5. Characteristics of dental providers in Domain 2 counties by participation in Domain 2

	Domain 2 pilot counties		Domain 2 expansion counties	
	CRA providers	No CRA providers	CRA providers	No CRA providers
Percentage who provided preventive dental services to at least 10 children enrolled in Medi-Cal	94%	68%	95%	68%
Ratio of preventive to restorative dental services	4.9	6.0	8.6	4.5
Total number of provider years	832	1,992	6,409	19,523

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2017–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: This table shows the average characteristics of dental providers, based on whether they are in Domain 2 pilot or expansion counties, and whether they for billed for at least one CRA in that year to a Medi-Cal beneficiary ages 1 to 6. Average characteristics are calculated across all intervention years. The average ratio of preventive to restorative dental services is calculated as the average across all provider years of the ratio of the total preventive dental services to total restorative dental services the provider billed in that year. Preventive dental services do not include the Domain 2 incentivized services of nutritional counseling and interim caries arresting medication. See Appendix C for details on how we constructed the dental service measures from claims.

CRA = caries risk assessment.

Key informants and dental providers we interviewed indicated that the selection criteria for the Domain 2 counties likely contributed to the overall pace and composition of provider participation and therefore administration of the CRAs. The pilot Domain 2 counties were selected based on having a high ratio of restorative to preventive dental services and tended to be small counties with fewer dentists from which to recruit. Adding counties in the Domain 2 expansion group, particularly larger ones, such as Los Angeles, with many Medi-Cal dental providers, helped significantly increase the number of dental providers participating in this domain.

Many dental providers (47 percent of surveyed Domain 2 participating providers) chose to participate in Domain 2, because they were familiar with offering Domain 2 incentivized services. Key informants and providers we interviewed reported that familiarity and engagement with the Domain 2 incentivized services and facilitated provider participation in Domain 2. DHCS designed the domain with input from key dental leaders in the state to select the bundle of services that dentists considered appropriate and helpful. CRAs had been under development for decades in California and considered a best practice. Key informants noted that the dental community broadly recognized the importance of going beyond ensuring that children have a dental home to also understanding their underlying nutrition and motivations to encourage helpful behaviors. Many dental providers reportedly already conducting CRAs and some of the other activities, noted that the Domain 2 payments enabled them to add to or formalize these activities. These findings suggest that some of the increase in CRAs and CRA incentivized services that we found in Medi-Cal claims could overstate the true change in service use, because some dental providers reported that they provided some of these services before the intervention (perhaps in a less formal way) to children enrolled in Medi-Cal.

Survey evidence suggests that the participating dental providers had favorable views of the Domain 2 intervention. Overwhelmingly, providers thought the CRA bundle was easy to implement (93 percent), thought the CRA worked somewhat or very well in their practice (98 percent), found the training on the CRA bundle helpful (98 percent), and were somewhat or very satisfied with the payments (85 percent). Although dental providers had less experience with the motivational interviewing CRA activity than other CRA activities, key informants noted its importance and that pediatric dentists appreciated that the state had heard their requests to pay them for doing it. One provider appreciated that Domain 2 enabled him to "spend a little bit more time with the kids and the parents, not just go through the exam but also conduct a motivational interview, find out the real cause of the risk, and help modify the behavior of the child and the parents to actually help prevent cavities." This finding helps explain why Domain 2 was successful at providing CRA services even though participation among dental providers was limited.

From the providers' perspective, the biggest challenges in getting children at medium and high risk to return for follow-up visits were patients having a high rate of no shows (85 percent), and parents' reluctance to bring children back for follow-up visits (49 percent). These findings might help explain why children at medium and high risk did not receive as many CRA services as they were entitled to in the intervention years.

Dental providers we interviewed had mixed experiences with beneficiaries' receptiveness and follow-through with the recommended number of visits based on risk level. Some found that "[the term] 'high risk' gets moms' attention," while others found that despite their efforts to stress the importance of more frequent visits, they ultimately struggled to see children at high risk with that frequency. This finding might be largely due to the nature of being high-risk; these families face many of the socioeconomic-related constraints discussed earlier, such as inflexible work schedules and lack of reliable transportation. In fact, one key

Dental providers thought the CRA bundle worked well in their practice for the following reasons:

- It helped providers assess patient risk regularly and consistently (87 percent).

- It helped parents learn about their children's oral health (85 percent).

- It enabled providers to talk more with patients and parents about diet (80 percent).

- It motivated parents pay more attention to home care for their children (66 percent).

- Patients and their parents respond well to the questions (47 percent).

Source: Mathematica fielded a survey of 532 dental providers from October 2019 through March 2020. ◢

informant surmised that patients who visit the dentist four times a year are not actually high-risk, because they are able to keep all those appointments, and there should be more focus on serving children at high risk in other ways, such as through telehealth and by encouraging healthy habits at home.

D. Domain 3. Improving continuity of care

Key takeaways

Domain 3 aimed to improve continuity of care for eligible children by offering incentive payments to dental offices in 36 counties. Although continuity of care increased for Domain 3 counties before 2020 (and the disruptions in health care related to COVID-19), it also increased in counties where Domain 3 was not implemented. We found impacts of Domain 3 on continuity of care to be less than 1 percentage point. This finding is consistent across several outcome measures designed to capture continuity of care. We also found little evidence to suggest persistent impacts of Domain 3 on other dental outcomes, such as dental exams and preventive dental service use. Although we found limited evidence that Domain 3 substantially increased continuity of care for beneficiaries, results from our provider survey and key informant and provider interview suggest Domain 3 incentives motivated many dental providers to take steps to improve continuity of care and gave them with the resources to do it. ◢

Methods: Understanding the effect of Domain 3 on beneficiary outcomes

Beneficiary sample. We used Medi-Cal enrollment data from 2014 to 2021 to identify Medi-Cal beneficiaries ages 1 to 20 with at least three consecutive months of enrollment in Medi-Cal in a calendar year. To assess continuity of care over consecutive years, we further restricted our sample to Medi-Cal beneficiaries with at least three consecutive months of enrollment in Medi-Cal in each year. We grouped beneficiaries based on whether their address is within a Domain 3 pilot, expansion, or non-Domain 3 county.

Outcomes. The primary outcome is two-year dental exam continuity of care, which is measured as whether a beneficiary received at least one dental exam with any provider in two consecutive years. We also examined continuity of care measured over longer periods (three to six years), and alternative definitions of continuity of care (having a dental exam with the same dental provider in consecutive years and having a dental exam at the same office location in consecutive years). We also examined secondary dental service measures and dental expenditures to determine whether Domain 3 had spillover effects on access to and use of dental care among children enrolled in Medi-Cal.

Analytic methods. To estimate the causal impacts of Domain 3 on continuity of dental care and dental service use among children enrolled in Medi-Cal, we conducted difference-in-differences analyses comparing changes in outcomes among those affected by Domain 3 with comparison groups that were not impacted by Domain 3, children ages 1 to 20 enrolled in Medi-Cal in counties that never participated in Domain 3.

See the main text for more details on the analytic methods and Appendix C for more details on the data, analytic methods, and methodological limitations.

1. Descriptive results

Across the baseline and intervention period, less than half of all children enrolled in Medi-Cal received dental exams in consecutive years. For those with Medi-Cal enrollment of at least three consecutive months in each year, receiving dental exams in consecutive years (from any dental provider) was on average between 31 percent (two-year continuity) to 14 percent (six-year continuity) across all

counties for 2014 through 2021 (Figure III.11). Continuity of care based on consecutive dental exams with the same office ranged from 26 percent (two-year continuity) to 7 percent (six-year continuity). Continuity of care based on consecutive dental exams with the same dental provider was much lower— ranging from 17 percent (two-year continuity) to 3 percent (six-year continuity).

Figure III.11. Dental exam continuity of care for Medi-Cal beneficiaries ages 1 to 20 in California from 2014 to 2021
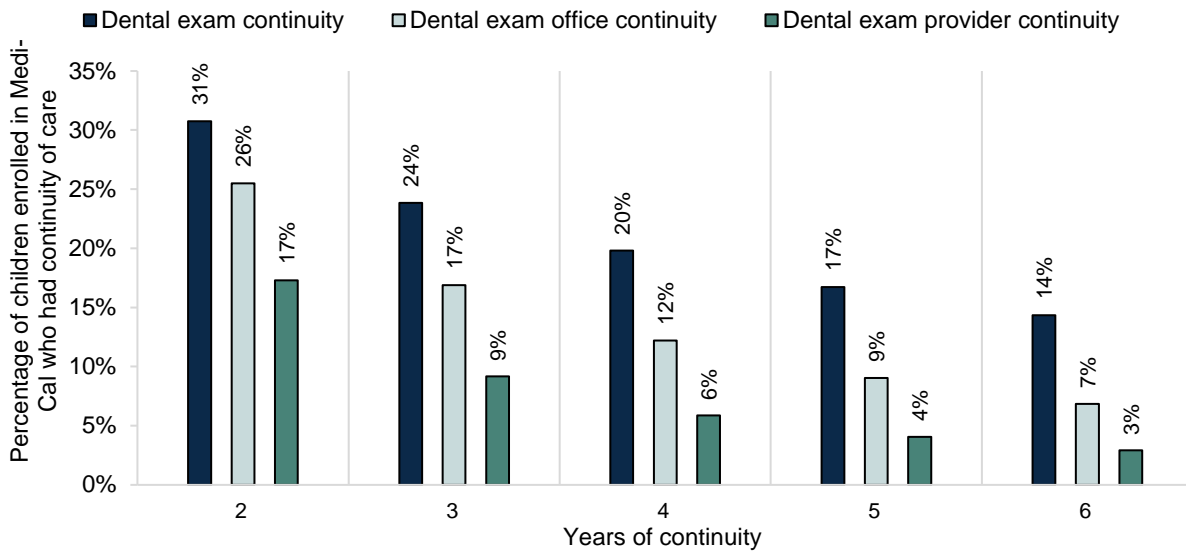
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2010–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: The bars represent the percentage of Medi-Cal beneficiaries ages 1 to 20 who had dental exam continuity of care for a varying number of years, out of all the Medi-Cal beneficiaries ages 1 to 20 in years 2014–2021 who had three consecutive months of Medi-Cal eligibility across all year's continuity of care is measured. The dark blue bars measure dental exam continuity of care as having consecutive dental exams across a varying number of years. The light blue bars measure dental exam continuity of care as having consecutive dental exams at the same office location across a varying number of years. The green bars measure dental exam continuity of care as having consecutive dental exams with the same provider across a varying number of years. See Appendix C for details on how we constructed the dental exam measure from claims.

Dental continuity of care increased across all county groups before the onset of the COVID-19 pandemic. Table III.6 reports dental exam continuity of two to six years from 2014 to 2021 for Domain 3 pilot counties, Domain 3 expansion counties, and counties that did not participate in Domain 3 (non-Domain 3). Across all county groups, continuity of two to six years increased between 2015 and 2019, by 2 to 4 percentage points. Therefore, although continuity of care increased for Domain 3 counties before the onset of the COVID-19 pandemic, it also increased for counties that did not participate in Domain 3, and in Domain 3 expansion counties before the start of the intervention. Continuity of care decreased in 2020 and 2021, during the COVID-19 pandemic, by 3 to 9 percentage points depending on the number of years of continuity of care and the type of county (D3 pilot, D3 expansion, or non-D3 county). When defining continuity of care based on having dental exams with the same dental provider or dental office in consecutive years, we found similar results. However, the magnitude of the percentage point changes is smaller, because continuity of care at the office and provider levels is much lower overall (Appendix A, Tables A.III.10 and A.III.11).

Table III.6. Trends in dental exam continuity of care for Medi-Cal beneficiaries ages 1 to 20, by county type

	2014	2015	2016	2017	2018	2019	2020	2021
2-Year Continuity								
D3 pilot counties	30%	29%	29%	30%	31%	32%	26%	23%
D3 expansion counties	33%	32%	32%	32%	34%	35%	29%	26%
Non-D3 counties	31%	31%	31%	32%	34%	35%	30%	26%
3-Year Continuity								
D3 pilot counties	22%	22%	22%	22%	23%	24%	20%	18%
D3 expansion counties	24%	25%	24%	25%	26%	27%	24%	21%
Non-D3 counties	25%	24%	23%	25%	26%	28%	24%	22%
4-Year Continuity								
D3 pilot counties	17%	17%	18%	18%	19%	20%	17%	15%
D3 expansion counties	20%	20%	21%	21%	22%	22%	20%	18%
Non-D3 counties	20%	21%	20%	21%	22%	23%	20%	18%
5-Year Continuity								
D3 pilot counties	14%	14%	14%	15%	16%	16%	14%	13%
D3 expansion counties	16%	17%	17%	18%	18%	19%	17%	16%
Non-D3 counties	17%	17%	17%	18%	18%	20%	17%	16%
6-Year Continuity								
D3 pilot counties	NA	12%	12%	12%	13%	14%	12%	11%
D3 expansion counties	NA	14%	14%	15%	16%	17%	15%	14%
Non-D3 counties	NA	15%	15%	16%	16%	17%	15%	14%

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2010–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: The table reports the percentage of beneficiaries ages 1 to 20 with dental exam continuity of care for a varying number of years of continuity, by the county the beneficiary resides in that year, and by year. The sample is restricted to beneficiaries who were enrolled for Medi-Cal for three consecutive months in the calendar year and each year previous that the continuity of care measure covers. Dental exam continuity of care is measured as having a dental exam in the current year and the consecutive years previous. See Appendix C for details on how we constructed the dental exam measure from claims.

Cells shaded dark gray indicate that continuity of care is measured across years before the intervention.

Cells shaded lighter gray indicate that continuity of care is measured across years that are both before and during the intervention period.

D3 = Domain 3; NA = not available.

Domain 3 did not appear to have stronger effects on continuity of care for any particular beneficiary subgroup. Appendix A, Table A.III.12 reports average two-year continuity by county group before the intervention, and then the change in average two-year continuity through 2019 (that is, before the COVID-19 pandemic). For most of the beneficiary subgroups we looked at (by age, ethnicity and language spoken), the increases in average two-year continuity between pre- and post-intervention periods were similar or slightly less than those in the non-Domain 3 counties. This finding suggests that Domain 3 did not have meaningful favorable effects on some groups more than others.

2. Impacts results

Domain 3 did not seem to have any meaningful impact on continuity of care, with impact estimates that never exceed 0.9 percentage points. Although, continuity of care in Domain 3 counties increased before the COVID-19 pandemic, the similar increase in the non-Domain 3 counties and in Domain 3 expansion counties before the expansion highlights the importance of formally testing this relationship. We used a difference-in-differences analysis that estimates the difference in changes in two-year dental continuity from before to after the interventions for children from 1 to 20 in Domain 3 pilot and expansion counties compared with children in counties that never participated in Domain 3. Figure III.12 (see Appendix A, Table A.III.13 for more details) shows the percentage of children enrolled in Medi-Cal with two-year continuity for the two treatment groups (Domain 3 pilot counties and Domain 3 expansion counties) and the comparison group (non-Domain 3 counties). The graph shows that the increases in continuity of care over the intervention periods are mirrored in the non-Domain 3 counties, again suggesting Domain 3 had no causal impact on continuity of care.

Figure III.12. Trends in two-year dental exam continuity of care for Medi-Cal beneficiaries ages 1 to 20, by county type
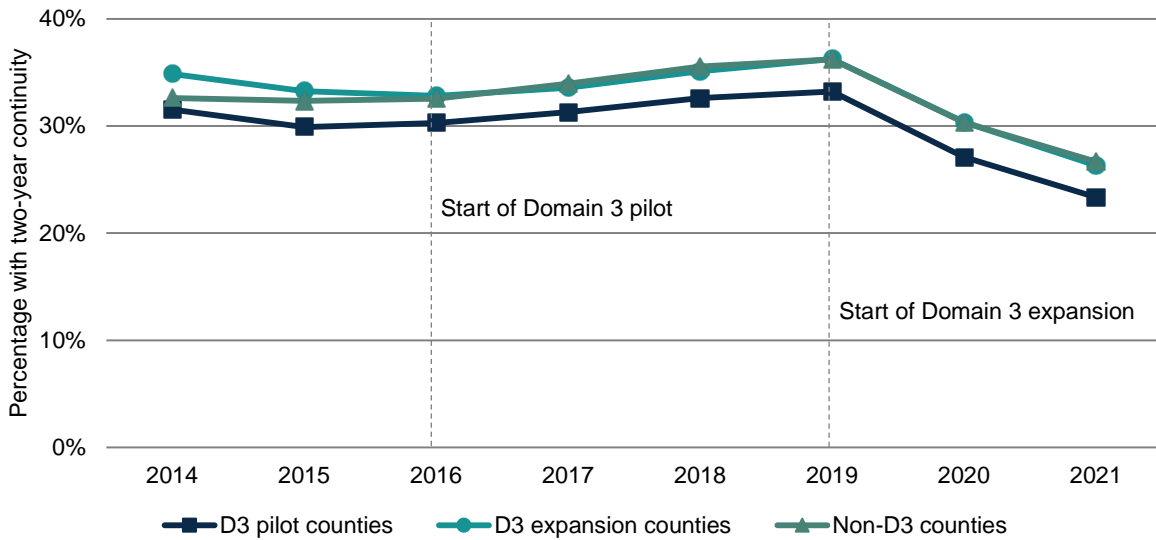
Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2013–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: The lines represent the percentage of Medi-Cal beneficiaries ages 1 to 20 with two-year dental exam continuity of care in each year for beneficiaries from different county types. Two-year dental exam continuity of care is defined as having two consecutive years of dental exams (that is, in the current and previous year). See Appendix C for details on how we constructed the dental exam measure from claims. The sample is restricted to beneficiaries who are enrolled for three consecutive months in the current year and the previous year. The sample is weighted by the fraction of months the beneficiary is enrolled in Medi-Cal over the two-year period if their continuity of care is equal to 0 and has a weight equal to 1 if their continuity of care is equal to 1.

D3 = Domain 3.

Table III.7 reports the regression coefficients for Domain 3 pilot counties and Domain 3 expansion counties, for two specifications: one that includes only difference-in-difference related variables, and one with additional controls.[19] For Domain 3 pilot counties, in the regressions that do not include additional controls, we found no effect on two-year continuity in the years after the start of the intervention in 2016. When we included controls, we found a significant effect at the 10 percent level of 0.8 percentage points in 2016. However, this effect diminishes in subsequent years. For both specifications (with and without controls), we found evidence of a significant pre-trends of 1.3 and 1.2 percentage points, which could suggest that non-Domain 3 counties might not be a good counterfactual for Domain 3 pilot counties. For Domain 3 expansion counties, we found no evidence of a pre-trend in either specification, and although we found statistically significant increases in continuity of care in some years (2019 and 2021), the effects were less than 1 percentage point.

Findings from several sensitivity tests, presented in Appendix A, Table A.III.14, closely mirror those from the main models. Sensitivity models included measuring continuity of care based on having a dental exam with the same dental provider, or with the same dental office; restricting the sample to beneficiaries with 12 months of enrollment in the current and previous year; using weights to balance on the number of beneficiaries in Domain 2 expansion counties in the Domain 3 pilot, expansion, and non-Domain 3 counties; and including controls for COVID-19. In each case, effects are never larger than 2.4 percentage points.

Results are also similar for dental exam continuity of care for three to six years, with effects in intervention years ranging from -1.0 to +0.9 percentage points, depending on the year and whether it is for Domain 3 pilot or expansion counties (see Appendix A, Table A.III.15).

Table III.7. Domain 3 difference-in-difference estimated impacts (in percentage points) on two-year dental exam continuity of care for children ages 1 to 20 enrolled in Medi-Cal

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[19] Controls include Medicaid eligibility aid code fixed effects, language fixed effects, dental health plan fixed effects, and ethnicity by age and county fixed effects.

Table III.7 (*continued*)

	No controls		Full controls	
	Coefficient (1)	SE (2)	Coefficient (3)	SE (4)
Domain 3 pilot counties				
2014	1.3***	(0.4)	1.2***	(0.5)
2015	-	-	-	-
2016	0.2	(0.4)	0.8*	(0.4)
2017	-0.2	(0.7)	0.2	(0.6)
2018	-0.5	(0.8)	-0.1	(0.7)
2019	-0.6	(0.9)	0.1	(0.8)
2020	-0.8	(1.0)	-0.1	(0.9)
2021	-0.9	(0.9)	-0.2	(0.9)
Domain 3 expansion counties				
2017	0.0	(0.3)	0.0	(0.3)
2018	-	-	-	-
2019	0.5**	(0.2)	0.7***	(0.2)
2020	0.5	(0.6)	0.9	(0.6)
2021	0.1	(0.7)	0.9*	(0.6)
Number of beneficiaries	38,403,644	38,403,644	38,403,644	38,403,644

Source: Mathematica's analysis of Medi-Cal claims and eligibility data 2013–2021. We used 2021 claims data that were pulled in January 2022, resulting in some missing 2021 claims due to insufficient claims runout.

Note: Impact estimates are regression-adjusted using a difference-in-difference analysis that reflects the difference in average two-year dental exam continuity of care for Medi-Cal beneficiaries ages 1 to 20 in Domain 3 counties in the year to the average in the baseline year, relative to the same difference over time for Medi-Cal beneficiaries in non-Domain 3 counties. Standard errors are from the same regression as the impact estimates, which clusters standard errors at the county level. The column labeled (1) reports impact estimates when no additional controls are included in the regression model beyond the main difference-in-differences variables. Column (3) reports the impacts estimates when we also control for Medicaid eligibility aid code fixed effects, language fixed effects, dental health plan fixed effects, the cost of a fixed bundle of dental services control, and ethnicity by age by county fixed effects. Two-year dental exam continuity of care is defined as having two consecutive years of dental exams (that is, in the current and previous year). The sample is restricted to beneficiaries who are enrolled for three consecutive months in the current and previous years. The sample is weighted by the fraction of months the beneficiary is enrolled over the two-year period if their continuity of care is equal to 0 and has a weight equal to 1 if their continuity of care is equal to 1. See Appendix C for details on how we constructed the dental exam measure.

Cells shaded gray indicate that the year does not overlap with the intervention.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

SE = standard error.

3. Effect of Domain 3 on other dental services and dental expenditures

Given that we found limited impacts on continuity of dental care, it is not surprising that we found limited effects on other dental outcomes, as well. Although, DTI Domain 3 targeted increasing continuity of dental care as measured by dental exam visits, if DTI Domain 3 strengthened the relationship between beneficiaries and dental providers, it could also increase other dental service use.[20] We found that impacts on having any dental exam are similar to the two-year continuity impacts—with a significant impact in the first year after the intervention (2 percentage points for Domain 3 pilot counties

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[20] Increased continuity of care might lead to Medi-Cal beneficiaries receiving more timely treatment and restorative dental services. However, if they also receive more diagnostic and preventive dental services, it could also decrease future need of treatment and restorative dental services.

and 1 percentage point for Domain 3 expansion counties). These impacts then diminish (see Appendix A, Table A.III.16). We found no effect on the number of dental exams received. For outcomes of any preventive dental service use and any dental visits, we found some evidence of a small positive effect (of about 1 to 2 percentage points) in the first two years after the intervention, but these small effects diminish in subsequent years. We found some evidence that Domain 3 increased restorative dental service use by about 1 percentage point, particularly in expansion counties. There is also some evidence of a negative impact on expenditures starting in 2020, but this impact might be due to COVID-19 affecting non-Domain 3 counties more than Domain 3 pilot or Domain 3 expansion counties. In regressions where we tried to control for the effects of the COVID-19 pandemic, this effect is diminished.

4. Related perspectives from beneficiaries

Most parents acknowledged in the beneficiary interviews the importance of keeping the same dentist over time for their children. However, many parents reported changing dental providers. Parents felt that having the same dentist over time helps to make the child feel more comfortable and enables the provider to maintain a long-term of record of care and track progress over time. Parents also noted that children might be reluctant or scared to visit the dentist and that seeing the same dentist over time helps children build a trusting relationship. One parent noted, "I think [continuity of care is] very important due to the relationship with the dental office and the dentist. And also, just them being familiar with your child and being able to watch them grow. And if things change, as far as [the child's] dental [health], sometimes the dentist can … make you aware of maybe eating habits or brushing habits, [and]… they can tell you, hey, watch this, because I see this is what's going on."

Many of the parents in our sample had changed their child's dental provider in the past and reported several different reasons for doing so—for example, because the family's situation changed, they moved, or they changed insurance. Other reasons cited were related to the practices, such closures or staffing changes, long wait times, lack of equipment for more advanced procedures (such as those that require sedation or anesthesia), and negative experiences with a previous provider. However, once parents found a dental provider they trusted, they reported they were more likely to continue seeing this provider.

5. Provider and key informant perspectives results

Although we found limited evidence at the beneficiary level that Domain 3 substantially increased continuity of care, results from our provider survey and interviews from key informants suggest Domain 3 incentives motivated some dental providers to take steps to improve continuity of care. Most key informants and dental providers we interviewed reported that the Domain 3 incentives were straightforward for DHCS to implement and for dental providers to understand. They also thought the payment amounts were adequate to support practice efforts to encourage patients to return year after year.

Many providers tried to improve continuity of care because of Domain 3. In the survey of dental providers, 42 percent of providers who received Domain 3 incentive payments said they increased outreach activities because they received DTI incentive payments, and 37 percent of providers in Domain 3 counties said they increased the number of follow-up visits with children enrolled in Medi-Cal to receive more Domain 3 incentive payments. Key informants and providers interviewed also reported that Domain 3 incentives encouraged providers to redouble and update such "recall strategies" that many had already used to encourage patients to return to the office for follow-up care and remind them of the upcoming appointments. For example, one dental provider described how their office created a dashboard

that enabled them to systematically track patients who are due for visits and to issue prompts for staff to send reminders.

Key informants and dental providers interviewed named a few additional efforts providers implemented using Domain 3 incentive payments to improve continuity of care. These efforts included raising awareness of the Medi-Cal transportation benefit, using ride-sharing apps to facilitate timely transport (because traditional transportation services typically require 24-hour notice, according to informants), and working with case managers to identify and address the barriers individual beneficiaries face in attending appointments. Some providers participated in broader outreach efforts and relationship building in their community, such as by working with schools to help children enrolled in Medi-Cal establish dental homes.

Some key informants perceived that Domain 1 also helped improve continuity of care by emphasizing the importance of preventive care. That is, they thought Domains 1 and 3 complemented one another to create a "powerful" combination of incentives that promote ongoing preventive care at the same provider. This perspective that these two domains potentially had some overlapping effects could help explain why continuity of care improved in all counties and why we found small impacts of Domain 3 on continuity of care, because our comparison counties were participating in Domain 1.[21]

Domain 3 incentives did not address all barriers to continuity of care. Although, incentives were influential for some providers to take steps at improving continuity of care for the children enrolled in Medi-Cal that they serve, for many others, the payments were not the providers' focus, which might help explain some of the limited impacts on beneficiary outcomes of continuity of care and dental service use. For example, 44 percent of providers surveyed said they didn't know whether they had received Domain 3 payments, and 16 percent said they did not receive them. In addition, a few dental providers we interviewed were either not aware of the incentives or appreciated them as general financial support for their practice but did not consider them significant enough to support new strategies to promote continuity of care. As with Domain 1, key informants observed that larger practices were more equipped than smaller ones to anticipate the Domain 3 incentives and make changes to improve continuity of care.

In addition, Domain 3 might have had a limited impact on continuity of care due to the prevalence of outside factors that the dentist cannot control. The two factors most commonly cited in the provider survey were the high rate of no-shows among Medi-Cal patients (69 percent) and patients not understanding the importance of following up (63 percent). The factors related to Medi-Cal beneficiaries' challenges accessing dental care also increase the likelihood of Medi-Cal beneficiaries not scheduling follow-up appointments or missing appointments. They include lack of access to timely transportation (which could include being unaware of transportation assistance), work schedules and policies that make it difficult for parents to bring their children to the dentist, and other life stressors that make dental appointments a lower priority for some families.

Changing providers also disrupts continuity of care, as defined by Domain 3; in interviews, more than half of families said they had changed providers in the past. Although not identified as an issue by providers surveyed,[22] key informants and dental providers interviewed discussed the importance of beneficiary satisfaction with their provider as key to them remaining with that provider year after year,

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[21] Note that to understand whether Domain 3 incentives were important on their own, it is necessary to compare Domain 3 counties with counties participating in Domain 1, as we do above.

[22] Although 25 percent of surveyed providers indicated that patients' unwillingness to return was a factor limiting their ability to improve continuity of care, it is unclear whether this limitation is due to patients switching dental providers or not returning to a dentist at all.

naming similar factors as Medi-Cal beneficiaries (such as parents and children being comfortable with their provider, the ability to obtain follow-up appointments in a timely manner, and the ability to receive all services in the same location). Although many of those factors are within the providers' control, adding capacity for more appointment availability or additional services might be too costly to address with the additional funds Domain 3 provided. Also, some key informants and dental providers perceived that Medi-Cal beneficiaries relocated more often than the general population, which made staying with the same provider challenging, particularly given the transportation and the other socioeconomic challenges they face.

E. Costs and benefits

The costs of DTI were substantial, and it did not lower dental expenditures or use of restorative or dental surgery under general anesthesia during the intervention period. This finding suggests that the benefits of DTI did not outweigh its costs.

Table III.8 reports the expenditures on incentive payments for each domain by year. Costs were highest in 2019, when all four domains were active, and both the pilot and expansions of Domains 2 and 3 were in place. Total costs across all domains and years were more than half a billion dollars.

Table III.8. Trends in total expenditures on each DTI domain

	2016	2017	2018	2019	2020	2021 through July
Domain 1	$46,540,000	$53,620,000	$54,461,000	$56,318,000	$35,092,000[a]	$0
Domain 2	$0	$2,041,616	$4,075,045	$56,565,452	$70,764,834	$35,497,894
Domain 3	$9,811,600	$12,166,710	$13,604,750	$84,029,320	$73,102,720[b]	$0
Domain 4	$0	$7,214,442	$14,278,555	$33,300,000	$42,500,000	$0

Source: Mathematica's analysis of DHCS DTI reports, June 2022.

Note: Each cell indicates the total expenditure for DHCS on each DTI domain by year as reported by DHCS in annual reports and quarterly progress reports. Domain 1 started January 2017. The Domain 2 pilot started in January 2017, and the Domain 2 expansion started in January 2019. The Domain 3 pilot started in January 2016, and the Domain 3 expansion started in January 2019. Domain 4 started in January 2017.

[a] This value includes only the first two (out of a total of three) payments.

[b] This value includes only the first (out of two) payments.

DHCS = Department of Health Care Services; DTI = Dental Transformation Initiative.

DTI did not lower expenditures on costly restorative services during the intervention period. DTI aimed to use incentive payments for the three domains that would lead to increased access, use of preventive dental service, and continuity of care. These increases would, in turn, prevent the need for treatment and costly restorative dental services. Although, Mathematica found some evidence that Domains 1 and 2 increased use of preventive dental services, we found no evidence that any of the domains led to fewer restorative dental services or, ultimately, lower dental expenditures during the intervention. The increases in access to dental care and preventive dental services could lead to lower expenditures in the post-evaluation period, but we are unable to quantify them at this time.

The cost per benefit received was high for Domain 1 and 3. To better understand the cost per benefit received for Domains 1 and 3, in which the costs were not for the additional services received by Medi-Cal beneficiaries, we estimate the per-beneficiary-per-year cost of the additional services that we

estimated resulted from DTI. Because the incentive payments for Domain 1 and 3 for 2020 and 2021 are incomplete, we only used the estimated impacts and cost from before 2020 for this calculation.

To estimate cost per additional benefit attributable to Domain 1, we multiplied the estimated impacts of DTI on preventive services in each intervention year by the total number of Medi-Cal beneficiaries ages 1 to 20. We find that Domain 1 led to an average of 183,088 more Medi-Cal beneficiaries ages 1 to 20 receiving a preventive service each year, with Domain 1 incentive payments averaging $52,734,750 per year. Therefore, the cost of the additional Medi-Cal beneficiaries ages 1 to 20 receiving a preventive service was $288 per beneficiary per year higher than the cost of preventive service itself ($52,734,750 divided by 183,088).

To estimate cost per additional benefit attributable to Domain 3, we multiplied the estimated impacts on two-year continuity at any provider in each intervention year by the number of Medi-Cal beneficiaries ages 1 to 20 who were eligible for three consecutive months in the year and the year previous. Domain 3 led to an average 6,422 more Medi-Cal beneficiaries ages 1 to 20 having two-year continuity in dental exams per year, with Domain 3 incentive payments of $29,903,095 per year. Therefore, the cost of the additional Medi-Cal beneficiaries ages 1 to 20 having two-year continuity was $4,656 per beneficiary per year higher than the cost of any additional services those beneficiaries received ($29,903,095 divided by 6,422).

IV. Domain 4. Local Dental Pilot Project Case Studies

A. Background on local dental pilot projects

From February 2017 to December 2020, the LDPP component of DTI funded 13 pilot programs throughout California to test strategies for advancing one or more of the Domain 1, 2, or 3 goals: increasing preventive dental care, promoting CRA and evidence-based disease management, and improving continuity of care. DHCS received 23 LDPP applications and selected the 13 programs listed in Figure IV.1 (California Department of Health Care Services, n.d.(a)).[23]

Figure IV.1. LDPP names, locations, and funding amounts

1. **Humboldt County** ($3.5 million)
2. **Sonoma County** ($3.3 million)
3. **San Francisco City and County Department of Public Health** ($4.2 million)
4. **Alameda County** ($16.3 million)
5. **First 5 San Joaquin** ($4.5 million)
6. **Sacramento County** ($9.3 million)[a]
7. **Fresno County** ($8.2 million)
8. **San Luis Obispo County** ($1.6 million)
9. **Cal State LA** ($15.2 million)
10. **UCLA** ($16.6 million)
11. **First 5 Riverside** ($8.4 million)[b]
12. **Orange County** ($15.5 million)
13. **CRIHB** ($1.9 million; serving portions of the 13 counties shaded in tan)[c]

Source: California Department of Health Care Services, Dental Transformation Initiative Final Annual Report, n.d.(b).

Note: Funding amounts rounded to the nearest $100,000.

[a] The Sacramento County LDPP worked in Sacramento and Amador counties.

[b] The First 5 Riverside LDPP worked in Riverside and San Bernardino counties.

[c] CRIHB served tribal and urban Indian health programs with dental departments serving portions of 13 counties in California (shaded in tan).

Cal State LA = California State University, Los Angeles; CRIHB = California Rural Indian Health Board, Inc.; LDPP = Local Dental Pilot Project; UCLA = University of California, Los Angeles.

Nearly all LDPPs built on prior investments, efforts, and partnerships in children's dental care when developing their models. Common planned activities included strengthening the capacity of the workforce, further integrating oral health into primary care, and promoting the use of telehealth technology. To conduct this work, LDPP lead entities—which included county health departments, First 5

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[23] Appendix A, Table A.IV.1 includes more detailed information about each LDPP.

organizations,[24] and universities, among other groups—partnered with community health centers, private dental clinics, schools, universities, and nonprofit organizations. Most LDPPs—except one, which was a cross-county rural Indian health board—operated on a county-wide basis.

> **Methods: Case studies of Domain 4 LDPP**
>
> From September to December 2020, we conducted telephone interviews with respondents from all 13 LDPP lead entities. Each lead entity identified two to three partner organizations that we subsequently interviewed, for a total of 48 interviews. All interviews were recorded and professionally transcribed.
>
> We approached each LDPP as a case study and extracted insights and lessons from lead agencies and partners about their experiences implementing their projects and the barriers and facilitators they observed in working toward the DTI goals. We reviewed background materials on each LDPP provided to us by DHCS, including the LDPPs' DTI Domain 4 applications and the annual and quarterly reports each submitted to DHCS. Finally, we conducted a cross-case analysis to identify common themes and compare LDPPs' approaches. Descriptions of LDPPs' successes, challenges, lessons learned, and progress against their stated goals are based on the interviews conducted by Mathematica and data the LDPPs self-reported to DHCS.

B. Findings

In this section, we (1) describe LDPP activities generally; (2) describe the LDPP core components in detail, including implementation experiences, challenges, and lessons learned; and (3) conclude with a discussion of LDPPs' feedback for DHCS. We base our findings primarily on a series of 48 interviews with all 13 LDPP lead entities and 2 to 3 of their partners between September and December 2020. We also incorporated observations about the LDPPs from interviews with state-level respondents conducted in fall 2021 and interviews with parents and caregivers of Medi-Cal beneficiaries from February to May 2021, where relevant.

1. LDPP activities

Although each LDPP designed and implemented a unique project with components and combinations of strategies tailored to local circumstances and needs, there were many similarities across LDPPs. In general, LDPPs worked to create demand for dental services through education campaigns. They also sought to expand the supply of dental services, primarily through capacity-building efforts in traditional venues, and by providing services in nontraditional settings, such as schools, medical offices, and other community locations. In addition, many LDPPs sought to create new types of staff, processes, and technology to facilitate and coordinate the care among providers and venues.

Within this broad framework, we found that LDPPs' strategies fit into five common components: (1) offering care coordination services; (2) conducting oral health outreach and education; (3) enhancing the dental provider workforce; (4) providing services virtually; and (5) facilitating medical-dental integration (see Figure IV.2). Each LDPP implemented several of these components; care coordination was the most common and appeared to be the most useful to integrate with other components. For example, care coordination strategies often supported strategies promoting oral health outreach and education, enhancing the dental provider workforce, and providing services virtually. Facilitating medical-dental integration and strategies to enhance the dental provider workforce also often went hand in hand.

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[24] Each county in California has a First 5 commission dedicated to improving the lives of California's young children and their families through a comprehensive system of education, health services, childcare, and other programs. Funding for First 5 organizations is levied from a state cigarette tax.

Figure IV.2. LDPP core components

Offer care coordination services	Conduct oral health outreach and education	Enhance the dental provider workforce	Provide services virtually	Facilitate medical-dental integration
13 ◆**12**	**11** ◆**11**	**10** ◆**10**	**8** ◆**6**	**8** ◆**5**
· Hiring care coordinators to identify and connect with kids in need of dental care, manage referrals, conduct warm handoffs, follow-up on oral health care-related services, and help families overcome barriers to accessing care · Building and training a workforce to coordinate dental care · Developing and implementing web-based tools to facilitate care coordination	· Conducting outreach and engaging with children and families about dental care in community-based and clinical settings · Educating children and families about oral health topics, such as the importance of brushing, flossing, and seeing a dentist regularly · Launching broad-based media campaigns, including radio, Internet, television, and social media spots	· Recruiting new dental providers to participate in Medi-Cal · Increasing the capacity of existing Medi-Cal dentists to see more Medi-Cal beneficiaries · Offering providers incentives for accepting new patients · Providing training and development opportunities for the dental workforce	· Implementing a VDH program, which uses telehealth technology to offer dental care in community settings · Offering other (non-VDH) telehealth-based dental services	· Hosting interdisciplinary and interprofessional training activities (including both non-dental and dental professionals) · Incorporating dental screenings/CRAs into medical visits · Developing and implementing data integration systems/ technology

Number of LDPPs   # Implementing   ◆ # Reporting substantial progress

Source: Mathematica's analysis of LDPPs' application materials and interview data, January 2022.

CRA = caries risk assessment; LDPP = Local Dental Pilot Projects; VDH = Virtual Dental Home.

2.   Implementation experiences, by core component

LDPPs implemented all the core components described above at least partially, with varying degrees of success. The following section describes the strategies, implementation experiences, challenges, and lessons learned for each core component.

a.   Offer care coordination services

Dental care coordinators can play a critical role in identifying and connecting children in need to dental care, managing dental referrals, conducting warm handoffs, and following up on services related to oral health care. All 13 LDPPs provided some form of care coordination services to advance the goals of Domains 1, 2, and 3, and 12 of the 13 reported substantial progress in this area. For this component, LDPPs commonly hired community health workers (CHWs) and registered dental assistants (RDAs) to offer patients outreach and services. These services helped increase scheduled appointments for children and youth and helped connect families with resources and follow-up care. For example, Humboldt County created a Care Coordination Hub that linked patients to care coordinators who could provide them with a variety of services. These services included instructing patients on oral hygiene, preparing treatment plans, helping them make appointments for dental services, and providing them with information about how to access other resources to support their dental care and other social needs, such as transportation to appointments. Humboldt County's care coordinators also tried to meet families in convenient locations, including at home or in community health centers, mobile dental vans, schools, and homeless shelters. (However, once the COVID-19 pandemic began, care coordinators transitioned to mostly phone-based work.)

At the San Francisco City and County Department of Public Health (SFDPH) LDPP, bilingual health workers offered similar services, including translation services, appointment scheduling, education on appointment compliance, and promoting health messaging among Medi-Cal beneficiaries. Orange County organized mobile clinics that offered beneficiaries dental services and care coordination. Parents whose children visited the mobile clinics reported being satisfied with the convenience, attention to communication, and follow-up.

> *"It's more convenient for them when they're at school, so that they don't miss out on any of their classes. [Appointments] take an hour at most, and [children] have a check-up every six months. If they find something, they make another appointment… When they finish, they explain what they did, what can happen, how long [the child] could experience some discomfort, and that they expect to see [the child] at [their] next check-up. They're very friendly, and they explain everything they [do] in detail."*
>
> —Parent of Medi-Cal beneficiary in Orange County

Care coordination work at some LDPPs focused on building and training a workforce to coordinate dental care. For example, Sonoma County developed a curriculum and established a course at Santa Rosa Junior College to train community dental health workers (CDHWs), building off the county's CHW model. Through this curriculum, CDHWs (also known as "tooth fairies") gained linguistic and cultural competence to provide caregivers with appropriate information and to educate providers about community perspectives and cultural norms. They also learned important skills, such as how to explain what to expect at dental visits, facilitate transportation to dental services, and address other barriers to care, to support follow-up appointments and referrals.

As part of their efforts to coordinate care, several LDPPs sought to develop and implement web-based tools to enable care coordination. Alameda County expanded and transformed an existing care coordination database to better support data tracking, sharing, evaluation, and quality improvement. The project migrated the database's functionality to a web-based care coordination management system that was accessible to all community dental care coordinators and dental providers from any location. The project hired and maintained a workforce of at least 25 community dental care coordinators, including

many with bilingual capabilities, and reported substantial progress toward its goal of enrolling 15,000 children who had not received dental care in at least the previous 12 months into their care coordination program. Care coordinators also scheduled many dental appointments for children, including first appointments.

Care coordination brings Medi-Cal families tremendous value by helping them navigate the confusing dental care landscape, while providers benefit from a reduction in costly no-shows. Several LDPPs reported that they could not overstate the value of their program's care coordinators. One noted that care coordination was "the glue" that held all the LDPP components together by helping families understand and use their Medi-Cal dental benefits and by promoting continuity of care. LDPPs report that many parents are not aware that their child's Medi-Cal coverage includes dental coverage or do not know how to access these benefits and navigate the system without the help of a trusted care coordinator. Care coordinators play a critical role in helping families overcome fear or reluctance about seeking dental care, because they have developed trusting relationships with these families. In addition, providers appreciate care coordinators' work with families to overcome obstacles to care by assisting with making and attending appointments, resulting in fewer missed appointments.

Experiences of Medi-Cal beneficiaries who participated in LDPP services

Parents of children enrolled in Medi-Cal in LDPP counties shared positive experiences with dental care:

- Most parents reported they were very satisfied with their child's routine care provider. Parents described "kid-friendly" practices where children felt comfortable and calm and where providers took the time to clearly communicate with parents and explain treatment.

- Most parents found it easy to schedule an appointment that fit their schedule. Several parents who took their child to an appointment booked their child's next appointment while at the office. Several parents also noted they were able to make appointments within one week of calling.

- Most parents were satisfied with the wait time in the office and reported the dental office was either or a short drive away or within walking distance.

Source: Interviews with 58 Medi-Cal parents and caregivers in LDPP counties in February through May 2021. These views might not be generalizable to all children who participate in Medi-Cal, because these children might have received additional services (such as care coordination) or had access to a mobile dental unit. ◢

To optimize this strategy, LDPPs reported that hiring full-time care coordinators from the local community worked best for three primary reasons: (1) it allowed care coordinators to dedicate themselves fully to the work (rather than requiring dental assistants or other staff to do the care coordination work in between their other duties); (2) care coordinators were familiar with the social and cultural norms of the communities they served and were therefore able to develop deep relationships with parents and families; and (3) in some communities, local care coordinators developed a strong community resource network, which was important during crises, such as the COVID-19 pandemic and California wildfires. To be effective, care coordinators also need a strong understanding of how the Medi-Cal program works and what services are covered, and the flexibility to approach their work according to their local context. For example, Humboldt County reported success developing standard trainings and scripts for care coordination staff, but then allowed each health center with care coordinators to implement coordination activities based on the clinic's overall workflow.

"Seeing these community health workers connect with each other [to] build this powerful group of knowledge and caring and systems change has been really amazing to see. That was a lesson learned: how powerful it is for people who are transformed by the work they do to want to connect, and the need to connect about helping their community members through thick and thin."

—LDPP respondent

Spotlight: Cross-cutting challenges

LDPPs and their partners uncovered two major challenges that affected their ability to implement strategies as planned and to meet their stated goals:

- **LDPPs faced issues recruiting and retaining staff. Some counties reported long hiring processes, hiring delays, and high staff turnover, which led to many extended vacancies in LDPP positions.** For example, Sonoma County reported challenges retaining CDHWs. Interviews with clinics found that some CDHWs left their positions to pursue more education or professional growth, leaving the clinics short-staffed. Vacancies created capacity challenges for the remaining staff and sometimes meant that planned work could not be executed. Alameda County also reported high levels of turnover among care coordinator staff and dentists in health center locations; because the project was temporary, care coordinators would leave after finding a permanent position. The California Rural Indian Health Board, Inc. also reported high levels of turnover among dentists at health centers located in rural communities, because some dentists in these communities are placed in these centers through participation in a loan repayment program and leave the centers once the program is over. Respondents from First 5 San Joaquin noted that unexpected staff turnover among the community health center Virtual Dental Home (VDH) teams and care coordinators slowed progress in some sites, as each new staff member required time for hiring, onboarding, and training, and to develop relationships in the community.

- **The COVID-19 pandemic introduced myriad challenges that delayed or halted some LDPP activities.** COVID-19 impacted every aspect of LDPPs' core components and activities. With state and local stay-at-home orders, in-person outreach and education events ceased, dental clinics were closed except for emergencies (for several months, in some counties), and even VDH locations such as schools and centers offering services through the Special Supplemental Nutrition Program for Women, Infants, and Children were closed for in-person education. LDPPs had to delay trainings and workforce development opportunities. However, some were able to make them accessible via online videos and webinars. LDPPs adapted to the new environment and found workarounds for some activities, such as by mailing dental kits or passing them out at food distribution events. ◢

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b. Conduct oral health outreach and education

Promoting oral health and conducting outreach in community-based and clinical settings helped LDPPs connect with families and provide them with information about maintaining oral health; community partnerships were key to supporting these efforts. Eleven LDPPs sought to raise families' awareness of the importance of dental services by incorporating into their projects outreach and education strategies to promote oral health. Messaging focused on preventive care and care coordination and thus primarily advanced the goals of Domains 1 and 3. All the LDPPs reported successful partnerships with a number of key organizations in their communities. For example, the LDPP at California State University, Los Angeles (Cal State LA) supported interdisciplinary "bridge teams," comprising students and interns who worked to build trust with community-based partner agencies and educated them on how to promote oral health. By the end of 2020, Cal State LA partnered with more than 100 distinct community entities, representing more than 350 individual program sites. Using these partnerships, the LDPP participated in community outreach events, including speaking to parent groups, conducting workshops on how to promote oral health, hosting developmental disabilities events, and attending urban American Indian and Alaska Native workshops and powwows. Modeling its approach after the successful Reach Out and Read program, the California Rural Indian Health Board, Inc. (CRIHB) purchased selected children's books related to oral health and trained their project's oral health care coordinators (OHCCs) on how to use these books in primary care visits with families of children ages 1 to 12. Because of this initiative's wide reach, CRIHB considered it successful at increasing oral health literacy in clinical settings.

A few LDPPs supported oral health media campaigns. For example, First 5 San Joaquin worked with a marketing organization to implement a media communications campaign featuring a web page, radio spots, billboards, and so on, to convey messages on the importance and accessibility of dental care. The LDPP subsequently detected a notable increase in traffic to the sjteeth.org website. The LDPP at the University of California, Los Angeles (UCLA) partnered with Sesame Street in Communities to develop new media resources for raising awareness of oral health issues. The campaign created five videos featuring Muppet characters Grover and Elmo. By the third quarter of 2020, the videos exceeded the program's goals for views and engagement, leading to an increase in followers across all of the LDPP's social media platforms by the fourth quarter of 2020.

> *"Even though we felt like we were badgering people, sometimes, even though we've given information 10 different times, that might be the first time the parent is actually processing that information."*
>
> —LDPP respondent

LDPPs reported that the most effective approaches for delivering oral health education included using direct and encouraging messages, delivering them multiple times and in families' preferred language; incorporating dental education and activities into other events and programs can also increase families' engagement. Examples of messages that LDPPs reported as resonating with families include "nothing beats water," "brush twice a day and floss," and "first birthday, first tooth, first visit." Sometimes, families need to hear the message multiple times to absorb it. Offering families an item with the message printed on it, such as a refrigerator magnet, reportedly helped by giving families a visual reminder of the message. LDPPs commonly shared messages in English and Spanish, with some offering messages in additional languages, too. Some LDPPs found family attendance at events focused solely on oral health to be low, and that families were more likely to respond to oral health outreach and education when these elements were incorporated into other community-based programs, such as fairs and festivals sponsored by schools, Head Start, Boys and Girls Clubs, and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). LDPPs thought schools were particularly effective places to reach children with oral health education, with some observing the benefits of educating children during school hours when parents—who might feel fear, anxiety, or shame related to their children's oral health—aren't present.

c. Enhance the Medi-Cal dental provider workforce

Offering providers training on the administrative aspects of Medi-Cal and professional development opportunities helped expand and strengthen the Medi-Cal dental provider workforce. Ten LDPPs worked to expand and strengthen the Medi-Cal dental provider workforce, which primarily advanced the goals of Domains 1 and 3; all reported positive effects. For example, Fresno County hired provider relations representatives (PRRs) with backgrounds in medical or dental sales to contact both Medi-Cal dentists who are not accepting new patients and non-Medi-Cal dentists, to educate them, recruit them to the program, or encourage them to treat more children enrolled in Medi-Cal. PRRs offered dental practices on-site education and customer support on Medi-Cal and DTI, including guidance on forms, paperwork, and billing for incentive payments.

> *"We have to keep maintaining the relationship with our providers in order to make sure that they are satisfied, or [that] they have good feedback as to accepting the Medi-Cal patients. We can help them address their issues."*
>
> —LDPP respondent

LDPPs offered dentists opportunities for clinical workforce development, including one-on-one, small-group, and larger convenings and courses. For example, Orange County sought to reach and train pediatric dental providers on Medi-Cal and DTI opportunities by hosting twice-yearly forums and annual summits for current and prospective Medi-Cal providers. Dentists from across the state attended the forums, and topics included silver diamine fluoride treatments (a liquid substance applied to teeth topically to help prevent caries), Medi-Cal enrollment, tele-dentistry, and interim therapeutic restorations. San Luis Obispo County offered training and scholarship incentives to increase the number of hygienists trained to deliver preventive care services.

To increase the supply of dental services for children enrolled in Medi-Cal, a handful of LDPPs offered provider incentives beyond the standard DTI incentives and for different services. For example, CRIHB offered financial incentives for the number of completed treatment plans; Alameda County offered private dentists incentive payments for providing Family Oral Health Education services; and San Luis Obispo County encouraged providers to accept new patients by offering a stipend of $100 for each new patient younger than 20.

"We were building something that was really transforming the attitude about working with the Medi-Cal program, which is a relationship to a bureaucracy, as compared to the human quality of a partnership with people at the county level, and care coordinators who were embracing the need and taking it on. And we were there arming the dentists with confidence [and] competence, and they were part of a wide phalanx of providers who are willing to take on this issue."

—LDPP respondent

Appealing to dental providers' desire to help their communities can improve their longstanding negative attitudes toward Medi-Cal and encourage provider take-up. Several LDPPs described some dental providers' resistance to the statewide Medi-Cal dental program. They overcame this stereotype by focusing on the role dental providers can play in improving dental outcomes for children in their local communities. Providers valued being part of a broader local effort and responded positively to messages about how they can help. Fresno County noted the importance of the PRR, who offered providers a trusted person to help them navigate and "believe in the [Medi-Cal] system," particularly when paperwork was confusing or when it took time to obtain DTI incentive payments.[25]

> d. *Provide dental services virtually*

Offering virtual dental services helped LDPPs connect with children in community-based settings; several expanded telehealth services, particularly when the COVID-19 pandemic hit. Eight LDPPs provided dental services virtually through Virtual Dental Homes (VDHs) or other telehealth strategies, to advance the goals of Domains 1, 2, and 3. These models often leaned on allied dental providers—such as RDAs, community dental health coordinators, and dental hygienists—to offer services in the community. Some LDPPs developed and implemented these programs for the first time, whereas others built on existing programs by expanding them into new settings. Six of the eight LDPPs that launched VDH programs or implemented other telehealth strategies made progress toward their goals. Some deviated from their original plans.

Broadly, the VDH model uses telehealth technology to expand the number of allied dental providers that work in the community and to link them with dentists in dental offices and clinics to offer dental care in

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[25] In particular, and as discussed in earlier in this report, Safety Net Clinics faced a longer ramp-up period for the other DTI domains because of the unique structure of their Medicaid payments. It took time for the state to develop a process for the clinics to submit claims so they could receive DTI incentive payments.

community settings. The model can include synchronous care, where the patient is connected in real time to a dentist via telehealth technology, and asynchronous care, where the patient's chart is transmitted through a secure server for a dentist to review offline. For example, First 5 Riverside organized 12 VDH teams, each of which included a dental hygienist and a patient navigator or coordinator, to meet with families in schools, day care centers, Head Start sites, and other community settings. At the first visit, the VDH team would explain the program and determine whether a child had an established dental home. Families would then consent to receive VDH services either immediately or at a future appointment. VDH teams provided families with dental education; took patient x-rays; charted dental conditions; provided preventive procedures, such as fluoride treatments and sealants; and offered interim therapeutic restorations to families, as needed. The VDH team would forward each patient's x-rays and electronic dental record to a dentist at a community health center to review the record and prescribe a treatment plan.

> *"Starting a Virtual Dental Home is almost like starting a [dental] practice. Starting a practice is time-consuming. It takes five years before you build a practice, and that was a struggle."*
>
> —LDPP respondent

Adapting the VDH model to local contexts proved burdensome, but participants believe the model can be effective with significant investment in relationships and understanding of local conditions. Some LDPPs experienced technical challenges with adapting the VDH model to fit their local contexts. First 5 Riverside cited low adoption of VDH because of the physical and technical challenges of transporting VDH equipment.

Some VDH teams opted to lease cargo vans, because their personal cars could not safely transport VDH equipment. However, they still found it physically daunting to set up and take down the VDH equipment every day. Sacramento County noted that it was difficult to make direct contact with parents, which is necessary to enroll the children in the VDH program. Several LDPPs partnered with schools and found that although VDH excited many schools, they struggled to find space and time for the program. Administrators, principals, school nurses, and teachers were also concerned that their workloads would increase if their school participated in VDH. Interviews with respondents with more of a statewide perspective highlighted similar challenges, including issues with obtaining parental consent to enroll children into the VDH program, procuring the necessary portable VDH equipment, and establishing patients through VDH methodology, rather than through an in-person visit, for billing purposes.

State-level respondents noted the potential for VDH to address all DTI domains and the value of reaching children in their local communities. Specifically, they thought VDH helped increase use of preventive dental services, created opportunities for teams to do CRAs and other Domain 2 components within schools, and offered significant opportunities for care coordination. However, because of the infrastructure and relationships required to implement a successful VDH program, LDPPs recommended allowing adequate time to ramp up these programs and establish strong working relationships with partners, especially schools. Some LDPPs overcame the difficulties of working with schools by coordinating with another program already working in the school, such as a Boys and Girls Club or the YMCA. Others noted that asking parent leaders to reach out and recruit other parents into VDH was an effective approach to overcoming some parent's initial reluctance to enroll

> *"Getting those parents who were connected to a lot of other parents, talking about how good it is, and having those kids come back and say, it was fantastic, or I really like the hygienist, it's easy, and spreading word of mouth that way [was beneficial]. If we had more time to do that, I'm sure enrollment would have been much higher than it was."*
>
> —LDPP respondent

their children. Undertaking an initial community needs assessment before implementing a VDH program might be useful in the future to identify potential challenges or concerns specific to individual communities. For example, some community health centers noted that they would have preferred using mobile dental vans over the VDH model, because it would have been more convenient for providers and potentially safer than requiring them to haul heavy VDH equipment in and out of schools and other sites. Another noted the importance of ensuring that Internet capabilities at VDH locations are adequate to support sharing information, and that this information would have been useful before launching the program.

Some LDPPs did not operate formal VDH programs but still offered virtual services to Medi-Cal members; COVID-19 provided some unanticipated opportunities for telehealth investment. LDPPs quickly pivoted activities and figured out ways to continue providing oral health services despite lockdowns and social distancing, with some reporting surprisingly positive results. For example, Fresno County had been hosting "dental days" at WIC centers where registered dental hygienists in alternative practice (RDHAPs) provided services in community-based settings. During the COVID-19 pandemic, they moved this community-based work to telehealth. Alameda County program staff also increased their support of tele-dentistry efforts to continue providing services to clients.

e. Facilitate medical-dental integration

The interdisciplinary and interprofessional training activities offered by LDPPs helped providers incorporate dental services into medical visits and coordinate across new data-sharing technologies. Eight LDPPs implemented strategies to integrate medical and dental care, advancing the goals of Domains 1, 2, and 3, with five LDPPs reporting substantial progress with these efforts. Activities focused on training medical and dental providers to incorporate dental care into medical visits reportedly showed promise. For example, UCLA developed and offered a no-cost, tailored curriculum for medical and dental providers for which they received continuing education credits. The curriculum for medical providers sought to help them understand what they could do to support oral health through their practices, and when they were eligible for reimbursement. Sacramento County hosted a monthly learning collaborative that included medical and dental providers as well as other stakeholders. The in-person gatherings provided medical and dental providers with opportunities to interact and form relationships while discussing topics such as how to incorporate behavioral health screening into dental visits and how to integrate preventative dental services into medical care settings.

Several LDPPs worked to incorporate dental screenings and CRAs into routine medical visits. For example, community health centers in Humboldt County that provided both medical and dental services worked to increase preventive dental services provided to children during medical visits and connect them with ongoing dental care. In some community health centers, care coordinators provided fluoride varnish, oral health screening, education, and referrals to the center's dental clinic during well-child medical visits. At least one health center also integrated dental care into prenatal visits, educating pregnant patients about the importance of taking care of their baby's oral health even before their baby has teeth, and providing these patients with the appropriate supplies. Humboldt County noted that its medical-dental integration component created a culture shift among community health center medical staff, who now consider dental care a basic foundational element of overall good health. Participating medical staff reportedly took more ownership over the task of connecting patients to oral health care; one community health center considered this change one of the "biggest wins of the LDPP."

A few LDPPs developed data systems to facilitate and modernize medical-dental services integration. For example, Sacramento County developed the Medical-Dental Referral and Navigation (MDRAN) system to identify children who have not had a dental visit in 12 months, facilitate referrals, "close the referral loop" with physicians, and track care coordination. Securing buy-in for the MDRAN system from medical groups required time, training, and multiple discussions about the value of the system, but these efforts reportedly paid off. For example, UCLA developed and implemented the electronic Los Angeles Dental Registry & Referral System (LADRRS), to document the provision of oral health services, track referrals between medical and dental providers, and gather data on oral health measures to inform program monitoring and decision making. By November 2020, the LADRRS team had onboarded approximately 140 providers, although use of the system remained low. Onboarding providers to the system took time, and accessing LADRRS presented an additional step in the workflow of already very busy providers. The LDPP initiated a pay-for-performance incentive to compensate providers for the time it takes to enter the information and generate referrals, but this incentive did not do much to boost uptake in the midst of the COVID-19 pandemic.

Integrating dental and medical care takes time, flexibility, and trust; integration might work best when there is buy-in from a medical champion at the practice and when dental professionals deliver the care in medical settings. LDPPs noted the importance of establishing partnerships with medical departments and staff early, as it took time to develop relationships, support medical-dental training activities, and develop appropriate workflows. Practices with supportive medical directors to champion efforts that required medical provider training or practice updates were deemed more successful. Those without high-level support found dental activities fell by the wayside in the face of other important priorities. Several respondents from community health centers believed that the most successful model for integrating dental activities into medical visits was to have an RDA or RDHAP "pop in" to a well-child visit to meet with the family, apply fluoride varnish, and establish a relationship for follow-up. Respondents noted that the model of asking medical assistants to integrate dental activities during well-child visits was less successful, because medical assistants often lack the time and expertise to provide these services. Finally, medical practices that could use electronic medical records to prompt the need for referrals were also reported to integrate dental care into their work more effectively and seamlessly.

3. Feedback for DHCS

Several LDPPs expressed appreciation for DHCS' willingness to support the LDPP work but wished for more engagement with them and with one another. LDPPs valued DHCS' investment in community-based oral health work under DTI. As one noted, deciding to take on DTI and the LDPP component in particular as part of the state's 1115 waiver was "a big deal." However, eight LDPPs expressed a desire for more substantive interaction with DHCS, including more communication about goals, outcomes, and the decision to not allow an extension of Domain 4. LDPPs wished their quarterly meetings with DHCS had included more attention to programmatic issues and opportunities to share progress and challenges. LDPPs also wanted more feedback on the quarterly and annual reports they submitted to understand whether they were meeting expectations or should be making course corrections. One LDPP noted that it appreciated the DHCS site visit conducted midway through the funding period and craved more such feedback and technical assistance. LDPPs also thought they could have benefited from opportunities to learn from one another about challenges and successes, such as through a virtual conference or other investments in LDPP continuous learning.

Future grant programs could benefit from built-in planning and phase-out periods and streamlined contracting and funding processes. Six LDPPs noted that the pilot program was short, and felt even shorter, because of the delays in contracting and funding at the outset, delays due to COVID-19, and the decision to not request an extension of Domain 4. Streamlining the contracting processes to enable work to begin earlier would have helped, providing LDPPs an uninterrupted five years to implement and test their models. State-level respondents offered similar observations, noting that it took a long time for the LDPPs to finalize contracts, establish partnerships, and begin work in earnest. The short duration of the program made it difficult to create lasting change or drive innovation. Six LDPPs said they would have appreciated more flexibility in purchasing equipment as well as clarity in how they could allocate their budgets. LDPPs felt the funding rules were too rigid and limited their ability to fund useful priorities, such as in-person convenings. Others noted inconsistencies in what were deemed allowable expenses, such as dental kits. Finally, one LDPP noted that it rolled over substantial funds each year and would have appreciated the opportunity to begin reallocating funding sooner in the grant.

To support improved oral health care going forward, DHCS should include more robust care coordination for oral health in the Medi-Cal program. Four LDPPs believe that DHCS should support systematic care coordination for the Medi-Cal oral health delivery system. They found care coordination to be valuable in educating families and helping them set and keep dental appointments. Several recommended working with local community-based organizations or health departments to offer care coordination, and that DHCS should consider reimbursing for these care coordination services. One noted that the new California Advancing and Innovating Medi-Cal (CalAIM) initiative should include more robust funding mechanisms for care coordination, and that health plans should be held accountable for the care coordination work that they are required to do. This feedback aligns with the findings and recommendations from a study of the LDPPs' care coordination efforts, that recommended California capitalize on the investment and momentum gained through the LDPPs' care coordination services by working with a variety of stakeholders to develop and adopt a comprehensive statewide plan for robust, community-based dental care coordination (Andrew, Gonzales, and Alongi 2020).

C. Sustainability

LDPPs demonstrated interest in sustaining activities after DTI, particularly those that they considered as having a strong return on investment. However, without dedicated funding from DTI, some LDPPs were unsure how they would achieve this goal. Some LDPPs identified potential alternative financial support, but none expressed the ability to sustain all activities. State-level respondents noted that the state ultimately allowed the LDPPs to keep any equipment they purchased for their LDPP activities, such as dental equipment, which should help them sustain certain activities post-DTI. However, covering costs for any staff added would likely be a challenge. We interviewed LDPPs as they were nearing the end of the LDPP demonstration period, and they were not yet certain about their future plans. We interviewed key informants a year later and thus were able to gain some insight on the activities that were and were not actually sustained.

LDPPs expressed interest in sustaining certain activities—including care coordination, educational and outreach strategies for providers or patients, VDH services, and partnerships—that were perceived as having high value, high impact, or low cost. For example, Alameda County identified care coordination services as essentially "paying for themselves" by reducing the patient no-show rate and planned to continue offering these services. Humboldt County, SFDPH, Sonoma County, and First 5 San Joaquin identified educational and outreach strategies for providers or patients, such as continuing to

share and promote educational videos, handouts, and websites that were developed through LDPP funding, as relatively low cost to maintain. They anticipated continuing these services, especially given that most of the messaging and lessons were already developed. Community health centers in Humboldt County were also likely to sustain the medical-dental integration component; because they saw value in embedding oral health into the medical clinic workflow, and the cost of these services could be covered by their regular encounter payment rate.

LDPPs acknowledged that some activities would need to be modified or to evolve over time. Notably, LDPPs thought that some activities, such as VDH services, were likely to continue but would need to be modified to remain sustainable and to better meet community needs. For example, Orange County noted that although all its community health center partners were committed to continuing VDH services, each center would adapt VDH services according to its needs. San Luis Obispo County noted that some schools would reconfigure the VDH approach to have dentists present during the VDH visits, which would enable them to develop a treatment plan during the VDH visit rather than requiring them to schedule a follow-up appointment. Key informants acknowledged that, although the data management tools developed in partnership with Oral Health Solutions to track and evaluate program activities are sustainable, they will require funding for ongoing software updates.

Despite interest, some LDPPs expected they would not have sufficient funds to continue activities, including care coordination, medical-dental integration, and VDH efforts. CRIHB noted that it was unlikely that clinics would continue supporting the work on oral health coordination, and without the OHCCs to encourage and support the incorporation of CRAs during primary care visits, it was unlikely that medical staff would continue incorporating CRAs into primary care visits in the future. Similarly, SFDPH shared that its work developing interprofessional collaborative practice and incentivizing community health centers to refer children from medical care to dental care ended when the LDPP's funding stopped.

State-level key informants noted that some LDPPs found funding to sustain certain activities in the short-term. UCLA used carry-forward funds from DTI to continue working with the partners at their school district to distribute oral health kits and provide oral health education at food distribution stations. One state-level key informant shared that First 5 San Joaquin secured funding through its county to rehire some of its dental care coordinators, allowing it to provide services through community health centers or other community-based organizations. Although its plan was not finalized at the time of our interviews, Fresno County intended to sustain some of its work by working with its Local Oral Health Program. Sacramento County's physician-to-dental referral component was sustained through funding from an unknown source and was working to receive ongoing funding from health plans. Finally, Riverside County provided First 5 Riverside with a follow-up grant to further develop its home visiting program to include dental care.

V. Lessons for Future Efforts to Improve Oral Health

As DTI came to a close, key informants viewed the program positively overall, particularly its goals, objectives, and effects on oral health care for children. They thought DTI complemented the state's other efforts to improve the dental components of the Medi-Cal program, such as Proposition 56 supplemental payments; administrative refinements to promote provider participation; and outreach efforts of the Smile, California campaign and California Department of Public Health's California Oral Health Plan to

> *"The [DTI] program has helped to incentivize and push out [oral health] information in a positive way, so that it really is increasing the number of children and families who have a better understanding of what to do, and to, most importantly, have a place to go."*
>
> —Key informant

encourage Medi-Cal families to seek care. They perceived that DTI's incentive payments helped support the Medi-Cal dental provider workforce, promoted continuity of care, and elevated the importance of preventive dental services for children. Key informants also valued the partnerships among local health agencies, providers, community-based organizations, and state dental experts that were established through DTI. Those partnerships helped foster oral health at the community level and highlighted care coordination as a promising component to helping children access oral health care.

At the same time, key informants perceived lessons from the DTI experience that might have improved DTI's implementation and impacts. They thought the greatest challenges were the design and allocation of Domain 1 provider incentives and the implementation of the LDPPs. Although they agreed LDPPs' efforts to try new ways of providing dental care in the community showed promise in expanding and improving the overall structure and capacity of the dental safety net, they noted that LDPPs faced many challenges that could have been mitigated through more communication with DHCS and potentially having more time to overcome initial start-up delays and interruptions related to COVID-19.

A. Implications for CalAIM Oral Health implementation

As California implements its California Advancing and Innovating Medi-Cal (CalAIM) initiative—DHCS should consider lessons learned from DTI to further address and improve oral health care for children enrolled in Medi-Cal and other Medi-Cal beneficiaries. DHCS set an initial goal for CalAIM to have at least 60 percent of children enrolled in Medi-Cal use their dental benefits annually, up from 51 percent in 2019.[26]

To achieve greater access and use of dental services among the Medi-Cal population, CalAIM

Overview of CalAIM Oral Health

CalAIM is a broad effort to transition the Medi-Cal program into an approach to population health that prioritizes prevention and addresses the whole person, including their physical, behavioral, developmental, long-term care, and dental care needs (California Department of Health Care Services 2022d). CMS approved the California State Plan Amendment (SPA) 21-0019 to take effect January 1, 2022, leaving no gap between the end of DTI Domains 1, 2, and 3 and the start of CalAIM. ◢

has incorporated aspects of DTI through modified versions of Domains 1, 2, and 3 (although CalAIM does not use the same domain terminology as DTI) (California Department of Health Care Services 2022e). CalAIM incorporates many of the lessons from DTI and recommendations from key informants and dental providers—for example, to expand incentives statewide and apply them to the adult population. Most key informants thought these changes were reasonable and would still promote the

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[26] Mathematica's analysis of Medi-Cal claims and eligibility data 2014–2021.

overall aims of the three domains, yet they were uncertain of the extent to which they will help the state increase preventive service use for children and adults enrolled in Medi-Cal.

DHCS should consider key informants' and dental providers' additional experiences with and reflections on DTI that could help improve the implementation and impacts of CalAIM. We describe each of the components in terms of how they compare with the original DTI domains, and potential implications of the changes and recommendations for implementation. (See Table V.1 for a comparison of DTI domains and CalAIM.).

Table V.1. Comparison of DTI domains to CalAIM features

DTI	CalAIM
Domain 1	**Pay-for-performance: Preventive services**
• Dental providers received incentive payments if they met or exceeded a 10 percent increase from their baseline in the volume of preventive care provided to children enrolled in Medi-Cal. • Providers near or at capacity benefited marginally from the incentives because they could not take a large volume of new patients.	• Dental providers receive performance payments for Medi-Cal adults as well as children. • Performance payments are flat-rate payments for each preventive service provided and not based on meeting a benchmark. • Providers will receive performance payments for both existing and new patients.
Domain 2	**CRA and SDF: New benefits**
• Dental providers in 29 counties were eligible to participate if they completed the required training.	• Dental providers in all 58 counties statewide are eligible to participate if they complete the training.
• Providers received a bundled payment for providing all services in the CRA bundle for a child from birth to age 6 at recommended intervals depending on the child's risk level. • The bundle included a caries risk assessment, nutritional counseling, and motivational interviewing; as well as applying SDF for high-risk patients.	• The CRA bundle will not include motivational interviewing. • SDF will be reimbursed as a separate service for children from birth to age 6 and for people who have underlying conditions that make nonrestorative treatment of caries preferable over restorative treatment. • Payment for completing the CRA bundle will be half of what it was under DTI.
Domain 3	**Pay-for-performance: Continuity of care**
• Dental office locations in 36 counties received an incentive payment for treating a child enrolled in Medi-Cal year after year.	• Dental office locations in all counties will be eligible for the performance payment. • The performance payment will also apply to treating adults enrolled in Medi-Cal.
• Incentive payments increased for each consecutive year a practice saw a child enrolled in Medi-Cal.	• The performance payment is the same amount each year a Medi-Cal beneficiary returns to the office and will be half the amount DTI provided for the first year a child returned (two years of continuous coverage).

CRA = caries risk assessment; DTI = Dental Transformation Initiative; SDF = silver diamine fluoride.

1. Access to and use of preventive services (Domain 1)

Under CalAIM, incentive payments to dental providers who administer preventive services will extend to treating adults and children. Providers will receive a flat-rate payment increase for each preventive service provided and do not need to achieve a certain percentage increase in the volume of services provided over a benchmark to receive the incentive. This structure should be more straightforward for

providers to understand and will better reward providers, including Federally Qualified Health Centers, that already treat many Medi-Cal patients.

Lessons from DTI suggest that pairing these incentives with additional supports could foster additional provider participation and further boost the use of preventive services. Key informants named several support methods to consider, including the following:

- **Expedite the payments.** Ensuring that the billing process for the incentives accommodates how Federally Qualified Health Centers are paid through their prospective payment system, and paying all providers more quickly after delivering services would help providers' cash flow. It would also help them better anticipate how increasing the volume of services will affect them financially.

- **Conduct a more explicit provider recruitment strategy.** The state could do more to promote providers' participation in Medi-Cal. For example, it could build on California Dental Association's focused communications with dental specialists about recent improvements in Medi-Cal to encourage their participation. It could also expand on DHCS' Administrative Services Organization's "door-to-door" effort to assist dentists with all aspects of participating in Medi-Cal, including enrollment and billing questions. The Fresno LDPP offered this type of dedicated support and found providers very receptive to it. To promote health equity, the state also could create incentives to encourage more people of color to enter the dental profession and work in underserved communities. One approach might be to expand student loan repayment programs for people of color (among the dental providers we surveyed, 19 percent of them said that offering more student loan repayment options could encourage more providers to provide dental care to children enrolled in Medi-Cal).

- **Offer more training opportunities.** Given the importance of starting preventive oral health care at a very young age, the state could do more to alleviate concerns that many general dentists have in treating infants and toddlers. Developing more training options could make dentists more comfortable and confident in treating this population. One option could be to focus more on strategies for treating young children in the TYKE program that providers must complete to participate in the CRA bundle and provide supplemental training for the providers already administering the CRA bundle. In addition, incorporating more such training into dental school curricula could help ensure that new dentists start their careers with these skills.

In addition, strategies to steer more Medi-Cal beneficiaries proactively toward providers could help promote timely and ongoing dental care. Key informants offered several suggestions for meeting this goal:

- **Mine and analyze data.** DHCS could review utilization data from Medi-Cal dental plans and DHCS' Administrative Services Organization to identify children who had not received services and contact them to link them to available providers. Utilization data could also help payers assign beneficiaries to a dental home and help providers know where they should focus their outreach efforts.

- **Ensure the value of care coordination.** Although the LDPPs and many key informants highlighted the importance of care coordination in linking Medi-Cal beneficiaries to needed dental care, they acknowledged the high cost of these services. More studies to determine whether care coordination is cost effective could help identify the most valuable structures for promoting timely and regular dental care, build funding support for those structures, and focus care coordination on populations that will benefit from it the most.

2. Assessing risk and treating caries (Domain 2)

Under CalAIM, the CRA bundle of services will expand statewide for children from birth to age 6 but with fewer elements. New providers will still be required to participate in TYKE training. Dentists will continue to be incentivized to administer the CRA, to see medium- and high-risk patients more frequently, and to provide nutritional counseling. The bundle no longer includes motivational interviewing; a key informant reported that two large clinical trials found that motivational interviewing did not impact early childhood caries. Domain 2 piloted the use of silver diamine fluoride (a topical solution to slow the growth of a cavity) for high-risk patients; CalAIM removes it from the CRA bundle and instead will reimburse it as a separate service for any child from birth to age 6. Dentists will be paid roughly half of what they were paid under DTI for providing the CRA bundle during a visit.

Lessons from DTI suggest that more could be done to engage Medi-Cal beneficiaries in managing caries risk. Key informants thought more outreach to educate Medi-Cal families about the importance of managing caries risk would be helpful in encouraging families to seek treatment at the recommended frequencies determined by the CRA. For example, DHCS could use existing data about the prevalence of oral disease among children enrolled in Medi-Cal —including the prevalence of broken teeth and abscesses that require prompt attention—as a call to action for Medi-Cal families.

3. Improving continuity of care (Domain 3)

Under CalAIM, the performance payment to promote continuity of care is a flat payment of $55 for each year that a beneficiary returns to a dental practice; it extends to all dentists statewide and applies to both adults and children enrolled in Medi-Cal. Under DTI, the incentive was a graduated payment for each consecutive year a patient returned to a practice (up to $140[27]). A key informant said the payment change was based both on budget factors and findings that a graduated payment did not produce sufficient increases in continuity of care.

Lessons from DTI suggest that helping providers encourage patients to return year after year and potentially expanding which entities can receive incentive payments might help increase continuity of care. One key informant suggested creating sample outreach messaging and communication tools for providers to help them explain the importance of establishing a dental home and the benefits of seeking continuous care through that dental home. Other key informants thought that providing incentives, either to community partners (for example schools, Head Start, and WIC) to encourage the families they work with), or to families directly, to obtain care at the same provider year after year, might also help. However, there is no current funding source identified to create such incentives.

4. Providing care in the community (Domain 4)

The LDPPs ended according to the original DTI schedule on December 31, 2020. By the end of 2021, some LDPPs secured funding to sustain certain activities in the short term, typically through other local dental-related programs (see Section IV). CalAIM does not include LDPP-like models that fund collaborations among community-level entities to implement oral health strategies to promote preventive care, manage caries risk, or encourage continuity of care.

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[27] The original DTI Domain 3 incentive payments ranged from $40 to $80 annually. In January 2019, the range increased from $100 to $140 annually.

> *"They have a very good dentist because... How should I put it? They help you make appointments, and they go to the kids' schools, so that [the kids] don't have to miss a whole day of class. They're very attentive with the kids, so [the kids are] not afraid to visit the dentist. It's fast, and the staff are very friendly, and they explain everything."*
>
> —Medi-Cal parent

Still, some aspects of the LDPPs will continue statewide through CalAIM. For example, CalAIM will use medical managed care plans to promote the integration of dental and medical care, as well as coordination of care across medical, dental, and social services. Key informants saw promise in efforts to involve medical providers more in ensuring children receive needed preventive oral health screenings and treatments, including referring them to dental providers. They also emphasized the importance of ensuring that dental care receives sufficient attention and that DHCS should monitor and enforce related managed care plan requirements (such as AB 2207).

Key informants also thought DHCS could do more to help develop dental services in community settings where Medi-Cal beneficiaries learn or receive other services. Ideas for how and why to do achieve this goal included the following:

- **Encourage dentists to expand their reach.** This approach could help meet children where they regularly visit, such as schools and WIC and Head Start sites. DHCS could develop incentives for working in alternative settings and demonstrating the potential financial impacts on their practices of providing these services with support from other staff (non-dentists). A key informant reported that dentists who participated in the virtual dental home model (as several LDPPs implemented) gained more business, because the model identifies dental issues that need to be addressed by a dentist.

- **Broaden expectations of Medi-Cal managed care plans.** DHCS could encourage the plans to establish community relationships. These connections could include requiring managed care plans to contract with local organizations that have established relationships with Medi-Cal beneficiaries and devoting resources to support them.

- **Use data to identify areas of greatest need to help address health disparities and promote health equity.** Key informants noted how Hispanic Medi-Cal beneficiaries and Medi-Cal beneficiaries of color often live in "dental deserts," and the few dental offices near them are focused on the commercially insured population. DHCS could mine existing data on demographics and social determinants of health—or start collecting these data if they do not exist or are incomplete—and draw on them to determine whether to dedicate resources.

> *"The dentists explain everything, the whole procedure in Spanish, or if they don't speak Spanish, they have a translator present. That's good, because sometimes you go to the dentist, and they can't even understand you. But there, the dentist gets a member of staff who speaks Spanish, and they explain everything—like he has this and this, he needs another appointment, you need to bring him in to get his teeth cleaned or for a filling—all of that. I like that place."*
>
> —Medi-Cal parent

- **Inform Medi-Cal beneficiaries about the value of and options for obtaining oral health care in alternative settings.** In addition to broad outreach campaigns, DHCS could enlist the managed care plans and community-level entities in more customized, community level campaigns. One key informant stressed the importance of efforts to explain to Medi-Cal beneficiaries that receiving dental care in a community setting can be a more accessible and efficient option than going to a dental office.

B. Supporting future dental care transformation efforts

Lessons from the LDPPs suggest that more collaboration between DHCS and dental experts, providers, and community agencies and organizations is vital to assess and improve the effectiveness of new strategies to improve oral health for Medi-Cal beneficiaries. DHCS could spend more time gathering input from these entities on the types of measures that are helpful and feasible to track and reassessing these measures throughout implementation to determine how well they work. Collaboration could also include exploring innovative ways to assess progress beyond provider participation and data to include other measures to track progress in areas such as provider and beneficiary satisfaction and health equity.

In addition, DHCS could offer more opportunities for providers, community organizations, and others participating in new incentives and implementing new strategies to share their experiences with DHCS and with each other. From these interactions, DHCS could establish focused learning resources and sessions to help providers and entities learn about and apply best practices from experts and their peers. Further, explicitly sharing data and early findings as entities implement changes would offer opportunities for adjusting strategies throughout their implementation to maximize the impact of the changes and improve outcomes for Medi-Cal beneficiaries.

VI. Discussion

To accelerate improvements in dental care and oral health for children enrolled in Medi-Cal, DHCS implemented a multifaceted set of interventions with DTI. DTI combined statewide strategies and county-based components that promoted the use of preventive dental services, the prevention and management of early childhood caries, and continuity of care to advance the overall health and well-being of children enrolled in Medi-Cal. The state hoped that DTI, combined with several other important policy and program changes focused on oral health for families with low incomes, would boost historically low rates of provider participation and improve access to dental services.

Key design components included the following provisions:

- Incentives for dental providers who met benchmarks for increasing the number of children to whom they provided preventive services (Domain 1), and in some counties, for dental offices that provided dental care to the same child year-to-year (Domain 3)

- Training and reimbursement for dental providers who use a bundled package of dental services that includes use of a CRA tool and related education and motivational interventions for caregivers (Domain 2)

- Funding for 13 pilot programs throughout California to test community-level strategies for advancing one or more goals of Domains 1, 2, or 3 (Domain 4)

Through these intervention components, DTI aimed to increase dental provider participation in Medi-Cal; increase the number of children enrolled in Medi-Cal who receive preventive dental services by 10 percentage points; encourage dental providers to use evidence-based disease management to prevent and treat more early childhood caries, thereby reducing the need for invasive and costly restorative procedures; and increase dental continuity of care.

A. Did DTI achieve its ambitious goals to improve access to care for Medi-Cal beneficiaries?

The results of our evaluation suggest that DTI helped California make considerable progress in improving access to dental care for children enrolled in Medi-Cal. Overall, we found evidence that Domain 1 increased preventive care among children enrolled in Medi-Cal before 2020, when the COVID-19 pandemic and the resulting mitigation efforts deterred people from seeking health care services. Estimates suggest that by 2019, DTI had increased preventive care use in this group by about 4 percentage points. We also found evidence of increases in the use of other dental services, with small but statistically significant impacts on any dental exams, treatment services, and restorative services by 2019. These findings suggest that DTI increased access to dental services among children enrolled in Medi-Cal.

We also found evidence that Domain 2 changed the way many dental providers assess and treat early childhood caries among children enrolled in Medi-Cal. Approximately one in four of these children ages 1 to 6 in Domain 2 counties received an assessment for early childhood caries during the intervention period, with use of the CRA tool growing over time. Similar to the Domain 1 findings, by the end of the intervention, Domain 2 increased the volume of dental services received by children enrolled in Medi-Cal. Although most of the increase is due to use of the CRA bundled services, we found evidence that the intervention had some spillover effects on other preventive dental services. Taken together, these results suggest that DTI increased access to dental services among the children enrolled in Medi-Cal who were the focus of the Domain 2 intervention.

However, results from our impact analysis of Domain 3 show that the intervention did not improve continuity of dental care. Outcomes for children enrolled in Medi-Cal in Domain 3 pilot and expansion counties were not statistically or substantively better than those for children enrolled in Medi-Cal who lived in counties where Domain 3 was not implemented. This finding is consistent across several outcome measures designed to capture continuity of care.

Although, the state made progress increasing the use of dental services during the DTI period, there is meaningful room for further progress. Although we found notable increases in preventive service use due to DTI, the increase was smaller than the Domain 1 goal of 10 percentage points. Although, the COVID-19 pandemic disrupted the progress that DTI was making on children's access to preventive services, even without the pandemic, it is unlikely that Domain 1 would have achieved its goal. The evaluation also found that much of the increase in preventive service use was due to Safety Net Clinics increasing the number of children enrolled in Medi-Cal they serve. This finding suggests that participation in Medi-Cal among office-based dental providers might need to remain a priority area if California wishes to increase access further. In addition, despite the increase in preventive and treatment services and robust use of CRAs in Domain 2 counties, there is no evidence of meaningful impacts on restorative services across any of the domains. However, it might be too early to draw conclusions about the long-term benefits of DTI on oral health.

We also found no evidence that DTI widened the pool of dental providers participating in Medi-Cal. In fact, we found essentially the same number of dental providers providing preventive services to children enrolled in Medi-Cal in 2019 as we observed in 2015, the year before DTI.

B. Why did DTI have success in some aspects of the intervention, but fall short in others?

One reason for the varied effects across Domains 1, 2, and 3 (the three domains in which we were able to estimate causal impacts of DTI) might lie in how the incentives were structured. There is empirical evidence that increases in Medicaid reimbursement rates increases the willingness of providers to participate in Medicaid, and results in modest increases in dental use among Medicaid beneficiaries (Decker 2011, Buchmueller et al. 2015). Whereas Domain 2 led to a direct increase in the amount Medi-Cal reimbursed dental providers for providing the targeted dental services (from no reimbursement before the intervention), providers in Domain 1 were paid incentives for hitting benchmarks, and providers in Domain 3 received incentives for seeing the same Medi-Cal beneficiary over time. The simplicity of the reimbursement changes for Domain 2 services likely contributed to the stronger response of providers to Domain 2, compared to performance incentives of Domains 1 and 3.

Findings from the qualitative and provider survey components support the idea that the relative complexity of the Domain 1 incentives might have dampened their effectiveness in motivating change. Themes from the key informant and provider interviews included that the Domain 1 incentives were not top of mind for dental providers, the incentive process was not intuitive to dental providers, and it was difficult for providers to anticipate and reflect on how practice changes affected payments. Conversely, Domain 2's approach of increasing base FFS payments was straightforward; survey evidence suggests that participating providers had favorable views of the Domain 2 intervention and payment, with 85 percent of Domain 2 providers reporting they were somewhat or very satisfied with the payments they received for services.

A second reason that DTI could have fallen short of some of its goals is that, outside of the incentive payments, the initiative did not focus on addressing other barriers to dental provider participation in Medi-Cal. Our findings suggest the incentive payments motivated those already participating in Medi-Cal to provide more services or increase the number of children enrolled in Medi-Cal they serve, an important outcome, but did not lead to an overall increase in dental providers participating in Medi-Cal. We do not mean to suggest that the focus on provider payments is unnecessary for increasing access to dental care among children enrolled in Medi-Cal—only that the payments alone might not be sufficient. There are several reasons for this insufficiency, some of which have been highlighted by prior literature and this evaluation. Without motivating new dental providers to participate in Medi-Cal, initiatives like DTI might run into a "ceiling effect," whereby capacity constraints and other barriers to access (like geographical distribution or acceptability) might limit progress toward dental access and service use goals and could leave some Medi-Cal beneficiaries behind.

A third and related reason might be that DTI was designed to focus more on motivating provider change than on addressing barriers that Medi-Cal beneficiaries face in accessing dental care, outside of provider supply. It might be unrealistic to expect that dental providers can break down the multitude of barriers that Medi-Cal beneficiaries face in receiving regular dental care. Without additional supports aimed at addressing access, programs like DTI might fall short of their goals. These supports could include training or materials for providers on best practices in conducting outreach or educating families on oral health, more training options to help dentists become more comfortable and confident in treating infants and young children (which could include encouraging dentists broadly to take the TYKE training required for dentists participating in Domain 2), or they could focus directly on families of children enrolled in Medi-Cal.

Several of the LDPPs implemented components that were designed, at least in part, to address provider participation issues *and* beneficiary barriers. For example, they might have offered care coordination services to identify and connect children with dental care or conducted oral-health outreach and education in alternative settings. Several of these approaches showed promise. However, the efforts were relatively small in scale and were likely incapable of producing large impacts on dental outcomes among the full universe of children enrolled in Medi-Cal child. However, lessons from these programs might help future provider-focused efforts improve access to dental care for Medi-Cal beneficiaries.

C. What are the implications of evaluation findings about DTI for future oral health strategies?

Overall, the evaluation findings suggest that providing enhanced reimbursement can improve some aspects of access to dental care among children enrolled in Medi-Cal. However, the structure of the provider incentives and the persistence of other barriers play an important role in the success of initiatives like DTI. As we describe in Section V, California is sustaining versions of DTI Domains 1, 2, and 3 through its CalAIM initiative. In designing and implementing CalAIM, California has already taken steps to address aspects of DTI that might have limited the impact of the initiative—most notably, simplifying the incentive structure to encourage preventive dental care and continuity of dental care. Also notable is the integration of dental and medical care, which might be critical in addressing the beneficiary-level barriers to care that might have prevented Domains 1 and 3 from meeting their goals.

Developing an overall strategy to promote oral health care for children is neither an easy reach nor a short-term goal. It almost certainly requires a multilevel approach, combining broad investments in capacity building with more focused investments, such as DTI and CalAIM. California has embarked on a

commendable journey to modernize the Medi-Cal dental program to be more accessible and equitable for the beneficiaries it serves and the dental providers that participate in it. Using data to test and monitor California's progress in improving dental access will continue to prove critical in helping the state meet the ambitious goals it has set.

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Former Foster Youth Who Were in Foster Care and Medicaid in a Different State: California Section 1115(a) Final Evaluation Report

1) Executive Summary

California's Section 1115(a) Medicaid Waiver, entitled Medi-Cal 2020, was approved by the Centers for Medicare & Medicaid Services (CMS) on December 30, 2015, until December 31, 2020. The Medi-Cal 2020 demonstration aimed to transform and improve the quality of care, access, and efficiency of health care services for over 13 million Medi-Cal members. Through the demonstration, California has continued to provide Medicaid coverage for Former Foster Youth (FFY) who aged out of foster care under the responsibility of another state, while enrolled in Medicaid, and had applied for Medi-Cal in California where they resided. The demonstration results reflect increasing and strengthening overall coverage of FFY and improved health outcomes for these youth.

2) Description of the Demonstration

a) Background
When the Affordable Care Act (ACA) was implemented in 2014, California selected the option under the authority of a State Plan Amendment (SPA) number CA-14-0005 to provide Medicaid to FFY who exited foster care in another state at age 18 or older and were under age 26. A subsequent interpretation of the ACA resulted in the withdrawal of authority under the SPA to provide eligibility to Medicaid to youth who exited from foster care in a different state. CMS requested California submit a waiver to provide eligibility to Out of State (OOS) FFY.

On August 18, 2017, CMS approved an amendment to the Medi-Cal 2020 Waiver to allow the state of California to continue providing full scope Medicaid coverage for OOS FFY under age 26, consistent with federal requirements for coverage of this population. California was the first state to have its 1115(a) Waiver approved by CMS to OOS FFY who were in foster care in a state other than California and currently residing in California. Under the FFY Program, OOS FFY under age 26 who qualify consistent with the federal requirements receive full scope benefits in Medi-Cal until they turn 26. These youth do not need to re-apply for Medi-Cal until they age out of the program. At age 26, they are fully reassessed to determine if they are eligible for any other Medi-Cal programs. With the Medi-Cal 2020 Waiver amendment, eligibility and enrollment processes were not interrupted for individuals eligible under this coverage category.

The evaluation design known as Attachment QQ was created by CMS and approved on December 22, 2017, leveraging data available from 2015. CMS agreed that the

OOS FFY population was statistically insignificant for comparison in the evaluation design. Any statistical comparisons in Attachment QQ are between the FFY population and the Medi-Cal population age 18 to 25, inclusive (peer group). The waiver amendment authorized the state to include OOS FFY starting on November 1, 2017. The Department of Health Care Services (DHCS) submitted its first Attachment QQ for Demonstration Year (DY) DY 13 on October 17, 2018, using 2016 data. The DY 17 report (see page 69 for OOS FFY) and Attachment QQ used the most current data for FFY from 2020.

DHCS gathered and compared FFY data from 2016 to 2019, and 2020, to assess how FFY are accessing eight specific categories of age-appropriate health care services, and to demonstrate a positive health outcome for FFY.

The supporting detailed data is listed below:

b) Demonstration Goal 1: Access to Care
   i)   *Question: Does the demonstration provide continuous health insurance coverage?*

       (1) DHCS' Response: Yes, beneficiaries are continuously enrolled for 12-month periods until they reach 26 years of age. (Note: Beneficiaries are considered "continuously enrolled" during the measurement year if enrolled in January and they do not reach age 26 by December 31st of measurement year.)

       Measure: In 2016, 10,764 FFY beneficiaries were continuously enrolled for a 12-month period with a total of 22,720 FFY enrollments. In 2019, enrollment increased to a total of 17,422 FFY continuously enrolled for a 12-month period with a total of 29,004 FFY enrollments. More than 6,500 individuals were continuously enrolled in the FFY Program in 2019 than in 2016.

       In 2020, enrollment increased to 27,773 FFY continuously enrolled for a 12-month period with a total of 31,240 FFY enrollments.

   ii) *Question: How did beneficiaries utilize health services?*
       DHCS' Response: FFY's use of behavioral health visits, emergency department (ED) visits, and inpatient stays were consistently greater than the peer group use of the same health services.

       2016 and 2019 Data
       Despite the growth of the FFY population, when comparing the 2016 data and the 2019 data, FFY reduced their use of ambulatory care visits and ED visits. This reduction reflects the enrollees' ability to seek health care in a timely manner versus waiting until their health-related issue(s)

required emergency care. Use of behavioral health visits and inpatient stays remained constant in the time period of 2016 and 2019.

When comparing the 2016 and 2019 data for the peer group, the peer group increased their utilization of ambulatory care visits and behavioral health visits whereas utilization of inpatient stays decreased. Utilization of ED visits remained constant.

Comparing use of health services between the groups in 2016 and 2019, on a percentage basis, FFY used behavioral health visits, ED visits, and inpatient stays more than the peer group did. However, FFY used ambulatory care visits less than the peer group did.

<u>2020 Data</u>
Consistent with the findings in 2016, 2019, and 2020 during the PHE, on a percentage basis, FFY utilization of ambulatory care visits, behavioral health visits, and inpatient stays were more often than the peer group while their ER visits were less than the peer group.

(a) Measure of Health Care Utilization:

(i) Ambulatory Care Visits: In 2016, there were 5,269 FFY ambulatory care visits compared to a total of 11,572 beneficiaries. In 2019, there were 8,206 FFY ambulatory care visits compared to a total of 18,153 FFY beneficiaries. The percentage of FFY utilization of ambulatory care visits decreased from approximately 46 percent in 2016 to 45 percent in 2019.

In 2016, there were 714,248 individuals in the peer group who had ambulatory care visits compared to a total of 1,360,902 in the peer group. In 2019, there were 709,024 individuals in the peer group who utilized ambulatory care visits compared to a total of 1,229,466 individuals in the peer group. The percentage of peer group utilization of ambulatory care visits increased from 52 percent in 2016 to 58 percent in 2019.

In 2020, there were 22,007 FFY ambulatory care visits compared to a total of 28,257 FFY beneficiaries. The percentage of FFY utilization of ambulatory care visits was approximately 78 percent. In 2020, there were 1,027,061 individuals in the peer group who utilized ambulatory care visits compared to a total of 1,441,425 individuals in the peer group. The percentage of peer group utilization of ambulatory care visits was approximately 71 percent.

(ii) Behavioral Health Visits: In 2016, there were 1,610 FFY behavioral health visits compared to a total of 11,572 FFY beneficiaries. In 2019, there were 2,543 FFY behavioral health visits compared to a

total of 18,153 FFY beneficiaries. The percentage of FFY utilization of behavioral health visits remained the same at 14 percent each year.

In 2016, there were 88,908 individuals in the peer group who had behavioral health visits compared to a total of 1,360,902 individuals in the peer group. In 2019, there were 113,409 individuals in the peer group who had behavioral health visits compared to a total of 1,229,466 individuals in the peer group. The percentage of peer group utilization of behavioral health visits increased from seven percent in 2016 to nine percent in 2019.

In 2020, there were 6,544 FFY behavioral health visits compared to a total of 28,257 FFY beneficiaries. The percentage of FFY utilization of behavioral health visits was 23 percent in 2020. In 2020, there were 120,002 individuals in the peer group, who utilized behavioral health visits, compared to a total of 1,441,425 individuals in the peer group. The percentage of peer group utilization of behavioral health visits was eight percent.

(iii) ED Visits: In 2016, there were 4,877 FFY ED visits compared to a total of 11,572 FFY beneficiaries. In 2019, there were 7,066 FFY ED visits compared to a total of 18,153 FFY beneficiaries. The percentage of FFY utilization of ED visits decreased from 42 percent in 2016 to 39 percent in 2019.

In 2016, there were 386,674 individuals in the peer group who had ED visits compared to a total of 1,360,902 individuals in the peer group. In 2019, there were 350,306 individuals in the peer group who had ED visits compared to a total of 1,229,466 individuals in the peer group. The percentage of peer group utilization of ED visits remained the same at 28 percent for 2016 and 2019.

In 2020, there were 5,434 FFY ED visits compared to a total of 28,257 FFY beneficiaries. The percentage of FFY utilization of ED visits was 19 percent in 2020. In 2020, there were 307,720 in the peer group who had ED visits compared to a total of 1,441,425 individuals in the peer group. The percentage of the peer group utilization of ED visits was 21 percent.

(iv) Inpatient Stay: In 2016, there were 422 FFY inpatient stays compared to a total of 11,572 FFY beneficiaries. In 2019, there were 684 FFY inpatient stays compared to a total 18,153 FFY beneficiaries. The percentage of FFY utilization of inpatient stays remained the same at four percent for 2016 and 2019 each year.

In 2016, there were 20,506 individuals in the peer group who had inpatient stays compared to a total of 1,360,902 individuals in the

peer group. In 2019, there were 18,153 individuals in the peer group who had inpatient stays compared to a total of 1,229,466 individuals in the peer group. The percentage of peer group utilization of inpatient stays decreased from two percent in 2016 to one percent in 2019.

In 2020, there were 1,242 FFY inpatient stays compared to a total of 28,257 FFY beneficiaries. The percentage of FFY utilization of inpatient stays was four percent in 2020. In 2020, there were 26,452 in the peer group who had inpatient stays compared to a total of 1,441,425 individuals in the peer group. The percentage of the peer group utilization of inpatient stays was two percent.

c) Demonstration Goal 2: Health Outcomes
   i) *Question: What are the health outcomes for beneficiaries?*

   DHCS' Response: For 2016 and 2019, FFY increased their use of Chlamydia Screening in Women (CHL), Cervical Cancer Screening (CCS), Antidepressant Medication Management (AMM) quality measures for health outcomes but decreased their use of Initiation and Engagement of Alcohol and Other Drug Treatment (IET). For 2016 and 2019, the peer group usage increased their use of CHL, CCS and AMM but decreased their use of IET and Follow-Up After Hospitalization for Mental Illness (FUH).

   All data for FFY Use of Opioids at High Dosage (OHD) was suppressed due to DHCS Data De-identification Guidelines (DDG). FFY data for 2016 for Asthma Medication Ratio (AMR) and Annual Monitoring for Patients on Persistent Medication (MPM) was also suppressed due to DDG; therefore, data for these two health outcomes is from 2017 and 2018. In 2017 and 2018, FFY's use of MPM remained constant, whereas use of AMR decreased. During the same period, the peer group usage of AMR increased and MPM remained constant.

   In 2016, FFY used CCS and CHL more than did the peer group, but used IET, AMM, and FUH less than the peer group. In 2019, FFY used IET and CHL more than did the peer group and used CCS, AMM and FUH less than the peer group. The FFY data reflects FFY are utilizing the CHL for women, as well as initiation of treatment of substance use disorders (IET), at greater numbers than did the peer group, consistent with the sexual activity and alcohol/drug use of this age. FFY generally do not do as well on medication measures (AMM or AMR), or follow up after hospitalization for mental illness (FUH 30 days).

Comparing use of health services between the groups in 2017 and 2018, on a percentage basis, FFY used AMR and MPM less than did the peer group.

For 2020, FFY used CHL, IET, and FUH more than did the peer group, but FFY used CCS the same as did the peer group. FFY used AMM and AMR less than did the peer group. There was insufficient data due to DDG to provide a comparison between the two groups for OHD and MPM for 2020.

(a) Measure:

   (i) Chlamydia screening in women (CHL): The total number of FFY beneficiaries who received CHL screening in 2016 was 1,851 compared to 2,782 FFY who received CHL screening in 2019. The percentage of FFY beneficiaries who received CHL screenings increased from 69 percent in 2016 to 72 percent in 2019.

      The total number of individuals in the peer group who received CHL screening in 2016 was 182,300 compared to 186,776 who received CHL screening in 2019. The percentage of individuals in the peer group who received CHL screenings increased from 62 percent in 2016 to 64 percent in 2019.

      In 2020, there were 5,187 FFY who received CHL screening. The percentage of FFY utilization of CHL screening was 69 percent. In 2020, there were 187,371 in the peer group who received CHL screening. The percentage of the peer group utilization of CHL screening was 60 percent.

      Throughout the waiver, the FFY use the CHL screening more than the peer group.

   (ii) Initiation and Engagement of Alcohol and Other Drug Treatment (IET): The total number of FFY beneficiaries who received IET treatment in 2016 was 298 compared to 304 FFY who had IET treatment in 2019. The percentage of FFY beneficiaries who received IET treatments decreased from 53 percent in 2016 to 30 percent in 2019.

      The total number of individuals in the peer group who received IET treatment in 2016 was 11,116 compared to 7,082 in the peer group who received IET treatment in 2019. The percentage of individuals in the peer group who received IET treatment decreased from 58 percent in 2016 to 29 percent in 2019.

In 2020, there were 5,187 FFY who received IET treatment. The percentage of FFY utilization of IET treatment was 36 percent. In 2020, there were 6,910 in the peer group who received IET. The percentage of the peer group utilization of IET treatment was 29 percent.

Both groups dropped their utilization of the IET treatment from 2016 to 2019. In 2020, the percentage of FFY using the IET treatment increased where the peer group maintained its utilization.

(iii) Cervical Cancer Screening (CCS): The total number of FFY beneficiaries who received CCS treatment in 2016 was 516 compared to 1,276 FFY who had CCS treatment in 2019. The percentage of FFY beneficiaries who received CCS treatments increased from 34 percent in 2016 to 40 percent in 2019.

The total number of individuals in the peer group who received CCS treatment in 2016 was 50,164 compared to 64,930 who received CCS treatment in 2019. The percentage of individuals in the peer group who received CCS treatment increased from 28 percent in 2016 to 43 percent in 2019.

In 2020, there were 1,599 FFY who received CCS treatment. The percentage of FFY utilization of CCS treatment was 39 percent. In 2020, there were 70,519 in the peer group who received CCS. The percentage of the peer group utilization of CCS treatment was 39 percent.

(iv) Antidepressant Medication Management (AMM): The total number of FFY beneficiaries who received AMM treatment in 2016 was 26 compared to 59 FFY who had AMM treatment in 2019. The percentage of FFY beneficiaries who received AMM treatments increased from 11 percent in 2016 to 14 percent in 2019.

The total number of individuals in the peer group who received AMM treatment in 2016 was 1,909 compared to 4,245 who received AMM treatment in 2019. The percentage of individuals in the peer group who received AMM treatment increased from 18 percent in 2016 to 24 percent in 2019.

In 2020, there were 144 FFY who received AMM treatment. The percentage of FFY utilization of AMM treatment was 17 percent. In 2020, there were 5,358 in the peer group who received AMM. The percentage of the peer group utilization of AMM treatment was 25 percent.

(v) Follow-up After Hospitalization for Mental Illness (FUH): The total number of FFY beneficiaries who received FUH treatment in 2016 was 148 compared to 181 FFY who received FUH in 2019. The percentage of FFY beneficiaries who received FUH treatments increased from 69 percent in 2016 to 71 percent in 2019.

The total number of individuals in the peer group who received FUH treatment in 2016 was 4,659 compared to 4,767 who received FUH in 2019. The percentage of individuals in the peer group who received FUH treatment increased from 71 percent in 2016 to 72 percent in 2019.

In 2020, there were 409 FFY who received FUH treatment. The percentage of FFY utilization of FUH treatment was 77 percent. In 2020, there were 5,195 in the peer group who received FUH. The percentage of the peer group utilization of FUH treatment was 75 percent.

(vi) Use of Opioids at High Dosage (OHD): The total number of FFY beneficiaries who received OHD in 2016 and 2019 was suppressed in accordance with DDG due to the size of the population.

The total number of individuals in the peer group who received OHD treatment in 2016 was 40 compared to 20 in the peer group who received OHD in 2019. The percentage of individuals in the peer group who received OHD treatment increased from .66 percent in 2016 to 1.48 percent in 2019.

In 2020, the total number of FFY beneficiaries who received OHD was suppressed in accordance with DDG due to the size of the population. In 2020, there were 20 in the peer group who received OHD. The percentage of the peer group utilization of OHD treatment was 1.90 percent.

(vii) Asthma Medication Ratio for People with Asthma (AMR): The original category to be tracked was Medication Management for People with Asthma (MMA). AMR is being reported in place of MMA, since MMA is no longer being tracked. The total number of FFY beneficiaries who received MMA in 2016 was suppressed in accordance with DDG due to the size of the population.

The total number of FFY beneficiaries who received AMR treatment in 2017 was 44 compared to 39 FFY who had AMR treatment in 2019. The percentage of FFY beneficiaries who received AMR treatments decreased from 42 percent in 2017 to 34 percent in 2019.

The total number of individuals in the peer group who received AMR treatment in 2017 was 5,387 compared to 5,533 who received AMR treatment in 2019. The percentage of individuals in the peer group who received AMR treatment increased from 54 percent in 2017 to 55 percent in 2019.

In 2020, there were 99 FFY who received AMR treatment. The percentage of FFY utilization of AMR treatment was 43 percent. In 2020, there were 5,248 in the peer group who received AMR. The percentage of the peer group utilization of AMR treatment was 46 percent.

(viii) Annual Monitoring for Patients Eligible for Persistent Medication (MPM) – Angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB): The total number of FFY beneficiaries who received MPM in 2016 was suppressed in accordance with DDG due to the size of the population.

The total number of FFY beneficiaries who received MPM in 2017 and 2018 was 19. The percentage of FFY beneficiaries who received MPM remained the same at 73 percent each year.

The total number of individuals in the peer group who received MPM in 2017 was 2,381 compared to 2,515 who received MPM in 2019. The percentage of individuals in the peer group who received MPM remained the same at 77 percent for 2017 and 2018.

In 2020, the total number of FFY beneficiaries and peer group individuals who received MPM was suppressed in accordance with DDG due to the size of the population.

3) **Summary of Evaluation Design Employed**

a) Evaluation design: The evaluation design utilizes a post-only assessment. The time frame for the post-only period started when the demonstration began using the 2016 data and ended at the conclusion of the demonstration.

b) Data Collection and Sources: Enrollment data is collected through the Medi-Cal Eligibility Data Systems (MEDS), a statewide data hub serving a variety of eligibility, enrollment and reporting functions for Medi-Cal and other state and federal benefits. MEDS maintains eligibility history for Medi-Cal and other health and human services programs. MEDS has data exchanges and interfaces with the Statewide Automated Welfare System (SAWS), the federal Social Security Administration, Medicare intermediaries, and the California Healthcare Eligibility, Enrollment, and Retention System (CalHEERS). Claims data is submitted through the ASC X12 837 version 5010, and pharmacy data is submitted through

the National Council for Prescription Drug Programs (NCPDP). There is also a foster youth flag for FFY who apply through the online portal using the California Health Benefit Exchange (also known as Covered California).

Enrollment, claims and provider data, among other data types, is deposited into the Medi-Cal Management Information System/Decision Support System (MIS/DSS). The MIS/DSS, DHCS' primary data warehouse, contains Medi-Cal data beginning from October 1, 2004, and integrates data from approximately 30 different sources into a relational database.

Data for the demonstration is evaluated at yearly intervals. The first report provided to CMS covered January 1, 2015 through December 31, 2015. The report for 2020, including Attachment QQ, was submitted with the DY 17 Report and the final report, which were submitted in early 2022.

The comparison groups are the 2016 FFY population to the 2019 and then the 2020 FFY population, and Medi-Cal beneficiaries of the same age group. The entire FFY population is being used as a proxy for the OOS FFY since the youth receive the same services through the same delivery system. The initial draft evaluation design used the available 2015 enrollment data to describe the FFY group of 10,000 FFY. The number of enrollees in the FFY group continues to change on an annual basis.

No statistical testing will be conducted on the OOS FFY and FFY population since the sample size limits the power of the statistical tests. The raw data for the OOS FFY is posted in Attachment QQ. Baseline data are not available for the target population, OOS FFY, since they are coming from out of state.

c) <u>Data Analysis Strategy</u>: California utilizes quantitative methods to answer the valuation questions. The descriptive statistics include frequency count and a percentage comparison of all FFY. All data comes from MIS/DSS. All measures conform to the CMMS Adult Health Care Quality Measures.

4) Population

FFY are individuals who were removed from their home and placed under the care and the responsibility of the state until they exited foster care at age 18 or older. Youth who exit foster care at age 18 or older remain eligible for the FFY Program until they turn 26. These youth experience trauma with being removed from their homes, remaining in the foster care system and their health suffers. When they exit foster care, it is common for FFY to move often and lack stability. The FFY are enrolled in fee-for-service Medi-Cal to enable them to access Medi-Cal, regardless of where they are in the state.

Annually California enrolls fewer than 200 OOS FFY. With the COVID-19 Public Health Emergency (PHE) the number of OOS FFY enrolled increased to just over

300 OOS FFY. It is anticipated the numbers of OOS FFY will decrease when the PHE ends. The state continues to use the Modified Evaluation Design provided by CMS for states with fewer than 500 FFY annual enrollee counts.

The comparison testing is between all FFY and the Medi-Cal population (peer group) ages 18 to 25. In 2020, DHCS measure specifications for the data collected for assessing utilization and quality measures were adjusted to more accurately reflect the current Healthcare Effectiveness Data and Information Set (HEDIS) measures. With the adjustment, the data from 2016 to 2019 cannot be compared directly to 2020. This report looks at the data from 2016 to 2019 and 2020 to gather conclusions. California captured all proposed metrics on the complete FFY population and submitted an annual report as Attachment QQ for Enrollment, Utilization, and Access Measure.

5) Final Evaluation Findings

Adding the OOS FFY to the 2020 Waiver ensured they continued to receive Medi-Cal eligibility despite the change in interpretation of the ACA language. Since the start of the waiver, the number of FFY enrolled in the FFY Program has grown at a steady rate. This growth provides health care for a group that doesn't have parental figures to ensure they receive health care.

FFY utilize Medi-Cal differently than the peer Group. By 2019, FFY utilized access to care in three out of four categories to a greater degree than the peer group. In 2019, they used the ambulatory care visits to a lesser degree than the peer group. FFY access the quality measures of CHL and CCSs more than the peer group. FFY generally do not do as well with ongoing treatments which is reflective of their lack of stability.

In 2020, ambulatory care visits were greater for FFY when compared to the peer group which could be reflective of the PHE and a delay in treatment. ED visits decreased for FFY which again could be because of the PHE.

6) Successes, Challenges and Lessons Learned

The 2020 Waiver revealed the challenge of tracking FFY once they left foster care to ensure they continue to receive Medi-Cal up to age 26. Many FFY have eligibility for other programs that offer cash aid in addition to the FFY Program. When these youth lose their eligibility for the cash aid programs, they are not always placed back into the FFY Program, potentially creating a gap in their Medi-Cal coverage. To remedy this, DHCS developed and implemented a data field in MEDS for counties to track youth eligible for the FFY Program to prevent any gaps in Medi-Cal coverage. The data collected for this field also identifies the location where the youth was in foster care, whether in California or out-of-state. The new MEDS field is being populated by our county partners on a prospective basis.

With the passage of the Substance Use-Disorder Prevention that Promotes Opioid Recover and Treatment (SUPPORT) for Patients and Communities Act, Section 1002, OOS FFY will be eligible for Medicaid coverage from ages 18 to 26 regardless of the state in which they reside and the state where they were in foster care. The SUPPORT Act, Section 1002 is effective for all OOS FFY who exit foster care at 18 years of age on or after January 1, 2023. To remedy the potential gap in coverage for OOS FFY, California included the OOS FFY in its request for the five-year renewal of the California Advancing and Innovating Medi-Cal (CalAIM) Section 1115(a) Demonstration Waiver that was approved on December 29, 2021. Since OOS FFY were included in the new CalAIM Section 1115(a) Demonstration request, those FFY who exit foster care before January 1, 2023 will have their Medi-Cal eligibility maintained for the next five years under the CalAIM Waiver. It is anticipated that the OOS FFY population eligible for Medi-Cal under the CalAIM Waiver will begin to decline since any OOS FFY exiting foster care on or after January 1, 2023 will be covered under Section 1002 of the SUPPORT Act and any resulting proposed state plan amendments (SPAs).

During the PHE, most individuals enrolled in Medi-Cal cannot be terminated from the program until the PHE ends. California enrolls FFY immediately into Medi-Cal based upon their self-attesting to being a FFY at application, and then verifies their eligibility for the FFY Program after enrollment into the program. Due to the PHE, individuals who were verified after enrollment as not eligible for the FFY Program remain in Medi-Cal until the PHE is lifted. When the PHE is lifted, counties will fully reassess the youth in the FFY Program who have been determined not eligible for the program to determine if they are eligible for any other Medi-Cal program. Once the FFY are fully reassessed, the number of eligible youths remaining in the FFY Program is expected to be lower.

Seniors and Persons with Disabilities Program Evaluation

Prepared for:

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Seniors and Persons with Disabilities Program Evaluation

David S. Zingmond, MD, PhD

Susan Ettner, PhD

Punam Parikh, MPH

Haiyong Xu, PhD

Alexander Pakalniškis Jr., MS

Debra Saliba, MD, MPH

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A. Executive Summary

Introduction

This is an evaluation of the 1115 Medicaid waiver for mandatory Medicaid managed care plan enrollment of beneficiaries with eligibility as Seniors and Persons with Disabilities (SPDs) in California. This evaluation covers the current years of the waiver (2016 to 2020) and extends to a description of the movement of individuals into managed care covering the prior five year period (2011 to 2015). During the initial Section 1115 "Bridge to Reform" waiver, the transition of the SPD population occurred in two waves with urban counties transitioning in 2011/2012 and rural counties following in 2013. Data collection and standardization were incorporated at the end of 2014 with the introduction of the Post Adjudicated Claims & Encounters System (PACES) system. Mandatory enrollment of SPDs in managed care was continued under the State's Section 1115 Medicaid Waiver renewal, "Medi-Cal 2020", which was authorized in December 2015 for the demonstration period January 2016 through December 2020.

Under the 2020 Special Terms and Conditions, the state of California is required to provide ongoing assessment of the impact of mandatory managed care on the SPD population compared to an established baseline prior to mandatory enrollment through quarterly, annual, and overall summary reports. This evaluation examines the impact of the transition on beneficiary experience and the impact of the State's administration of the program overall using measures describing three specific content areas: (1) access to care; (2) quality of care; and (3) costs of coverage (care).

Approach

The evaluation plan leverages existing patient-level and supplemental data collected by the state to assess care delivery (access, quality, and cost) for the SPD population in the period surrounding the transition and the maintenance of performance in the post-transition period. In addition to preexisting data, the evaluation team has surveyed managed care plan representatives to better understand challenges around the transition that might be reflected in the analysis. These results expand upon findings presented in the Interim Report (December 2019). Note, that although the descriptive trend analyses (including those that are regression-adjusted) provide some insight into implementation progress, beneficiary experiences, and changes in access and service use, they do not show whether changes in outcomes over time are statistically significant. Thus, these findings do not yield causal impact estimates of the demonstration. Further, the findings from this evaluation are limited by data comparability, uniformity, consistency, and quality, the absence of clinical data, the lack of a control group, and the inability to link self-reported beneficiary data on managed care experience to patient-level data.

Principal Results

Overall evaluation questions and hypotheses and associated findings are summarized below. Of note, The vast majority of SPDs across California were in managed care by 2016. By 2019, 93% of SPDs were in managed care. Sensitivity analyses undertaken to evaluate managed care data quality show improvements in completeness and accuracy, especially after data collection and standardization were incorporated at the end of 2014 with the introduction of the PACES system. However, lower than expected numbers of providers and certain types of care, suggests that further improvement is needed.

Summary of Research Questions/Hypotheses and Related Findings

RESEARCH QUESTION	HYPOTHESIS	FINDINGS	CHANGE
ACCESS TO CARE			
1. Do SPDs have access to primary and specialty providers and/or other service providers in the network after the transition to a managed care plan?	SPDs will be less likely to see high volume providers in the period directly after the transition; however, they will have timely access to care and access to physically accessible providers, supported by continuity of care, which allows SPDs to continue their course of treatment when they move into a managed care plan in the post-transition period.	- Surveys showed access was unchanged between 2013 and 2019. - Network adequacy as measured by travel distances and patient volume per provider improved. - Emergency Department and specialty care visits per patient steadily increased. - HEDIS measures assessing use of primary care and of ambulatory care visits have improved over the decade.	- Access was unchanged - ED and specialty care visits increased - Network adequacy and HEDIS measures improved
2. Do SPDs have awareness of the plan's services to assist with care coordination and member services?	SPDs will be more likely to better navigate the plan based on communication and materials provided by the plan.	- Plans confirmed outreach - Plan ratings (from CAHPS) improved slightly between 2013 to 2019	- Small improvement in plan rating. No direct measure of patient knowledge of plan outreach services
QUALITY OF CARE			
3. Do SPDs receive appropriate care for routine ambulatory medical conditions (diabetes, hypertension, hyperlipidemia, thyroid disease) as measured by expert consensus processes of care?	SPDs are more likely to receive appropriate care for routine medical conditions after the transition.	- There were general improvements in the use of preventive services. - Self-reported receipt of the annual flu was 69%.	- Use of preventive services improved
4. Do SPDs have improved rates of preventable hospitalizations / ambulatory care sensitive conditions after the transition?	Risk-adjusted rates of preventable hospitalizations will decrease after the SPD transition	- Preventable hospitalizations were a relatively fixed during the evaluation period.	- No change
5. Do SPDs have lower readmission rates after the transition?	Rates of readmission after acute hospitalization will decrease after the SPD transition.	- 30-day readmission rates after an acute hospitalization were stable across the evaluation period.	- No change
6. Do SPDs have lower all-cause and cause-specific mortality rates after the transition?	Risk-adjusted all-cause and cause-specific mortality will be lower after the SPD transition.	- Risk-adjusted all-cause and cause-specific mortality rates were stable across the evaluation period.	- No change
7. Do SPDs have better compliance rates with medication adherence after the transition?	SPDs are more likely to have higher compliance rates with medication adherence after the transition.	- There were general improvements in medication compliance and avoidance of harmful prescriptions.	- Improvements in medication compliance observed
COSTS OF CARE			
8. After accounting for inflation, do overall costs of care to Medi-Cal (as measured by paid claims versus negotiated capitation rates for covered care) decrease after the transition?	Inflation-adjusted overall costs of care will be lower after the SPD transition.	- Unadjusted monthly costs (excluding nursing home care) increased over the decade. Costs accounting for inflation were lower in 2019 than in 2009.	- Measured monthly costs decreased accounting for inflation

Conclusions

The evaluation team can conclude that:

1. Medi-Cal has successfully moved most non-dual SPDs into managed care across California.

2. Even in difficult to reach rural areas, Medi-Cal has implemented two different models of managed care delivery.

3. Overall mortality appears to be stable in the population. Mortality rates did increase in the managed care population reflecting adverse selection for fee-for-service (FFS) beneficiaries, with healthier patients opting for optional managed care enrollment prior to the transition period.

4. Quality of care as measured by process and risk-adjusted outcomes have improved, while inflation-adjusted costs per beneficiary have remained constant.

5. Data quality and consistency appear to have substantially improved since the introduction of PACES. This makes evaluation since the waiver extension more robust. Even if the evaluation cannot reliably measure earlier years, these data can be used to robustly assess plans managing care during the "Medi-Cal 2020" 1115 Waiver period.

Recommendations

The expansion of managed care to special populations with multiple complex conditions, such as the SPD population, is feasible, but requires additional monitoring, data standards, and arrangements to ensure adequate access and provision of services. Although states now have significant experience with using Medicaid managed care plan arrangements, the particular vulnerabilities of the SPD population require greater oversight and transparency. The following recommendations are aimed at ensuring continuous high quality oversight and data quality for monitoring and for ensuring that plans do not avoid necessary, but high cost care.

(1) Put a fully formed reporting system and data standards into place before implementation

(2) Expand ability to assess patient experience, including increasing the size of the CAHPS survey so that it is adequately powered to assess experience outside of the largest urban areas.

(3) Conduct baseline assessment of patient health and health history to improve longitudinal care

(4) Routinely link in gold standard information for audits and enriching available measures

(5) Improve network adequacy standards and monitoring

(6) Expand measures beyond typical core primary care measures to include specialty measures that may be significantly impacted in a vulnerable population

(7) Expand qualified data for monitoring quality to include lab and imaging results with the possibility of expanding to other clinical data

(8) Routinely collect patient preferences on intensity of care

(9) Build in adequate lead in time for contingency planning

(10) Ensure that public quality reporting focuses on populations of interest, including stratification / standardization to ensure interpretability

(11) Consider carve-out benefits from managed care for special populations – i.e. long term care, substance abuse, mental health, and other at-risk populations (HIV/AIDS, hepatitis C, and certain cancer treatments) to ensure plan participation and patient access to certain high-cost but necessary life-sustaining treatments.

These suggestions should not be considered all inclusive, but reflect the experience of efforts and improvement within California DHCS and other state health agencies.

B. General Background Information

In November 2010, the Centers for Medicare and Medicaid Services (CMS) approved California's five-year section 1115 "Bridge to Reform" waiver, through which the state received authority and federal funds to invest in its health delivery system to prepare for national health care reform that took effect in January 2014. One of the four primary initiatives from the waiver was to improve care coordination for vulnerable populations and implement programs that promote healthcare access and quality, while driving down costs. Under this authority, California transitioned its Seniors and Persons with Disabilities (SPD) population from the Medi-Cal fee-for-service (FFS) delivery system into the managed care delivery system. The goals of DHCS for the transition of SPDs to an organized system of care were to: (1) broaden access, increase care coordination, (2) ensure that beneficiaries receive appropriate and medically necessary care in the most suitable setting, (3) achieve better health outcomes for beneficiaries, and (4) realize cost efficiencies.

Some evidence suggests that managed care may improve care coordination and access, and is associated with reductions in hospitalizations for ambulatory sensitive conditions compared with FFS. However, numerous challenges are associated with the SPD population, who have high levels of healthcare utilization, disability, and multiple chronic conditions, and are thus vulnerable to care disruptions. Managed care allows DHCS to provide beneficiaries with supports necessary to enable SPDs to live in their community instead of in institutional care settings, reduces costly and avoidable emergency department visits, as well as prevents duplication of services. DHCS anticipated savings of approximately $2.1 billion over five years from the SPD transition. [1]

Medicaid eligible SPDs are aged, blind, and/or disabled and have incomes below the federal poverty level. Beneficiaries enrolled in both Medicare and Medi-Cal (i.e. dual eligibles) were exempt from this mandate, as were foster children, individuals in long-term care, and those required to pay a monthly share of cost. Currently, SPDs comprise 15% (roughly two million) of total Medi-Cal enrollment, but half of total Medi-Cal expenditures. Seniors and persons with disabilities account for the highest spending per beneficiary at $14,134 and $20,669, respectively. [2-3] The majority of SPDs are enrolled in Medicare as well. SPDs transition from Medi-Cal as the primary payer to Medicare when they become Medicare-eligible.

California has a unique county-by-county model for managed care implementation. At the time of the initial transition, counties were assigned to four basic models for managed care implementation:
1. County Organized Health Systems (COHS) – mandatory enrollment of all Medi-Cal enrollees into county-operated health plans.
2. Two Plan Model (TPM) – two healthcare plans with one commercial plan and one plan with local governance. SPD enrollees had voluntary enrollment into plans.

3. Geographic Managed Care (GMC) – Multiple commercial healthcare plans in each of two counties. SPD enrollees had voluntary enrollment into plans.
4. Fee-for-service (FFS) – rural counties with no managed care plans.

TPM and GMC counties have over three quarters of all Medi-Cal beneficiaries.

In the months leading up to the transition, DHCS reached out to beneficiaries to inform them of the forthcoming transition. SPDs and their caregivers in the 16 TPM and GMC counties were invited to attend DHCS-sponsored in-person presentations and/or informational webinars held in March and April 2011 to educate beneficiaries about the transition and facilitate enrollment into a managed care plan. SPDs received an informational packet on the transition 90 days prior to the transition and an enrollment packet 60 days in advance. Starting June 2011, the 16 counties began a 12-month period in which approximately 380,000 SPDs falling under specific aid codes were transitioned from FFS into managed care plans in the TPM and GMC counties according to their birth month. Approximately 141,000 of these SPDs voluntarily enrolled in managed care prior to the transition, and about 240,000 SPDs were mandatorily enrolled into managed care between June 2011 and May 2012. [1] Before transitioning SPDs to managed care, DHCS ensured that the managed care plans in a geographic area met certain readiness and network adequacy requirements and required plans to ensure sufficient access, quality of care, and care coordination for beneficiaries.

The rural transition was authorized in 2012 and in late 2013, Medicaid managed care was expanded to 28 rural counties in California to better serve residents, including SPDs. The goals of the rural expansion were to deliver: (1) quality care while managing costs, (2) care that is medically necessary and appropriate, and (3) care by the most appropriate provider in the least restrictive setting. For the rural expansion, the state offered two commercial plan options to serve as the Regional Model. Four health plans were selected to serve Medi-Cal beneficiaries in the 28 rural expansion counties. Nineteen counties have adopted the Regional Model, eight are served by a COHS, and in one county beneficiaries have the option of a private health plan or FFS Medi-Cal.[4]

With these changes, the current county-by-county implementation of managed care in California consists of six models (**Figure 1)**:

1. County Organized Health Systems (COHS) – mandatory enrollment of all Medicaid enrollees into county-operated health plans. Expansion of COHS to include rural counties in Northern California.
2. Two Plan Model (TPM) – two non-profit commercial healthcare plans. SPD enrollees had voluntary enrollment into plans.
3. Geographic Managed Care (GMC) – multiple commercial healthcare plans in each of two counties. SPD enrollees had voluntary enrollment into plans.
4. Regional Model – two commercial plan serving 18 rural counties.
5. San Benito—one commercial plan serving one county.
6. Imperial— two commercial plans serving one county.

Figure 1.

Managed Care Models, by County, December 2018

- **County Organized Health Systems (COHS)**
  2.1 million beneficiaries served by six health plans in 22 counties.
- **Geographic Managed Care (GMC)**
  Eight commercial plans serve 1.1 million beneficiaries in 2 counties.
- **Two-Plan***
  6.8 million beneficiaries in 14 counties
- **Regional**
  Two commercial plans serve about 294,000 beneficiaries in 18 counties.
- **San Benito**
  One commercial plan serves about 8,000 beneficiaries.
- **Imperial**
  Two commercial plans serve about 76,000 beneficiaries.

*Nine local initiatives (county-organized) serve 5.2 million beneficiaries, and three commercial plans serve 1.6 million beneficiaries. While Tulare is a two-plan model county, there is no local initiative and instead, beneficiaries choose between two commercial plans.
Sources: Medi-Cal Managed Care Program Fact Sheet – Managed Care Models, California Dept. of Health Care Services (DHCS), n.d., www.dhcs.ca.gov (PDF); and Medi-Cal Managed Care Enrollment Report – December 2018, DHCS, January 2, 2019, www.dhcs.ca.gov (PDF).

CALIFORNIA HEALTH CARE FOUNDATION

With the expansion of managed care in Medi-Cal, new regulations were adopted to improve the completeness and quality of data submitted to the state. A new uniform data collection system – the Post Adjudicated Claims & Encounters System (PACES) was instituted in October 2014. From the DHCS website: (https://www.dhcs.ca.gov/formsandpubs/laws/hipaa/Pages/1.16-PACES.aspx):

> PACES plays a vital role in the collection of encounter and provider network data from Medi-Cal's numerous managed care plans. PACES accepts encounter transactions from both medical and dental managed care plans and accepts encounter-related pharmacy transactions. The information PACES gathers is stored in the DHCS data warehouse (MIS/DSS), where it can be used by many downstream applications within the State.

> PACES extracts, transforms, and reformats encounter data that has been submitted in ASC X12 837 and NCPDP formats. The system currently supports the ASC X12 837I, 837P, and 837D claim/encounter transactions as well as the NCPDP 2.2 & 4.2 pharmacy transactions.

> PACES replaces the long-standing DHCS Paid Claims and Encounters (PCES) system. The new system is designed to ensure that all available claim and encounter data is retained and available for downstream analysis. The PACES system stores and distributes a richer, more complete data set than was possible using PCES. The goal of PACES is to enforce DHCS's data quality requirements while also abiding by federal HIPAA transaction standards.

Other relevant programmatic changes that have occurred during this period include the California Coordinated Care Initiative (CCI), which wrapped coordination of Long Term Services and Supports (LTSS) into managed care for dually enrolled SPDs beginning in April 2014 in

seven counties: Los Angeles, Orange, Riverside, San Diego, San Bernardino, San Mateo, and Santa Clara.

In December 2015, the "Bridge to Reform" 1115 Medical Waiver was extended to 2020 (demonstration period January 2016 through December 2020).

As stated in the waiver:

> To ensure the successful implementation of the Section 1115 Medicaid Waiver, the Special Terms and Conditions (STCs) require:
>
> 1. Information and communication strategies addressing the unique needs of SPDs are used
>
> 2. Approaches to assignment and opportunities for changes in managed care plans (MCPs)
>
> 3. Participant rights, safeguards and contractual provisions regarding care coordination and linkages to other service delivery systems
>
> 4. Person-centered approaches to service planning and delivery, and physical and geographic accessibility of service providers.

In order to evaluate the success of the Bridge to Reform, the 2020 STCs require the State to provide:

> (1) Ongoing assessment of the impact of mandatory managed care on the SPD population compared to an established baseline prior to mandatory enrollment through quarterly, annual, and overall summary reports. (**Appendix A**)
>
> (2) Evaluation of the impact of the initiative on beneficiary experience and the impact of the State's administration of the program overall using measures describing three specific content areas: access to care; quality of care; and costs of coverage (care).
>
> (3) Focused evaluation on specific health care needs of SPDs and their specific care needs due to diagnosis and the existence of, at times, multiple complex conditions.

In early 2018, DHCS conducted a competitive bidding process for a qualified external evaluator to conduct a comprehensive statewide evaluation of the mandatory transition of SPDs to Medicaid managed care plans. DHCS selected David Zingmond, MD, PhD, an internist and health services researcher, and his team in the Division of General Internal Medicine at the David Geffen School of Medicine at UCLA. DHCS entered into a contract with UCLA in October 2018 to conduct the evaluation of the transition and the impact of the initiative on member experience and the impact of DHCS' administration of the program. The evaluation addresses the impact of the initiative on the beneficiary experience and the impact of the program overall, with a focus on three specific content areas: access to care, quality of care, and cost of care.

The final evaluation plan leveraged existing patient-level and supplemental data collected primarily by the state and federal government to assess care delivery (access, quality, and cost) for the SPD population in the period surrounding the transition and the maintenance of performance in the post-transition period. In addition to utilizing preexisting data, the evaluation team surveyed and interviewed managed care plan representatives to better understand challenges surrounding care and data quality during the transition and afterwards.

C. Evaluation Questions and Hypotheses

Demonstration Goals

Per the "Bridge to Reform" 1115 Waiver:

The waiver's goals include:

1. Improving access and coordination of the most appropriate, cost effective care for SPDs in order to improve health outcomes and contain costs;
2. Providing SPDs with a choice of organized systems of care through which to receive these services;
3. Supporting and strengthening the local safety net and its integration into organized systems of care through payment reform and outpatient managed care models; and
4. Aligning financial incentives to support providers in delivering the most appropriate care and containing costs.

Targets for Improvement

In order to translate these goals into quantifiable targets for improvement, the state worked within the existing managed care plan structure with additional elements included to ensure programmatic success. The main overarching mechanism was mandatory managed care enrollment for SPDs (operationalized by a tiered approach with mandatory enrollment into existing managed care plans for urban beneficiaries followed by enrollment into new managed care options in rural counties) with reliance upon existing state managed care requirements supplemented by additional elements to ensure quality of care for the SPD population. As stated in the original 1115 Waiver:

Participating managed health care plans and County Alternative organizations must comply with standards related to key elements as set forth in ABx4 6. Compliance with all existing regulations under Knox-Keene contracting provisions will be required for existing managed care plans. County Alternative Options, depending on their structure, may be required to obtain and maintain Knox-Keene licensure as well. To the extent applicable, all models will require compliance with all DHCS Medi-Cal contracting provisions. Additionally, both models must fully address the following key elements that will provide additional consumer protections for their enrollees beyond the array of consumer protections currently applicable to Medi-Cal managed care plans. These elements will apply to both existing managed care plans and alternative options.

Additionally, the "Bridge to Reform" 1115 waiver identified a number of supplemental modifications to address access, transition, care management, and alternative delivery systems for public health systems. These included:

(1) Access

- ***Network Adequacy*** – defining network adequacy and feeding back to health plans. More specific definitions were defined in 2017 (referenced in the previous section).

- ***Access to Information*** – requirements for information accessibility for disabled individuals.

- ***Physical Accessibility*** –enhanced facility site review (FSR) tool (survey) for larger contracted healthcare facilities.

(2) Transition from FFS to Managed Care

- *Outreach and Education* – mailed education materials prior to the transition.

- *Phased-In Transition*

- *Access to Existing Providers* – limited accessibility to minimize care disruption plus opt-out for ill patients.

- *Assignment* – plan assignment to optimize continuity with previously seen providers.

(3) Care Management and Coordination

- *Enhanced Definitions of Care Management and Coordination*

- *Early Identification of a Member's Health Care Needs –* sharing of FFS utilization data at the time of enrollment

- *Care Management Assessment –* use of mandated care assessment and utilization data to identify high-risk patients.

- *Cultural Competency Training –* statewide education initiative from DHCS.

- *Behavioral Health Coordination*

- *Coordination of Other Services –* All delivery models will be required to provide specific protocols and strategies to demonstrate that care provided by the plan is coordinated with other services that a beneficiary receives from other delivery systems.

(4) Performance Monitoring and Improvement

- *Expand Required Performance Measures*

- *Augmented Audit Effort*

- *New HEDIS measures*

- *SPD Representation*

- *Enhanced Member Satisfaction Survey* – DHCS will enhance the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey

- *Quality Improvement Projects*

- *Complaint and Grievance Procedures*

(5) Development of County Alternative Option

(6) Outpatient Managed Care Model—Transitioning the Public Hospital System to Managed Care

In order to assess the impact of the "Bridge to Reform" 1115 Waiver, language was included in the current, "California 2020" 1115 Waiver:

SPD Managed Care: State shall include an assessment, using pre-mandatory enrollment as a baseline, of the impact on mandatory managed care on the SPD

population, including all significant and notable findings based on all of the data accumulated through the quarterly progress report.

     a. Access to care
     b. Quality of care
     c. Cost of coverage

Evaluation Questions, Hypotheses, and Alignment with Goals and Targets of the Waiver

In order to relate the stated goals of the original waiver, the implied benefits of managed care assignment (through existing networks), and the supplemental changes initiated to ensure success, the current evaluation follows the structure of the "California 2020" waiver proscription and focuses on the measurable impact of these changes on enrollee care – access, quality, and cost – using the most expansive data available. This patient-centered approach makes the most sense as it focuses primarily on measurable agreed upon patient-level metrics of care and outcomes across the entire enrollee population longitudinally across the two waiver periods. As described above, the original "Bridge to Reform" waiver described goals and quantifiable targets for improvement so that the performance in achieving these targets could be measured. These goals and targets from the original waiver were related to the evaluation domains described in the current waiver ("California 2020") and how these relate to the questions and hypotheses below.

Access to Care

1. **Question:** Do SPDs have access to primary and specialty providers and/or other service providers in the network after the transition to a managed care plan (MCP)?

   Hypothesis: SPDs will be less likely to see high volume providers in the period directly after the transition; however, they will have timely access to care and access to physically accessible providers, supported by continuity of care, which allows SPDs to continue their course of treatment when they move into an MCP in the post-transition period.

   Relation to Waiver Goals and Programmatic Changes: *Improve access and coordination of care --- measure of access to specialty care and operational definitions of network adequacy, consistent with recent DHCS final rule.*

2. **Question:** Do SPDs have awareness of the plan's services to assist with care coordination and member services?

   Hypothesis: SPDs will be more likely to better navigate the plan based on communication and materials provided by the plan.

   Relation to Waiver Goals and Programmatic Changes: *Improve access and coordination of care --- indirect measure of ease of communication and making appointments using cross-sectional CAHPS data across time periods.*

Quality of Care

1. **Question:** Do SPDs receive appropriate care for routine ambulatory medical conditions (diabetes, hypertension, hyperlipidemia, thyroid disease) as measured by expert consensus processes of care?

Hypothesis: SPDs are more likely to receive appropriate care for routine medical conditions after the transition.

Relation to Waiver Goals and Programmatic Changes: *Improvement of cost effective appropriate care assessed with expert consensus quality measures.*

2. **Question:** Do SPDs have improved rates of preventable hospitalizations / ambulatory care sensitive conditions after the transition?

   Hypothesis: Risk-adjusted rates of preventable hospitalizations will decrease after the SPD transition.

   Relation to Waiver Goals and Programmatic Changes: *Improvement of cost effective appropriate care assessed with expert consensus quality measures.*

3. **Question:** Do SPDs have lower readmission rates after the transition?

   Hypothesis: Rates of readmission after acute hospitalization will decrease after the SPD transition.

   Relation to Waiver Goals and Programmatic Changes: *Improvement of cost effective appropriate care assessed with expert consensus quality measures.*

4. **Question:** Do SPDs have lower all-cause and cause-specific mortality rates after the transition?

   Hypothesis: Risk-adjusted all-cause and cause-specific mortality will be lower after the SPD transition.

   Relation to Waiver Goals and Programmatic Changes: *Improvement of cost effective appropriate care assessed with expert consensus quality measures.*

5. **Question:** Do SPDs have better compliance rates with medication adherence after the transition?

   Hypothesis: SPDs are more likely to have higher compliance rates with medication adherence after the transition.

   Relation to Waiver Goals and Programmatic Changes: *Improvement of cost effective appropriate care assessed with expert consensus quality measures.*

Costs of Care

1. **Question:** After accounting for inflation, do overall costs of care to Medi-Cal (as measured by paid claims versus negotiated capitation rates for covered care) decrease after the transition?

   Hypothesis: Inflation-adjusted overall costs of care will be lower after the SPD transition.

   Relation to Waiver Goals and Programmatic Changes: *Improvement of cost effective appropriate care assessed with expert consensus quality measures.*

Relationship of Hypotheses to Underlying Mechanisms

Under the Medicaid FFS model, the state pays providers directly for each covered service received by a beneficiary. Under managed care, the state pays a fee to a managed care plan for each person enrolled in the plan. Managed care plans are incentivized to implement initiatives to improve healthcare access and quality of care in order to drive down costs. This is especially true in a high resource using population, such as SPDs.

In the driver diagram (**Figure 2**), underlying mechanisms associated with key aspects of the managed care adoption are shown on the right most column of drivers, such as "Assignment of Patients to PCPs", which feeds into the center

Figure 2: Driver Diagram of Managed Care Impact

(intermediate) column of drivers, such as "Reliable Access to Physicians", which feeds into the final global outcome, "Improved Access to Care". Taken as a whole, these relationships directed the team's research design, questions, hypotheses, and interpretation of results.
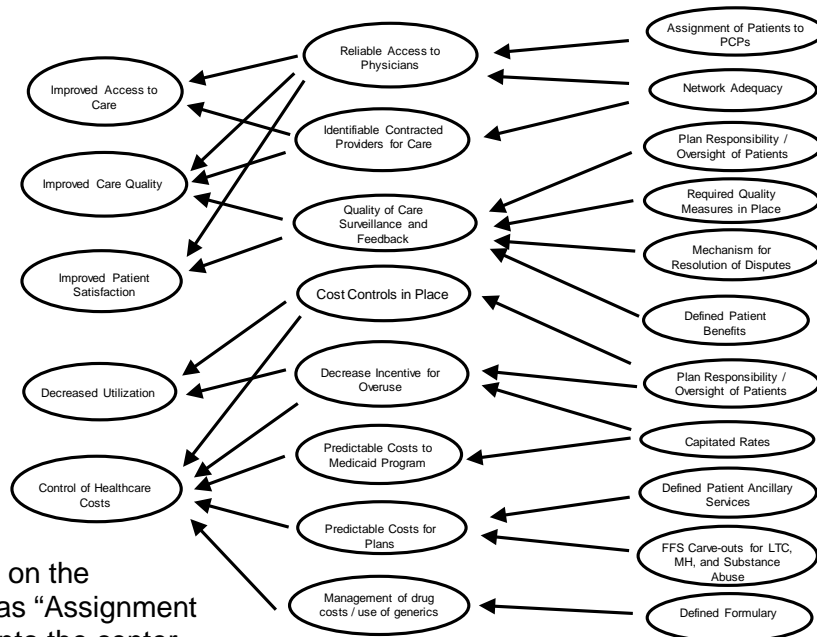
Evaluation Relevance to Title XIX and Title XXI

In particular, the evaluation goals address the objectives of Title XIX, which mandates the Medicaid program and defines the benefits for the program. The evaluation questions align with the provision and maintenance of services that are mandated by the program. The evaluation specifically explores a full range of provider services and care delivery, including medical, surgical, psychiatric, neurologic, and gynecologic care using accepted measures from the HEDIS evaluation set supplemented by cancer care outcomes. Obstetrical and newborn care is uncommon in the SPD population and was not a major focus of the evaluation.

Furthermore, the Waiver has specific language regarding budget neutrality (accounting for permissible annual increases) for allowed services under Title XIX. Evaluation of costs are a major part of the evaluation. Budget neutrality was explored through a comprehensive tabulation of capitated and non-capitated costs across the SPD population during the evaluation time frame. Both nominal dollar costs for SPD enrollees and costs adjusted to 2009 dollars were examined.

The SPD population is not covered by Title XXI.

D. Methodology

Overview

The evaluation employs comprehensive routinely collected state data sources to assess care access, quality, utilization, and costs before and after the transition of SPDs from FFS to managed care in 2011-2012 to 2019, the most recent year with complete Medicaid data. The

evaluation centers on Medicaid enrollment, Medicaid FFS claims, and managed care submitted encounter data, supplemented by data from multiple state data silos. Prospective data included all-payer hospitalization and emergency department discharge data, Minimum Data Set for Long Term Care (nursing homes), In-Home Supportive Services Data, and the state Cancer Registry. Taken together, these data are granular in nature, available across multiple years, and have sufficient numbers of observations to answer relevant questions with sufficient statistical power. Certain events are measurable consistently with a single non-Medicaid data source across the entire evaluation period (e.g. hospitalization), allowing the team to validate and improve measures constructed longitudinally from a mixture of FFS and managed care data from different healthcare plans across the evaluation period. Measure development is focused primarily on the inclusion of measures explicitly proposed in the evaluation protocol and was supplemented by existing expert consensus quality measures that can be implemented using routinely collected data. Supplemental qualitative information has been solicited from each plan to provide additional depth to interpretation of results and for the evaluation to be better informed regarding known data issues and plan-specific challenges.

Study Population
The overall study population consists of SPD-eligible, non-dually enrolled Medicaid beneficiaries.

Target Population
The target population is Medicaid managed care enrollees living in non-COHS counties between 2009 and 2019. This period covers the two years prior to when mandatory managed care enrollment was expanded (2011 to 2014) to non-COHS counties through the most complete year of Medicaid data available prior to the COVID Pandemic (2019).

Comparison Groups
The three potential comparison groups were: (1) Medicaid FFS enrollees in non-COHS counties before mandatory managed care was imposed; (2) Medicaid FFS enrollees in non-COHS counties after mandatory managed care was imposed; and (3) Medicaid managed care enrollees in COHS counties, where no changes were imposed due to existing managed care enrollment in county health plans. Other comparison groups within Medicaid are unsuitable as there are issues with comparability to the SPD population or because Medicaid is not the primary payer of services (duals). During the course of the investigation, it became clear that the number of overlapping changes across the entire Medicaid population made these originally conceived comparison groups untenable. Therefore, the evaluators were forced to rely upon an uncontrolled observational design for the target population – patients with SPD enrollment – with outcomes by geographic area and by plan.

Identification of the overall baseline populations for comparison was drawn from the Medi-Cal enrollment files for the two years before the transition and the subsequent period after the transition, and from the 16 urban counties and 28 rural counties where the transition occurred as well as from the counties where the transition did not occur (counties with existing stable mandatory managed care through the COHS model).

Subset analyses for quality measures for the final report were performed on targeted populations of interest (e.g. hospitalized patients), at-risk patients with conditions of interest (e.g. patients with significant mental health disease), or so-called complex patients (e.g. those with multiple complicated illnesses, such as complicated diabetes, rheumatologic illnesses, cancer, and end-organ failure) using consensus quality measures targeted at specific conditions. Prior research suggests that it can take up to two years for beneficiaries to adjust to a change in delivery system. [5] Therefore, the final evaluation assessed the experience of SPDs in FFS at least 24 months prior to the transition and throughout the post transition period.

Assessment of care delivery after the transition period focuses on all elements of care with greater concentration on cross-county and plan comparisons.

Evaluation Measures and Targets

The goal of the evaluation is to use the most granular data whenever possible to assess care access, quality, utilization, and cost for the SPD population before and after implementation of mandatory managed care enrollment across California by county and by plan. Within the approved protocol, the evaluation team identified 63 measures covering access, quality, utilization, and cost proposed for the report (**Supplementary Table S.1**). Derived measures cover structural measures (e.g. travel distance, derived supply of physicians seeing patients), process of care measures (e.g. recommended care based upon expert recommendations on clinical practice), and outcomes of care measures (e.g. risk-adjusted mortality, all-cause and preventable hospitalizations, and readmission).

Utilization measures were created from the Medicaid claims and encounters as well. The evaluation team implemented the CDPS+Rx model (developed at UC San Diego) to assist in creating comparable metrics for overall resource utilization across the full time period being studied. However, these risk groups were used sparingly for risk adjustment for clinical modeling due to concerns regarding selection bias and their development as risk adjustment for Medicaid FFS costs and not for clinical outcomes or risk adjustment for managed care expenditures, which are capitated but with much smaller supplemental FFS costs for carve-out benefits and patients not in managed care. DHCS provided monthly capitation rates by plan by year allowing for calculation of average managed care costs to Medi-Cal by year (**Appendix B**).

Post-transition, supplemental data are used to assess: (1) beneficiary satisfaction through Ombudsman (**Appendix C**), call center, grievances and appeals, and beneficiary surveys; (2) MCP administrative functions via beneficiary surveys; and (3) plan-level measures of care using HEDIS data. These measures are provided by DHCS, but DHCS does not independently create these particular measures. These measures are available only for the post-transition period.

Measure targets are available. For example, mean standards for performance are available for HEDIS and for the AHRQ hospital quality measures. However, the SPD population generally has had lower performance and in order to make realistic comparisons across multiple measures, the evaluation team assessed performance within the SPD population as compared to the baseline year (2009) as well as assessment of trend. A major challenge encountered in this evaluation is both the lack of an adequate comparison group by region within the state and the difference between the SPD population and the general Medicaid population. This approach has stayed firmly within the bounds of the available data and the number of statistical comparisons have been limited to avoid problems with multiple comparisons.

Existing Expert Consensus Quality Measures for Use with Administrative Data

The original explicit set of measures detailed in the approved protocol lack granularity for exploring care within disease-specific vulnerable populations in the SPD population. These populations are more challenging to care for and including more targeted expert consensus measures is useful and appropriate. The investigating team explored existing measure sets in the public domain from DHCS, NCQA (HEDIS), CMS, AHRQ, and NQF:

- **DHCS External Assessment Set (EAS) Measures** – a limited set of 22 HEDIS process of care quality measures
- **CMS Adult Core Measures for Medicaid** – consensus set of measures for adult enrollees that include HEDIS measures and outcome measures

- **CMS Child Core Measures for Medicaid** – consensus set of measures for child enrollees that include HEDIS measures and outcome measures
- **HEDIS Measures**
- **AHRQ Quality Measure Sets** – hospital-based outcome measures
- **CMS Consensus Quality Improvement measures** – expert consensus measures identified for inclusion in CMS programmatic initiatives (ongoing QI efforts)

In addition, the team searched for all measures identified as using claims in the following quality measure databases:

- **CMS Quality Measure Clearinghouse** (for CMS-related efforts)
- **NQF Quality Measure Database**

For completeness, the evaluation team included measures that were enumerated in the evaluation protocol, but which may not necessarily correspond to preexisting expert consensus metrics.

Once the measure set was compiled, each quality measure was classified according to:
- Contract Domain (Access, Quality, Cost/Utilization),
- Measure Type (Structure, Process, Outcome, Cost/Resource),
- Measure Category (General Categories of Care, Outcome, or Resource Measurement),
- Specific Measure Category (General Categories of Care, Outcome, or Resource Measurement),
- Medical Specialty
- Clinical Conditions
- Care Setting
- Targeted Ages for the Measure
- Quality Measure Sets (listed above)
- Measure Steward
- ID – (HEDIS ID, Contract Measure, or Other Organizational ID)
- NQF Number (if the measure was in the NQF database)
- Need for Chart or EMR data to complete the measure
- Data source needed to complete measure

Measures that require chart or EMR data, which are not available, were excluded from further consideration. Given the large number of potential measures, summaries of the remaining measures (by measure type and specific measure category) were distributed to the Technical Advisory Panel (TAP) to prioritize by importance. Results are presented in Section F.

Priority for inclusion of metrics within the final report include: (1) explicit mention in the evaluation protocol approved by CMS, (2) topic or measure type prioritized by the TAP, (3) availability of up-to-date measure specifications that can be applied across the study period, (4) availability of historic measure specifications that can be updated to be used across the study period, and (5) sufficient time to implement additional measures. Up-to-date measure specifications with annual revisions are available for DHCS EAS, CMS Core measures, HEDIS, and AHRQ.

Access to Care

The original **Access measures** were divided between (1) access to providers (as measured by plan composition and use) and (2) enrollee knowledge / use of member services. No extant list

of network providers exists across the entire evaluation period. Thus, the available measures focus on patterns of use and estimated travel distance, based upon (1) distance to closest ambulatory care provider seen by a patient and (2) distance to closest ambulatory care provider among patients in the same healthcare plan. Distances are estimated using calculated distance between patient and provider zip code centroids. Network panel data were obtained from DHCS (2017 to 2019). Provider data from Medi-Cal was supplemented by current and archival provider NPI data from CMS.

Measures:

1. Mean travel distance to closest primary care provider (PCP) and closest panel PCP
2. Mean travel distance to closest specialist by type and to closest panel PCP
3. Number of patients per PCP and specialist – calculated by managed care plan (including fee-for-service) and year

DHCS published its network adequacy standards in response to the Medicaid Managed Care Final Rule in March 2018:

https://www.dhcs.ca.gov/formsandpubs/Documents/FinalRuleNAStandards3-26-18.pdf

Travel distance was estimated based on distance between zip code centroids. Beneficiary zip codes were identified from the monthly eligibility and enrollment file. Provider zip codes were obtained from the national provider index (NPI) database and the plan network database. Because providers may have multiple entries in the NPI, the most contemporaneous database was used as well as the closest provider location if multiple entries were available. Ambulatory care visits for all patients were identified. Patient-provider dyads were tabulated. For each dyad, the provider NPI was linked to the NPI database to obtain their zip code. Then the provider classification code was linked to the DHCS classification derived from the National Uniform Committee Classification (NUCC) database. Each zip code in the patient-provider dyad was linked to the zip code coordinates for the zip code centroid and calculated the distance using the "great circle" formula. Patients were then sorted to identify the closest provider that they saw within that classification (e.g. closest cardiologist). This is the closest provider of that type seen by this particular patient. The mean, median, and 75th percentile distance to the closest provider across all patients were calculated. This is the most conservative measure comparison. Measures were calculated overall and by plan (including FFS enrollees).

Network panel make-up was examined in an analogous fashion. For each provider listed within a managed care plan, a list of all possible pairings between provider zip codes within the plan and zip codes of plan members was created. The zip code centroid distances for each pairing was then calculated. For each member zip code, the distance to the closest listed provider by specialty was selected. These data were then weighted by the actual number of members in each zip code. Mean, median, and 75% percentile distance by provider type – overall and by plan (including FFS enrollees) were calculated. This metric is conservative since it cannot account for the quality and capacity of the closest provider.

For trending, the evaluation team examined observed travel to closest provider type by patients by year for managed care and for FFS patients. Beginning with data from 2017 when provider network reports began, the estimated distance to the closest network provider versus the closest observed provider was compared, using the network makeup reported in December of that year (2017, 2018, and 2019). The more granular provider classification that includes physician specialty was used. The team did not exclude provider classifications that may reflect a billing NPI for a facility (e.g. hospital, pharmacy, or imaging center) rather than the individual provider, nor were specific provider specialties filtered out from these analyses. In the final

results, there are some extreme travel distances, which reflect a combination of relatively small numbers and likely out-of-state visits. These few extreme measures stand out.

Of note, the evaluation team does not have information on plan assigned PCP for individual patients. Managed care plans in their panels can present both generalists and specialists as being able to PCPs. Thus, this distinction was not made.

Assessment of enrollee knowledge and use of member services is only available from the CAHPS assessment of managed care enrollees in 2010, 2013, and 2016. These cross sectional assessments include markers for SPD enrollees. Questions of interest include – use of ambulatory care services (office-based and emergency medical services) and ability to make appointments when needed. HEDIS defines two composite measures on access to care – "Getting needed care" and "Getting care quickly". For consistency, these measures are presented with the other HEDIS measures.

<u>Quality of Care:</u>

As described above, the evaluation team identified claims-based expert-consensus quality measures (structure, process, and outcomes measures) covering a number of domains. The evaluation team first prioritized the DHCS EAS measures for initial implementation (**Appendix D**) as they were explicitly described in the approved CMS protocol. These were supplemented by claims-based and survey-based HEDIS measures, which contained both detailed specifications and annually updated value sets for operationalizing measures. These measures fill in gaps, especially with regards to mental health care and to key subsets of care that affect many patients. The focus on HEDIS produced 32 quality measures and 10 broadly defined utilization measures (including rates of hospitalization, readmission, and common procedures. A few potentially feasible measures were excluded due to the small number of eligible patients from the SPD population that would trigger these measures. Finally, four end-of-life measures were adapted from the Dartmouth Atlas of Health and applied to Medicaid conditions that have been mandated for eligibility for palliative care (CHF, COPD, ESLD, and cancer).

Explicit measures from the approved protocol include hospitalizations (cause-specific rates of hospitalization, cause-specific readmissions), mortality rates, ambulatory care visits (overall and specific), emergency department visits (overall and specific), cancer care (stage at diagnosis; time from diagnosis to treatment by cancer type; type of treatment; rate of routine screening for common cancers); maintenance of function, and medication usage (adherence to common medications and changes in medication management). Versions of the hospital-based measures exist in the HEDIS set (all-cause hospitalization, 30-day readmission, and preventable hospitalizations).

In this report, the evaluation team is providing the measures described below including process of care measures, unadjusted utilization rates, adjusted utilization rates, and unadjusted and adjusted clinical outcomes. Utilization measures and clinical outcomes are presented by county and plan by year. Quality metrics are reported statewide by year. Presentation of quality of care metrics mirror those according to HEDIS, including measures stratified by specific population definitions. Measures were not normalized to national HEDIS benchmarks since the SPD population as a group is non-representative of a typical Medicaid managed care population. Within quality metrics, the evaluators calculated relative change versus the baseline quality year (2010).

As specified in the Final Evaluation Design, existing data on SPD Specific Complaints (/10,000 beneficiaries) are included from Quarterly MCP grievances and appeals data; State Fair

Hearings; Independent Medical Reviews; and quarterly progress report data and are included in the final report appendices.

Costs of Care:

Costs of Care are calculated based upon patient assignment (FFS versus managed care) and upon whether services are reported as having been paid for by DHCS (claims) or not (encounters). This report includes:

1. Average monthly costs for Medi-Cal covered health services per beneficiary including average monthly costs for inpatient care, ambulatory care, pharmacy costs, and chronic mental health costs.
2. Avoidable institutionalization costs
   a. Ratio per 10,000 beneficiaries of and average cost per beneficiary for length of stays greater than ten days in an acute care hospital
   b. Ratio per 10,000 beneficiaries of and average cost per beneficiary stay for length of stays less than 60 days in a Skilled Nursing Facility (SNF) <u>was not performed due to unreliability of complete SNF data</u>
   c. Ratio per 10,000 beneficiaries of and average cost per beneficiary stay for length of stays less than 90 days in an acute hospital stay plus SNF <u>was not performed due to unreliability of complete SNF data</u>
3. Average annual pharmacy costs per beneficiary – restricted to FFS costs only

Certain measures – emergency department costs for necessary and unnecessary care and similar measures for DME could not be performed due to (1) lack of standards for necessary and unnecessary care and (2) lack of cost data for many of these items.

Costs are presented as estimated managed care costs (monthly capitation rates), FFS costs (for managed care patients), and FFS costs (for non-managed care patients). Costs are presented for the entire state by year. The evaluators accounted for inflation using CPI, but also examined GDP and fixed rates (1% and 2%). CPI and GDP were very close to the 2% rate. Risk adjustment approaches have been validated for FFS costs, but are less suitable for managed care cost estimates, where much of the costs are fixed.

Measurement Development

The evaluation team reviewed all explicitly identified measures from the approved evaluation protocol and then reviewed existing expert consensus quality metrics that were either part of complete quality metric sets (i.e. HEDIS) or indexed as claims based metrics from quality measure database warehouses (i.e. NQF and CMS). After consolidating measures that repeated across measure sets, the team identified 729 total measures, including 50 measures explicitly described in the contract, 22 measures from the DHCS EAS set, and remaining candidate measures identified from the review of quality metrics. Among the 729 measures identified, the team flagged 273 measures that required more information than is present in the claims data and thus cannot be implemented across all years of the evaluation. Among the remaining 456 measures, 46 measures are explicitly mentioned in the contract and nine measures are implied (as existing in the DHCS EAS measure set). Among the remaining 401 identified measures for consideration, 29 come from the CMS Medicaid Core Measure Sets, 77 from AHRQ HCUP quality measures, 39 from HEDIS, and 256 from CMS and NQF consensus measures or quality measure databases.

In order to prioritize measure selection and production for the final report, each TAP member was asked to rank order the domains and conditions. These rankings were attached to the underlying measures. Priority scores were applied for measures with routinely updated specifications – EAS measures, CMS Core measures, HEDIS, and AHRQ. Summary scores were linked back to the claims-based measure set. Composite scores that combine the Domain and Clinical Condition scores were created. Applying a cutoff on composite scores corresponding to an average of 2.0 on individual scores identified 146 candidate measures. Of these, 44 are existing HEDIS or AHRQ hospital-based outcome measures, which are routinely updated yearly. The remaining 102 measures were drawn from the other reviewed expert consensus quality measures. A review of these measures showed a large degree of overlap with existing routinely updated measures or measures applied to a very small number of patients. Due to the degree of overlap and the large number of available routinely updated measures, it was decided to focus on these measures (from HEDIS). Measure development was outside the scope of this evaluation.

Of note, the TAP reached general agreement on the scope and scale of the SPD assessment needs, principally that vulnerable sub-populations require explicit evaluation in the context of their unique needs. The TAP recommended focused metrics and identification of specific populations. Furthermore, concerns were expressed that technical (objective) quality success by the retrospective secondary data approach would not capture all aspects of care success.

TAP members pointed to concerns regarding access to specialty and tertiary care. Managed care networks may exclude tertiary care providers and avoid out-of-network referrals due to cost. Other related issues included increased travel time and greater difficulty coordinating care to multiple providers. Where a patient may have seen multiple centrally located specialty providers on a single day, the managed care arrangement could lead to multiple appointments at different locations and on different days. For disabled and elderly individuals, this represents a significant barrier, which would be extremely difficult to assess.

In summary, the UCLA team prioritized the use of expert consensus measures with updated measure specifications. The HEDIS measure set was used extensively. HEDIS measure sets are well defined, updated regularly, and the specifications are available from NCQA. Even during periods when current measures were not yet defined, these measures provide a useful lookback for baseline comparisons prior to formal implementation by HEDIS. For the purposes of our evaluation, these implement measures provide a better lookback than the existing HEDIS patient-level data sets for Medicaid, which are restricted to managed care plans and do not extend earlier than 2017. See **Appendix E** for more details on the measure selection process.

Data Sources

This evaluation leverages existing patient-level DHCS core data (enrollment and claims/encounters) for the study period (2009-2019) supplemented by other patient-level data within DHCS and with other state agencies (**Table 1**). Much of these data are either already within DHCS or are already shared with DHCS by other state agencies. In addition, the evaluation team used other non-patient level data: existing data from the managed care quality dashboard, plan capitation rates from DHCS, and provider data from DHCS and from the public domain (CMS and the Bureau of Economic Research) (**Table 2**).

Measure and Data Validation

UCLA employed convergent validation and face validity and agreement to ensure that evaluation results based upon the routinely collected data are valid. Findings from the data validation assist in identifying populations where there may be data issues that affect the accuracy and conclusions of the SPD transition evaluation.

The following approaches have been taken to verify measures:

1. Acute institutional stays – comparison of algorithm identified acute care stays with all-payer hospital data from the HCAI patient discharge database (PDD)
2. Dates of death from the eligibility and enrollment file can be compared to the state Death Statistical Master File
3. Comparison of death data reported in the eligibility data with death data reported among cancer patients from the California Cancer Registry

It was theoretically possible to examine home care visits and nursing home stays with corresponding data from the federal OASIS and MDS data sets, but there were too many administrative barriers to obtaining these data. Specifically, DHCS did not have a data use agreement in place with CMS to link OASIS and MDS data with Medi-Cal data. The evaluation team had access to the MDS data from a separate, federally funded study, and requested CMS to re-use its data for the SPD evaluation. CMS did grant permission for the data re-use but DHCS did not have data in place to create the crosswalk to link the UCLA research copy of the MDS data to the evaluation data.

DHCS introduced PACES at the end of 2014, which created two periods of data reporting in addition to inherent differences in data reporting between direct FFS claims to Medi-Cal and data submitted by MCPs to Medi-Cal. PACES did create more consistent reporting requirements across MCPs. The analyses have been extended to include the urban transition (2011-2012) and the rural transition (2013) to mandatory managed care. Results of sensitivity analyses with the HCAI data support the use of the DHCS data with some caveats regarding hospital length of stay.

Table 1 - Patient Level Source Data Sets

Originally Proposed Data Set	Description	Population Subset	Years Available	Source Agency	Comments
Medi-Cal Eligibility and Enrollment File	monthly eligibility and plan enrollment data	all individuals in Medi-Cal	2009-2019	DHCS	received
Medi-Cal Fee-for-Service Claims	fee-for service claims for all services, including managed care carve-out services	patients not enrolled in MCPs or receiving carve-out FFS services	2009-2019	DHCS	received
Medi-Cal Managed Care Encounters	managed care services submitted by plans	patients enrolled in MCPs	2009-2019	DHCS	received
Patient Discharge Database	all-payer database of discharges from all non-federal, non-correctional hospitals in the state	all individuals hospitalized in non-federal, non-prison hospitals	2009-2019	OSHPD	received
Emergency Department Database	all-payer database of emergency department visits not-resulting in hospitalizations at that hospital	all individuals seen in EDs	2009-2019	OSHPD	received
Death Statistical Master File	state death registry	all deaths in CA or of CA residents dying out of state	2009-2019	DPH, Office of Vital Stats	received probabilistic linkage file (2014 to 2019)
Short-Doyle Mental Health Claims	state fee-for service mental health claims	Medi-Cal enrollees	2009-2019	DHCS, Mental Health Services	received
IHSS Monthly Hours and Annual Functional Evaluations	monthly IHSS data	IHSS recipients	2009-2019	DSS	received
HEDIS data	person-level data used to create plan-specific summary HEDIS measures	managed care recipients by plan	2017-2019	DHCS	received
CAHPS data	subset of CAHPS responses by plan with flag for SPD recipients	subset of plan members that receive the CAHPS survey	2010, 2013, 2016, 2019	DHCS	received
Minimum Data Set of Long Term Care (including the California Section S)	required evaluation of all nursing home residents	nursing home residents (short-stay and long-stay)	2009-2019	DPH, Office of Quality	Not available – no overarching data use agreement.

Beneficiary Satisfaction Surveys	panel surveys of small subset of Medi-Cal beneficiaries	survey respondents	-	-	Not available - proprietary research data.
California Cancer Registry (CCR)	state cancer registry	individuals diagnosed with reportable cancers in California	2009-2019	DPH	received
OASIS Data (home healthcare)	required evaluation of all home healthcare patients	home healthcare recipients	2009-2019	CMS	Not available
HIV/AIDS Surveillance database	state HIV and AIDS surveillance database	patients diagnosed or treated for HIV in California	2009-2019	DPH, Office on AIDS	Special approval required. Not available.

CMS - Centers for Medicare and Medicaid Services; **DHCS -** California Department of Health Care Services; **DPH -** California Department of Public Health; **DSS -** California Department of Social Services; **OSHPD –** California Office of Statewide Health Planning and Development

Table 2: Other Data Sources Used for the Report

Originally Proposed Data Set	Description	Years Available	Source Agency
Ombudsman Reports	Summary of complaints to state ombudsman	2015 to 2019	DHCS
State Fair Hearing Reports	Results from appeal processes for providers and individuals dissatisfied with DHCS' actions	2015 to 2019	DHCS
Independent Medical Review	Results from patient complaints regarding receipt of healthcare services to managed care plans	2015 to 2019	DHCS
Grievance Reports	Patient medical grievances to plans	2015 to 2019	DHCS
Plan Capitation Rates	Estimated annual capitation rates (high, mid, low estimates) by plan	2009 to 2019	DHCS
Medi-Cal Provider File	Hierarchical provider file, nesting individual providers by site	2017 to 2019	DHCS
Historical Medi-Cal Managed Care Provider File	Provider file of managed care Medi-Cal providers	2011 to 2016	DHCS
Historical Medi-Cal FFS Provider File	Provider file of FFS Medi-Cal providers	2011 to 2016	DHCS
Current CMS NPI Provider File	Current national NPI file for individual and institutional providers in the U.S.	2019	CMS
Historical CMS NPI Provider File	Historical (2011) national NPI file for individual and institutional providers in the U.S.	2011	BER
Survey of Managed Care Plans on SPD Transition	Small questionnaire to plan representatives regarding data quality and enrollment issues	2019	UCLA
MCP Network Data	Provider lists by MCP	-	-

BER – Bureau of Economic Research; **CMS -** Centers for Medicare and Medicaid Services;
DHCS - California Department of Health Care Services; **UCLA** – University of California, Los Angeles

Plan Survey

Due to the retrospective nature of the evaluation and potential challenges in interpreting some findings, the evaluation team administered a short online survey of managed care plan representatives (**Appendix F**). DHCS shared a list of MCP representatives (primarily regulatory affairs and compliance personnel as well as senior leadership) and sent an introductory letter. Plan representatives confirmed receipt and the appropriate personnel to respond to the short survey. The online survey specifically asked about challenges encountered during the transition pertaining to contacting enrollees, assigning primary care providers, disenrollment, known strengths and weaknesses of data collected by their plans, and details on remediation. Plan representatives were also allowed to answer the survey questions by phone. Finally, follow-up phone conversations with select MCP representatives were scheduled to further discuss how plans worked through the challenges arising from the transition and managing SPD patients (as compared to other types of Medi-Cal populations).

Data Cleaning and Completeness Assessment

Enrollment File

For each enrollee, the evaluation team completed an initial assessment of the enrollment data (including reported date of death) and associated claims and encounters. For the enrollment data, a number of steps were performed, including:

- Removal of duplicate records
- Adjudication of multiple non-duplicate records per month per enrollee, where plan code assignments differ
- Adjudication of date of death with identification and removal of dates of death that appear to be wrong (due to ongoing enrollment with claims/encounters) and flagging enrollment data that appear to be incorrect (due to ongoing enrollment without claims/encounters after a reported death)

Claims / Encounters

In addition to tabulating claims by program type and claim type by patient, the team also assessed (1) the ability to reliably identify and tabulate acute care hospitalizations algorithmically using different claim types before and after the PACES implementation, (2) the use of different identifying information within the claims (place of service, revenue codes, institution classification merging with the NPI databases), and (3) by filtering hospital episodes using the statewide hospital discharge database.

Non-DHCS Patient-Level Data

The evaluation team obtained external data: California state hospital discharge and emergency department records, state vital statistics data, cancer registry records, In-home Supportive Services records, and patient-level HEDIS data (2017, 2018, 2019). CAHPS data (2010, 2013, 2016, and 2019) for patient care and satisfaction are de-identified and thus cannot be linked to DHCS data. The 2010 data do not have an indicator for SPD enrollees.

Other Data

DHCS provider-level data are of varying completeness. The evaluation team supplemented these data with two versions of the national NPI database (2011 and 2019). Linkage to physician claims is complete. Inconsistencies appear to arise when Californians are treated out of state or when physicians who once practiced in California move out of state.

Analytic Methods

In the final evaluation results, overall results across multiple dimensions are presented. The large number of potential comparisons and varying sizes of enrollment by county and by plan made within and across made selective use of comparisons necessary. Selective use of risk adjustment was focused on utilization and clinical outcomes, including overall assessment of trend during the observation period.

With regards to quality of care measures, process of care measures are by definition not supposed to be risk-adjusted and are to be presented as rates. Due to the limited number of cases, cancer care measures (stage at diagnosis, treatment, time to treatment, and one-year mortality) were stratified by cancer type and by cancer stage for the entire SPD population.

Risk adjustment strategies were used for HEDIS-defined measures – number of hospitalizations, cumulative hospitalizations, ambulatory visits, emergency department visits not resulting in hospitalization, and preventive hospitalizations.

For Length of Stay (LOS), number of discharges, ED and ambulatory (AMBV) visits, the evaluation team used the Zero-Inflated two-part modeling approach to analyze the clinical outcomes. This approach is a two-part model that accounts for both structural zeroes and skewness in the outcome distribution via a logistic regression for zero responses and a Poisson regression for nonzero responses. Importantly, both components are allowed to incorporate covariates. The same set of covariates (age, gender, and race/ethnicity) were included in each of the model components. Each year was analyzed separately. For county-level analyses, Alpine County was excluded because the sample size was too small (fewer than 50 observations).

For acute, chronic, and overall preventable hospitalizations, the evaluators used the multivariable regression modeling approach to analyze the rate of preventable hospitalizations. The rate was calculated as the percentage of preventable over total hospitalizations. The same set of covariates (age, gender, and race/ethnicity) were included in the regression model. Each year was analyzed separately. Some counties had no available information or had sizes too small for estimation. Sensitivity analyses were performed by including the participant's total hospitalizations in the multivariable regression as an additional covariate. Main results (without the hospitalization covariate) are presented in the report.

For the CAHPS survey measures, survey weights were calculated for the responses, using the survey respondent counts and corresponding plan enrollment counts. Weighted results should be more reflective of the underlying population. Survey responses for 2016 and 2019 were powered for managed care plan comparisons, but not for county/regional comparisons except for populous counties. For ease of interpretation, results were coded both according to the original four-level rating scale for many measures ("never", "sometimes", "most of the time, "always") to a binary measure ("never / sometimes", "most of the time / always"), which can be presented as simple rate.

As mentioned previously, risk-adjusted cost estimates were deemed unnecessary due to the small proportion of FFS costs for overall costs in managed care patients and the diminished explanatory power of risk adjustment for managed care enrollees whose care is mostly capitated.

Technical Advisory Panel

As described in the Interim Report, the Technical Advisory Panel (TAP) comprised of Medicaid policy experts, DHCS representatives, safety net clinicians, and researchers was formed to identify critical issues and discuss the evaluation design (proposed measures, data, and analytic methods). The TAP was tasked with reviewing criteria for existing measures in order to prioritize the large set of candidate measures. The TAP was also asked to identify important gaps and potential candidate measures that were not identified, but which can be derived from the available data. UCLA used feedback from the TAP to prioritize the evaluation measure set (**Appendix G and Appendix H**).

E. Methodological Limitations

The current evaluation leverages the large amount of routinely collected data within DHCS (enrollment and claims/encounters) supplemented by other existing data sets available through state health agencies. There are a number of known and potential limitations:

1. Data comparability, uniformity, consistency, and quality vary across the evaluation period and across the state – prior to PACES implementation, there was less consistency in data submission between MCPs. Certain plans may have different internal data standards, leading to greater heterogeneity in the final pooled data from DHCS, especially in the pre-PACES period.

2. Certain types of care or providers may have less consistent data due to a lack of financial incentives (e.g. capitated providers); providers that receive Medicaid block grants (e.g. LA County), or providers that are recipients of foundation support (e.g. free clinics) that may have incomplete billing. The proliferation of capitated agreements between plans and hospitals can affect detailed reporting from contracted hospitals.

3. Linkage to the state Death Statistical Master File changed over time. Prior to 2014, the precise methodology used to link records to the monthly eligibility and enrollment file is unknown. Starting with data from January 2014, DHCS has employed a multi-step probabilistic linkage algorithm. Without a consistent and repeated data linkage, these linkages are susceptible to inaccurate, inconsistent, and multiple linkages. Overmatches and under-matches are certain. Nevertheless, most matches are likely correct.

4. Absence of comprehensive managed care network profiles – instead of knowledge of available providers, the evaluation can only identify providers who actually saw Medi-Cal patients. This limits the power of the evaluating team to understand the degree to which patient access is impacted by plan network composition. The current DHCS provider file is adequate for such determinations. For the full observation period, it was possible to assess observed travel distance to closest providers by provider type by year.

5. Absence of comprehensive clinical data for all patients – many types of care and outcomes are not ascertainable using administrative data.

6. The CAHPS data touch upon patient satisfaction, knowledge, and access to care, but cover a minute fraction of enrolled patients at three-year intervals and are not linkable to the full patient-level data. Data from 2010, prior to mandatory managed care enrollment represent a different sample of SPD patients than those in 2013 and 2016. SPD respondents in 2010 are enrollees who more likely chose to be in managed care, introducing significant selection bias to the pre- and post-comparisons. As mentioned, the sample sizes for the 2016 and 2019 are much smaller than the 2013 sample, making county/region assessments limited.

7. Lack of a fully comparable contiguous control group – all potential comparison groups differ substantially from the SPD population either due to case-mix differences or due to policy specific issues (duals). The best available comparisons are by county-based populations from the stable mandatory managed care SPD populations in the COHS counties. Even here, changing policies over the decade, regional differences, and especially data quality issues from managed care plans make comparisons challenging and diminishes the value and validity of these comparisons.

Despite these limitations, the full evaluation design leverages existing data from across the healthcare agencies within the state, which provide additional information regarding care and outcomes as well as consistent independent data collection across this period of change within the state Medi-Cal program. By focusing the care and outcomes of <u>all</u> SPDs during this period, we can have greater comfort regarding the overall care, outcomes, and costs for this population regardless of the shifting populations between fee-for-service and managed care. Note, although the descriptive trend analyses (including those that are regression-adjusted) provide some insight into implementation progress, beneficiary experiences, and changes in access and service use, they do not yield causal impact estimates of the demonstration.

F. Results

In this section, the results regarding qualitative results from health plans, review of plan enrollment, utilization, and high-level outcomes are presented. Detailed results by plan and county are presented in the Appendices.

F1. Health Plan Survey Results

The evaluation team contacted all current participating plans regarding their experiences and conclusions regarding the mandatory managed care implementation. Fifteen of the twenty-nine invited plans participated in the survey. Of the respondents, one chose to schedule a phone call to verbally transmit their answers. The remainder did the online survey (**Appendix I**). The responses from the plans were illustrative.

- When patient contact information was incorrect, plans attempted to acquire the correct information from the patient directly or from other sources such as DHCS or the patient's physician, a hospital or emergency department (if the patient recently received care), a pharmacy, or service provider (e.g. transportation provider). Contact information was corrected in the plan's system.
- Of the managed care plans that tracked the percentage of patients who could not be contacted, plans reported that between 7% and 35% of patients lacked sufficient contact information.
- Plans employed various strategies to ensure orderly transition of patients to new care, and adhered to continuity of care guidelines from DHCS. Plans strived to keep members with their existing care providers, if possible. Plans worked with DHCS to share member data, communicate, and resolve disputes and grievances.
- Mostly all plans allowed patients to receive care from previous providers up to 12 months after the transition, per DHCS' mandate. Extensions beyond 12 months were made depending on a member's condition, treatment, and services needed.
- Plans allowed patients to renew existing medications between 30 days and one year after the transition. Extensions were made depending on the patient's condition and continuity of care needs. One plan reported no time limit, although prior authorization was needed.
- Plans reported that continuity of care requirements were honored to ensure patients received appropriate specialty care. Some plans enforced time limits on these visits, while others did not.
- Special consideration (e.g. care coordination and case management) was made for patients with multiple chronic conditions by most all plans, who cited continuity of care policies that apply to these patients. One plan placed patients with multiple chronic conditions into a high-risk category.
- Most plans did not report any noteworthy changes in care patterns. One plan stated that their urgent care network was expanded to support the SPD population and provide alternates to the ED.
- Most plans did not report any data quality issues surrounding the transition. One plan reported that data from previous care including FFS Medi-Cal can be delayed or be missing and another plan noted that data from DHCS is not always complete.
- Plans did not report any difficulties with data completeness and accuracy with contracted providers. In general, plans were confident that claims data accurately and completely reflected all types of care, services, medications, and equipment provided.
- Plans noted in closing that many SPDs had incorrect contact information at enrollment, making completion of health risk assessments and timely outreach more challenging.

The plans generally relied upon guidance from standing guidelines for the transition and for ensuring patient care and care coordination. The existing infrastructure and regulatory environment for Medi-Cal managed care plans created the framework to ensure adequacy of care for the SPDs.

F2. Enrollment

California's initial SPD enrollment to managed care raised managed care enrollment to 80% by 2012. (**Figure 3**). By 2019, 93% of SPDs in the state were enrolled in managed care. Overall enrollment patterns by managed care enrollment by county, by year, by plan enrollment by year, and by demographics by year were reviewed (**Figures 4A-4C**). The changing demographics of the

SPD population reflect the changing demographics of the state as a whole, with White non-Hispanics representing a decreasing proportion of enrollees and Hispanic individuals an increasing proportion of enrollees and higher proportion of older patients in the mix of SPDs (See detailed results in **Supplementary Tables S.6 to S.12**).

Figure 3: Mean Annual SPD enrollment
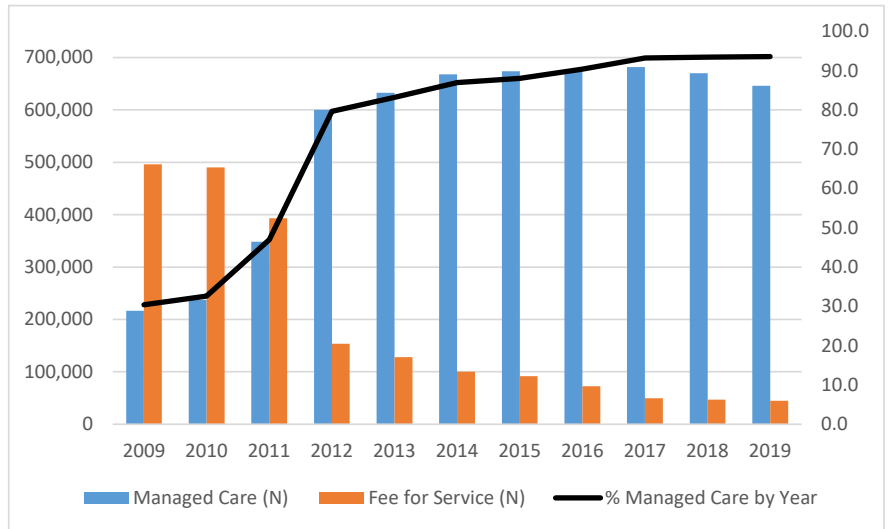
Figure 4A: Managed Care Age Distribution 2009 to 2019
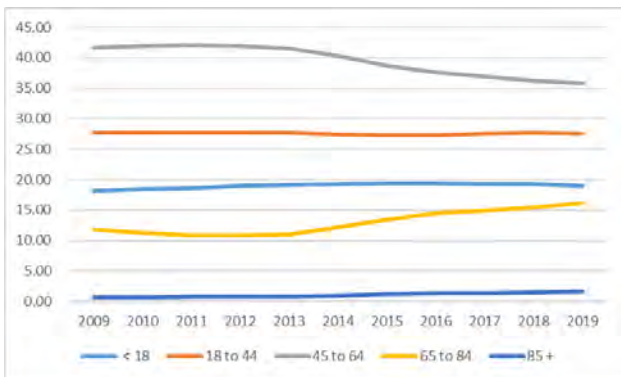
Figure 4B: Managed Care Gender Distribution 2009 to 2019
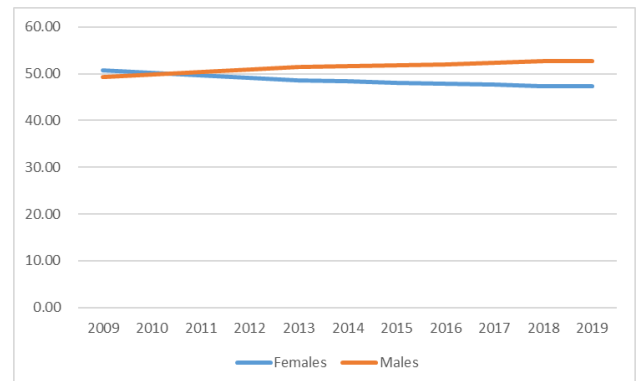
Figure 4C: Managed Care Race/Ethnicity Distribution 2009 to 2019
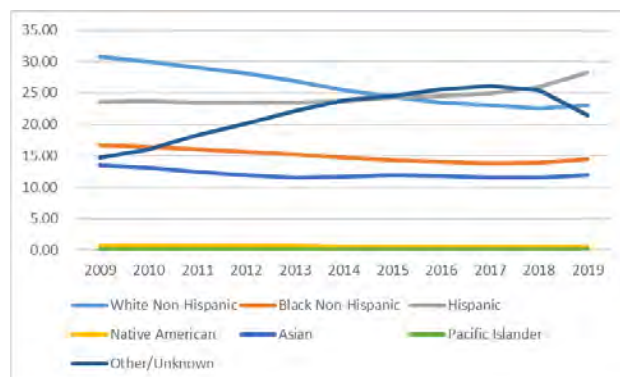
F3. Access to Care

F3.1. Self-Reported Access to Care

Findings from the cross sectional assessments of CAHPS responses by managed care plan by year and by county/region by year are presented (**Table 3**). These represent the SPD responses for the CAHPS survey for 2013, 2016, and 2019 with sampling weights. Here, the focus is on the bottom-line, statewide patterns. Questions regarding access to PCPs – "General Medicine Visit in Past 6 Months", "General Medicine Visit--Got Visit Right Away", and "Have a Personal Doctor" were essentially unchanged from 2013 to 2019.

Table 3: CAHPS Results, SPD Enrollees in Medicaid Managed Care Plans in California, 2013, 2016, 2019

	2013	2016	2019
General Medicine Visit in Past 6 Months	79%	80%	79%
General Medicine Visit--Got Visit Right Away	76%	78%	76%
Have a Personal Doctor	84%	87%	85%
How Many Trips to PersonalDoctor in Last Year	2.55	2.47	2.32
Need to See Specialist	48%	53%	53%
How Often Easy to See Specialist	73%	79%	78%
How Many Times Saw a Specialist in Last Year	1.85	1.95	1.91
Need ED	43%	41%	39%
Need ED - How Often Got Care Right Away	77%	78%	80%

For each measure, mean response rates were 0.75 to 0.80. There was a trend towards fewer self-reported visits to the doctor ("How Many Trips to Personal Doctor in Last Year"), but the relative percent change was small. In contrast, there was a trend towards greater need for specialists (increasing from 0.48 to 0.53) and an increased ease seeing a specialist (compared to 2013). The number of self-reported trips to specialists was essentially unchanged. Finally, there was a trend towards decreased self-reported need for emergency services (decreasing from 0.43 to 0.39) with essentially unchanged ease of receiving timely care (0.80).

Taken as a whole, access to PCPs was unchanged, and there was a trend towards fewer visits to the PCP while change in use of specialty care was mixed and reported use of the ED decreased. These findings suggest improved access to necessary care. We cannot discern whether this was due to a sampling effects and the small numbers do not support making strong conclusions. Furthermore, these survey results are not qualitatively consistent with service use based on analysis of claims and encounters (see Figure 7 and accompanying text below). For detailed survey results by plan, see **Supplementary Tables S.13 to S.15**. For detailed results by county, see **Supplementary Tables S.16 to S.18**.

F3.2. Patient Travel to Providers Using patient travel distance, improved access to care would be reflected by a decrease in patient travel distance to providers. The data do not support this hypothesis (**Table 4**). Between 2009 and 2019, overall travel distance by SPD enrollees tended to increase. Among the 37 listed categories, 29 had greater median travel distances in 2019 compared to 2009. Although there was a consistent increase in travel distance in 2013/2014 that subsequently decreased, this likely reflects a data quality issue (see also **Supplementary Tables S.19 to S.21** and **Appendices J-K**) since many managed care encounters during this period lack valid provider IDs (NPIs), leaving the overall sample weighted towards rural fee-for-service enrollees. Looking at 2015, after more consistent managed care encounter reporting was adopted,

Table 4: Median Observed Travel Distance to Outpatient Visits by Provider Type, California, 2009 to 2019											
Managed Care Classification	**Year of Visit**										
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Cardiology/Interventional Cardiology	6.8	6.8	6.7	7.8	7.7	7.1	7.1	7.3	7.3	7.3	7.4
Certified Nurse Midwife	7.3	48.7	46.2	17.5	12.6	18.4	20.0	11.7	11.7	14.2	4.8
Dermatology	7.7	8.2	8.9	13.5	14.8	11.1	11.5	13.8	14.6	15.0	16.1
ENT/Otolaryngology	7.7	8.4	8.5	9.3	9.4	9.2	9.0	9.1	9.0	8.6	8.5
Endocrinology	9.0	8.7	8.7	10.9	11.1	10.4	10.4	10.4	9.3	9.6	10.3
Family Medicine	4.5	5.0	5.1	6.5	6.6	5.9	5.6	6.6	7.3	6.9	6.5
Gastroenterology	6.8	7.2	7.3	8.2	8.3	8.3	8.2	8.8	8.7	8.8	9.1
General Surgery	9.9	11.5	11.5	12.3	12.1	11.2	11.0	11.5	11.5	11.6	11.8
Geriatric Medicine	5.6	4.5	4.8	5.0	5.7	4.4	4.5	5.4	6.9	6.5	6.3
Hematology	8.8	8.8	8.8	10.4	10.6	10.0	10.2	10.2	10.4	10.4	10.3
Hospitals	7.7	7.9	8.5	9.7	8.4	6.1	6.1	6.8	6.6	6.7	6.5
Infectious Disease	8.0	7.1	7.1	7.2	7.7	7.9	7.8	8.8	9.9	9.9	10.1
Internal Medicine	0.0	2.2	4.8	4.1	4.3	9.0	3.8	5.7	8.8	1772.7	1744.3
Licensed Clinical Social Worker	5.2	5.2	5.0	5.2	4.5	4.5	4.1	5.0	4.9	5.0	5.6
Licensed Marriage and Family Therapist	8.0	8.5	7.9	7.8	12.2	6.9	6.5	6.9	7.7	7.6	8.4
Licensed Midwife	4.2	7.2	3.2	3.6	3.7	11.4	1721.2	898.2	798.8	37.7	22.4
MRI Provider	10.8	11.5	11.8	9.0	13.5	16.1	16.1	12.5	12.9	13.9	16.1
Mammography Provider, MRI Provider	11.9	14.3	12.2	10.0	10.8	11.2	14.5	1849.8	14.1	12.6	37.4
Nephrology	6.9	7.5	7.4	7.8	7.3	7.2	7.5	7.7	8.0	7.8	8.1
Neurology	9.4	9.7	9.9	10.9	10.1	9.2	9.4	9.5	9.4	9.3	9.2
Nurse Practitioner	3.8	9.9	10.4	10.4	6.9	7.7	8.0	7.7	8.5	9.4	11.1
Obstetrics & Gynecology	5.9	6.1	6.0	6.3	6.6	6.4	6.1	6.1	6.1	6.1	6.1
Oncology	8.6	8.8	8.8	10.1	10.2	9.8	9.9	9.9	10.2	10.1	10.1
Ophthalmology	7.0	7.4	7.2	7.9	7.9	7.4	7.1	7.1	7.3	7.3	7.5
Orthopedic Surgery	10.2	11.1	11.1	11.1	10.5	9.5	9.4	9.6	9.1	8.4	8.4
Other	4.9	5.3	5.1	5.5	5.2	4.5	4.4	4.6	4.6	4.0	3.9
Other Specialist	5.5	5.5	5.3	5.9	6.2	5.9	6.2	6.6	7.0	6.8	6.8
Pediatrics	7.9	7.8	7.7	7.6	7.4	7.0	7.3	7.9	8.5	8.7	9.0
Pharmacies	6.7	3.0	362.6	11.5	11.8	6.4	6.4	8.8	7.3	8.6	7.7
Physical Medicine & Rehabilitation	12.4	13.9	14.6	17.5	18.4	17.4	18.8	19.2	19.8	21.9	20.7
Physical Therapist	3.7	0.0	2.3	6.9	19.4	16.4	14.6	15.9	10.8	9.6	9.9
Physician Assistant	62.5	85.3	62.5	10.9	8.7	10.5	5.7	6.5	9.8	10.8	17.4
Preventive Medicine	3.8	4.0	4.2	7.0	7.5	5.8	5.4	5.9	6.4	6.1	6.4
Psychiatry	7.5	7.8	7.9	7.0	11.3	8.0	7.3	7.3	8.1	9.0	9.7
Psychologist	10.3	10.5	10.5	9.5	9.1	12.8	12.4	12.9	13.8	14.6	14.7
Pulmonology	9.7	11.2	10.6	11.7	11.2	11.1	10.4	9.2	9.7	9.6	9.2

25 out of the 37 categories show greater travel distance in 2019 versus 2015. A similar pattern appears regardless of whether one uses mean or 75th percentile measures.

Comparing observed estimated distance to closest providers versus distance to closest network provider (2017 to 2019), we see consistently greater observed travel distances (**Table 5**). Difference between observed closest travel distance and closest network provider did increase somewhat. The differences are somewhat greater for 2018 compared to 2019 than for 2017 versus 2018 (or 2019). Given the small number of observations, one cannot make strong conclusions regarding trends. Finally,

travel distances to certain types of providers tend to be much farther than the closest network provider. These tend to be specialty providers (psychologists and dermatologists). However, there is not a consistent story here --- the provider types with the least difference between observed and panel providers are also specialists (ENT surgeons, nephrologists, and one type of primary care provider – geriatricians). One category in particular – internal medicine – had few encounters and extreme travel distances. For greater detail, see **Supplementary Tables S.22-S.23 and Appendix L).**

Table 5: Overall Managed Care SPD Enrollees - Median Distance to Closest Provider versus Median Observed Travel Distance for Outpatient Care, 2017 to 2019

Managed_Care_Classification	2017		2018		2019	
	Panel	Observed	Panel	Observed	Panel	Observed
Cardiology/Interventional Cardiology	2.7	7.2	2.8	7.1	2.7	7.3
Certified Nurse Midwife	3.6	11.1	4.2	18.3	4.0	4.8
Dermatology	6.1	14.6	5.7	15.0	4.0	16.1
ENT/Otolaryngology	4.8	8.5	5.3	8.2	5.0	8.3
Endocrinology	4.2	8.9	4.0	9.0	3.8	9.8
Family Medicine	0.0	7.2	0.0	6.9	0.0	6.4
Gastroenterology	3.3	8.3	3.4	8.6	3.4	8.8
General Surgery	3.7	11.1	3.5	11.3	3.2	11.5
Geriatric Medicine	4.0	7.0	4.0	6.7	3.7	6.6
Hematology	4.2	10.3	4.7	10.2	4.6	10.1
Hospitals	4.8	6.6	4.7	6.7	4.3	6.4
Infectious Disease	3.8	9.9	4.2	9.8	4.2	9.9
Internal Medicine	8.4	8.8	15.1	1,772.7	7.7	1,744.3
Licensed Clinical Social Worker	0.0	4.9	0.0	5.0	0.0	5.5
Licensed Marriage and Family Therapist	1.8	7.7	0.0	7.6	0.0	8.4
Licensed Midwife	10.0	798.8	7.3	37.7	32.9	22.4
MRI Provider	4.1	13.4	6.3	12.4	5.5	16.1
Mammography Provider, MRI Provider	2.0	14.3	2.0	13.5	2.0	39.6
Nephrology	4.1	7.8	4.3	7.8	4.1	7.9
Neurology	3.8	9.2	3.3	9.2	3.2	9.1
Nurse Practitioner	0.0	8.4	0.0	9.4	0.0	11.2
Obstetrics & Gynecology	0.0	6.1	0.0	6.1	0.0	6.0
Oncology	4.3	9.9	4.7	9.9	4.5	9.9
Ophthalmology	0.7	7.1	1.6	7.1	3.3	7.3
Orthopedic Surgery	3.8	8.9	4.3	8.3	3.7	8.4
Other	0.0	4.6	0.0	3.9	0.0	3.8
Other Specialist	0.0	6.9	0.0	6.8	0.0	6.7
Pediatrics	0.0	8.3	0.0	8.5	0.0	8.7
Pharmacies		7.3	15.2	8.6	13.0	7.7
Physical Medicine & Rehabilitation	4.1	20.6	4.1	22.5	4.2	20.9
Physical Therapist	2.7	10.8	2.5	9.6	2.3	9.9
Physician Assistant	0.0	9.8	0.0	10.8	0.0	17.4
Preventive Medicine	0.0	6.4	0.0	6.1	0.0	6.4
Psychiatry	2.3	8.0	2.0	9.0	2.1	9.6
Psychologist	0.0	13.8	0.0	14.6	0.0	14.7
Pulmonology	4.5	9.1	4.4	9.1	4.2	8.9

F3.3. Physician Patient Volume – A Proxy for Panel Size?

Based upon unique patient-physician visit counts using the patient-physician dyads described for the travel distance analysis, we calculated the number of unique patients and total visits for each provider, by provider category between 2009 and 2019 (**Table 6; Supplementary Table S.24**). The total number of patients and visits per provider dropped between 2009 and 2015 and increased again towards 2019. In general, we see the total number of unique providers by specialty increase comparing 2009 to 2019, while the average number of patients and visits decreased. The middle years – 2012 to 2014 – again show the results of poor data quality during this period of rapid managed care expansion. The most valid comparisons are between the baseline years and after 2014, when data quality improved. In general, there are more providers who are providing care to a smaller number of patients per provider. This may reflect greater access to care. Furthermore, the mean results do not capture the range of results. Based on numbers of unique patients, some providers see large numbers of SPD enrollees. Finally, an examination of provider volume by plan (**Appendix M**), shows that some plans have many fewer providers and visits than would be expected from their annual enrollment, suggesting that reporting of ambulatory encounters are incomplete (versus not occurring at all). This is apparent even in the most recent years of data, suggesting that this is not simply a problem with the transition to managed care and standardization of reporting.

Table 6: Overall Provider Unique Number of Patients Seen and Ambulatory Care Visits Per Year

Provider Type	Number of Unique Providers by Year											Mean Number of Patients Per Provider										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cardiology/Interventional Cardiology	1,110	1,226	1,759	1,936	1,861	2,185	2,019	2,027	1,875	1,911	1,912	29.7	26.7	18.4	11.8	12.7	15.5	17.8	18.4	20.4	21.1	23.5
Certified Nurse Midwife	10	8	4	8	9	9	7	5	14	8	4	4.1	3.0	3.0	2.0	3.3	4.7	1.4	2.4	1.6	1.9	2.5
Dermatology	297	335	465	638	626	814	816	841	852	891	918	33.5	38.8	27.7	18.4	22.2	29.0	34.3	33.9	35.4	36.0	39.3
ENT/Otolaryngology	430	464	582	698	690	787	693	732	682	673	656	35.2	29.4	22.7	14.5	16.0	17.3	19.8	19.7	19.9	20.5	24.3
Endocrinology	229	233	346	385	378	430	405	414	403	414	394	35.8	25.1	18.2	13.6	14.9	17.0	19.3	19.2	17.6	16.1	20.7
Family Medicine	3,211	3,944	5,569	6,393	6,555	6,904	6,196	6,372	6,535	6,653	6,185	32.0	28.5	21.5	17.2	18.7	23.0	22.8	24.4	25.2	24.0	26.0
Gastroenterology	702	772	1,057	1,185	1,171	1,278	1,202	1,230	1,198	1,155	1,210	28.4	25.1	19.6	13.4	15.1	18.4	20.8	21.4	21.6	22.3	24.4
General Surgery	1,622	1,873	2,468	2,828	3,035	3,605	3,462	3,423	3,268	3,346	3,337	20.0	16.9	12.6	9.1	9.2	10.1	11.4	11.3	11.8	12.4	14.9
Geriatric Medicine	153	113	184	198	190	228	225	267	250	242	217	26.2	24.1	16.0	12.8	13.7	16.0	20.2	18.8	21.0	19.0	21.6
Hematology	389	468	665	837	881	942	849	866	854	839	683	23.1	22.3	17.3	12.5	13.1	14.4	16.2	16.0	15.3	16.3	20.4
Hospitals	1,138	1,190	1,460	1,927	2,415	5,036	6,299	6,486	6,648	6,545	6,308	54.6	51.9	42.0	23.8	21.6	23.3	25.3	25.2	26.8	26.7	29.9
Infectious Disease	177	191	248	314	333	378	340	325	324	329	323	9.6	7.8	7.1	5.4	5.7	7.2	7.3	6.6	8.0	8.3	9.7
Internal Medicine	4	4	6	5	2	5	8	8	9	12	10	33.3	25.3	3.2	4.6	8.5	3.4	2.5	4.9	4.3	9.2	9.8
Licensed Clinical Social Worker	20	22	28	41	69	341	404	514	652	740	771	36.3	43.2	34.9	24.8	19.6	8.2	8.2	10.4	10.8	8.5	9.6
Licensed Marriage and Family Therapist	15	29	27	11	20	558	932	1,248	1,520	1,714	1,738	5.4	11.7	12.0	3.5	1.9	1.9	2.5	2.8	3.0	3.2	3.5
Licensed Midwife	1	4	1	3	4	8	2	1	2	3	4	1.0	2.3	1.0	1.7	4.3	2.3	1.0	1.0	1.0	1.0	1.0
MRI Provider	21	28	39	54	62	52	38	38	27	29	36	17.2	13.8	10.2	5.8	3.9	4.1	4.8	7.1	9.2	7.4	13.5
Mammography Provider, MRI Provider	83	78	113	137	201	232	183	210	197	200	174	20.0	13.9	9.8	5.1	5.3	5.0	4.2	23.8	4.4	5.2	5.2
Nephrology	368	437	709	824	844	994	875	875	836	899	848	20.0	17.3	11.0	6.7	7.3	9.1	10.1	10.3	10.2	10.3	12.3
Neurology	483	531	758	868	894	1,067	1,007	1,007	984	998	977	26.8	22.5	18.2	14.6	16.0	19.1	22.2	23.6	23.9	23.9	25.7
Nurse Practitioner	190	176	215	384	550	553	311	409	728	694	299	35.8	10.6	8.1	6.9	9.0	9.2	9.0	6.2	4.8	5.6	10.1
Obstetrics & Gynecology	1,141	1,244	1,707	1,789	1,827	2,126	1,837	1,742	1,548	1,518	1,539	15.0	12.8	9.3	6.1	7.9	9.7	10.4	10.4	10.8	11.0	12.6
Oncology	42	43	57	78	72	86	70	74	82	57	45	14.8	12.9	13.9	9.2	11.0	11.8	12.5	11.1	6.8	8.7	10.7
Ophthalmology	1,416	1,516	2,182	2,498	2,373	2,668	2,538	2,520	2,457	2,403	2,310	40.4	35.7	25.7	16.7	18.5	21.2	23.5	23.5	22.7	23.8	27.1
Orthopedic Surgery	689	815	1,052	1,157	1,210	1,392	1,267	1,358	1,337	1,386	1,375	22.5	19.0	15.4	13.4	13.5	16.0	19.0	19.5	22.1	24.7	27.7
Other	14,835	16,934	23,417	30,809	33,158	40,955	42,569	46,375	50,418	51,518	48,378	39.6	42.0	33.8	26.0	24.7	27.2	28.6	27.0	27.5	28.8	30.9
Other Specialist	3,373	3,800	5,565	6,335	6,443	7,018	6,381	6,517	6,479	6,570	6,238	28.8	23.6	16.4	11.1	12.2	15.9	17.0	16.6	17.2	17.5	18.9
Pediatrics	2,085	2,288	2,899	3,578	3,776	3,946	3,326	3,371	3,435	3,370	3,048	19.6	17.1	15.3	12.6	13.5	16.8	20.0	20.0	19.7	20.2	24.7
Pharmacies	16	4	4	11	18	35	33	28	29	37	28	17.3	53.0	1.3	2.9	2.1	14.3	29.9	39.9	32.0	40.5	36.3
Physical Medicine & Rehabilitation	221	257	334	384	350	461	438	438	440	464	473	21.7	21.6	17.0	12.2	13.3	13.0	17.7	19.3	20.1	22.5	24.4
Physical Therapist	17	13	14	34	86	70	59	79	99	94	99	19.5	5.1	6.3	6.0	6.4	10.7	10.9	8.8	7.9	9.0	11.5
Physician Assistant	129	112	177	372	584	499	148	187	305	241	126	72.4	24.2	10.6	5.5	10.0	11.0	6.0	3.5	5.1	6.2	5.4
Preventive Medicine	689	631	947	1,063	1,049	1,167	1,109	1,138	1,124	1,188	1,156	41.3	40.9	27.1	17.9	20.2	25.7	26.4	25.2	28.0	30.8	33.6
Psychiatry	134	154	171	178	314	710	772	859	1,047	1,062	1,058	18.1	21.6	16.6	11.3	9.9	8.5	12.5	13.0	13.8	14.4	16.5
Psychologist	90	80	97	128	163	773	1,004	1,176	1,372	1,441	1,368	64.2	34.9	26.8	16.2	16.0	10.0	11.3	10.7	11.0	12.2	15.1
Pulmonology	330	338	450	516	529	577	539	508	514	512	496	22.8	18.3	14.4	10.8	11.7	12.9	13.6	13.5	14.2	14.6	16.6

F4. Quality of Care

A number of process of care measures were implemented using available administrative data (36 measures) and CAHPS responses (two measures regarding flu vaccination and one measure regarding smoking cessation). CAHPS measures also included four composite measures regarding experience of care. Process of care measures show general improvement measure by measure for the SPD population, thought the overall performance is lower than seen in a baseline national Medicaid comparison populations. We see general improvements in use of preventive services, adherence to certain types of care (asthma and COPD inhaler management, beta blockers after acute heart attack) and avoidance of potentially harmful care (such as potentially harmful prescriptions for older adults – DDE) (**Table 7 below and Supplementary Table S.25**). Measures of timely treatment after being seen in the hospital or ED for mental health related conditions (FUM, FUH, FUA) improved between 2010 and 2019.

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
LSC	Lead Screening in Children	0.19	0.21	0.22	0.22	0.23	0.23	0.26	0.33	0.49	0.50
AMR	**Asthma Medication Ratio**										
	Overall	0.46	0.52	0.67	0.63	0.57	0.57	0.58	0.58	0.56	0.84
	5-11 years	0.65	0.74	0.83	0.77	0.74	0.75	0.78	0.77	0.77	0.91
	12-18 years	0.56	0.63	0.76	0.73	0.70	0.72	0.74	0.73	0.73	0.90
	19-50 years	0.39	0.45	0.59	0.56	0.50	0.51	0.53	0.53	0.53	0.81
	51-64 years	0.48	0.52	0.68	0.62	0.55	0.54	0.55	0.54	0.52	0.83
MMA	**Medication Management for People With Asthma**										
	50% Adherence	0.67	0.72	0.80	0.77	0.76	0.73	0.73	0.75	0.76	0.79
	75% Adherence	0.41	0.45	0.51	0.53	0.50	0.48	0.49	0.50	0.53	0.57
PCE	**Pharmacotherapy Management of COPD Exacerbation**										
	Bronchodilators	0.67	0.69	0.65	0.74	0.80	0.80	0.80	0.78	0.80	0.72
	Systemic Corticosteroids	0.21	0.23	0.26	0.38	0.43	0.45	0.47	0.45	0.49	0.49
PBH	Persistence of Beta-Blocker Treatment After a Heart Attack	0.13	0.12	0.08	0.06	0.12	0.21	0.17	0.10	0.17	0.19
SPC	**Statin therapy for people with cardiovascular disease**										
	Any use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Adherence	0.60	0.58	0.51	0.58	0.57	0.55	0.58	0.57	0.60	0.51
	Any use, Males, Age 21 to 75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Adherence, Males, Age 21 to 75	0.62	0.60	0.51	0.59	0.59	0.56	0.59	0.58	0.60	0.50
	Any use, Females, Age 40 to 75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Adherence, Females, Age 40 to 75	0.57	0.56	0.51	0.57	0.55	0.53	0.56	0.56	0.60	0.51
CDC	**Comprehensive Diabetes Care**										
	Routine Hemoglobin A1C Checks	0.48	0.49	0.46	0.48	0.51	0.55	0.62	0.65	0.65	0.68
	Annual Eye Exam	0.90	0.91	0.93	0.92	0.93	0.94	0.95	0.96	0.96	0.97
SPD	**Statin therapy for people with diabetes**	0.56	0.59	0.59	0.60	0.62	0.63	0.64	0.65	0.67	0.69
OMW	**Osteoporosis Management in Women Who Had a Fracture**	0.17	0.14	0.16	0.19	0.19	0.18	0.15	0.16	0.15	0.19
ADD	**Follow-Up Care for Children Prescribed ADHD Medication**										
	Induction Phase	0.29	0.52	0.53	0.54	0.54	0.54	0.57	0.58	0.60	0.61
	Continuation and Maintenance Phase	0.90	0.92	0.91	0.91	0.91	0.91	0.92	0.93	0.93	0.94

Table 7: Process of Care Measures for All SPD Enrollees by Year

Table 7: Process of Care Measures for All SPD Enrollees by Year (continued)

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
AMM	**Antidepressant Medication Management**										
	Effective Acute Phase Treatment (12 weeks)	0.73	0.77	0.77	0.75	0.77	0.75	0.73	0.74	0.75	0.77
	Effective Acute Phase Treatment (6 months)	0.73	0.77	0.76	0.74	0.76	0.72	0.71	0.72	0.72	0.73
APM	**Metabolic Monitoring for Children and Adolescents on Antipsychotics**										
	Overall	0.27	0.27	0.25	0.26	0.28	0.32	0.35	0.38	0.37	0.39
	1-5 years	0.17	0.13	0.14	0.14	0.20	0.15	0.28	0.21	0.19	0.15
	6-11 years	0.22	0.23	0.21	0.22	0.24	0.28	0.30	0.33	0.30	0.32
	12-17 years	0.31	0.31	0.28	0.29	0.30	0.34	0.38	0.40	0.41	0.43
FUH	**Follow-Up After Hospitalization for Mental Illness**										
	7 days	0.50	0.59	0.64	0.64	0.60	0.60	0.61	0.60	0.63	0.61
	30 days	0.64	0.72	0.75	0.75	0.72	0.73	0.74	0.73	0.75	0.74
FUM	**Follow-Up After ED Visit for Mental Illness**										
	7 days	0.44	0.49	0.51	0.53	0.52	0.51	0.51	0.51	0.52	0.53
	30 days	0.58	0.62	0.63	0.65	0.64	0.64	0.65	0.66	0.67	0.68
FUA	**Follow-Up After Emergency Department Visit for Alcohol and Substance Abuse**										
	7 days (Overall)						0.08	0.07	0.07	0.07	0.07
	7 days: 13-17 years						0.04	0.02	0.01	0.01	0.03
	7 days: 18+ years						0.08	0.07	0.07	0.07	0.07
	30 days (Overall)						0.12	0.11	0.11	0.12	0.11
	30 days: 13-17 years						0.07	0.02	0.04	0.03	0.04
	30 days: 18+ years						0.12	0.11	0.11	0.12	0.12
SAA	**Adherence to Antipsychotic Medications for Individuals With Schizophrenia**	0.69	0.70	0.70	0.70	0.71	0.67	0.67	0.62	0.72	0.67
SMC	**Cardiovascular Monitoring for People With Cardiovascular Disease and Schizophrenia**	0.82	0.85	0.73	0.72	0.80	0.77	0.80	0.77	0.79	0.85
SMD	**Diabetes Monitoring for People With Diabetes and Schizophrenia**	0.67	0.67	0.58	0.62	0.65	0.68	0.72	0.74	0.75	0.76
SSD	**Diabetes Screening for People With Schizophrenia or Bipolar Disorder Who Are Using Antipsychotic Medications**	0.72	0.71	0.65	0.65	0.66	0.69	0.73	0.75	0.75	0.76
MPM	**Annual Monitoring for Patients on Persistent Medications**										
	ACE/ARB medications	0.81	0.81	0.75	0.75	0.76	0.79	0.83	0.87	0.85	0.86
	Diuretic Medications	0.81	0.81	0.76	0.76	0.76	0.79	0.84	0.87	0.86	0.87
AAB	**Avoidance of Antibiotic Treatment in Adults With Acute Bronchitis**	0.17	0.14	0.19	0.20	0.24	0.30	0.32	0.27	0.24	0.21

Table 7: Process of Care Measures for All SPD Enrollees by Year (continued)

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
APC	**Use of Multiple Concurrent Antipsychotics in Children and Adolescents**										
	Overall	0.07	0.07	0.07	0.07	0.07	0.06	0.05	0.05	0.04	0.04
	1-5 years	0.02	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.00
	6-11 years	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.02	0.02
	12-17 years	0.08	0.08	0.08	0.08	0.08	0.07	0.06	0.06	0.05	0.05
DAE	**Use of High-Risk Medications in the Elderly**										
	at least one dispensing event	0.26	0.25	0.25	0.24	0.20	0.18	0.18	0.17	0.17	0.18
	at least two dispensing event	0.14	0.14	0.14	0.13	0.11	0.10	0.10	0.09	0.09	0.10
DDE	**Potentially Harmful Drug-Disease Interactions in the Elderly**										
	Oveall	0.49	0.48	0.47	0.46	0.43	0.40	0.38	0.40	0.39	0.39
	History of Falls and Anticonvulsants ...	0.46	0.44	0.44	0.45	0.44	0.40	0.40	0.40	0.41	0.40
	Dementia and ADntipsychotics ...	0.70	0.67	0.65	0.64	0.60	0.58	0.56	0.55	0.54	0.52
	Chronic Kidney Disease and NSAIDs	0.17	0.19	0.21	0.19	0.17	0.17	0.28	0.34	0.31	0.31
LBP	**Potentially Inappropriate Use of Imaging Studies for Low Back Pain**	0.16	0.16	0.14	0.14	0.15	0.16	0.20	0.20	0.20	0.21
PSA	**Non-recommended PSA screening in older men**	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05
AAP	**Adults' Access to Preventive/Ambulatory Health Services**										
	Overall	0.62	0.65	0.66	0.66	0.67	0.66	0.69	0.68	0.71	0.79
	20-44 years	0.54	0.56	0.57	0.57	0.58	0.57	0.59	0.57	0.58	0.69
	45-64 years	0.65	0.69	0.70	0.69	0.71	0.71	0.76	0.73	0.79	0.85
	65+ years	0.70	0.73	0.74	0.75	0.70	0.66	0.71	0.72	0.74	0.81
CAP	**Children and Adolescents' Access to Primary Care Practitioners**										
	Overall	0.59	0.62	0.65	0.67	0.70	0.72	0.74	0.72	0.75	0.82
	12-24 months	0.37	0.40	0.41	0.43	0.44	0.48	0.57	0.52	0.83	0.80
	25 months - 5 years	0.52	0.56	0.58	0.60	0.63	0.66	0.70	0.69	0.80	0.82
	5-11 years	0.64	0.68	0.70	0.72	0.74	0.76	0.77	0.75	0.77	0.84
	12-17 years	0.63	0.67	0.70	0.72	0.74	0.76	0.77	0.75	0.74	0.83
IET	**Initiation and Engagement of Alcohol and Other Drug Dependence Treatment**										
	Initation	0.59	0.59	0.56	0.57	0.58	0.59	0.61	0.61	0.62	0.62
	Initation; 13-17 years	0.73	0.77	0.77	0.73	0.67	0.65	0.62	0.61	0.69	0.64
	Initation; 18+ years	0.58	0.58	0.56	0.57	0.58	0.58	0.61	0.61	0.62	0.62
	Engagement	0.26	0.26	0.26	0.23	0.20	0.18	0.17	0.16	0.16	0.17
	Engagement; 13-17 years	0.48	0.52	0.53	0.47	0.35	0.34	0.32	0.32	0.31	0.30
	Engagement; 18+ years	0.25	0.25	0.25	0.22	0.20	0.18	0.17	0.16	0.16	0.16
EOL	**End of Life Care for Individuals with severe chronic medical conditions**										
	Death in the Hospital						0.45	0.42	0.43	0.44	0.46
	Prolonged mechanical ventilation during terminal hospitalization						0.04	0.04	0.04	0.05	0.05
	ICU Use in the last 30 days of life						0.60	0.51	0.52	0.55	0.57
	Days ICU stay in the last 30 days of life						2.01	1.92	1.86	2.15	2.23

CAHPS-based HEDIS measures among plan members show small changes among some measures. Measures for flu vaccination showed a self-reported rate of 69% (**Table 8 below and Supplementary Tables S.26A-S.26T**). Smoking cessation interventions were reported in the smoking cohort. However, the questions do not dive into success of interventions or attempts at stopping smoking. CAHPS measures for access to care and plan satisfaction were essentially unchanged over the three waves of surveys. Overall composite ratings of care, physicians, and plans did show small increases. Of note, there are no national benchmarks for SPD Medicaid enrollees.

Table 8: CAHPS Patient Care Quality Measures						
	2013		**2016**		**2019**	
	n	**mean**	**n**	**mean**	**n**	**mean**
Vaccination						
Annual Flu Vaccination (respondents 18-64 years)	-	-	1,260	0.56	1,218	0.54
Annual Flu Vaccination (respondents 65 years and older)	-	-	1,203	0.67	944	0.67
Smoking Cessation (among current smokers)						
How often advised in last 6 months by plan / providers to stop smoking / tobacco use?	1,021	0.55	460	0.57	430	0.55
How often in the last 6 months was medication offered to stop smoking / tobacco use?	1,024	0.29	457	0.24	424	0.31
How often in the last 6 months were strategies discussed to stop smoking / tobacco use?	1,020	0.22	460	0.21	424	0.26
Access to Care*						
Easy for Respondent to get Necessary Care, Tests, or Treatment	3,996	3.19	1,991	3.29	1,709	3.27
Respondent Got Appointment with Specialists as soon as Needed	2,434	3.11	1,271	3.25	1,118	3.22
Respondent got Care for Illness/Injury as soon as Needed	1,950	3.27	929	3.26	769	3.38
Respondent got Non-Urgent Appointment as soon as Needed	3,758	3.23	1,818	3.24	1,601	3.24
Satisfaction*						
Doctor Explained things in a way that was easy to understand	3,595	3.41	1,830	3.55	1,557	3.53
Doctor listened carefully to enrollee	3,601	3.47	1,831	3.6	1,559	3.62
Doctor showed respect for what enrollee had to say	3,588	3.57	1,829	3.67	1,562	3.67
Doctor spent enough time with enrollee	3,581	3.32	1,825	3.46	1,563	3.46
Overall Patient Ratings (Health care, doctors, plans)						
Rating of all health care	3,990	7.86	1,970	8.06	1,707	8.10
Rating of personal doctor	4,080	8.44	2,072	8.59	1,799	8.60
Rating of Specialist	2,290	8.40	1,186	8.58	1,044	8.60
Rating of Health Plan	4,982	7.80	2,525	8.11	2,216	8.25
* Measured on four point scale (never, sometimes, often, always)						

Access to preventive care services and unadjusted utilization measures for outpatient visits have generally increased over time (**Table 9**). For example, the proportion of infants with well-child visits (**QI W15**) has increased, while the proportion of infants without any visits has diminished. The proportion of well-child visits for young children (**QI W34**) and for adolescents (**QI AWC**) also increased during this period. Total outpatient visits in office settings and in the emergency department increased during the decade.

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
W15	Well-Child Visits in the First 15 Months of Life (proportion by # visits)										
	No visits	0.66	0.62	0.59	0.56	0.52	0.46	0.29	0.29	0.12	0.13
	1 visit	0.09	0.09	0.09	0.09	0.10	0.12	0.15	0.13	0.12	0.09
	2 visits	0.07	0.07	0.07	0.08	0.08	0.10	0.13	0.12	0.13	0.11
	3 visits	0.06	0.06	0.07	0.07	0.08	0.09	0.12	0.12	0.14	0.13
	4 visits	0.05	0.05	0.06	0.06	0.07	0.08	0.11	0.11	0.15	0.15
	5 visits	0.04	0.04	0.05	0.05	0.06	0.06	0.08	0.09	0.14	0.15
	6+ visits	0.05	0.06	0.07	0.08	0.09	0.09	0.12	0.14	0.21	0.24
W34	Well-Child Visits in the Third, Fourth, Fifth and Sixth Years of Life	0.40	0.43	0.46	0.50	0.51	0.52	0.56	0.55	0.62	0.68
AWC	Adolescent Well-Care Visits	0.22	0.27	0.29	0.32	0.33	0.33	0.34	0.33	0.33	0.41
AMB	**Ambulatory Care Outpatient Visits***										
	Age 1-9 years	228	258	266	292	288	300	306	315	398	434
	Age 10-19 years	158	183	190	206	201	210	215	224	259	315
	Age 20-44 years	211	221	218	229	226	224	232	244	298	351
	Age 45-64 years	376	389	382	401	421	443	493	524	681	745
	Age 65-74 years	367	371	357	375	343	333	365	431	531	583
	Age 75-84 years	378	377	359	379	352	344	380	445	515	565
	Age 85+ years	354	348	328	348	328	313	340	407	459	522
	Ambulatory Care ED Visits*										
	Age 1-9 years	32	34	34	37	39	47	48	46	49	52
	Age 10-19 years	25	26	26	27	29	32	32	31	28	34
	Age 20-44 years	62	66	67	67	69	71	69	64	61	73
	Age 45-64 years	58	65	70	70	74	80	86	83	87	95
	Age 65-74 years	20	23	26	28	25	26	28	30	30	32
	Age 75-84 years	21	24	29	31	28	28	29	31	30	31
	Age 85+ years	26	31	40	41	36	33	36	37	35	37

Table 9: Utilization of Care Measures for All SPD Enrollees by Year

* per 1000 patient-months

Mental health utilization (**QI MPT**) was less frequently reported towards the end of the managed care transition period (2019) compared to the intermediate years for certain portions of care. Given the variation in reporting, this suggests that plans may not be capturing / reporting the mental health visits of their enrollees, especially if certain services are assigned to a capitated delegated mental health service provider. Mental health reporting bears greater scrutiny going forward. Although overall there are no overall gender differences in use of mental health services, there were some marginal differences within age-gender strata (see **Supplementary Table S.27**).

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MPT	**Mental Health Utilization - Any**										
	Overall	0.06	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09
	Female	0.07	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09
	Male	0.06	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09
	0-12 years	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.13	0.13	0.10
	3-17 years	0.08	0.10	0.11	0.12	0.13	0.13	0.13	0.12	0.12	0.10
	18-64 years	0.07	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.10	0.11
	65+ years	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	Mental Health Utilization (inpatient)										
	Overall	0.06	0.08	0.11	0.12	0.10	0.09	0.09	0.09	0.10	0.08
	Female	0.06	0.07	0.09	0.10	0.08	0.07	0.07	0.07	0.08	0.07
	Male	0.07	0.08	0.13	0.14	0.12	0.10	0.10	0.11	0.11	0.09
	0-12 years	0.01	0.05	0.18	0.23	0.16	0.10	0.11	0.13	0.11	0.01
	3-17 years	0.04	0.08	0.25	0.31	0.20	0.11	0.10	0.10	0.09	0.04
	18-64 years	0.09	0.09	0.10	0.10	0.09	0.10	0.10	0.10	0.12	0.12
	65+ years	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02
	Mental Health Utilization (intensive outpatient)										
	Overall	0.19	0.18	0.16	0.14	0.11	0.09	0.08	0.08	0.10	0.10
	Female	0.12	0.12	0.11	0.10	0.09	0.07	0.06	0.06	0.07	0.07
	Male	0.25	0.24	0.22	0.18	0.14	0.10	0.09	0.09	0.12	0.12
	0-12 years	0.25	0.23	0.23	0.18	0.10	0.06	0.06	0.10	0.23	0.26
	3-17 years	1.01	1.05	0.90	0.68	0.41	0.24	0.22	0.18	0.19	0.18
	18-64 years	0.12	0.11	0.10	0.11	0.11	0.09	0.08	0.08	0.09	0.08
	65+ years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mental Health Utilization (outpatient)										
	Overall	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.08
	Female	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08
	Male	0.05	0.06	0.06	0.06	0.07	0.07	0.08	0.08	0.08	0.08
	0-12 years	0.06	0.07	0.08	0.09	0.10	0.10	0.11	0.11	0.12	0.10
	3-17 years	0.07	0.08	0.08	0.09	0.10	0.10	0.10	0.10	0.10	0.09
	18-64 years	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.09
	65+ years	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03

Table 9: Utilization of Care Measures for All SPD Enrollees by Year (continued)

Antibiotic usage – overall use, days per prescription, prescriptions of concern, and the proportion of prescriptions of concern – do not show substantial changes from 2009 to 2019. Unadjusted measures of antibiotic use (ABX) – days of prescribed antibiotics per member increased, noticeably in 2018 and 2019. In contrast, the proportion of concerning antibiotics prescribed out of all antibiotics prescribed was unchanged. In general, women were prescribed antibiotics more than men were. These differences were consistent across age strata (See detailed **Supplementary Table S.27**). Antibiotics of concern remained relatively constant as a proportion of prescribed antibiotics. Older patients tend to have higher

rates of prescribed antibiotics of concern relative to younger patients. There are no consistent gender differences.

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
ABX	**Antibiotic Utilization**										
	Prescriptions Per Member Per Year										
	Overall	0.97	1.07	1.04	0.99	0.96	0.91	0.90	0.86	0.84	0.94
	Female	1.14	1.26	1.23	1.17	1.13	1.08	1.08	1.03	1.01	1.13
	Male	0.81	0.90	0.86	0.83	0.80	0.75	0.74	0.70	0.68	0.77
	1-9 years	0.93	1.11	1.07	1.09	0.95	0.90	0.87	0.81	0.83	0.92
	10-17 years	0.63	0.71	0.69	0.71	0.65	0.60	0.58	0.55	0.55	0.62
	18-34 years	0.85	0.92	0.87	0.84	0.80	0.74	0.71	0.66	0.63	0.75
	35-49 years	1.11	1.21	1.19	1.15	1.19	1.14	1.14	1.06	1.00	1.15
	50 to 64 years	1.18	1.29	1.25	1.15	1.15	1.13	1.19	1.14	1.14	1.30
	65 to 74 years	0.67	0.72	0.67	0.63	0.59	0.55	0.55	0.58	0.59	0.61
	75 to 84 years	0.72	0.76	0.71	0.68	0.61	0.57	0.58	0.62	0.61	0.62
	85+ years	0.85	0.92	0.84	0.78	0.71	0.65	0.64	0.70	0.67	0.72
	Days Per Prescription										
	Overall	10.8	11.0	11.9	11.4	11.0	10.5	10.4	13.0	19.0	19.8
	Female	10.1	10.3	11.3	10.6	10.2	9.8	9.7	12.8	19.7	20.5
	Male	11.8	11.9	12.8	12.3	11.9	11.4	11.3	13.4	18.0	18.8
	1-9 years	12.0	11.8	12.8	13.1	13.0	12.4	12.6	14.7	20.0	20.5
	10-17 years	12.5	12.9	13.8	14.0	13.9	13.1	13.5	15.1	20.7	20.9
	18-34 years	11.4	11.7	12.2	12.3	11.8	11.4	11.3	14.7	21.7	22.1
	35-49 years	11.0	11.1	11.7	11.0	10.8	10.4	10.3	13.3	20.1	21.6
	50 to 64 years	10.2	10.3	11.4	10.4	10.0	9.6	9.5	12.1	17.6	18.6
	65 to 74 years	9.4	9.7	11.6	9.7	9.4	8.9	9.1	11.4	17.4	16.1
	75 to 84 years	9.1	9.4	10.7	9.4	9.0	8.6	8.6	10.3	15.5	15.4
	85+ years	8.8	9.1	9.7	8.7	8.6	8.5	8.5	10.5	16.2	15.2
	Prescriptions of Concern Per Member Per Year										
	Overall	0.35	0.39	0.39	0.38	0.37	0.37	0.37	0.34	0.33	0.36
	Female	0.42	0.46	0.47	0.46	0.45	0.45	0.45	0.42	0.40	0.43
	Male	0.28	0.32	0.32	0.31	0.30	0.30	0.29	0.28	0.27	0.29
	1-9 years	0.28	0.37	0.35	0.34	0.29	0.28	0.26	0.25	0.24	0.27
	10-17 years	0.17	0.20	0.20	0.22	0.21	0.21	0.19	0.18	0.19	0.20
	18-34 years	0.26	0.29	0.30	0.29	0.28	0.27	0.25	0.23	0.22	0.25
	35-49 years	0.39	0.43	0.45	0.44	0.45	0.46	0.46	0.42	0.38	0.43
	50 to 64 years	0.46	0.51	0.52	0.49	0.48	0.50	0.53	0.50	0.49	0.54
	65 to 74 years	0.29	0.32	0.30	0.30	0.27	0.26	0.25	0.26	0.26	0.26
	75 to 84 years	0.35	0.36	0.34	0.35	0.30	0.29	0.29	0.31	0.28	0.29
	85+ years	0.46	0.48	0.43	0.42	0.38	0.36	0.34	0.37	0.34	0.35
	Proportion of Concerning Prescriptions										
	Overall	0.36	0.36	0.38	0.39	0.39	0.41	0.41	0.40	0.39	0.38
	Female	0.37	0.37	0.39	0.40	0.40	0.42	0.41	0.41	0.40	0.38
	Male	0.34	0.36	0.37	0.37	0.37	0.39	0.39	0.40	0.39	0.38
	1-9 years	0.31	0.34	0.33	0.32	0.31	0.32	0.30	0.30	0.29	0.29
	10-17 years	0.26	0.28	0.30	0.31	0.32	0.35	0.33	0.34	0.34	0.33
	18-34 years	0.31	0.32	0.34	0.34	0.34	0.36	0.36	0.36	0.35	0.34
	35-49 years	0.35	0.36	0.38	0.39	0.38	0.40	0.40	0.39	0.38	0.37
	50 to 64 years	0.39	0.40	0.41	0.43	0.42	0.44	0.44	0.44	0.43	0.42
	65 to 74 years	0.44	0.44	0.45	0.47	0.45	0.47	0.46	0.46	0.44	0.43
	75 to 84 years	0.49	0.48	0.48	0.51	0.50	0.51	0.50	0.50	0.47	0.46
	85+ years	0.54	0.52	0.52	0.54	0.53	0.55	0.53	0.53	0.50	0.49

Table 9: Utilization of Care Measures for All SPD Enrollees by Year (continued)

F4.1 Utilization – Ambulatory Care

Total outpatient visits increased in the SPD population with the greatest increase in 2019 (**Figure 5**). Total visits shifted over the evaluation period. Granular analyses (primary care versus specialty care shows relatively constant proportions of visits since 2016. In the most recent years, roughly 15% of visits are to generalists, 15% are to core specialists, 9% are to other specialists, and 50% are to other non-physician providers. Prior to 2016, claims for managed care patients had large numbers of missing NPI, making classification of these visits by provider specialty impossible. This classification issue worsened between 2012 and 2014, when the urban and rural transitions occurred (**Figure 6**). Detailed findings are shown in **Supplementary Table S.28.**

Figure 5: Overall Outpatient Visits
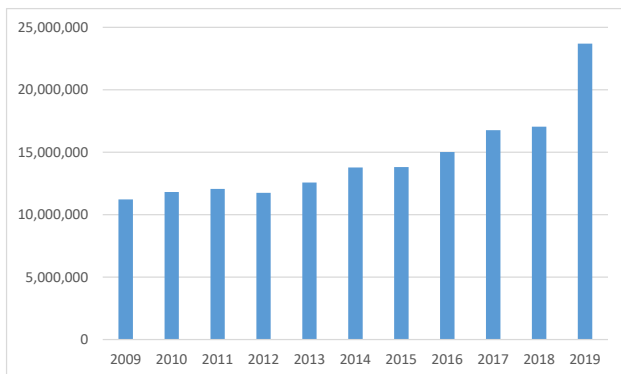
Figure 6: Outpatient Visits by Specialty Type by Year
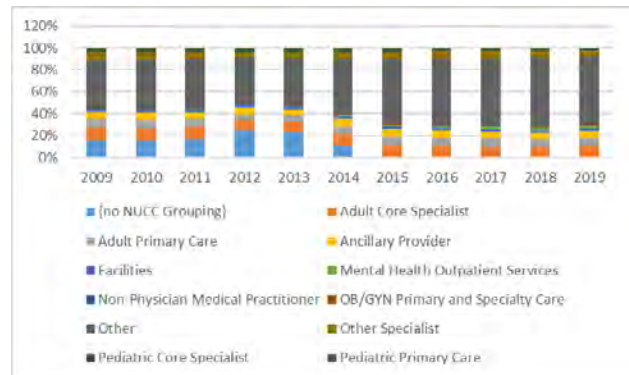
Overall, all-cause emergency department visits not resulting in hospitalization increased marginally over the transition period (2011 to 2012) from 0.86 to 0.97 visits per patient-year, but have remained remarkably stable since 2012 (**Figure 7**). Of note, unlike hospitalizations, ED visits for fee-for-service enrollees decreased after transition. Because of the enrollment policies of Medi-Cal, patients often gain eligibility at the time of hospitalization. Such an individual's later ED visits are likely captured as a managed care enrollee as they are transitioned to the appropriate plans of the county of residence. Non-ED visits occurred at a much higher level and have increased during between 2009 and 2019.

Detailed descriptions by plan and county are shown in **Supplementary Tables S.29 to S.36**.

Finally, common procedures (QI FEM) are presented below in Table 10. As defined by HEDIS, these 16 procedures cover one common pediatric procedure (tonsillectomy), three cardiac procedures (PCI, diagnostic cardiac catheterization, CABG), bariatric weight loss surgery, hysterectomy (abdominal and transvaginal), cholecystectomy (open and laparoscopic), back surgery/procedures, joint replacement (hip and knee), prostatectomy, carotid endarterectomy, and breast procedures (mastectomy and lumpectomy). Measures are stratified by age category. Where age strata are excluded, there were no procedures observed across all years for those particular age strata within procedure.

Figure 7: Mean Annual ED Visits not Resulting in Hospitalization
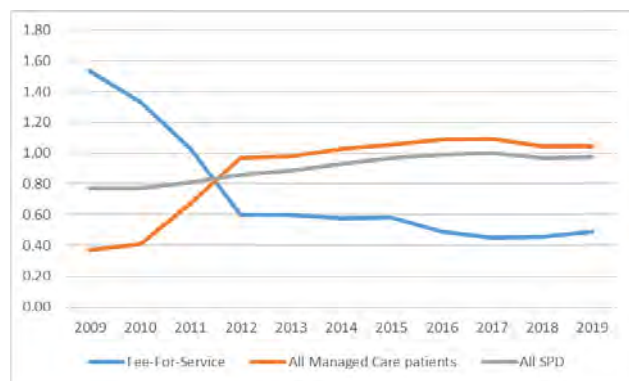
Overall, we see general increases in many procedures with decreases in some procedures (notably diagnostic cardiac catheterization). Taken together, hysterectomies have decreased overall. There has been a large increase in knee replacement procedures. A major challenge with evaluating receipt of procedures is appropriateness, which is tethered to professional criteria at the time of the procedure as well as cohort characteristics, which would make an individual eligible for a procedure. Nevertheless, on face, it does appear that SPDs are benefiting from receipt of these common procedures. Within these results we do not see a pattern that is outside of expectations or general trends in care delivery.

Table 10: Utilization of Care Measures for All SPD Enrollees by Year

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
FEM	**Procedures (/1000 patient years)**										
	Tonsilectomy										
	0 TO 17 years	2.70	3.20	3.44	3.36	3.34	4.05	4.09	4.15	4.55	5.04
	18 TO 44 years	0.26	0.25	0.24	0.24	0.28	0.35	0.30	0.32	0.34	0.36
	45 TO 64 years	0.09	0.08	0.06	0.08	0.08	0.09	0.11	0.12	0.13	0.08
	65 TO 84 years					0.03		0.03			0.04
	Percutaneous Cardiac Intervention										
	0 TO 17 years	0.07	0.02	0.02	0.04	0.04					
	18 TO 44 years	0.16	0.16	0.18	0.13	0.20	0.17	0.21	0.22	0.23	0.21
	45 TO 64 years	2.22	2.01	1.97	1.57	2.72	3.23	3.44	3.42	3.50	3.55
	65 TO 84 years	2.34	2.11	2.13	1.90	2.63	2.83	3.52	3.76	3.64	3.79
	85+ years	1.14	2.48	1.98	1.90		1.96	2.86	2.89	2.64	2.60
	Cardiac Catheterization										
	0 TO 17 years	19.96	17.68	17.78	19.34	18.90	18.56	18.08	16.88	15.49	16.03
	18 TO 44 years	7.02	6.37	3.38	3.76	5.12	4.80	4.50	4.45	4.58	5.40
	45 TO 64 years	32.14	25.45	12.42	12.13	14.62	17.30	18.23	18.66	19.22	20.06
	65 TO 84 years	26.33	20.37	9.95	10.39	10.94	12.27	14.42	14.78	14.77	14.89
	85+ years	17.89	7.25	5.45	4.91	4.69	5.22	8.00	8.18	8.37	8.49
	CABG										
	0 TO 17 years								0.01		
	18 TO 44 years	0.07	0.05		0.03	0.06	0.03	0.07	0.03	0.02	0.02
	45 TO 64 years	0.69	0.66	0.60	0.54	0.74	0.99	1.10	0.87	0.73	0.75
	65 TO 84 years	1.05	1.14	0.95	0.85	1.16	1.11	1.46	1.67	1.20	1.08
	85+ years	0.57									0.26
	Bariatric Weight Loss Surgery										
	0 TO 17 years										0.05
	18 TO 44 years	0.24	0.31	0.33	0.33	0.51	0.53	0.63	0.77	0.89	0.94
	45 TO 64 years	0.25	0.27	0.26	0.35	0.60	0.74	0.92	1.19	1.42	1.35
	65 TO 84 years									0.03	0.05
	Abdominal Hysterectomy										
	0 TO 17 years			0.02	0.02		0.02				
	18 TO 44 years	0.49	0.58	0.65	0.64	0.57	0.74	0.90	0.65	0.50	0.43
	45 TO 64 years	0.79	0.76	0.67	0.79	1.05	1.14	1.17	1.06	0.80	0.70
	65 TO 84 years	0.33	0.37	0.47	0.44	0.42	0.40	0.36	0.35	0.39	0.41
	85+ years			0.26		0.21	0.34	0.15			
	Vaginal Hysterectomy										
	18 TO 44 years	0.25	0.30	0.27	0.37	0.45	0.52	0.50	0.40	0.54	0.30
	45 TO 64 years	0.43	0.38	0.35	0.42	0.66	0.78	0.76	1.07	0.68	0.81
	65 TO 84 years	0.37	0.31	0.35	0.40	0.63	0.64	0.59	1.01	0.85	0.73
	85+ years					0.21			0.15		0.13

Table 10: Utilization of Care Measures for All SPD Enrollees by Year (continued)

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	Open Cholecystectomy										
	0 TO 17 years	0.07	0.04			0.02	0.02			0.01	
	18 TO 44 years	0.07	0.08	0.08	0.11	0.10	0.09	0.09	0.08	0.09	0.07
	45 TO 64 years	0.17	0.15	0.19	0.18	0.23	0.26	0.21	0.22	0.14	0.14
	65 TO 84 years	0.16	0.14	0.27	0.15	0.29	0.19	0.15	0.20	0.16	0.14
	85+ years		0.35						0.67	0.36	
	Laparoscopic Cholecystectomy										
	0 TO 17 years	0.09	0.09	0.12	0.06	0.20	0.19	0.13	0.20	0.16	0.17
	18 TO 44 years	1.60	1.30	1.25	1.26	1.97	2.10	2.18	2.27	2.01	2.00
	45 TO 64 years	1.65	1.63	1.68	1.81	2.33	3.09	3.00	3.03	2.85	2.64
	65 TO 84 years	1.78	1.56	1.65	1.77	2.07	2.33	2.65	2.86	2.90	2.64
	85+ years	1.14	1.94	1.32	2.38	1.88	2.28	2.07	2.50	1.64	2.08
	Back Surgery										
	0 TO 17 years	0.18	0.15	0.19	0.06	0.13	0.08	0.04	0.09	0.07	0.09
	18 TO 44 years	0.32	0.35	0.48	0.35	0.49	0.61	0.66	0.67	0.53	0.51
	45 TO 64 years	0.74	0.70	0.82	1.04	1.48	2.43	3.11	2.89	2.92	2.95
	65 TO 84 years	0.21	0.26	0.18	0.33	0.43	0.63	0.84	0.96	0.98	1.22
	85+ years				0.32			0.59	1.16	0.73	1.13
	Prostectomy										
	0 TO 17 years				0.01		0.01				
	18 TO 44 years	0.03	0.02	0.02	0.03		0.03	0.01	0.03	0.03	0.01
	45 TO 64 years	0.81	0.65	0.74	0.72	0.99	1.24	1.38	1.22	1.23	1.21
	65 TO 84 years	2.27	2.87	3.04	2.41	3.07	3.99	3.90	4.89	4.34	4.80
	85+ years	2.09	1.45	2.29	2.19	5.18	2.78	4.81	4.41	3.62	2.76
	Total Hip Replacement										
	0 TO 17 years			0.01				0.01			
	18 TO 44 years	0.07	0.09	0.12	0.13	0.13	0.17	0.16	0.14	0.11	0.11
	45 TO 64 years	0.31	0.36	0.42	0.50	0.70	0.97	1.09	0.95	1.04	0.91
	65 TO 84 years	0.09	0.14	0.26	0.29	0.35	0.43	0.42	0.55	0.53	0.40
	85+ years		0.71								0.26
	Total Knee Replacement										
	0 TO 17 years	0.06	0.04		0.01	0.03	0.03		0.01		0.02
	18 TO 44 years	0.04	0.06	0.05	0.07	0.10	0.09	0.07	0.05	0.13	0.04
	45 TO 64 years	0.43	0.48	0.77	0.72	1.24	1.78	2.01	1.86	1.59	1.67
	65 TO 84 years	0.55	0.67	1.03	1.39	1.68	2.33	2.46	2.90	2.73	3.15
	85+ years			0.66			1.41	0.69	0.48		0.61
	Carotid Endarterectomy										
	45 TO 64 years	0.09	0.06	0.07	0.07	0.11	0.10	0.20	0.12	0.11	0.10
	65 TO 84 years	0.10	0.14	0.08	0.16	0.16	0.33	0.21	0.41	0.19	0.16
	85+ years				0.32			0.20		0.18	

Table 10: Utilization of Care Measures for All SPD Enrollees by Year (continued)

QI	QI Description	Measure Year									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	At least one Mastectomy										
	0 TO 17 years				0.02			0.02	0.02		
	18 TO 44 years	0.15	0.24	0.17	0.33	0.28	0.43	0.32	0.44	0.46	0.56
	45 TO 64 years	0.65	0.65	0.80	0.78	0.95	1.16	1.22	1.19	1.20	1.30
	65 TO 84 years	0.52	0.50	0.61	0.60	0.84	1.04	0.91	1.14	1.04	1.26
	85+ years			0.26	0.50	0.21	0.17	1.06	0.44		0.53
	Lumpectomy										
	0 TO 17 years	0.07		0.13	0.06	0.17	0.10	0.09	0.02	0.07	0.17
	18 TO 44 years	0.85	0.75	0.61	0.77	0.78	0.79	0.77	0.79	0.65	0.75
	45 TO 64 years	2.29	2.21	1.64	1.68	2.16	2.35	2.33	2.49	2.61	2.08
	65 TO 84 years	1.47	1.24	1.26	0.85	1.43	1.22	1.68	2.09	2.14	1.95
	85+ years		0.28	0.26	0.50	0.21	0.50	0.46	0.44	0.70	0.66

Unadjusted Quality Metrics

Unadjusted high-level quality of care metrics include annual mortality rates, hospitalization rates, 30-day readmission, and 30-day hospital mortality by population (fee-for-service versus managed care). Overall mortality decreased between 2009 and 2014 and has remained constant since, with managed care rates starting lower and rising to nearly equal to the overall rate, while fee-for-service rates started closer to the mean rate and rose much higher than the overall rate by 2019 (**Figure 8**).

Statewide, total numbers of hospitalization discharges shifted from fee-for-service to managed care, with the managed care hospitalizations accounting for the majority of discharges by 2013 (**Figure 9**). Between 2012 and 2014, the total number of reported hospital discharges decreased, likely reflecting underreporting by managed care providers. Since 2015, total discharges have been fairly constant. This change is coincident with the introduction of PACES – the standardized reporting initiated by DHCS in the fall of 2014.

Overall average hospital discharges per 1000 patient-months dropped from 2011 to 2012 and then increased from 2014 to 2015, likely reflecting the same reporting issues noted above (**Figure 10**). By 2019, average hospital discharges per 1000 patient-months was equal to that seen in 2009. Average hospital discharges have increased in the managed care population, reflecting the mandatory inclusion of all SPD enrollees. With voluntary managed care enrollment in 2009, generally healthier patients chose managed care with the majority choosing to remain in fee-for-service Medi-Cal.

Average length of stay per hospitalization (overall, fee-for-service, and managed care) tracked together until the mandatory managed care enrollment began in 2011/2012 (**Figure 11**). Since that point, average length of stay per hospitalization has closely tracked the managed care population.

Average length of stay for hospitalizations among fee-for-service enrollees has steadily increased since the transition to mandatory managed care enrollment. Longer hospitalizations may reflect that the residual fee-for-service population is now a sicker, more heterogeneous and transitory population.

Figure 8: Unadjusted Mortality for SPD Enrollees (Deaths/1000-patient months)
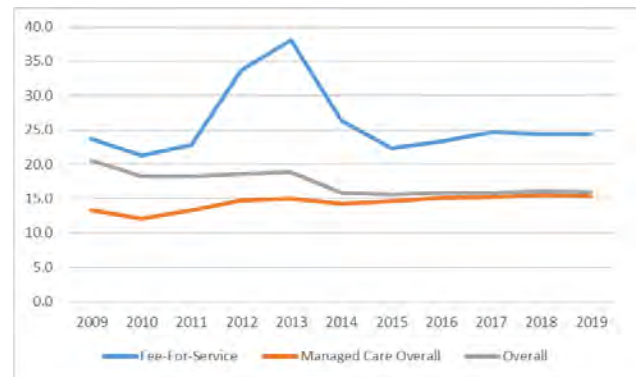
Figure 9: Hospital Discharges per Year
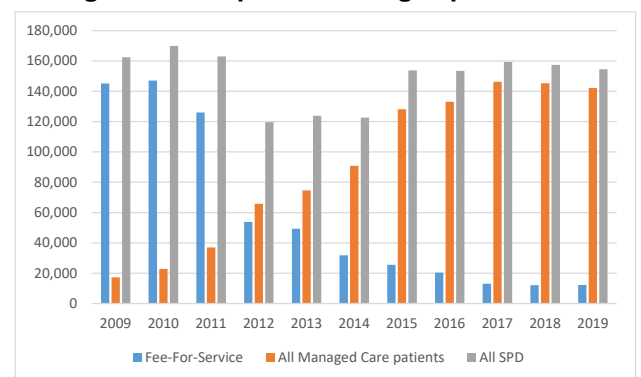
Figure 10: Average Hospital Discharges per 1000 Patient Months
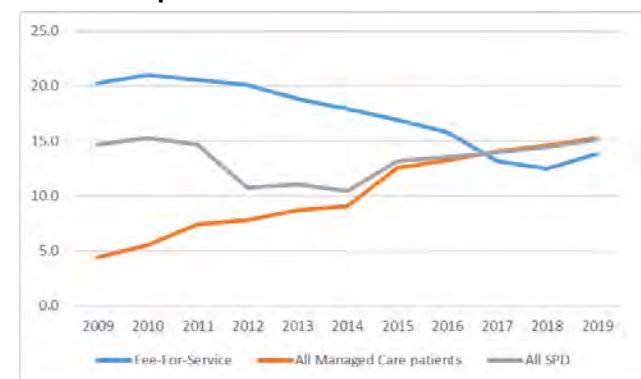
Figure 11: Average Length of Stay

Overall 30-day readmission rates (excluding scheduled admissions) decreased from 19.9% in 2009 to 17.5% in 2014 and increased thereafter reached 18.4% in 2019 (**Figure 12**). As with other findings, interpretation of the decrease in events during the initial managed care transition must be made in the context of known underreporting during this period. Hospital mortality (inpatient and 30-day all-cause mortality) has decreased since 2009 (**Figure 13**). If one considers the period between 2010 and 2019, overall 30-day mortality modestly decreased from 3.9% to 3.7%, while hospital inpatient mortality from 2.5% to 1.6%. The relatively constant 30-day mortality underlines the lower reliability of inpatient mortality, which is susceptible to selection effects. Underlying societal effects that favor deaths occurring outside of the hospital and policies that support transferring patients out of the hospital at the end of life and allowing them to pass away in other venues would contribute to this observation.

Detailed descriptions by plan and county are shown in **Supplementary Tables S.37 to S48**.

Cancer Care

Subset analysis of care delivery to SPD enrollees with eight common cancers did not substantially show the kind of changes that one would expect with greater adherence to cancer screening and treatment (**Supplementary Tables S.49 through S.56**). We did not see an increase in earlier stage disease, trends towards shorter time from diagnosis to treatment, or improvements in survival. We note that in the last year of the data that there appears to be an increase in higher stage disease for some cancers, which likely reflects reclassification of staging by the cancer registry rather than a true change in clinical behavior. We also note that in pancreatic cancer, survival appears improved in the final two years, but this is likely a censuring issue since merging the vital statistics data with the cancer registry data is usually a prolonged process and pancreatic

Figure 12: Hospital 30-day Readmission
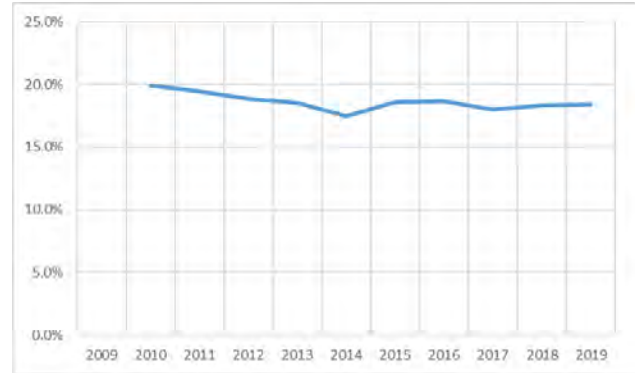
Figure 13: Hospital Inpatient Mortality and 30-day All-Cause Mortality
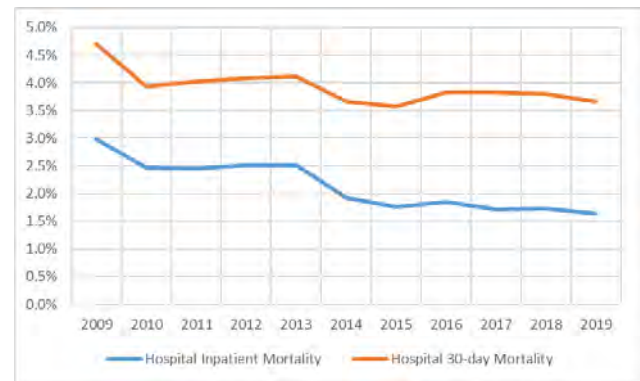
Figure 14: Boxplots of Adjusted County-Level Mean Length of Stay from 2009 to 2019

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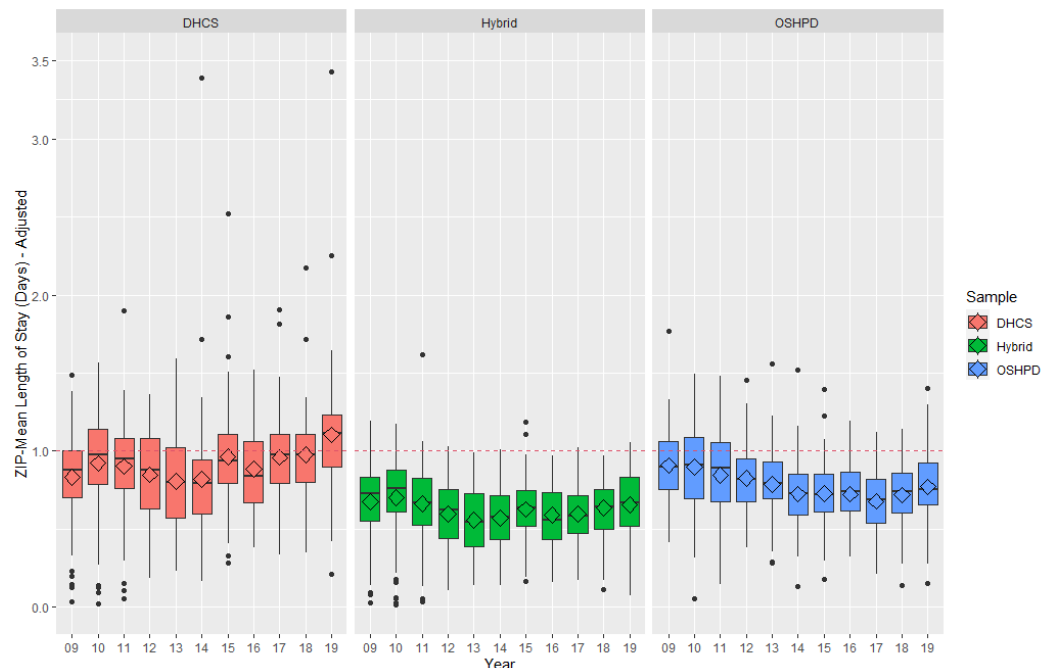
cancer has a very high one-year mortality. A slightly longer time horizon data capture would capture these cancer deaths.

Case-Mix Adjusted Utilization

In addition to the unadjusted utilization measures – annual hospitalizations (number and length of stay), preventable hospitalizations, emergency department visits (not resulting in admission), and ambulatory care visits (excluding ED visits), there are also case-mix adjusted results for these measures. Using zero-inflated regression models, adjusting for age, gender, and race/ethnicity, annual hospitalizations show

Figure 15: Boxplots of Adjusted County-Level Mean Number of Hospitalizations from 2009 to 2019 for

increasing length of stay and number of hospitalizations for managed care enrollees over time and a slight decrease for fee-for-service enrollees over time using DHCS data (**Figures 14 and 15)**. As described in more detail below in the more detailed description on sensitivity analyses, we also used ancillary data from the California state hospital discharge database to filter results. These models (hybrid, OSHPD) are discussed later. As the box plots show, cases still decrease, further highlighting what appeared to be underreporting during this period.

Attempts to model preventive hospitalizations were unsuccessful. These represent a relatively fixed proportion of total hospitalizations for the years evaluated, 2015-201, **(Supplementary Table S.57**). The small proportion (< 2%) made adequate modeling challenging. Case-mix adjusted models are also presented for outpatient visits (**Figure 16A/B**). ED visits and Ambulatory care visits increase over time for managed care enrollees. Although the increase in ED visits not resulting in hospitalization is substantial

Figure 16 A/B: Boxplots of Adjusted County-Level Mean Number of ED Visits and Ambulatory Care Visits from 2009 to 2019

relative to baseline, it is a fraction of the increase of ambulatory care visits, implying that patients began
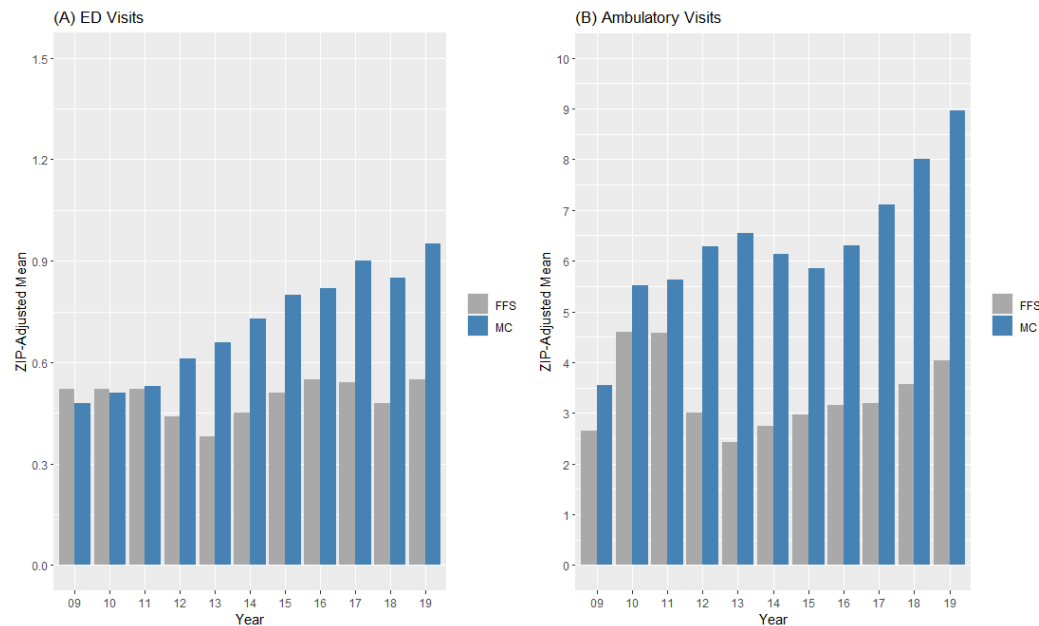
accessing the healthcare system to greater extent across multiple modalities with some overflow to the ED.

Please refer to **Appendix N** for detailed tables.

F5. Costs of Care

We present total and average costs (excluding durable medical equipment) per enrollee per year by enrollment type (managed care versus fee-for-service) and cost source (managed care capitation; fee-for-service claims). Estimated mean total monthly rates for managed care patients (capitated payments and fee-for-service payments) were calculated based upon paid claims and capitation rates. Monthly estimated costs per client generally increased between 2009 and 2019 (**Figure 17**). Tying results to 2009 dollars using a variety of values (CPI, GDP, fixed percent) generated very similar results by the end of the decade – per person costs for managed care enrollees and overall for all SPDs was lower in 2019 than in 2009 (**Figure 18**). Using net enrollment for FFS, managed care, and overall, the nominal cost of care increased and then decreased due to lower overall enrollment among SPDs enrolled in Medi-Cal only (**Figure 19**). Line item details are presented in **Supplementary Table S.58.**

A major challenge characterizing costs of care is the inability to track complete costs on the managed care side. Several proposed measures, such as costs of ED visits, institutional care, and prolonged institutional stays are simply not feasible due to these reporting issues. An analysis of excess costs of prolonged hospitalization (LOS > 10 days) shows that after the managed care transition, total costs of prolonged hospitalizations were negative relative to longer hospitalizations (**Supplementary Table S.59**). We hypothesize that this is likely due to capitated hospitalizations, which include all types of institutional care, including subacute care, making a full accounting impossible.

Costs for patients not in managed care are harder to characterize due to the changing character of this patient population. In general, estimated average costs have always been higher in FFS than for managed care patients. Years with higher average costs are driven by higher hospitalization and medication costs (**Supplementary Table S.58)**. These average costs obscure the impact of costs on specific individual patients (viz. outliers) nor take into account the more transitory nature of the FFS population after the SPD managed care transition.

Figure 17: Monthly Unadjusted Overall Costs of Care for SPD Enrollees
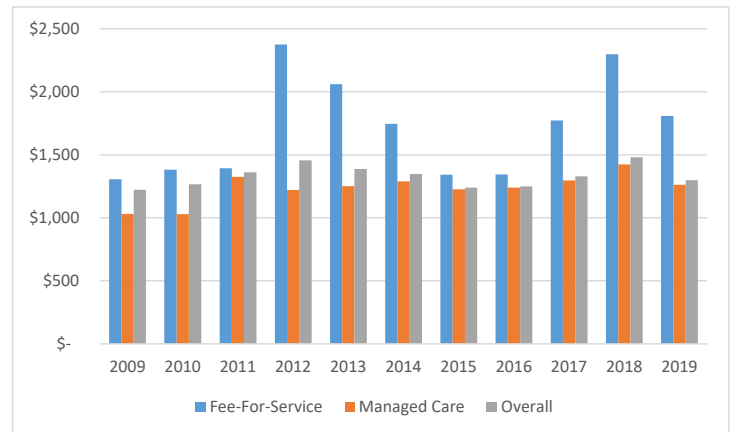
Figure 18: Monthly Costs for SPD Enrollees Unadjusted and Accounting for Inflation by Year
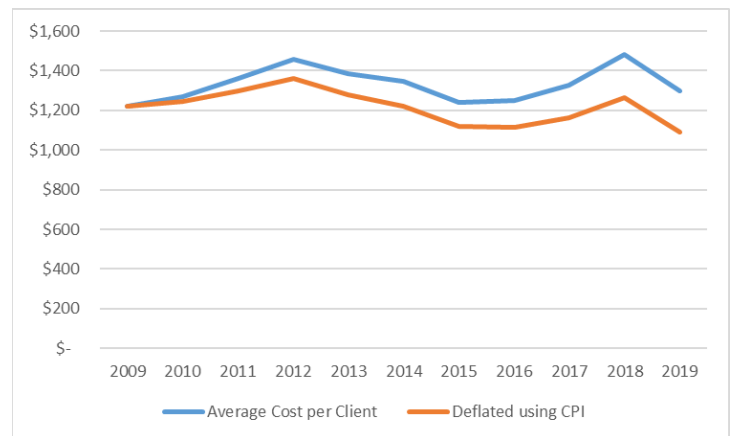
Figure 19: Total Annual Expenses for SPD Enrollees by Year
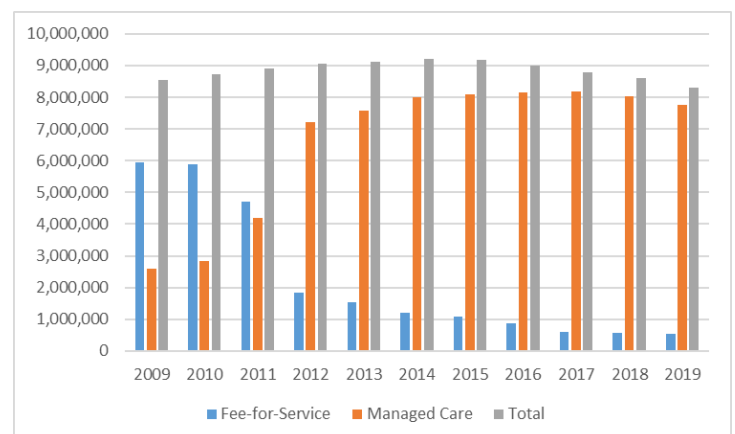
F6.1 Data Validation and Sensitivity Analyses

The evaluation team explored different aspects of the data and supplemented analyses with external supplementary data sets where available.

Hospitalization: In initial analyses, the evaluation team selected all inpatient claims/encounters and attempted to subset the claims by acute inpatient revenue codes and place of service. Managed care claims prior to 2015 had significant missing values, making sub-setting acute hospitalizations directly from the data difficult. An alternative approach was attempted, constructing flags for acute inpatient care from the physician claims, which could be used as an alternative approach to reconstruct acute inpatient stays. This supplemental approach was insufficient.

We attempted using concurrent validation within analyses of hospital stays. Using the state hospital discharge database, we created a filtered (so-call "hybrid") database of DHCS hospital / claims and encounters that were concurrent with those found in the state hospital patient discharge database (PDD). This hybrid database consists of patients hospitalized for acute care in general acute care hospitals in California. It excludes individuals hospitalized outside of California or in federal facilities and it excludes individuals without a valid social security number. In the risk-adjusted modeling of hospital length of stay and number of hospitalizations, we compared these results with those found in the PDD alone linked to the enrollment / eligibility database and with the unfiltered hospital claims / encounters (**Figure 20**). Overall mean results by county showed a decrease in LOS and number of hospitalizations in the middle of the evaluation period. In contrast, mean results by plan enrollment versus fee-for-service shows increasing length of stay and number of hospitalizations over time for the managed care participants. The filtered data show less of this behavior and the PDD show no change in these measures. These results suggest a degree of heterogeneity and reporting bias within the data that is likely linked to both data collection and payment of services as both of these will affect the integrity of the data. This is a reasonable conclusion since the PDD is a mandated data collection with very specific

Figure 20: Barcharts of Adjusted Mean Length of Stay (Top) and Hospitalization (Bottom) by Management Care Enrollment (Managed Care vs. Fee-for-Service) for Three Different Samples from 2009 to 2019
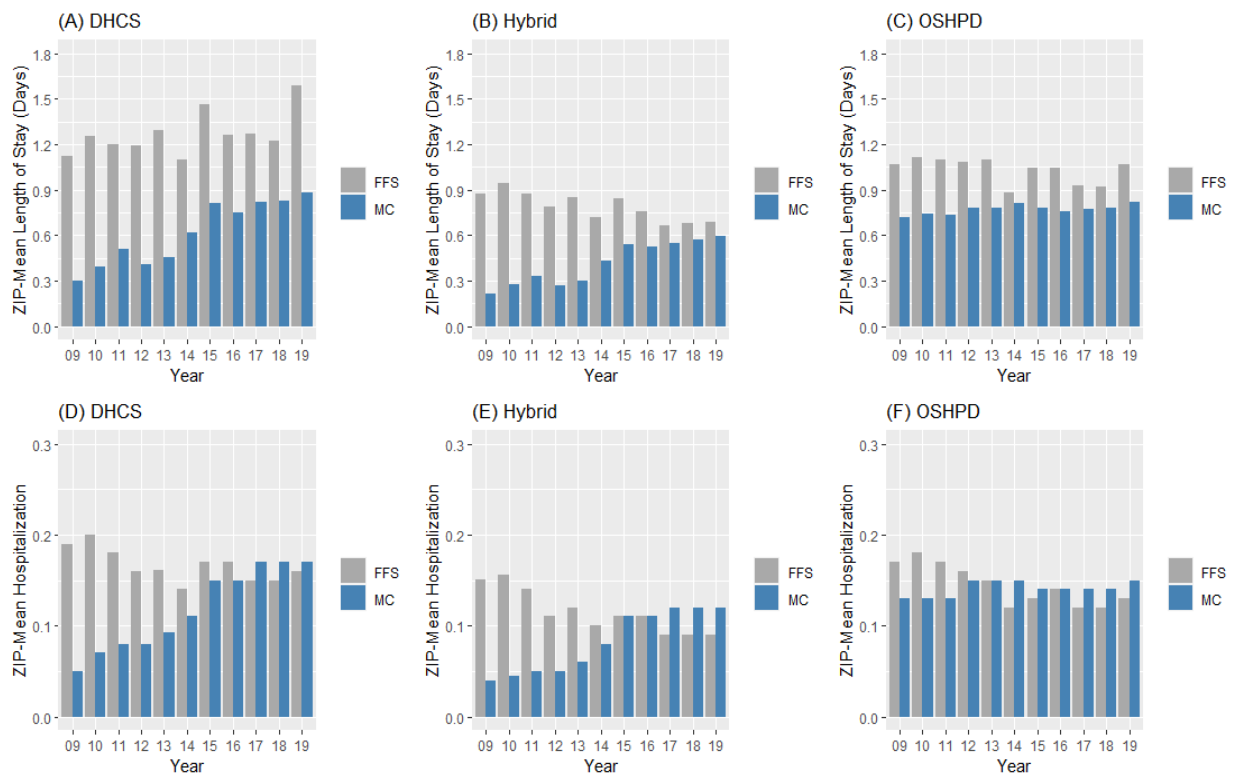
instructions regarding data reporting. A more intensive data matching algorithm and analysis was considered, but is outside the scope of the current evaluation.

Mortality: As described in the initial data evaluation and cleaning, we algorithmically removed inconsistent mortality records from the enrollment file. A comparison of the cleaned file to records from the California Cancer Registry, which has its own data linkage algorithm demonstrated roughly 85% agreement on identified deaths. The 2019 data had significant matching issues, which reflects the delayed update of vital statistics data with the cancer registry. The lack of a true gold standard and the lack of fully identified data available to the UCLA evaluation team limit the UCLA team's ability to evaluate and improve the mortality data, which is adequate but can be improved.

Ambulatory Care: There is no gold standard for outpatient visits that is routinely available.

G. Conclusions

The state of California has successfully transferred most of the SPD population into mandatory Medicaid managed care. This transition greatly expanded care delivery among SPDs in managed care plans. In the process of this transition, the state has leveraged existing county-by-county MCPs in place to transition patients from FFS to managed care. In rural counties originally without MCPs, the state has expanded one model (COHS) to northern counties and have an agreement in place for a commercial plan for the remaining Sierra counties.

When the initial transition to mandatory managed care was implemented, Medi-Cal lacked a uniform reporting system to monitor utilization performance among plans. Subsequent to the start of the initial "Bridge to Reform" 1115 waiver and before the approval of the "Medi-Cal 2020" 1115 waiver, DHCS implemented and enforced uniform reporting standards and audit procedures through PACES. Data quality and consistency improved significantly.

A formalized collection and reporting of grievances was implemented. The online quality dashboard provides some data and public accountability.

Analyses performed for this report illustrate the increased enrollment of individuals in managed care. The state has negotiated capitation rates with all of the participating plans. Cost analyses show that while nominal mean per capita costs for SPDs (total calculated costs / total patient-months) have risen, prices (in 2009 dollars) are actually lower per capita excluding nursing home patients.

Metrics implemented for this report show that data standardization and completeness issues pre-PACES prevented a consistent reporting of performance changes using only DHCS data. Data analysis suggest greater internal consistency since the introduction of PACES, making certain aspects of the evaluation more reliable, valid, and comparable over time – e.g. evaluation of care delivery and managed care delivery in the post-PACES period for patients in managed care. Retrospectively, the addition of measures designed using external data sources, such as state all-payer hospitalization data do provide consistency for analyses during a period in which multiple systematic changes occurred in data collection and reporting. Lookback to the before managed care adoption (2009 and 2010) is useful as a baseline – fee-for-service claims tended to be more complete and consistent than managed care data from the period 2011 to 2014.

Certain measures proposed in the approved protocol have proven to be difficult to achieve in practice. Specifically, access to care – challenges to finding and receiving care and measures of network adequacy – is difficult. No prospective routinely asked questions are linkable to actual patients either currently or in the past. Network adequacy standards that were adopted have allowed the evaluation team to fashion reasonable comparisons to observed behavior, panel composition, and physician patient and visit volume that cover the entire evaluation period.

Definitive conclusions for this evaluation remain a struggle. Challenges with consistency of definitions of hospitalization pre-PACES and other data consistency issues, mean that strong conclusions regarding care patterns cannot be made. The highest-level metric – mortality rate among SPDs – appears stable

across the entire evaluation period (2009 to 2019). Access to care assessments using survey data and network adequacy evaluation suggests that overall access to a range of providers has increased (based on the number of providers), but that overall travel distance rarely matches closest available panel providers. Quality metrics have mostly improved over time. Few have worsened.

We can conclude from these evaluations that:

(1) Medi-Cal has successfully moved most non-dual SPDs into managed care.

(2) Even in difficult to reach rural areas, Medi-Cal has implemented two different models of managed care delivery.

(3) Overall mortality appears to be stable in the population. MCP mortality appears to have increased in the managed care population reflecting adverse selection for FFS with healthier patients opting for optional managed care enrollment prior to the transition period.

(4) Process of care measures suggest general improvement in care in recent years, including greater access to select surgical procedures.

(5) Risk adjusted utilization measures suggest greater use of ambulatory care and emergency department care without concurrent increase in hospitalizations.

(6) Cost analyses show that although nominal costs have increased per capita and overall, costs assessed in 2009 dollars are lower. Attempts to perform detailed cost analyses (such as pharmaceutical costs, excess costs for prolonged hospitalizations) are not feasible with managed care data.

(7) Data quality and consistency appears to improve since the introduction of PACES with consistent reporting of NPI for all claims and encounters. Assessment of travel distance and provider volume suggests that some plans may still not be providing complete data, limiting evaluation of care delivery for those plans.

(8) Even if the evaluation cannot reliably measure earlier years, these data can be used to robustly assess plans managing care during the "Medi-Cal 2020" 1115 Waiver period.

Based upon the findings in this evaluation, the evaluation team recommends:

(1) Expand patient-focused surveys (e.g. CAHPS) of plan members so that they are fielded at closer, regular intervals than previous surveys; Increase the number of survey recipients with oversampling of SPD recipients and geographic regions; Ensure that the survey data are linkable to other patient data.

(2) Routinely link DHCS data with external data sources for purposes of validation and enrichment of analyses. Develop consistent, well-documented, and curated linkage approaches including evaluation of data accuracy and consistency. Expand data linkage to included archived data.

(3) As external data sets are added to DHCS from other data repositories, create a crosswalk of covered populations and redundant data elements for comparison.

(4) Expand quality metrics to routinely capture more granular, special populations and outcomes.

(5) Improved network provider data.

(6) Formal assessment of providers and provider sites.

(7) Creation of a repository of patient-specific clinical information to improve routine quality assessment and auditing of patient care, starting with basic lab values and other test results.

(8) Routinely audit patient encounters and data elements.

(9) Maintain a registry of capitation agreements between managed care plans and delegated plans and providers. The complicated arrangements make predicting potential data issues and clustering of patterns challenging as an end-evaluator. Although managed care plans guarantee the integrity of their data, there are few avenues for DHCS to formally understand the underlying data collection and associated issues.

H. Interpretations, Policy Implications and Interactions with Other State Initiatives

The mandatory transition of the SPD population into managed care follows the long-term goals of the state Medi-Cal program to transform itself from a traditional fee-for-service payment system with few guarantees regarding patient access to care services, oversight of quality of care, and management of growing healthcare costs. Historically, California delivered managed care through different implementation models throughout its 58 counties. However, implementation efforts prior to the "Bridge to Reform" 1115 Waiver did not substantially enroll the state's disabled and older populations into managed care. The ability to deliver care to complex patients requires greater oversight with the ability of the state to audit care delivery by managed care plans in a way that was not possible previously.

The primary mechanism of the "Bridge to Reform" 1115 Waiver was to start with the existing managed care infrastructure, expand enrollment to the SPD population, make programmatic changes to existing plans, and to expand managed care to rural counties, where it had not existed previously. The use of the managed care environment created the structure for care coordination, ensuring network adequacy and care access for enrollees, containing costs, and aligning financial incentives to providers to ensure appropriate care at reasonable cost. The demonstration successfully moved the vast majority of the SPD population into existing managed care plans. In rural areas, two separate approaches to managed care were negotiated. In the northern part of the state the COHS model was expanded to cover eight counties (COHS Expansion), while in the 21 Sierra counties, a single commercial managed care model was adopted (Regional Model). Estimated core per patient costs of care were kept within the projected bounds during this period. Data needs were assessed and data standardization and improved audits were adopted before the end of the audit period. The CAHPS survey was expanded to include the SPD population in a triennial assessment of managed care satisfaction. A core quality of care set was defined using a subset of the CMS Medicaid Core Measures, many drawn from HEDIS. Quarterly reporting on care quality, including grievances was initiated in 2014.

As the state has moved to the "Medi-Cal 2020" 1115 Waiver, we have built on the changes established in the "Bridge to Reform" 1115 Waiver. Having completed the transition of patients to mandatory managed care, we established an improved data capture system for managed care encounters that allows DHCS to more easily audit care delivery in the MCPs. Within the overall system, we improved the ability to capture patient grievances and other quality issues. Starting in 2017, patient level HEDIS records are now reported to DHCS from plans, allowing DHCS to both calculate and validate data delivery and quality assessment from plans by patient. Finally, the 2018 Final Rule for assessing Network Adequacy creates standards and an improved provider file, while setting up a quarterly assessment with the plans and their providers. Thus, DHCS has implemented systems that can now overcome some of the limitations towards oversight and improvement at the beginning of the "Bridge to the Future" 1115 Waiver.

Results from this evaluation point to general programmatic successes for the mandatory SPD transition to managed care in terms of moving enrollees to managed care across the entire state and towards managing costs. Assessing access and quality are more challenging and conclusions more nuanced. Access to care is difficult to measure in any context, but results from network analyses and CAHPS responses suggests that access has been maintained, even as there remain access issues to mental health and surgical specialists.

Measurable quality of care indicators were stable or improved across some metrics during the evaluation period. High-level mortality outcomes were stable across the observation period. The

demonstration did not prospectively assess baseline quality. Fee-for-service patients were not subject to the types of quality assessments that are typical for managed care plan enrollees. The evaluation team adopted a consistent approach for assessment between baseline and after the transition – to retrospectively incorporate administrative-data based metrics in common to all patients. Results demonstrate that overall quality performance improved among SPD Medicaid enrollees, especially as measured by volume of ambulatory care services per patient.

Evaluating costs of care is again nuanced. Based on public spending on Medicaid in California, overall costs of care per patient nominally increased, but in terms of 2009 dollars, costs per patient decreased. This analysis cannot capture detailed costs such as per visit or excess costs per acute care hospitalization. The remaining fee-for-service SPD population is higher cost, but is much smaller and heterogeneous by design.

Most relevant, the Coordinated Care Initiative (CCI) is an eight county demonstration program that moved SPD dual enrollees into managed care (also from the "Bridge to Reform" 1115 Waiver). CCI aims to coordinate Medi-Cal and Medicare benefits across healthcare settings and improve continuity of care across acute care, long-term care, behavioral health, and home- and community-based services settings using a person-centered approach. CCI has two components: (1) Cal MediConnect—a program where medical, behavioral health, long-term institutional, and home and community-based services are provided through a single delivery system and (2) Managed Medi-Cal Long-Term Supports and Services (LTSS) through which dual beneficiaries receive their Medi-Cal benefits, including LTSS and Medicare wrap-around services.

"Medi-Cal 2020" aims to transform and improve the quality of care, access, and efficiency of healthcare services for Medi-Cal members. The waiver funds four programs that shift focus away from hospital-based and inpatient care, and towards outpatient, primary and preventive care – from volume to value. Other related pilots fit into this overall long-term strategy of expanding Medi-Cal managed care to complex patients and to provide innovative care models that may cross traditional delivery system approaches. These include elements from the "Bridge to Reform" 1115 Waiver and "Medi-Cal 2020".

(1) The Public Hospital Redesign and Incentives in Medi-Cal (PRIME) is a pay-for-performance healthcare delivery system transformation and alignment program where California's public health care systems and hospitals are using evidence-based quality improvement methods to achieve performance targets and improve health outcomes for patients. Projects focus on improvements in ambulatory care, behavioral health integration, high-risk populations, and efficiency. PRIME is intended to complement other delivery system transformation efforts that are also focused on strengthening patient-centered primary and specialty outpatient care, improving care coordination, and providing care in the most appropriate settings.

(2) The Global Payment Program is a payment reform initiative that aims to redesign the public safety net by reorganizing existing funding streams to create financial incentives for the state's public health care systems to provide uninsured and underinsured individuals with more appropriate care in outpatient settings. The program complements other delivery system transformation efforts focused on strengthening primary and specialty outpatient care.

(3) Whole Person Care (WPC) is a county-based pilot program that provides integrated, tailored care to the highest-risk and most vulnerable patients in local communities. The overarching goal of WPC is the coordination of health, behavioral health, and social services, as applicable, in a patient-centered manner with the goals of improved beneficiary health and wellbeing through more efficient and effective use of resources. The program addresses the medical, behavioral,

and social determinants of health and improves care coordination among Medi-Cal beneficiaries who are high users of healthcare and who continue to have poor health outcomes.

(4) The Dental Transformation Initiative is an incentive program to increase the frequency and quality of dental care provided to children under Medi-Cal. Dental providers are awarded financial incentives for achieving state-defined targets to improve use of dental care and dental-related outcomes.

For the state of California, results of the current evaluation suggest that the transition of the SPD population to managed care has nominally succeeded along measurable aspects of access, quality, and cost – on measurable aspects, costs have been controlled without impact to access or quality. California has been able to leverage the existing managed care environment and expanded it to rural regions, allowing for SPD enrollment in managed care across the entire state. The state's county-by-county implementation of managed care and choice of multiple managed care organizations to enable care has allowed the state to innovate through staged implementation and regional initiatives (see below). During the first half of the managed care transition, data quality clearly suffered, making accurate assessments of care challenging. The CAHPS survey sample is now powered for assessment of plan performance, but not powered for regional assessment. In order to bend the curve towards improved access and quality of care, the state will need to continue to focus on improved data accuracy and completeness, including obtaining actual clinical data.

The implications at the national level are also clear. States can not only utilize managed care organizations as intermediaries, they can do so without measurably sacrificing access, quality, or cost. The California approach of regional implementation and guided competition creates a way not only to avoid "putting all the eggs in one basket" but also a mechanism for incremental change through the introduction of policies and pilot studies regionally and through different manage care plans. The consideration of a state's waiver for introducing managed care should be conditioned on ensuring that the appropriate regulations and robust data collection are in place. In addition to requiring concrete targets for implementation and improvement, CMS should emphasize approaches and interventions that have succeeded in managed care implementation across the country, including successes without regards to improving access and quality while maintaining cost neutrality.

I. Lessons Learned and Recommendations

The expansion of managed care to special populations with multiple complex conditions, such as the SPD population, is feasible, but requires additional monitoring, data standards, and arrangements to ensure adequate access and provision of services. Although states now have significant experience with using Medicaid – managed care plan arrangements, the particular vulnerabilities of the SPD population require greater oversight and transparency. The following recommendations are aimed at ensuring continuous high quality oversight and data quality for monitoring and for ensuring that plans do not avoid necessary, but high cost care.

(1) Fully formed reporting system in place before implementation

(2) Data standards in place before implementation

(3) Expansion of ability to assess patient experience

(4) Baseline assessment of patient health and health history to improve longitudinal care

(5) Routinely link in gold standard information for audits and enriching available measures

(6) Network adequacy standards and monitoring

(7) Expansion of measures beyond typical core primary care measures to include specialty measures that may be significantly impacted in a vulnerable population

(8) Expansion of qualified data for monitoring quality to include lab and imaging results with the possibility of expanding to other clinical data

(9) Expansion of external data sets with validated data linkages with ongoing review to ensure external standards for ongoing evaluation.

(10) Detailed understanding of underlying contractual arrangements between managed care plans and delegated plans and contracted and capitated providers.

(11) Routine collection of patient preferences on intensity of care

(12) Adequate lead-in time for contingency planning

(13) Public quality reporting must focus on populations of interest, including stratification / standardization to ensure interpretability

(14) Consider carve out benefits from managed care for special populations – long term care, substance abuse, mental health, and other at-risk populations (HIV/AIDS, hepatitis C, and certain cancer treatments) to ensure plan participation and patient access to certain high cost necessary life sustaining treatments.

These suggestions should not be considered all inclusive, but reflect the experience of efforts and improvement within California DHCS and other state health agencies.

J. Attachment: Evaluation Design: Provide the CMS-approved Evaluation Design (**Appendix O**)

K. Attachment: Map of Medi-Cal Managed Care Models by County: (**Appendix P**)

L. Attachment: Supplementary Tables: (**Appendix Q**)

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Abbreviations

ABX—Antibiotics
AHRQ—Agency for Healthcare Research and Quality
AMBV—Ambulatory Visits
CAHPS—Consumer Assessment of Healthcare Providers and Systems
CCI—Coordinated Care Initiative
CCR—California Cancer Registry
CHF—Congestive Heart Failure
CMS—Centers for Medicare and Medicaid Services
COHS—County Organized Health Systems
COPD—Chronic Obstructive Pulmonary Disease
CPI—Consumer Price Index
CPT—Current Procedural Terminology
DHCS--Department of Health Care Services
DME—Durable Medical Equipment
DPH—Department of Public Health
DSS—Department of Social Services
EAS—External Assessment Set
EDD—Emergency Department Database
ED—Emergency Department
EMR—Electronic Medical Record
ESLD—End-Stage Liver Disease
FFS—Fee-for-Service
FSR—Facility Site Review
GDP—Gross Domestic Product
GMC—Geographic Managed Care
HCAI—Health Care Access and Information
HEDIS—Healthcare Effectiveness Data and Information Set
HIPAA—Health Insurance Portability and Accountability Act
IHSS—In-Home Supportive Services
LOS—Length of Stay
LTC—Long-Term Care
LTSS—Long-Term Services and Supports
MCP—Managed Care Plan
MDS—Minimum D+A17ata Set
NCPDP—National Council for Prescription Drug Programs
NCQA—National Committee for Quality Assurance
NPI—National Provider Index
NQF—National Quality Forum
NUCC—National Uniform Claim Committee
OASIS—Outcomes and Assessment Information Set
PACES—Post Adjudicated Claims & Encounters System
PCES—Paid Claims and Encounters
PCP—Primary Care Provider
PDD—Patient Discharge Database
PRIME—Public Hospital Redesign and Incentives in Medi-Cal
QI—Quality Improvement

SNF—Skilled Nursing Facility
SPD—Seniors and People with Disabilities
STC—Special Terms and Conditions
TAP—Technical Advisory Panel
TPM—Two Plan Model
WPC—Whole Person Care

Final Evaluation of California's Whole Person Care (WPC) Program

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Nadereh Pourat, PhD

Emmeline Chuang, PhD

Brenna O'Masta, MPH

Leigh Ann Haley, MPP

Xiao Chen, PhD

Weihao Zhou, MS

Menbere Haile, PhD

UCLA Center for Health Policy Research | 10960 Wilshire Blvd. | Suite 1550 | Los Angeles, CA 90024 | t: 310.794.0909 | f: 310.794.2686 | healthpolicy@ucla.edu

www.healthpolicy.ucla.edu

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WPC Program Overview

The Whole Person Care (WPC) program was implemented under the "Medi-Cal 2020," a Section 1115 Medicaid Waiver from January 1, 2016, to December 31, 2021, and was focused on high-risk, high-utilizing enrollees with multiple service needs. A total of 25 Pilots, representing the majority of counties in California, implemented WPC and started enrollment in January 2017. The overarching goal of WPC was to improve health and wellbeing by coordinating care across physical health, behavioral health, and social service sectors. Pilots consisted of 27 Lead Entities (Les) with expertise and resources to implement the program and form a public private partnership. Pilots were required to target one or more of the following six populations: (1) high utilizers of avoidable emergency department, hospitals, or nursing facilities (high utilizers); (2) individuals with two or more chronic physical conditions (chronic physical conditions); (3) individuals with severe mental illness and/or substance use disorders (SMI/SUD); (4) individuals experiencing homelessness (homeless); (5) individuals at-risk-of-homelessness; and (6) individuals recently released from institutions, including jail or prison (justice-involved). In the third quarter of 2020, a seventh target population was added to include individuals impacted by or at-risk of COVID-19. The total budget for WPC was $3 billion, with the approved 5-year budgets for participating Pilots ranging from $7,247,500 (Solano County) to $1,572,976,930 (Los Angeles County).

Evaluation Methods

The UCLA Center for Health Policy Research was selected to evaluate WPC and developed a conceptual framework and evaluation questions to conduct a rigorous, state-wide, mixed methods assessment of the program. UCLA used all available data for the evaluation, including Pilot applications, Pilot-reported universal and variant metrics, monthly enrollment and utilization reports, bi-annual narrative reports, and Medi-Cal enrollment and claims data. UCLA also conducted multiple surveys of Les and involved partners, as well as follow-up interviews with Les and frontline staff in PY 3 and PY 6. UCLA used the qualitative data sources to examine the infrastructure developed by Pilots for WPC, implementation processes, and services delivered. UCLA used Pilot-reported metrics and Medi-Cal data to determine whether WPC led to better care, better health, and lower costs. Analyses of Medi-Cal data included comparison of selected WPC metrics as well as utilization and cost measures before and after WPC implementation for WPC enrollees and a control group of Medi-Cal enrollees with similar characteristics.

Results

Structure of WPC Pilots

WPC aimed to "increase integration among county agencies, health plans, providers, and other entities with the participating county" to effectively "serve high-risk, high-utilizing beneficiaries." WPC also intended to "develop an infrastructure that would ensure local collaboration among the partners participating in WPC Pilots over the long term." Evidence indicated that WPC Pilots developed infrastructure needed to implement the program and coordinate health, behavioral health, and social services provided. This included significant investment in promoting meaningful partner engagement and buy-in (e.g., frequent communication, active role in shared decision-making, consensus on roles and responsibilities). These conclusions are supported by the following evidence:

- Pilots chose lEs with the leadership and administrative capacity to effectively implement WPC. These lEs included county health and health services agencies (15 of 27), healthcare systems (8), behavioral health departments (3), and a city municipality (1).
- Pilots reported an average of 21 partners per Pilot and a collective total of 543 across all Pilots. More than half of partners (58%) were community-based organizations. Most community partners were health care providers (33%), or provided either housing support or other community based social services (37%).
- lEs reported increased partner involvement between PY 3 and PY 5. Total number of partners increased during this time. In addition, in PY 3, lEs identified 47% of partners as actively involved in WPC, whereas by PY 5, 67% of partners across all Pilots were actively involved.
- Most lEs experienced challenges with partner buy-in during the first few years of the Pilot. Consistent communication, consensus on strategic priorities, and in some Pilots, providing financial incentive for participation were identified as factors facilitating partner buy-in.
- In PY 5, partners rated WPC (on a scale of 0: "not effective" to 10: "extremely effective") as effective at improving the management of high risk and high utilizing populations (average rating of 7.5 of 10), improving integration of health and social services (7.4), and improving collaborative partnerships for program implementation (7.4). All of these ratings increased from the interim report.

Health Information Technology and Data Sharing Infrastructure

WPC aimed to "improve data collection and sharing amongst partners to support ongoing case management, monitoring, and strategic program improvements in a sustainable fashion." Evidence indicated that over time, WPC Pilots succeeded in developing innovative data sharing infrastructure needed to support cross-sector care coordination and facilitating data sharing with partners. These conclusions are supported by the following evidence:

- By PY 5, 20 of 25 Pilots had data sharing agreements in place with all key partners and the other five had agreements with at least some key partners. These agreements were new as a result of WPC (e.g., only 4 of 27 Pilots reported in PY 3). lEs most often had data sharing agreements in place with Medi-Cal managed care plans (21 of 25) followed by health care providers (20) and mental health treatment agencies (18).
- Most Pilots (19 of 25) expanded, acquired, and/or developed a care management platform to facilitate tracking of important enrollee-level data. Outside of the care coordination team, access to enrollee-level data through the care management platform was most commonly granted to staff in county health (15 of 19) and mental health service agencies (14); 16 Pilots also provided staff with real-time notifications of events (e.g., ED visits).
- In interviews and narrative reports, lEs described significant investment in developing data sharing capacity and ensuring buy-in from partners. In PY 6, 18 lEs reported utilizing financial incentives in contracts with partners to promote development of data sharing infrastructure (e.g., to increase functionality of existing or newly acquired case management platforms or ensure reporting of desired data elements). These incentives were considered effective (average rating of 7.5 out of 10) at achieving desired goals.
- Throughout WPC, the three most common data sharing and reporting challenges included (1) lack of buy-in and/or readiness from partners and frontline staff, (2) inability to access certain data, and (3) inability to implement data sharing systems and/or integrate data as intended.
- Pilots most often found successes with (1) sharing data across multiple systems, (2) developing new software platforms and/or data repositories, and (3) using data to inform decision making.
- In PY 5, lEs reported relatively high perceived impact of WPC on improving data sharing between the LE and partners (average rating of 7.9 out of 10).

WPC Enrollment Size, Patterns, and Trends

WPC Pilots were required to identify eligible Medi-Cal beneficiaries using pre-defined inclusion criteria, enroll them in WPC, and engage enrollees in care. Evidence showed sustained growth and significant cumulative enrollment with limited churn among more vulnerable groups of enrollees. These successes were likely due to use of innovative and tailored approaches to gain

trust and find eligible beneficiaries where they lived. These conclusions are supported by the following evidence:

- As of PY 6, Pilots perceived referrals from WPC partner agencies as more effective (average rating of 7.7 out of 10) than referrals from other (non-WPC partner) community-based agencies (6.5). Pilots also rated shelter, street, or other field-based (i.e., hospital/medical care delivery facility) outreach as highly effective (7.5), with the added benefit of allowing for warm-handoffs to WPC.
- Pilots most often utilized existing data to determine eligibility, including electronic medical records and other medical data (21 of 26) and information provided by WPC partners (e.g., SMI/SUD diagnosis, homelessness indicators; 21).
- Sustained enrollee engagement was an important focus of Pilots. Strategies included developing rapport and trust with enrollees, ensuring multiple points of contact, consistent care coordinator assignment, and utilizing staff, such as community health workers (CHWs) and peer support specialists with lived experience similar to that of the enrollee.
- Between January 2017 and December 2021, Pilots cumulatively enrolled 247,887 unique individuals with up to 100,968 enrollees at a time. Most enrollees either stayed continuously enrolled or were disenrolled once; only 17% of enrollees enrolled and disenrolled multiple times.
- Enrollment size varied significantly by Pilot and often reflected county population size. Los Angeles was the largest Pilot with 76,107 enrollees and there were six total Pilots with enrollment numbers over 10,000. SCWPCC had the smallest enrollment size with 143 enrollees. Ten Pilots had enrollment under 1,000.
- The average length of enrollment was 14.2 months. Shorter enrollment lengths were common, with 38% enrolled for less than 6 months and 11% enrolled for one month. Enrollment length varied significant by Pilot, from mean of 5.8 months in Shasta to 29.7 in Marin, likely reflecting differences in populations of focus and in program goals.
- Of the 200,734 disenrollments from WPC, the most commonly reported reasons for disenrollment were "Lack of Engagement" (26%), "WPC Services No Longer Needed" (23%), "Other" (21%), and "Not Eligible for Medi-Cal" (16%). An additional reason for disenrollment, "Graduated," was not added until PY 3 and accounted for 6% of disenrollments.
- Pilot used different approaches to classifying enrollees in the target populations. The majority of enrollees were in the high utilizers (57%) and homeless (53%) target populations and fewest enrollees were in the COVID-19 (16%) and chronic physical conditions (10%) target populations.
- Enrollees classified in the COVID-19, chronic physical conditions, and SMI/SUD target populations had the longest average length of enrollment, ranging from 17.2 to 20.0 months.

WPC Services Offered and Delivered

WPC Pilots aimed "increase coordination and appropriate access to care" and "increase access to housing and supportive services." Analysis of data showed that Pilots offered more services than expected to address various social and health needs of enrollees and the intensity of services were often greater for highest need enrollees such as those with SMI/SUD or chronic physical conditions. These conclusions are supported by the following evidence:

- Pilots designed service categories in bundles (per-member, per-month or PMPM) or individually (fee-for-service or FFS) depending on whether Pilots were paid through capitated payments or single payments for defined services, respectively. Pilots offered as many as 16 and as few as 1 PMPM bundles. They also offered as many as 21 and as few as 1 individual services (FFS). Some Pilots disaggregated services into numerous bundles and individual services (e.g., Alameda) and others relied on very few bundles (e.g., San Mateo, Solano).
- Consistent with the goals of WPC, all Pilots offered outreach, care coordination, housing support, benefit assistance and transportation. The majority of Pilots also offered health education (92%), legal services (84%), employment assistance (76%), and medical respite (72%). Sobering centers and re-entry services were the least often offered (56% and 28% of Pilots, respectively).
- Enrollees most often received care coordination services (89%), followed by benefit assistance (79%) and outreach (73%). Other common services included housing support (70%), legal services (68%), and transportation (63%).
- About 14% of enrollees received sobering center care and 6% received medical respite care. These services offered alternatives to eDs, hospitals, or jails. Under WPC, sobering center care services could be offered to eligible populations not enrolled in the program and were provided to 15% of this group.
- The proportion of each target population receiving specific services varied. For example, enrollees identified in the chronic physical conditions target population were the most likely to receive medical respite (28% compared to 6% of all enrollees). Similarly, those in the SMI/SUD target population were most likely to receive sobering center services (49% compared to 14% of all enrollees). The justice-involved target population was most likely to receive housing support services (89% compared to 71% of all enrollees).
- Overall, nearly $3.6 billion was paid to WPC Pilots, ranging from $6.2 million (Solano) to $1.5 billion (Los Angeles) per Pilot. Annual payments increased from $361 million in PY 2 to $778 million in PY 5.
- Payments for PMPM bundles and FFS made up 45% and 8%, respectively, of the total payments to WPC Pilots between PY 2 and PY 6. Twenty out of 25 Pilots were mainly paid for services through PMPM bundles.
- Assessment of payments by target population was a reasonable proxy for the intensity of service use and showed higher intensity of services to the SMI/SUD target population.

On average, Pilots were paid $13,541 for WPC services for SMI/SUD enrollees overall ($670 per month), which was higher than the average overall payment per enrollee of $6,272 ($397 per month).

WPC Care Coordination

WPC aimed to "increase coordination and appropriate access to care for the most vulnerable Medi-Cal beneficiaries." Evidence suggests Pilots were successful in developing diverse and appropriate infrastructure (e.g., staffing, data sharing, standardized protocols) and effectively delivered of care coordination services (e.g., needs assessment, care plan, referrals) needed to support effective care coordination. These efforts were particularly innovative and notable in development of multidisciplinary care coordination teams with lived experience and delivery of services to enrollees where they lived. These conclusions are supported by the following evidence:

- In PY 5, 18 of 25 Pilots reported using community health workers, peer coaches, or other staff with lived experience relevant to enrollees to provide care coordination services.
- Median caseload across all Pilots was approximately 20 to 30 enrollees per care coordinator. Pilots offered tiered caseloads to best meet enrollee need.
- Twenty of 25 Pilots had standardized protocols for referring enrollees to medical, behavioral health, or social services. Standardized protocols helped minimize undesirable variation in delivery of care coordination services, while improving staff workflows and data reporting.
- In PY 6, 18 of 26 Pilots indicated that they provided financial incentives to partner organizations for engagement in WPC activities and Pilots rated these incentives as effective (6.8 of 10, with 0 = not effective and 10 = extremely effective). Incentives to promote development of data sharing infrastructure within participating partner organizations and for Pilots to achieve set process targets were considered most effective.
- In PY 5, 21 of 25 Pilots indicated the most common type of contact between care coordinators and enrollees was in-person.
- Pilots reported using active referral strategies, such as providing/arranging transportation to and from appointments (24 of 25), ensuring warm hand-offs to other providers (24), and follow-up with enrollees and/or service providers to monitor referral status (23).
- Fourteen of 25 Pilots reported co-locating or otherwise embedding care coordinators within partner organizations.
- Across all reporting periods, as noted in narrative reports, the three most common care coordination challenges included (1) limited availability and/or accessibility of services being coordinated, (2) engagement of appropriate interdisciplinary partners, and (3) staffing issues. Pilots described efforts to address these challenges by (1) implementing

new or improved care coordination services, (2) using data systems to support care coordination activities, (3) working with partners in new ways that improved understanding of mutual goals for shared clients.

WPC Quality Improvement, Program Monitoring, and Stakeholder Engagement

WPC aimed to "achieve targeted quality and administrative improvement." Pilots were required to engage in regular quality improvement activities and document their efforts. Evidence indicated substantial effort by Pilots in these quality improvement activities focusing on improving WPC implementation and improving specific outcomes/metrics. These conclusions are supported by the following evidence:

- Of those 2,133 PDSA reports submitted from PY 2–- PY 6, the most common categories submitted included ambulatory care PDSAs (19%), followed by care coordination PDSAs (18%), and inpatient utilization PDSAs (17%).
- Since the interim report, DHCS and the contracted WPC Learning Collaborative teams continuously checked-in with the IEs through surveys, phone calls, virtual meetings, and email communications to better understand the issues that were of most interest and concern to help guide provided technical assistance.
- Many Pilots attempted to integrate and elevate stakeholder perspectives into their Pilot. In PY 6 surveys, 18 of 26 Pilots felt they had allocated sufficient resources (i.e., time, staff, compensation) to capture key stakeholder input (e.g., frontline staff, enrollees, other community members) throughout their WPC Pilot.

WPC and COVID-19

The COVID-19 pandemic started in early 2020, during the fourth year of WPC implementation and resulted in the program being extended for an additional year. UCLA investigated the impact of COVID-19 on WPC implementation, enrollment, and enrollees, as well as whether the impact of the pandemic was similar among enrollees and their matched controls. The findings indicated that Pilots were able to respond to the challenges presented by the pandemic quickly and minimize its impact on WPC enrollment and service use; the unanticipated value of WPC investments in system-wide integration in responding to emergencies such as COVID-19; and a similar rate of COVID-19 infections and service use for WPC enrollees and the control group. These conclusions are supported by the following evidence:

- In PY 5, most Pilots (18 of 24) reported that using WPC staff greatly impacted their ability to respond to the pandemic due to the staff's training and expertise developed through WPC.
- Specific WPC processes, procedures, or policies were impacted by COVID-19, including staffing policies and procedures (e.g., shifts to telework and protocols for use of personal protective equipment; 21), approaches for engagement of eligible beneficiaries

or enrollees in WPC services (20), and care coordination processes (19). Pilots successfully adapted their programs to account for the evolving and changing pandemic environment and to continue service delivery to WPC enrollees.

- Monthly enrollment in WPC continued to grow throughout 2020, increasing from 76,015 in December 2019 to 95,866 in December 2020. There was a small increase to 96,416 in December 2021 or the end of WPC. Quarterly new enrollments were smaller as the end of the program neared, but enrollment continued throughout the pandemic. Only nine of the 25 Pilots elected to add the new COVID-19 target population.

- UCLA estimated the prevalence of COVID-19 infections by identifying claims or encounters with a primary or secondary diagnosis of COVID-19 starting in April 2020. Overall, 10% of enrollees and 8% of controls used a service with a COVID-19 diagnosis and the monthly trends in COVID-19 diagnosis mirrored the countywide trends in COVID-19 cases for both groups. COVID-19 related service use was similar for WPC enrollees and controls, with 23% and 27% of COVID-19 related services being hospitalizations and 16% and 14% being emergency department (ED) visits for WPC enrollees and controls, respectively.

- The proportion of primary care services and specialty care services that were provided through telehealth was less than 0.1% in 2019. During the pandemic, these proportions increased to as much as 21% and 13%, respectively.

- In narrative reports, the most frequently reported challenges regarding COVID-19 were related to (1) the transition to telehealth and Pilots' inability to provide WPC services in-person, (2) limited staff capacity due to reassignment of WPC staff employed by county agencies to support broader community COVID-19 emergency responses, and (3) inability to connect enrollees to services (e.g., due to facility closures or reduced provider capacity).

- Despite challenges, Pilots found success with (1) expanded short term housing or shelter availability, (2) partnership support for WPC and COVID-19 response efforts, and (3) improved outreach and engagement.

Enrollee Demographics, Health Status, and Prior Health Care Utilization

WPC Pilots aimed to enroll the "most vulnerable Medi-Cal beneficiaries," but had flexibility in choosing from seven populations of focus (e.g., high utilizers, individuals with chronic physical or behavioral health conditions, individuals experiencing homelessness). Data showed that all WPC Pilots successfully enrolled the most vulnerable Medi-Cal beneficiaries who were at risk of or high utilizers. These conclusions are supported by the following evidence:

- WPC enrollees were most frequently aged 18-34 (32%), 35-49 (28%), or 50-64 (31%) years old; male (56%); Hispanic (28%), White (28%) or Black (26%); communicated primarily in English (86%), and were enrolled in Medi-Cal managed care prior to WPC (90%).

- WPC enrollees had high rates of mental health conditions such as depression (37%), anxiety (34%), schizophrenia and psychotic disorders (26%); substance use disorders, such as drug (32%) and alcohol use disorders (21%); and chronic conditions, such as hypertension (33%).
- Examination of outpatient services, ED utilization, and inpatient hospitalizations showed an upward trend pre-WPC. From 19-24 months prior to WPC enrollment to 1-6 months prior to WPC enrollment, primary care visits, ED visits and hospitalizations increased from 229 to 244 services, 162 to 211 visits and 32 to 52 stays per 1,000 Medi-Cal member months, respectively.

Better Care

WPC aimed to use care coordination and WPC services to "increase appropriate access to care." Evaluation findings provided support for this WPC goal and further insights on how patterns of care changed over time and for important sub-groups of high utilizer Medi-Cal beneficiaries (Exhibit 1).

Exhibit 1: Care Related Difference-in-Difference Model Outcomes for WPC Enrollees, PY 2 to PY 6

		Differences in trends for WPC enrollees vs. the control group (DD)		
	Intended or Anticipated direction	All Enrollees	Enrollees with SMI/SUD/HML	Medically Complex or High-Risk (MC/HR) Enrollees
Primary Care Services per 1,000 Beneficiaries	Decrease	-330	-255	-535
Specialty Services per 1,000 Beneficiaries	Increase	133	133	132
Mental Health Services per 1,000 Beneficiaries	Decrease	-813	-1,125	43
Substance Use Disorder Services per 1,000 Beneficiaries	Increase	56	-53	357
Follow-Up After Hospitalization for Mental Illness within 7 days*	Increase	2.7%	NR	NR
Follow-Up After Hospitalization for Mental Illness within 30 days*	Increase	Not Significant	NR	NR
Initiation of Alcohol and Other Drug Treatment*	Increase	Not Significant	NR	NR
Engagement of Alcohol and Other Drug Treatment*	Increase	1.9%	NR	NR

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Green indicates significant change in the intended direction. Red indicates significant change in the unintended direction. NR indicates that the analysis was not reported. SMI/SUD/HML is severe mental illness, substance use disorder or experiencing homelessness. *Indicates a WPC universal metric that all Pilots had to report on.

Specifically, data showed that enrollees use of outpatient services increased in the first year of WPC. Comparing trends from before to during WPC, enrollees had a reduction in primary care, an increase in specialty care, a decline in mental health care, and an increase in substance use treatment for enrollees overall vs. the control group. Additional analyses showed a somewhat different pattern of change for enrollees with serious mental illness or substance use disorders or experiencing homelessness (SMI/SUD/HML) and enrollees that are medially complex or high (MC/HR). These patterns likely indicated overuse of primary care services prior to enrollment due to barriers in access to other needed services such as specialty care and substance use treatment. These barriers were likely addressed by care coordination that helped patients receive these more appropriate services in the right settings. Further evidence from analyses of WPC metrics and Pilot interviews and surveys supported delivery of better care under WPC. These conclusions are supported by the following evidence:

- For WPC enrollees, their use of outpatient services increased in the first year of WPC enrollment compared to baseline, indicating successful connection to needed to services, likely due to care coordination efforts.
- Primary care services utilization was increasing before WPC for both enrollees and controls by 727 and 668 services per 1,000 beneficiaries per year, respectively. During WPC, utilization declined for WPC enrollees by 208 services per 1,000 beneficiaries per year while they continued to increase, although at a slower rate, by 63 services per 1,000 beneficiaries per year for controls. This declining rate of utilization from before to during WPC was greater among WPC enrollees by 330 services.
- Specialty service utilization was increasing both before and during WPC for WPC enrollees and their controls, but utilization rates slowed during WPC. The decline from before to during WPC was smaller for WPC enrollees by 133 services per 1,000 beneficiaries per year compared to controls.
- Mental health and substance use services utilization was increasing before WPC for both WPC enrollees and their controls. For WPC enrollees, their use of these services increased at the start of WPC and then declined during the program. In comparison to controls, WPC enrollees had a larger declining rate from before to during WPC for mental health services (-813 services per 1,000 beneficiaries per year) and a smaller declining rate for substance use disorder services (56 services per 1,000 beneficiaries per year).
- When examining the impact of WPC on utilization trends of outpatient services for SMI/SUD/HML enrollees compared to MC/HR enrollees, UCLA found that enrollees with these conditions had less of a reduction in primary care services and a much larger reduction in mental health services (however overall rates of mental health services

were much higher for this group). In contrast, the use substance use disorder services declined for this group, potentially reflecting lower need for these services over time due to use of mental health services.

- MC/HR enrollees had a much larger declining rate in primary care compared to controls, which may indicate it was easier to transition their care to specialty services. These enrollees also had a larger increase in mental health and substance use services compared to controls, but this is likely due to these enrollees having newly diagnosed mental health and SUD during the program.

- The declining rates of mental health services among WPC enrollees compared to their controls was isolated to SMI/SUD/HML enrollees. MC/HR enrollees saw a small but significant increase in change of utilization trend compared to controls.

- The increasing rates of substance use disorder services compared to controls was observed only among the MC/HR enrollees. SMI/SUD/HML enrollees saw no significant change in utilization trends compared to controls.

- Trends in rates of follow-up care after a hospitalization within seven days increased during WPC for WPC enrollees and the change in trend from before to during WPC was greater for WPC enrollees compared to controls by 2.7%. There was no significant difference between enrollees and controls for follow-up within 30 days.

- While there was no significant impact of WPC on initiation of alcohol and other drug dependence treatment, the change in trends from before to during WPC of engagement in alcohol and other drug dependence treatment was 1.9% higher for WPC enrollees compared to controls.

- Pilots reported improvements in annual rates of enrollees that received a comprehensive care plan within 30 days of enrollment (12% to 54%) and within 30 days of the anniversary of their enrollment (43% to 72%). There was a small decline in PY 6 to 46% for those that enrolled in the last year of the program.

- Pilots reported rates of suicide risk assessments among enrollees with a diagnosis of major depressive disorder increased from 10% to 32%.

- For enrollees with high and complex needs, such as those targeted by WPC, connection to other services, such as specialty care, would likely increase as a result of ED and IP utilization decreasing. This is particularly the case with Pilots' concentrated efforts to screen, refer, and engage enrollees in services to best meet their needs and the development of comprehensive care plans.

Better Health

WPC aimed to "reduce inappropriate emergency and inpatient utilization" and "improve health outcomes for the WPC population." Evaluation findings provided support for this WPC goal and further yielded insights in how patterns of care changed over time and for important sub-groups of WPC enrollees (Exhibit 2). Importantly, data showed a reduction in ED visits and hospitalizations and an increase in long-term stays for enrollees overall vs. the control group. These patterns likely indicated that care coordination and Pilot efforts to reduce avoidable

acute care and to divert patients from EDs and hospitals to more appropriate settings were effective.

Exhibit 2: Health Related Difference-in-Difference Model Outcomes for WPC Enrollees, PY 2 to PY 6

		Differences in trends for WPC enrollees vs. the control group (DD)		
	Intended or Anticipated direction	All Enrollees	Enrollees with SMI/SUD/HML	Medically Complex or High-Risk (MC/HR) Enrollees
Emergency Department Visits per 1,000 Beneficiaries*	Decrease	-130	-173	-11
Inpatient Stays per 1,000 Beneficiaries*	Decrease	-45	-53	-21
Long-Term Care Stays per 1,000 Beneficiaries	Increase	78	95	32
Controlling High Blood Pressure**	Increase	-0.6%	NR	NR
HbA1c Testing	Increase	Not Significant	NR	NR
All-Cause Readmission**	Decrease	Not Significant	NR	NR

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Green indicates significant change in the intended direction. Red indicates significant change in the unintended direction. NR indicates that the analysis was not reported. SMI/SUD/HML is severe mental illness, substance use disorder or experiencing homelessness. *Indicates a WPC universal metric that all Pilots had to report on. ** Indicates a WPC variant metric that Pilots could select to report on.

Additional analyses emphasized the concentration of avoidable ED visits and hospitalization among enrollees with SMI/SUD/HML and the likely effectiveness of care coordination in reducing them. Hospital reported challenges provided further insights in improving some health outcomes were difficult. These conclusions are supported by the following evidence:

- After increasing before WPC, emergency department visits declined during WPC for both WPC enrollees and their controls. Compared to their controls, the declining rates of ED visits from before to during WPC was greater for WPC enrollees by 130 visits. This decline was mainly a result of enrollees with SMI/SUD/HML (173 fewer visits compared to controls). MC/HR enrollees also had a decline of 11 visits per year compared to their controls.

- Hospitalizations were rising before WPC and declining during WPC for both WPC enrollees and their controls. Comparatively, the declining rate from before to during

WPC was greater for WPC enrollees by 45 stays per 1,000 beneficiaries per year. This decline compared to their controls was present for both SMI/SUD/HML and MC/HR enrollees, but more so for SMI/SUD/HML enrollees.

- Long-term care (mainly stays in skilled nursing facilities) utilization rates increased during WPC compared to before WPC and at a greater rate than controls by 78 stays per 1,000 members per year. The increasing rate was greater among SMI/SUD/HML enrollees than in MC/HR enrollees.

- Indicators of better health that some Pilots choose to report as a variant metric included controlled blood pressure, controlled diabetes, and all-cause readmission. UCLA recreated these metrics, when possible, for all WPC Pilots using Medi-Cal enrollment and claims data.

- Reported rates of controlled blood pressure went up both before and during WPC for both WPC enrollees and their controls. However, the controls had a slightly greater change in trend from before to during WPC by 0.6%.

- UCLA reported the percent of enrollees with diabetes that had an HbA1c test during the measurement year as an alternative to reporting rates of controlled diabetes, because the latter was infrequently reported in claims data. There was no significant difference in trends between WPC enrollees and their controls.

- The percent of acute inpatient stays that were followed up by unplanned acute readmissions increased prior to WPC and declined during WPC for both enrollees and controls. There was no significant difference in trends between WPC enrollees and their controls.

- Among the seven Pilots reporting incarceration rates, the number of incarcerations slightly increased from baseline to PY 2 (18 to 24 per 1,000 member months), but then declined through PY 6 to 6 per 1,000 member months.

- Seven Pilots reported on the rates of enrollees that reported "excellent" or "very good" overall health and emotional health. Rates of both overall and emotional health were greater than baseline during all program years and ended at their highest rates in PY 6 (28% and 27%, respectively).

- Eight Pilots reported on controlled high blood pressure for three groups (individuals age 18-59, individuals age 60-85 with diabetes, and individuals age 60-85 without diabetes). For all groups, the rates of blood pressure control peaked in PY 4 and then declined in PY 5 and PY 6. Even after these declines, the rates remained above those reported in the baseline.

- Twelve Pilots reported the percent of enrollees with diabetes who had controlled Hemoglobin A1c. Rates remained fairly flat throughout the program, increasing from 52% at baseline to 58% in PY 3 and declining to 54% in PY 6.

- Among the 15 Pilots that reported depression remission at 12 months, the rates of remission were low throughout the program, ranging from 1% to 4%, but did increase from baseline.
- WPC Pilots implemented interventions to redirect utilization from emergency departments (ED) and inpatient hospitalizations to more appropriate services and levels of care, including the use of mobile crisis teams, real-time notifications of enrollee ED visits, addressing social needs such as lack of shelter/housing, building trust, and providing education on navigation and appropriate utilization of health services.

Lower Costs

UCLA assessed seven measures of health care costs that corresponded to majority of utilization measures examined in Better Care and Better Health chapters. The evaluation findings provided support for reduction in overall costs, an estimated $99 per enrollee per year (Exhibit 3). The decline in overall costs was likely accomplished through a decline in outpatient services and hospitalizations compared to the control group. This was despite increases in prescription medication costs and other residual services and no decline in costs of ED visits and long-term care stays.

Exhibit 3: Cost-Related Difference-in-Difference Model Outcomes for WPC Enrollees, PY 2 to PY 6

		Differences in trends for WPC enrollees vs. the control group (DD)		
	Anticipated direction	All Enrollees	Enrollees with SMI/SUD/HML	Medically Complex or High-Risk (MC/HR) Enrollees
Estimated Total Payments	Decrease	-$383	-$311	-$581
Estimated Payments for Outpatient Services	Decrease	-$96	-$63	-$185
Estimated Payments for Outpatient Medications	Increase	$58	$36	$119
Estimated Payments for ED Visits Resulting in Discharge	Decrease	-$18	-$32	$21
Estimated Payments for Hospitalizations	Decrease	-$310	-$360	-$172
Estimated Payments for Long-Term Care Stays	Increase	Not Significant	$47	-$79
Estimated Payments for Residual Medi-Cal Services	Increase	$50	$63	$17

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Green indicates significant change in the intended direction. Red indicates significant change in the unintended direction. Payments are reported per beneficiary per year. ED is emergency department. SMI/SUD/HML is severe mental illness, substance use disorder or experiencing homelessness.

Evidence further showed differences in categories of costs for SMI/SUD/HML and MC/HR enrollees. The patterns of change for the former enrollees may be because many of their ED visits were non-emergent and their hospitalizations were also avoidable. The patterns of change for the latter enrollees may be because of previously untreated and undiagnosed need and better management or their care. These conclusions are supported by the following evidence:

- For WPC enrollees, total estimated Medi-Cal payments were increasing by $3,025 per beneficiary per year before WPC and then were decreasing by $955 per beneficiary per year during WPC (Exhibit 4). While similar trends were seen in the control group, the difference in the change yearly estimated payments from before to during declined by an additional $383 per beneficiary per year for WPC enrollees compared to controls (DD). This decline in costs was greater among WPC enrollees that were mainly medically complex and not experiencing homelessness ($581 decline). For WPC SMI/SUD/HML enrollees, the decline was $311 greater than their controls.

Exhibit 4: Difference-in-Difference Findings Comparing Trends in Yearly Estimated Medi-Cal Payments per Beneficiary for WPC Enrollees and Controls
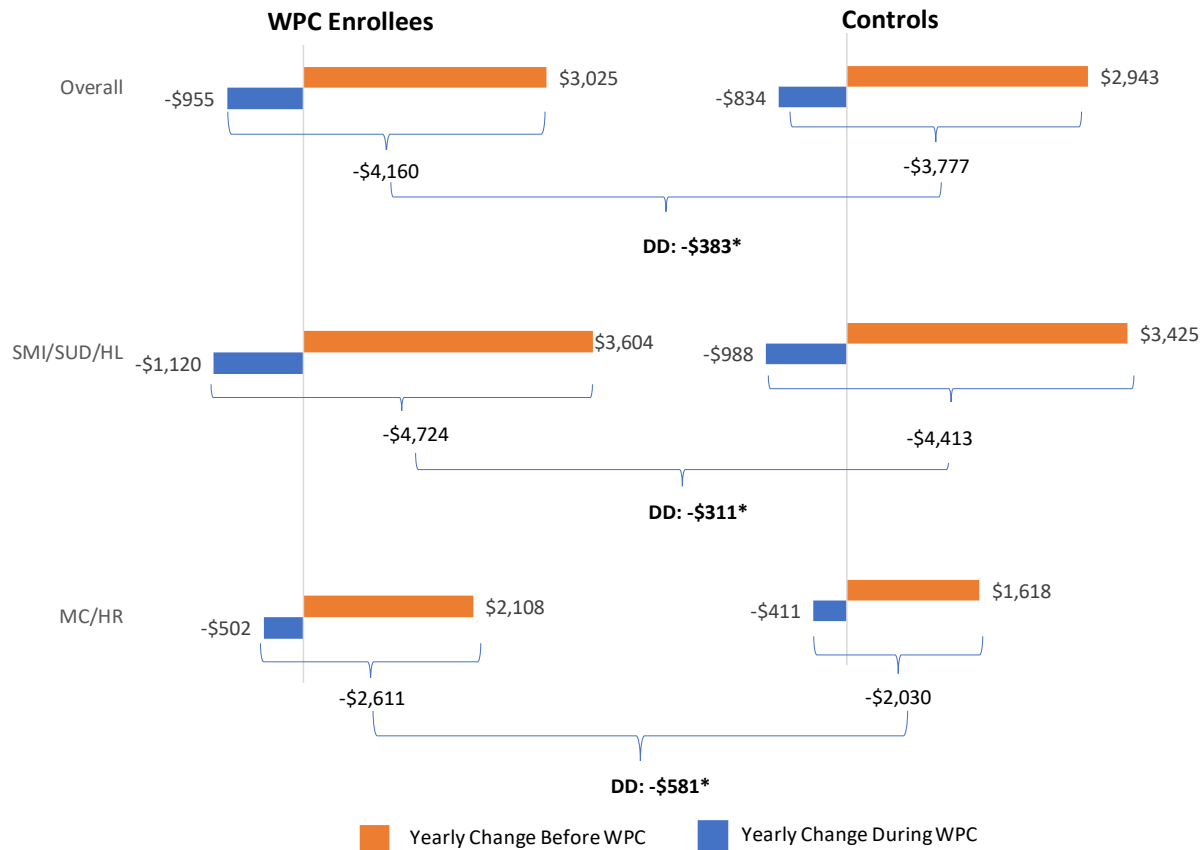
Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: *Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference from before to during is: (Change During WPC – Change Before WPC). Difference-in-difference (DD) is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD/HML is serious mental illness, substance use disorder or experiencing homelessness. MC/HR is medically complex or high-risk.

- While there was an initial increase in outpatient services during the first year of WPC, utilization of many outpatient services then declined throughout WPC as medical conditions were addressed or stabilized. The estimated payments for outpatient services declined significantly more during WPC compared to before WPC among enrollees compared to their controls by $96 per beneficiary per year.

- The estimated payments for outpatient medications from before to during WPC increased significantly more for WPC enrollees compared to controls by $58 per beneficiary per year. This change existed for both SMI/SUD/HML and MC/HR enrollees ($36 and $119 per beneficiary per year, respectively). An increase in outpatient medication costs is likely to follow as enrollees experienced improved access to outpatient services and their existing health conditions were better managed.

- Overall estimated payments for emergency department visits were increasing before WPC and then decreased during WPC, a significant decline of $18 per beneficiary per year among WPC enrollees compared to controls . For SMI/SUD/HML WPC enrollees, there was a significant decline of $32 per beneficiary per year. In contrast, there was an increase for MC/HR enrollees ($21). These findings align with changes observed in utilization.

- Estimated payments for hospitalizations increased before WPC by $752 per beneficiary per year and declined during WPC by $472. Aligning with the declining rates of utilization, the change in estimated payments from before to during WPC declined by an additional $310 per beneficiary per year for WPC enrollees compared to controls and these declines were observed for both SMI/SUD/HML and MC/HR enrollees.

- There was no significant difference in the change of estimated payment for long-term care between all enrollees and controls. However, when restricting to MC/HR enrollees, the trend declined by an additional $79 compared to controls. Appropriate coordination of care for individuals that were medically complex and without the complications of SMI/SUD or homelessness may have resulted in these individuals being able to maintain their health out in the community rather than needing long-term care.

- Residual estimated payments for WPC enrollees and controls were increasing before WPC, but then continued to increase for WPC enrollees while decreasing for controls. Compared to controls, the trend in estimated payments for residual services increased by an additional $50 for WPC enrollees.

Homeless WPC Enrollee Services and Outcomes

WPC targeted beneficiaries who were experiencing or at-risk of homelessness and aimed to "increase access to housing and supportive services." Evaluation findings showed that Pilots succeeded in enrolling mostly beneficiaries who were experiencing homelessness; provided housing support services to them using innovative and effective approaches; and improved their outcomes. These conclusions are supported by the following evidence:

- In PY 5 surveys, 24 out of 25 Pilots reported providing one or more housing related services either through the Lead Entity or the WPC partnership network, at time using alternative funds to supplement WPC funds.
- Nearly all Pilots (23) promoted a "Housing First" approach in which provision of permanent housing was prioritized (i.e., persons experiencing homelessness were not required to address behavioral health problems or graduate from other service programs before accessing housing).
- Twenty LEs participated in a data-related activity with a housing agency as a part of WPC.
- All but five Pilots had housing navigators involved directly in care coordination with enrollees.
- Nearly all (22) LEs reported the use of housing specialists, many of whom had lived experience of homelessness or risk of homelessness to provide housing and supportive services for WPC enrollees.
- In PY 6 follow-up interviews and narrative reports, common challenges Pilots faced included: (1) a lack of affordable housing stock, (2) collecting data to measure housing outcomes, and (3) successfully linking enrollees to appropriate supportive services once housed.
- A major issue in addressing housing challenges for enrollees experiencing homelessness was lack of funding to directly provide housing and insufficient housing supply. Some Pilots leveraged other funding sources and worked with external partners to mitigate these challenges.
- COVID-19 emergency housing projects expanded short-term housing availability for many WPC enrollees and facilitated care coordination through co-located medical, behavioral, and social services.
- Half of WPC enrollees (50.2%) were identified as experiencing homelessness by the Pilots. By the end of the program, 124,414 enrollees experiencing homelessness had been in the program with up to 50,610 enrolled at any given time and they had an average enrollment length of 15 months.
- There was variation in the number of enrollees experiencing homelessness by Pilot. Los Angeles has the most enrollees experiencing homelessness (56,413), followed by San Francisco (22,749) and Orange (13,861).
- The majority of enrollees experiencing homelessness were male (64%) and 18 to 64 years old (28% 18 to 34, 30% 35-49, and 34% were 50-64 years old). They were most

often White (28%), Black (28%), or Hispanic (25%) and primarily communicated in English (92%).

- Behavioral health conditions were common in this population, with over one-third of these enrollees having depression, drug use disorders, depressive disorders, or anxiety disorders. Over one-quarter had schizophrenia and other psychotic disorders, bipolar disorder, tobacco use, or alcohol use disorders.

- UCLA analysis of WPC service utilization showed that enrollees experiencing homelessness more frequently received re-entry services and medical respite and less frequently received employment assistance and health education. The average amount paid to Pilots for WPC services for enrollees experiencing homelessness was $8,481 compared to $3,798 for those not experiencing homelessness.

- Based on Pilot reporting, high rates of permanent housing, defined as being permanently housed for seven months after being housed for six months, were maintained throughout the program (94%-99%).

- Pilots reported the rates of enrollees receiving housing services and supportive housing after being referred for those services. Housing service rates increased from baseline through PY 5 (47% to 78%) before declining in PY 6 (61%). Supportive housing rates declined after baseline (42%) to a low of 4% in PY 6. Supportive housing rates were highly influenced by one large Pilot with low rates.

- Enrollees experiencing homelessness had declining trends in both emergency department visits and hospitalizations from before to during WPC that were significantly greater than their controls.

- Both mental health and substance use disorders service use increased in the first year of WPC compared to baseline, but then declined during WPC. For mental health services, the declining trend in utilization was greater for the WPC enrollees. For substance use disorder services the declining rate was not significantly different from controls.

- There was no significant difference in the change in trends from before to during WPC for follow-up after hospitalization at 7 days or 30 days or all-cause readmission rates for WPC enrollees experiencing homelessness compared to controls.

- While there was no significant change in trends for initiation of alcohol and other drug dependence treatment for WPC enrollees experiencing homelessness compared to controls, there was a significantly slower decline in engagement of treatment.

WPC Transition to CalAIM

The sustainability of WPC was ensured by inclusion of Enhanced Care Management (ECM) and Community Support (CS) services under Medi-Cal and similarities between the WPC target populations with the CalAIM "populations of focus." DHCS provided significant meeting facilitation and technical support during PY 5 to address transition challenges. These efforts led to participation of all WPC Pilots, either the Lead Entities or their partners, in CalAIM as ECM or CS providers. This transition insured that the major goals of WPC including promoting development of local public-private partnerships that were supported by data sharing infrastructure in order to provide care coordination to Medicaid beneficiaries who were high utilizers of care were sustained. These conclusions are supported by the following evidence:

- DHCS provided technical assistance and support to LEs, and all LEs participated in planning meetings about the transition and sustainability of key components of WPC. The CalAIM planning meetings with DHCS helped ensure appropriate handoffs and care continuity for WPC enrollees.
- As of May 2022, based on administrative data from DHCS, 18 WPC LEs were operating as ECM providers. In an additional five counties, the LE was not an ECM provider, but WPC partner(s) were. Only two Pilots and their partners did not participate in ECM (Small County Collaborative counties and Solano).
- ECM included WPC target populations including individuals experiencing homelessness (23 of 23 counties), adults with SMI/SUD (23), high utilizers (17), and justice-involved (14).
- All WPC-participating counties, except Placer, began serving new populations of focus under ECM, with the biggest increases seen in the percentage of counties serving adults with SMI/SUD (from 35% in WPC to 100% in ECM) and adults transitioning from incarceration (from 17% to 61% in ECM).
- The most common CS services provided by LEs were housing tenancy and sustaining services (8 of 23), followed by housing transition navigation services (7) and housing deposits (7).
- In narrative reports, the most frequently mentioned challenge by Pilots was that the scope of services and eligibility requirements for ECM differed from WPC (14 of 23).
- Eighteen Pilots noted success in regular planning meetings and workgroups, which brought participating partners together to discuss the necessary next steps in the transition to CalAIM.
- When asked about their commitment to sustaining key goals of WPC, all Pilots expressed commitment to increased coordination of care and access to WPC-like services.

- Transition of WPC was further aided by the DHCS WPC Services and Transition to Managed Care Mitigation Initiative". The initiative provided direct funding to specific former WPC Pilot to pay for existing WPC services that mapped to ECM and CS services until they transitioned to CalAIM. Ten Lead Entities were approved for a total of $137 million to sustain WPC services until 2024.

Implications

The evaluation findings described a major and expansive effort by California Department of Health Care Services to address the needs of the most vulnerable Medi-Cal beneficiaries who were at risk of or high utilizers of acute services in emergency departments and hospitals. The WPC approach to care coordination and provision of housing and other support services were sustained under CalAIM with creation of two new Medi-Cal services called Enhanced Care Management (ECM) and Community Supports (CS) and participation of LEs or their partners in delivery of those services. The WPC implementation approach and best practices are helpful for ongoing implementation of ECM and CS and other states contemplating similar interventions. The findings of the changes in patterns of care implied that similar outcomes may be expected with similar interventions. The differential impact of provision of WPC services on enrollees with variations in complexity of their conditions further implied the importance of a clearer understanding of the beneficiary needs and tailoring interventions to match those needs. These findings also implied the importance of better understanding of what outcomes and benefits can be expected when providing WPC or similar services.

Chapter 1: Introduction

WPC Program

The California Department of Health Care Services (DHCS) implemented a Section 1115 Medicaid Waiver called "Medi-Cal 2020" that started on January 1, 2016, and was scheduled to end on December 31, 2020. Under this Waiver, DHCS implemented the Whole Person Care (WPC) program to address the challenges in Medi-Cal associated with high-risk, high-utilizing enrollees who have complex care needs. In December 2020, largely due to the impacts of COVID-19, DCHS received approval from the Centers for Medicare & Medicaid Services (CMS) to extend the waiver for one year, through December 31, 2021.

WPC Goals

The overarching goal of WPC was to improve enrollee health and wellbeing by coordinating needed health, behavioral health, and social services. The program was expected to be patient-centered and lead to efficient and effective use of resources. In the Special Terms and Conditions of the waiver, WPC goals were specified as:

1. Increase integration among county agencies, health plans, providers, and other entities with the participating county that serve high-risk, high-utilizing beneficiaries and develop an infrastructure that will ensure local collaboration among the partners participating in WPC Pilots over the long term;
2. Increase coordination and appropriate access to care for the most vulnerable Medi-Cal beneficiaries;
3. Reduce inappropriate emergency and inpatient utilization;
4. Improve data collection and sharing amongst partners to support ongoing case management, monitoring, and strategic program improvements in a sustainable fashion;
5. Achieve targeted quality and administrative improvement;
6. Increase access to housing and supportive services; and
7. Improve health outcomes for the WPC population.

WPC was implemented by 25 Pilots representing the majority of counties and one city in California. Under WPC, Pilots systematically identified target populations, shared data, coordinated care, and evaluated improvements in health of their enrolled population. Pilots consisted of partnerships of public and private organizations, led by a single Lead Entity (LE) responsible for program implementation and submission of various reports to DHCS. Pilots were primarily led by county agencies, and included at least one Medicaid managed care plan,

one health services agency, one specialty mental health agency, one other type of public agency, and at least two community partners.

In their applications, Pilots described in extensive detail how they would establish the infrastructure needed for WPC, which eligible populations they were to serve, what bundles of services they would provide and at what level of reimbursement, and whether they would be responsible for pay-for-outcomes (P4O) for specific metrics.

DHCS solicited two rounds of WPC Pilot applications. The first group of eighteen Pilots were awarded in November 2016 and the second group of seven Pilots were awarded in June 2017 (Exhibit 5).

Exhibit 5: Timeline of Key Whole Person Care Activities
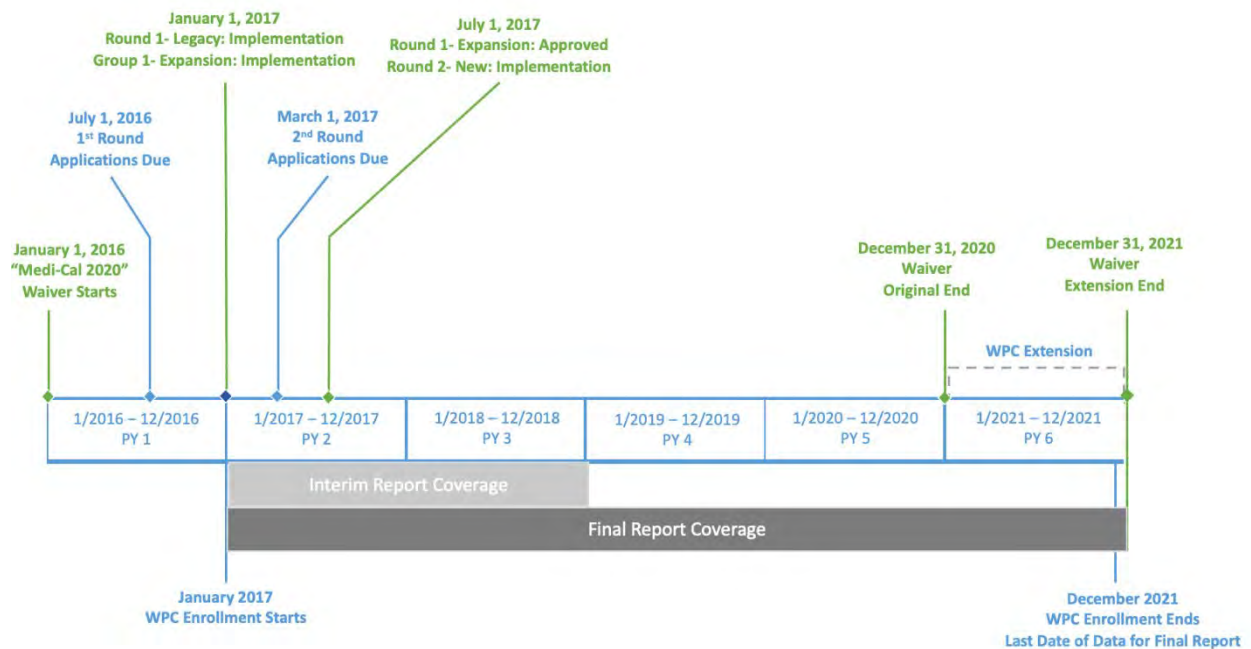
Pilots in the first round could submit an application to expand their program in the second round. A total of 25 Pilots ultimately implemented WPC, including one Pilot that consisted of three small, rural counties. Collectively, these Pilots provided WPC services to a large geographic area of California (Exhibit 6).

Exhibit 6: Map of Participating Lead Entities and Counties in California
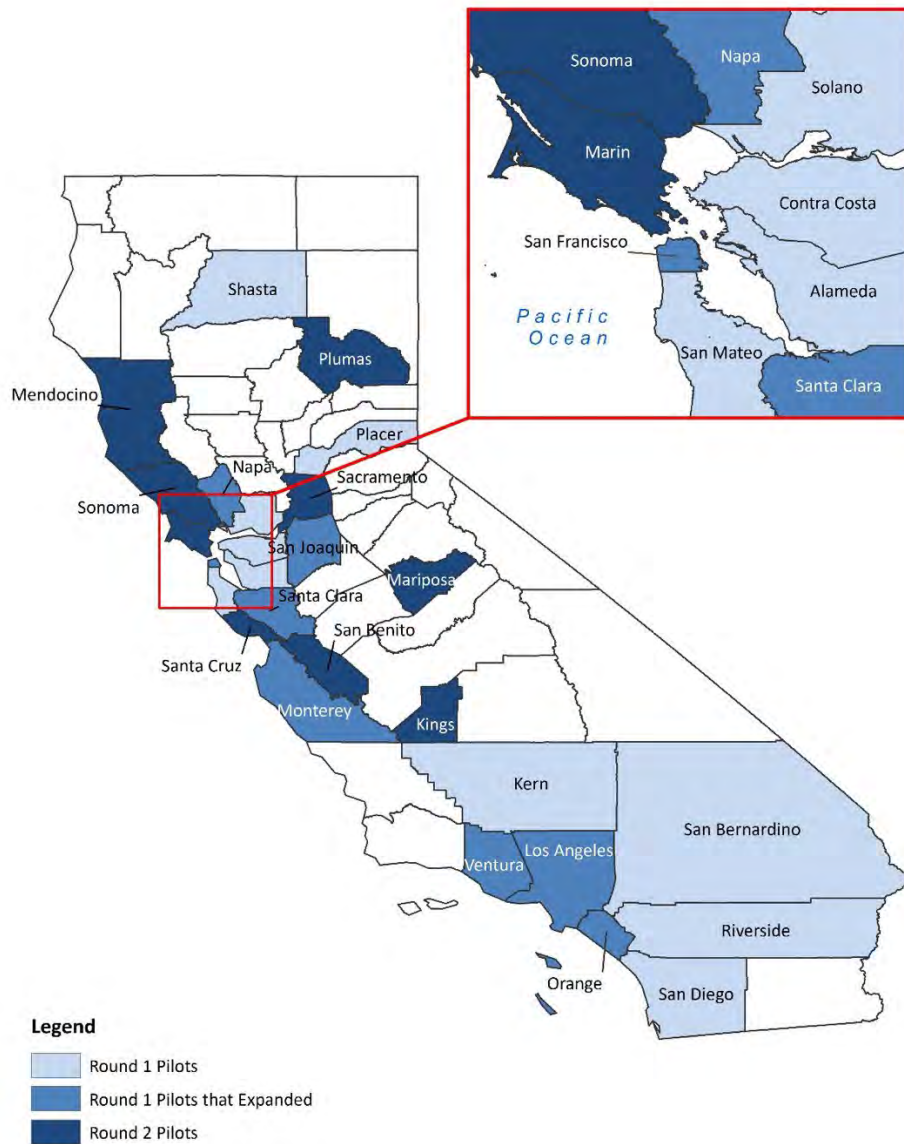
Source: Whole Person Care Pilot Applications (n=25).
Note: There were 25 WPC Pilots which consisted of 27 unique Lead Entities. San Benito, Mariposa, and Plumas Counties together formed the Small County Whole Person Care Collaborative (SCWPCC). Plumas left SCWPCC in September 2018. The remaining two SCWPCC counties and Solano did not participate in the PY 6 (2021) extension year.

WPC Lead Entities

Under WPC, LEs could be (1) a county; (2) a city and county; (3) a health or hospital authority; (4) a designated public hospital; (5) a district/municipal public hospital; (6) a federally recognized tribe; (7) a tribal health program under a Public Law 93-638 contract with the federal Indian Health Services; or (8) a consortium of any of the above. The LE, type of organization, and the abbreviated Pilot name used throughout this report are displayed in Exhibit 7. Plumas, Mariposa, and San Benito counties were considered a single Pilot and participated as part of the Small County Whole Person Care Collaborative (SCWPCC). Plumas stopped implementation in September 2018. Solano and San Benito and Mariposa did not participate in the WPC extension year and stopped implementation in December 2020.

Exhibit 7: WPC Pilots and Participating Lead Entities

WPC Pilot Lead Entity	Type of Lead Entity	Abbreviated Pilot Name
Alameda County Health Care Services Agency	Public health/health services agency	Alameda
Contra Costa Health Services	Healthcare system	Contra Costa
Kern Medical Center	Healthcare system	Kern
Kings County Human Services Agency	Public health/health services agency	Kings
Los Angeles County Department of Health Services	Healthcare system	Los Angeles
County of Marin Department Health and Human Services	Public health/health services agency	Marin
Mendocino County Health and Human Services Agency	Public health/health services agency	Mendocino
Monterey County Health Department	Public health/health services agency	Monterey
Napa County Health and Human Services Agency	Public health/health services agency	Napa
County of Orange, Health Care Agency	Public health/health services agency	Orange
Placer County Health and Human Services	Public health/health services agency	Placer
Riverside University Health System – Behavioral Health	Behavioral health department	Riverside
City of Sacramento	City government	Sacramento
Arrowhead Regional Medical Center	Healthcare system	San Bernardino
County of San Diego, Health and Human Services Agency	Public health/health services agency	San Diego
San Francisco Department of Public Health	Healthcare system	San Francisco
San Joaquin County Health Care Services Agency	Public health/health services agency	San Joaquin
San Mateo County Health System	Healthcare system	San Mateo
Santa Clara Valley Health and Hospital System	Healthcare system	Santa Clara
County of Santa Cruz, Health Services Agency	Public health/health services agency	Santa Cruz

WPC Pilot Lead Entity	Type of Lead Entity	Abbreviated Pilot Name
Shasta County Health and Human Services Agency	Public health/health services agency	Shasta
Plumas County Behavioral Health Department *	Behavioral health department	SCWPCC
San Benito County Health and Human Services Agency *	Public health/health services agency	SCWPCC
Mariposa County Human Services Department *	Public health/health services agency	SCWPCC
Solano County Health and Social Services *	Public health/health services agency	Solano
County of Sonoma-Department of Health Services Behavioral Health Division	Behavioral health department	Sonoma
Ventura County Health Care Agency	Healthcare system	Ventura

Source: Whole Person Care Pilot Applications (n=25).

Note: There were 25 WPC Pilots which consisted of 27 unique Lead Entities. Three WPC LEs (Mariposa, Plumas, and San Benito) formed the Small County Whole Person Care Collaborative (SCWPCC) and submitted application materials together in order to reduce administrative burden. Plumas left SCWPCC in September 2018. The remaining two SCWPCC counties (San Benito and Mariposa) and Solano did not participate in the 2021 extension year.

Target Populations, Services, and Reporting

WPC Pilots were required to identify and enroll eligible Medi-Cal enrollees in their geographic area. Pilots were allowed to identify others that were eligible for WPC but not enrolled in Medi-Cal, assist them to enroll in Medi-Cal, and subsequently enroll them in WPC. In determining WPC eligibility, WPC Pilot were required to select target populations from one or more of the following six groups identified by DHCS: (1) high utilizers of avoidable emergency department, hospitals, or nursing facilities (high utilizers); (2) individuals with two or more chronic physical conditions; (3) individuals with severe mental illness and/or substance use disorders (SMI/SUD); (4) individuals experiencing homelessness (homeless); (5) individuals at-risk-of-homelessness; and (6) individuals recently released from institutions, including jail or prison (justice involved). In the third quarter of 2020 DHCS added a seventh target population that included individuals impacted by or at-risk of COVID-19, which could be retrospectively applied to individuals going back to the start of 2020.

In their applications, WPC Pilots were required to define individual services or bundles of services that would be provided to enrolled populations. Pilots were required to provide care coordination and housing support, but otherwise had discretion in the types and intensity of services offered. Services varied significantly across Pilots, with some Pilots choosing to bundle and deliver a broad array of services to all enrollees, and others creating bundles with fewer services that could be mixed and matched based on specific enrollee needs. Certain services such as outreach, sobering centers, and medical respite were typically not bundled and only provided on an individual basis.

All WPC Pilots were required to report on individual enrollment and utilization or WPC services on a quarterly basis, as well as semi-annually report on five universal, and a minimum of four out of 10 variant metrics (Exhibit 8).

Exhibit 8: WPC Universal and Variant Metrics

Universal Metrics	Variant Metrics	
• Ambulatory Care - Emergency Department Visits • Inpatient Utilization - General Hospital/Acute Care • Follow-up After Hospitalization for Mental Illness • Initiation and Engagement of Alcohol and Other Drug Dependence Treatment • Proportion of participating beneficiaries with a comprehensive care plan	**Health** • 30-day All Cause Readmissions • Decrease Jail Recidivism • Overall Beneficiary Health • Controlling Blood Pressure • HbA1c Poor Control • Depression Remission • Suicide Risk Assessment	
	Housing • Permanent Housing • Housing Services • Supportive Housing	

Notes: WPC Pilots were required to report semi-annually on the four universal metrics and had to choose a minimum of four of 10 variant metrics. Permanent housing = percent of homeless who are permanently housed for greater than 6 months; Housing services = percent of homeless receiving housing services in PY that were referred for housing services; Supportive housing = percent of homeless referred for supportive housing who receive supportive housing.

WPC Funding and Pilot Payment Methodology

The total budget for WPC was $3 billion. This included $1.5 billion from participating Pilots to implement WPC and $1.5 billion in matching funds from the Medicaid program. Pilots submitted their requested budgets in their applications and provided a rationale and additional information on the broad categories for which funds were to be used. The categories included in the budget requests are described in Exhibit 9.

Exhibit 9: Whole Person Care Budget Categories

Category Name	Category Description	Examples
Administrative Infrastructure	Administrative funding needed to develop and implement the WPC Pilot	Administrative staffing, information technology infrastructure
Delivery Infrastructure	Non-administrative funding with costs allocated to the WPC Pilot	Advanced Medical Homes, Mobile Street Teams, Community Resource Databases
Incentive Payments	Funding of items intended as incentive payments for timely achievement of deliverables by downstream providers	Service Integration Team Contractors, Incentive payments for reporting outpatient services

Category Name	Category Description	Examples
Bundled PMPM Services	Funding for more than once service or activity to WPC enrollees	Comprehensive Complex Care Management and Housing Support Services
Fee for Service	Funding for single per encounter payment for a discrete WPC service	Sobering Center, Service Integration Team, Field-based Outreach Activity
Pay for Metric Reporting	Funding planned for collecting and reporting on pilot metrics	Number of emergency department visits, Suicide risk assessments
Pay for Metric Outcomes	Funding depending on outcome achievement with set goals used to determine payments	Reduction in the number of emergency department visits, Increase in the percentage of follow-up after hospitalization

Source: DHCS' Whole Person Care Pilot – Budget Instructions.

WPC Pilots were reimbursed for delivery of services within the PMPM bundles or FFS budget categories. PMPM bundles comprised of one or more services delivered at a set price per month to the WPC enrollee, while FFS items were single per-encounter payments for a discrete service. Pilots were able to receive additional financial incentives under three other budget categories, including pay for reporting (P4R), pay-for-outcome (P4O), or incentive payments to partners. In PY 1, WPC Pilots were to receive infrastructure payments following submitting applications and reporting baseline data. In PY 2 and later years, Pilots were eligible for PMPM and FFS reimbursement, P4R, P4O, and incentive payments. Pilots submitted invoices every six months detailing their activities and progress.

UCLA Evaluation

The UCLA Center for Health Policy Research (UCLA) was selected by DHCS to evaluate WPC from 2016 to 2020. Following the approved extension of WPC to 2021, the UCLA evaluation was also extended by one year. The evaluation was designed to assess whether WPC achieved its overarching goals. The evaluation broadly examined: if WPC Pilots successfully implemented their planned strategies and improved care delivery; if WPC resulted in better care and better health; and if better care and health resulted in lower costs through reductions in avoidable utilization.

Conceptual Framework

The original conceptual framework for the WPC evaluation approved by DHCS and CMS highlights how the program was expected to develop the needed infrastructure, improve service delivery (better care) and health outcomes (better health), and enhance sustainability of infrastructure improvements and program interventions and reduce costs through reductions in avoidable utilization (Exhibit 10).

Exhibit 10: Whole Person Care Conceptual Framework

Infrastructure → **Better Care** → **Better Health** → **Lower Costs and Sustainability**

Infrastructure
- Improved data collection
- Improved data sharing
- Expand capacity for delivery of coordinated and integrated care
- Develop methods to assess social determinants of health
- Expansion or development of new programs

Better Care
- Increased integration between county agencies, health plans, providers, and social and other service entities
- Increased coordination among providers
- Increased care plan development
- Achieve targeted quality and administrative improvement benchmarks
- Increased access to primary and specialty care services
- Increased access to mental health and substance use treatment services
- Increased access to housing and supportive services
- Increased primary and specialty care, mental health, substance use and social service use and follow up post ED visits, hospitalizations, nursing home stays

Better Health
- Reduced all-cause and avoidable ED visits
- Reduced all-cause and mental health hospitalizations, length of stay, and readmissions
- Reduced nursing facility admissions, readmissions, and length of stay
- Improved self-assessed health
- Improved blood pressure control
- Improved diabetes HbA1c control
- Reduced depression remission
- Decreased jail recidivism

Lower Costs and Sustainability
- Reduced costs for participating beneficiaries
- Reduced Medi-Cal expenditures
- Planned for continued integration of county agencies, health plans, providers, and social and other service entities
- Embedded care coordination protocols in standards of practice

Source: UCLA Whole Person Care Evaluation Design, 2017.
Notes: ED is emergency department and HbA1c is hemoglobin A1c.

Evaluation Questions

The UCLA evaluation questions are displayed in Exhibit 11. The findings associated with each question are distributed throughout the report as shown in the exhibit. The evaluation questions were divided into overarching questions that described the program broadly, followed by specific questions that were aligned with elements of the conceptual framework.

Exhibit 11: WPC Evaluation Questions and Location of Associated Findings

Research Question	Location in Final Report
Overarching Questions	
1. What are the demographics of WPC enrollees? What services did they receive?	WPC Enrollment Processes, Size and Patterns; WPC Services Offered and Delivered; Enrollee Demographics, Health Status, and Prior Health Care Utilization
2. What key factors aided or hindered the success of specific strategies in implementing or achieving the intended outcomes, and what measures are WPC Pilots taking to address these barriers?	WPC Enrollment Processes, Size and Patterns; Health Information Technology and Data Sharing Infrastructure; WPC Care Coordination; Conclusions
3. What are the structural differences of the various WPC Pilots and how are differential WPC Pilot outcomes related to structural differences?	Structure of WPC Pilots
Infrastructure	
4. To what extent did the WPC Pilot: A) develop collaborative leadership, infrastructure, and systematic coordination among public and private WPC Pilot partners, including county agencies, health plans, providers, and other partners that serve high-risk, high-utilizing Medi-Cal beneficiaries; and B) achieve the approved application deliverables relating to collaboration, infrastructure, and coordination?	Structure of WPC Pilots
5. To what extent did the Pilot: A) improve data collection and information sharing amongst local entities to support identification of target populations, ongoing case management, monitoring, and strategic program improvements in a sustainable fashion; and B) achieve the approved application deliverables relating to data collection and information sharing?	Health Information Technology and Data Sharing Infrastructure
Better Care	
6. To what extent did the Pilot: A) improve comprehensive care coordination, including in-real-time coordination, across participating entities; and B) achieve the approved application deliverables relating to care coordination?	WPC Care Coordination
7. To what extent did the Pilot: A) increase appropriate access to care and social services; and B) achieve approved application deliverables relating to WPC service delivery?	Better Care; WPC Services Offered and Delivered
8. To what extent did the Pilot increase access to housing and supportive services and improve housing stability?	Homeless WPC Enrollee Services and Outcomes
Better Health	
9. To what extent did the Pilot: A) improve beneficiary care and health outcomes, including reduction of avoidable utilization of emergency	Better Health

Research Question	Location in Final Report
and inpatient services; and B) improve outcomes such as controlled blood pressure and Hemoglobin A1c (HbA1c)?	
Lower Costs and Sustainability	
10. To what extent did WPC Pilots reduce costs of care for WPC enrollees compared to the control group and were total Medi-Cal expenditures reduced during the WPC program?	Lower Cost
11. What lasting collaboration between partners and care coordination protocols will continue after the WPC program? In addition, how will counties ensure that improvements achieved by the Pilots will be sustained after WPC program funding is exhausted?	WPC Transition to CalAIM

Source: UCLA Whole Person Care Evaluation Design, 2017.

Data Sources

UCLA used multiple qualitative and quantitative data sources for the evaluation and expanded data collection efforts due to the COVID-19 pandemic and the extension of WPC in 2021. Data sources are summarized in Exhibit 12 and described in further detail below. When available, UCLA presents data points across multiple time periods of program implementation.

Exhibit 12: Overview of WPC Evaluation Data Sources

Data Source	Time Period	Pilots Included
Reports to DHCS		
WPC Pilot Applications	2016	All 25 Pilots including 3 LEs from SCWPCC.
WPC Mid-Year and Annual Narrative Reports	Bi-annual, 2017-2021	All 25 Pilots through PY 5. Sonoma and SCWPCC did not participate in PY 6.
Narrative Report Attachments, Including Plan-Do-Study-Act Reports	Bi-annual, 2017-2021	
Annual Universal and Variant Metrics Reports	Baseline-2021	
WPC Enrollment and Utilization Reports	Quarterly, 2017-2021	
Annual WPC Invoices	2016-2021	
UCLA Surveys		
PY 3 Lead Entity (LE) Survey	June-September 2018	All 25 Pilots including 3 LEs from SCWPCC.
PY 3 Partner Survey	June-September 2018	227 partner organizations from 24 Pilots; Sonoma partners did not participate due to delayed implementation and Plumas (from SCWPCC) exited Pilot in September 2018.
PY 5 COVID-19 Impact Survey	Rapid response; April 2020	24 Pilots including 2 LEs from SCWPCC; Napa did not respond.
PY 5 LE Survey	June-August 2020	All 24 Pilots including 2 LEs from SCWPCC; Napa did not respond.

Data Source	Time Period	Pilots Included
PY 5 Partner Survey	June-August 2020	166 partner organizations from 24 Pilots; partners from Napa did not participate.
PY 6 LE Survey	May-June 2021	All 25 Pilots including 2 LEs from SCWPCC; Solano and SCWPCC did not participate in PY 6 and were asked to complete with perspective through PY 5.
UCLA Interviews		
PY 3 Follow-up Interviews with LEs and Frontline Staff	September 2018-March 2019	All 25 Pilots including 3 LEs from SCWPCC; Plumas participated in follow-up after exiting the Pilot.
PY 6 Follow-up Interviews with LEs and Frontline Staff	June-September 2021	All 25 Pilots including 2 LEs from SCWPCC. Solano and SCWPCC did not participate in PY 6 and answered with perspective through PY 5.
Medi-Cal Data		
Enrollment, Encounter, and Claims	2015-2021	At least two years of baseline for WPC enrollees and a group of potential controls that met specific criteria.

Qualitative Data

WPC applications included Pilots identification of the target population; a description of the WPC Pilot structure, partnerships for implementation, and the needs of the target population; services that would be provided and interventions applied; and the associated funding request.

In PY 3, UCLA fielded a web-based interim survey to LE leadership. Questions assessed health information technology infrastructure, specific activities related to project implementation, ratings of level of effort, staffing and workforce development, participation in quality improvement activities, and challenges and solutions. Additionally, during this time, UCLA fielded an interim survey to key partners that was completed by 227 partner representatives from 24 WPC Pilots. Sonoma partners did not participate due to delayed implementation and Plumas was not included because they stopped implementation in September 2018. Questions assessed partners' motivation to participate, collaboration with the LE, and perceived impact of the WPC program.

In early PY 5, UCLA administered web-based COVID-19 impact surveys to WPC Pilots, of which Napa did not participate. Questions assessed the impact of COVID-19 on key WPC processes, policies, and procedures and how WPC infrastructure and processes facilitated COVID-19 response. In mid-PY 5, UCLA fielded a web-based survey to LE leadership to WPC LEs, of which Napa did not participate. Questions assessed more detailed data on data sharing infrastructure and resources, care coordination processes and supports, housing related services, integration of health and social services, perceived impact of WPC, and sustainability.

In PY 6, UCLA fielded an additional survey to LE leadership in all WPC Pilots during the waiver extension year. Questions assessed additional information on WPC implementation, changes to WPC since the PY 5 survey, and updates on sustainability planning and progress on transition to Cal-AIM.

The PY 3 LE and partner surveys were followed by in-person or telephone follow-up interviews with all WPC LEs. Additional in-depth key informant interviews conducted via Zoom with all operating Pilots occurred in PY 6. Both rounds of interviews were conducted with: (1) key leadership and management, such as project managers, administrators, and directors of the WPC program and (2) frontline staff, such as care coordinators, public health nurses, and social workers. The key informant interview protocol contained a set of standardized questions asked of each WPC Pilot, as well as follow-up questions specific to the WPC Pilot's individual survey responses, to obtain clarification and additional detail on various aspects of project implementation. Interviews were systematically coded in NVivo to determine key themes across WPC Pilots.

Narrative reports were submitted to DHCS bi-annually (beginning with PY 2 Mid-Year and ending with PY 6 Annual). These data included a summary of program achievements and challenges in care coordination, data and information sharing, and data reporting; as well as context around sustainability efforts. Pilots submitted PDSA reports along with their semi-annual reports, which outlined specific quality improvement projects and provided a description of change-management plans and processes to achieve specific Pilot goals related to care coordination, data sharing, and metrics.

Quantitative Data

UCLA used baseline and annual Universal and Variant Metric Reports to examine Pilot-reported metrics. The baseline report included data from PY 1 when possible and PY 2 when data could not be retroactively collected. These data -included all universal metrics and the subset of Pilot-selected variant metrics. Due to limitations in data sharing or enrollment, some Pilots did not include pre-selected metrics in all annual reports.

The Quarterly Enrollment and Utilization Reports included monthly data including the names of WPC enrollees, their date of enrollment, target population(s), homelessness status, and their date and reason for disenrollment when applicable. Additionally, there reports included individual-level WPC service utilization data. For each month, Pilots reported the PMPM bundle and the number of FFS services provided as applicable.

Annual WPC Invoices included a breakdown of approved budgets and expenditures for each Pilot by the seven budget categories. The invoices included specific details for each budget

category, which showed the components of the approved budgets the Pilots were able to successfully claim. Additionally, the annual invoices contained the cost of each PMPM and FFS categories each year.

Medi-Cal enrollment, encounter and claims data for this report were received by UCLA in April 2022 and included data from January 2015 to December 2021. All data from WPC enrollees were received along with data from a pool of potential controls. UCLA additionally received an updated pull of the Medi-Cal data in July 2022. These data included further matured claims from 2021 along with complete data for any WPC enrollees identified after the April 2022 data pull.

Analytic Methods

UCLA analyzed all data using appropriate qualitative and quantitative methods. The qualitative methods included extracting relevant information from applications, coding and developing themes from the narrative reports and follow-up interviews in NVivo and reporting descriptive data from survey results. A detailed explanation of the qualitative analyses is available in Appendices C, D, E, F, and G.

The quantitative methods included calculating average weighted Pilot-reported metrics and conducting a descriptive assessment of WPC enrollment and enrollment patterns, WPC enrollee characteristics, and WPC enrollee health status. WPC invoice data and individual-level WPC service utilization were combined to create a descriptive assessment of the proportion of enrollees offered WPC services. Using the Medi-Cal data, a control group was constructed using a propensity score methodology and the resulting control group was used in difference-in-difference (DD) analyses of both WPC metrics and UCLA-created metrics. A detailed explanation of the Pilot-reported metrics and the DD analyses are available in Appendices A and B.

Chapter 2: Structure of WPC Pilots

The two primary goals of WPC were to "increase integration among county agencies, health plans, providers, and other entities within the county that serve high-risk and high-utilizing beneficiaries" and "develop an infrastructure that would ensure local collaboration among the entities participating in the WPC Pilots over the long term." This chapter provides an overview of the organizational structure and partnership networks that established the foundation for achieving these program goals.

This chapter addresses the first part of the following UCLA evaluation question: "what were the structural differences of the various Pilots and how were differential Pilot outcomes related to structural differences?" The 25 WPC Pilots were led by 27 Lead Entities (LEs). LEs served as the primary administrative and governing body throughout the duration of WPC.

UCLA explored the following evaluation questions in depth in the interim report: "to what extent did the Pilot (a) develop collaborative leadership, infrastructure, and systematic coordination among public and private WPC Pilot entities, including county agencies, health plans, and providers, and other entities within the participating county or counties that serve high-risk, high-utilizing beneficiaries; and (b) achieve the approved application deliverables relating to collaboration, infrastructure, and coordination?" This chapter provides new information on Pilot networks and partner perceptions as of PY 6 (2021).

Data sources for this chapter included 25 WPC Pilot applications (including a single application from three Pilots), PY 3 (2018) and PY 5 (2020) LE and partner surveys, and PY 3 and PY 6 follow-up interviews with leadership and frontline staff of all 25 Pilots. Additional qualitative data around challenges and solutions were provided in 25 WPC mid-year and annual narrative reports. For additional detail on data sources and methodology please see Appendices C, D, E, and F.

Organizational Structure

The interim report included a description of the types of Pilot Lead Entities (LEs), indicating that the majority (15) were public health or health services agencies, followed by eight healthcare systems, three behavioral health departments, and one city municipality.

In September 2018, Plumas left the Small County Whole Person Care Collaborative (SCWPCC) LE, citing limited resources/capacity and staffing issues in UCLA follow-up interviews. The remaining counties, San Benito and Mariposa, ended participation in WPC for the PY 6 extension year, citing limited administrative capacity, particularly considering the COVID-19 pandemic. Throughout the final evaluation report, Plumas is included in data collection and reporting prior to September 2018, and San Benito, Mariposa, and Solano are included in data collection and reporting prior to January 2021.

In PY 3 follow-up interviews, Pilots described that the choice of LE was based on which organization was best equipped to provide overall administrative and strategic guidance. For example, Plumas County Behavioral Health Department was described as the logical choice for the LE because of the program's emphasis on facilitating enrollee access to behavioral health services. Similarly, the San Francisco Department of Public Health was selected as the LE due to its prior experience working with the target population (homeless individuals) and engagement in prior initiatives aligned with WPC goals, such as their Street Medicine program. Finally, Contra Costa County Health Services was identified as the LE because it was an "umbrella agency" for the county's behavioral health services, public health, emergency medical services, and health plan.

> *"I would … say that where we placed our Whole Person Care Pilot made a huge impact, like having it based in public health inside the integrated health system at Contra Costa, I mean, it's a unique model for that county-run health system. But it's really like we put this in the heart of the system of the group that is in the community and is also in the health centers and has those existing relationships." -Contra Costa*

Target Populations

In addition to the six target populations identified by DHCS at the start of WPC, a new COVID-19 target population was added in PY 5 that included "those at risk of contracting COVID-19, those who have contracted COVID-19, and those recovering from COVID-19." As in the past, Pilots had discretion to identify enrollees in more than one target population.

Exhibit 13 highlights the primary target population(s) by Pilot. The primary target population is defined as the key demographic of focus that WPC Pilots designed their services, infrastructure, and processes around. Many Pilots had more than one primary target population (17 of 27). Contra Costa, San Bernardino, San Mateo, Santa Clara, Shasta, and Ventura focused only on high utilizers, which was the most inclusive and broad category.

In PY 3 and PY 6 follow-up interviews, Pilots described their rationale for selection of specific target populations and some Pilots reported broad and inclusive definitions to provide more flexibility in program implementation and to ensure they could meet projected enrollment goals. Other Pilots developed more restrictive inclusion criteria with the intent of focusing services on specific populations. For instance, Riverside exclusively targeted justice-involved, while San Francisco exclusively targeted individuals experiencing homelessness.

"Ours has primarily, from the beginning, focused on a high utilizing population, and I felt like that was almost the broadest net to capture potential participants in it because as part of serving a high utilizing population, we do pull in people who are homeless, people who are recently incarcerated, people with behavioral health concerns, et cetera, so all of the other kind of allowable target populations." -Ventura

"Very early on, we decided that the target population we wanted to serve would be individuals experiencing homelessness. There's been a lot of focus in our community and by our policymakers on people experiencing homelessness … [but] We have a history of … difficulty engaging with people experiencing homelessness in some of our other Health and Human Services programs… We weren't sure how much success we [were] going to have, whether we were going to be able to enroll enough people experiencing homelessness …, and so we left it [inclusion criteria] broad." -Placer

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Exhibit 13: Selection of Primary Target Population by WPC Pilot, PY 6

WPC Pilot	High Utilizers	Chronic Physical Conditions	Serious Mental Illness/ Substance Use Disorder	Homeless	At-risk-of-Homeless-ness	Justice-Involved	Total Number of Target Population Selected by Each Pilot
Alameda	X			X			2
Contra Costa	X						1
Kern	X			X	X	X	4
Kings		X	X				2
Los Angeles	X	X	X	X	X	X	6
Marin	X			X	X		3
Mendocino			X				1
Monterey				X			1
Napa				X	X		2
Orange			X	X			2
Placer	X	X	X	X	X	X	6
Riverside						X	1
Sacramento	X			X			2
San Bernardino	X						1
San Diego	X			X	X		3
San Francisco				X			1
San Joaquin	X		X	X	X		4
San Mateo	X						1
Santa Clara	X						1
Santa Cruz		X	X				2
Shasta	X						1
Solano	X		X				2
Sonoma			X	X	X		3
Ventura	X						1
San Benito (SCWPCC)	X			X	X		3
Mariposa (SCWPCC)	X		X				2
Plumas (SCWPCC)			X	X			2
Total that Selected Each Target Population	**17**	**4**	**12**	**15**	**9**	**4**	

Source: Initially provided in PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; verified in Pilot specific case studies in February-April 2022.
Note: SCWPCC is the Small County Whole Person Care Collaborative.

PY 6 LE surveys highlighted variations in the inclusion and exclusion criteria used by Pilots for attribution of enrollees to target population(s) in their enrollment and utilization reports (Exhibit 14). Pilots used a wide variety of data sources (e.g., standardized screening/assessment tools, electronic medical records, homeless management and information systems) to classify enrollees into one or multiple target populations (see Chapter 4: WPC Enrollment Processes, Size, and Patterns for additional details).

Exhibit 14: Examples of Criteria Used by WPC Pilots to Assign Enrollees to Primary Target Populations

Primary Target Population	WPC Pilot	Target Population Criteria
High Utilizers	Shasta	Adults ages 18 to 64 with two or more ED visits or hospitalizations in the last three months and were homeless or at-risk of homelessness, based on HUD criteria (i.e., people living in a place not meant for human habitation, in emergency shelter, in transitional housing, or exiting an institution where they temporarily resided). Potential enrollees also needed to fulfill one or more of the following criteria: • SMI diagnosis • SUD diagnosis • Undiagnosed/undisclosed opioid addiction
	Kern	Top 15% of Medi-Cal beneficiaries by utilization according to predictive risk model including emergency department, inpatient, length of stay, outpatient, primary care visits, behavioral health visits, alcohol and drug visits, history of detention, psychiatric emergency, homeless coordinated entry, foster care, specific prescription drug classes, and chronic conditions.
Chronic Physical Conditions	Kings	Individuals with a chronic health condition of diabetes or high blood pressure.
	Los Angeles	Individuals hospitalized and being discharged from a partner medical center who were not going to a skilled nursing facility, with two or more admissions (medical or psychiatric) within the last 12 months and at least one of the following: 1) initiation of insulin or anticoagulation during the recent admission, and/or 2) taking greater than six medications daily.
Serious Mental Illness/Substance Use Disorder	Los Angeles	Individuals with a substance use disorder and at least one of the following: 1) three or more ED visits related to SUD within the past year; 2) two or more inpatient admissions for physical and/or mental health conditions; 3) three or more sobering center visits within the past year; 4) more than two residential SUD treatment admissions within the past year; 5) history of two or more incarcerations with drug use; 6) drug court referral; and/or 7) history of overdose in the past two years.
	Mariposa (SCWPCC)	Individuals with a behavioral health condition (mental health, substance abuse or co-occurring diagnosis) and one or more of the following: 1) repeated incidents of ED use, hospital admissions, or nursing facility placement; 2) two or more chronic conditions; 3) homeless or at-risk-of-homelessness (based on HUD criteria); and/or 4) recently released from institutions (e.g., hospital, county jail, institutions for mental diseases, skilled nursing facility, etc.) or connection to the criminal justice system.
Homeless	Monterey	HUD definition of homelessness (i.e., people living in a place not meant for human habitation, in emergency shelter, in transitional housing, or exiting an institution where they temporarily resided).

Primary Target Population	WPC Pilot	Target Population Criteria
	San Diego	Identified through the homeless management and information system or those who had recently accessed homeless services.
At risk of homelessness	San Diego	At-risk for homelessness if in an institutional setting, such as jail, a psychiatric hospital or other mental health facility, or a substance use residential or detoxification program; as well as those in skilled nursing facilities who did not have stable housing at discharge.
	Sonoma	Individuals who were to be unsheltered within two weeks; verification via eviction notice.
Justice-Involved	Riverside	Probationers with the following criteria were targeted: on probation or parole; released from jail/prison in past year; to be released from jail in the following 90 days; at-risk of or experiencing homelessness; had a behavioral health diagnosis; had a physical health diagnosis.
COVID-19	Contra Costa	Data from homeless management information system informs; criteria included individuals staying at and/or receiving services at FEMA funded sites related to COVID-19 (e.g., Project Roomkey hotels).
	Monterey	Proof of CDC identified high risk factors; medical summary from primary care provider or ED; self-certification form.

Source: PY 6 Lead Entity Survey (n=26), May-June 2021, and PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), June-September 2021.

Notes: ED is emergency department. HUD is the Department of Housing and Urban Development. SMI is serious mental illness. SUD is substance use disorder. SCWPCC is the Small County Whole Person Care Collaborative. FEMA is Federal Emergency Management Agency. CDC is Center for Disease Control.

Partnerships

WPC Pilots were required to "increase integration among county agencies, health plans, and providers, and other entities within the participating county or counties that serve high-risk, high-utilizing beneficiaries and develop an infrastructure that will ensure local collaboration among the entities participating in the WPC Pilots over the long term." WPC Pilots were permitted to partner with as many organizations as they wished but were required to include at least one Medi-Cal managed care health plan, one county health services agency, one county specialty mental health agency, one county public agency, and two community partners.

The interim report described aspects of Pilot-level decision-making related to earlier stages of the WPC Pilot. Partnerships were classified as internal or external, depending on their relation to the LE. Internal partners were entities that worked under the same umbrella agency as the LE, such as the county hospital or county mental health department, and comprised 17% of partners as of PY 3 surveys. External partners, like health plans, community clinics, and housing service providers, comprised 83% of partners among WPC Pilots in PY 3 surveys. Distribution of internal and external partners varied considerably by Pilot, depending on county resources and structure. The interim report also described partner engagement in WPC development and implementation and identified impacts of WPC on relationships between partnering agencies.

Partner Types

Pilots organized their partner organizations into pre-specified categories, determined by DHCS.

As of PY 5, Pilots reported a total of 21 partners on average (18 in PY 3), ranging from a minimum of eight partners to a maximum of 50. Overall, Pilots reported 543 total partners (478 in PY 3; Exhibit 15). Across all Pilots, 58% of all partner organizations were community partners (e.g., non-county agencies including private service providers, community-based organizations, non-profits); 23% were county public agencies (e.g., social services, housing); 9% were Medi-Cal managed care plans; 5% were county specialty mental health services agencies; and 5% were county health agencies. The partner type composition was similar to that presented in the interim (PY 3), with variation at the Pilot level.

Exhibit 15: DHCS Pre-Specified Partner Type by Lead Entity, PY 5

Lead Entity	Community partner	Medi-Cal Managed Care Plan	County public agency	Specialty mental health agency	County health agency
Alameda	63%	5%	29%		3%
Contra Costa	50%	8%		8%	33%
Kern	40%	13%	40%		7%
Kings	38%	13%	38%	13%	
Los Angeles	84%	8%	4%	2%	
Marin	82%	3%	13%		3%
Mendocino	50%	13%	13%	25%	
Monterey	65%	6%	12%	6%	12%
Napa	50%	8%	8%	17%	17%
Orange	88%	6%	3%		
Placer	67%	8%	4%	4%	17%
Riverside	43%	14%	36%		7%
Sacramento	63%	27%	10%		3%
San Bernardino	56%	22%	22%		
San Diego	45%	35%	15%	5%	
San Francisco	33%	22%	33%	11%	
San Joaquin	44%	8%	36%	4%	8%
San Mateo	88%	13%			
Santa Clara	63%	5%	21%	7%	5%
Santa Cruz	61%	6%	28%	6%	
Shasta	73%	7%	7%	7%	7%
Solano	55%	9%	18%	9%	9%
Sonoma	76%	6%	6%	6%	6%
Ventura	59%	2%	35%		4%
San Benito (SCWPCC)	50%	10%	20%	10%	10%
Mariposa (SCWPCC)	27%	18%	27%	9%	18%

■ Community partner ■ Medi-Cal Managed Care Plan ■ County public agency
■ Specialty mental health agency ■ County health agency

Source: PY 5 Updated Partnership Lists, January-March 2020.
Note: WPC Pilots were permitted to partner with as many organizations as they wished but were required to include at least one Medi-Cal managed care health plan, one county health services agency, one specialty mental health agency, one county public agency (e.g., social services, housing), and two community partners (i.e., non-county agencies including private service providers, community-based organizations, non-profits).

Pilots indicated that some community partners, such as Bay Area Community Services were in several counties (Solano, Alameda, and San Mateo). Examples of specific partner organizations and their role in the WPC Pilot are provided in Exhibit 16.

Exhibit 16: Selected Examples of Specific WPC Partners by DHCS Pre-Specified Partner Type and their Role within the WPC Pilot, PY 5

Partner Type	Partner Name and Pilot	Role in Pilot
County Public Agency	Marin Housing Authority (Marin)	Provided housing and homelessness services, including housing navigation and waiver application support.
	Riverside County Probation Department (Riverside)	Facilitated enrollee warm hand-offs to divert incarceration or to support reentering community.
Medi-Cal Managed Care Plan	CalOptima (Orange)	Provided daily data feeds to the LE to facilitate identification of eligible enrollees.
	Health Plan of San Mateo (San Mateo)	Integrated into local health information exchange to share data for WPC.
	Alameda Alliance for Health (Alameda)	Facilitated care coordination services.
Specialty Mental Health Agency	Redwood Quality Management Company (Mendocino)	Oversaw and subcontracted with community-based behavioral health services in the county. Later, responsible for employing and supervising wellness coaches providing care coordination under WPC.
	County Behavioral Health Services (Orange)	Contracted with LE to provide care coordination in conjunction with broader WPC team.
	Ventura County Behavioral Health Department, Alcohol and Drug Programs (Ventura)	Provided substance use treatment to individuals over 18 years old.
County Health Services Agency	Emergency Medical Services (Contra Costa)	Improved emergency department enrollee discharge processes and workflows.
	Solano County Family Health Services (Solano)	Facilitated referrals and enrollee access to services.
	Placer County Public Health (Placer)	Facilitated data sharing and access to needed services for enrollees.
Community Partner	Bay Area Community Services (Multiple)	Provided social services and operated the largest homelessness program in the Bay Area.
	La Clinica de la Raza (Multiple)	Provided multi-lingual comprehensive health care services in several counties in the Bay Area.
	Front Street (Santa Cruz)	Facilitated enrollee access to behavioral health services.
	Sacramento Self Help Housing (Sacramento)	Provided housing and supportive services, including tenancy support, long-term housing, emergency shelter, and outreach.
	Positive Directions (San Francisco)	Facilitated enrollee access to behavioral health care.

Partner Type	Partner Name and Pilot	Role in Pilot
	Sutter Health (Placer)	Facilitated emergency department follow-up visits and dissemination of real time alerts on enrollees.
	Brilliant Corners (San Mateo)	Facilitated outreach and access to housing support for enrollees experiencing homelessness.

Source: Whole Person Care Pilot Applications (n=25), 2016; PY 5 Updated Partnership Lists, January-March 2020; PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.
Note: WPC Pilots were permitted to partner with as many organizations as they wished but were required to include at least one Medi-Cal managed care health plan, one county health services agency, one specialty mental health agency, one county public agency (e.g., social services, housing), and two community partners (i.e., non-county agencies including private service providers, community-based organizations, non-profits).

UCLA further classified community partner organizations into one of eight service-specific classifications to further illustrate type of services provided. Exhibit 17 shows the distribution of different types of community partners as classified by UCLA.

Exhibit 17: WPC Community Partners by UCLA Service-Specific Classification, PY 5
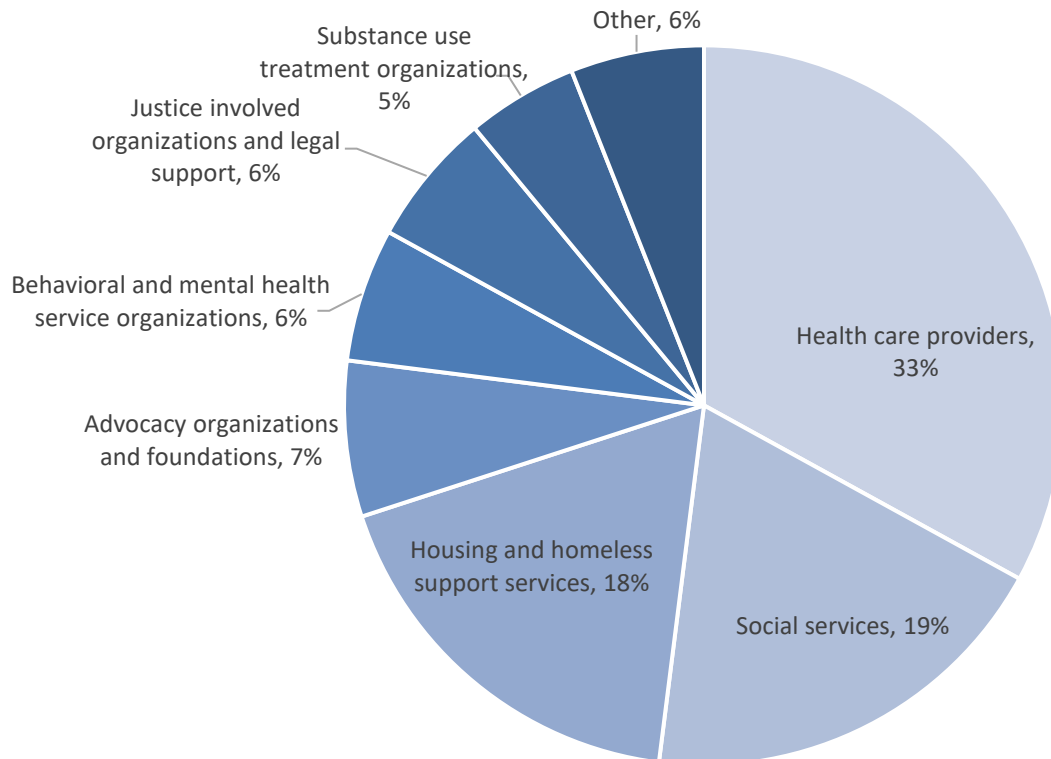
Source: PY 5 Updated Partnership Lists, January-March 2020.
Notes: Across all Pilots, 58% of partner organizations were community partners (non-county agencies including private service providers, community-based organizations, non-profits). UCLA classified community partner organizations into one of eight service/offering specific classifications.

Exhibit 18 provides select examples of types of community partners by service-specific classification.

Exhibit 18: Selected Examples of Types of Community Partners by Service-Specific Classification, PY 5

Community Partner Type	Examples	Description
Health care providers	La Clinica de la Raza	Organizations ranging from community health clinics, regional medical centers, wellness centers, and hospital networks
	St. Jude Medical Center	
	LifeLong Medical Care	
Social services	St. Vincent de Paul Society	Organizations ranging from 211, food and nutrition services, and adult and aging services
	Institute on Aging	
	Second Harvest of Silicon Valley	
Housing and homeless support services	People Assisting the Homeless (PATH)	Organizations including shelters, housing navigation, and comprehensive services related to "housing first" principles or becoming "document ready"
	Abode Services	
	The Gathering Inn	
Advocacy organizations and foundations	Marin Community Foundation	Organizations promoting community well-being through a wide variety of initiatives
	Los Angeles Advancement Project	
Behavioral and mental health service organizations	Alcott Center for Mental Health	Organizations providing behavioral health or mental health services, typically for mild to moderate cases
	Sierra Mental Wellness Group	
Justice-involved organizations and legal support	California Rural Legal Assistance	Organizations helping with the transition from jail/prison to the community or providing legal services
	California State San Bernardino Reentry Initiative	
Substance use treatment organizations	Alcott Center for Mental Health	Organizations providing community-based treatment for SUD
	Sierra Mental Wellness Group	
Other	California Long Term Care Education Center	Community partners that do not fall into other existing categories
	Marin County Free Library	

Partners' Level of Involvement

For the interim report, LEs had categorized each partner's level of engagement with WPC by indicating if partners had: (1) limited involvement (e.g., only served as service provider or referral source and not involved in planning or decision-making related to WPC); (2) some involvement (e.g., in data sharing or stakeholder meetings), and (3) active involvement (e.g., in WPC planning and implementation). LEs provided an updated categorization in PY 5.

In PY 5, LEs indicated that partner involvement increased between PY 3 and PY 5 (Exhibit 19). In PY 3, 47% of partners across all Pilots were actively involved, 32% had some involvement, and 22% had limited involvement with WPC. Whereas in PY 5, 67% of partners across all Pilots were actively involved, 27% had some involvement, and 6% had limited involvement with WPC.

Exhibit 19: Level of Partner Engagement in WPC across all Pilots, as Determined by the Lead Entity, PY 3 and PY 5
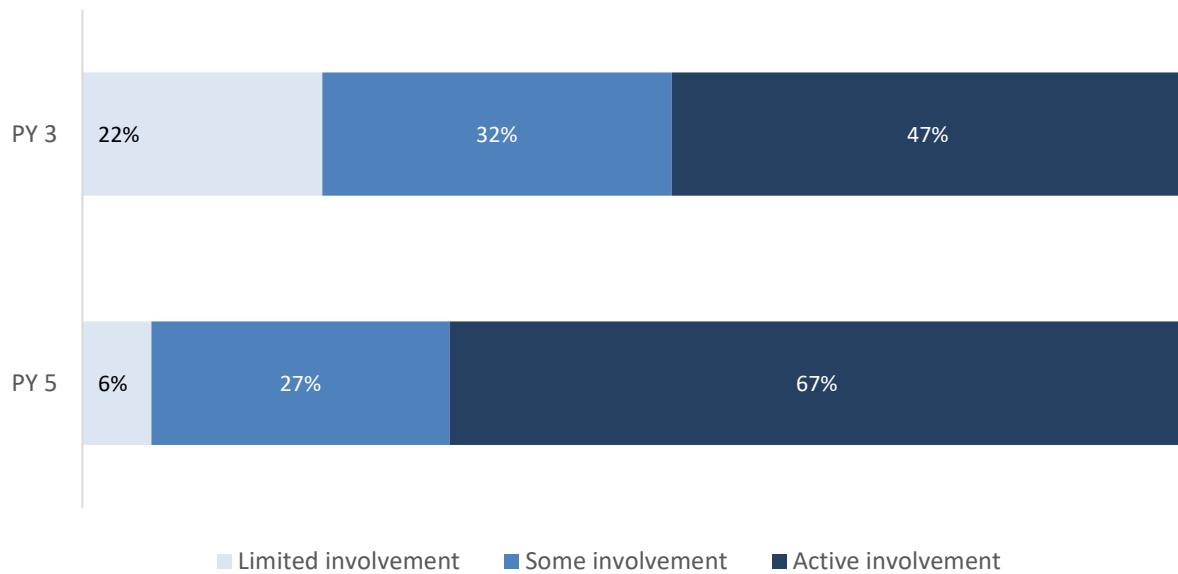
Source: PY 3 Partnership Lists, January-March 2018; PY 5 Updated Partnership Lists, January-March 2020.

The level of partner involvement varied across Pilots. Exhibit 20 shows the specific breakdown of partner involvement by Pilot. Overall, the level of involvement increased across partners from PY 3 to PY 5; in PY 5, 93% of partners were reported as having some or active involvement with WPC Pilots compared to 79% prior to PY 3. All Kings', Monterey's, and Orange's partners (100%) were identified as actively involved. All but five pilots (Alameda, San Mateo, Ventura, Santa Cruz, Mendocino) rated more than half of partners as actively involved.

Exhibit 20: WPC Lead Entity Designation of Level of Partner Engagement in WPC, PY 5

	Limited involvement	Some involvement	Active involvement
All Pilots	6%	27%	66%
Alameda		51%	46%
Contra Costa	8%	25%	67%
Kern		13%	87%
Kings			100%
Los Angeles	2%	8%	90%
Marin	10%	31%	59%
Mendocino		50%	50%
Monterey			100%
Napa	8%	25%	67%
Orange			100%
Placer		25%	75%
Riverside		43%	57%
Sacramento	6%	39%	55%
San Bernardino	22%	11%	67%
San Diego	5%	30%	65%
San Francisco	22%	22%	56%
San Joaquin		48%	52%
San Mateo	25%	38%	38%
Santa Clara	12%	19%	70%
Santa Cruz	11%	44%	44%
Shasta		40%	60%
Solano		36%	64%
Sonoma		29%	65%
Ventura	20%	35%	46%
San Benito (SCWPCC)	10%	30%	60%
Mariposa (SCWPCC)	9%	9%	82%

Source: PY 5 Updated Partnership Lists, January-March 2020.

From PY 3 to PY 5, partners' level of involvement in WPC increased by partner type (Exhibit 21). The increase was greatest from 39% to 64% for community partners having active involvement.

Exhibit 21: Level of WPC Partner Engagement by DHCS Pre-Specified Partner Type, PY 3 and PY 5
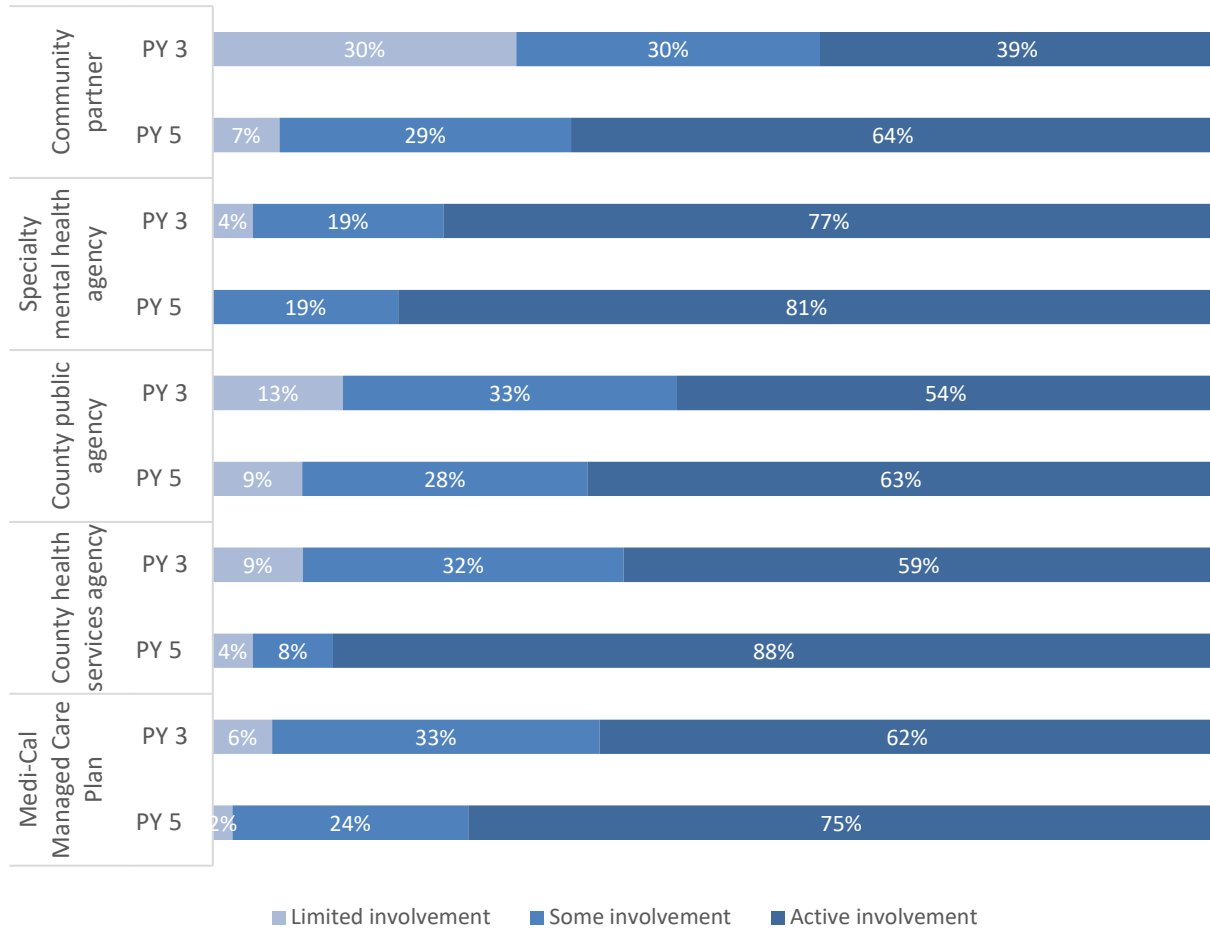
Source: PY 3 Partnership Lists, January-March 2018; PY 5 Updated Partnership Lists, January-March 2020.

In PY 3 and PY 5, involvement also increased by UCLA service classification (Exhibit 22). Partner types with the most increase to active involvement were substance use treatment organizations with 25% in PY 3 to 59% in PY 5, advocacy organizations and foundations (26% to 60%, respectively), and housing and homeless support services (43% to 74%, respectively).

Exhibit 22: Level of Community Partner Engagement by UCLA Service-Specific Classification, PY 3 and PY 5
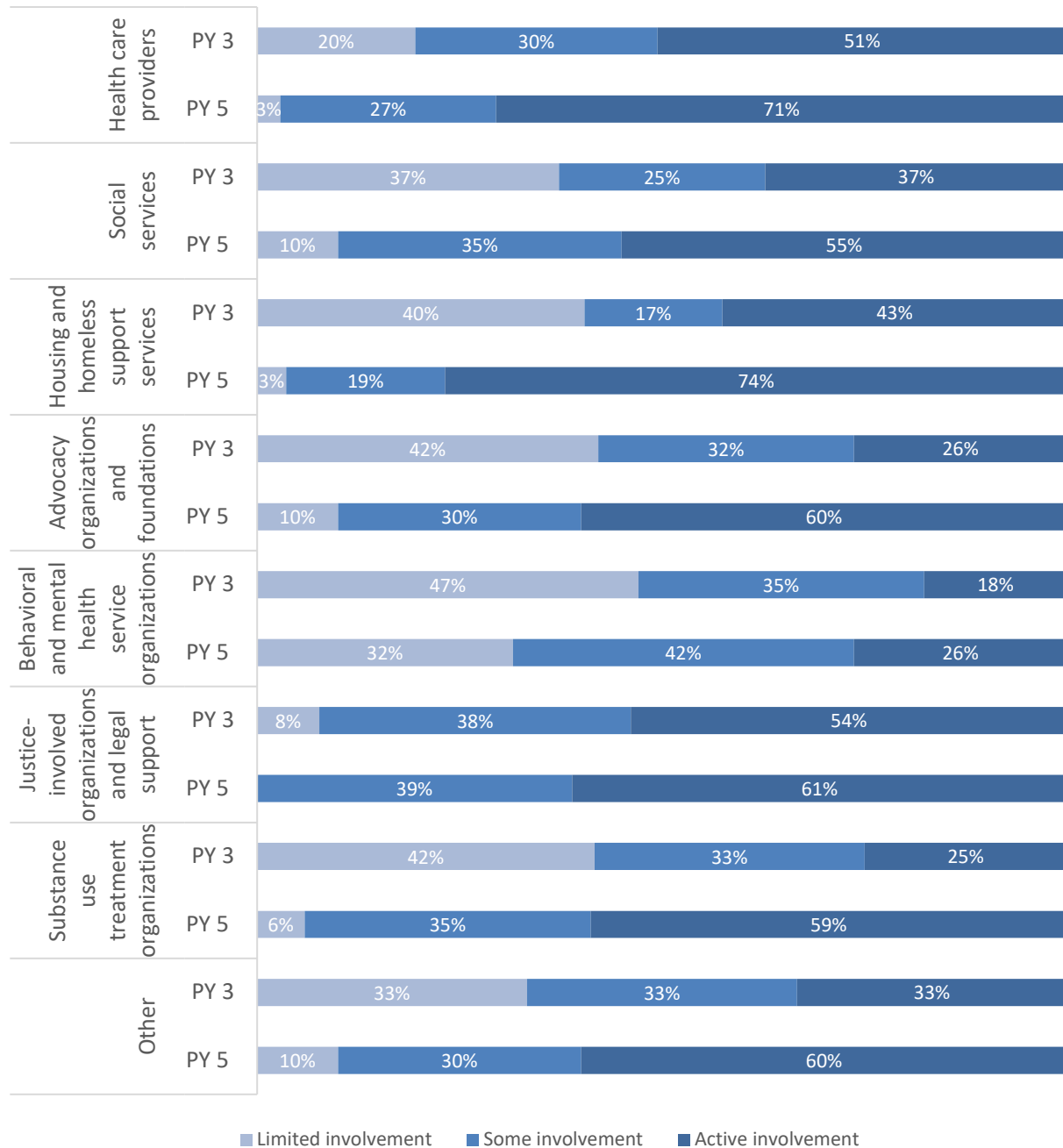
Source: PY 3 Partnership Lists, January-March 2018; PY 5 Updated Partnership Lists, January-March 2020.

In PY 6 follow-up interviews and mid-year and annual narrative reports, Pilots noted that these partnership gains required effort, and identified some inherent challenges in building fruitful relationships, such as partner staffing turnover and limited partner interest and buy-in. Most LEs experienced challenges with partner buy-in during the first few years of the Pilot, with relative ease of collaboration in PY 5 and PY 6. Specific examples of initial challenges and solutions related to partnerships buy-in are described in Exhibit 23.

Exhibit 23: Selected Examples of Challenges and Solutions to WPC Partner Buy-in

Challenges	WPC Pilot	Selected Examples
Data sharing	Alameda	Initially, Alameda's partners expressed skepticism about data sharing due to concerns around protecting enrollees' privacy. Alameda demonstrated the need of data sharing to effectively coordinate care and built trust with partners through clear protections of enrollee data.
	Orange	Integration of behavioral health system data was a challenge and inhibited understanding of which services enrollees were accessing. Persistent partner engagement and demonstration of the utility of shared data supported eventual buy-in by partners in Orange.
	Marin	Marin experienced difficulty with partner uptake of their case management platform due to multiple competing or existing data systems. They developed data exchanges between various systems and found financial incentives supported uptake.
Communication	San Bernardino	Partner engagement was a challenge in San Bernardino due to high staff turnover within partner organizations. San Bernardino utilized regular meetings and constant communication through a variety of modalities to ensure consistent messaging and understanding.
	Sonoma	Sonoma emphasized establishing engagement with federally qualified health centers was an ongoing process. It took roughly six months to establish relationships strong enough to establish workflows and referral pathways, and these relationships required consistent attention.
	Los Angeles	Los Angeles recognized communicating WPC goals and service opportunities with external partners (e.g., hospitals, community organizations) would have been better supported by emphasizing internal communications with County health systems partners early on.
Partner goals and roles	Mendocino	Mendocino stated it was necessary to have a greater understanding of partner goals and capabilities to encourage meaningful engagement and understand partner roles within WPC.
	Placer	Partner delivery on WPC housing principles was a challenge. Placer utilized direct communication with partners to gauge capacity and confirm alignment with WPC strategies related to permanent supportive housing.
	Kings	Kings emphasized leveraging data storytelling to demonstrate the impacts of WPC on their county to increase buy-in from county governance. By convening various organizations, they reduced service duplication.

Source: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.

> *"I would say small, incremental, but important change is how I would characterize it. Have we seen a revolution? No. But have we seen small, steady progress where people understand across the divisions that this client population needs a special level of care that involves all of us as team members? Yes, we have seen that recognition grow and we've seen people actually more willing to participate. And not only that, actually now seeking out opportunities for partnering."* -San Mateo

In PY 6 follow-up interviews, Pilots also described successes in increasing partner engagement and buy-in (e.g., frequent communication, active role in shared decision-making, consensus on roles and responsibilities). It was important for Pilots to "meet partners where they were at" and to develop compromises when partner agencies faced competing priorities. Specific examples of partnership buy-in and engagement successes are described in Exhibit 24.

Exhibit 24: Selected Examples of Partnership Buy-in Successes Among WPC Pilots

WPC Pilot	Selected Examples
San Diego	Continued discussions with partners around HIPAA and updating MOUs as needed increased transparency and clarity among partners sharing data.
Kern	Increased collaboration between partner county agencies, health plans, and community-based organizations occurred in Kern due to the impact of WPC. As a result of the improved engagement, Kern identified additional programs that can be leveraged to identify solutions and compromises for partners.
Kings	The leadership of King's steering committee improved engagement among county agencies, health plans, and other partner organizations; partners' roles increased and decision-making improved as a result.
Riverside	Integrating WPC screening nurses in probation offices improved engagement among probation and housing partners significantly. Having the nurse stationed at the probation office facilitated communication and relationship building with cross-sector partner organizations.
Santa Cruz	Santa Cruz went on a "road show" to meet with partner agencies to gain a better understanding of their programs and services to WPC enrollees. This resulted in increased buy-in from partners by opening communication channels and additional opportunities to collaborate.
Los Angeles	Los Angeles worked with partners in hospitals and community programs to have "WPC champions" in service-delivery settings to increase care integration and spread the word about WPC services.
San Joaquin	San Joaquin established a bi-weekly operations meeting with partner agencies in order to build shared understanding of partner agency roles, responsibilities, and objectives in order to reduce duplication of services and getting involved in others' responsibilities.
Sonoma	The WPC team met with the multidisciplinary team on a weekly basis to discuss care coordination amongst the Sonoma County safety net agencies. During these meetings, case managers and care team members from the various agencies discussed the enrollees who were seeking services and discuss strategies in this intimate setting to expedite care for the clients. The care team helped locate clients, identify potential referral or service opportunities, upcoming appointments or deadlines, and other opportunities based on the clients' needs. This

WPC Pilot	Selected Examples
	group was extremely successful getting clients in supportive housing, on general assistance programs, supporting upcoming court dates, and getting clients into treatment.
Marin	Marin General Hospital invited the homeless service providers to monthly meetings with their behavioral health, care coordination, and social work unit supervisors to improve communication and ultimately, successful discharges for these enrollees.
Monterey	Monterey implemented monthly meetings with core partners that helped to build understanding between partners' various scopes of work, enhance communications, and streamline workflow.
San Diego	During internal coordination meetings, San Diego LE continually led discussions on data projects and transition planning for the Pilot to Cal-AIM. Discussions resulted in data mining ahead of transitions to services specific to serious mental illness, allowing for greater buy-in and participation from behavioral health leadership through the transition coordination period.

Source: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.
Notes: HIPAA is Health Insurance Portability and Accountability Act. MOU is Memorandum of Understanding.

Perceived Impact of WPC on Cross-Sector Collaboration and Integration of Care

From PY 3 and PY 5, LEs (75% to 97%) and partners (65% to 72%) reported higher levels of collaboration with each other (Exhibit 25). When asked about specific interactions, LEs reported increases in joint advocacy and planning (65%), referrals (58%), communication about clients (49%), and data sharing (52%) during WPC. Partners reported increases in similar activities as LEs.

Exhibit 25: Type of Interaction with Partners among WPC Lead Entities and Partners, Percentages Before WPC, PY 3, and PY 5

Lead Entities

Interaction	Before WPC	PY 3	PY 5
Any interaction with Partners	75	98	97
Joint Advocacy or Planning	49	80	65
Client/Patient Referrals	46	70	58
Communication About Client Needs or Care	36	69	49
Joint Service Delivery	23	46	25
Data Sharing	22	56	52

Partners

Interaction	Before WPC	PY 3	PY 5
Interaction with other WPC Partners	65	70	72
Joint Advocacy or Planning	25	30	28
Client/Patient Referrals	33	36	31
Communication About Client Needs or Care	23	28	26
Joint Service Delivery	13	14	11
Data Sharing	17	21	

Sources: PY 3 Lead Entity (LE) Survey (n=27), June-September 2018; PY 3 Partner Survey (n=227), June-September 2018; PY 5 Lead Entity Survey (n=25), June-August 2020; PY 5 Partner Survey (n=166), June-August 2020. Notes: Numbers are displayed as percentages. PY 3 partner survey (2018) included partners actively involved or with some involvement and excluded partners with limited involvement. Data Sharing rating derived from question "Please indicate the ways in which your LE CURRENTLY interacts with each of the following WPC partners. Please select all that apply: Administration, Data sharing (e.g., for client/patient care, needs assessment)". Rating not available for WPC Partners in PY 5.

In PY 6 follow-up interviews, Pilots reported that WPC provided an important opportunity to develop and/or enhance working relationships with partners. Improved communication and stronger relationships with partners following WPC were often attributed to time spent better understanding how their respective organizations worked, and Pilot investment in data sharing and care coordination.

In the PY 3 and PY 5 partner surveys, partners rated how effective the WPC program was at achieving goals from 0 (not effective) to 10 (extremely effective). Ratings increased between PY 3 and PY 5, indicating increased effectiveness of reaching WPC goals (Exhibit 26). On average, partners rated relatively high effectiveness of WPC managing the care of high-risk, high-utilizing populations (7.5) and in improving the coordination of health and social services and collaborative partnerships for program implementation (7.4).

Exhibit 26: Partners' Average Perceived Effectiveness of WPC in Achieving Goals, PY 3 and PY 5
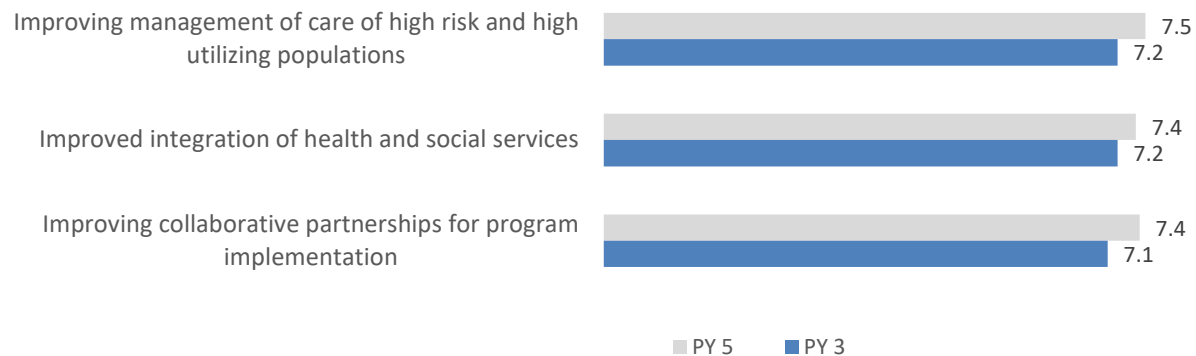
Sources: PY 3 Partner Survey (n=227), June-September 2018; PY 5 Partner Survey (n=166), June-August 2020.
Notes: In response to the question "On a scale from 0 to 10, where 0 = Not effective and 10 = Extremely effective, please indicate the overall WPC Pilot's effectiveness at achieving the following goals. If unknown or not perceived to be a goal of the WPC program, please select N/A." Partner survey includes partners actively involved or with some involvement and excluded partners with limited involvement. Sample size for selection of goals ranged from 167 to 179 in PY 3, and 146 to 156 in PY 5 as partner organizations could select "unknown" when appropriate.

Additionally, in PY 3 and PY 5 partner surveys, partners rated how effective the WPC program was at achieving aspects of care delivery from 0 (not effective) to 10 (extremely effective). Ratings increased between PY 3 and PY 5, indicating increased effectiveness of improving aspects of care delivery through WPC (Exhibit 27). Partners perceived WPC to have improved coordination of care and enrollee health and wellbeing (7.5, respectively), and improved the quality of care delivered to enrollees (7.3).

Exhibit 27: Partners' Average Perceptions of WPC in Improving Aspects of Care Delivery, PY 3 and PY 5
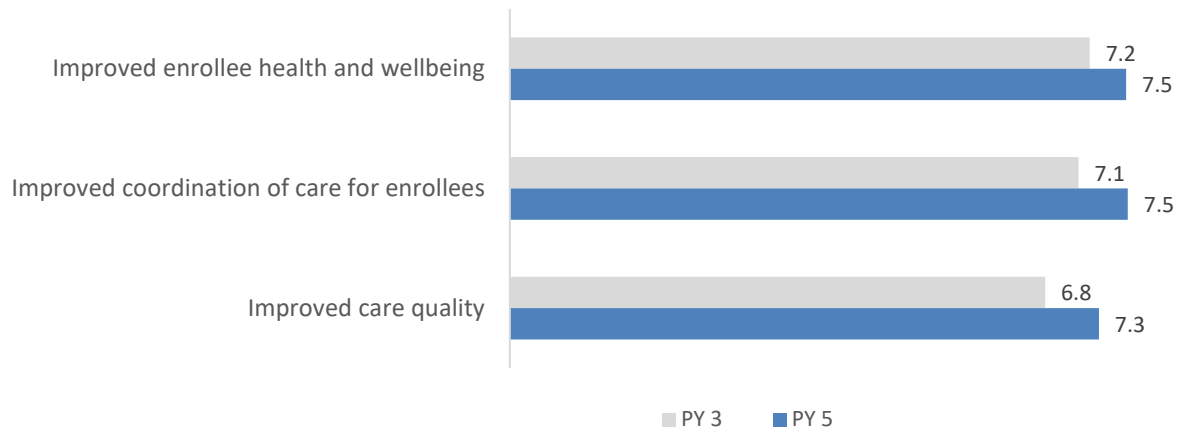
Sources: PY 3 Partner Survey (n=227), June-September 2018; PY 5 Partner Survey (n=166), June-August 2020. Notes: In response to the question "On a scale from 0 to 10, where 0 = Not effective and 10 = Extremely effective, please indicate the overall WPC Pilot's effectiveness at achieving the following aspects of care delivery. If unknown or not perceived to be a goal of the WPC program, please select N/A." Partner survey includes partners actively involved or with some involvement and excluded partners with limited involvement. Sample size for selection of goals ranged from 167 to 179 in PY 3, and 146 to 156 in PY 5 as partner organizations could select "unknown" when appropriate.

Chapter 3: Health Information Technology and Data Sharing Infrastructure

WPC Pilots were required to "improve data collection and sharing amongst local entities to support ongoing case management, monitoring, and strategic program improvements in a sustainable fashion." Specifically, Pilots were required to: (1) share enrollee data with and between participating partners as needed for effective care coordination, (2) develop methodology for sharing Protected Health Information (PHI), particularly mental health, and/or substance use disorder information, (3) use innovative tools to support data sharing, and (4) create and adhere to an implementation plan for developing their data sharing infrastructure. WPC Pilots were also required to collect and report data on WPC interventions provided and enrollee health outcomes.

This chapter expands upon initial progress described in the [interim report](#) which addressed: "to what extent did the Pilot (a) improve data collection and information sharing amongst local entities to support identification of target populations, ongoing case management, monitoring, and strategic program improvements in a sustainable fashion; and (b) achieve the approved application deliverables relating to data collection and information sharing?"

Specific data sharing elements as outlined in prior UCLA assessments (e.g., PY 4 (2019) [Care Coordination Policy Brief](#) and the associated [Pilot Case Studies](#)) were identified as critical for facilitating effective cross-sector care coordination and included: (1) formal agreements that defined terms and conditions of data sharing with key partners; (2) a universal consent form to reduce barriers to sharing enrollee-level data; (3) use of an electronic data sharing platform that includes key information such as comprehensive care plans; (4) medical, behavioral health and social service use data; and (5) capacity to track and report care coordination activities. Ideally, care coordinators could also access this data sharing system to (6) view and enter data (7) remotely (e.g., in the field) and (8) in real-time. [1], [2], [3] Since the interim report, Pilots made significant progress in developing data sharing infrastructure and preparing their information technology platforms to support the transition to Cal-AIM.

Data sources for this chapter included PY 3 (2018), PY 5 (2020), and PY 6 (2021) Lead Entity surveys and PY 6 follow-up interviews with leadership and frontline staff of all 26 Pilots. Additional qualitative data around challenges and solutions was provided in 25 WPC mid-year and annual narrative reports. The PY 5 and PY 6 data sources included both updates on program implementation since the interim report as well as clarification and further detail on activities conducted since the start of WPC. For additional detail on data sources and methodology, please see Appendices C, D, E, and F.

Data Sharing Agreements and Enrollee Consents

In the interim report, LEs reported using different mechanisms to facilitate data sharing with their partners, including Memorandums of Understanding (MOUs) and Business Associate Agreements (BAAs). These agreements ensured accountability to Health Insurance Portability and Accountability Act (HIPAA) regulatory requirements and created liability between the participating parties.

As indicated in the PY 3 LE survey, few (4 of 27) LEs had established data sharing agreements with key partners prior to WPC. By the PY 5 LE survey, the majority of LEs (20 of 25) had data sharing agreements in place with all key partners and the other five had these agreements with some key partners. Key partners were defined as those who have a high awareness of the WPC program structure and goals. These partners were actively involved in the program, either through day-to-day implementation or strategic planning, and could include a combination of internal and external partners.

> *"I think Whole Person Care has kind of set the precedent for using data from multiple sources because in the past each division kind of focused on their own data from their system." -San Mateo*

By PY, in surveys, LEs most often reported having these agreements with Medi-Cal managed care plans (MCPs; 21 of 25), followed by health care providers (20) and mental health treatment agencies (18; Exhibit 28). Agreements with other key partners were less common, but not insignificant. Data sharing agreements with MCPs were notable because many LEs received enrollee level data from MCPs for the purposes of targeted identification, outreach, and engagement.

During PY 6 and in follow-up interviews, LEs frequently described data sharing agreements as time-intensive to successfully implement for WPC due to a wide variety of Pilot-specific challenges. For example, LEs expressed difficulty working with some partner organizations that did not actively promote a data sharing culture and challenges reaching consensus amongst participating parties on appropriate language for formal contracts. Furthermore, LEs reported that it was often easier to share data within the county departments or internal organizations than with key partners that were outside their umbrella organization. Some Pilots, such as Contra Costa, Mendocino, and Sacramento, offered incentive payments for executing data sharing agreements, which encouraged participation particularly with community-based partners.

Exhibit 28: Frequency of Data Sharing Agreements with Lead Entity and Specific Types of Key Partners, PY 5
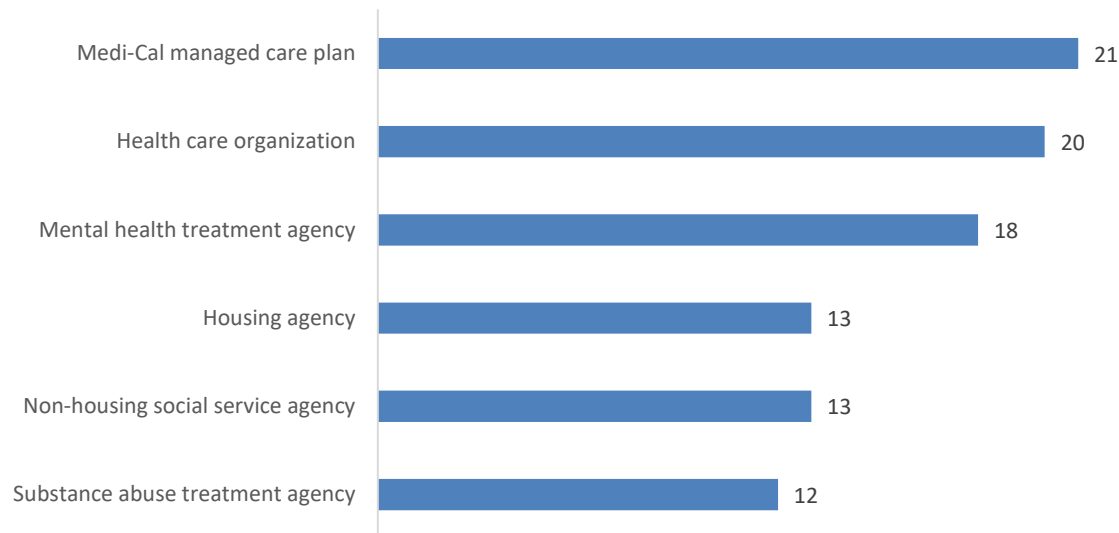
Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.
Notes: Napa did not complete a PY 5 LE survey and therefore is not included in the analysis. "Non-housing social services agency" includes organizations such as: county and/or community-based social services, employment and human service agencies, aging and adult services.

Additionally, enrollee consent was required to share private health data amongst care providers and participating partner organizations. Pilots took a wide variety of approaches to the development of consent forms, which often accompanied the process of enrolling into the program. Some Pilots, such as San Joaquin and Los Angeles, implemented a segmented consent form, which allowed enrollees to choose which types of data they felt comfortable sharing, such as consent to share medical, mental health, or substance use history.

In PY 5 LE surveys, LEs reported using universal consent forms for data sharing with which key partners (Exhibit 29). Most LEs utilized universal consent forms with health care providers (18) and non-housing social service agencies (15). In PY 6 follow-up interviews, LEs emphasized access to substance use disorder (SUD) treatment data was often challenging due privacy restrictions under Title 42 of the Code of Federal Regulations (CFR) Part 2.

Exhibit 29: Frequency of Use of Universal Consent Form for Data Sharing by Key Partner Type, PY 5
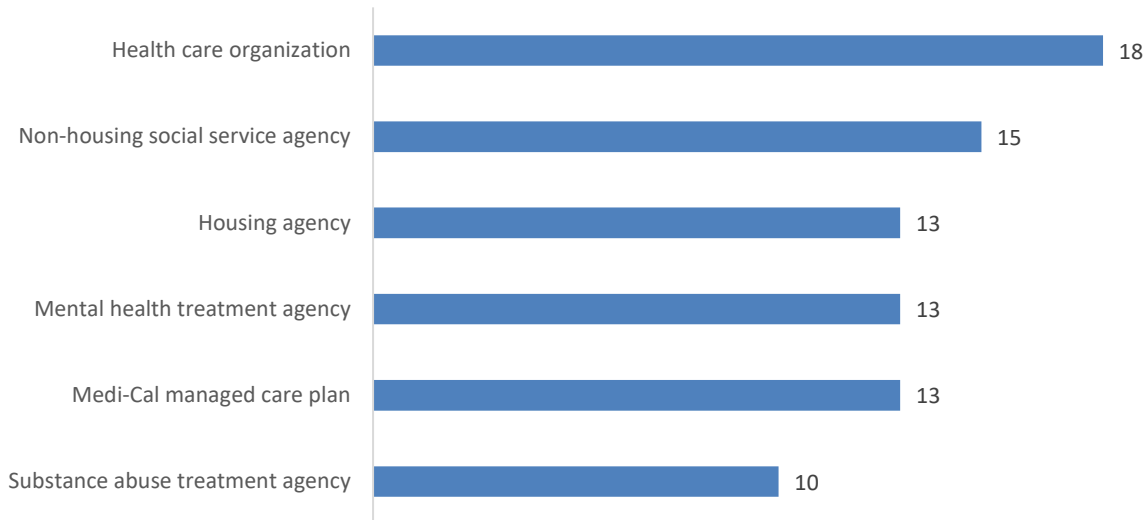
Partner Type	Value
Health care organization	18
Non-housing social service agency	15
Housing agency	13
Mental health treatment agency	13
Medi-Cal managed care plan	13
Substance abuse treatment agency	10

Source: PY 5 Lead Entity (LE) Survey, n=25, June-August 2020.
Notes: Napa did not complete a PY 5 LE survey and therefore is not included in the analysis. "Non-housing social services agency" includes organizations such as: County and/or community-based social services, employment and human service agencies, aging and adult services.

Exhibit 30 provides selected examples of how LEs implemented various data sharing agreements and enrollee consent forms to support WPC activities.

Exhibit 30: Selected Examples of Data Sharing Agreements and Enrollee Consent in WPC, PY 6

WPC Pilot	Selected Examples
Santa Cruz	In Santa Cruz, many agreements existed prior to WPC because of the county's health information exchange. This previously established infrastructure facilitated data sharing for WPC care coordination activities. As a result of collaborative discussions facilitated through WPC, participating partners expanded upon existing data agreements to include data on social determinants of health, in addition to medical data.
Contra Costa	During initial WPC engagement, prospective enrollees signed (1) a consent for treatment form, which covered data sharing amongst all agencies within the comprehensive health system (e.g., behavioral health, public health, emergency medical services, and housing) and (2) a universal release form, modeled from an existing program in Contra Costa, which allowed the Pilot to share data amongst external and internal partners.
San Joaquin	San Joaquin utilized a segmented consent form which allowed enrollees to choose what agency's data could be shared for the purposes of care coordination. Frontline staff emphasized that WPC demonstrated the necessity of such an approach as it facilitated comfort and trust building with enrollees.
Los Angeles	Los Angeles required partners to sign a business associate agreement with a data-sharing element. Enrollees were required to sign a universal consent form in order to participate in WPC, which was segmented to allow enrollees to opt-out of sharing particular data elements, such as data covered by the Code of Federal Regulations (CFR) Part 2, mental health history, and/or HIV test results.

WPC Pilot	Selected Examples
	The universal consent authorized Los Angeles to share data for a five-year period, even after disenrollment or graduation from the WPC program.
Mendocino	Enrollees in Mendocino signed a release of information form that was developed collaboratively by all partnering agencies. This form was later utilized for Project Roomkey and Project Homekey during pandemic response.

Source: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.

Data Sharing Platforms and Tools to Support Care Coordination

In PY 5 LE surveys, Pilots reported frequently used multiple data sharing platforms and tools to support care coordination (Exhibit 31). The majority of Pilots (19 of 25) indicated they had acquired and/or developed a care management platform to facilitate daily workflows and ensure appropriate capture and tracking of important enrollee-level data such as demographic characteristics, encounter notes, and attempts to contact. Many of the care management platforms were intended to be web-based, which would allow the care coordination team to access enrollee data and case notes in the field and when working directly with the enrollee.

Sixteen Pilots utilized electronic health or medical records (EHRs/EMRs) to support care coordination activities. Some case management platforms, as described above, were integrated into existing EHRs/EMRs. Smaller Pilots often had success with simple cloud-based storage, which allowed the care team to view and edit important enrollee documents, such as the care plan. This tool was used by 12 Pilots. Seven Pilots utilized centralized repositories, such as a Health Information Exchange (HIE), to access community-wide longitudinal enrollee records.

Tools within data sharing platforms offered increased functionality. Seventeen Pilots utilized an event-based alert system for emergency department or hospital visits. This data allowed frontline staff to make real-time strategic and informed decisions regarding enrollees' care. Ten Pilots utilized query-based exchanges to access individual enrollee level data.

Streamlining access to enrollee data was a common goal of WPC. By PY 5, 17 Pilots reported they could access enrollee's comprehensive care plan, needs assessment, and referrals in the same location (data not shown).

Exhibit 31: Platforms and Tools Used to Support WPC Data Sharing, PY 5
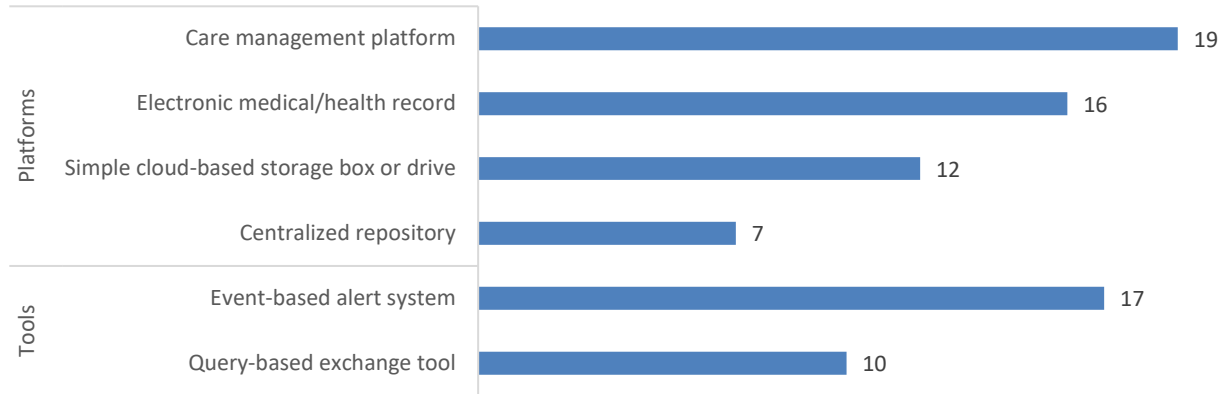
Source: PY 5 Lead Entity (LE) Survey, n=25, June-August 2020.
Note: Napa did not complete a PY 5 LE survey and therefore is not included in the analysis.

Access to Data Sharing for Care Coordination Team and Other Staff

Although access to care management platforms and event-based notifications varied by key partners, Pilots reported that access was most commonly granted directly to the care coordination team, followed by staff at county health care and mental health service agencies (Exhibit 32). No Pilots reported access by law enforcement or probation staff.

Exhibit 32: Type of Staff or Partner and Access to Care Management Platform and Event-Based Notifications, PY 5
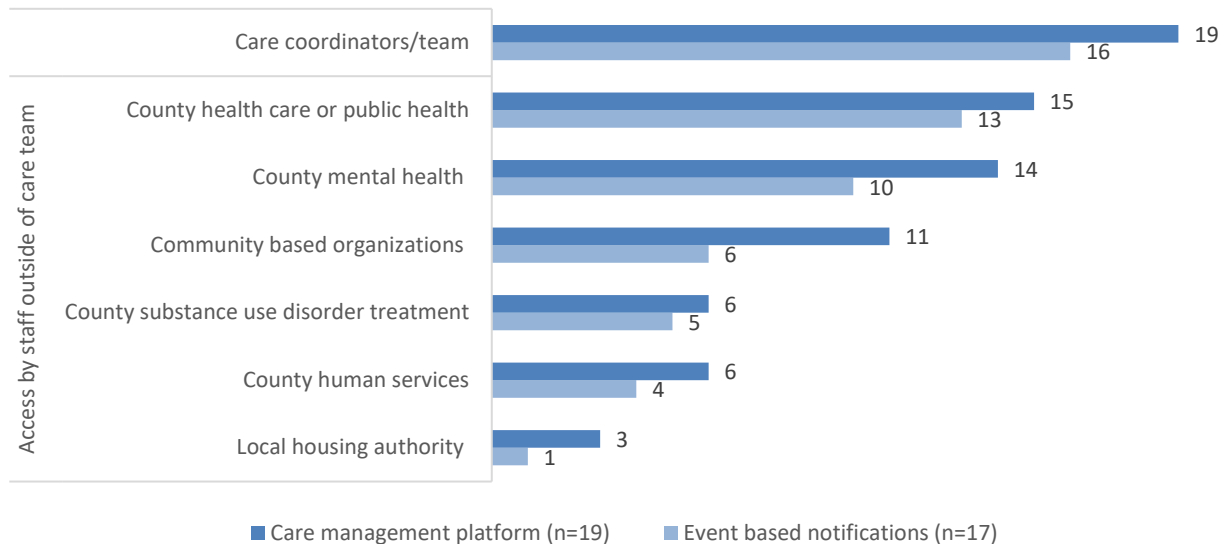
Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020.
Note: Napa did not complete a PY 5 LE survey and therefore is not included in the analysis.

> *"Some of the technology investments will only continue to grow and deepen…*
> *when we first started, the default … was 'it's easier just not to do it… and*
> *because I'm not certain if I can share it or not, we're just not going to share it'…*
> *We've knocked down a few of those silos… [now] we have visibility into the*
> *behavioral health record, and we actually do our documentation in their health*
> *record." -Ventura*

For care team staff, the majority of Pilots reported having access to data on emergency department and hospitalizations (21), other medical care (19), temporary housing/shelter (17), and mental health encounters (17; Exhibit 33). Pilots less frequently reported point of care access for all the types of enrollee-level data inquired about in the survey.

Exhibit 33: Type of Data Accessible to Care Coordination Staff, PY 5
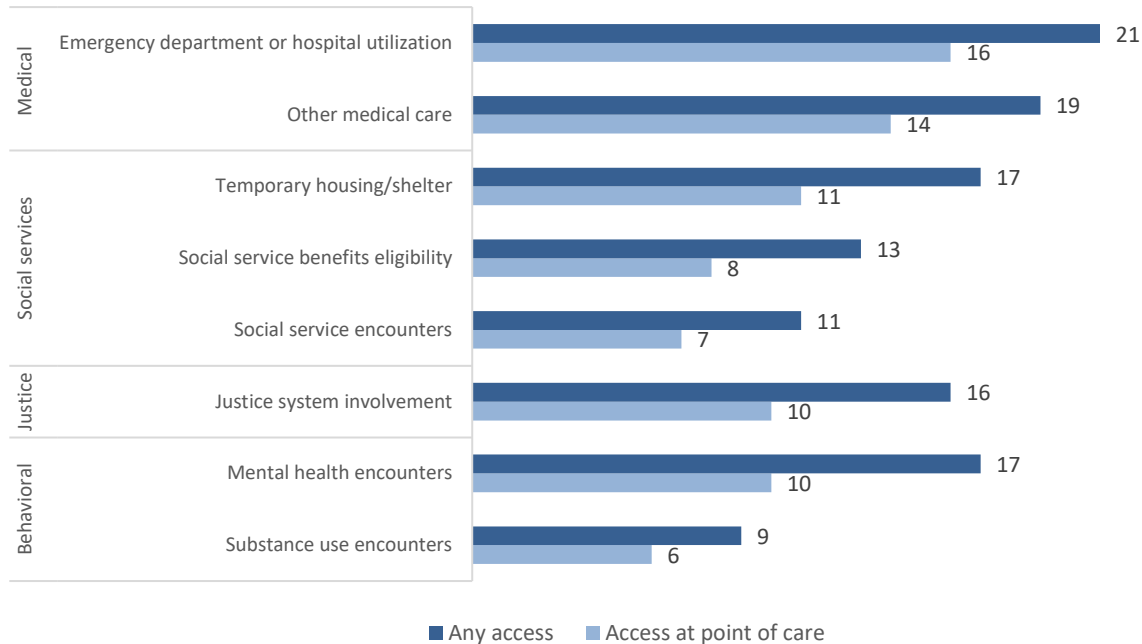
Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020.
Notes: Examples of "point of care" include ability to access in the field or during meetings with clients. "Other medical service encounters" includes those other than emergency department or hospital utilization. Examples of "social service encounters" include Child Protective Services, in-home supportive services, examples of "justice system involvement" include jail admission and discharge data.

> *"…[We have] an immediate email notification system that tells us when*
> *someone has gone to the emergency room or to the hospital inpatient… …*
> *that way we know when and how to help the most." -Placer*

Exhibit 34 provides selected examples of how case management software and real-time data sharing facilitated care coordination activities. Additional detail is provided in the Pilot specific mini analyses (see Appendix L).

Exhibit 34: Selected Examples of Data Sharing Tools and Platforms to Support Care Coordination in WPC, PY 6

WPC Pilot	Selected Examples
Alameda	Alameda's primary mechanism for data sharing with partners was a community health record (CHR) that consolidated client data and was accessible by all partners upon establishment of a data sharing agreement. The CHR was powered by a social health information exchange platform that integrated data from the LE's electronic health record (Epic) and case management tools, as well as the homeless management information system and county jail incarceration information. Alameda also utilized a tool called "EDie" to notify and alert frontline staff in real-time when WPC enrollees had an emergency department encounter.
Contra Costa	The primary mechanism for data sharing with external partners was a care management platform embedded within the electronic health record (EHR) called "Care Everywhere", which integrated data across county departments and affiliated health system partners. Care coordinators in Contra Costa received real-time notifications when WPC enrollees visited the emergency department or an in-patient setting at any hospital within the local geographic area.
Kings	Kings adopted a care coordination platform called "Effort to Outcomes" (ETO) from Social Solutions. ETO allowed the care team to input case notes, record care coordination services, and build reports, with access to medical, behavioral health, and social services data in a single location.
Los Angeles	Los Angeles developed their case management platform "CHAMP", which facilitated care coordination by providing eligibility screenings, enrollment documentation and assessments, stored enrollee documents (e.g., universal consent form) and care plan, and comprehensively documented case related information (e.g., attempted contacts with enrollees, case notes). Throughout the Pilot, Los Angeles made continuous improvements and modifications to the platform based on user feedback. The platform included applications that facilitated day-to-day workflows. For example, the team developed a dashboard that displayed enrollees' "SMART" goals and associated action steps. Through the dashboard, the care team could communicate on these goals and monitor their status, reducing redundancy and preventing duplication of services.
Marin	Marin's care coordination platform called "Wizard" was viewed as a critical tool for allowing the care coordination team to stay up to date about an enrollee's current goals, appointments, progress, and future scheduling. Communication amongst the care team could occur through in-platform HIPAA compliant messages or through a chat function. The platform featured real time alerts for care coordination staff.
Sacramento	Sacramento utilized a care management platform called "Shared Care Plan" which helped share enrollee medical, behavioral health, and other information between designated staff at service partner organizations.

Source: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.

Use of Incentives to Promote Data Sharing

As indicated in PY 6 LE surveys, 18 LEs utilized contract incentives with partners to promote the development of data sharing infrastructure (e.g., increased functionality within existing or acquisition of new case management platform, EHR, or HIE; data not shown). Of all contracting incentives presented in the survey, incentives to promote the development of data sharing infrastructure were rated the highest as both having achieved their desired goals (7.5 out of 10) and in likelihood of continued use (8.7; where 0 = "not at all" and 10 = "highly").

Challenges Related to Data Sharing and Reporting

Exhibit 35 summarizes the most frequently identified challenges related to data sharing and reporting by program year as presented by Pilots in bi-annual narrative reports.

Overall, the most common theme across the duration of WPC was challenges related to *lack of buy-in and/or readiness from partners and frontline staff* for new data systems or integrating existing data systems (77 unique mentions across reporting periods by 23 Pilots; data not shown). Many partners had different and very particular data needs and it was challenging to find a platform that met everyone's specifications. Frontline staff were resistant to access multiple systems in order to input required information for reporting and tracking of care coordination services. This theme was observed more frequently over time as Pilots formalized their data sharing systems, with five mentions in PY 2, 21 mentions in PY 4 and PY 5, and 19 mentions in PY 6.

Pilots also expressed *inability to access necessary data* to facilitate WPC activities (68 unique mentions across reporting periods by 24 Pilots; data not shown). The majority of these Pilots did not have real-time access to Medi-Cal coverage which would be useful in verifying prospective enrollee's eligibility and preventing unnecessary churn from Medi-Cal and the WPC program. There was an increase over time as Pilots ramped up outreach, engagement, and enrollment, with two mentions in PY 2, a peak of 20 mentions in PY 4, and 16 mentions in PY 6.

Pilots reported *inability to implement data sharing systems and/or integrate data from existing systems as intended* (65 unique mentions across reporting periods by 22 Pilots; data not shown). WPC Pilots noted that data sharing often required integrating data from disparate sources. For example, frontline staff had to assimilate data from different electronic health records or administrative databases so they could comprehensively understand the needs of an enrollee in order to make an informed care decision on what the enrollee required. Vendor delays, designing and/or purchasing technology that allowed for real-time data storage, and access by multiple agencies and users were described as challenges, both in terms of cost and in terms of the identification and selection process. However, there was a degree of resolution

over time, as WPC Pilots resolved issues with vendors and worked collaboratively with partners to achieve integration. There was a peak of 18 mentions in PY 3, and only 10 mentions in PY 6.

A consistent theme across reporting periods was ***legal and cultural barriers to data sharing***, such as risk aversion and differing interpretations of laws and regulations (60 unique mentions across reporting periods by 22 Pilots; data not shown). Fear of violating the HIPAA or other data privacy laws was cited as contributing to a reluctance to share data, even across departments within the same agency. WPC Pilots described misunderstandings and differing interpretations among partners regarding what data could be legally shared as a barrier to successful data sharing.

Issues with data reporting (e.g., tracking care coordination activities and services provided through WPC) largely decreased over time, although it was a challenge that almost all Pilots faced (43 unique mentions across reporting periods by 24 Pilots; data not shown). WPC Pilots reported challenges in ensuring consistency of data being collected across partners and noted a considerable effort to reconcile different data sources and develop new documentation strategies. These efforts resulted in progress towards better data collection for reporting purposes (e.g., DHCS required metrics, internal dashboards for monitoring progress). The [interim report](#) and [narrative report updates](#) provide additional examples of data sharing and reporting challenges by Pilot.

Exhibit 35: Data Sharing and Reporting Challenges Among WPC Pilots by Program Year, PY 2 – PY 6
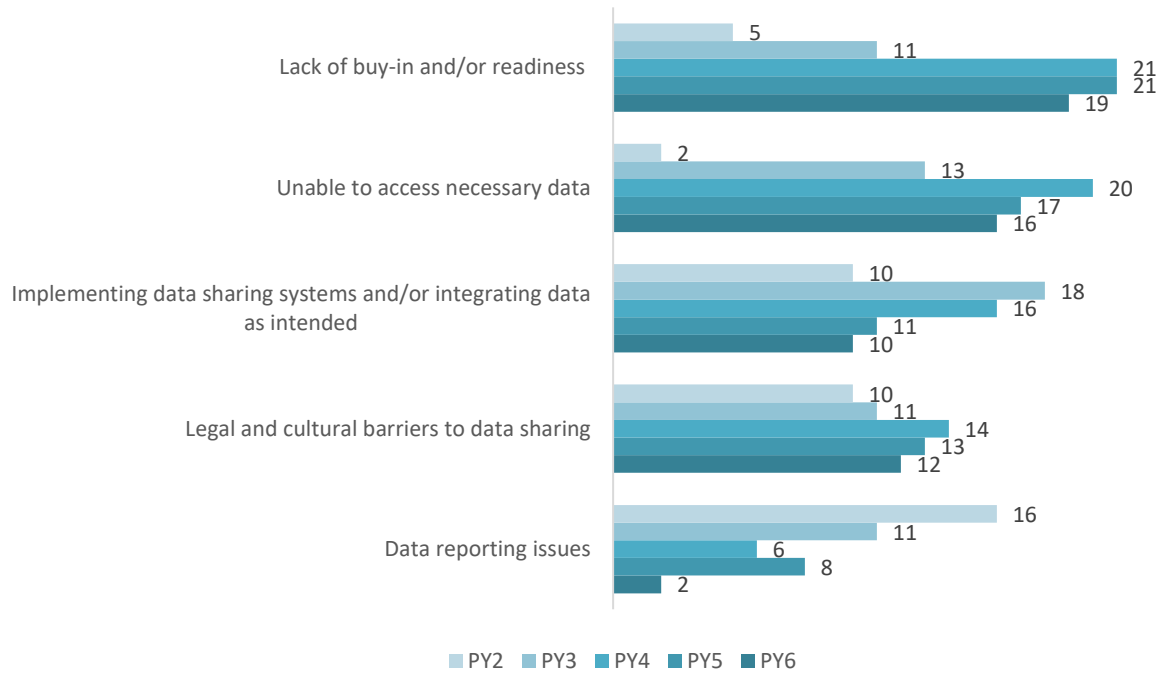
Source: WPC Mid-Year and Annual Narrative Reports, PY 2 (2017) - PY 6 (2021).
Notes: Numbers indicate WPC Pilots that mentioned the thematic challenge at least once within the given program year. PY 2 = 2017, PY 3 = 2018, PY 4 = 2019, PY 5 = 2020, and PY 6 = 2021.

Successes in Data Sharing and Reporting

In PY 5 LE surveys, LEs perceived relatively high impact of WPC on improving data sharing between the LE and partners (7.9 out of 10; data not shown). Exhibit 36 summarizes the most frequently identified successes related to data sharing and reporting by program year as presented by Pilots in bi-annual narrative reports. Successes in data sharing and reporting often directly reflected a response to the challenges detailed above.

Overall, the most common theme across the duration of WPC was ***progress in sharing data across sectors***, particularly between LEs and Medi-Cal managed care organizations, local homeless management information systems (HMIS), substance use disorder programs, and county behavioral health departments (108 unique mentions across reporting periods by all 25 Pilots; data not shown). Pilots consistently reported successes in this area in each reporting period (range of 19 to 24 Pilots per reporting period).

Pilots also reported successes in ***developing new software, data sharing platforms, and/or data repositories*** (105 unique mentions across reporting periods by all 25 Pilots; data not

shown). These included: developing a new care management platform, utilizing temporary data systems while longer-term solutions were still being developed, moving forward with procurement processes for data systems, and/or expanding functionality within existing systems including developing additional forms and prompts within EHR. Pilots also consistently reported successes in this area in each reporting period (18-23 Pilots per reporting period).

Pilots also emphasized setting up infrastructure needed to support ***data-informed decision making or quality improvement efforts*** (93 unique mentions across reporting periods by all 24 Pilots; data not shown). For example, providing instant notifications when enrollees checked into the ED or dashboards to help track enrollee progress on relevant metrics allowed frontline staff and management to make real time strategic and informed decisions regarding enrollee care. Use of these tools increased over time as Pilots formalized and better integrated data systems into existing workflows, with 22 Pilot mentions in PY 6 (compared to only 11 in PY 2).

Less common themes related to successes in data sharing included: ***meeting external reporting requirements*** (e.g., enrollment, utilization, and metrics to DHCS) and ***implementing data sharing agreements and consents with WPC partners***. Pilots often found early success with these components benefited them throughout the course of WPC.

Exhibit 36: Data Sharing and Reporting Solutions Among WPC Pilots by Program Year, PY 2 – PY 6
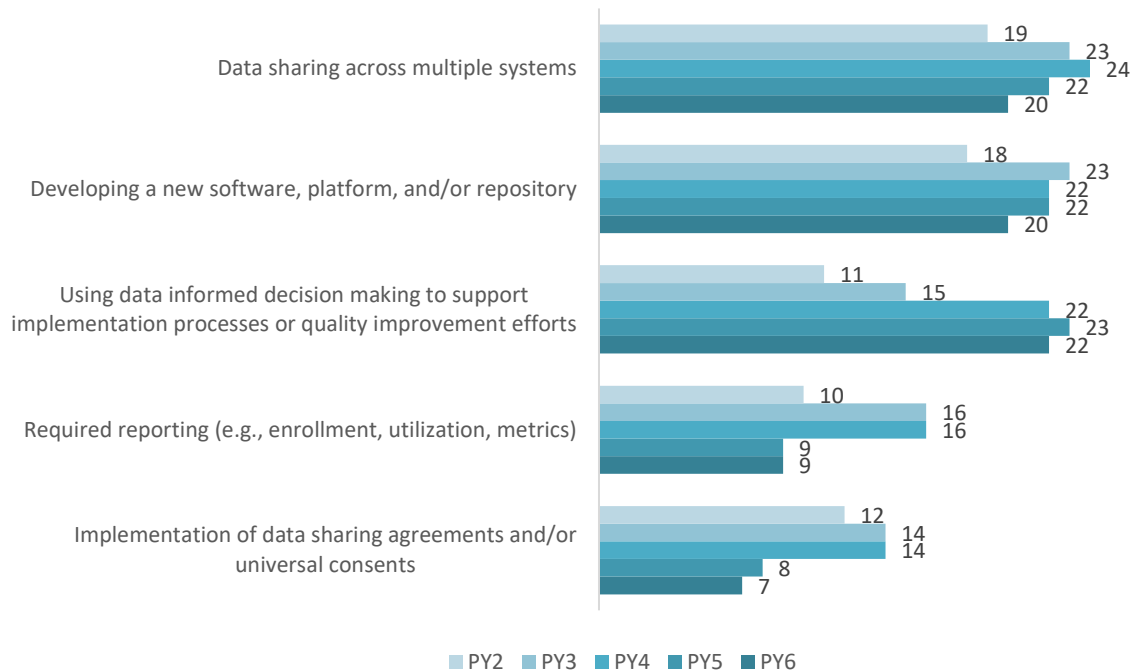
Source: WPC Mid-Year and Annual Narrative Reports, PY 2-PY 6.
Notes: Numbers indicate WPC Pilots that mentioned the thematic challenge at least once within the given program year. PY 2 = 2017, PY 3 = 2018, PY 4 = 2019, PY 5 = 2020, and PY 6 = 2021.

Please refer to the interim report and narrative report updates for specific examples of data sharing and reporting solutions as presented by Pilot.

Chapter 4: WPC Enrollment Processes, Size, and Patterns

WPC Pilots were required to identify eligible Medi-Cal beneficiaries using pre-defined inclusion criteria, enroll them in WPC, and engage enrollees in care. This chapter reports on strategies used by Pilots to identify, enroll, and engage eligible Medi-Cal beneficiaries in WPC, as well as summarizes facilitators, barriers, and lessons learned. In addition, this chapter reports on the resulting enrollment size and patterns for the overall program and by target population. Key findings from the interim report are summarized when data have not changed.

Data sources for this chapter include PY 5 (2020) and PY 6 (2021) Lead Entity (LE) surveys and PY 6 follow-up interviews with leadership and frontline staff of 26 Pilots. Data from 25 narrative reports submitted by Pilots to DHCS were also included in the following analyses. The PY 5 and PY 6 data sources included clarification on identification, engagement, and enrollment activities conducted since the start of WPC. Since the interim, new and further detail is available. The data source for enrollment size and pattern analyses were *WPC Quarterly Enrollment and Utilization Reports* from PY 2 (2017) to PY 6. For additional detail on data sources and methodology please see Appendices A and B.

WPC Processes for Identification, Engagement, and Enrollment of Eligible Medi-Cal Beneficiaries

Identifying Prospective Enrollees

In PY 6 LE surveys, WPC Pilots reported using a range of strategies to identify eligible Medi-Cal beneficiaries. Nearly all Pilots (24 of 26) utilized referrals from WPC partner agencies, which came from diverse sources such as Medi-Cal managed care plans, hospitals, clinics, and law enforcement. Many Pilots (20) also accepted referrals from other agencies not participating in WPC. In PY 6 follow-up interviews, Pilots emphasized the importance of developing and

> *"Some of these folks have never been engaged ... We're finding people on the streets who've been homeless for 20 years and have not been engaged in care for that length of time. ... I think a lot of Pilots learned ... that there is an unknown group of very vulnerable people out there who weren't accessing services because we were all focused on the high utilizers. We inadvertently found these low utilizers with extremely high needs."* -San Mateo

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maintaining relationships with other agencies (e.g., hospitals, emergency departments) to establishing strong referral streams.

As indicated in PY 6 LE surveys, the next most commonly used strategy for identifying eligible beneficiaries was through shelter/street- or other field-based (e.g., hospital/medical care delivery facility) outreach (22). Half the Pilots (13), including Kings, Santa Cruz, and Sonoma, also allowed potential enrollees to refer themselves or their peers into the program based on interest and individual assessment of eligibility. Less common identification methods included: target population lists provided by Medi-Cal managed care plans (10) and predictive modeling or risk-based algorithms/scores (8).

Exhibit 37 shows the perceived effectiveness of these strategies for identifying prospective enrollees on a scale from 0 to 10 (where 0 = not at all effective and 10 = highly effective). Pilots rated referrals from WPC partner agencies as more effective (average rating of 7.7 out of 10) than referrals from other (non-WPC partner) community-based agencies (6.5). In PY 6 follow-up interviews, Pilots noted that WPC partner agencies often had a better understanding of Pilot enrollment criteria (e.g., primary target populations) and program offerings and thus were more likely to make appropriate referrals. Some Pilots, such as Mendocino, iteratively edited form fields on WPC referral forms to clarify eligibility criteria with partners and ensure receipt of appropriate referrals.

In PY 6 LE surveys, Pilots also rated field-based outreach (e.g., at hospitals) as highly effective (average rating of 7.5 out of 10), with the added benefit of allowing for warm-handoffs to WPC. Pilots rated use of predictive modeling or risk-based algorithms and target population lists provided by Medi-Cal managed care plans to identify prospective enrollees slightly lower in terms of effectiveness (6.9 and 6, respectively), due to challenges with follow-up and engagement of prospective enrollees. A handful of Pilots, such as Contra Costa, experienced higher effectiveness with risk-based algorithms. Prior to WPC, Contra Costa had already integrated data from multiple systems. Allowing individuals to refer themselves or peers was considered least effective (4.4), as these individuals often did not meet Pilot eligibility criteria.

Exhibit 37: Most Common Strategies for Identifying Prospective Enrollees and Pilot Perceived Effectiveness, PY 6

Strategy	Rating
Maximum rating	10
Referrals from WPC partner agencies (n=24)	7.7
Hospital or other medical care delivery facility outreach (n=22)	7.5
Street- or shelter-based outreach (n=22)	7.5
Predictive modeling or risk-based algorithm/scores (n=8)	6.9
Referrals from other (non-WPC partner) agencies in the community (n=20)	6.5
Target population lists provided by Medi-Cal managed care plans (n=10)	6
Allowing individuals to refer themselves or peers (n=13)	4.4

Source: PY 6 Lead Entity (LE) Survey (n=26), May-June 2021.
Notes: Numbers in parenthesis represent the number of Pilots who indicated they utilized a given strategy. If the Pilots used the identification strategy, they were asked to rate effectiveness on a scale from 0 to 10, where 0 = not at all effective and 10 = highly effective.

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"… One thing that really helped is we were able to really get buy-in from our hospital partners… we had workflows in place specifically for the hospitals where we would try to get a CHW out there within a couple of hours so that we could do a warm handoff before the individual …[left] the [ED]. The hospitals were so bought into that, that they created their own referral form. …we played a really big part …. And I do think that was a huge success for us because they were really bought into it including, not just our main points of contact with the community engagement folks, but all the way through the discharge workers at the hospitals. -Sacramento

Exhibit 38 highlights specific approaches by Pilots to identify prospective enrollees; these examples demonstrate the variety of strategies utilized across WPC Pilots.

Exhibit 38: Selected Examples of WPC Pilot Strategies to Identifying Prospective Enrollees

Strategy	Pilots that Utilized Strategy	Selected Examples
Referrals from WPC partner agencies (n=24)	All Pilots, *except* Contra Costa San Bernardino	Marin relied on their partnership with federally qualified health centers to receive referrals and real-time data on prospective enrollees.
		Mendocino relied heavily on partner referrals, particularly medical and behavioral health providers. Mendocino's referral form clearly outlined program eligibility criteria and encouraged the referring party to gauge the prospective enrollee's interest and potential for engagement with WPC prior to submitting the referral. Prospective enrollees were already educated on the basics of WPC by the referring partner, which facilitated enrollment and future engagement.
Hospital or other medical care delivery facility outreach (n=22)	All Pilots, *except* Mendocino Riverside San Francisco Santa Cruz	Sacramento attempted to respond to referrals from emergency department visits within two hours and to respond to referrals of hospital inpatients within 24 hours, which allowed them to identify and engage prospective enrollees while they were still in systems of care and to receive a warm handoff from the provider or care team to WPC frontline staff.
		Alameda utilized care transitions nurses at the County's Community Health Center to evaluate whether individuals entering the hospital or transitioning to a skilled nursing facility met WPC enrollment criteria. If enrollment criteria were met, the individual would be connected directly with a WPC community health worker.
Street- or shelter-based outreach (n=22)	All Pilots, *except* Contra Costa Mendocino Riverside Santa Cruz	Santa Clara partnered with the Valley Homeless Healthcare Program, which used mobile vans to conduct regular visits to areas with relatively high concentrations of homeless individuals. This increased WPC enrollment through in-field outreach.
		In San Francisco, street medicine and shelter health worked to identify prospective enrollees for WPC in places where individuals experiencing homelessness typically frequented,

Strategy	Pilots that Utilized Strategy	Selected Examples
		including shelters and overnight residences, as well as on the street and in encampments.
Allowing individuals to refer themselves or peers (n=13)	Kern Kings Los Angeles Mariposa (SCWPCC) Mendocino Monterey San Benito (SCWPCC) San Diego Santa Clara Santa Cruz Solano Sonoma Ventura	Due to law enforcement's strong working relationship with the King's WPC program, many justice-involved individuals referred themselves to the program after hearing positive outcomes and success stories through word-of-mouth. To identify prospective enrollees for their substance use programs, Los Angeles utilized their substance abuse services help hotline. At the end of the call, a high-level overview of WPC was provided, and callers were asked whether they were interested in WPC. If the caller expressed interest, the prospective enrollee was assigned to a community health worker for subsequent follow-up.
Target population lists provided by Medi-Cal managed care plans (n=10)	Kern Los Angeles Mariposa (SCWPCC) San Benito (SCWPCC) San Bernardino San Joaquin Santa Clara Solano Sonoma Ventura	Kern received lists of individuals who met WPC enrollment criteria from managed care plans; they matched those lists with daily reports of people who were released from the local county jail to identify eligibility for WPC.
Predictive modeling or risk-based algorithms/scores (n=8)	Contra Costa Kern Los Angeles Placer San Bernardino San Diego Santa Clara Sonoma	Contra Costa employed a predictive risk model to identify prospective enrollees. The model factored in utilization of services, health records, behavioral health issues, and social factors to generate a list of the top 23,000 adults expected to have an avoidable emergency department visit or hospitalization. The higher risk individuals were prioritized for WPC enrollment. The model was refined throughout WPC, integrating lessons learned. Until PY 6, San Bernardino employed a scoring mechanism based off data from the health system, public health, and Medi-Cal managed care plans, which ranked prospective enrollees based on utilization of emergency department, inpatient hospital stays, and urgent care visits.

Source: PY 6 Follow-up Interviews with Lead Entities and Frontline Staff (n=26), June-September 2021.
Note: SCWPCC is the Small County Whole Person Care Collaborative.

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Determining Eligibility

In PY 6 LE surveys, Pilots were asked to identify their methods for determining WPC eligibility. Pilots most often utilized existing data to determine eligibility, including electronic medical records (EMRs) or other medical data (21 of 26) and information provided by WPC partners (e.g., SMI/SUD diagnosis, homelessness indicators; 21). Other common methods for determining eligibility included staff assessment using standardized tools (20) and care coordinator assessments (18).

Exhibit 39: Method for Determining WPC Eligibility Following Identification of Prospective Enrollees, PY 6
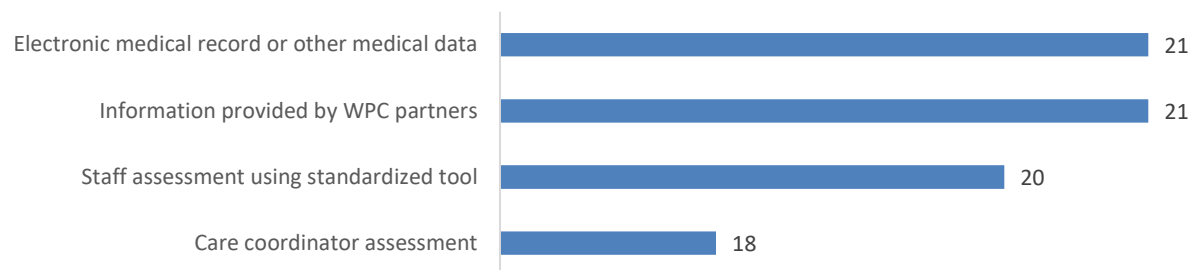
Source: PY 6 Lead Entity (LE) Survey (n=26), May-June 2021.

Methods for determining WPC eligibility varied by target population (Exhibit 40). Within the target population of high utilizers, they were most often identified using EMRs or other medical data (82%), followed by information provided by WPC partners (76%). Staff standardized screening were most often used within the SMI/SUD target population (90%) and homeless or at-risk-of-homelessness target populations (64% and 78%, respectively).

Exhibit 40: Method for Determining Eligibility for WPC within Primary Target Population, PY 6
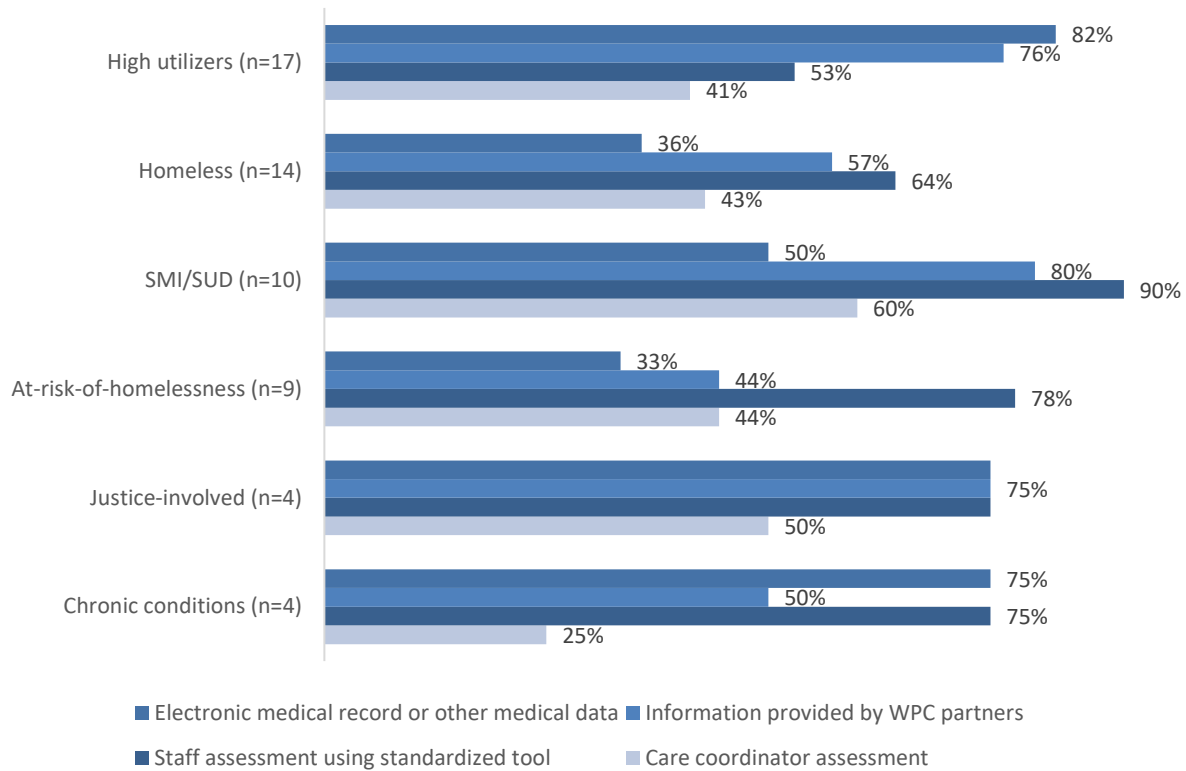
Source: PY 6 Lead Entity (LE) Survey (n=26), May-June 2021.
Notes: Numbers in parenthesis indicate the number of Pilots who indicated a given target population as a primary target population. The primary target population is defined as a key demographic of focus, one that WPC Pilots designed their services, infrastructure, and processes around; Pilots could serve multiple primary target populations. SMI/SUD is serious mental illness/substance use disorder.

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Enrollment Approach

In PY 6 LE surveys, the majority of WPC Pilots indicated enrolling directly at health care facilities (20 of 26) or on the street, at shelters, or community-based locations (20; Exhibit 41). Pilots rated these enrollment methods as the most effective (average rating of 8.2 and 7.7 out of 10, respectively). Pilots emphasized partnership networks and structure developed through WPC greatly facilitated this in PY 6 follow-up interviews. Nineteen Pilots utilized warm handoffs at co-located organizations (data not shown). Pilots reported they would co-locate WPC staff at points of care or transition (e.g., hospitals, clinics, jails) when possible and use warm handoffs as an opportunity to establish relationships and build trust.

Fewer Pilots utilized strategies such as telephonic outreach and auto-enrollment (i.e., enrollment based on defined criteria and notification by mail; 15 and 3, respectively). These methods were used in attempts to expand program reach but were considered least effective, likely due to lack of personal engagement and connection established through in-person contact.

Exhibit 41: Pilot Perceived Effectiveness of WPC Enrollment Method, PY 6

Maximum rating	10.0
Enrollment at health care facilities (n=20)	8.2
On street, at shelter, or other community based location (n=20)	7.7
Enrollment by telephone (n=15)	5.9
Auto-enrollment and opt-out (n=3)	5.2
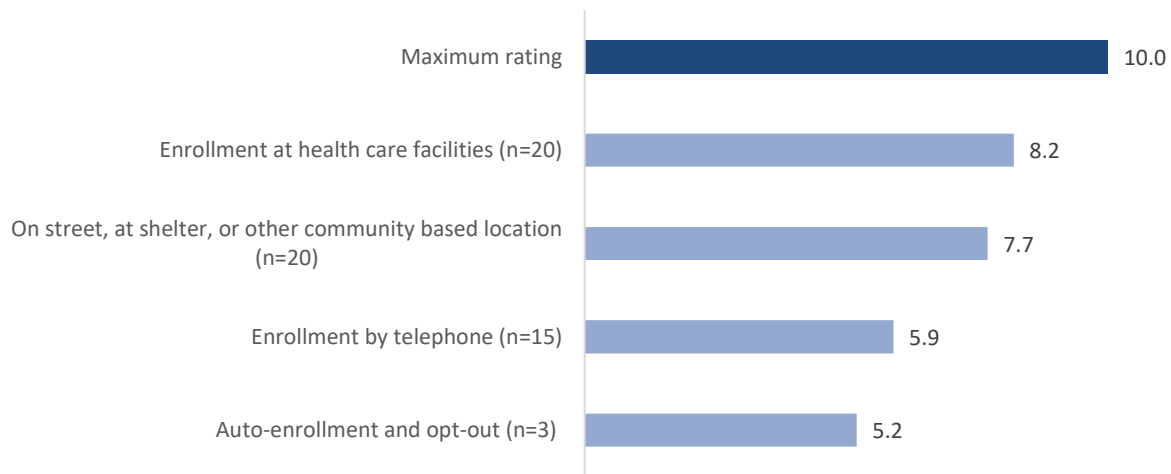
Source: PY 6 Lead Entity (LE) Survey (n=26), May-June 2021.
Notes: Numbers in parentheses represent the number of Pilots who indicated they utilized a given enrollment method. If the Pilots used the enrollment method, they were asked to rate effectiveness on a scale from 0 to 10, where 0 = not at all effective and 10 = highly effective.

Enrollee Engagement and Retention

After enrollment into WPC, care coordination staff employed engagement techniques to ensure enrollee retention in the program. As highlighted in the [interim report](), WPC Pilots reported performing a variety of activities to engage beneficiaries in the WPC program, including in-person one-on-one meetings, phone calls, text conversations, street outreach, and/or home visits. Sustained enrollee engagement was an important focus of Pilots due to the nature of WPC's vulnerable and often transient target populations.

In PY 6 interviews, Pilots reported challenges in maintaining enrollee engagement, including lack of regular communication with enrollees due to inaccurate or outdated contact information and lack of cell phones, particularly amongst the homeless and the justice-involved target population. As a result, it was important for Pilots to engage enrollees in a variety of locations and through different modalities. Many Pilots commented on the importance of developing rapport and trust with enrollees. For example, Placer and San Joaquin addressed immediate needs (e.g., transportation, hygiene) before moving towards a discussion about other needs (e.g., health outcomes).

> *"I would say the other part that's important is really building trust and getting to know the patients. … you must reach so many people by a certain day in order to get reimbursed. And outreaching to somebody, sometimes it takes... I don't know how many times, months to do it, right? And that's something that WPC has enabled us to be able to do… we have a whole process of trying to create some trust, a whole pre-outreach review, some best practices around having some ideas what a patient wants without being too overly prescriptive of what they probably want... If you know the person doesn't come in, that might be a question, or, 'Oh, are you needing transportation?' So right away, you know some things and aren't expecting the patient to just open up and tell you their entire life and every single thing that they need…." -Alameda*

Another key factor in engaging and promoting rapport with enrollees was having enthusiastic and dedicated care coordinators and ensuring consistent care coordinator assignment. In PY 5 surveys, 13 Pilots indicated having a single, dedicated care coordinator. Having staff with lived experience (e.g., CHWs, peer support specialists) like that of the target population was another strategy utilized to build trust.

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"This sub-population has a lot of trauma... So that is part of the reason why it's so hard to establish that trust and that relationship. And I think a lot of them, when they do achieve stability, that it is partly because of those relationships, that they do have that person that they can turn to when a crisis arises, that they can turn to somebody who they trust." -Santa Clara

Exhibit 42 provides selected examples of these specific strategies WPC Pilots employed to promote and maintain engagement of enrollees.

Exhibit 42: Selected Examples of Strategies for Engagement of WPC Enrollees

Engagement Elements	WPC Pilot	Selected Examples
Multiple points of contact	Orange	Orange engaged prospective enrollees in various points of contact, including the hospital and clinics. The care coordinator also attended appointments or assisted in transportation for their enrollees.
	Riverside	Riverside embedded a nurse in the probation office to keep in constant communication with the probation officer, so the care team was able to reach the enrollee when needed.
Developing trust and rapport	San Bernardino	San Bernardino emphasized hiring for key traits in care coordination staff, including kindness, compassion, and respect, in order to foster relationships with their enrollees.
	San Joaquin	San Joaquin highlighted the importance of addressing the immediate needs of prospective enrollees in order to increase trust and rapport.
Consistent care coordinator assignment	Kern	Kern utilized a consistent care coordinator, who was responsible for initial and subsequent engagement. The consistent contact allowed for trust and rapport building throughout the life of the enrollee's participation in WPC.
	Los Angeles	Each enrollee in Los Angeles was assigned to a specific community health worker, which ensured consistency of communication and engagement throughout WPC enrollment. Community health workers maintained contact with enrollees through a variety of mechanisms but primarily by phone (ideally once a week).

Source: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.

> *"… a lot of these people are very skeptical. They have been in and out of the system. The system has failed them over and over and over and over again, and they are very skeptical initially of how are you going to be any different? What are you going to do for us that's any more help than any other entity that I've been referred to in the past that has failed me? So, we really do try to make sure that … from the very onset … they're following through, and that they are continuing to experience a level of continuity that they never had before."*
>
> *-Kern*

Source: PY 6 follow-up interviews.

Challenges and Successes

Extensive discussion of challenges and successes related to identification, engagement, and enrollment are presented in the [interim report](#) and [bi-annual narrative report updates](#). As discussed in these reports, early program challenges were around initial enrollment of eligible Medi-Cal beneficiaries into WPC and with maintaining enrollee engagement over time. These challenges were often attributed to the complex needs and/or transient nature of WPC target populations. Some target populations presented more complex challenges to work with, such as individuals experiencing homelessness (e.g., no permanent address, transient nature, lost phone) and justice-involved target populations (e.g., unpredictability around timing of release and difficulty contacting/locating after release from jail). Some Pilots also identified poor timeliness or accuracy of data, which was needed to support outreach and enrollment efforts.

Over time, Pilots reported successfully enrolling eligible beneficiaries by employing solutions that were often directly the result of policy and procedure changes, which were motivated by observed challenges. Enrollment generally increased as Pilots' staffing capacity and program processes improved (e.g., formalized contracts with community partners, creation of clear guidelines and protocols for referring agencies that outlined WPC Pilot goals and enrollment criteria, utilization of warm handoffs to facilitate enrollee trust and buy-in).

Analyses of trends over time indicated that both challenges and successes related to identification, engagement, and enrollment were more prevalent in early reporting periods. These challenges and successes decreased in late PY 5 as LEs focused on existing enrollment as they approached the program end (December 2021) and maintained their response to the COVID-19 pandemic.

During the COVID-19 pandemic, there was unanticipated improvement in enrollee engagement as Pilots found synergy with COVID-19 response and short-term housing programs. For example, Project Roomkey provided an opportunity for WPC staff to identify and consistently

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engage eligible enrollees while they were temporarily housed. Building upon existing partnerships, some Pilots coordinated with community-based organizations for offerings such as vaccination, testing, education, and personal hygiene pods, which provided additional opportunities for WPC outreach and engagement.

WPC Enrollment Size and Patterns

Enrollment into WPC began during program year 2 (PY 2), with enrollment beginning in or after January 2017 for Pilots that began implementing in January 2016 and in or after July 2017 for Pilots that began implementing in July 2016. WPC Pilots submitted *Quarterly Enrollment and Utilization Reports* to DHCS each quarter, from January 2017 to December 2021. These reports contained monthly records for each individual that participated in WPC. Data included enrollment status, enrollment date, disenrollment date, disenrollment reason, target population(s), homeless status, and WPC service utilization. UCLA combined data from all WPC Pilot reports and used this data for analyses of enrollment size and patterns. UCLA defined enrollment in WPC as any individual that a WPC Pilot reported as enrolled and had an enrollment start date. The *Quarterly Enrollment and Utilization Reports* also included individuals that received a limited set of services from WPC Pilots (e.g., outreach and stays in a sobering center), but ultimately did not enroll into a WPC Pilot. These individuals were not included in the analysis in this chapter, as they were not enrollees, but are examined in Chapter 5: WPC Services Offered and Delivered.

A number of other enrollees were also excluded from the analyses in this chapter. There were 576 individuals enrolled in more than one WPC Pilot at the same time and unknown to the Pilots. This was likely in part due to moving from one county to another. However, 1,491 enrollees with non-overlapping enrollment periods were not excluded. The final number of enrollees across Pilots was 249,378 out of a total of 247,887 unique individuals ever reported in the program. UCLA did not report data based on 10 or fewer enrollees to protect confidentiality. In addition, 11,775 (4.7%) unique enrollees had no target population reported and are not included in analyses of enrollees by target population.

Enrollment Size

Based on the *Quarterly Enrollment and Utilization Reports of the* 25 WPC Pilots, seven began enrolling in January 2017 (Exhibit 43). By the end of 2017, 16 more Pilots began enrolling. Two Pilots, San Diego and Sonoma, started enrollment during PY 3 (2018). San Diego needed additional time to establish administrative and delivery infrastructure prior to enrolling, and Sonoma delayed their enrollment due to significant wildfires in their community around the time of implementation. The Small County Whole Person Care Collaborative (SCWPCC) was

formed among three counties, Mariposa, Plumas and San Benito, and started enrollment in December 2017. In September 2018, Plumas County dropped out of the SCWPCC. Due to the COVID-19 pandemic, WPC was extended for additional year (PY 6). Two Pilots, SCWPCC and Solano, dropped out of WPC at the end of PY 5.

Exhibit 43: Timeline of the Start of WPC Enrollment by Pilot, PY 2 to PY 3
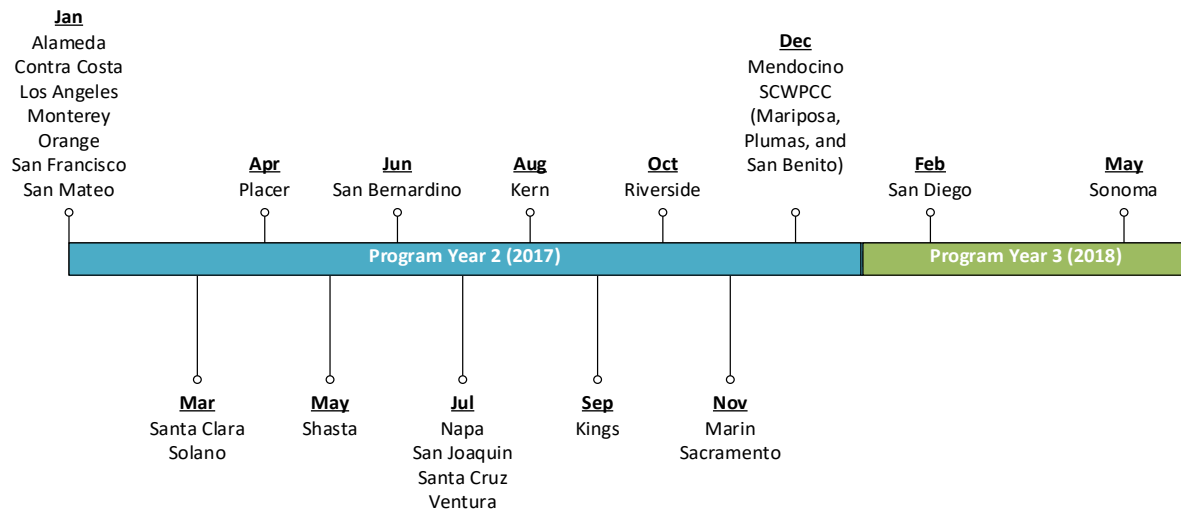
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Enrollment start was the first month that each WPC Pilot enrolled individuals and provided services. SCWPCC is the Small County Whole Person Care Collaborative. Plumas County dropped out of SCWPCC in September 2018. SCWPCC and Solano dropped out of WPC in January 2021.

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By the end of PY 2 (2017), a total of 50,202 individuals were enrolled in WPC (Exhibit 44). By the end of PY 6, the cumulative total to have ever enrolled in WPC increased to 247,887, with 96,416 enrolled in that month (91,001 existing enrollees and 5,415 newly enrolled in December 2021). Peak enrollment in the program occurred in June 2021 with 100,968 enrollees. As the program came to an end, the monthly current enrollment decreased for the first time starting in July 2021. Monthly new enrollment in the program ranged from 1,432 in February 2017 to 8,502 in January 2017. The average new enrollment per month was 5,068 (data not shown).

Exhibit 44: Unduplicated Monthly and Cumulative WPC Enrollment, PY 2 to PY 6
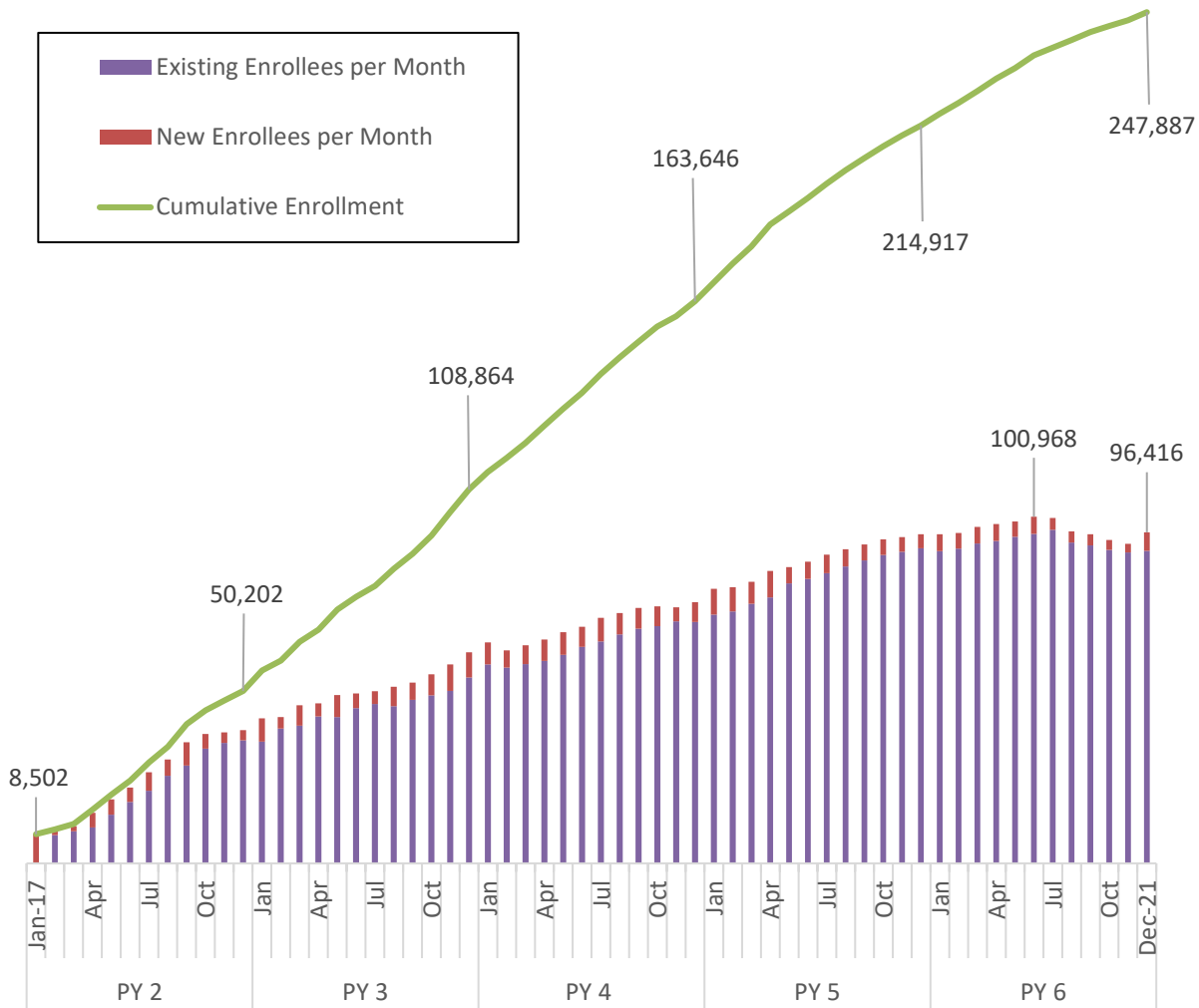
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 247,887 unique first enrollments into any WPC Pilot. Does not include re-enrollments or enrollments in a second WPC Pilot. Excludes individuals who received outreach or other WPC services but did not enroll.

Exhibit 45 shows total WPC enrollment during the program ranged from 143 enrollees in the SCWPCC to 76,107 enrollees in Los Angeles. Of the 25 WPC Pilots, nine Pilots had enrollment numbers under 1,000 enrollees and six Pilots had enrollment over 10,000 enrollees. Given the staggered implementation of the program, the length of time that each WPC Pilot was actively enrolling individuals into their Pilots varied.

Exhibit 45: Total Enrollment in WPC by Pilot, PY 2 to PY 6
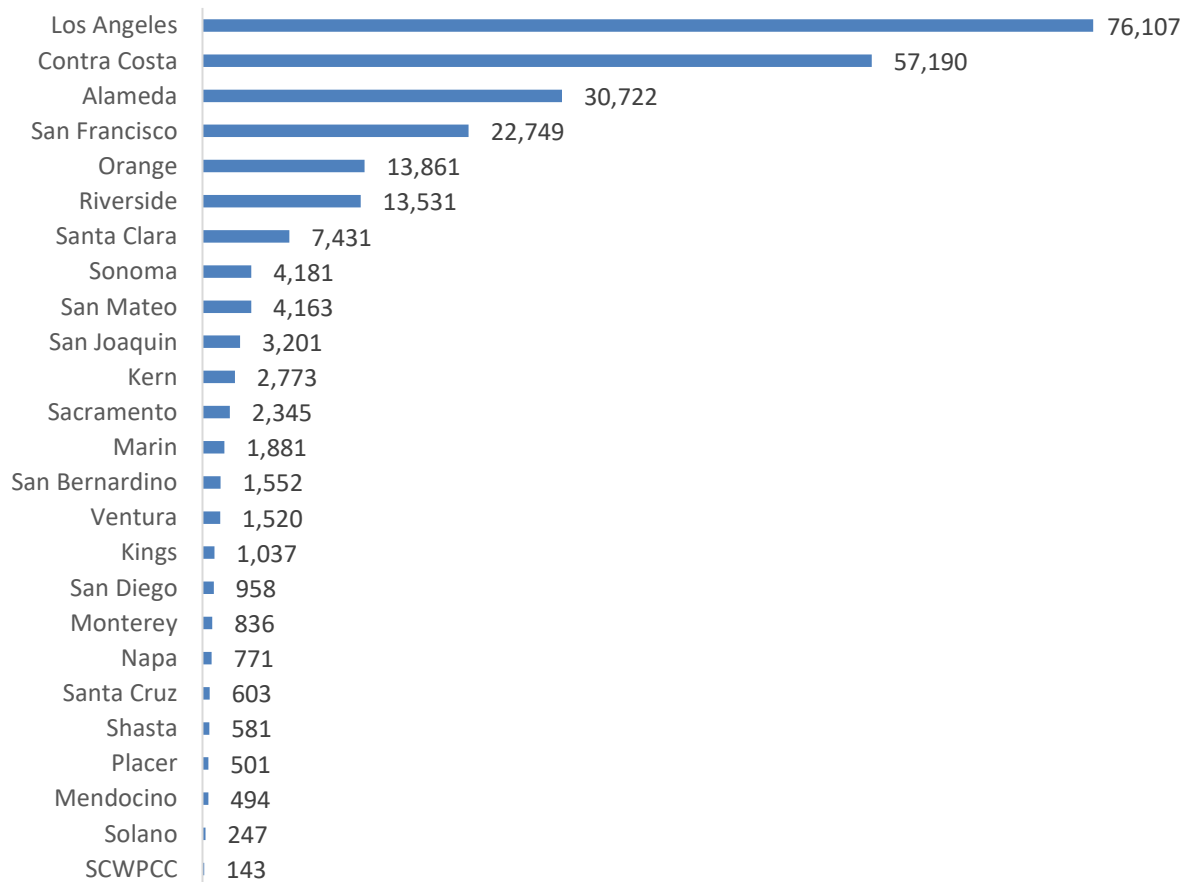
Pilot	Enrollment
Los Angeles	76,107
Contra Costa	57,190
Alameda	30,722
San Francisco	22,749
Orange	13,861
Riverside	13,531
Santa Clara	7,431
Sonoma	4,181
San Mateo	4,163
San Joaquin	3,201
Kern	2,773
Sacramento	2,345
Marin	1,881
San Bernardino	1,552
Ventura	1,520
Kings	1,037
San Diego	958
Monterey	836
Napa	771
Santa Cruz	603
Shasta	581
Placer	501
Mendocino	494
Solano	247
SCWPCC	143

Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 249,378 unique first enrollments into a WPC Pilot. Excludes individuals who received outreach or other WPC services but did not enroll. SCWPCC is the Small County Whole Person Care Collaborative.

Enrollment Patterns

As of the end of WPC (December 2021), 29% of WPC enrollees had stayed continuously enrolled in the program since their initial enrollment (Exhibit 46). The percent of enrollees that stayed continuously enrolled varied by Pilot, with some Pilots having less than 10% of enrollees continuously enrolled (SCWPCC, Shasta, Orange, Solano, and Contra Costa) and other Pilots having over 80% of enrollees continuously enrolled (Kern and Alameda; data not shown).

Exhibit 46: Patterns of Enrollment and Disenrollment in WPC, PY 2 to PY 6
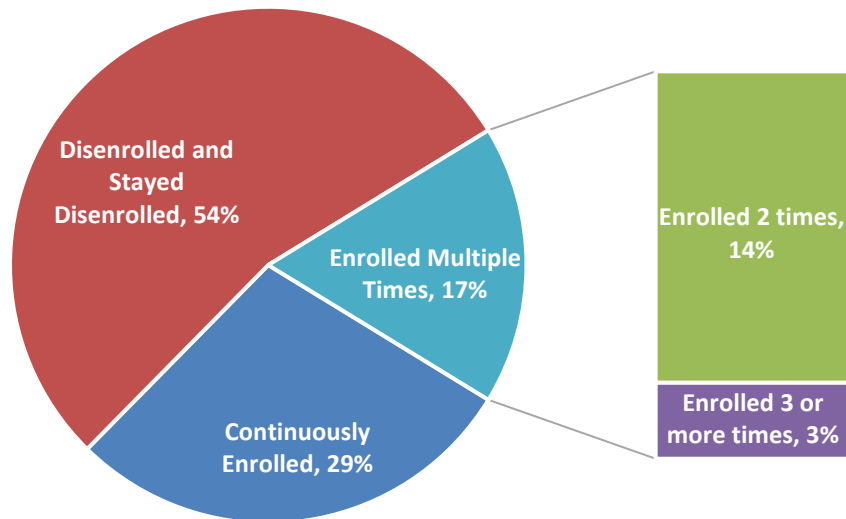
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 249,378 unique enrollments into a WPC Pilot. Continuously enrolled includes individuals that never disenrolled from the program.

Over the course of the program, 71% of WPC enrollees disenrolled at least once (Exhibit 46). Enrollees could reenroll into the program if they met the criteria for enrollment at a future date. Data showed that most enrollees disenrolled and stayed disenrolled (54%) while others enrolled multiple times (17%). Of those that enrolled multiple times, most enrolled twice into the program, but 3% of enrollees enrolled three or more times into the program.

Given the staggered enrollment of enrollees into WPC and the different approaches to graduation by Pilot, the length of enrollment by enrollee ranged from 1 to 60 months (data not shown). Exhibit 47 displays the percent of enrollees by their length of enrollment in WPC. Over one-third of enrollees were enrolled for 6 months of less (38%), with 11% of enrollees only enrolled for one month (data not shown). Nearly one-fifth (19%) were enrolled for 7-12 months. The mean, median, and mode length of enrollment in the program was 14.2, 9, and 1 month(s), respectively (data not shown). Length of enrollment varied by Pilot, with mean length of enrollments from 5.8 months in Shasta to 29.7 months in Marin (data not shown).

Exhibit 47: Length of Enrollment of WPC Enrollees, PY 2 to PY 6
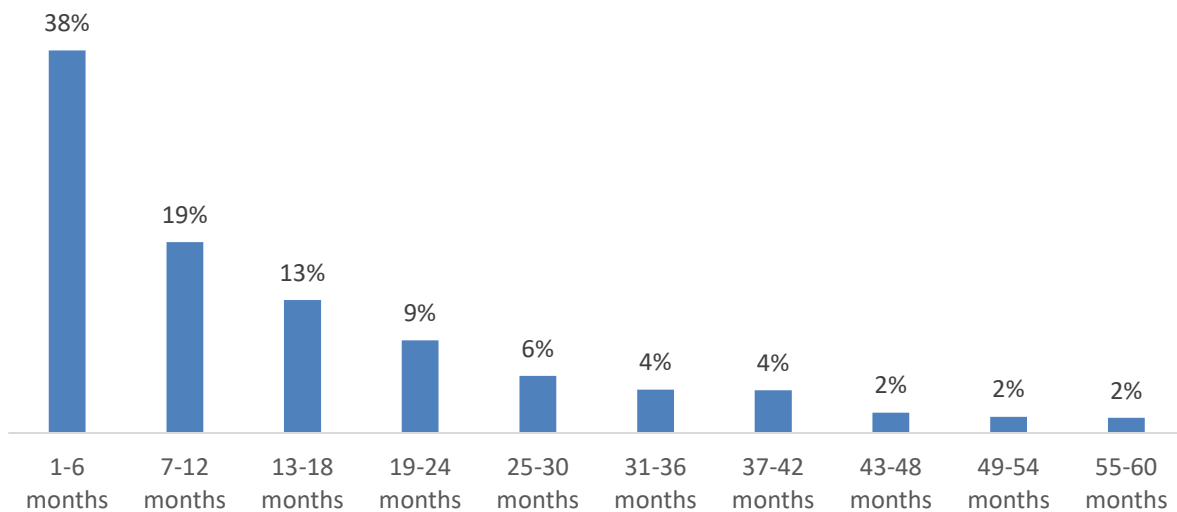
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Note: Includes 249,378 unique enrollments into a WPC Pilot.

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Disenrollment

Exhibit 48 shows the number of disenrollments each quarter from PY 2 to PY 6. This number ranged from 583 in first quarter of PY 2 (2017) to 14,699 in the third quarter of PY 6 (2021).

Exhibit 48: Quarterly Disenrollments from WPC, PY 2 to PY 6
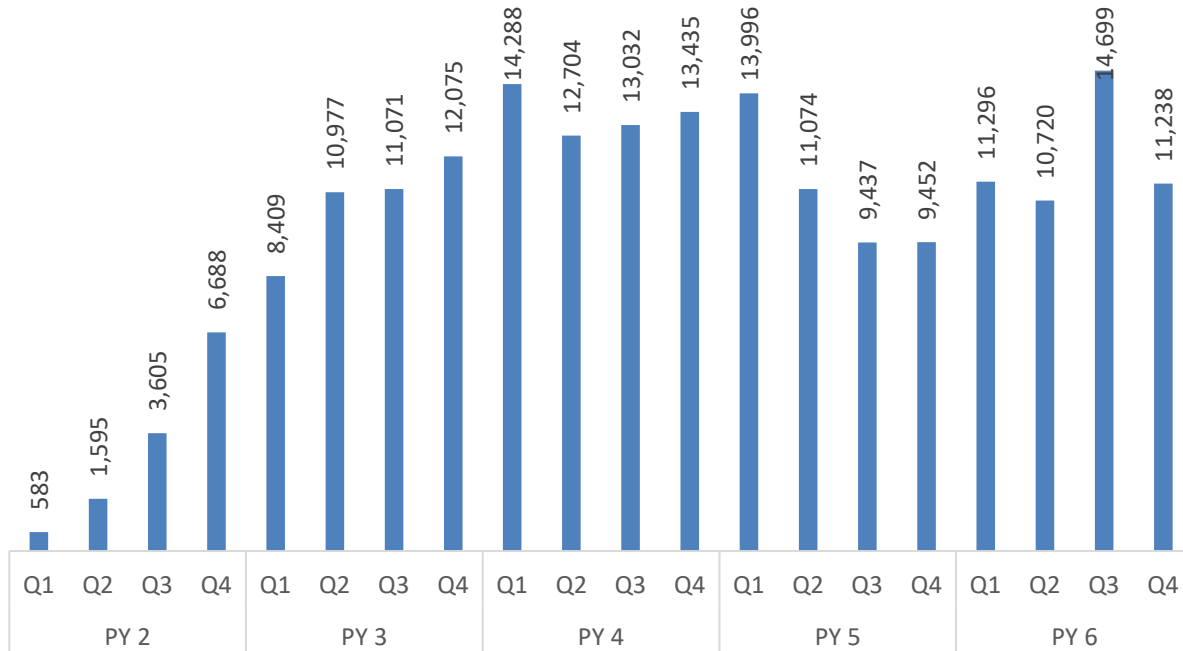
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Note: Includes 200,734 unique disenrollments from WPC, with some enrollees disenrolling more than once.

WPC Pilots reported reason for disenrollment in the *Quarterly Enrollment and Utilization Repots* using a standardized set of disenrollment reasons. An additional reason for disenrollment, "Graduated" was not added until PY 3. Of the 200,734 disenrollments from WPC (some enrollees had more than one disenrollment), the most common reasons for disenrollment were "Lack of Engagement" (26%), "WPC Services No Longer Needed" (23%), "Other" (21%), and "Not Eligible for Medi-Cal" (16%; Exhibit 49). Less frequent reasons included "Graduated" (6%) and Beneficiary Request" (5%). Prior to the inclusion of "Graduated," many WPC Pilots reported that they used the "WPC Services No Longer Needed" reason when their enrollees had met their goals and were ready to leave the Pilot. As a result, the "WPC Services No Longer Needed" is a mix of enrollees that were not appropriate or did not benefit from services provided through WPC and those that successfully developed the skills to independently manage their own care.

Exhibit 49: Reason for Disenrollment from WPC, PY 2 to PY 6
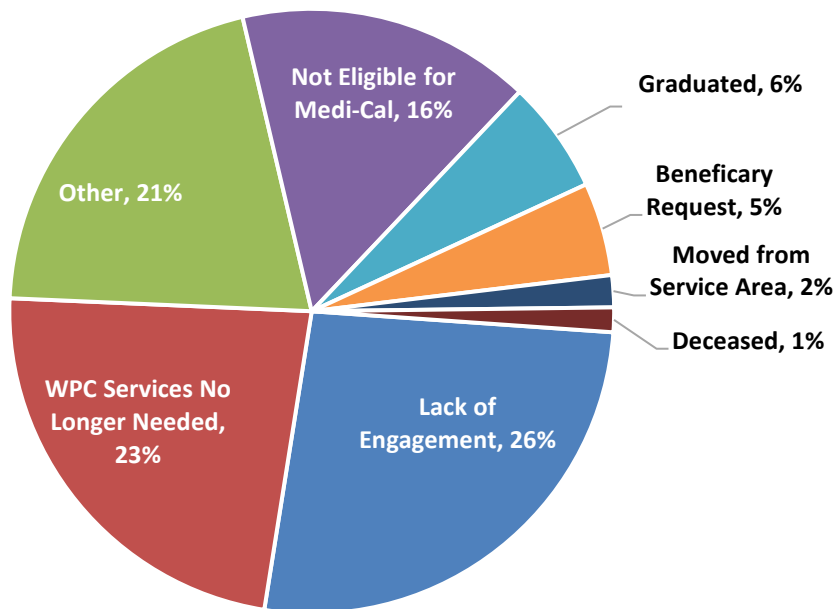
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Note: Includes 200,734 unique disenrollments from WPC with standardized disenrollment reasons.

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Enrollment Size and Patterns by Target Population

Classification of enrollees into target populations varied by WPC Pilot. Some WPC Pilots classified enrollees into the target population(s) that was used to initially identify the individual as eligible, while others used patient assessment data to classify enrollees into additional target populations that were not the primary reason for their enrollment. Overall, inclusion in a particular target population indicated that an enrollee fit the criteria for that target population. However, exclusion from a target population did not guarantee that an enrollee did not meet the criteria. For example, Napa's primary target population was the homeless, and all enrollees in the Pilot were categorized only as homeless, and very few were categorized in other target populations. In contrast, Santa Cruz used health records and assessments to categorize their enrollees in up to seven target populations, even though the primary target populations were only those with chronic physical conditions and/or SMI/SUD. The COVID-19 target population was added in PY 5 and could have included both enrollees with known COVID-19 infection and/or those at-risk of infection. While some Pilots only used the target population to provide services to those with specific COVID-19 needs, other Pilots used the broadest definition of at-risk of infection and classified all enrollees in the COVID-19 target populations. UCLA identified which Pilots reported at least ten enrollees in each target population in Exhibit 50.

Exhibit 50: WPC Pilots Reporting at Least Ten Enrollees by Target Population, PY 2 to PY 6

WPC Pilot	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-Risk-of-Homelessness	Justice-Involved	COVID-19
Alameda	x			x		x	x
Contra Costa	x						
Kern	x	x	x	x	x	x	
Kings		x	x	x	x	x	x
Los Angeles	x	x	x	x	x	x	
Marin	x			x	x		
Mendocino	x	x	x	x	x	x	
Monterey	x	x	x	x	x	x	
Napa	x			x	x		
Orange	x	x	x	x	x	x	
Placer	x	x	x	x	x	x	
Riverside	x	x	x	x	x	x	x
Sacramento	x	x	x	x	x		
San Bernardino	x	x					
San Diego	x	x	x	x	x	x	
San Francisco	x			x			x
San Joaquin	x		x	x	x	x	x

WPC Pilot	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-Risk-of-Homelessness	Justice-Involved	COVID-19
San Mateo	x		x	x			
Santa Clara	x	x	x	x	x	x	x
Santa Cruz	x	x	x	x	x	x	x
Shasta	x	x	x	x	x		
SCWPCC	x	x	x	x	x	x	x
Solano	x	x	x	x	x	x	x
Sonoma	x	x	x	x	x		
Ventura	x	x	x	x	x		
Total	24	18	19	23	20	15	9

Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 237,603 unique enrollees in WPC Pilots with a target population reported. When count for a target population was less than ten individuals, it was not reported. SMI/SUD is serious mental illness and/or substance use disorder. SCWPCC is the Small County Whole Person Care Collaborative.

The most commonly reported target populations were high utilizers (24 Pilots of 25) and homeless (23). The next most commonly reported target populations were at-risk-of-homelessness (20), SMI/SUD (19), and chronic physical conditions (18). The least often reported target populations were justice-involved (15) and COVID-19 (9).

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Of the 237,603 individuals who ever enrolled in WPC, Pilots classified 57% as high utilizers and 53% as homeless (Exhibit 51). The next most common target populations that enrollees were classified as were justice-involved (25%), SMI/SUD (24%) and at-risk-of-homelessness (22%). Enrollees were least often classified in the COVID-19 (16%) and chronic physical conditions (10%) target populations.

Exhibit 51: WPC Enrollee Target Population Classifications, PY 2 to PY 6
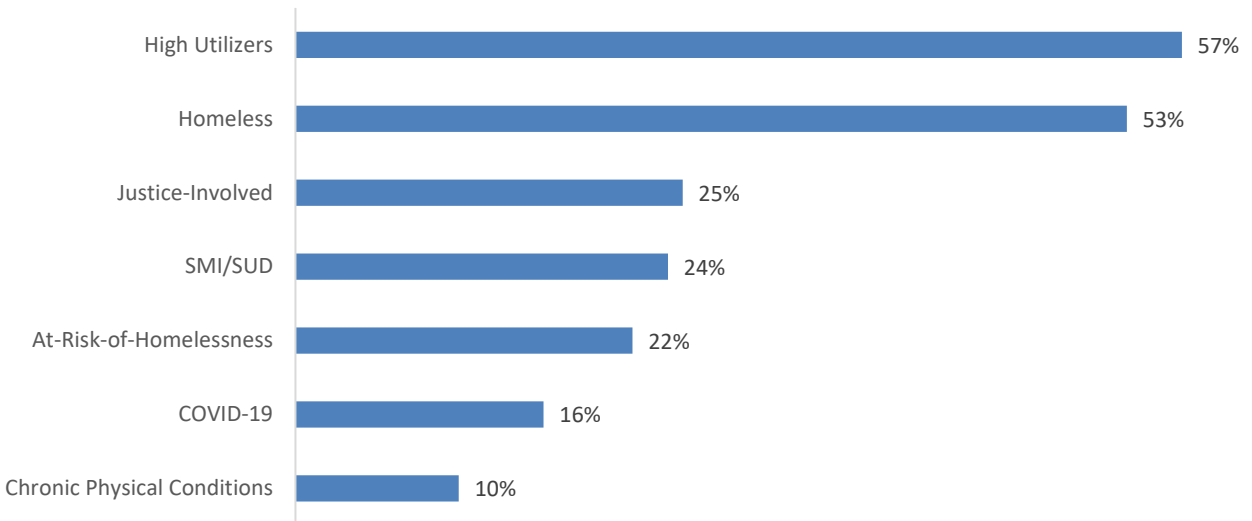
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 237,603 unique enrollees in WPC Pilots with at least one reported target population. Enrollees may be reported in more than one target population. SMI/SUD is serious mental illness and/or substance use disorder.

Length of enrollment by target population was influenced by when Pilots started enrollment, the graduation protocols, and the level of need of the enrollee. Ultimately, UCLA found that the enrollees classified in the COVID-19, chronic physical conditions, and SMI/SUD target populations had the longest average length of enrollment (Exhibit 52), ranging from 17.2 to 20.0 months. Enrollees classified in the at-risk-of-homelessness and homeless target populations had the shortest average length of enrollments, ranging from 13.8 to 14.9 months.

Exhibit 52: WPC Length of Enrollment in Months by Target Population, PY 2 to PY 6

Target Population	Mean	25% Percentile	Median	75% Percentile
High Utilizers	16.4	4	11	25
Homeless	14.9	3	10	22
Justice-Involved	16.0	3	10	26
SMI/SUD	17.2	4	11	27
At-Risk-of-Homelessness	13.8	2	8	24
COVID-19	20.0	11	18	24
Chronic Physical Conditions	17.7	5	12	29

Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 237,603 unique enrollees in WPC Pilots with at least one reported target population. Enrollees may be reported in more than one target population. SMI/SUD is serious mental illness and/or substance use disorder.

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Chapter 5: WPC Services Offered and Delivered

WPC Pilots were expected to improve beneficiary health and wellbeing by coordinating their use of health, behavioral health, and social services in a patient centered manner. However, WPC did not predefine the specific types of services to be offered and delivered by Pilots. This chapter addresses the following evaluation question: "what services did WPC enrollees receive through WPC?"

Data sources for this chapter include *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6, PY 5 (2020) LE survey, WPC applications (n=25), and *WPC Annual Invoices* from PY 2 to PY 6. The *WPC Quarterly Enrollment and Utilization Reports* were used to identify enrolled individuals, their identified target populations, and their use of WPC services across the length of the entire program as reported through utilization of per-member, per-month (PMPM) bundled services or individual service reimbursed as fee-for-service (FFS). The specific services offered through each PMPM bundles and FFS category included in the *WPC Quarterly Enrollment and Utilization Reports* were identified by Pilots in the PY 5 (2020) LE survey. *WPC Annual Invoices* were used to identify the cost of each PMPM and FFS category per year. Lastly, the WPC applications were used to identify the amount paid to WPC Pilots during PY 1, prior to the start of enrollment and the submission of annual invoices.

WPC Services Offered

Pilots had the flexibility to offer services that would best fit the needs of their target populations and could be delivered with existing or newly developed infrastructure and resources. While no single service was specifically required by the program, all Pilots were expected to provide care coordination and housing support services as needed to address the needs of beneficiaries. Additionally, Pilots had the flexibility to determine whether funding for these services would be provided through capitated payments for bundled services (per-member, per-month [PMPM]) or single payments for defined services (fee for service [FFS]). Pilots reported WPC service utilization per enrollee using PMPM and FFS categories identified in *WPC Quarterly Enrollment and Utilization Reports*.

Pilots included multiple services under these service categories. Pilots differed in the number of categories, and categories were not comparable across Pilots. Specifically, category descriptions frequently did not identify types of services that were included therein. Therefore, UCLA asked Pilots to report on inclusion of 20 different services in each FFS and PMPM bundle in the PY 5 (2020) LE survey. UCLA then grouped the 20 possible services into 11 service categories for analysis. Exhibit 53 shows how the 20 specific services were grouped. UCLA used the individual-

level utilization data in the *WPC Quarterly Enrollment and Utilization Reports* from PY 2 (2017) to PY 6 (2021) to assess enrollee-level service use for each of the 11 service groups.

Exhibit 53: WPC Services Offered by Pilots as of PY 5

WPC Services Groups	Description of Specific Services Offered per Category
Outreach	Outreach to prospective enrollees in the field including at homes, homeless encampments, shelters, Emergency Departments, etc.
	Outreach to prospective enrollees through telephone, in-office visits, email or mail.
Care Coordination	Conduct needs assessments as part of care coordination services.
	Develop care plans as part of care coordination services.
	Link or refer patient to needed services and then follow up on referrals as needed as part of care coordination services.
	Provide frequent communication with enrollees and follow up on referrals as part of care coordination services.
	Provide warm hand-offs to other providers.
Housing Support	Provide housing navigation services, which includes applying for, connecting to, and accessing housing services.
	Provide supportive housing services, which includes successful linkage to services that increase housing stability through tenancy services, housing transition services, legal support, and coaching for successful housing skills.
Benefit Assistance	Assess enrollees for eligibility for public benefits services (e.g., SSI, CalFresh, etc.).
	Actively assist with benefit applications and appeals.
Employment Assistance	Provide one-on-one coaching, training or education programs to assist enrollees in finding and securing employment.
	Actively refer and place enrollees in job opportunities.
Sobering Center	Provide sobering center services.
Medical Respite	Medical respite or recuperation services for 48 hours or less.
	Medical respite or recuperation services for greater than 48 hours.

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Transportation	Coordinate or provide transportation to enrollees for appointments or services.
Health Education	Actively refer to or provide educational opportunities (e.g., classes) designed to teach enrollees about improving their health and well-being.
Legal Services	Actively refer to or provide legal services or legal assistance (e.g., related to their criminal charges or other legal needs).
Re-entry Services	Run educational programs (e.g., one-on-one or in groups) specifically designed to assist in adjusting to life post-incarceration.

Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020.
Note: UCLA developed the WPC service list using knowledge of WPC Pilot design and set of interventions.

Exhibit 54 shows the frequency with which Pilots offered WPC services. All Pilots offered outreach, care coordination, housing support, benefit assistance and transportation. The majority of Pilots also offered health education (92%) and legal services (84%). However, sobering centers and re-entry services were the least often offered (56% and 28% of Pilots, respectively).

Exhibit 54: Percentage of WPC Pilots Offering Each Service Group
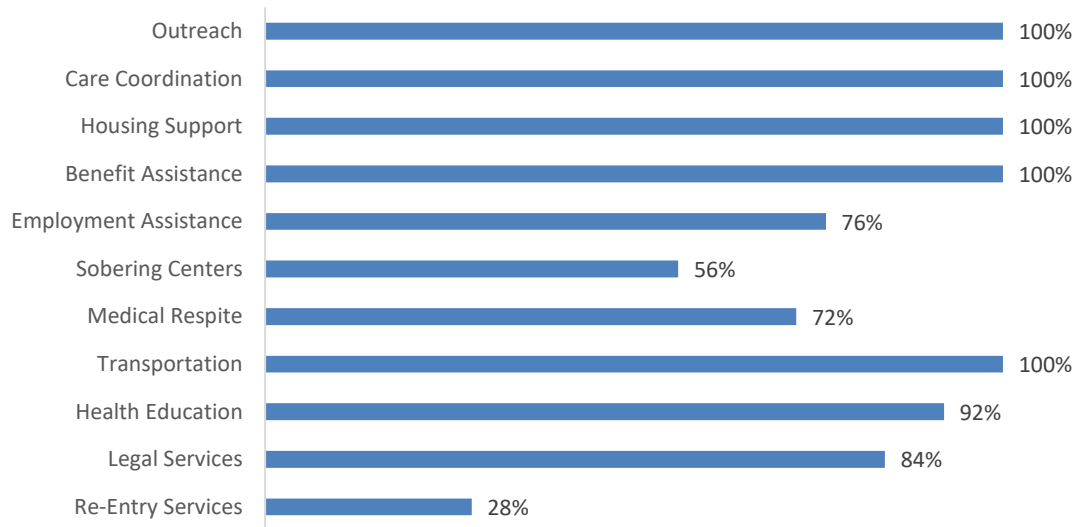
Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Two counties in the Small County Whole Person Care Collaborative (SCWPCC) (Mariposa and San Benito) were counted separately as they reported unique combinations of services. Napa and Plumas counties were excluded from this service analysis because they did not respond to the LE Survey, and they dropped out of WPC in PY 3, respectively.

The number of PMPM and FFS service categories reported in *WPC Quarterly Enrollment and Utilization Reports,* are shown in Exhibit 55 and vary with Pilot. Pilots offered as many as 16 and as few as 1 PMPM bundles. They also offered as many as 21 and as few as 1 individual services (FFS). Some Pilots disaggregated services into numerous bundles and individual services (e.g., Alameda) and others relied on very few (e.g., San Mateo, Solano). Pilots differed in type of services bundled together. For example, San Mateo provided all of their services through two PMPM bundles that included a range of services (e.g., care coordination, benefit assistance, sobering center, transportation, and health education). Conversely, Los Angeles provided sobering centers to WPC enrollees, but only as a stand-alone service funded through an FFS mechanism, and other WPC services were bundled in program-specific PMPM bundles.

Exhibit 55: Number of Bundles (PMPM) and Individual (FFS) Services Offered by WPC Pilots, PY 2 to PY 6

Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.

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Notes: Two counties in the Small County Whole Person Care Collaborative (SCWPCC) (Mariposa and San Benito) were counted separately as they reported unique combinations of services. Napa and Plumas counties were excluded from this service analysis.

WPC Services Delivered

UCLA reported the proportion of enrollees that utilized a service category at any point during the program overall and among seven target populations. The COVID-19 target population was added in the second half of 2020. Pilots did not uniformly define or apply assignment criteria to this new target population. Some Pilots retroactively assigned enrollees and others used the broadest definition of at-risk for COVID-19 and reassigned all enrollees to this target population. Due to these inconsistencies, UCLA included any enrollee that was ever assigned to the COVID-19 target population in the following analyses. Therefore, the findings reflect the overall experience of these enrollees and are not restricted to the second half of PY 5 and PY 6 (July 2020 to December 2021). In addition, UCLA reported service use for the small proportion of beneficiaries who were not formally enrolled in WPC but received outreach or sobering center services.

The data used for the analyses in this section reflect the bundle of services delivered to specific enrollees but does not guarantee receipt of each service under a bundle. For example, an enrollee who received a bundle that included both care coordination and benefit assistance may not have received benefit assistance if they were not eligible or it was not needed. Furthermore, UCLA analyzed the services provided by the two counties in the Small County Whole Person Care Collaborative (SCWPCC) Pilot (San Benito and Mariposa) separately as each used different bundles of services. Two Pilots were excluded from these analyses due to non-response to the PY 5 LE survey and subsequent lack of information regarding services (Napa) and discontinuation of WPC involvement in PY 3 (Plumas).

Outreach

Nearly three-quarters of the enrollees (73%) received outreach services (Exhibit 56). Among the WPC target populations, the SMI/SUD target population was most often offered outreach services (91%) and the COVID-19 population was the least often offered outreach services (42%). Of the 25 Pilots offering the service, outreach was funded through PMPM by 17.

Exhibit 56: Outreach Services Delivered to WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6

| Category	Value
Enrolled (WPC Population)	74%
High Utilizers	79%
Chronic Physical Conditions	77%
SMI/SUD	89%
Homeless	73%
Risk of Homelessness	71%
Justice Involved	87%
COVID-19	71%

Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Pilots varied in their outreach approach. For example, Sacramento used outreach navigators to identify potential enrollees and refer them for WPC eligibility determination and enrollment, while Monterey provided targeted outreach services in conjunction with other services to help establish trust and rapport with enrollees. More detailed information regarding overall activities of Pilots in the identification, enrollment, and engagement efforts are provided in Chapter 4: WPC Enrollment Processes, Size, and Patterns.

Care Coordination

The great majority (89%) of WPC enrollees received care coordination services (Exhibit 57). This estimate included those newly enrolled who were being assessed prior to receipt of care coordination services as well as a subset of enrollees who were linked to other providers without using care coordinator services. Among the enrolled WPC target populations, estimated care coordination rates were high among all populations. The COVID-19 population had the lowest rate of estimated care coordination at 79%. All 25 Pilots offering care coordination funded the service through at least one PMPM. More detailed information regarding overall activities of Pilots in care coordination efforts is provided in Chapter 6: WPC Care Coordination.

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Exhibit 57: Care Coordination Services Delivered to WPC Enrollees, Overall and by Target Population, PY 2 to PY 6

Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and Quarterly Enrollment and Utilization Reports from PY 2 to PY 6.
Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Housing Support

The majority (70%) of WPC enrollees received housing support services (Exhibit 58). Receipt of housing support services varied somewhat by target population, with 91% of justice-involved enrollees receiving services that included housing support but only 38% of COVID-19 enrollees receiving services that included housing support. Of the 25 Pilots offering the service, housing support was funded through PMPM by 24.

Exhibit 58: Estimated Delivery of Housing Support Service to WPC Enrollees, Overall and by Target Population, PY 2 to PY 6
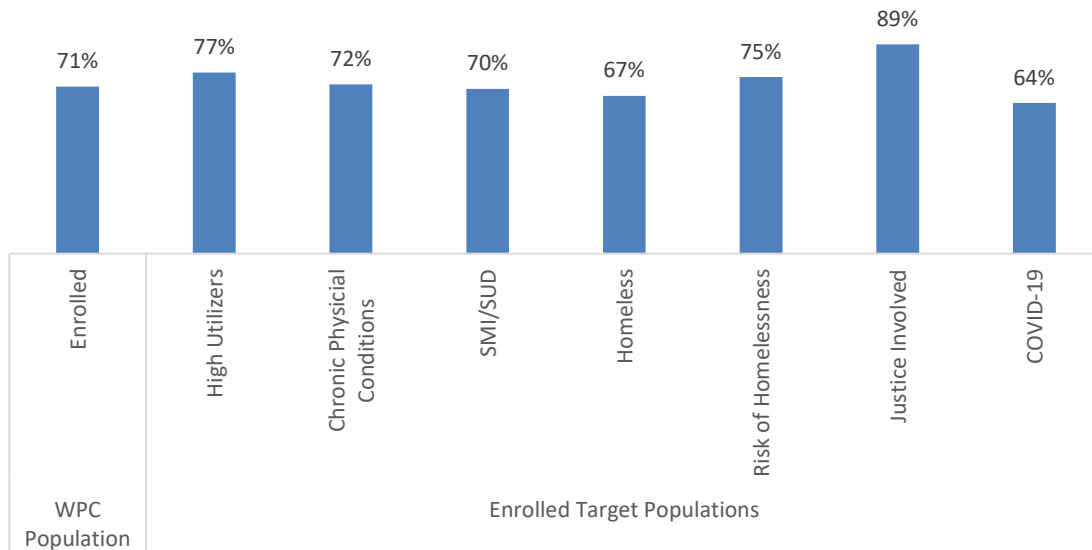
Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and Quarterly Enrollment and Utilization Reports from PY 2 to PY 6.

Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Based on interviews with Pilot lead entities and frontline staff, WPC Pilots often used specialized staff (e.g., social workers) to provide housing support services, which often focused on helping enrollees live in the least restrictive community-based setting appropriate to their needs. Staff providing housing support services typically focused on identifying and mitigating barriers to housing placements and facilitating enrollee access to short-term shelters, coordinated entry systems, or to other housing benefits. Many Pilots had staff that also worked directly with landlords to mediate disputes, encourage renting to enrollees with negative rental histories, and/or assist landlords in accessing programs that reward them for renting their properties to underserved populations. Some Pilots also set aside funds to directly support enrollees with a range of housing-related financial needs that if not addressed, would negatively impact their ability to accept or maintain housing placement. For example, funds could be used to help pay security deposits, set-up fees for utilities or service access, first month utilities, outstanding utility bills, furniture, moving costs, cleaning services prior to move-in, home modifications needed to have their medical needs met in the home, medically necessary services (e.g., hospital beds or lifts), credit repair, criminal record expungement, etc. Further detail on housing services can be found in the chapter on enrollees experiencing homelessness. Selected examples of housing support services are provided in Exhibit 59.

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Exhibit 59: Selected Examples of Housing Support in WPC

WPC Pilot	Example of Housing Support
Alameda	Alameda's housing transition service bundle included elements essential for enrollees' transition to attaining housing. Funds were used for security deposits, set-up fees for utilities or service access, first month utilities, furniture, moving costs, cleaning services prior to move-in, home modifications (e.g., A/C and/or heater), medically necessary services (e.g., hospital beds or lifts).
Kern	Kern initially sent housing referrals to the Kern Housing Authority (KHA), and by PY 4, the increasing volume of referrals resulted in an updated process wherein WPC staff conducted warm hand-offs with KHA. This allowed WPC staff to be involved with KHA in the process of scheduling, documentation assistance, and coordination of services for the enrollee.
Marin	Marin had a housing-based case management component where enrollees who were homeless or precariously housed were supported by a case manager who worked to secure and sustain housing while also promoting awareness and teaching strategies that reduced the likelihood of a return to homelessness in the future.
Napa	Napa provided training on housing rights (e.g., occupancy and eviction issues) for people with disabilities, families with children, and other classes protected in the Fair Housing Act.
Placer	Placer provided a housing services bundle for homeless or individuals at-risk-of homelessness that worked towards obtaining housing and developing daily living skills to remain stable in their new living situation. Services included housing assessments, developing an individualized housing support plan, assistance with the housing application, and identifying and securing available resources to assist with subsidizing rent.
Riverside	Riverside's housing bundle included financial assistance to provide money to landlords for up to a triple security deposit. Landlords were usually skeptical of providing housing to new probationers. Through the deposit, however, landlords were incentivized to provide housing to this population.
San Benito (SCWPCC)	San Benito provided financial assistance for credit repairs and/or criminal record expungement in order to better position enrollees for housing.
Santa Cruz	Santa Cruz enrollees met with WPC staff up to twice daily or weekly to address poor tenancy skills, which affected their ability to maintain stable, housing situations.

Source: Whole Person Care Pilot Applications (n=25), 2016 and WPC Mid-Year and Annual Narrative Reports, PY 2 (2017) - PY 6 (2021) and Follow-up Interviews with Lead Entity (LE) and Frontline Staff from PY 2 to PY 6.
Note: SCWPCC is the Small County Whole Person Care Collaborative

Benefit Assistance

Among WPC enrollees, 79% received benefit assistance (Exhibit 60). Among the various target populations, risk of homelessness, chronic physical conditions, and SMI/SUD were most likely to receive benefits assistance (97%, 96%, and 95%, respectively). The COVID-19 target population was the least likely to receive benefit assistance (36%). Of the 25 Pilots offering the service, benefit assistance was funded through PMPM by 24.

Exhibit 60: Benefit Assistance Services Delivered to WPC Enrollees, Overall and by Target Population, PY 2 to PY 6

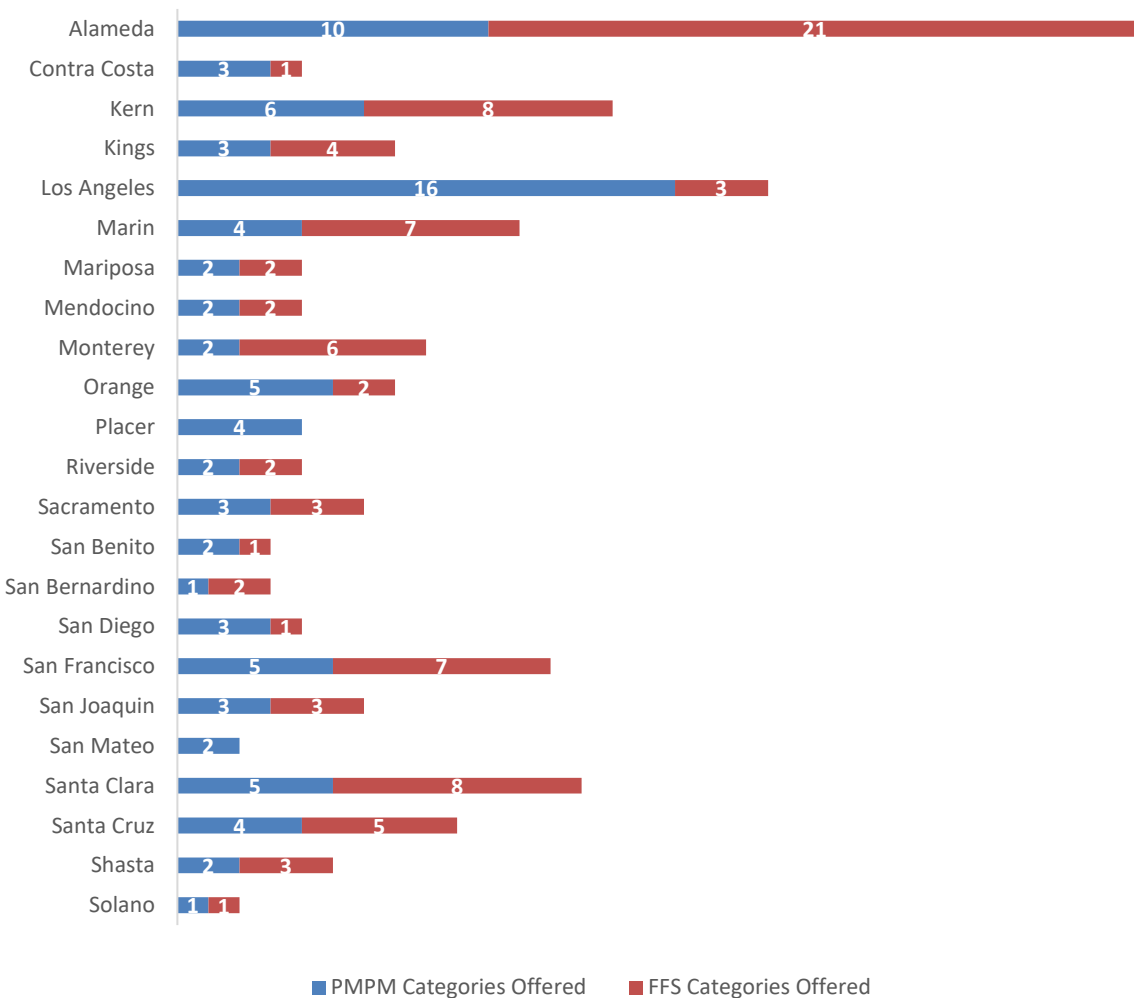Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Benefit assistance included a range of services such as assistance with applications for Supplemental Security Income/Social Security Disability Insurance (SSI/SSDI), Medi-Cal, CalFresh, and/or CalWorks (e.g., completing applications, obtaining critical eligibility documents such as certified mail and identification cards, preparing medical summary reports), benefits advocacy (e.g., appealing initially rejected applications), transportation to appointments, and other miscellaneous services. For example, Contra Costa provided enrollees with temporary phones, while Kern offered childcare services so enrollees could attend needed appointment and services. Other selected examples of benefit assistance services are found in Exhibit 61.

Exhibit 61: Selected Examples of Benefit Assistance Services in WPC

WPC Pilot	Example of Benefit Assistance Services
Alameda	Alameda held trainings informing participants how to identify and secure public benefits.
Kings	Kings developed a screening tool to send referrals for participants applying for public benefits. Kings was also able to monitor the status of applications to better manage the application process.
Solano	Solano assisted enrollees in obtaining Supplemental Security Income/Social Security Disability Insurance (SSI/SSDI) Advocacy. This included assistance with obtaining critical eligibility documents (e.g., birth certificates, identification cards, certified mail), preparing detailed Medical Summary Reports, gathering and paying for potential costs for health records, and appealing initially rejected applications.

Source: Whole Person Care Pilot Applications (n=25), 2016 and WPC Mid-Year and Annual Narrative Reports, PY 2 (2017) - PY 6 (2021) and Follow-up Interviews with Lead Entity (LE) and Frontline Staff from PY 2 to PY 6.

Employment Assistance

Over one-third (39%) of WPC enrollees received employment assistance (Exhibit 62). Receipt of employment assistance was highest among high utilizers (53%), and lowest in the COVID-19 target population (8%). Of the 19 Pilots offering the service, employment assistance was funded through PMPM by 18.

Exhibit 62: Employment Assistance Services Delivered to WPC Enrollees, Overall and by Target Population, PY 2 to PY 6

Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Employment assistance focused on helping enrollees develop skills and connections that would improve their chances of obtaining employment. For example, Kern provided enrollees with training on personal finance, resume building, interview skills, application assistance, and other supportive services. Napa connected clients with the local Workforce Development Board's "America's Job Center," which offered free internet access, a resource library, resume building assistance, and employment readiness workshops. Solano hired an Employment Specialist who offered enrollees one-on-one coaching on how to secure a job and maintain employment.

Sobering Centers

Sobering centers were used as a safe space to recover from the acute effects of alcohol and drug intoxication and as an alternative to placement in ED, emergency psychiatric services, hospitals, or incarceration. Among overall WPC enrollees, 14% received sobering center services. Those in the risk of homelessness, chronic physical conditions, and justice-involved target populations had the highest rates of estimated sobering center use at 31%, 29%, and 29%, respectively. One-quarter (25%) of the SMI/SUD target population received the service (Exhibit 63). Of the 14 Pilots offering the service, sobering centers were funded through PMPM by 7.

Exhibit 63: Sobering Centers Services Delivered to WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6

Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Pilots had different criteria for the individuals that used their sobering centers and the services offered within the center. Some Pilots offered specific services to patients with SUD and a co-occurring mental illness, while other Pilots offered more comprehensive, multidisciplinary services. Most Pilots with sobering centers only permitted enrollees to stay for 24 hours or less, with the exception of Kings, which required enrollees to stay for a longer period of time (e.g., average of three days) to complete detox. Exhibit 64 highlights selected examples of sobering center services in WPC Pilots.

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Exhibit 64: Selected Examples of Sobering Center Services in WPC

WPC Pilot	Example of Sobering Center Services
Contra Costa	Contra Costa included a 24/7 sobering center in order to provide a safe environment for uncomplicated, acute intoxicated individuals to receive detoxification services along with comprehensive care services such as basic hygiene, identification and management of urgent care needs, transportation, etc.
Los Angeles	Los Angeles provided onsite services such as medical triage, point-of-care lab testing, client beds, oral rehydration and food service, nausea treatment, wound care and dressing changes, shower and laundry facilities, substance use counseling, and linkage to health and behavioral health services.
Santa Clara	Mission Street Sobering Center in Santa Clara used their own transportation and worked with local law enforcement to transport participants to the sobering center. Sobering center staff were trained on administering screenings to identify homelessness and housing eligibility and screening results were documented in the participant's record.

Source: Whole Person Care Pilot Applications (n=25), 2016 and WPC Mid-Year and Annual Narrative Reports, PY 2 (2017) - PY 6 (2021) and Follow-up Interviews with Lead Entity (LE) and Frontline Staff from PY 2 to PY 6.

Medical Respite

Medical respite was viewed as a critical tool for helping reduce over-utilization of ED visits and hospitalizations. Medical respite included acute and post-acute medical care for enrollees in unstable living situations who were not sufficiently ill to remain in a hospital or skilled nursing facility but too ill to recover without adequate shelter. Among WPC enrollees, 6% received services that included medical respite or recuperation care (Exhibit 65).

Among the target populations, enrollees with chronic physical conditions had the highest rate of receiving these services (22%). Of the 18 Pilots offering the service, medical respite was funded through PMPM by 8.

Exhibit 65: Medical Respite Services Delivered to WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6

Enrolled	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	Risk of Homelessness	Justice Involved	COVID-19
6%	5%	28%	15%	7%	6%	2%	15%
WPC Population		Enrolled Target Populations					

Length of stay in medical respite varied considerably across Pilots. Kings provided medical respite for an average of one to three days, but expected enrollees to utilize the service more than once while enrolled in WPC, while Ventura estimated an average enrollee length of stay at 12 days. By contrast, multiple other Pilots (Orange, Los Angeles, Placer, San Francisco, and San Joaquin) permitted stays of up to three months.

Transportation

Transportation services were often offered in conjunction with other services. Among WPC enrollees, 63% received transportation as part of a bundle of services or alone (Exhibit 66). Among the target populations, SMI/SUD enrollees and high utilizers had the highest rates of services that included transportation (81% and 76%, respectively). Of the 25 Pilots offering the service, transportation was funded through PMPM by 23.

Exhibit 66: Transportation Services Delivered to WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6

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population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Many Pilots used existing infrastructure and processes to improve transportation availability for enrollees, while other Pilots developed new technology to coordinate transportation. For example, Kings worked with Anthem Blue Cross to understand which free transportation options were available for enrollees and created a medical transportation guide to give providers and enrollees more information about transportation options. Solano worked with Partnership Health Plan of California to leverage their transportation resources and improve access to healthcare appointments. Contra Costa implemented a new ridesharing platform that linked to an enrollee's electronic health record and gave providers the ability to coordinate a ride for the enrollee.

Health Education

Pilots provided health education services to give enrollees tools to improve their health status and understand how to navigate the healthcare system. Among WPC enrollees, 39% received health education on its own or under a bundle of services (Exhibit 67). The high utilizer target population had the highest rates of health education service (56%), followed by enrollees with chronic physical conditions and SMI/SUD (50%). Of the 23 Pilots offering the service, health education was funded through PMPM by 22.

Exhibit 67: Health Education Services Delivered to WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6

Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target

population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Health education services often focused on improving patients' ability to navigate the healthcare system, teaching skills to address specific conditions, and educating patients about preventative care resources as alternatives to frequent hospital and emergency department utilization. Exhibit 68 shows selected examples of health education services.

Exhibit 68: Selected Examples of Health Education Services in WPC

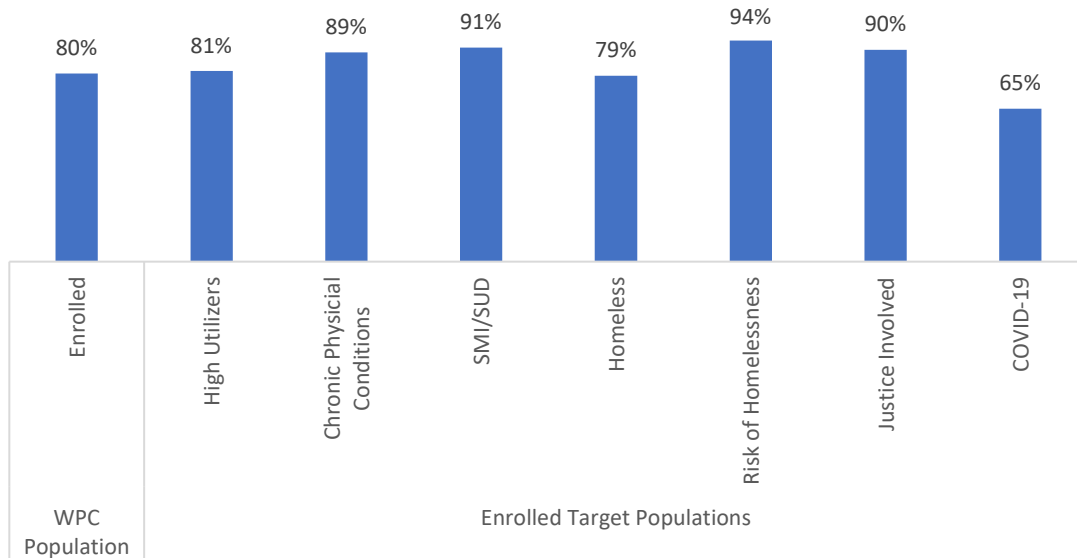| WPC Pilot	Example of Health Education Services
Kern	Kern developed six care coordination classes to improve enrollees' relationships with their care coordinator as well as to increase self-sufficiency in addressing all aspects of their health. The classes included Health Literacy, Hospital Relapse Prevention, Job and Volunteer Readiness, Basic Nutrition, Household Budgeting, and Life Skills.
Kings	Kings developed a Medical Education Brochure to inform patients of the importance of regular preventative care visits and of alternative options to emergency department utilization.
Santa Clara	Santa Clara implemented screenings and nutrition classes to support their pre-diabetic population.

Source: Whole Person Care Pilot Applications (n=25), 2016 and WPC Mid-Year and Annual Narrative Reports, PY 2 (2017) - PY 6 (2021) and Follow-up Interviews with Lead Entity (LE) and Frontline Staff from PY 2 to PY 6.

Legal Services

Legal services included providing or referring enrollees to assistance related to any legal needs surrounding topics such as public benefits, housing, immigration, and criminal charges. Among WPC enrollees, 68% received legal services alone or as part of a bundle (Exhibit 69). The SMI/SUD and high utilizer target populations had the highest rates of services including legal service (79% and 74%, respectively). Of the 21 Pilots offering the service, legal services were funded through PMPM by 19.

Exhibit 69: Estimated Delivery of Legal Service to WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6
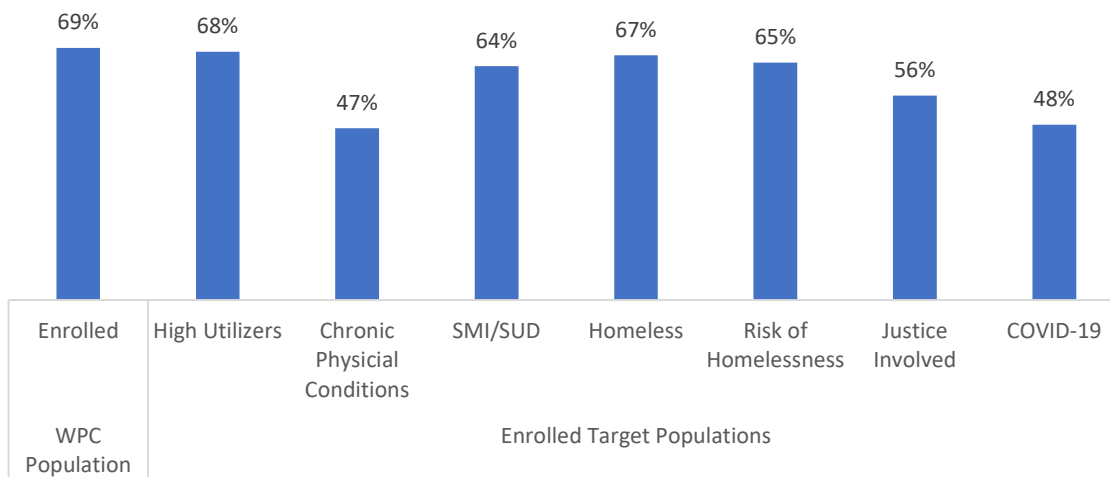
Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Many Pilots developed partnerships with legal aid organizations to connect WPC enrollees with legal assistance. Contra Costa worked with Bay Area Legal Aid to develop and administer a survey for WPC enrollees to identify those who needed legal assistance, conduct classes to educate case managers on legal issues, and provide WPC enrollees free legal services. Class topics included Housing Law, Immigration and Survivors of Interpersonal Violence, SSI and Other Public Benefits, Health Consumer Law, Small Claims Court Processes, Reentry, Wills & Trusts, and Consumer Debt. Los Angeles also had a Medical Legal Partnership program to connect enrollees with legal aid often related to claims denials.

Re-Entry Services

Among all WPC enrollees, 10% received re-entry services (Exhibit 70). As expected, the justice involved target population had the highest rates of these services (34%) while all other target populations received very few re-entry services. Of the 7 Pilots offering the service, re-entry services were funded through PMPM by 4.

Exhibit 70: Estimated Delivery of Re-entry Services to WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6
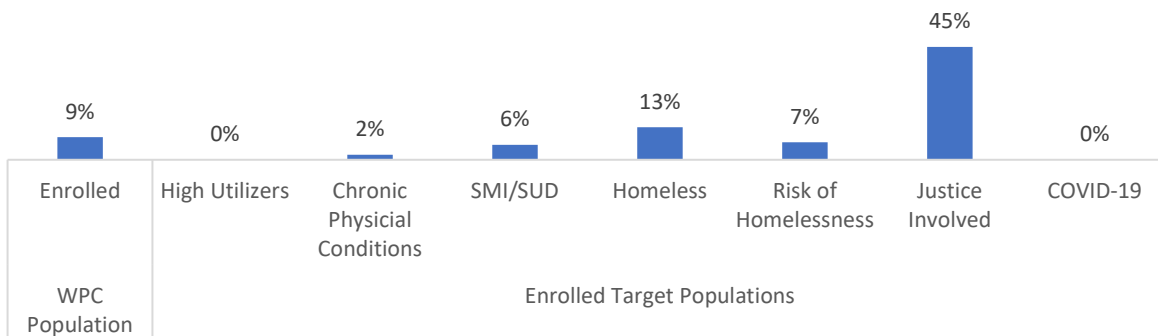
Source: PY 5 Lead Entity (LE) Surveys, n=25, June-August 2020 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
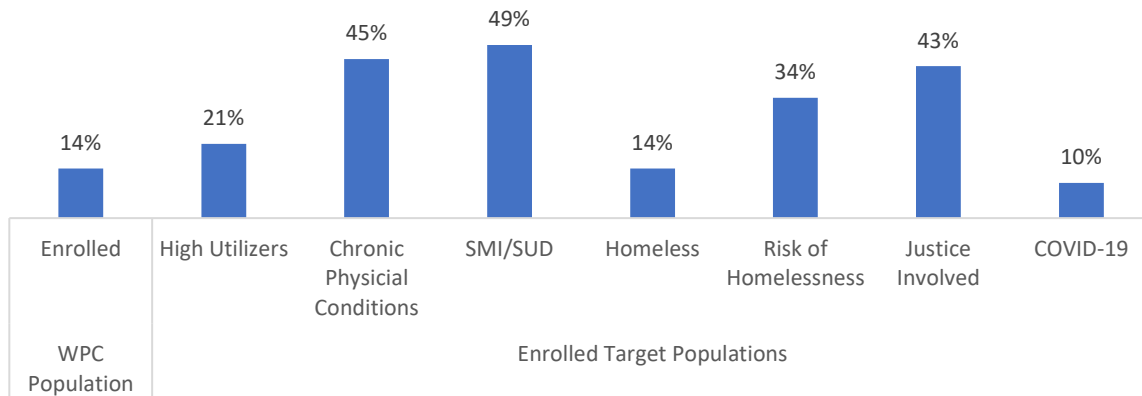Notes: Includes 248,599 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

Re-entry services varied by Pilot, but both Kern and Kings offered life skills classes with Kings providing enrollees with a life skills manager to coordinate training and participation in educational classes.

Services without Enrollment

Of the individuals identified in *WPC Quarterly Enrollment and Utilization Reports* to have received services, 67,580 individuals were never formally enrolled into WPC by the end of the program. These individuals were identified by Pilots during outreach but were not enrolled either due to lack of engagement or did not meet the eligibility criteria. Pilots provided outreach (initial contact with potential enrollee) and/or short-term stays in sobering centers. Of the 25 WPC Pilots, 20 reported these individuals. Of the 17 Pilots that had more than 10 such individuals, the numbers varied from 22,629 in Los Angeles to 113 in San Joaquin (Exhibit 71). All (100%) individuals receiving services without enrollment in Los Angeles received outreach services, but 15% received a stay in a sobering center (data not shown). Kern initially used

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administrative data from the managed care plans to identify individuals as potential enrollees and then screened these individuals to determine their eligibility. They found that this system was not successfully identifying their target populations and switched to a referral-based system.

Exhibit 71: Individuals Receiving Services through WPC without Enrollment by Pilot, PY 2 to PY 6
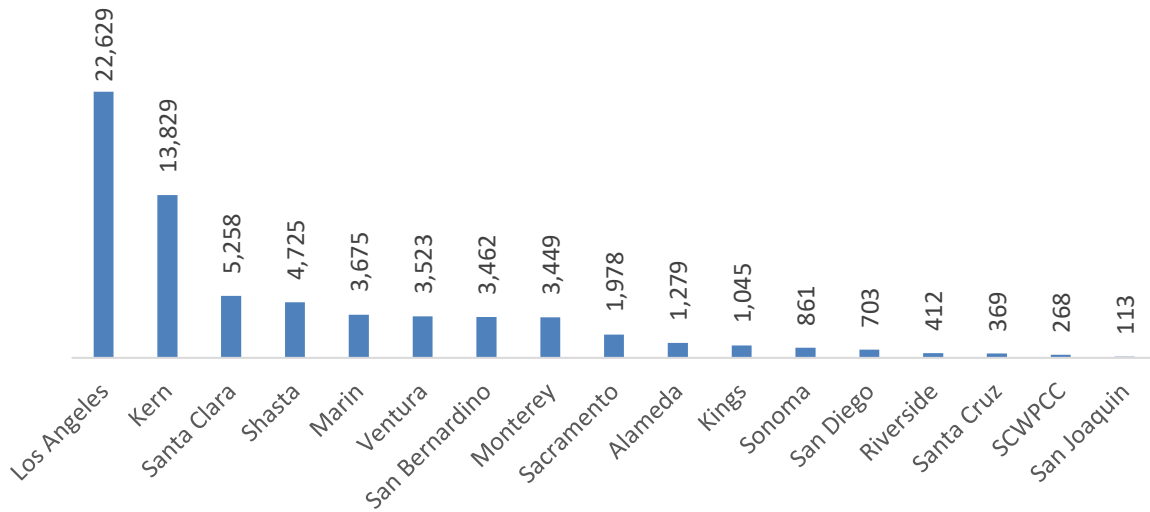
Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021. Notes: Includes 67,580 individuals reported as receiving services but never enrolled in the WPC. Excludes two Pilots that reported less than eleven individuals that received services without enrollment.

WPC Expenditures and Payment for WPC Services

UCLA calculated the amounts paid to Pilots for WPC using *WPC Applications* and *WPC Annual Invoices* from PY 2 to PY 6. The amount paid to Pilots in PY 1 to start implementation of the program prior to enrollment was equivalent to the approved budget amount for PY 2 detailed in their WPC applications and only once their WPC application was approved and baseline metric data was submitted. Following the start of enrollment in PY 2, Pilots were paid based on infrastructure requirements (administrative and delivery infrastructure), the amount of WPC services delivered to enrollees (PMPM and FFS), and for meeting predefined goals (pay for reporting, pay for outcomes, and incentive payments).

Exhibit 72 shows the total amounts paid to WPC Pilots. This includes overall payments and amount per program year across Pilots, in addition to the median and range of amounts paid to individual Pilots. Overall, nearly $3.6 billion was paid to WPC Pilots, ranging from $6.2 million (Solano) to $1.5 billion (Los Angeles) per Pilot. Annual payments increased from $361 million in

PY 2 to $778 million in PY 5. Payments were lower in PY 6 or when WPC was extended for one year and two Pilots discontinued their Pilots. Sonoma did not start enrollment in PY 2 as planned due to delays in implementation that resulted from wildfire activity in their area and as a result did not receive any payment in PY 2.

Exhibit 72: Program Year and Overall WPC Payments to Pilots, PY 1 to PY 6

Program Year	Total Payments	Median Pilot Payment	Minimum Pilot Payment	Maximum Pilot Payment
PY 1	$498,967,343	$4,907,400	$933,402	$180,000,000
PY 2	$361,336,345	$3,057,092	$0	$137,003,935
PY 3	$546,238,400	$5,638,780	$802,183	$226,215,249
PY 4	$766,371,449	$6,241,763	$825,319	$367,243,307
PY 5	$778,374,868	$7,585,920	$1,708,800	$346,299,925
PY 6	$642,848,405	$6,242,833	$1,419,352	$279,499,004
PY 1 – PY 6	**$3,594,136,811**	**$31,888,477**	**$6,164,396**	**$1,536,261,420**

Source: *WPC Annual Invoices*, PY 2 to PY 6.
Notes: For PY 2, Sonoma did not receive payment in PY 2 because they had zero enrollment during PY 2. SWPCC and Solano did not participate in WPC during PY 6.

Following enrollment in PY 2, WPC Pilots submitted invoices broken down into budget categories to receive payment (Exhibit 73). Data showed that the largest payment category was WPC services (53%), followed by 20% for incentives, and 10% for pay for outcomes categories. There was large variation in the breakdown of payments by budget category among Pilots (data not shown).

Exhibit 73: Proportion of Overall WPC Payments to Pilots by Budget Category, PY 2 to PY 6
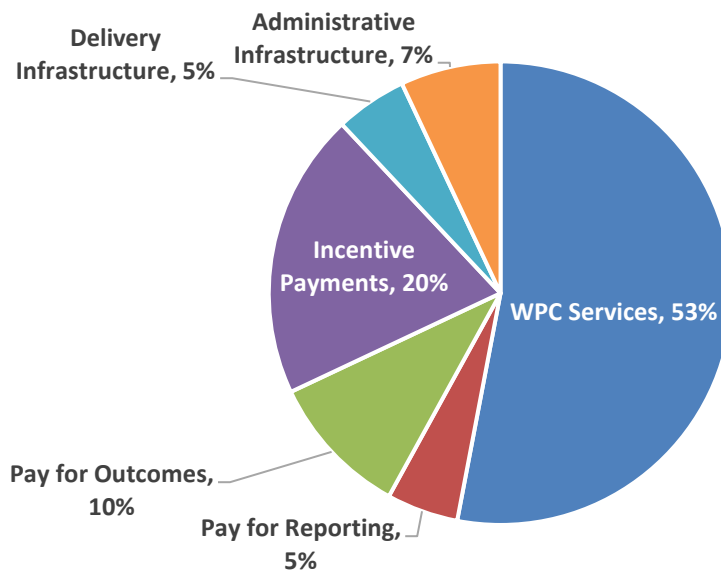
Source: *WPC Annual Invoices*, PY 2 to PY 6.
Note: SWPCC and Solano did not participate in WPC during PY 6.

Pilots were reimbursed for WPC services based on the reported use of bundles (PMPM) and individual services (FFS). PMPM bundles were paid for each month that an enrollee was included in that bundle and FFS was paid every time an enrollee used that service. Exhibit 74 shows the percent of total WPC service payments made to WPC Pilots that were paid under PMPM or FFS for each Pilot. Twenty Pilots mainly received payments through PMPM, with two Pilots (Placer and San Mateo) only receiving payments through PMPM. Five Pilots received payments mainly through FFS. Pilots used different strategies and designs to create their set of interventions and payment structure for these services. For example, Alameda largely worked with existing programs and organizations to provide WPC services and relied on FFS to pay for these services. Other Pilots, like Contra Costa and San Mateo, developed largely new infrastructure to provide WPC services and bundled these services into a few PMPMs and had none or few individual services paid through FFS.

Exhibit 74: Proportion of Total WPC Services Payments under PMPM and FFS Reimbursement Methods by Pilot, PY 2 to PY 6

Pilot	PMPM as a Percentage of Service Budget	FFS as a Percentage of Service Budget
All Pilots	85%	15%
Alameda	34%	66%
Contra Costa	92%	8%
Kern	88%	12%
Kings	78%	22%
Los Angeles	92%	8%
Marin	91%	9%
Mendocino	82%	18%
Monterey	14%	86%
Napa	74%	26%
Orange	69%	31%
Placer	100%	
Riverside	28%	72%
Sacramento	76%	24%
San Bernardino	81%	19%
San Diego	89%	11%
San Francisco	56%	44%
San Joaquin	42%	58%
San Mateo	100%	
Santa Clara	98%	2%
Santa Cruz	87%	13%
SCWPCC	86%	14%
Shasta	87%	13%
Solano	70%	30%
Sonoma	16%	84%
Ventura	55%	45%

■ PMPM as a Percentage of Service Budget   ■ FFS as a Percentage of Service Budget

Source: *WPC Annual Invoices*, PY 2 to PY 6 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.

Notes: SCWPCC is the Small Counties Whole Person Care Collaborative. PMPM is per-member, per-month payments for a bundle of services and FFS (fee for service) is payment for specific services.

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UCLA calculated the average payment to Pilots per enrollee for WPC services from PY 2 to PY 6 overall and by target population (Exhibit 75). On average, WPC Pilots received $6,272 per enrollee and $743 per beneficiaries not formally enrolled. Average payments for SMI/SUD enrollees were highest at $13,541, followed by those with chronic physical conditions ($11,666). The COVID-19 target population had the lowest average payment ($5,629).

Exhibit 75: Average Overall Payment for Services per WPC Enrollees by Enrollment Status and Target Population, PY 2 to PY 6
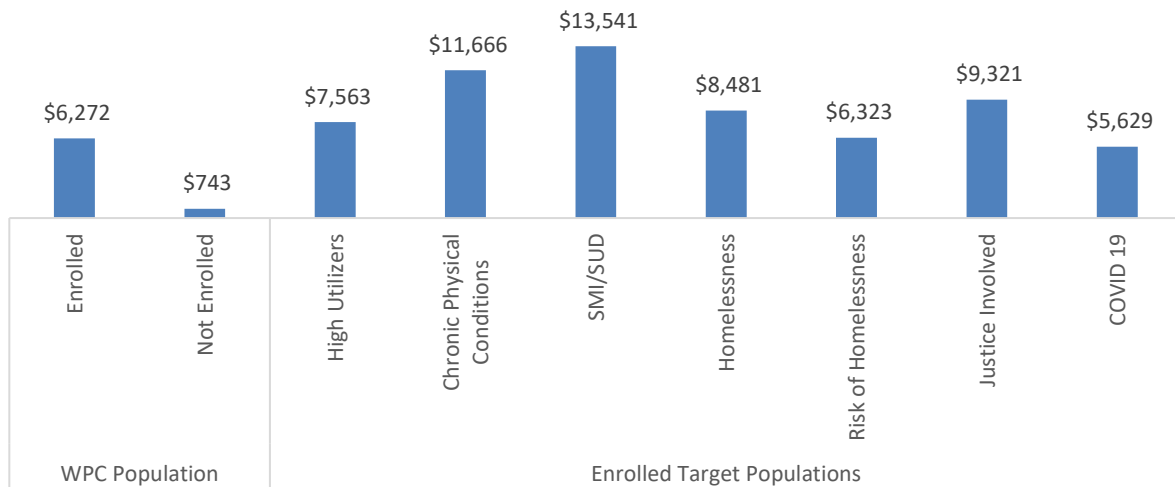
Source: *WPC Annual Invoices*, PY 2 to PY 6 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes all payments for WPC services across all years of the program and includes services received prior to enrollment. Includes 289,417 unique individuals that received services through WPC: 224,632 enrolled and 64,785 never enrolled. Enrollees are included in target population if ever assign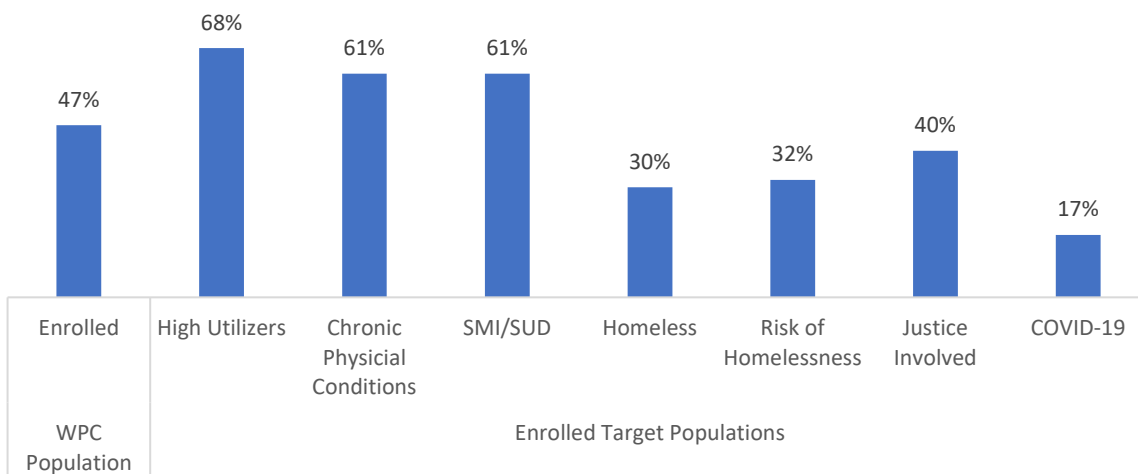ed to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

UCLA also calculated the average monthly payment per enrollee for WPC services to account for different lengths of enrollment (Exhibit 76). On average, WPC Pilots were paid $397 per enrollee per month for all WPC enrollees. WPC Pilots were paid the most for the SMI/SUD target population ($670 per enrollee per month) and the least for the COVID-19 population ($241 per enrollee per month).

Exhibit 76: Average Monthly Payment per WPC Enrollees Receiving Services for WPC Services Overall and by Target Population, PY 2 to PY 6
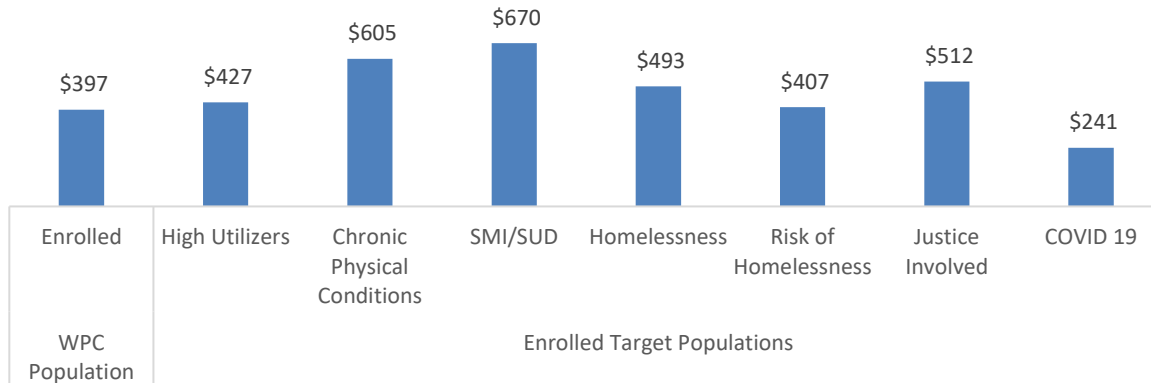
Source: *WPC Annual Invoices*, PY 2 to PY 6 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021

Notes: Includes 224,632 unique individuals that received services through WPC and were enrolled. Enrollees are included in target population if ever assigned to that target population during program. COVID-19 target population was added in PY 5. SMI/SUD is serious mental illness and/or substance use disorder. PY 2 is 2017 and PY 6 is 2021.

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Chapter 6: WPC Care Coordination

A major goal of WPC was to "increase coordination and appropriate access to care for the most vulnerable Medi-Cal beneficiaries." This chapter addresses the following evaluation question: "to what extent did WPC Pilots (a) improve comprehensive care coordination, including real-time coordination, across participating entities; and (b) achieve the approved application deliverables relating to care coordination?"

UCLA addressed part (a) of this evaluation question by assessing the implementation of care coordination by WPC Pilots. UCLA addressed part (b) by examining available universal and variant metrics reported by Pilots, as well as developing an evidence-based conceptual framework to assess success of Pilots in meeting their application deliverable related to care coordination. This framework was described in the Care Coordination Policy Brief (see Appendix K), published in October 2019, in which UCLA delineated key elements needed for effective care coordination under WPC. This framework was developed following the Agency for Healthcare Research and Quality (AHRQ) definition of care coordination, interviews with Pilots, and a review of the literature on cross-sector care coordination.

The key elements of the framework included infrastructure needed to support effective care coordination, as well as specific care coordination processes. Infrastructure elements include: (1) care coordination staffing that meets patient needs, (2) data sharing capabilities to support care coordination, (3) standardized organizational protocols to support care coordination, and (4) financial incentives to promote cross-sector care coordination. Care coordination processes include: (5) ensuring frequent communication and follow-up to engage patients, (6) conducting needs assessments and develop comprehensive care plans, (7) actively linking patients to needed services across sectors, and (8) promoting accountability within the care coordination team. This framework was used to measure the progress Pilots made in implementing effective care coordination through WPC in the interim, as well as ensuring sustainability of the infrastructure and processes beyond the life of the Pilot. This chapter is structured around that conceptual care coordination framework, providing updates and additional nuanced detail since the WPC interim report. The interim report included 25 Pilot-specific case studies to highlight the activities of each Pilot according to this framework.

Data sources for this chapter included PY 3 (2018), PY 5 (2020), and PY 6 (2021) Lead Entity surveys and PY 6 follow-up interviews with leadership and frontline staff of all 26 Pilots. Additional qualitative data around challenges and solutions was obtained from WPC mid-year and annual narrative reports. The PY 5 and PY 6 data sources included updates on program implementation since the interim report as well as clarification and further detail on activities

conducted since the start of WPC. For additional detail on data sources and methodology please see Methods Section and Appendices C, D and E.

Care Coordination Infrastructure

Care Coordination Staffing that Meets Patient Needs

In PY 3 LE surveys, the majority of Pilots (24 of 27) reported using shared care navigators or care coordinators across two or more participating WPC organizations to develop comprehensive care plans and coordinate care. In PY 5 LE surveys, UCLA asked about specific organizational involvement of these shared care coordinators. Most often shared care coordinators were from a health care organization (12 of 25), behavioral health care organization (11), and/or social service agency (9). Diversification of care coordinators allowed teams to access a broader range of resources for their enrollees.

Most Pilots reported using community health workers, peer coaches/support specialists, or other staff with lived experience relevant to enrollees to provide care coordination services (18). These services were often provided in consultation with or under the supervision of staff with clinical expertise such as physicians, nurses, or social workers. Additionally, eight Pilots offered care coordination services outside of typical business hours (e.g., evenings or weekends).

> *"Lived experience is a big one. Having a CHW who has been in your shoes and that you can identify with … has been really critical… I personally believe that that takes a very special type of person... I do think that we did provide certain resources over the years about self-care, setting boundaries, trauma-informed care, how to take care of yourself…I think some of the CHWs who have been in the program since the beginning… are persistent and dedicated." –Sacramento*

Average caseload ranged from approximately five, to over 300 enrollees per care coordinator depending on the structure of the program and the needs of the enrollees. For example, Contra Costa offered three tiers based on enrollee acuity, whereas Tier 1 was high acuity and had primarily field-based case management with a 1:80 case ratio. Tier 2 was moderate acuity, with enrollees receiving primarily telephonic support by community health workers with a 1:300 case ratio and Tier 3 was highest acuity with short-term and high-intensity case management focused on emergency department and inpatient hospital diversion and had a 1:25 case ratio.

Median caseload across all Pilots was approximately 20 to 30 enrollees per care coordinator; specific breakdowns of caseload by Pilot is presented in Exhibit 1 in the WPC Snapshot Policy Brief.

Additional detail on specific staffing models is provided below in the Care Coordination Staffing section of this chapter.

Data Sharing Capabilities to Support Care Coordination

Pilots demonstrated progress in data sharing capabilities from the interim report or PY3, in PY 5 LE surveys (Exhibit 77). For example, while all Pilots had established data sharing agreements with some partners, they reported an increase in such agreements with their key partners (20 of 25; compared to 15 of 27 in PY 3). Key partners were defined as those who have a high awareness of the WPC program structure and goals.

As of PY 5, Pilots had the capability to access enrollees' comprehensive care plans (21), needs assessments (19), and referrals (18) electronically in a single database (data not shown).

Exhibit 77: Number of WPC Pilots Participating in Select Data Sharing Capabilities to Support Care Coordination, PY 3 and PY 5
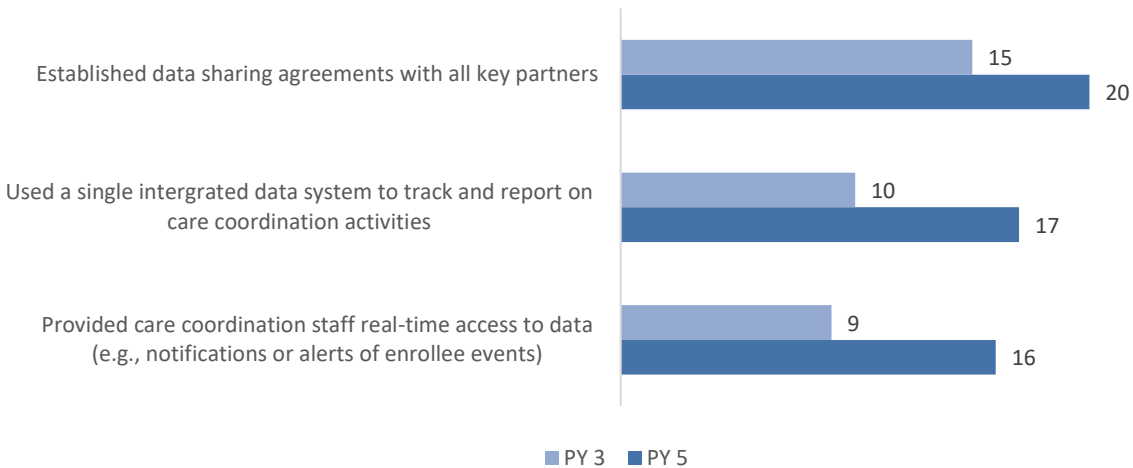
Sources: PY 3 Lead Entity (LE) Survey (n=27), June-September 2018; PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.
Notes: Key partners were defined as those who have a high awareness of the WPC program structure and goals.

In PY 6 follow-up interviews, most Pilots identified data and information technology infrastructure to support care coordination (e.g., case management platforms, real-time alerts, data sharing agreements) as a strategic priority of WPC and noted significant improvements from the Pilot's inception. Pilots reported that frontline care coordination staff recognized benefits in their day-to-day workflows with efficiency, ability to see an enrollee's history, and communication with multi-disciplinary partners. Information on how Pilots developed such infrastructure is provided in Chapter 3: Health Information Technology and Data Sharing Infrastructure.

> *"A pretty big game changer. We used to do all of our assessments on paper, and then securely store those and write a summary online. But now we can actually complete them digitally. And we have more of an opportunity to show that work to other clinic staff. That wasn't as possible with our old system… we're getting a lot of information about a patient. The [primary care provider] can go just check out that encounter and see what happened with that patient. And that's a brand-new thing for us." –Alameda*

Standardized Organizational Protocols to Support Care Coordination

Developing standardized procedures and protocols to support care coordination was a priority for many Pilots. Standardized protocols helped to minimize undesirable variation in delivery of care coordination services, while improving staff workflows and data reporting. In PY 3 LE surveys, one third of Pilots reported that prior to WPC they had standardized protocols in place for referring enrollees to services (9 of 27). As indicated in PY 5 LE surveys, WPC increased the proportion of Pilots with protocols in place, with the majority of Pilots reporting they had standardized protocols for referring enrollees to medical, behavioral health, or social services (20 of 25), or had standardized protocols for monitoring and following up on whether enrollees needed services (16).

Financial Incentives to Promote Cross-Sector Care Coordination

All Pilots used per-member-per-month (PMPM) funding to support care coordination activities. In PY 5 LE surveys, 15 Pilots reported that their PMPM bundles were stratified by the risk or level of need of enrollees. Most Pilots contracted out some or all care coordination services for delivery by partner organizations (19); the remaining Pilots delivered care coordination services in-house, and did not contract out to partners.

In PY 6 LE surveys, 18 of 26 Pilots indicated that they provided financial incentives to partner organizations for engagement in WPC activities (e.g., stakeholder meetings, reaching specified milestones). On a scale from 0 (not effective) to 10 (extremely effective), Pilots rated these incentives as effective (6.8 of 10). More specifically, incentives to promote development of data sharing infrastructure within participating partner organizations and for Pilots to achieve set process targets were considered most effective.

Care Coordination Processes

Ensuring Frequent Communication and Follow-Up to Engage Patients

In PY 6 follow-up interviews, Pilots emphasized the importance of using a patient-centered approach to communication that accommodated enrollee needs and preferences. All of the Pilots required care coordinators to regularly contact enrollees at least once per month. As indicated in PY 5 LE surveys, many Pilots (21 of 25) reported that the most common type of contact between care coordinators and enrollees was in-person, rather than by phone or other modes of communication.

In PY 6 follow-up interviews, Pilots emphasized the importance of field-based and in-person communication for engaging enrollees in WPC, particularly those experiencing homelessness. While there were limitations to in-person engagement due to the COVID-19 pandemic, Pilots reported that several opportunities, such as Project RoomKey, emerged that allowed for more concentrated engagement of vulnerable populations.

Needs Assessment and Comprehensive Care Planning Processes

All Pilots were required to conduct needs assessments to identify target population needs and evaluate enrollee health progress over time. Specific needs assessment tools and their comprehensiveness varied, particularly when it came to evaluating social needs.

In PY 5 LE surveys, 15 of 25 Pilots indicated utilizing a "homegrown" tool to assess enrollee's non-medical needs and these were often tailored specifically to Pilot's WPC enrollment criteria and program goals (data not shown). Fourteen Pilots reported using the VI-SPDAT (Vulnerability Index – Service Prioritization Decision Assistance Tool).

Pilots also varied in whether they administered formal needs assessments to enrollees once per year, or more frequently (as indicated by 16 of 27 Pilots in PY 3). Outside of medical needs, information on housing and housing stability (all Pilots; 25 of 25) was most often collected as part of the needs assessment process, followed by access to other government benefits (23), food access (22), social supports (22), and interpersonal safety (18; Exhibit 78).

Exhibit 78: Information Systematically Collected as Part of Needs Assessment Process in WPC

Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.

Oftentimes, needs assessments directly informed the development of comprehensive care plans. Almost all Pilots (23) reported that enrollees had a single, comprehensive care plan that was shared across all or some partners.

Actively Linking Enrollees to Needed Services Across Sectors

Linking enrollees to services to meet their health and social needs was a foundational component of care coordination in all WPC Pilots. In PY 5 LE surveys, Pilots reported using active referral strategies, such as providing/arranging transportation to and from appointments (24 of 25); ensuring warm hand-offs to other providers (24); and follow-up with enrollees and/or service providers to monitor referral status (23; Exhibit 79).

Exhibit 79: Specific Approaches Used to Actively Link WPC Enrollees to Services and Integrate Care

Approach	Count
Ensure warm hand-offs to other providers	24
Provide or arrange transportation to and from appointments	24
Follow-up with enrollees and/or service providers to monitor status of referrals	23
Provide education or coaching around patient self-management education	22
Accompany enrollees to appointments	22
Regularly review data on enrollees with specific health risks to identify potential problems and gaps in care	20
Assist with medication management and adherence	18
Implement disease management programs and/or strategies for select health conditions	17

Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.

"… our care managers are so amazing and work together so well, because they have their partner, which is their screening nurse… They give them real time warm handoffs. Like, you know, 'This is the client. This is his number' Sometimes they even call them right there in the office, if they don't have anybody waiting for them, as a warm handoff, so they get to know them, so they know it's a real person on the other end. And I know that a lot of my nurses, within 24 hours, they try to call them back, because they know that window of opportunity is right there and then.." —Riverside

Promoting Accountability Within the Care Coordination Team

Care coordination is most effective when accountability for different activities is clearly defined and monitored. In PY 5 LE surveys, many reported co-locating or otherwise embedding care coordinators within partner organizations (14 of 25). The most common types of co-located organizations were health care organizations (12), followed by mental health treatment agencies (10) and (non-housing) social service agencies (8).

As emphasized in PY 6 follow-up interviews, WPC Pilots developed a variety of strategies to facilitate communication within care coordination teams. The primary mechanism for team

communication was regular in-person meetings, followed by phone calls, emails, and sometimes even text messages.

Exhibit 80 illustrates the variety of strategies used by Pilots to promote accountability among care coordination teams, as indicated in PY 5 LE surveys. Data show 18 of 25 Pilots required staff to document, log, or otherwise track care coordination encounters and 18 Pilots had regular team meetings which promoted discussion by different stakeholders involved in a specific enrollee's care.

Exhibit 80: Number of WPC Pilots Engaging in Selected Strategies to Increase Care Coordination Team Accountability
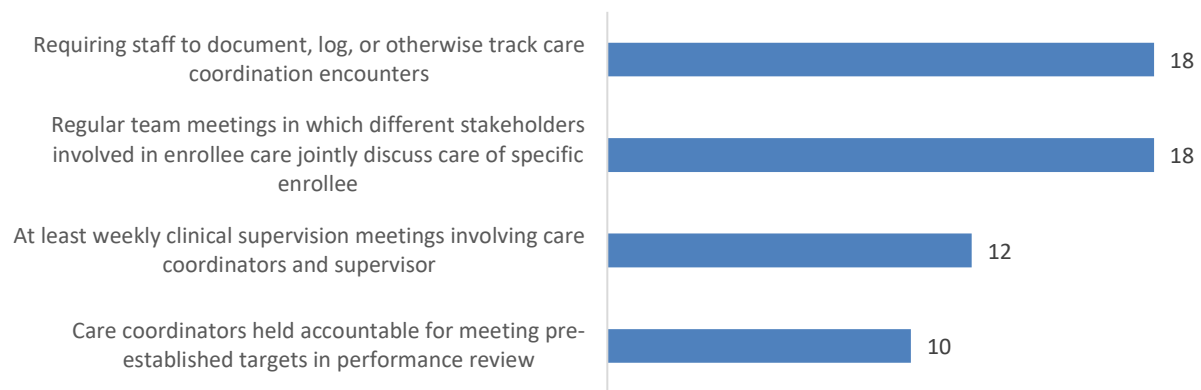
Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.

Care Coordination Staffing

Pilots developed multidisciplinary teams with relevant and diverse clinical expertise to address enrollee needs. As indicated in PY 5 LE surveys, across all Pilots, the most common roles involved in care coordination included: housing navigators (22 of 25), licensed social workers (19), community health workers or other staff with lived experience (18), and nurses (18). Exhibit 81 shows the types of staff involved in care coordination by Pilot.

Outside of care coordination, staff may also have been involved in outreach, providing clinical consults, and/or supervision, depending on the structure of the Pilot. Most often community health workers or staff with lived experience (18) and housing navigators (15) conducted outreach. Licensed social workers (18) and nurses (17) most often provided clinical consults, and licensed social workers (13) and nurses (9) provided care team supervision (data not shown).

Exhibit 81: Types of Staff Involved in WPC Care Coordination by Pilot

	Community health worker or other staff with lived experience	Medical assistant or equivalent	Nurse (RN or LVN or PHN)	Licensed social worker (e.g., MSW or LCSW)	Unlicensed social worker	Alcohol or drug counselor or equivalent	Mental health counselor or equivalent	Housing navigator or equivalent	Benefits support staff	Physician or nurse practitioner	Clinical psychologist
Alameda	X		X	X				X			
Contra Costa	X		X	X	X	X	X	X	X		X
Kern		X		X	X			X	X		
Kings	X	X				X	X	X	X		
Los Angeles	X			X	X						
Marin		X	X	X	X		X	X	X		
Mendocino	X	X	X	X	X		X	X		X	
Monterey			X			X	X	X	X		X
Orange	X		X	X			X	X	X		
Placer	X		X	X	X		X	X			
Riverside			X			X	X	X		X	X
Sacramento	X	X	X	X	X	X	X	X	X	X	X
San Bernardino	X	X	X		X	X		X	X		
San Diego	X		X	X	X		X	X			
San Francisco	X	X	X	X	X	X	X	X	X	X	X
San Joaquin	X	X	X	X	X	X	X	X			
San Mateo	X		X	X	X	X	X				
Santa Clara	X	X	X	X	X	X	X	X			
Santa Cruz	X	X		X			X	X			
Shasta		X	X	X				X			
Small County – Mariposa		X	X		X	X		X			
Small County – San Benito					X			X	X		
Solano	X			X		X		X	X		
Sonoma	X			X	X	X	X				
Ventura	X		X	X		X		X	X		
Overall	**18**	**12**	**18**	**19**	**16**	**14**	**16**	**22**	**12**	**4**	**5**

Source: PY 5 Lead Entity survey (n=25), June-August 2020.
Notes: RN is registered nurse. LVN is licensed vocational nurse. PHN is public health nurse. MSW is Master of Social Work. LCSW is licensed clinical social worker.

Pilots reported difficulty in recruitment and retainment of different types of staff. Generally, Pilots found it most challenging to recruit nurses and/or licensed social workers. Pilots found it most difficult to retain licensed social workers, housing navigators, and community health workers (data not shown). In PY 6 follow-up interviews, Pilots noted that the most common challenge faced by staff was the demanding nature and high emotional burden associated with inherent responsibilities of the job. Based on geographic location, some Pilots mentioned staff challenges related to high cost of living and long commute times.

Pilots offered a wide variety of supports for staff responsible for care coordination (Exhibit 82). As indicated in PY 5 surveys, all Pilots provided opportunities for shared learning via collaborative care planning or joint discussion of cases. Other common offerings included: clinical skills training (23 of 25); team training or inter-personal training (23); shadowing of other care coordinators/providers (22); and clinical supervision by a formally designated supervisor (20).

Exhibit 82: Resources in Place to Support Staff Responsible for Care Coordination

Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.
Notes: Clinical supervision is defined as opportunities for supervisor and supervisee discuss specific cases, determine courses of action, and resolve problems related to a case; whereas supportive supervision is defined as a focus on discussing non-clinical issues, decrease job-related stress, improve staff motivation and morale.

Challenges and Successes

Exhibit 83 summarizes the most frequently identified challenges related to care coordination by program year as presented by Pilots in bi-annual narrative reports.

Overall, the most common theme across the life of WPC was challenges related to *limited availability and/or accessibility of services* (72 unique mentions across reporting periods by 24 Pilots; data not shown). WPC Pilots most commonly referenced housing-related issues, including: long wait times for existing permanent housing stock, limited housing options available within the county, poor quality and fit for enrollees among the available housing units, and how the lack of housing prevented other desired health and social outcomes among enrollees. Additional examples of challenges WPC Pilots discussed regarding limited availability and accessibility of services included: increased referrals on an already overburdened system prevented access to needed services for WPC enrollees and a lack of specialty care, substance use, and mental health treatments within county limits. However, the prevalence of this challenge became less dominant in later reporting periods (PY 5 and PY 6), as Pilots became more familiar with access and referral pathways to services through partnerships. With the COVID-19 pandemic, there was also an increase in the availability of temporary and short-term housing options for vulnerable populations. There was a peak of 22 mentions in PY 4, with 10 mentions in PY 6.

Pilots also expressed *difficulty engaging appropriate interdisciplinary partners* as a barrier to care coordination (67 unique mentions across reporting periods by all 25 Pilots; data not shown). For example, multiple WPC Pilots reported that partners were unwilling or hesitant to engage due to their competing priorities with other programs or initiatives. Initially, WPC LEs mentioned limited trust and buy-in from partners to the WPC program. However, the prevalence of this challenge became less dominant in later reporting periods (PY 5 and PY 6), as partnership networks strengthened and strategic goals aligned. There was a peak of 20 mentions in PY 4, with five mentions in PY 6.

Pilots experienced *staffing issues including recruitment, training, retention, and turnover* which negatively impacted care coordination activities (57 unique mentions across reporting periods by 20 Pilots; data not shown). Multiple WPC Pilots explicitly attributed staffing challenges to cumbersome county hiring and/or contracting processes (e.g., background checks, requirements for open search). These challenges required WPC Pilots to plan far ahead when developing project timelines, which was challenging early in the implementation process. Later in the implementation process, staff questioned their job security with the inevitable end of the Pilot, which may have led to turnover. There was a peak of 17 mentions in PY 4, and six mentions in PY 6.

A somewhat consistent theme across reporting periods was challenges in **understanding WPC target populations and how to address their complex and evolving needs** (46 unique mentions across reporting periods by 21 Pilots; data not shown). Oftentimes, staff found that enrollees were of particularly high acuity or had undocumented diagnoses. This theme was reported by 11 to 12 Pilots in key implementation years of PY 3 to PY 5.

Competition or confusion with other similar programs was a less common theme related to challenges in care coordination (32 unique mentions across reporting periods by 18 Pilots; data not shown). Care coordination and case management services were often offered through a variety of agencies and organizations, such as behavioral health departments and Medi-Cal managed care plans, which created confusion regarding WPC scope and concerns around non-duplication of services. This theme had nine mentions in PY 2, a peak of 11 mentions in PY 4, with four mentions in PY 6.

Exhibit 83: Commonly Identified Challenges in Care Coordination Among WPC Pilots, by Reporting Period, PY 2 to PY 6
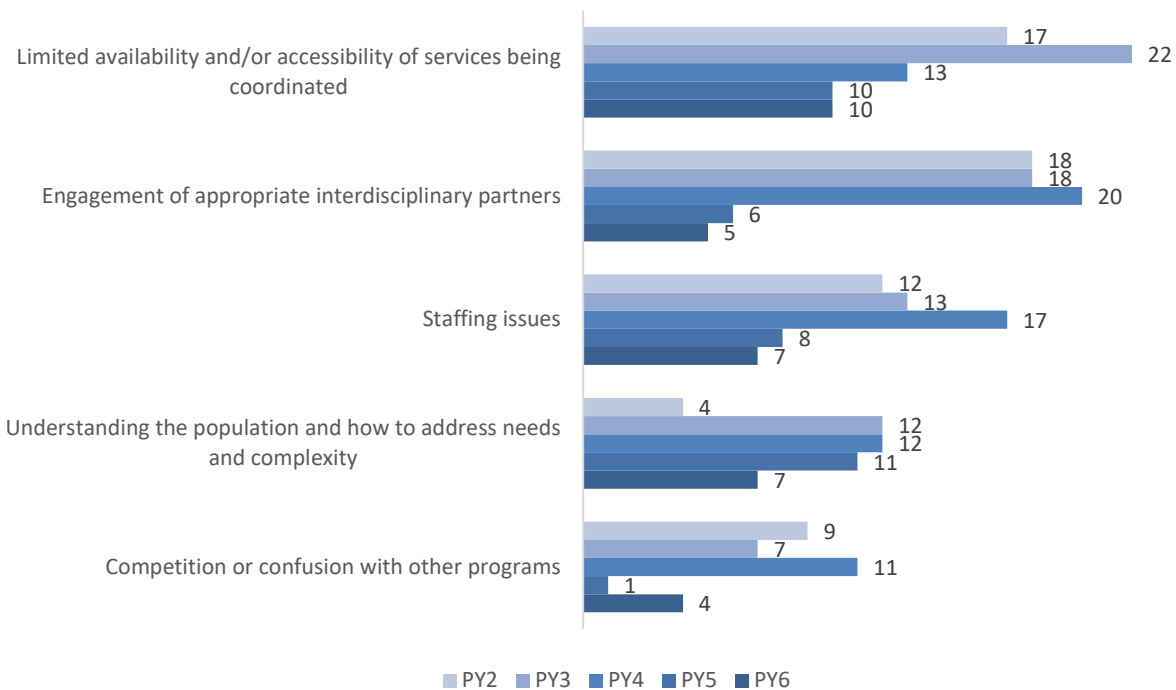
Source: WPC Mid-Year and Annual Narrative Reports, PY 2-PY 6.
Notes: Numbers indicate WPC Pilots that mentioned the thematic challenge at least once within the given program year. Themes are presented in order of overall prevalence across reporting periods. Program Year (PY) 2 = 2017, PY 3 = 2018, PY 4 = 2019, PY 5 = 2020, and PY 6 = 2021.

Successes in implementing care coordination services and programs often directly reflected a response to the challenges detailed above (Exhibit 84). Across reporting periods, all Pilots reported **solutions related to implementation of new or improved care coordination services**; many of these efforts focused on improvements in the day-to-day activities of frontline staff (110 unique mentions across reporting periods by 25 Pilots; data not shown). Commonly identified examples of successes within the delivery of care coordination services included: organizing regular case conferences with partners and managed care plans to discuss high-need enrollees, prioritization of services or housing for WPC enrollees including reserved appointments, set-aside housing vouchers, and effective communication across the entire care team. This theme was consistently reported with 23-25 mentions in each period from PY 3 to PY 6.

Pilots also reported successes in **using data systems to support care coordination activities** (65 unique mentions across reporting periods by 24 Pilots; data not shown). Many WPC Pilots reported having procured care management platforms, which helped to streamline important care coordination activities and share relevant enrollee information amongst multiple users involved in the enrollee's care. This theme was consistently reported across all reporting periods.

Pilots described successes in **working with partners in new ways that improved understanding of mutual goals for shared clients** (e.g., warm handoffs of enrollees after an emergency department visit, direct communication through electronic platforms; 60 unique mentions across reporting periods by 24 Pilots; data not shown). WPC Pilots emphasized proactive and consistent communication amongst partners, and formalized contracts to facilitate implementation of care coordination activities among partners with historically limited interaction. This theme had nine mentions in PY 2, a peak of 11 mentions in PY 4, with four mentions in PY 6.

Pilots reported successes for WPC enrollees as a result of **effectively utilizing synergies with existing programs and initiatives**, particularly because many programs have similar goals and provide care to the same populations (44 unique mentions across reporting periods by 20 Pilots; data not shown). Typically, these successes involved the Pilots working with other programs to identify and delineate their respective roles and responsibilities with WPC enrollees. One particularly successful complementary initiative was Project Roomkey, a part of comprehensive COVID-19 response. This theme was consistently reported from PY 3 to PY 6.

Pilots also **defined care coordination and worked to comprehensively understand care coordination needs across agencies** including alignment of enrollee assessment tools across partners, tracking of metrics, and establishment of referral pathways (31 unique mentions

across reporting periods by 18 Pilots; data not shown). This theme had a peak of 10 mentions in PY 3 when WPC was becoming established with partners, and seven mentions in PY 6, likely with preparation for the transition to Cal-AIM.

Exhibit 84: Commonly Identified Successes in Care Coordination Among WPC Pilots, by Reporting Period, PY 2 to PY 6
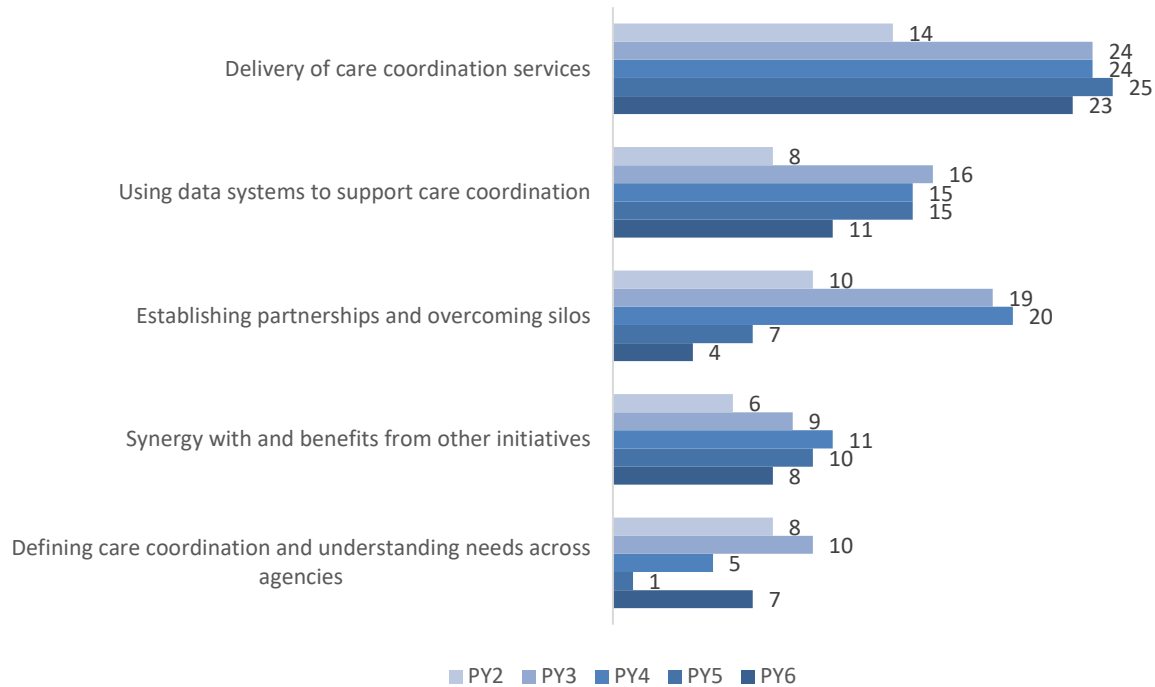
Source: WPC Mid-Year and Annual Narrative Reports, PY 2-PY 6.
Notes: Numbers indicate WPC Pilots that mentioned the thematic challenge at least once within the given program year. Themes are presented in order of overall prevalence across reporting periods. Program Year (PY) 2 = 2017, PY 3 = 2018, PY 4 = 2019, PY 5 = 2020, and PY 6 = 2021.

Chapter 7: WPC Quality Improvement and Program Monitoring

DHCS provided several forms of support to Pilots to promote successful implementation of WPC. DHCS contracted with external organizations and provided support from a DHCS analyst to assist with preparing data and reports. Pilots were also required to engage in regular performance improvement activities and submit bi-annual Plan-Do-Study-Act (PDSA) reports to DHCS documenting Pilot-led efforts to improve workflows and metric performance.

This chapter outlines Pilots' involvement in PDSAs, and technical assistance provided to Pilots from DHCS. This chapter also examines the frequency and extent to which stakeholder engagement influenced design, implementation, and evaluation of Pilots. Additional detail on performance improvement and program monitoring was provided in the interim report.

Data sources for this chapter include PY 6 LE surveys and follow-up interviews with leadership and frontline staff. Data from bi-annual PDSA Reports is also included in the following analyses. For additional detail on data sources and methodology please see Appendices G.

Pilot-Initiated Quality Improvement

All Pilots were required to monitor progress on selected performance measures and to utilize a quality improvement approach known as "Plan-Do-Study-Act" (PDSA) to improve Pilot performance. The bi-annual Pilot reports included the PDSA activities that were implemented during that reporting period.

PDSA Types

WPC Pilots submitted several different categories of PDSAs to DHCS reflecting their WPC program goals, target populations, and infrastructure and process goals. The categories of PDSAs reported by Pilots included: (1) ambulatory care, (2) care coordination, (3) comprehensive care plan, (4) data, (5) inpatient utilization, and (6) other (as cited in WPC STCs). DHCS required four PDSAs on ambulatory care, inpatient utilization, and comprehensive care plan per year and two PDSAs on data and care coordination per year. DHCS did not set specific criteria on the length of quality improvement efforts and used the term PDSA to refer to a variety of quality improvement activities. All Pilots conducted at least one PDSA that was considered long-term and had different stages depending on program planning and implementations phases.

The data show that ambulatory care PDSAs typically focused on efforts to reduce use of the emergency department for ambulatory care sensitive conditions. A second category of PDSAs were around creation of a comprehensive care plan. Comprehensive care plans were to be developed and accessible to the entire care team to outline goals and services once enrolled into WPC. Across all Pilots, as part of a universal metric, the goal was for comprehensive care plans to be accessible within a 30-day timeframe. Care coordination PDSAs focused on how to improve coordination of care. Some elements of care coordination explored through PDSAs included navigation infrastructure, coordinated entry, common assessment tools used among participating entities, collection and use of social determinants data, and increased access to social services. Data and reporting PDSAs were usually intended to improve methods for capturing and storing data, particularly as it related to reporting to DHCS. Inpatient utilization PDSAs were projects aimed to reduce inpatient utilization; some Pilots focused on a particular target population with high rates of inpatient utilization.

Appendix G provides an example of PDSAs by each category type, since the interim report.

Volume of PDSAs Conducted by WPC Pilots, PY 3-PY 6

Multiple PDSAs were submitted during each reporting period across each category; the number of PDSA reports submitted to DHCS varied by WPC Pilot per reporting period. On average, Pilots completed nine PDSAs per reporting period.

Overall, 2,133 PDSAs reports were submitted to DHCS through reporting periods PY 2 mid-year and PY 6 annual. Of those 2,133 reports submitted, the most common categories submitted included: ambulatory care PDSAs (19%, 398 reports), followed by care coordination PDSAs (18%, 381 reports), and inpatient utilization PDSAs (17%, 370 reports; Exhibit 85). The "other; metrics" category was created based on PDSAs that were submitted that did not fit into any of the provided categories but were metric-specific. Examples of PDSAs from the "other" category included projects that Pilots wished to pursue but that did not neatly fit into existing categories.

Exhibit 85: WPC PDSA Category Types Across Reporting Periods, PY 2 to PY 6
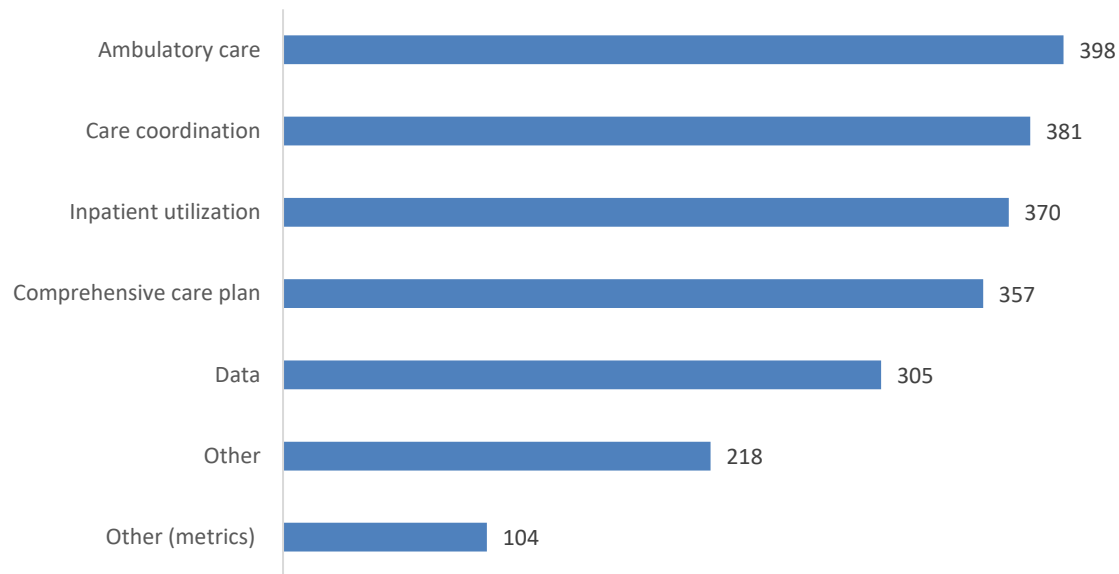
Source: Bi-annual PDSA Reports, PY 2-PY 6 (n=25).

In PY 6 follow-up interviews, some Pilots provided additional detail on other quality and performance improvement and monitoring activities that were not captured through PDSA reports submitted to DHCS. Selected examples are provided in Exhibit 86.

Exhibit 86: Selected Illustrative Examples of WPC Quality and Performance Improvement and Monitoring Activities

Pilot	Selected Example
Santa Cruz	Santa Cruz conducted a Lean Six Sigma Green Belt training with all WPC staff, as well as CBO partners, to collectively gather and develop strategies on process improvement. A key focus of this training was to strengthen the ability of organizations to work together. Santa Cruz also conducted a "root cause" analysis, which provided insights into the complexity of underlying challenges faced by the program. The conclusions from this training were used to inform strategic goals for the future.
San Bernardino	San Bernadino held "WAR conferences" (Whole Person Care Accountability Review), in which all care team members discussed critical issues facing each individual client. This process helped to illuminate "best practice" strategies, with generalizable lessons learned that informed care team interactions with enrollees.
Riverside	When determining areas of focus for required PDSA reports to DHCS, Riverside program management obtained feedback from frontline staff who worked directly with enrollees. PDSA reporting facilitated important conversations between frontline staff and program management.
Napa	Napa created an annual participation survey to assess enrollee satisfaction with WPC services. Napa also received feedback through their partners by holding semi-annual interviews on WPC's progress and areas for improvement. Napa discussed feedback and used it to improve the program.
Marin	Marin partnered with a consulting firm to perform a qualitative evaluation, which included interviews with case managers and organizational leadership. Based on the evaluation, Marin was able to self-assess and make improvements to their Pilot.

Source: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.

Technical Assistance

Since the interim report, DHCS along with the Learning Collaborative team from Aurrera Health (previously Harbage Consulting) continuously checked in with the LEs through surveys, phone calls, virtual meetings, and email communications to better understand the issues that were of most interest and concern to help guide Learning Collaborative content. An online portal was created to share information across Pilots and participating organizations. The portal was managed by Center for Health Care Strategies (CHCS).

In PY 6, the Learning Collaborative primarily supported the conclusion of the WPC Pilots and transition to new Medi-Cal benefits and services under the state's California Advancing and Innovating Medi-Cal (CalAIM) initiative, including the new Enhanced Care Management (ECM) benefit and Community Supports (CS). Additional information on this technical assistance is provided in WPC Transition to CalAIM chapter.

In PY 6 follow-up interviews, Pilots expressed that they would have benefited from additional technical support from DHCS around standardizing data collection, particularly considering metrics and reporting requirements.

Stakeholder Engagement on Quality Improvement Activities

Many Pilots attempted to integrate and elevate stakeholder perspectives into their Pilot. In PY 6 surveys, Pilots were asked about stakeholder engagement in the design, implementation, and evaluation of key WPC activities. Eighteen of 26 Pilots felt they had allocated sufficient resources (e.g., time, staff, compensation) to capture key stakeholder input (e.g., frontline staff, enrollees, other community members) throughout their WPC Pilot (data not shown).

> *"We did host a lot of focus groups where a lot of staff were able to come to those focus groups and voice what they've been experiencing with their clients. And then we took that information and built workflows and protocols for all staff to how to assist with that. And then we did trainings on those report flows and protocols to make sure everybody was on the same page." -Contra Costa*

Exhibit 87 shows the frequency of stakeholder involvement during various stages of the WPC Pilot. Across all three stakeholder categories, reported involvement was highest during the Pilot design phase, with enrollees and other community members engaging often (e.g., once a month). All groups were less involved during the implementation phase, but occasionally (e.g., quarterly) were involved in aspects of the evaluation phase. Overall, enrollees and other community members were most frequently involved, while frontline staff were reported to be the least involved.

Exhibit 87: WPC Pilots' Rating of Frequency of Involvement of Stakeholders in Aspects of Quality Improvement Activities
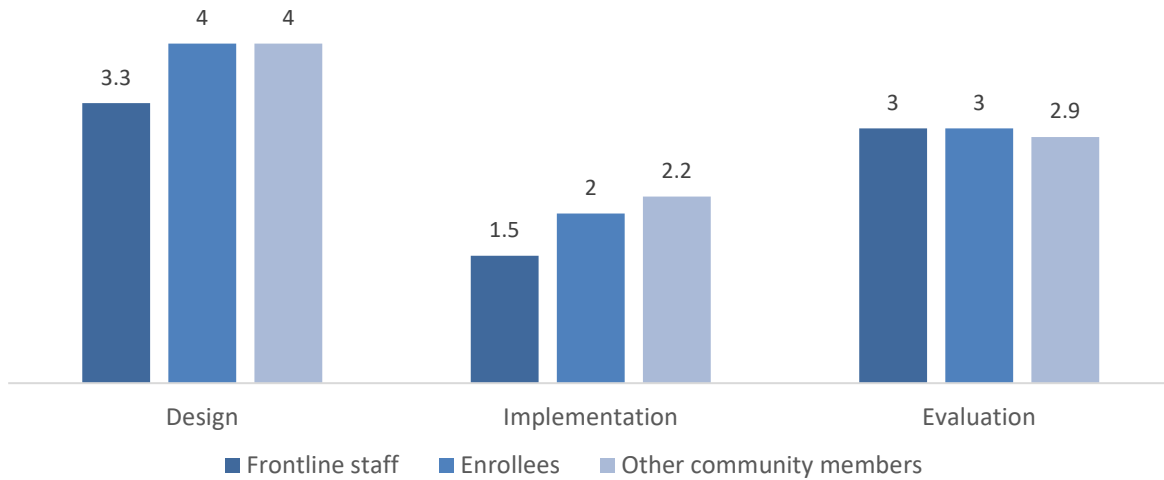
Source: PY 6 Lead Entity (LE) Survey (n=26), May-June 2021.
Notes: Ratings on scale of 1=Never, 2=Rarely/Once each year, 3=Occasionally/Once each quarter, 4=Often/Once each month, 5=Always/At every decision-making point, regarding frequency of involvement. "Frontline staff" is defined as those responsible for delivering WPC services, such as community health workers, care managers, peer support within LE or partner organizations and "other community members" is defined as individuals not enrolled in WPC but that could represent perspectives of communities that could benefit from WPC services.

Despite being less frequently involved, frontline staff were perceived by Pilots as having greater influence in aspects of quality improvement efforts for design, implementation, and evaluation, whereas enrollees were perceived by Pilots as having the least amount of influence (Exhibit 88).

Exhibit 88: WPC Pilots' Rating of Extent of Stakeholder Influence on Quality Improvement Activities
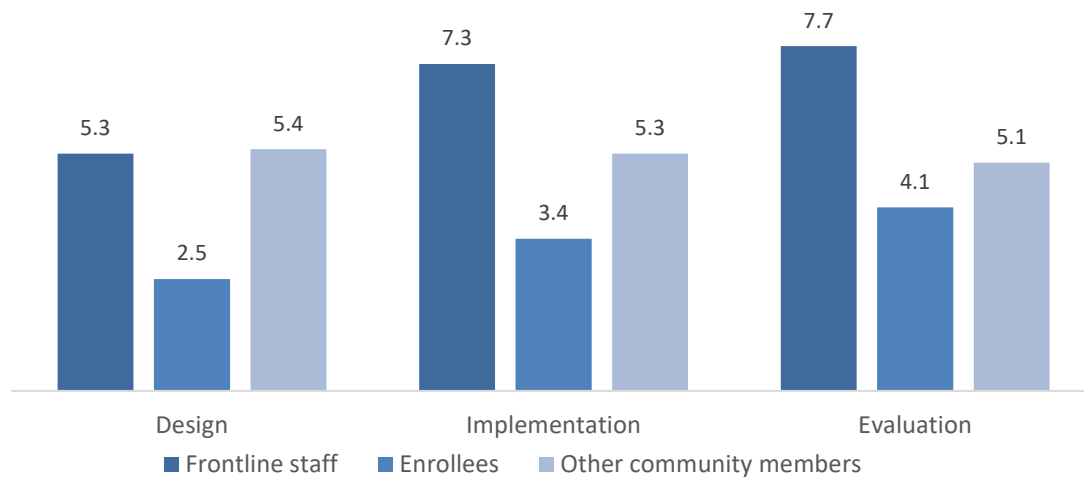
Source: PY 6 Lead Entity (LE) Survey (n=26), May-June 2021.
Notes: Ratings on scale of 1=not at all and 10=great extent, regarding extent of influence of involvement. "Frontline staff" is defined as those responsible for delivering WPC services, such as community health workers, care managers, peer support within LE or partner organizations and "other community members" is defined as individuals not enrolled in WPC but that could represent perspectives of communities that could benefit from WPC services.

Chapter 8: WPC and COVID-19

The COVID-19 pandemic began early in PY 5 (2020), and significantly impacted Pilots and enrollees. Due to the pandemic, in December 2020, DCHS received approval from the Centers for Medicare and Medicaid Services (CMS) to extend WPC for one year, through December 31, 2021. Furthermore, DHCS added a new COVID-19 target population in the third quarter of 2020, which could be retroactively applied to enrollees if Pilot elected to use it. UCLA presented initial findings on the impact of COVID-19 through the end of 2020, including progression of the COVID-19 in WPC counties, the estimated prevalence of COVID-19 among WPC enrollees, and the changes in healthcare service utilization during the pandemic compared to the year prior, in a related policy brief. The analysis presented in this chapter updates some of these findings to include data from 2021.

This chapter addresses the following evaluation questions, which were added post-pandemic as part of the WPC extension: (1) how did WPC infrastructure and processes facilitate Pilot's COVID-19 response? (2) What were the changes to WPC implementation due to COVID-19? (3) What was the impact of the COVID-19 pandemic on WPC enrollment, utilization of healthcare services, and services offered? This analysis is further needed to assess whether the impact of COVID-19 was similar on WPC enrollees and the control group when measuring the impact of WPC program.

Data sources for this chapter include the PY 5 COVID-19 impact survey, PY 6 (2021) follow-up interviews with leadership and frontline staff, Medi-Cal enrollment and claims data, and *Quarterly WPC Enrollment and Utilization Reports*. Additional qualitative data around challenges and solutions was provided in the 25 WPC mid-year and annual narrative reports by Pilots. For more detail on data sources and methodology please see Appendices C, D, and E.

Progression of COVID-19 in WPC Counties

Over 5.5 million confirmed COVID-19 cases and 76,448 resulting deaths were reported in California through December 2021 with peaks occurring at different time points throughout the pandemic (data not shown). When examining 14-day average daily case rate in WPC counties, we found four distinct peaks: late July 2020 (21 confirmed cases per 100,000), early January 2021 (79 confirmed cases per 100,000), late August 2021 (35 confirmed cases per 100,000) and late December 2021 (65 confirmed cases per 100,000; Exhibit 89). Most WPC counties had peaks in the same time frame, but there were variations in the magnitudes of these peaks by county. Trends in 14-day average daily hospitalizations from COVID-19 mirrored trends in confirmed cases, with the average rate in WPC counties peaking between 14 and 37 hospitalized for COVID-19 per 100,000 around the time of the peak in cases.

Exhibit 89: 14-Day Average Daily Confirmed COVID Cases and Hospitalizations per 100K for WPC Counties, April 2020 to December 2021
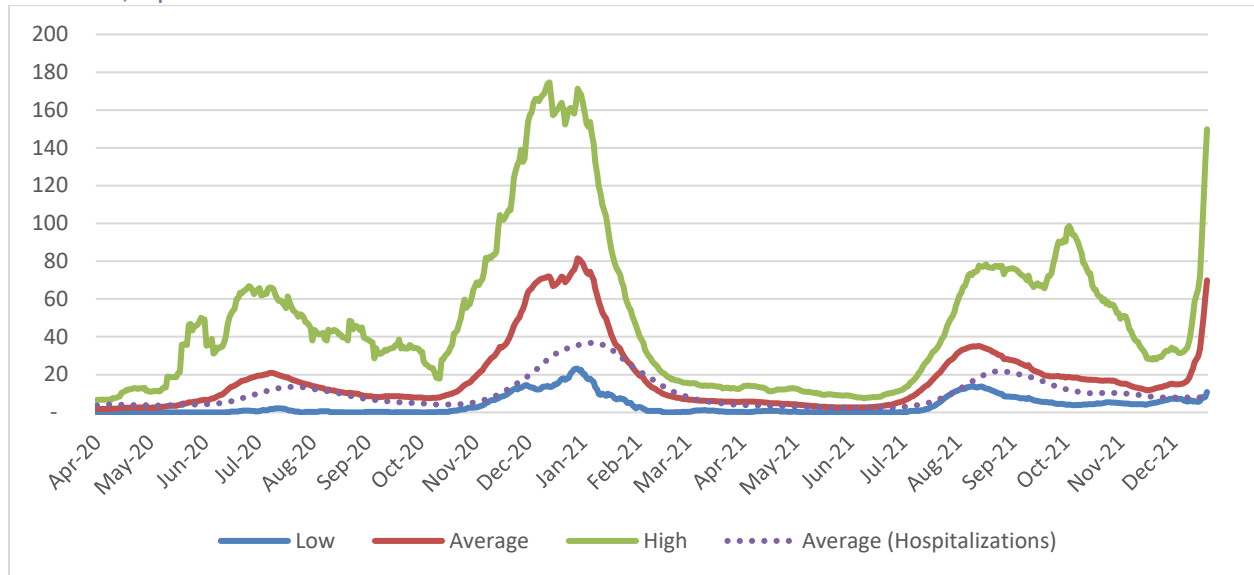
Source: Daily new cases and hospitalizations report by the *Los Angeles Times* and the July 2019 U.S. Census population estimates.

Note: Low, average and high are the lowest, average and highest county-specific rates of COVID cases among WPC-participating counties per 100,000 county residents. Includes all 27 WPC counties. Informed by daily rates from March 29, 2020, to December 31, 2021.

Impact of COVID-19 on WPC Implementation and Infrastructure

UCLA assessed how infrastructure and processes established through WPC may have helped with Pilots' COVID-19 response and the potential impact of the COVID-19 pandemic on WPC elements such as staffing, engagement, and care coordination processes and workflows. Early pandemic impacts were measured by UCLA in a rapid survey administered in April 2020 (PY 5) and subsequently reported in a Health Affairs blog.

How WPC Infrastructure and Processes Facilitated COVID-19 Response

In the PY 5 COVID-19 impact survey, Pilots were asked to indicate how WPC informed or otherwise impacted their COVID-19 response on a scale of one (not at all) to five (great extent;

Exhibit 90). Pilots reported that all WPC elements impacted COVID-19 response, although to varying degrees. Most WPC elements (7 of 8) had a mean impact score greater than four, suggesting that existing WPC infrastructure and processes impacted Pilots' COVID-19 response efforts. On average, WPC staff had the highest degree of impact (4.7) while relationships with housing providers had the lowest (3.7).

Exhibit 90: WPC Informing or Impacting COVID-19 Response by Program Element, PY 5

WPC Element	Number of Pilots (n=24) that Reported the Element Informed or Impacted COVID-19 Response	Mean Extent to Which the Element Informed/Impacted (1 = not at all, 5 = great extent)
WPC staff offered skills and expertise	96%	4.7
WPC care coordination processes influenced COVID-19 workflows	88%	4.6
Existing relationships with health and behavioral health partners facilitated COVID-19 response	88%	4.6
Existing relationships with social service partners facilitated COVID-19 response	88%	4.6
Other WPC services (i.e., outside of care coordination) offered additional resources	75%	4.6
Existing relationships with Medi-Cal managed care plans facilitated COVID-19 response	88%	4.4
WPC information technology promoted data sharing	96%	4.3
Existing relationships with housing providers facilitated COVID-19 response	96%	3.7

Source: PY 5 COVID-19 Impact Survey (n=25,), April 2020.
Notes: 24 of 25 Pilots reported that the elements informed/impacted COVID-19 response; percentages presented are with 24 as the denominator. "Care coordination processes" includes items such as intake and assessment, development of comprehensive care plan, and referrals. "Other WPC services" includes services such as recuperative care, sobering centers, and medical transportation. Elements were rated on a scale of 1 to 5, where 1 = "not at all", 2 = "very little", 3 = "somewhat", 4 = "moderate", and 5 = "great extent".

> *"Prior to WPC, care was provided primarily through a medical lens and has [now] been expanded to include social determinants of health... While WPC alone did not create all changes, it was a strong contributing focus to the cultural shift underway. The skills and resources are transferrable... [and has been] particularly beneficial during the COVID-19 crisis. WPC has helped to build increased knowledge, relationships, resources, and coordination across many of the distinct programs within the health system and its' community partners." -Santa Clara*

Exhibit 91 shows the breakdown of impact score by WPC program element. Most Pilots reported that using WPC staff greatly impacted their ability to respond to the pandemic (18 Pilots providing a score of 5); fewest Pilots (10) reported it greatly improved their relationships with housing providers.

Exhibit 91: Reports of WPC Informing or Impacting COVID-19 Response by Program Element and Extent, PY 5
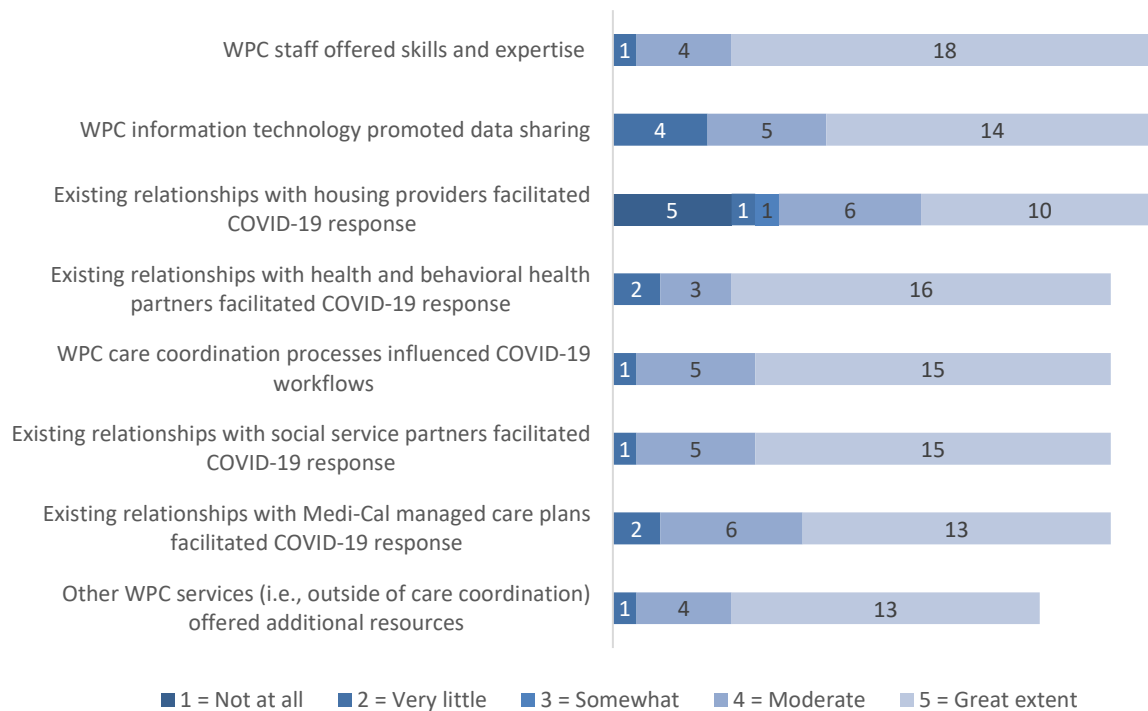
Source: PY 5 COVID-19 Impact Survey (n=25), April 2020.
Notes: "Care coordination processes" includes items such as intake and assessment, development of comprehensive care plan, and referrals. "Other WPC services" includes services such as recuperative care, sobering centers, and medical transportation. Elements were rated on a scale of 1 to 5, where 1 = "not at all", 2 = "very little", 3 = "somewhat", 4 = "moderate", and 5 = "great extent".

WPC Staff Offered Skills and Expertise

Through WPC, staff had been formally trained in outreach and engagement, screening, and referrals and had experience working with vulnerable populations that would be at highest risk for COVID-19 (e.g., homeless, individuals with chronic conditions). Skills developed through WPC may have helped find and house or shelter high-risk homeless individuals, provide operational support for isolation hotels for high-risk individuals experiencing homelessness, and inform screening processes for COVID-19. Ongoing case management was necessary for proactively managing enrollees and individuals most at-risk for COVID. As a result of this, many WPC staff were directly involved in their County's coordinated COVID-19 response.

WPC Information Technology Promoted Data Sharing

Data sharing agreements and platforms were utilized to identify individuals at highest risk of COVID-19 and plan COVID-19 response. Systems were used to create dashboards and monitor COVID-19 cases, as well as provide updates on hospital and clinic capacity.

Other WPC Services Offered Additional Resources

Other WPC services, particularly existing networks for providing medical transportation, proved helpful. In some cases, Pilots redirected resources in mental health transitional care, recuperative care, and sobering centers; they used these resources to expand hospital capacity for COVID-19 patients.

Relationships with Partners Facilitated COVID-19 Response

Pilots reported that preexisting relationships allowed counties to leverage WPC resources (e.g., outreach to vulnerable populations, care coordination for COVID-19 patients, understanding legal requirements for obtaining consent) in confronting the pandemic. Existing relationship networks were utilized for communication and dissemination of public health messaging, as well as to assess need and develop plans (e.g., emergency department protocols, acquiring and distributing personal protective equipment). Key relationships included those with health and behavioral health partners, social service agencies, Medi-Cal managed care plans, and housing providers.

Exhibit 92 highlights illustrative examples from Pilots on how each WPC element was incorporated into their COVID-19 response efforts. Pilots continually emphasized the advantages of WPC to counties because it had helped establish the infrastructure, staff, relationships, and experiences needed for an effective COVID-19 response.

> *"The value of having this kind of program cannot be understated. The services provided reduce overall costs to the system in everyday practice and the way our program works helps the county respond more effectively and more efficiently in a crisis situation."-Placer*

WPC Staff Offered Skills and Expertise

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Exhibit 92: Illustrative Examples of How WPC Informed or Impacted COVID-19 Response

WPC Element	Examples	Pilot
WPC staff offered skills and expertise	Social workers and nurses had developed extensive experience working with vulnerable and medically complex populations, particularly with homeless individuals who were at high risk of COVID-19. Training and protocols for WPC effectively translated to COVID-19 response.	Placer
	Santa Clara deployed WPC staff in partnership with team members from the Office of System Integration and Transformation to support COVID-19 operations at the hospital command center. Staff members were selected due to their subject expertise, leadership, and established interagency relationships.	Santa Clara
WPC information technology promoted data sharing	Mendocino utilized their data sharing platform developed through WPC for COVID-19 response, which allowed WPC staff to identify and manage information for high risk, vulnerable individuals experiencing homelessness. It further enabled WPC staff to identify and contact enrollees that qualified for early access to COVID-19 vaccination based on demographics and health status.	Mendocino
	Santa Clara created dashboards for WPC staff which provided regular updates on COVID-19 guidelines and best practices. The platform had a question-and-answer feature.	Santa Clara
WPC care coordination processes influenced COVID-19 workflows	WPC staff assisted the county in screening the general population for COVID-19 at drive-through locations. WPC registered nurses also helped determine emergency housing eligibility for enrollees.	Riverside
	Alameda modified existing WPC referral protocols for referrals to COVID-19 homeless isolation hotels.	Alameda
Other WPC services (i.e., outside of care coordination) offered additional resources	San Diego expanded medical respite capacity to decrease hospitalization and emergency department visits for WPC high utilizers; this allowed for increased capacity for hospitals to manage COVID-19 patients.	San Diego
	WPC shower pods were used to screen and engage with people experiencing homelessness, connecting them to WPC resources.	Ventura
Relationships with partners facilitated COVID-19 response	Orange leveraged health plan relationships to assist with additional medical oversight of shelters and alternate care sites with heightened COVID-19 activity.	Orange
	Ventura continued working with their health and behavioral partners while developing new ways to coordinate support for hotel sites. For example, they delivered medication assistance treatment/addiction medicine services directly to hotel sites to support social distancing.	Ventura

Source: PY 5 COVID-19 Impact Survey (n=25), April 2020 and PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.

Impact of COVID-19 on WPC

In the PY 5 COVID-19 impact survey, Pilots were also asked to indicate if specific WPC processes, procedures, or policies were impacted by COVID-19. Most Pilots reported an impact on staffing policies and procedures (21 of 24; Exhibit 93), which included shifts to telework and protocols for use of personal protective equipment (PPE).

Twenty Pilots indicated changes in engagement of eligible beneficiaries or enrollees in WPC services. The remote model often resulted in fewer engagements due to reduced face-to-face interactions, particularly with hard-to-reach populations such as homeless individuals who might not have reliable and consistent access to a phone.

> *"Our program is 100% outreach. We do communicate with the clients via telephone, text, and e-mail, but this is only a temporary solution and a hindrance to the services we provide our clients. Nothing will replace the personal connections of the in-person encounters."-San Bernardino*

Nineteen Pilots indicated changes in care coordination policies or processes. These Pilots reported shifting at least some care coordination activities to be done remotely, over phone or video conferencing. Pilots noted mixed results with some that found enrollees demonstrated increased independence in fulfilling their healthcare needs and others that had challenges understanding enrollee needs and progress without in-person interactions. Specific enrollee factors and demographics could promote or hinder success of remote care coordination.

Less than half of Pilots (11) reported an impact on enrollment of eligible beneficiaries in WPC and identifying beneficiaries eligible for WPC (10). Despite the pandemic, criteria for identifying eligible beneficiaries for WPC didn't significantly change because it often already included the most vulnerable individuals. Some Pilots did broaden criteria to include individuals who tested positive or were at highest risk for COVID-19, but frequently found overlap with existing target populations.

Exhibit 93: Pilot Reports of COVID-19 Impact on WPC Processes, Procedures, or Policies, PY 5

Category	Value
Staffing policies and procedures	21
Engagement of eligible beneficiaries or enrollees in WPC services	20
Care coordination policies or processes	19
Enrollment of eligible beneficiaries in WPC	11
Identifying beneficiaries eligible for WPC	10
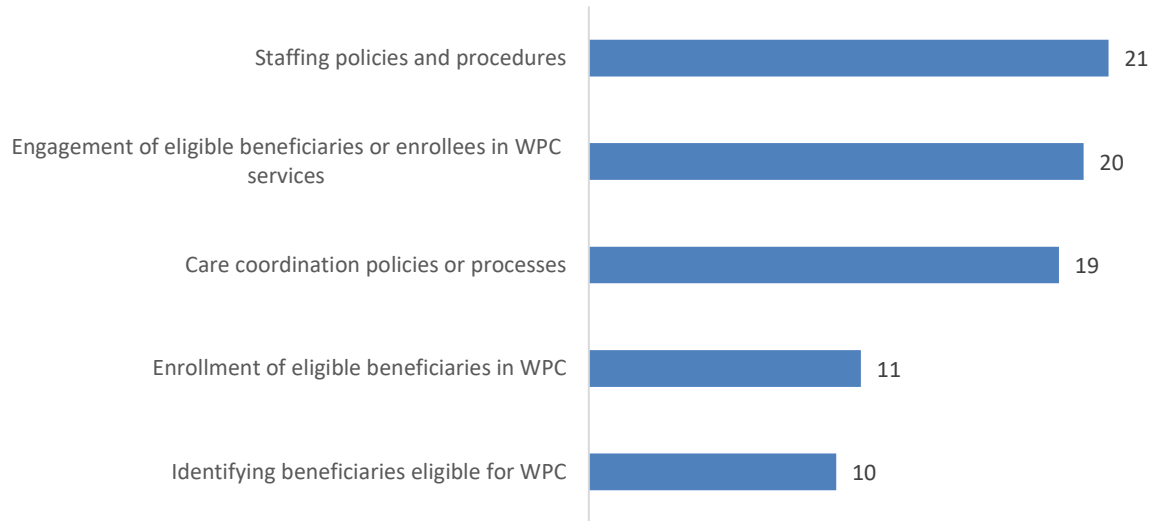
Source: PY 5 COVID-19 Impact Survey (n=24), April 2020.

Exhibit 94 highlights illustrative examples from Pilots on how each WPC process, procedure, or policy was impacted by COVID-19.

Exhibit 94: Illustrative Examples of COVID-19 Impact on WPC Processes, Procedures, or Policies

Process/Policy/Procedure	Examples	Pilot
Staffing policies and procedures (e.g., shift to telework, protocols for use of PPE)	In Contra Costa, many staff were disaster service workers who were deployed to work in command centers, testing sites, and alternative care sites, shifting attention away from WPC roles.	Contra Costa
	Placer felt the shift to telework increased efficiencies for staff, reducing commute times and allowing for additional flexibility.	Placer
Engagement of eligible beneficiaries or enrollees in WPC services (e.g., field-based outreach)	San Francisco continued engagement in shelters and on the streets, incorporating social distancing and safety measures.	San Francisco
	San Benito discontinued field-based outreach due to the COVID-19 pandemic. Instead, they engaged with their enrollees through telephone or at shelters while wearing masks and social distancing.	San Benito
	San Joaquin shifted their focus to populations who were at highest risk for COVID-19; they placed emphasis on providing education about and support around COVID-19 when engaging enrollees.	San Joaquin
Care coordination policies or processes (e.g., frequency, modality, location in which provided)	Alameda experienced an increased willingness from partners to share data, along with increased access to remote trainings, because of the pandemic. Their consumer experience team also noted new opportunities in community building structures for the homeless isolation hotels.	Alameda

Process/Policy/Procedure	Examples	Pilot
	Ventura expanded medication-assisted treatment (MAT) to hotel sites for high-risk individuals experiencing homelessness, and enhanced coordination between WPC staff and MAT providers.	Ventura
Enrollment of eligible beneficiaries in WPC	Alameda worked to directly enroll eligible enrollees on-site at COVID-19 isolation hotels.	Alameda
	San Diego obtained approval from their Health and Human Services Agency Compliance Office for contractors to allow verbal consent for the enrollment and creation of digital records in ConnectWellSD for enrollees.	San Diego
Identifying beneficiaries eligible for WPC	Mendocino expanded their target population criteria to include those at risk for or who tested positive for COVID-19.	Mendocino
	San Diego contracted with local hotels through Project Roomkey to shelter individuals who tested positive for COVID-19. WPC service integration teams conducted telephone screenings of all individuals in the hotels for enrollment into WPC, if eligible. These efforts occurred in addition to continued response to community-based referrals, warm hand-offs from program partners, and referrals from 2-1-1.	San Diego

Source: PY 5 COVID-19 Impact Survey (n=25), April 2020.

COVID-19 Target Population

A new COVID-19 target population was added by DHCS to WPC starting in the third quarter of 2020, and Pilots could retroactively report enrollees in this target population starting at the beginning of 2020. The new target population was designed to include "those at risk of contracting COVID-19, those who have contracted COVID-19, and those recovering from COVID-19." Only nine out of the 25 Pilots elected to report individuals in this target population (Exhibit 95). Three Pilots (San Francisco, Solano, and Small Counties) used the broadest definition and assigned nearly all of their new enrollees to this target population.

Exhibit 95: WPC Pilots Reporting Enrollees in COVID-19 Target Population

WPC Pilot	Month Starting to Report COVID-19 Target Population	Total Number of Enrollees in COVID-19 Target Population	Proportion of New Enrollees Since July 2020 Assigned to COVID-19 Target Population
Alameda	March 2020	18,582	46%
Kings	July 2020	12	1%
Riverside	January 2021	97	1%
San Francisco	January 2020	16,717	99%
San Joaquin	July 2020	468	21%
Santa Clara	January 2020	3,395	50%
Santa Cruz	September 2020	25	49%
SCWPCC	January 2020	80	100%
Solano	July 2020	61	100%

Source: UCLA analysis of WPC Quarterly Enrollment Utilization Reports from January 2020 to December 2021.

Note: Enrollees could be assigned to more than one target population.

Impact of the COVID-19 Pandemic on WPC Enrollment

Exhibit 96 illustrates the trends in monthly enrollment and the total new enrollment per quarter during WPC, including the pandemic. Monthly enrollment in WPC continued to grow throughout 2020, increasing from 76,015 in December 2019 to 95,866 in December 2020. There was a small increase to 96,416 in December 2021 or the end of WPC. Total new enrollment in the last two quarters of 2020 was lower than it had been in the same quarters in 2019. As the program came to an end during 2021, quarterly new enrollment was also lower compared to the same quarters during any other year of the program. There was a 16% decline in average monthly disenrollment in months during the pandemic (March 2020-December 2021) compared to 2019 (data not shown).

Exhibit 96: Monthly Enrollment and Total Quarterly New Enrollment in WPC, January 2017 to December 2021
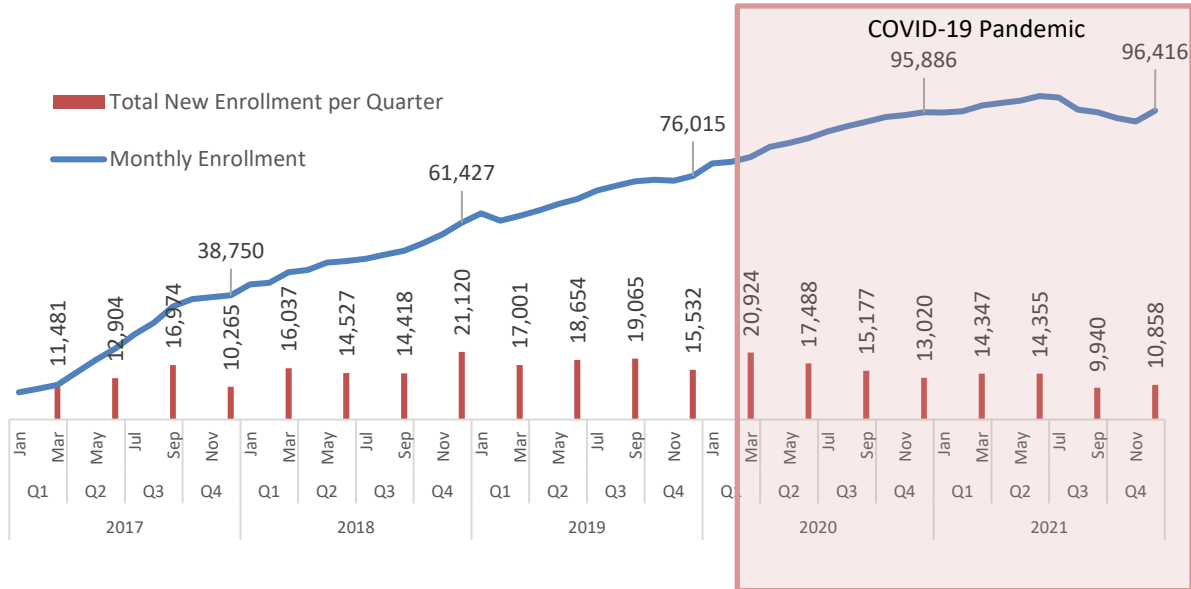
Source: UCLA analyses of WPC Quarterly Enrollment and Utilization Reports from January 2017 to December 2021
Notes: 23 of 25 pilots started enrolling throughout 2017, and two pilots started enrolling in early 2018.

Characteristics of WPC Enrollees before and after the COVID-19 Pandemic

Exhibit 97 shows the characteristics of WPCs enrollees prior to the start of the pandemic (January 2017 to February 2020) and during the pandemic (March 2020 to December 2021). Compared to before the pandemic, WPC enrollees that enrolled during the pandemic were more often younger (less than 34 years old) and less often white or black. They were also less likely to be high users of acute care services and have three or more chronic conditions.

Exhibit 97: Characteristics of WPC Enrollees at Baseline Enrolled Before and During the COVID-19 Pandemic

		Before Pandemic	During Pandemic
Age at Enrollment (Years)	**<18**	1%	5%
	18-34	31%	34%
	35-49	28%	26%
	50-64	33%	26%
	65+	7%	9%
Gender	**Male**	56%	55%
Race/Ethnicity	**White**	28%	21%
	Hispanic	26%	32%
	Black	25%	21%
	Asian	1%	<1%
	American Indian/Alaska Native	4%	7%
	Hawaiian and Other Pacific Islander	2%	2%
	Other	9%	11%
	Unknown	7%	5%
Acute Care Utilization during Baseline	**At-Risk**	24%	33%
	Low	34%	34%
	Medium	25%	20%
	High	11%	8%
	Super	7%	5%
Count of Chronic Conditions at Baseline	**0**	35%	43%
	1-2	36%	34%
	3+	29%	22%

Source: UCLA analysis of Medi-Cal enrollment and claims data, January 2015 to December 2021
Notes: Before pandemic is January 2017 to February 2020 and during pandemic is March 2020 to December 2021. Baseline is the two years prior to WPC enrollment. Chronic conditions are based on Chronic Condition Warehouse definitions. At risk for high utilization is defined as no ED utilization or hospitalizations 24 months prior to enrollment, low utilization is less than 2 ED visits and less than 1 hospitalizations per year, moderate utilization is 2 or more ED visits or 1 or more hospitalizations per year, high utilization is 5 or more ED visits or 2 or more hospitalizations per year, and super utilization is 10 or more ED visits or 4 or more hospitalizations per year.

Estimated Prevalence of COVID-19 among WPC Enrollees

The diagnosis code for COVID-19 was developed and utilized by providers starting in late March 2020. To estimate the likely prevalence of COVID-19 among WPC enrollees and the control group, UCLA analyzed Medi-Cal claims starting in April 2020 and identified individuals with services for which COVID-19 was the primary or secondary diagnosis. Overall, 10% of enrollees and 8% of controls used a service with a COVID-19 diagnosis (data not shown). The rate of COVID-19 diagnosis per 1,000 Medi-Cal member months for enrollees and controls by month is shown in Exhibit 98. Rates peaked during the same months that cases peaked statewide, and trends were similar among WPC enrollees and controls.

Exhibit 98: Rate of COVID Diagnosis per 1,000 Medi-Cal Member-Months for WPC Enrollees and their Controls from April 2020 to December 2021
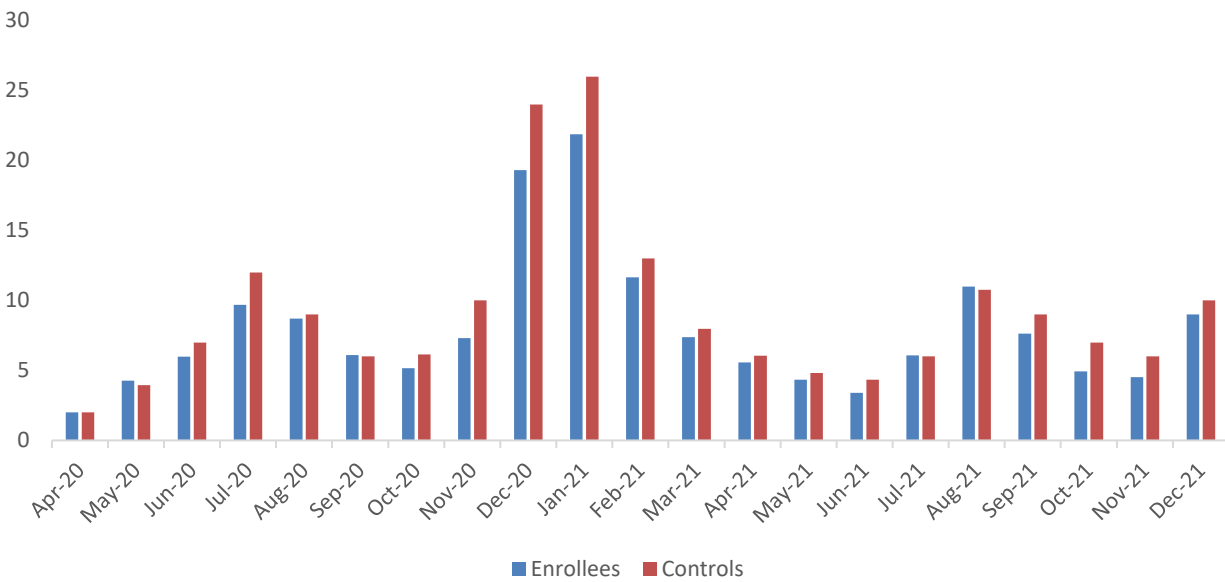
Source: UCLA analysis of Medi-Cal claims data from April 2020 to December 2021.
Notes: COVID-19 diagnosis was identified using ICD code U07.1 in primary or secondary diagnosis per claim.

COVID-19–Related Health Service Use of WPC Enrollees

UCLA examined the types of health services for COVID-19–related care utilized by WPC enrollees and their controls with a COVID-19 diagnosis from April 2020 to December 2021. Enrollees and controls had similar used of COVID-19-related services. They most frequently used hospitalizations (25% and 24%, respectively), followed by primary care services (18% and 21%), emergency department visits (17% and 14%), stays in long-term care facilities (11% and 10%), lab tests (8% and 8%), and specialty services (7% and 7%; Exhibit 99).

Exhibit 99: Proportion of COVID-19-Related Health Services by Service Type among WPC Enrollees and their Controls with a COVID-19 Diagnosis
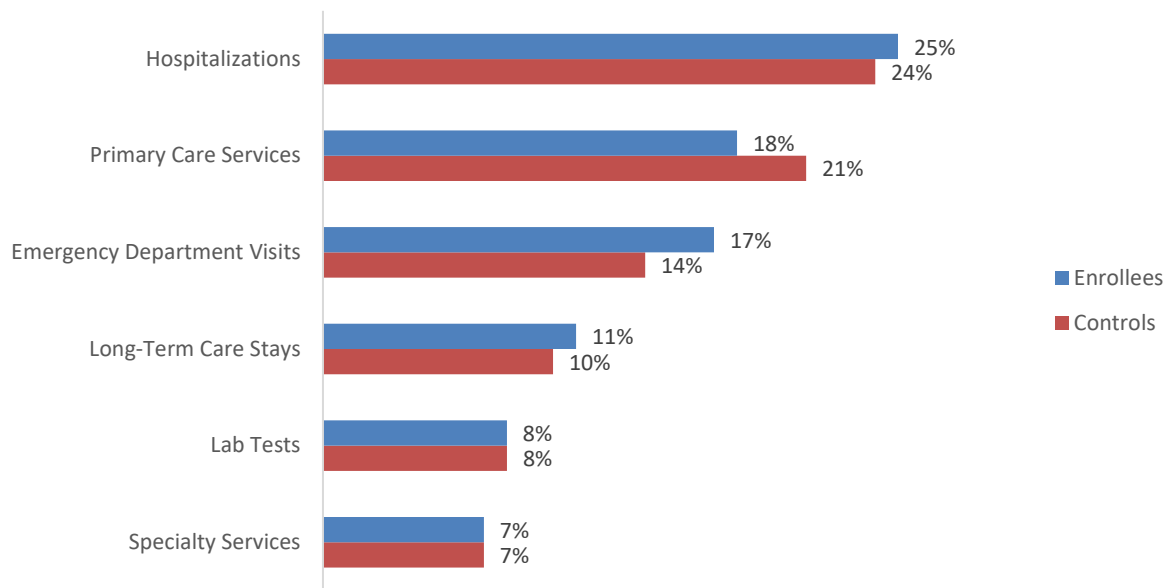
Source: UCLA analysis of Medi-Cal claims data from April 2020 to December 2021.
Notes: COVID-19 diagnosis was identified using ICD code U07.1 in primary or secondary diagnosis per claim.

Changes in Healthcare Utilization from COVID-19

UCLA assessed service utilization patterns among WPC enrollees and their controls before and during the pandemic, and found similar patterns for both groups. In particular, both enrollees and their controls had a decline in April 2020 compared to April 2019 for primary and specialty care (Exhibit 100). By December 2020, however, rates of primary care and specialty service utilization were similar to those in December 2019. There is a known delay in Medi-Cal claims and encounter reporting, with some reporting of claims and encounters taking more than six months. These delays likely explain why rates declined at the end of 2021 for both enrollees and controls.

Exhibit 100: Monthly Utilization of Primary Care and Specialty Care Services per 1,000 Member Months among WPC Enrollees and their Controls, 2019 Compared to 2020 and 2021
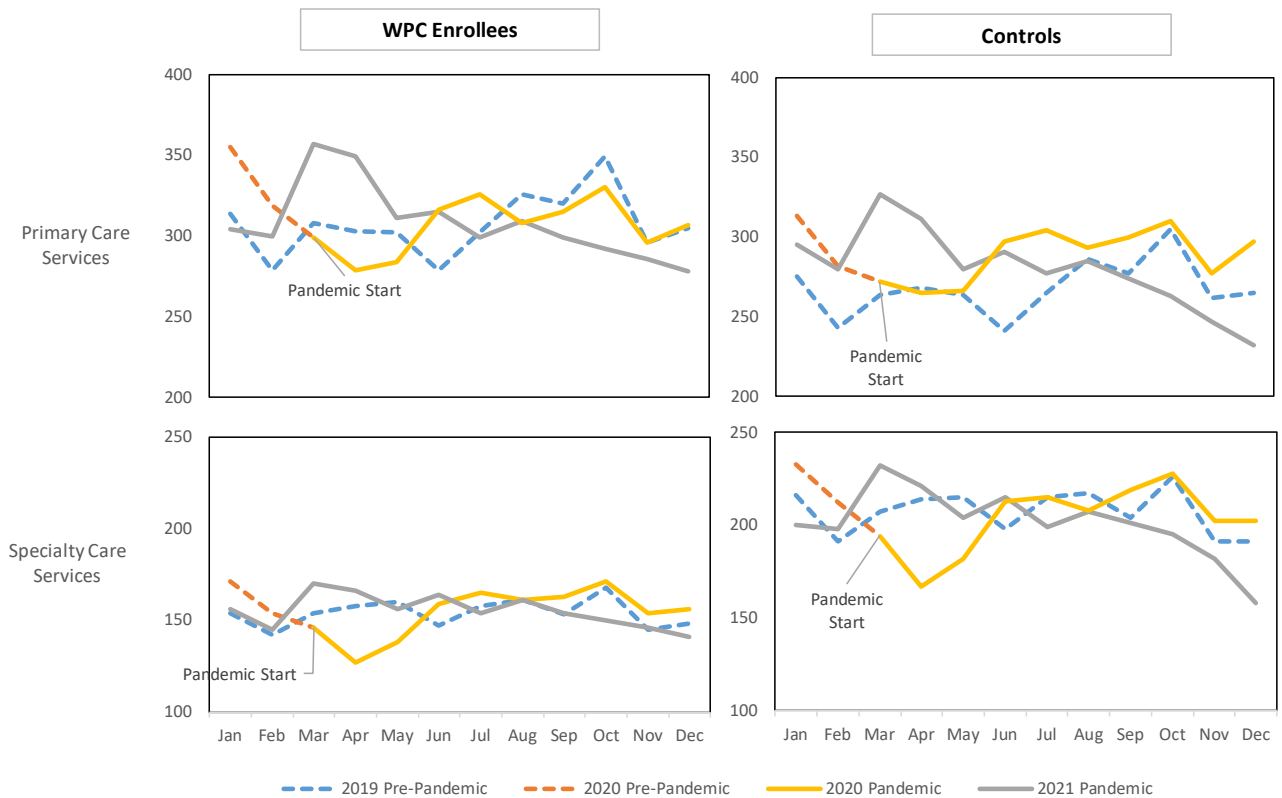
Source: UCLA analysis of Medi-Cal claims data from January 2019 to December 2021.
Notes: Member-months were based on Medi-Cal enrollment.

In contrast to primary care and specialty care, the number of both ED visits and hospitalizations declined in April 2020 relative to April 2019, and the utilization maintained at lower levels throughout the remaining months of 2020 and all of 2021 (Exhibit 101).

Exhibit 101: Monthly Utilization of Emergency Department Visits and Hospitalizations per 1,000 Member Months among WPC Enrollees and their Controls, 2019 Compared to 2020 and 2021
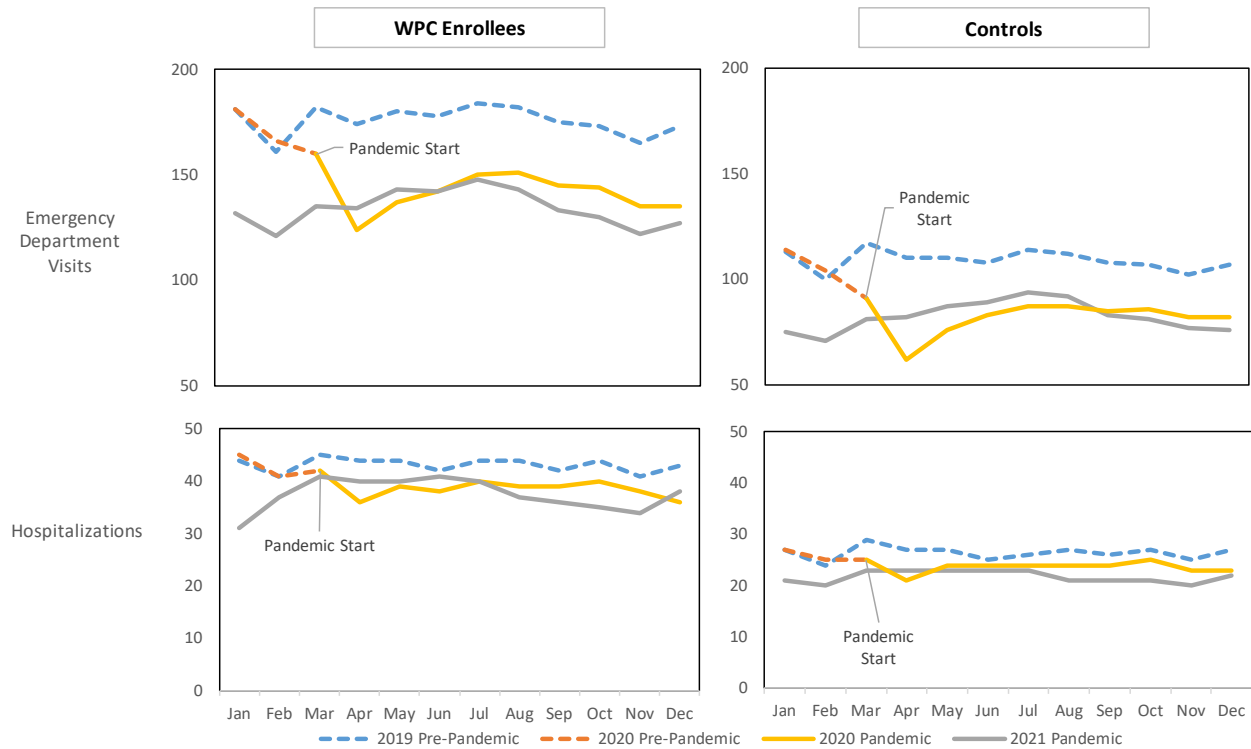
Source: UCLA analysis of Medi-Cal claims data from January 2019 to December 2021.
Notes: Member-months were based on Medi-Cal enrollment.

Further analyses found that fewer than 0.1% of primary care and specialty services were delivered by telehealth prior to the pandemic (Exhibit 102). Starting in the second quarter of 2020, between 11% and 18% of primary care services for WPC enrollees were provided through telehealth. The proportion of specialty care services that were provided through telehealth were slightly lower, between 8% and 11%. Overall, controls had similar trends with only slightly higher rates of primary care telehealth services compared to enrollees (data not shown).

Exhibit 102: Proportion of Primary Care and Specialty Services that were Provided through Telehealth for WPC Enrollees, 2019 to 2021

Source: UCLA analysis of Medi-Cal claims data from January 2019 to December 2021.

Challenges, Successes, and Lessons Learned Related to COVID-19

The COVID-19 pandemic impacted WPC system capacity and access to health care. Exhibit 103 highlights the most frequently identified challenges and successes related to COVID-19 by reporting period as highlighted in bi-annual narrative reports. Across all themes in both challenges and successes, there was an increase in mentions in PY 5 annual, with a decrease in the PY 6 reporting period. This can likely be explained by Pilots' adaptation to the ongoing pandemic and establishment of routinized workflows to accommodate for increases in telehealth and social distancing.

The most frequently reported challenges were related to the transition to telehealth and Pilots' inability to provide WPC services in-person (e.g., enrollees often did not have access to the appropriate technology to support telehealth or to engage with WPC staff remotely; 52 mentions across 21 unique LEs); limited staff capacity due to reassignment of WPC staff employed by county agencies to support broader community COVID-19 emergency response,

county-wide hiring freezes (48 mentions across 21 unique LEs); and/or inability to connect enrollees to services (e.g., due to facility closures or reduced provider capacity; 40 mentions across 18 unique LEs). Some Pilots noted that relationships with WPC partners and with enrollees were hindered by the remote work environment, which in turn negatively impacted enrollee engagement. Just over one half of Pilots cited increased service demand coupled with limited funding or resource availability as a challenge.

Despite these challenges, many Pilots continued to report successes in WPC, often by integrating WPC activities with COVID-19 response efforts. For example, in some Pilots, COVID-19 emergency housing projects expanded short-term housing availability for WPC enrollees and facilitated care coordination through co-located medical, behavioral, and social services. Through programs such as Project Roomkey, Pilots were able to consistently locate and engage WPC enrollees (44 mentions across 21 unique LEs).

In PY 6 annual narrative reports, many Pilots also reported collaborative efforts to transition short-term emergency COVID-19 housing projects to long-term supportive housing programs. Furthermore, infrastructure previously established through WPC facilitated counties' response to the COVID-19 pandemic for their populations of focus. Pilots leveraged existing WPC partnerships and provider networks (e.g., there was a deepened level of cross-departmental collaboration in emergency operations structures) and utilized WPC-developed data systems and information technology (e.g., COVID-19 risk-based algorithms to provide focused outreach). Additionally, many Pilots adapted internally and/or expanded partner collaborations to provide pandemic-related services like vaccination, testing, education, personal hygiene pods, equity-driven outreach efforts, and increased telephonic check-ins (36 mentions across 20 LEs).

Exhibit 103: Commonly Identified Challenges and Successes Related to the COVID-19 Pandemic among WPC Pilots, PY 5–PY 6

Challenges

Transition to telehealth and/or lack of in-person service provision — 12, 20, 14, 6

Staff reassignment, hiring freezes, limited staff bandwidth — 8, 17, 12, 11

Difficulties with outreach and engagement — 7, 16, 10, 7

Limited funding and/or resource availability — 9, 5, 3

Successes

Expanded short-term housing or shelter availability — 9, 17, 12, 6

Partnerships facilitated COVID-19 response — 6, 15, 12, 3

Outreach and engagement — 1, 18, 10, 8

Data systems and IT assisted COVID-19 response — 6, 12, 10, 4

Legend: ■ PY 5 MY ■ PY 5 Annual ■ PY 6 MY ■ PY 6 Annual

Sources: PY 5 Mid-Year, PY 5 Annual (n=25), PY 6 Mid-Year, and PY 6 Annual Narrative Reports (n=23).
Notes: Program Year 6 did not include reports for Small County Collaborative and Solano, as they discontinued WPC participation in PY 6. "MY" denotes mid-year report.

Chapter 9: Enrollee Demographics, Health Status, and Prior Health Care Utilization

WPC Pilots were required to "receive support to integrate care for a particularly vulnerable group of Medi-Cal beneficiaries who have been identified as high users of multiple systems and continue to have poor health outcomes." This chapter addresses the following evaluation question: "What were the demographics of pilot enrollees?" In addition, UCLA examined the health status of enrollees and their utilization of services prior to enrollment in WPC. Whenever possible, this information is provided for the overall enrollee population and by target population.

The data sources included Medi-Cal enrollment and claims data between January 2015 and December 2021 and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6 (2017 through 2021). Of the 247,887 total WPC enrollees during program implementation, 235,547 enrollees had Medi-Cal eligibility data and 233,332 of these enrollees had claims data, which allowed for assessment of their health status and health care use. UCLA included these enrollees when reporting on health status and health care utilization prior to enrollment for WPC overall. Assessment of demographics, health status, and health care use by target population can be found in Appendix T, which includes 228,680 enrollees that had an assigned target population and Medi-Cal data.

The prevalence of chronic conditions was identified using the CMS Chronic Conditions Data Warehouse for WPC enrollees with Medi-Cal claims data, using the primary and secondary diagnosis at each encounter. UCLA calculated standardized rates of utilization to account for variations in length of enrollment in Medi-Cal and to facilitate comparisons across analytic groups. Utilization was calculated per 1,000 full-scope Medi-Cal member months for six-month intervals in the two years prior to an enrollees' first WPC enrollment date. Age was time-variant and was identified at the time of WPC enrollment. Time-invariant demographics such as race/ethnicity were identified using the most frequently reported value in enrollment data during the 24 months prior to enrollment into the program. Health status was measured as the presence of a condition at any point within 24 months prior to enrollment. For additional detail on data sources and methodology please see Appendix A.

Demographics

Medi-Cal enrollment data indicated that over 90% of WPC enrollees were between the ages of 18 and 64, including a greater concentration of those who were 18-34 (32%) and 50-64 (31%) years old compared to 35-49 (28%; Exhibit 104). Enrollees were more often male (56%), Hispanic (28%), or preferred English as their primary communication language (86%). Half (51%) of enrollees experienced homelessness. Examining these characteristics by target population indicated differences (see Appendix T). For example, justice-involved enrollees were most frequently ages 18-34, were male, used English as their primary communication language, and experienced homelessness prior to WPC enrollment. Those in the homeless target population were most often ages 50-64 and either white or black.

Exhibit 104: Demographics of WPC Enrollees Prior to WPC Enrollment

Age at enrollment: 2% (0-17), 32% (18-34), 28% (35-49), 31% (50-64), 8% (65+)
Legend: 0-17, 18-34, 35-49, 50-64, 65+

Gender: 56% Male, 44% Female
Legend: Male, Female

Race/Ethnicity: 26% White, 28% Hispanic, 24% Black, 5% American Indian or Alaskan Native, 1%, 2%, 10% Other, 7% Unknown
Legend: White, Hispanic, Black, Asian, American Indian or Alaskan Native, Hawaiian or Other Pacific Islander, Other, Unknown

Primary Communication…: 86% English, 10% Spanish, 4% Other
Legend: English, Spanish, Other

Homelessness: 51% Experienced Homelessness, 49% Did Not Experience Homelessness
Legend: Experienced Homelessness, Did Not Experience Homelessness

Source: Medi-Cal enrollment data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Overall enrollee population includes 235,547 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment data. All data except for homelessness are reported using Medi-Cal enrollment data during the 24 months prior to WPC enrollment. Homelessness was based on a Pilot-reported indicator collected at enrollment.

Health Status

Among all WPC enrollees, depression was the most common chronic condition (37%), followed by depressive disorders (34%), anxiety disorders (33%), hypertension (33%), and drug use disorders (32%; Exhibit 105). Other common conditions included schizophrenia and psychotic disorders (26%), bipolar disorder (22%), tobacco use (22%), and alcohol use disorders (21%).

Exhibit 105: Most Frequent Chronic Conditions Among WPC Enrollees, 24 Months Prior to WPC Enrollment
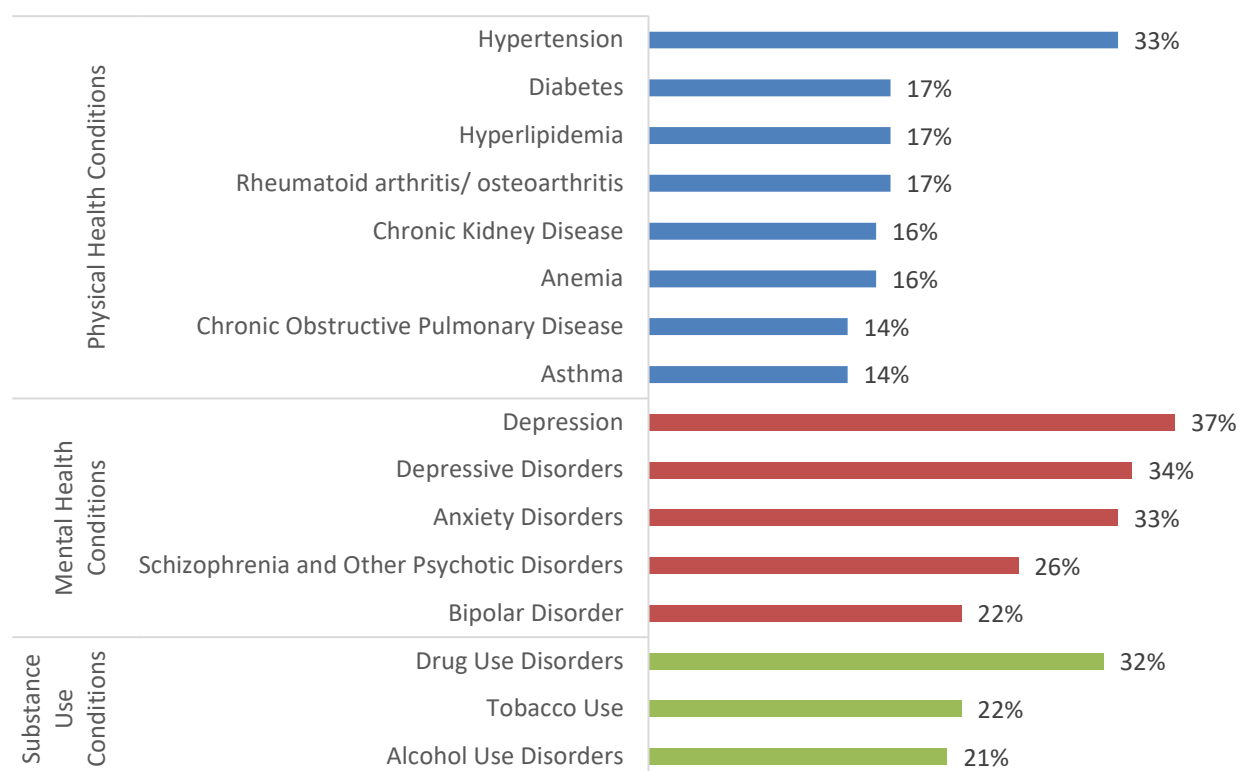
Source: Medi-Cal enrollment and claims data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Enrollee population includes 233,332 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment and claims data. Chronic and disabling conditions were determined using algorithms developed by the CMS Chronic Conditions Data Warehouse (CCW). Conditions with at least 10% prevalence were reported.

Utilization Prior to Enrollment

Selected Outpatient Service Use Prior to Enrollment

Medi-Cal claims data indicated WPC enrollees received 273 primary care services per 1,000 Medi-Cal member months from 1-6 months prior to their WPC enrollment, an increase from 229 from 19-24 months prior to WPC enrollment (Exhibit 106). Specialty services also increased from 123 to 163 from 19-24 months to 1-6 months prior to enrollment. The rates of mental health and substance use disorder services were higher and also increased during this time period as well.

Exhibit 106: Selected Ambulatory Care Service Use per 1,000 Medi-Cal Months Among WPC Enrollees in Months Prior to WPC Enrollment
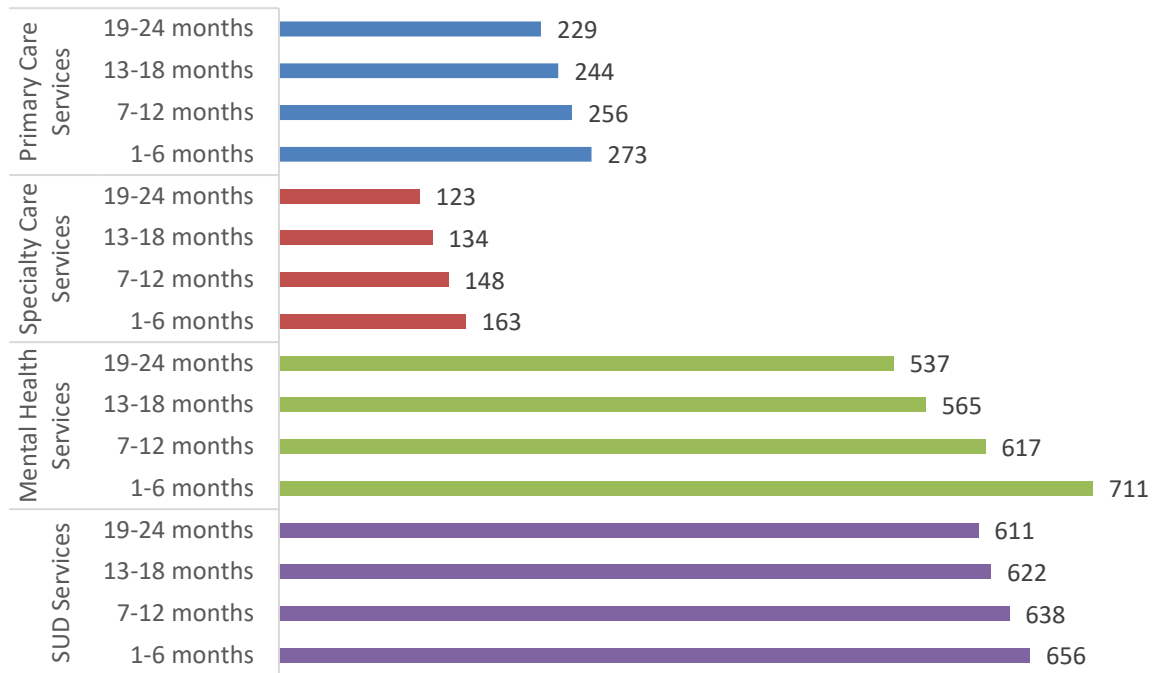
Source: Medi-Cal enrollment and claims data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Note: Enrollee population includes 233,332 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment and claims data.

Emergency Department Visits Prior to Enrollment

Medi-Cal claims data showed that the rate of overall ED visits followed by discharge per 1,000 Medi-Cal member months increased 19-24 months to 1-6 months before WPC enrollment, from 162 to 212 (Exhibit 107). Examining ED visit rates by condition also showed increasing rates before WPC enrollment for all conditions examined. ED visits with a primary or secondary diagnosis of a mental health condition were most common at 65 visits per 1,000 Medi-Cal member months in 1-6 months prior to WPC enrollment, while ED visit rates for substance use disorder, diabetes, and hypertension in the same time period were 42, 10 and 14, respectively.

Exhibit 107: Emergency Department (ED) Visits Followed by Discharge per 1,000 Medi-Cal Member Months Among WPC Enrollees in Months Prior to WPC Enrollment, Overall and by Specific Conditions
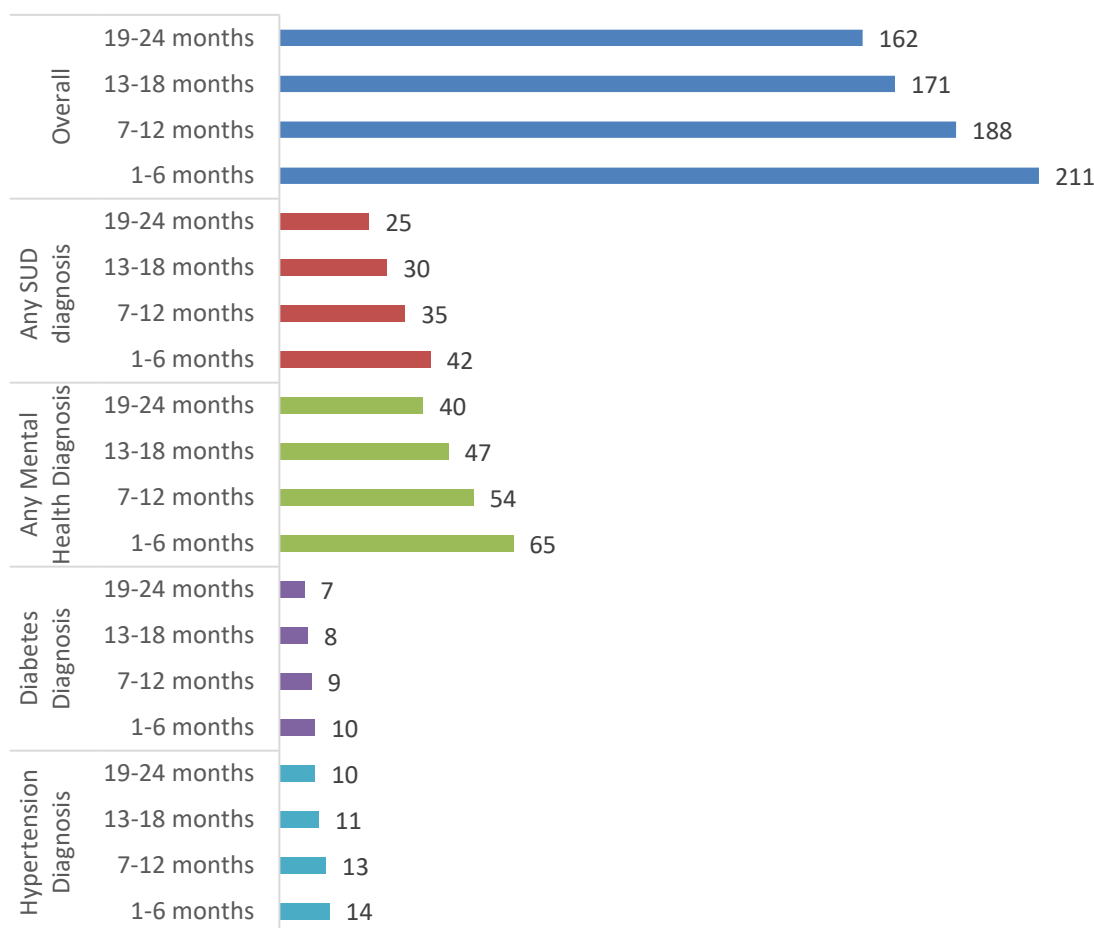
Source: Medi-Cal enrollment and claims data from January 2015 to December 2021, *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: "Overall" includes 271,227 individuals identified as enrolled during PY 2 through PY 6 and with sufficient Medi-Cal enrollment and claims data. Conditions were based on the related primary or secondary diagnoses at the time of visit. SUD is substance use disorder.

Hospitalization Prior to Enrollment

Medi-Cal claims data showed that the rate of overall hospitalizations per 1,000 Medi-Cal member months increased before WPC enrollment, from 32 to 52 (Exhibit 108). Examining hospitalization rates by condition also showed increasing rates before WPC enrollment for all conditions examined. Hospitalizations with a primary or secondary diagnosis of a mental health condition were most common at 19 stays per 1,000 Medi-Cal member months in 1-6 months prior to WPC enrollment.

Exhibit 108: Number of Hospitalization per 1,000 Medi-Cal Member Months Among WPC Enrollees in Months Prior to WPC Enrollment, Overall and by Specific Conditions
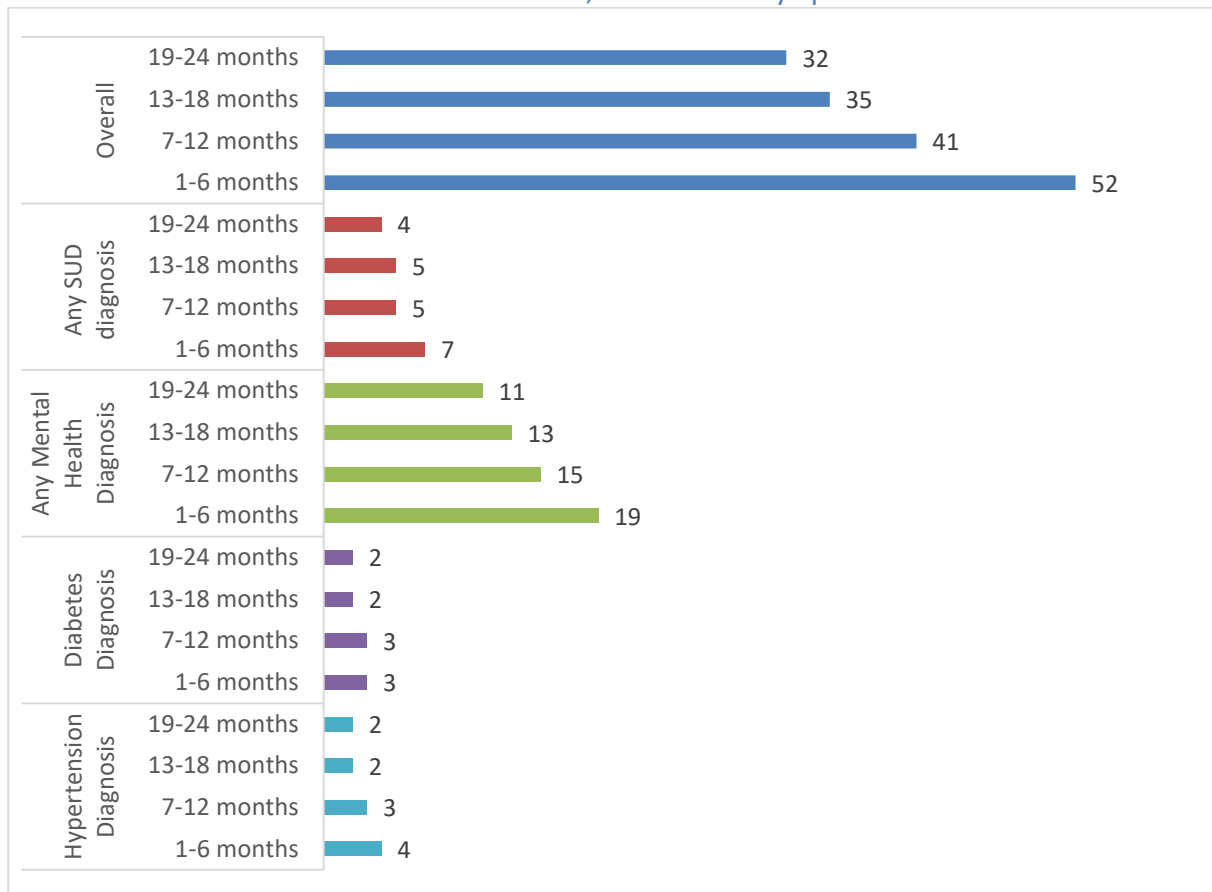
Source: Medi-Cal enrollment and claims data from January 2015 to December 2021, *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: "Overall" includes 271,227 individuals identified as enrolled during PY 2 through PY 6 and with sufficient Medi-Cal enrollment and claims data. Diagnosis was based on the primary or secondary diagnosis of stay. SUD is substance use disorder.

Chapter 10: Better Care

WPC Pilots aimed to increase "appropriate access to care for the most vulnerable Medi-Cal beneficiaries." This chapter addresses the following evaluation question: "To what extent did the Pilots (a) increase appropriate access to care and social services; and (b) achieve approved application deliverables relating to WPC service delivery?" UCLA addressed part (a) of this evaluation question by analyzing trends in utilization of health services using Medicaid administrative data. UCLA did not have access to social service data to measure access to these services. UCLA addressed part (b)of this evaluation question by analyzing the universal and variant metrics reported by Pilots.

Data sources for this chapter included *Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6 and Medi-Cal enrollment and claims data. UCLA used the *Quarterly Enrollment and Utilization Reports* to identify enrollees and dates of enrollment. UCLA also used Medi-Cal claims data, which included both managed care and fee-for-service encounters, to construct WPC metrics per the WPC Technical Specifications to create two universal metrics (Follow-Up After Hospitalization for Mental Illness and Initiation and Engagement of Alcohol and Other Drug Dependence Treatment). In addition, UCLA measured the utilization rates of outpatient services (primary care, specialty care, mental health and substance use disorder services) to further examine how access to care was impacted by WPC.

UCLA measured trends before and during WPC for each metric based on the date of an individual WPC enrollee's enrollment. UCLA examined changes in trends before and during WPC using a difference-in-difference (DD) analysis by modeling the changes in yearly increments up to 2 years (Pre-Year 1 and Pre-Year 2) before WPC enrollment and up to 5 years (Year 1, 2, 3, 4, and 5) during WPC. For these, the DD analysis measured the trends or change in yearly rates from Pre-Year 2 vs. Pre-Year 1 for both WPC enrollees and the control group; the change in the yearly rate during WPC from Year 1 to Year 5 for both WPC enrollees and the control group; and the difference between the changes in WPC enrollees vs. the control group from before to during WPC. These estimates were adjusted for beneficiary demographics as well as health status and use of services pre-WPC. Further details can be found in Appendix A.

To better understand WPC outcomes, UCLA examined the program impact on enrollees with serious mental illness (SMI), substance use disorders (SUD), or experiencing homelessness (SMI/SUD/HML enrollees) compared to enrollees without these complicating conditions. The latter group was composed of enrollees who were medically complex including those with multiple chronic conditions and those at high risk for various reasons (MC/HR enrollees).

UCLA used the *Annual WPC Variant and Universal Metric Reports* submitted by Pilots to DHCS from baseline to PY 6 to report on one universal (2.5 - Comprehensive Care Plan) and one variant (3.1.7 - Major Depressive Disorder Suicide Risk Assessment) metric, calculated by Pilots based on electronic medical records or chart review and therefore not replicable by UCLA. Pilot-reported metrics on follow-up after hospitalization for mental illness and initiation and engagement of alcohol and other drug dependence treatment were not included in this report because they were found to be heavily dependent on data sharing agreements and data sharing capacity during the first three years of WPC and were therefore incomplete. UCLA reported a weighted average rate for the available metrics across all Pilots that reported each metric. For additional detail on data sources and methodology please see Appendices A and B.

Utilization of Outpatient Services

UCLA created four measures of health care utilization and examined the trends on an annual basis. These measures were not required by WPC as performance metrics and did not have an a priori intended or desired direction. UCLA used these measures to illustrate potential changes in delivery of care under WPC.

Primary Care Services

UCLA calculated the number of primary care services per 1,000 beneficiaries per year to show patterns of change in primary care service use. Primary care services are likely to increase to address unmet need but also to decline as unmet needs are addressed or other appropriate services are used. Therefore, the anticipated direction of this measure and DD is decrease.

Exhibit 109 shows an increase of 727 and 668 primary care services per 1,000 beneficiaries per year for WPC enrollees and the control group before WPC, respectively. After an increase in utilization of primary care services in the first year of WPC for WPC enrollees, this rate decreases during WPC by 208 services per year for WPC enrollees and increases by 63 services per year for controls. The decline from before to during WPC was significantly greater for WPC enrollees than the control group by 330 services (DD). The declining rate from before to during WPC for enrollees compared to their controls was found for both SMI/SUD/HML enrollees (-255) and for MC/HR enrollees (-535; data not shown). These data showed a greater decline among MC/HR enrollees than the SMI/SUD/HML group.

Exhibit 109: Trends in Primary Care Services per 1,000 Beneficiaries per Year Before and During WPC, PY 2 - PY 6
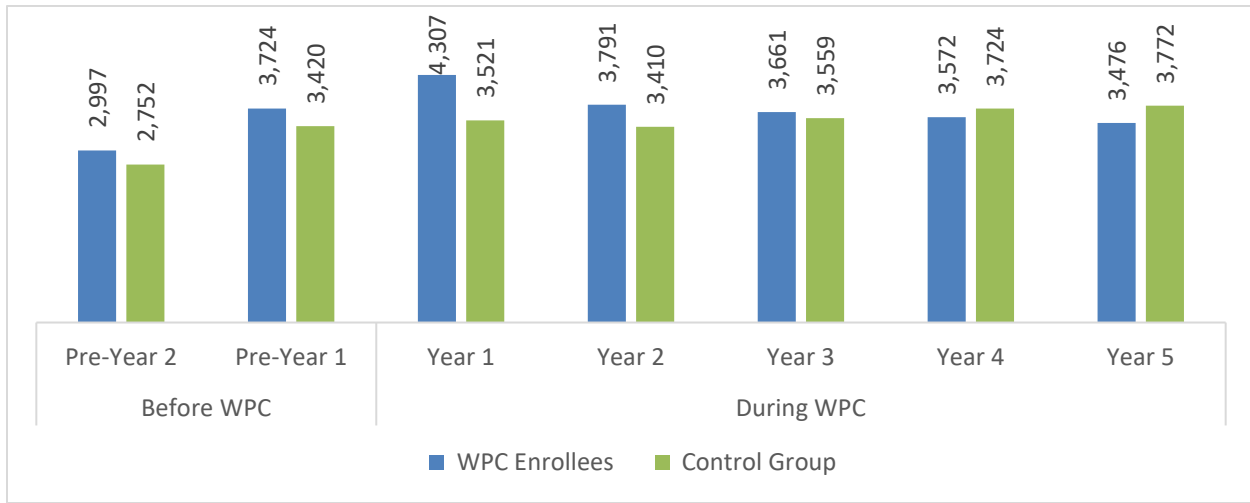
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	727*	-208*	-935*	
Control Group	668*	63*	-605*	-330*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: * Denotes p≤0.05, a statistically significant difference. Primary care services were identified as services with a primary care physician, physician assistant, or nurse practitioner per NUCC's Taxonomy code set, and services provided by a Federally Qualified Health Center (FQHC). Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Specialty Care Services

UCLA calculated the number of specialty care services per 1,000 beneficiaries per year to show patterns of change for specialty service use. Specialty care utilization may have increased due to care coordination efforts by Pilots. Therefore, the anticipated direction of the measure and DD is increase. Exhibit 110 shows an increase of 343 more specialty care services before WPC per 1,000 beneficiaries per year and a slower rate or an increase of 131 more services per year during WPC for WPC enrollees. While a similar pattern was observed for the control group, the decline in the rate from before and during WPC was significantly smaller for WPC enrollees vs. controls by 133 services (DD). A similar increasing rate from before to during WPC for enrollees compared to their controls was found for both SMI/SUD/HML enrollees (133 services) and for MC/HR enrollees (132 services; data not shown).

Exhibit 110: Trends in Specialty Services per 1,000 Beneficiaries Months Before and During WPC, PY 2 - PY 6

	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	343*	131*	-212*	
Control Group	439*	94*	-345*	133*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Specialty care services were identified as services with a specialty physician, physician assistant, or nurse practitioner per NUCC's Taxonomy code set. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC – Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Mental Health Services

UCLA calculated the number of mental health services per 1,000 beneficiaries per year as a measure of mental health service use. Mental health services are likely to increase to address unmet need as a result of care coordination but also to decline as patients are better managed. Therefore, the anticipated direction of this measure and DD is decrease. Exhibit 111 shows that WPC enrollees' mental health service use was increasing prior to enrollment by 1,566 services per 1,000 beneficiaries per year, but it declined by 957 per year during WPC after initially increasing in the first year of the program. The pattern for the control group was somewhat similar but WPC enrollees did have a significantly greater decline from before to during WPC compared to the control group (-813 services, DD) and the control group's mental health use did not increase in the first year of the program.

Exhibit 111: Trends in Mental Health Services per 1,000 Beneficiaries per Year Before and During WPC, PY 2 – PY 6

	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	1,566 *	-957*	-2,523*	
Control Group	1,050*	-661*	-1,710*	-813*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Mental health services were identified as services with a mental health procedure code. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

The declining rates from before to during WPC among WPC enrollees compared to their controls was restricted to SMI/SUD/HML enrollees (-1,125 services; Exhibit 112). For MC/HR enrollees, there was a significant increase in utilization of mental health services in the first year of WPC compared to the year prior to enrollment (increase from 848 to 2,508 services per 1,000 beneficiaries per year). Compared to controls, these enrollees had a slightly increasing rate compared to controls (43 services).

Exhibit 112: Trends in Mental Health Services per 1,000 Beneficiaries per Year Before and During WPC, PY 2 - PY 6, by Subpopulations
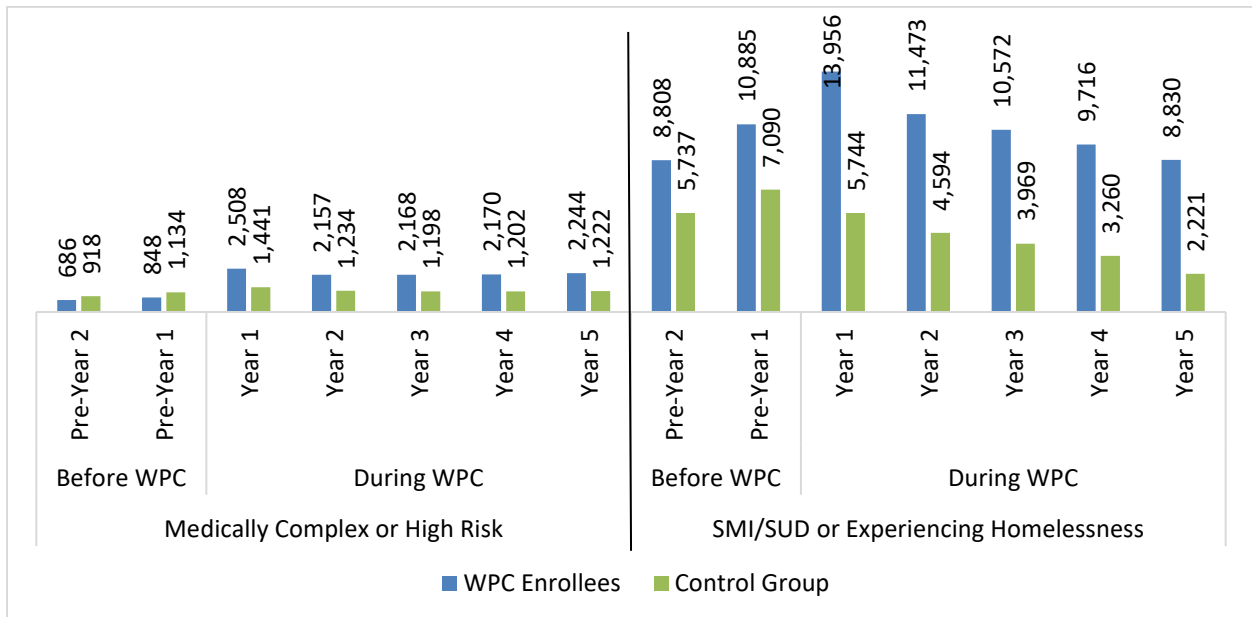
		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	162*	-66*	-228*	
	Control Group	216*	-55*	-271*	43*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	2,077*	-1,281*	-3,358*	
	Control Group	1,352*	-881*	-2,233*	-1,125*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Mental health services were identified as services with a mental health procedure code. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Substance Use Disorder Services

UCLA calculated the number of substance use disorder (SUD) treatment services per 1,000 beneficiaries per year. Substance use services are likely to increase to address unmet need and continuous assessment. Therefore, the anticipated direction of this measure and DD is increase. Exhibit 113 shows that trends in SUD treatment service use were increasing prior to enrollment for WPC enrollees by 614 services per 1,000 beneficiaries per year. After an initial increase in the first year of WPC, these rates declined during WPC by 607 services, though overall rates remained high. In contrast, the rate of use of these services was declining for the control group by 758 services per year during WPC. This led to a significant differential between the two groups of 56 more services per 1,000 members per year for WPC enrollees vs. the control group (DD).

Exhibit 113: Trends in Substance Use Disorder Services per 1,000 Beneficiaries per Year Before and During WPC, PY 2 – PY 6
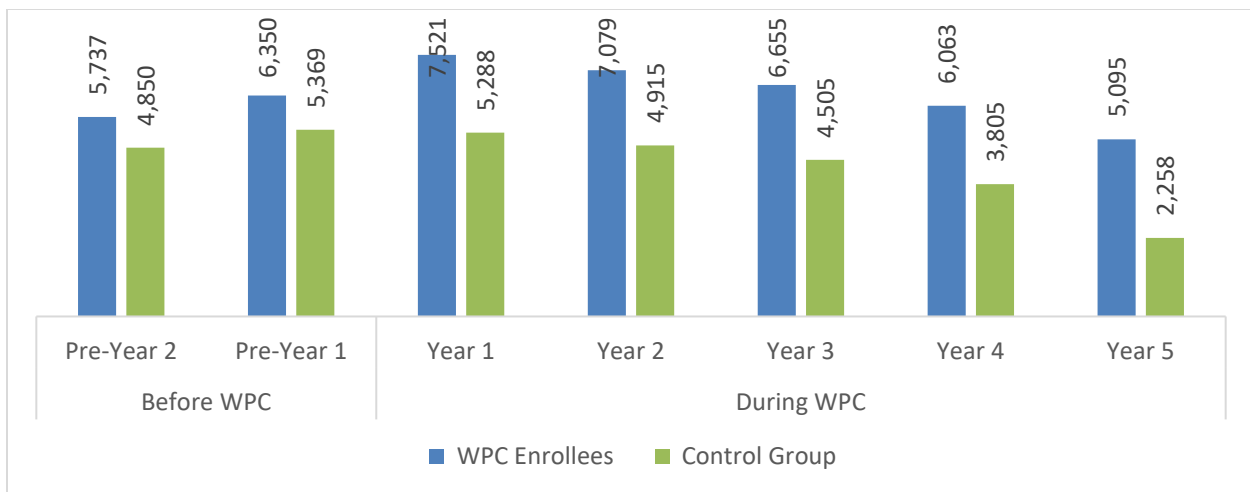
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	614*	-607*	-1,221*	
Control Group	519*	-758*	-1,277*	56*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. SUD services were identified as services with a SUD treatment procedure code or an NDC for pharmacotherapy. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC – Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

The increasing rates from before to during WPC among WPC enrollees compared to their controls was restricted to MC/HR enrollees (357 services; Exhibit 114). For SMI/SUD/HML enrollees, there was a significant decline compared to controls of 53 services. The MC/HR enrollees saw a significant increase in utilization of substance use disorder services in the first year of WPC compared to the year prior to enrollment (increase from 171 to 1,010 services per 1,000 beneficiaries per year).

Exhibit 114: Trends in Substance Use Disorder Services per 1,000 Beneficiaries per Year Before and During WPC, PY 2 - PY 6, by Subpopulations
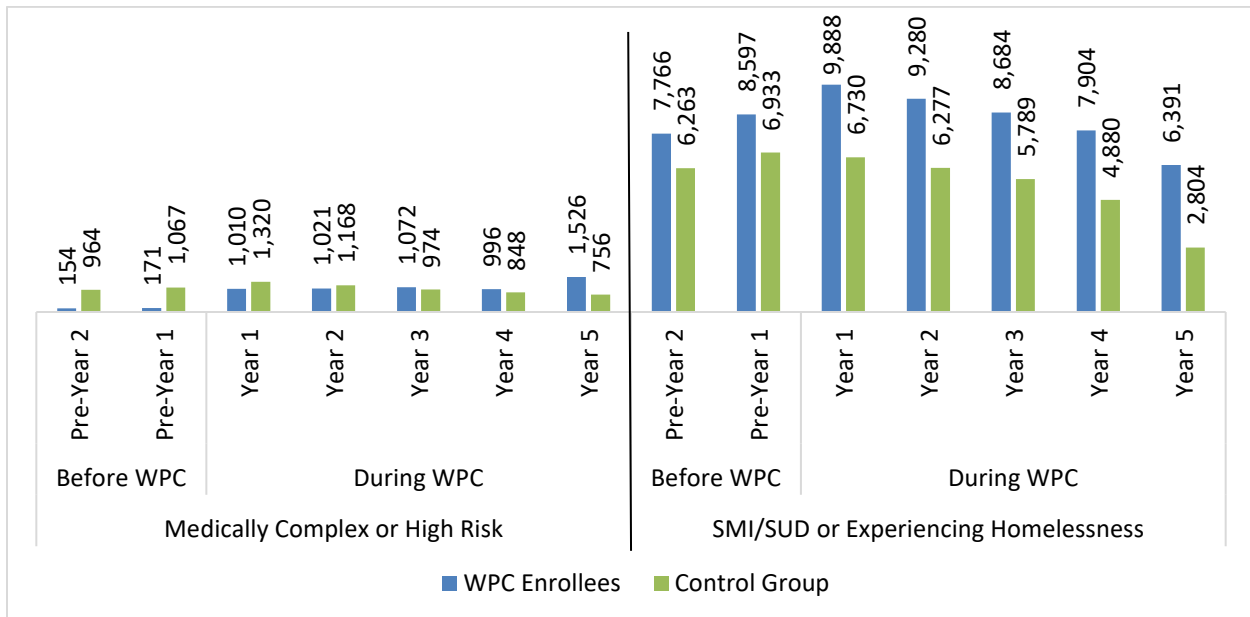
		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	17*	129*	113*	
	Control Group	103*	-141*	-244*	357*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	831*	-874*	-1,705*	
	Control Group	670*	-982*	-1,652*	-53*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Mental health services were identified as services with a mental health procedure code. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Follow-Up After Hospitalization for Mental Illness

Follow-Up After Hospitalization for Mental Illness was a WPC universal metric that measures the percentage of discharges for beneficiaries 6 years of age and older hospitalized for treatment of selected mental illness diagnoses who had a follow-up visit with a mental health practitioner at (1) 7-days or (2) 30-days. The intended direction of the metric and DD is increase.

Exhibit 115 shows that the 7-day follow-up rate did not change for both WPC enrollees and controls before WPC. After enrollment, the WPC enrollees continued to have a high rate (59% in Year 5), which did not change per year. However, this rate declined for controls significantly by 1.7% per year. These differences in patterns led to a 2.7% yearly increase in likelihood of 7-day visits for WPC enrollees compared to controls (DD).

Exhibit 115: Trends in Follow-Up After Hospitalization for Mental Illness within 7 Days Before and During WPC for WPC Enrollees and the Control group, PY 2 - PY 6
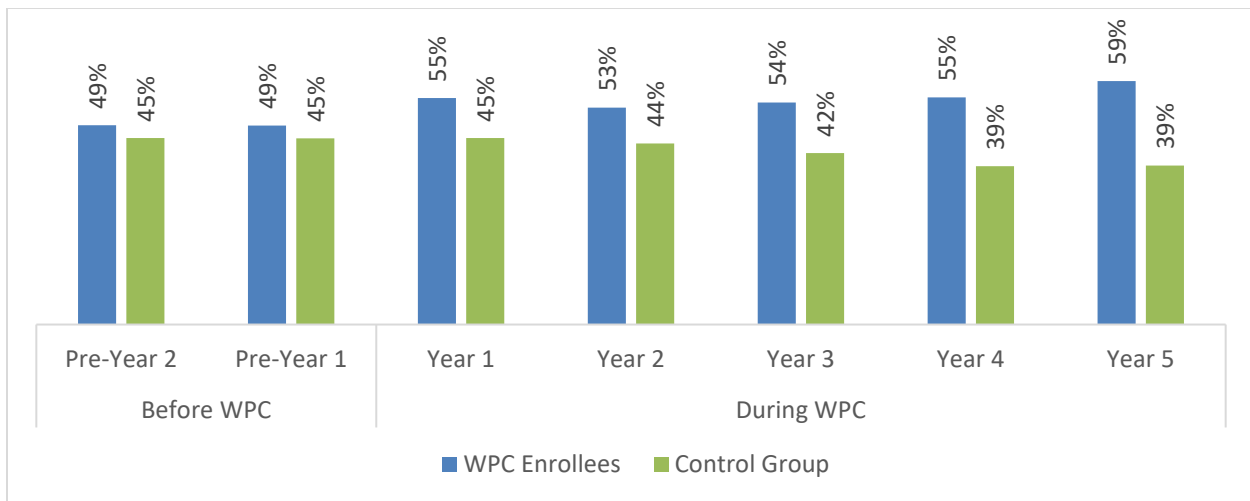
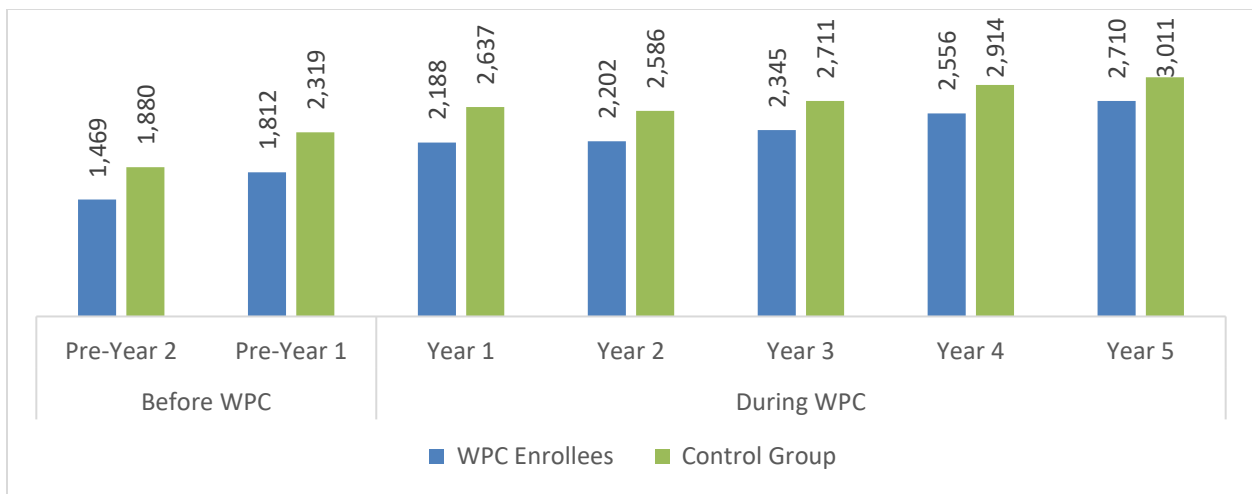|	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	-0.1%	1.0%	1.1%	
Control Group	-0.1%	-1.7%*	-1.2%	2.7%*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Exhibit 116 shows trends for 30-day follow-up. Trends were similar to those seen at 7-days except that there were no significant differences in the change in yearly rates between WPC enrollees and controls. The rate of this follow-up per year remained high for WPC enrollees during WPC with 83% having had a 30-day follow-up visit in Year 5.

Exhibit 116: Trends in Follow-Up After Hospitalization for Mental Illness within 30 Days Before and During WPC for WPC Enrollees and the Control group, PY 2 - PY 6

	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	-0.1%	-0.6%	-0.5%	
Control Group	-0.1%	-3.3%*	-3.2%*	2.7%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Initiation and Engagement of Alcohol and Other Drug Dependence Treatment

Initiation of Alcohol and Other Drug (AOD) Dependence Treatment was a WPC universal metric measuring the percentage of adolescent and adult beneficiaries with a new episode of AOD dependence who initiated treatment through an inpatient AOD admission, outpatient visit, intensive outpatient encounter or partial hospitalization within 14 days of the diagnosis. Engagement of AOD Dependence Treatment is a WPC universal metric that measures the percentage of adolescent and adult beneficiaries who initiated treatment and who had two or more additional services with a diagnosis of AOD within 30 days of the visit initiation. The intended direction of this metric and DD is increase.

Exhibit 117 shows that the rate of initiation of AOD treatment increased significantly before WPC for WPC enrollees by 1.9% but this rate decline by 1.1% per year during WPC. The same pattern was observed among the control group and the two trends were similar (DD). However, these data showed that WPC enrollees had higher rates of initiation than controls during WPC even when the rates of change were similar.

Exhibit 117: Trends in Initiation of Alcohol and Other Drug Dependence Treatment Before and During WPC for WPC Enrollees and the Control Group, PY 2 - PY 6

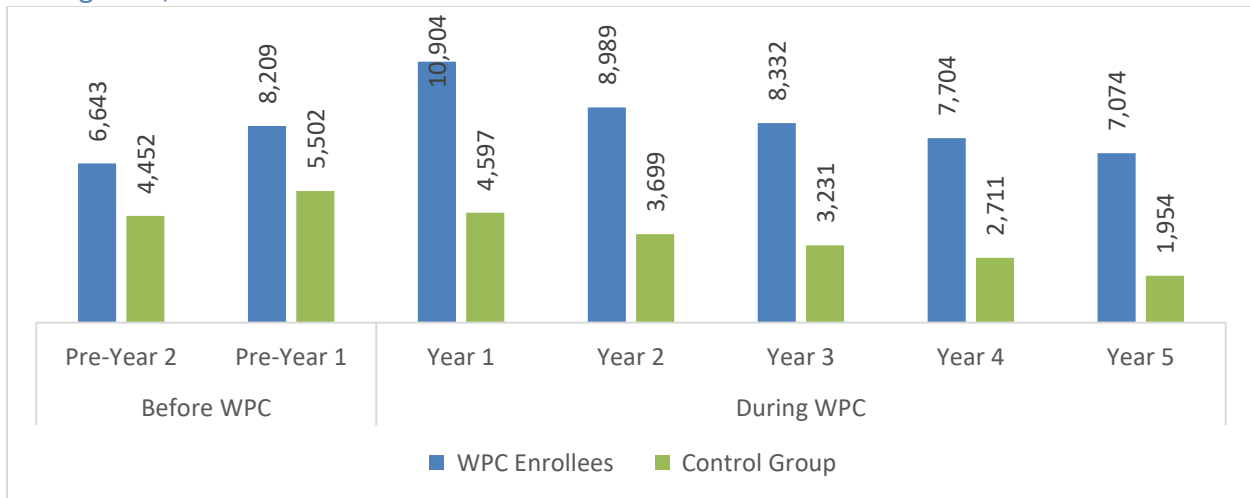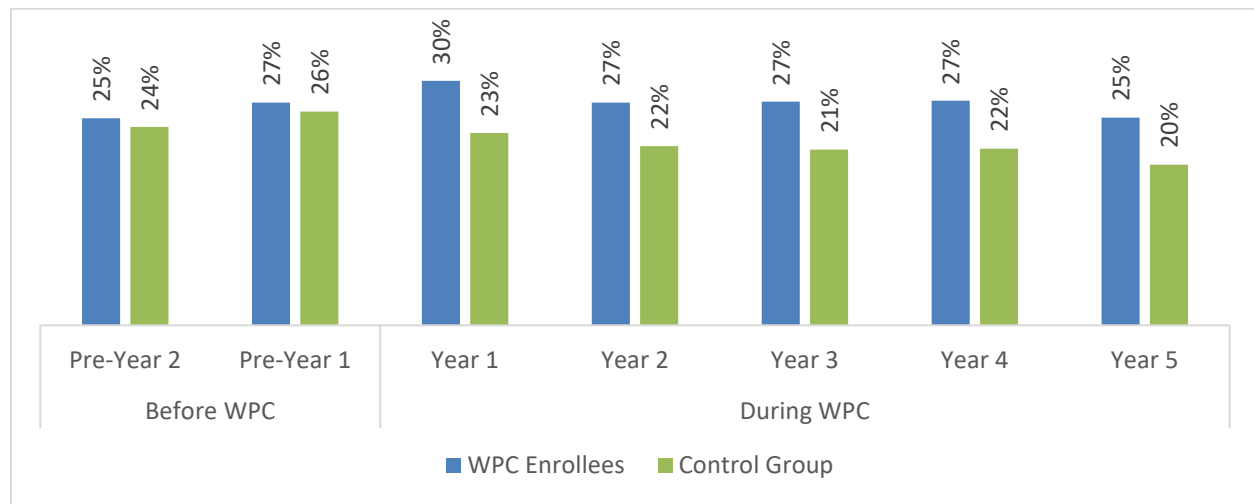|	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	1.9%*	-1.1%*	-3.0%*	
Control Group	1.9%*	-1.6%*	-2.9%*	-0.2%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC −Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Exhibit 118 shows that trends in engagement in AOD treatment following initiation did not change for WPC enrollees either before WPC or during WPC. Comparatively, the rates of engagement for controls declined significantly per year during WPC, resulting in a significant difference between WPC enrollees and the control group by 1.9% (DD). These data also showed that the rate of engagement for WPC enrollees during WPC was as high as 49% for most years compared to lower rates for controls.

Exhibit 118: Trends in Engagement of Alcohol and Other Drug Dependence Treatment Before and During WPC for WPC Enrollees and the Control Group, PY 2 – PY 6

	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	-0.1%	-0.1%	0.1%	
Control Group	-0.1%	-2.0%*	-1.9%*	1.9%*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Trends in WPC Pilot-Reported Metrics

UCLA calculated the weighted average values for one universal and one variant metric using Pilot-reported data (Exhibit 119). Some Pilots did not report planned metrics every year for reasons such as no enrollment or program activities during the reporting time period or lack of data in that time period. See Appendix B for further details on reporting for each metric, including which Pilots reported on each metric during each measurement year.

Exhibit 119: Pilot-Reported Universal and Variant Metrics That Indicate Better Care

Universal vs. Variant	Metric Name and Number	Description	Baseline Year	Reporting Years	Numbers of Pilots Reporting by Year	Improvement Measured by Increase or Decrease
Universal	2.5 Comprehensive Care Plan (CCP)	CCP-E: Percent of enrollees who received a CCP (accessible by their entire care team), within 30 days of enrollment	PY 2	PY 3, PY 4, PY 5, PY 6	20 in PY 2 24 in PY 3	Increase
		CCP-A: Percent of enrollees who received a CCP (accessible by their entire care team) within 30 days of the enrollee's anniversary of enrollment in WPC	PY 3	PY 4, PY 5, PY 6	19 in PY 3	Increase
Variant	3.1.7: Major Depressive Disorder Suicide Risk Assessment (MDD)	MDD: Percentage of enrollees aged 18 and older with a diagnosis of MDD with a suicide risk assessment completed during the visit in which a new diagnosis or recurrent episode was identified	PY 1 (2016)	PY 2, PY 3, PY 4, PY 5, PY 6	19 in PY 1 18 in PY 2 22 in PY 3	Increase

Source: Baseline, PY 2, PY 3, PY 4, PY 5, and PY 6 Annual WPC Variant and Universal Metric Reports and Whole Person Care Universal and Variant Metrics Technical Specifications (March 22, 2019).

Comprehensive Care Plan

All Pilots were required to report on the percent of enrollees who received a comprehensive care plan, accessible by their entire care team, (1) within 30 days of enrollment (CCP-E) and (2) within 30 days of the enrollee's anniversary of enrollment in WPC (CCP-A). Exhibit 120 shows that the overall CCP-E rate for WPC increased from 12% in PY 2 to 54% in PY 5 before declining slightly to 46% in PY 6. There was substantial variation in CCP-E rates by individual Pilots, ranging from a low of 0% to a high of 100% during most years The rates for CCP-E were influenced by two large Pilots. Without these influential Pilots, the trends remain the same, but annual rates varied from 33% to 86% (data not shown).

Exhibit 120: Percent of Enrollees Who Received a Comprehensive Care Plan Within 30 Days of Enrollment, by Program Year
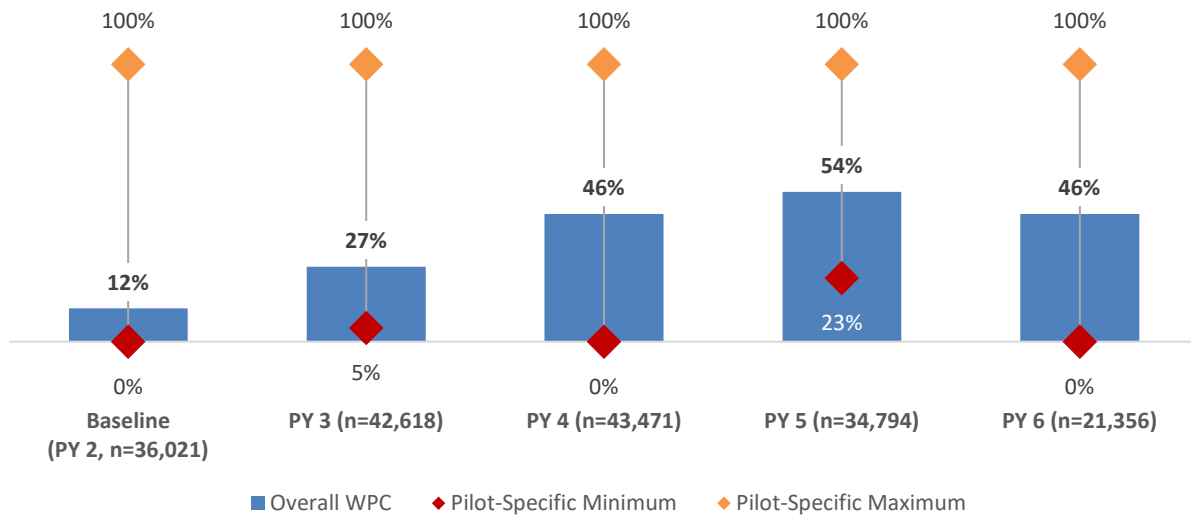
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: The comprehensive care plan was to be accessible by the entire care team. Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. The denominator size is shown as sample size per year. Appendix B, Exhibit 13 provides details on which Pilots reported in each year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. The rate of 0% indicates that no enrollees received a comprehensive care plan within 30 days of enrollment.

CCP-A was reported starting in PY 3 once enrollees had the opportunity to be enrolled for one year. Exhibit 121 shows that CCP-A rates increased from 43% in PY 3 to 72% in PY 6 and were consistently higher than CCP-E rates. Similar to CCP-A, there was large variation in the Pilot-specific rates, ranging from 0% to 100%. One Pilot did not report this universal metric.

Exhibit 121: Percent of Enrollees Who Received a Comprehensive Care Plan Within 30 Days of the Anniversary of their Enrollment, by Program Year
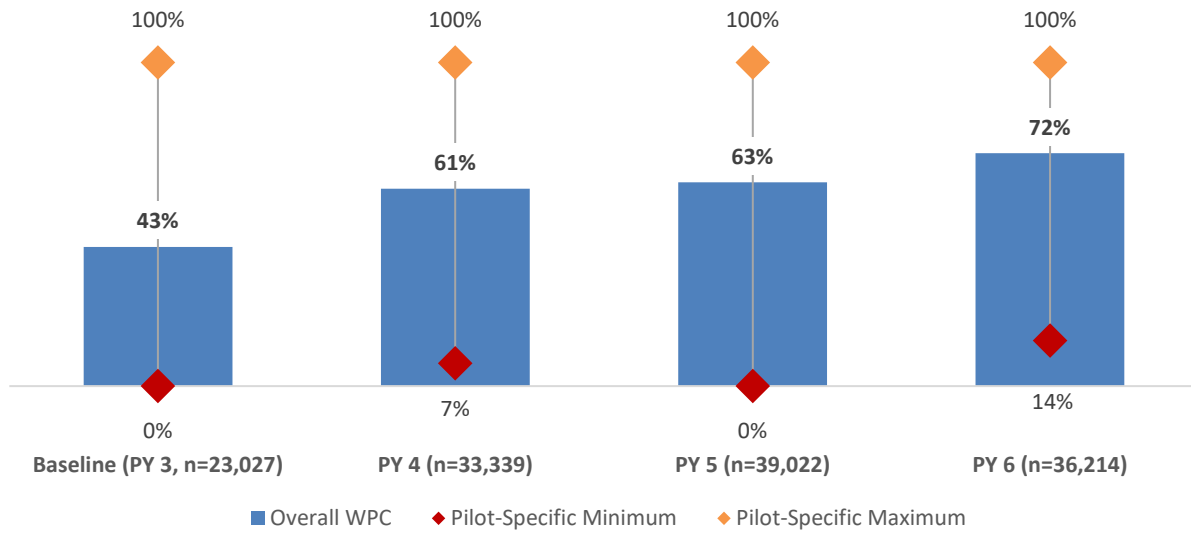
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: The comprehensive care plan was to be accessible by the entire care team. Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. The denominator size is shown as sample size per year. Appendix B, Exhibit 14 provides details on which Pilots reported in each year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. The rate of 0% indicates that no enrollees received a comprehensive care plan within 30 days of enrollment.

Major Depressive Disorder: Suicide Risk Assessment

A subset of 23 WPC Pilots elected to report the percent of enrollees age 18 or older with a diagnosis of major depressive disorder (MDD) who had a suicide risk assessment completed during the visit in which a new diagnosis or recurrent episode was identified. The overall MDD rate increased from 10% in baseline to 32% in PY 6, with consistent growth from year to year (

Exhibit 122). There was variation in MDD by Pilot, ranging from a low of 0% in all measurement years to a high of 100% in all years apart from baseline. Many Pilots had less than ten enrollees with a diagnosis of major depressive disorder during each measurement year, which led to high variation in this metric. One Pilot with 47% to 68% of all enrollees with a diagnosis of major depressive disorder each year had consistently low rates of 2% or lower. Without this Pilot, the MDD rate increased from 30% to 48% from baseline to PY 3 and then fell to 43% by PY 6 (data not shown).

Exhibit 122: Percent of Adult Enrollees with a Diagnosis of Major Depressive Disorder That Received a Suicide Risk Assessment During the Visit in Which a New Diagnosis or Episode was Identified, by Program Year
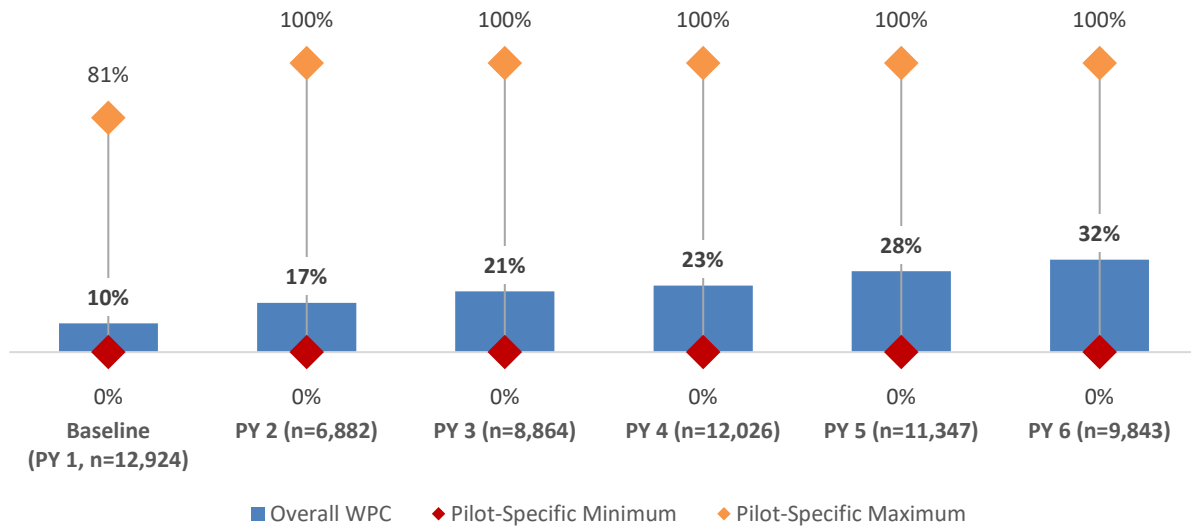
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 9 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year and the overall WPC rate is weighted based on denominator size. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot.

Pilot Assessment of Challenges to and Impact of WPC on Better Care

Pilots reported on challenges to achieving better care, factors that promoted better care, and their overall their perceptions of aspects of care delivery that were impacted by WPC.

In PY 6 follow-up interviews and bi-annual narrative reports, Pilots identified a lack of primary care capacity as a barrier to connecting enrollees to primary care. In particular, inability to secure same-day or next-day appointments for enrollees was a challenge. Another challenge that arose during PY 5 was the COVID-19 pandemic, which required providers to shift to telehealth services, particularly for delivery of primary care. WPC Pilots noted that this transition was challenging for many enrollees who often did not have reliable access to the resources needed to participate in telehealth services (e.g., phone, internet). WPC Pilots strove to provide these resources, but were often limited in their capacity to do so. Primary care provided via telehealth also limited the ability of care coordinators to accompany enrollees during their appointments.

> *"The largest challenge faced by CommunityConnect is the lack of capacity within the overburdened safety-net system (housing, primary and specialty care, substance abuse, mental health, and social services). Linking thousands of high-risk patients to resources creates an enormous downstream impact and adds stress on the already-strained safety net system. Many of the existing health centers are physically out of space and capital funds are often limited in availability. The inherent capacity issues must be addressed across the health system, social services, and community to realize the long-term benefits and system change possible in Whole Person Care."* -Contra Costa
>
> *"The decrease in psychiatric hospital days suggest that these individuals are being connected to appropriate mental health services to avoid additional hospitalizations."* -San Joaquin

In contrast, factors that promoted better care included targeted use of financial incentives to motivate meeting set goals, particularly for partner organizations. For example, eight Pilots had financial incentives linked to improvements in follow-up after hospitalization for mental illness. In attempt to meet these incentives, several Pilots developed teams dedicated to behavioral health crisis response, and improved linkage of enrollees to ongoing behavioral health services in the community. Additionally, ten Pilots had financial incentives specifically focused on improving initiation and engagement of enrollees in alcohol and other drug dependence treatment. In attempt to meet these incentives, multiple Pilots were focused on ensuring patients with opioid use disorder (OUD) in the ED were administered or prescribed buprenorphine and then assisted with engagement in outpatient SUD treatment.

In PY 5 surveys, Pilots indicated relatively high impact of WPC on overall care quality, with average rating of 7.6 of 10, where 0 is "very low impact" and 10 is "very high impact" (data not shown). Pilots were also asked about aspects of care delivery that improved for WPC enrollees attributed to WPC (Exhibit 123). Pilots indicated highest impact of WPC on enrollee access to needed services (8.3 of 10), followed by impact on comprehensiveness (7.6) and timeliness of services provided (7.3).

Exhibit 123: WPC Pilot Perceptions of Impact on Aspects of Better Care, PY 5
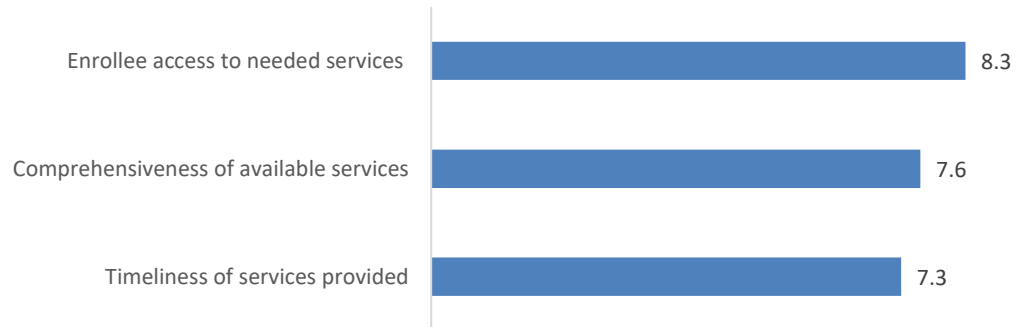
Aspect	Rating
Enrollee access to needed services	8.3
Comprehensiveness of available services	7.6
Timeliness of services provided	7.3

Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.
Note: Ratings of impact on a scale of 0-10, where 0 = "very low" and 10 = "very high".

Chapter 11: Better Health

WPC Pilots aimed to "reduce inappropriate emergency and inpatient utilization" and "improve health outcomes for the WPC population." This chapter addresses the following evaluation question: "To what extent did the Pilot: a)improve beneficiary care and health outcomes, including reduction of avoidable utilization of emergency and inpatient services; and b) improve outcomes such as controlled blood pressure and Hemoglobin A1c (HbA1c)?"

Data sources for this chapter included *Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6 and Medi-Cal enrollment and claims data. The *Quarterly Enrollment and Utilization Reports* were used to identify enrollees and dates of enrollment. UCLA used Medi-Cal claims data, which included both managed care and fee-for-service encounters, to construct WPC metrics per the WPC Technical Specifications to create two universal metrics (ambulatory care: emergency department visits and inpatient utilization) and three variant metrics (controlled blood pressure, comprehensive diabetes care, and all cause readmissions) to further examine how enrollee health and acute care use was impacted by WPC. UCLA further constructed a measure of use of long-term care for a clearer understanding of changes in patterns of care.

UCLA measured trends before and during WPC for each metric and measure based on the date of an individual WPC enrollee's enrollment. UCLA examined changes in trends before and during WPC using a difference-in-difference (DD) analysis by modeling the changes in yearly increments up to 2 years (Pre-Year 1 and Pre-Year 2) before WPC enrollment and up to 5 years (Year 1, 2, 3, 4, and 5) during WPC. For these, the DD analysis measured the trends or change in yearly rates from Pre-Year 2 vs. Pre-Year 1 for both WPC enrollees and the control group; the change in the yearly rate during WPC from Year 1 to Year 5 for both WPC enrollees and the control group; and the difference between the changes in WPC enrollees vs. the control group from before to during WPC. These estimates were adjusted for beneficiary demographics as well as health status and use of services pre-WPC. Further details can be found in Appendix A.

To better understand WPC outcomes, UCLA examined the program impact on enrollees with serious mental illness (SMI), substance use disorders (SUD), or experiencing homelessness (SMI/SUD/HML enrollees) compared to enrollees without these complicating conditions. The latter group was composed of enrollees who were medically complex including those with multiple chronic conditions and those at high risk for various reasons (MC/HR enrollees).

UCLA used the *Annual WPC Variant and Universal Metric Reports* submitted by Pilots to DHCS from baseline to PY 6 to report on five variant metrics (decreased jail incarceration, overall beneficiary health, controlled blood pressure, comprehensive diabetes care, and depression remission at 12 months), calculated by Pilots based on electronic medical records, chart review,

or other administrative data and therefore not replicable by UCLA. UCLA reported a weighted average rate for the available metrics across all Pilots that reported each metric. For additional detail on data sources and methodology please see Appendix B.

Utilization of Acute and Long-Term Care Services

UCLA created three measures of acute and long-term health care utilization and examined the trends on an annual basis. Two of these measures, emergency department visits and hospitalizations, were required by WPC and the program aimed to reduce the inappropriate use of these services. The measure of long-term care stays was not required by WPC. UCLA used these measures to illustrate potential changes in patterns of delivery of care under WPC.

Ambulatory Care: Emergency Department Visits

Ambulatory Care: Emergency Department Visits is a WPC universal metric that measures the rate of emergency department (ED) visits that do not result in hospitalization. UCLA reported this metric per 1,000 beneficiaries per year. The intended direction of the metric and DD is decrease.

Exhibit 124 shows an increase in the number of ED visits before WPC by 365 visits per 1,000 beneficiaries per year for WPC enrollees and by 314 visits for the controls. During WPC, this rate declined by 196 and 118 visits per year for WPC enrollees and controls, respectively. The declining change from before to during WPC was significantly greater for WPC enrollees compared to the control group by 130 visits (DD).

Exhibit 124: Trends in Ambulatory Care: Emergency Department Visits per 1,000 Beneficiaries per Year Before and During WPC, PY 2 - PY 6
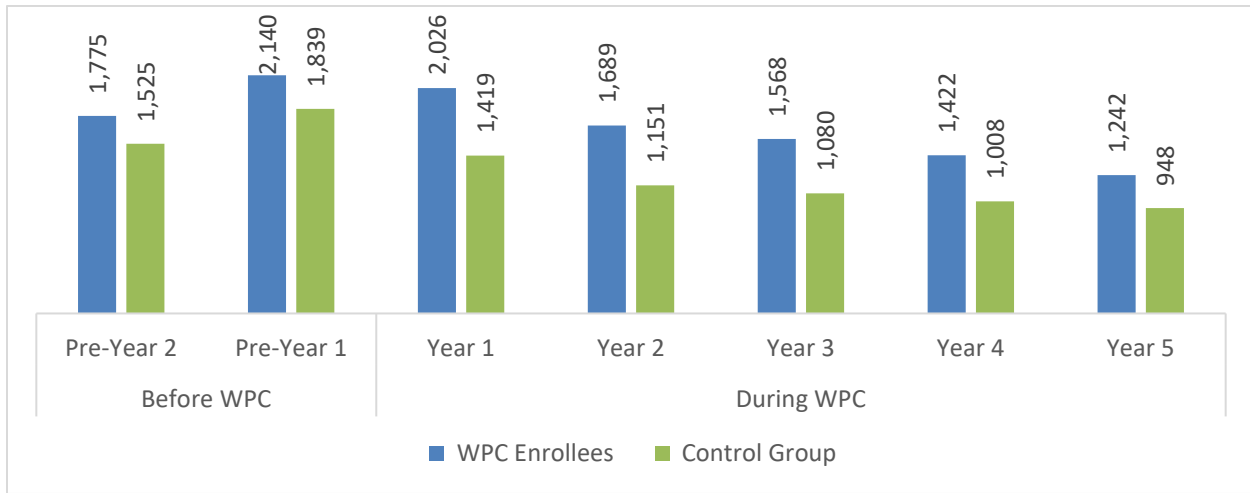
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	365*	-196*	-561*	
Control Group	314*	-118*	-431*	-130*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC – Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

When examining the MC/HR subpopulation, the declining change in yearly ED visits from before to during WPC was significantly different from the control group by only 11 fewer visits per 1,000 beneficiaries per year (Exhibit 125). Comparatively, SMI/SUD/HML enrollees had a declining rate that was greater than their controls by 173 visits per 1,000 beneficiaries per year.

Exhibit 125: Trends in Ambulatory Care: Emergency Department Visits per 1,000 Beneficiaries per Year Before and During WPC, PY 2 – PY 6, by Subpopulations
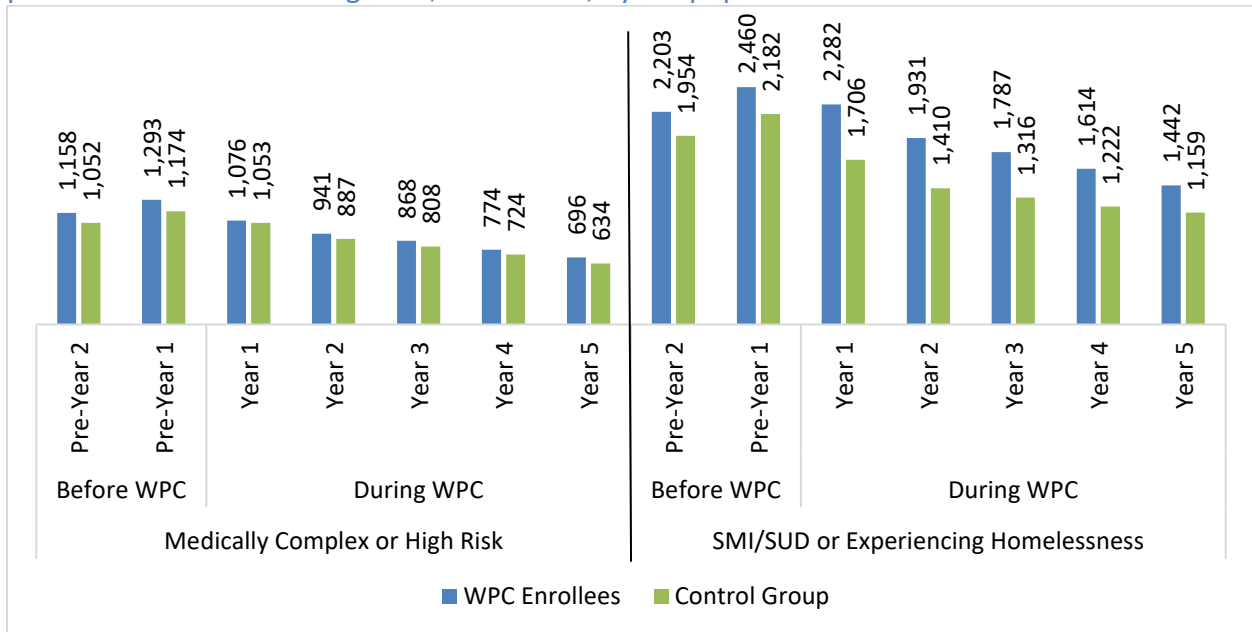
		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	209*	-82*	-291*	
	Control Group	188*	-92*	-280*	-11*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	422*	-237*	-659*	
	Control Group	359*	-127*	-487*	-173*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Inpatient Utilization

Inpatient Utilization is a WPC universal metric that measures the rate of acute inpatient care and services. UCLA reported this metric per 1,000 beneficiaries per year. The intended direction of the metric and DD is decrease. Exhibit 126 shows an increase in the number of hospitalizations before WPC by 163 and 145 stays per 1,000 beneficiaries per year for WPC enrollees and controls, respectively. During WPC, this rate declined by 57 stays per year, while it only declined by 30 stays per year for controls. Comparing the changes from before to during WPC, WPC enrollees declining rate was greater by 45 stays compared to controls (DD). SMI/SUD/HML enrollees had a larger declining rate (53 fewer stays per 1,000 beneficiaries per year), but the decline was also present for MC/HR enrollees (21 fewer stays; data not shown).

Exhibit 126: Trends in Inpatient Utilization per 1,000 Beneficiaries per Year Before and During WPC, PY 2 - PY 6
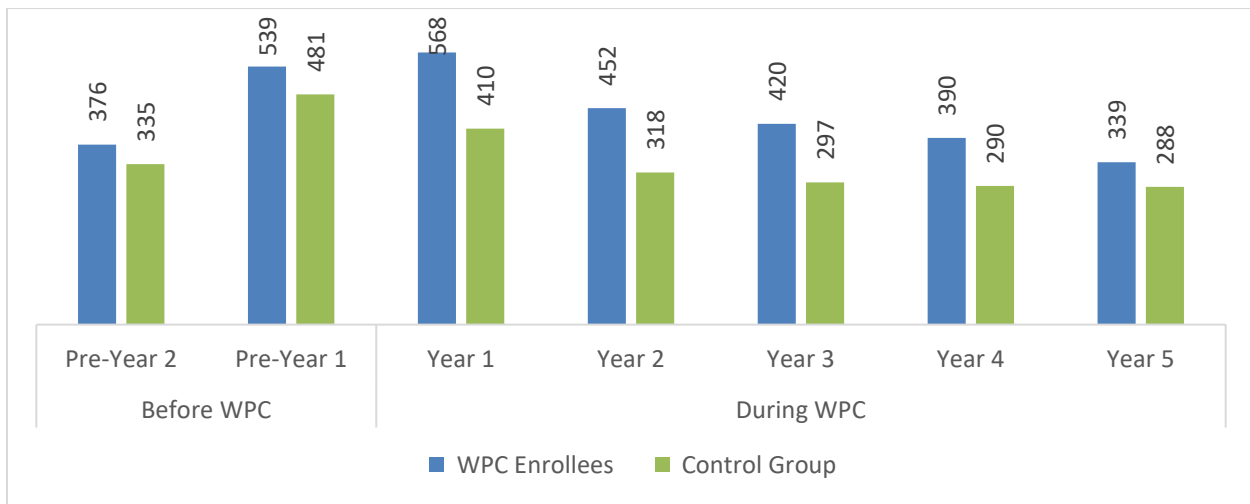
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	163*	-57*	-220*	
Control Group	145*	-30*	-176*	-45*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Long-Term Care Stays

UCLA calculated the number of long-term care stays per 1,000 beneficiaries per year to show patterns of change in utilization of all services. Long-term care stays are likely to increase as beneficiaries age or their health deteriorates. Therefore, the anticipated direction of this measure and DD is increase. Exhibit 127 shows an increase of 55 long-term care stays per 1,000 members per year for WPC enrollees and the control group before WPC. The increasing trend continues during WPC for both groups, with WPC enrollees having 131 more stays per 1,000 beneficiaries per year and the controls having 53. The change in trends from before to during WPC was significantly greater for WPC compared to controls by 78 stays per 1,000 beneficiaries per year (DD). While both SMI/SUD/HML and MC/HR enrollees had increasing rates of long-term care stays from before to during WPC compared to controls, it was higher among the SMI/SUD/HML enrollees (95 vs. 32 stays; data not shown).

Exhibit 127: Trends in Long-Term Care Stays per 1,000 Beneficiaries per Year Before and During WPC, PY 2 - PY 6
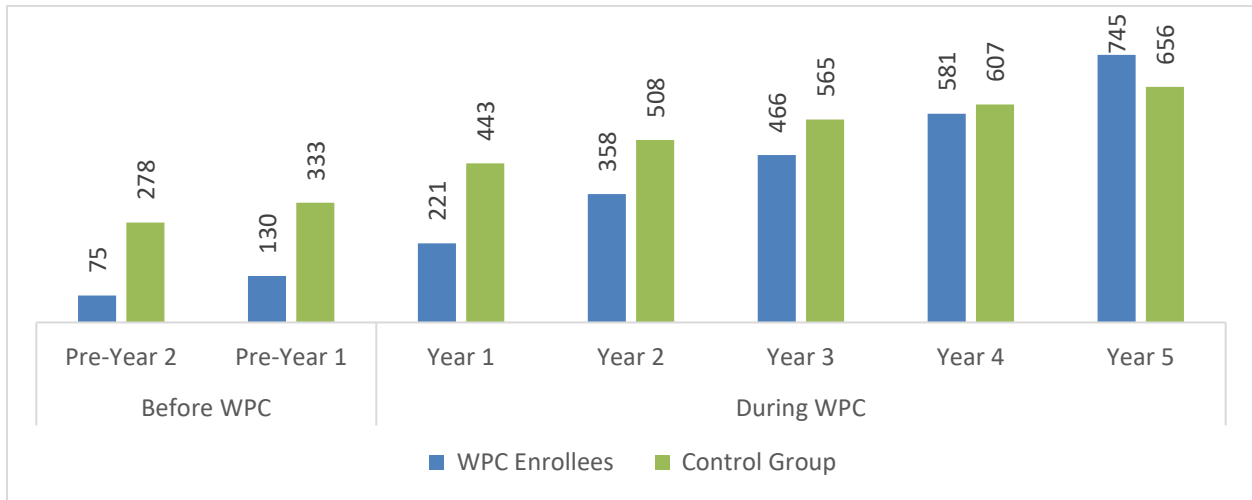
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	55*	131*	76*	
Control Group	55*	53*	-2	78*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. SUD services were identified as services with a SUD treatment procedure code or an NDC for pharmacotherapy. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Better Health Outcomes

Controlling High Blood Pressure

Controlling High Blood Pressure is a WPC variant metric that measures the percentage of beneficiaries aged 18 to 85 who had a diagnosis of hypertension and whose blood pressure was adequately controlled during the measurement year. The intended direction of the measure and DD is increase.

Exhibit 128 shows that both WPC enrollees and controls have increasing rates of controlled blood pressure during WPC (3.2% for WPC enrollees and 3.8% for controls), but the change from before to during WPC was slightly smaller among WPC enrollees by 0.6%.

Exhibit 128: Trends in Controlling High Blood Pressure Before and During WPC for WPC Enrollees and the Control Group, PY 2 - PY 6
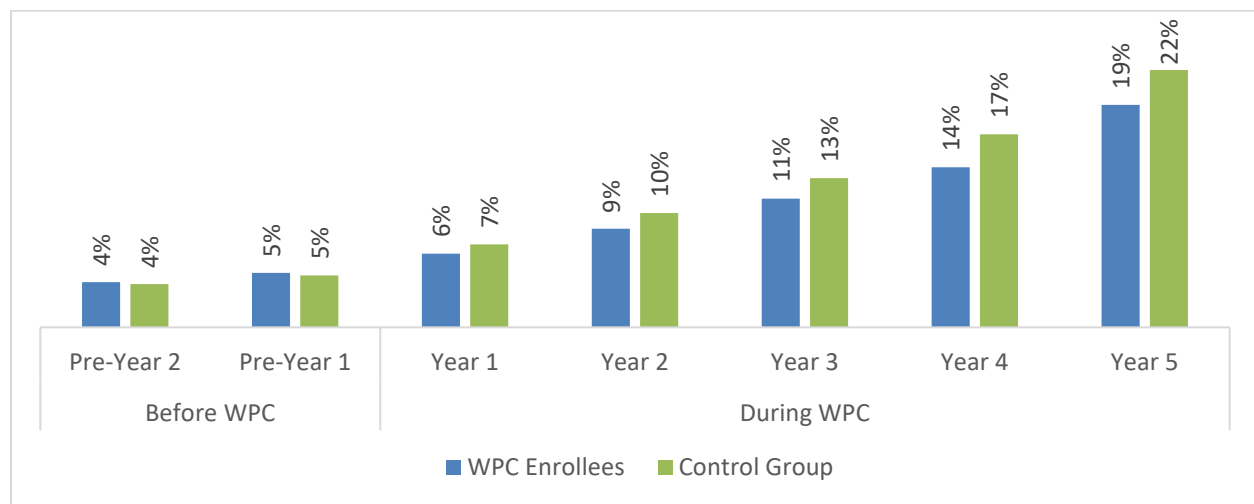
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	0.8%*	3.2%*	2.4%*	
Control Group	0.8%*	3.8%*	3.0%*	-0.6%*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Comprehensive Diabetes Care

Comprehensive Diabetes Care is a WPC variant metric that measures the percentage of beneficiaries aged 18 to 75 with either Type 1 or Type 2 diabetes, who had controlled Hemoglobin A1c (HbA1c), with a value of less than 8%. UCLA was unable to reconstruct this metric using Medi-Cal claims data due insufficient reporting of resulting HCA1c values after a test. As an alternative, UCLA constructed a metric that examined the percentage of beneficiaries aged 18 to 75 with either Type 1 or Type 2 diabetes that had a HbA1c test during the measurement year. The intended direction of the measure and DD is increase. Exhibit 129 shows that after increasing rates before WPC, both WPC enrollees and controls had no significantly yearly change in diabetes testing during WPC. However, WPC enrollees did have higher rates of HbA1c testing during WPC overall compared to controls.

Exhibit 129: Trends in HbA1c Testing Rates Before and During WPC for WPC Enrollees and the Control Group, PY 2 - PY 6
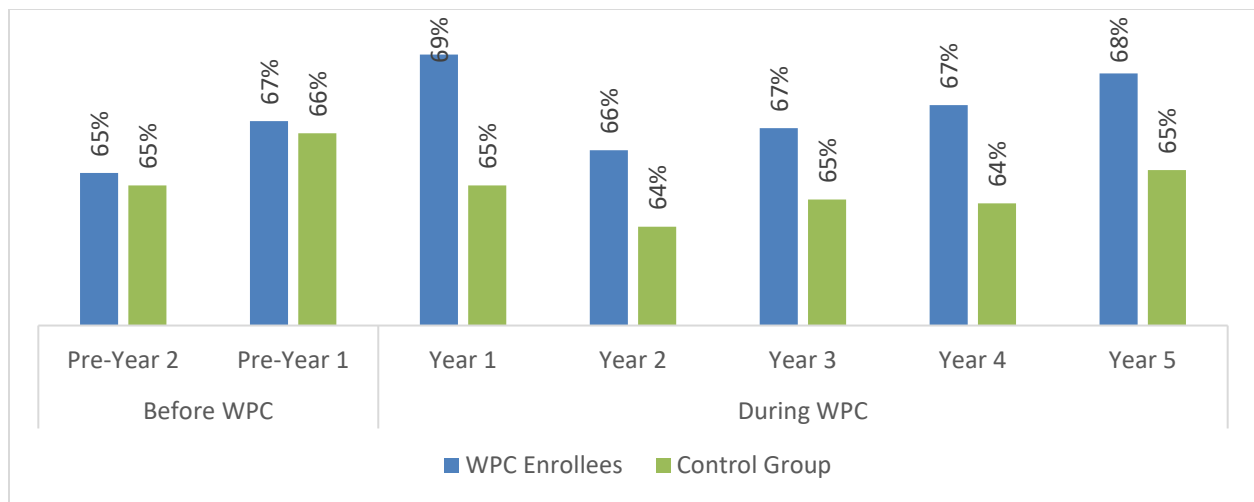
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	1.4%*	-0.1%	-1.6%*	
Control Group	1.5%*	0.1%	-1.3%*	-0.2%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

All-Cause Readmission

All-Cause Readmission is a WPC variant metric that measures the number of acute inpatient stays during the measurement year that were followed by an unplanned acute readmission for any diagnosis within 30 days for beneficiaries ages 21 and older. The intended direction of the metric and DD is decrease. Exhibit 130 shows that readmission rates slightly increased before WPC for both WPC enrollees and controls (0.8%) and then declined during WPC by 1.1% and 1.0%, respectively. There was no significant difference in the changing yearly rates from before to during WPC between WPC enrollees and controls.

Exhibit 130: Trends in All-Cause Readmission following an Acute Inpatient Admission, Before and During WPC for WPC Enrollees and the Control Group, PY 2 - PY 6
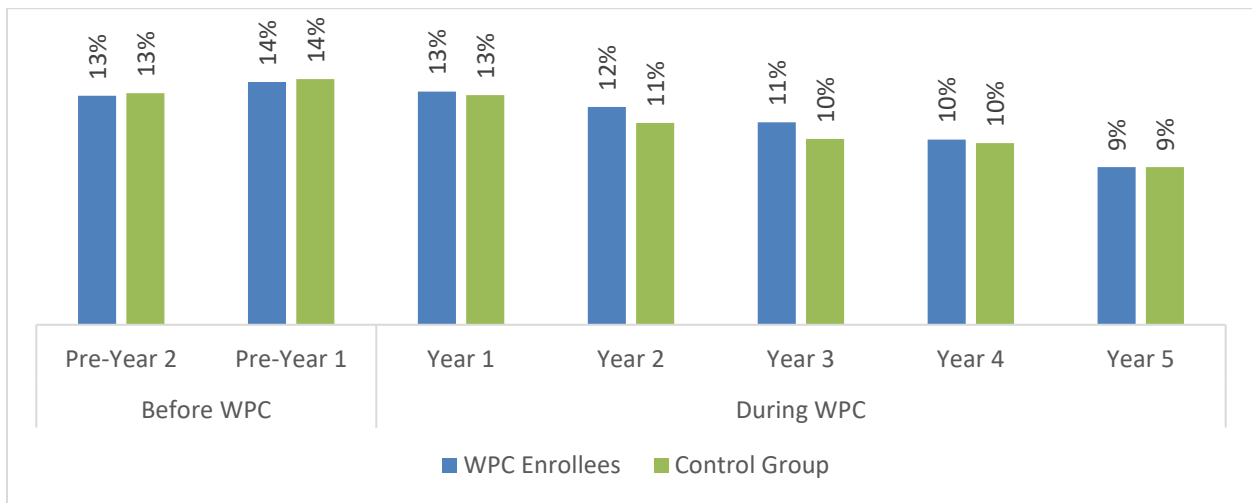
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	0.8%*	-1.1%*	-1.8%*	
Control Group	0.8%*	-1.0%*	-1.8%*	0%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Trends in Better Health Based on WPC Pilot-Reported Metrics

UCLA calculated the weighted average values for five variant metrics using Pilot-reported data (Exhibit 131). Some Pilots did not report planned metrics every year for reasons such as no enrollment or program activities during the reporting time period or lack of data in that time period. See Appendix B for further details on reporting for each metric, including which Pilots reported on each metric during each measurement year.

Exhibit 131: Pilot-Reported Variant Metrics That Indicate Better Health

Universal vs. Variant	Metric Name	Description	Baseline Year	Reporting Years	Numbers of Pilots Reporting by Year	Improvement Measured by Increase or Decrease
Variant	Decrease Jail Incarceration (DJI)	DJI: Incarcerations per 1,000 member months of enrollees 14 years of age and older	PY 1 (2016)	PY 2, PY 3, PY 4, PY 5, PY 6	6 in PY 1 5 in PY 2 7 in PY 3 7 in PY 4 6 in PY 5 6 in PY 6	Decrease
Variant	Overall Beneficiary Health (OBH)	OBH-O: Self-reported rating for enrollee's overall health	PY 2	PY 3, PY 4, PY 5, PY 6	4 in PY 2 6 in PY 3 7 in PY 4 7 in PY 5 6 in PY 6	Increase
		OBH-E: Self-reported rating for enrollee's mental or emotional health	PY 2	PY 3, PY 4, PY 5, PY 6	4 in PY 2 5 in PY 3 7 in PY 4 7 in PY 5 6 in PY 6	Increase

Universal vs. Variant	Metric Name	Description	Baseline Year	Reporting Years	Numbers of Pilots Reporting by Year	Improvement Measured by Increase or Decrease
Variant	Controlled Blood Pressure (CBP)	CBP-18-59: Percent of enrollees 18-59 years of age whose BP was <140/90 mmHg	PY 1 (2016)	PY 2, PY 3, PY 4, PY 5, PY 6	8 in PY 1 6 in PY 2 7 in PY 3 8 in PY 4 8 in PY 5 8 in PY 6	Increase
		CBP-60-85-D: Percent of enrollees 60-85 years of age with a diagnosis of diabetes whose BP was <140/90 mmHg	PY 1 (2016)	PY 2, PY 3, PY 4, PY 5, PY 6	8 in PY 1 6 in PY 2 7 in PY 3 8 in PY 4 8 in PY 5 8 in PY 6	Increase
		CBP-60-85-ND: Percent of enrollees 60-85 years of age without a diagnosis of diabetes whose BP was <150/90 mmHg	PY 1 (2016)	PY 2, PY 3, PY 4, PY 5, PY 6	8 in PY 1 6 in PY 2 7 in PY 3 8 in PY 4 8 in PY 5 8 in PY 6	Increase
Variant	Comprehensive Diabetes Care (CDC)	CDC: Percentage of enrollees 18-75 years of age with	PY 1 (2016)	PY 2, PY 3, PY 4, PY 5, PY 6	11 in PY 1 11 in PY 2 11 in PY 3 12 in PY 4 12 in PY 5	Increase

Universal vs. Variant	Metric Name	Description	Baseline Year	Reporting Years	Numbers of Pilots Reporting by Year	Improvement Measured by Increase or Decrease
		diabetes (type 1 and type 2) who had HbA1c control (<8%)			12 in PY 6	
Variant	PHQ 9/Depression Remission at 12 Months (NQF 0719)	NQF 0719: Percentage of enrollees 18 years of age and older with Major Depression or Dysthymia who reached remission 12 months (+/- 30 days) after an index visit	PY 1 (2016)	PY 2, PY 3, PY 4, PY 5, PY 6	9 in PY 1 9 in PY 2 11 in PY 3 14 in PY 4 15 in PY 5 14 in PY 6	Increase

Source: Baseline, PY 2, PY 3, PY 4, PY 5, and PY 6 Annual WPC Variant and Universal Metric Reports and Whole Person Care Universal and Variant Metrics Technical Specifications (March 22, 2019).
Notes: BP is blood pressure. HbA1c is the hemoglobin A1c test that measures the average level of blood sugar.

Variant Metric: Decrease Jail Incarcerations (DJI)

Seven WPC Pilots elected to report the number of incarcerations that occurred per 1,000 member months for those ages 14 or older as of December 31 of the measurement year (DJI). The overall DJI rate increased from 18 incarcerations per 1,000 member months during baseline to 24 in PY 2, but declined to 6 in PY 6 (Exhibit 132). There was variation in DJI by Pilot, for example, ranging from a low of 11 in PY 1 to a high of 358 in PY 2. One large Pilot accounted for between 72% and 83% of the denominator each year for this metric and this Pilot reported the lowest DJI rate among all Pilots for five out of six reporting years. Without this influential Pilot, the DJI rate remained steady from baseline to PY 2 at 48 and declines to 20 in PY 6 (data not shown).

Exhibit 132: Number of Incarcerations per 1,000 WPC Member Months, by Program Year
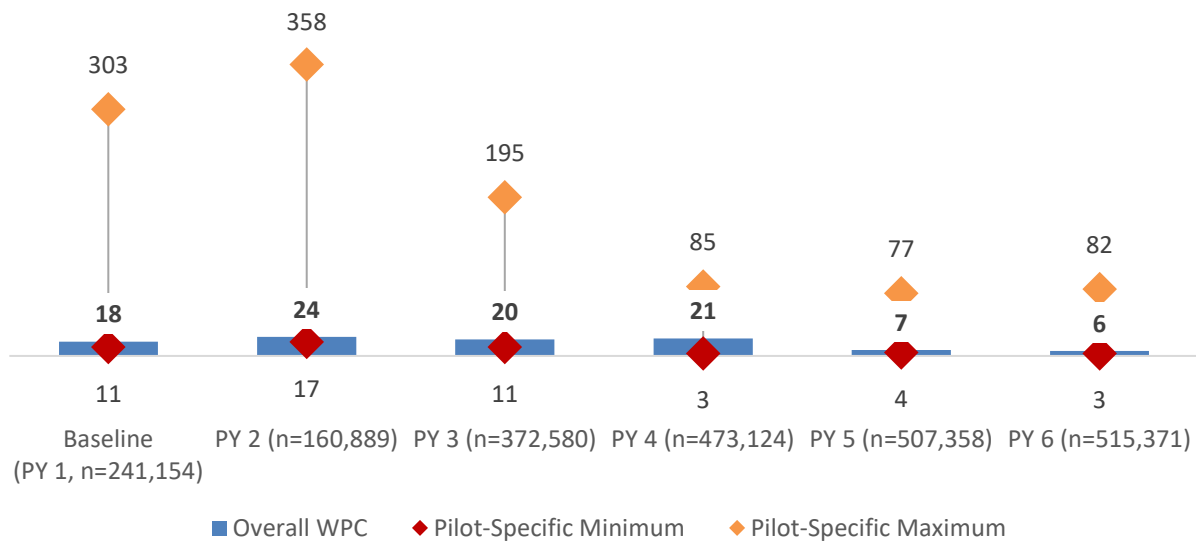
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 4 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot.

Variant Metric: Overall Beneficiary Health

Seven WPC Pilots elected to report the percent of enrollees reporting "Excellent" or "Very Good" overall health (OBH-O) and the percent of enrollees reporting "Excellent" or "Very Good" emotional health (OBH-E) as part of the overall beneficiary health metric.

Overall OBH-O increased from 11% during baseline to 22% in PY 3 and then after a small decline to 19% in PY 4, it increased to 28% in PY 6 (Exhibit 133). There was variation by Pilot in percent reporting good overall health, ranging from a low of 5% to a high of 44%.

Exhibit 133: Percent of Enrollees Who Reported "Excellent" or "Very Good" Overall Health (OBH-O), by Year
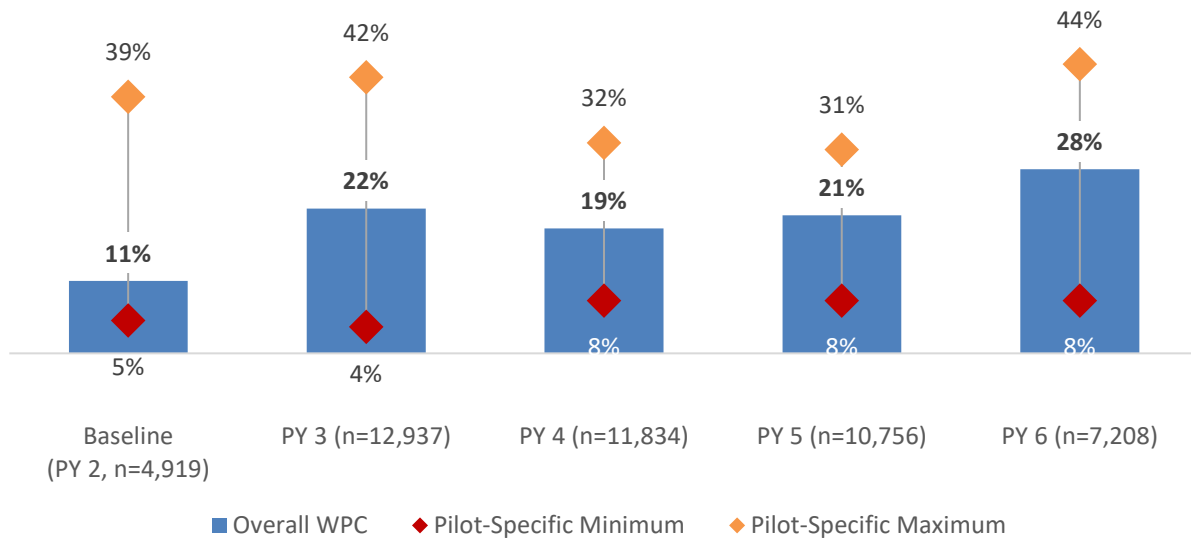
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 5 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot.

Overall OBH-E increased from 17% in baseline to 27% in PY 6 (Exhibit 134). Similar to OBH-O, variation exited between Pilots with a range of 5% in baseline to 36% in PY 6.

Exhibit 134: Percent of Enrollees Who Reported "Excellent" or "Very Good" Emotional Health (OBH-E), by Year
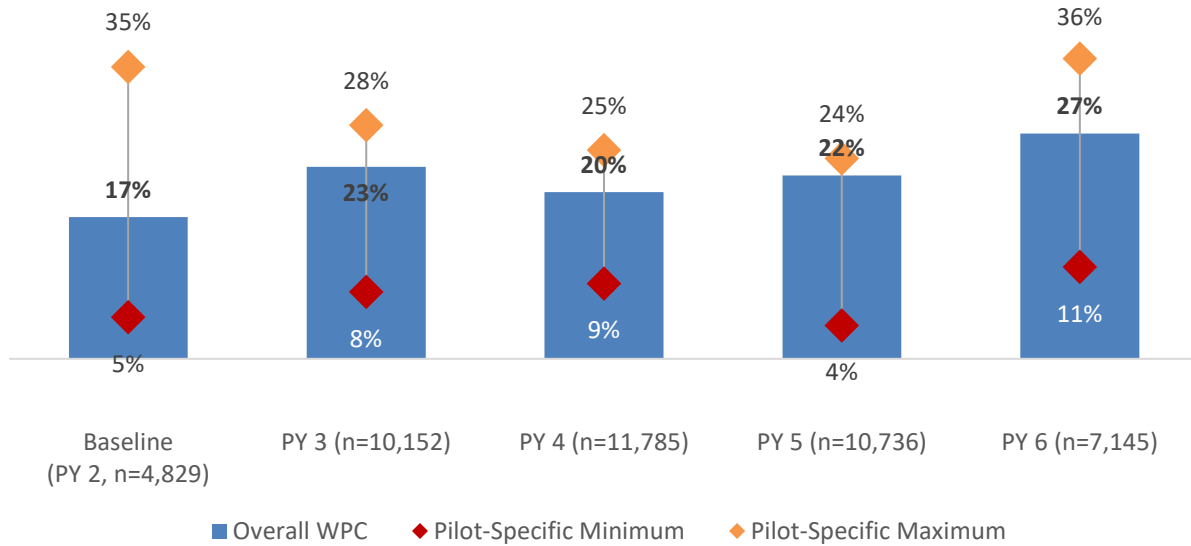
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 6 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot.

Variant Metric: Controlling High Blood Pressure

Eight WPC Pilots elected to report on the percent of three groups of enrollees (individuals age 18-59, individuals age 60-85 with diabetes, and individuals age 60-85 without diabetes) whose blood pressure was adequately controlled during the measurement year. The blood pressure control rate for all three groups increased from baseline to PY 4 before declining in PY 5 and PY 6 (Exhibit 135, Exhibit 136, Exhibit 137). Rates of blood pressure control remained above baseline in PY 6 for all three groups. There was variation by Pilot in the percent of enrollees who had controlled blood pressure in all measurement years. Many Pilots had denominators less than 10 during all measurement year, resulting in substantial variation in the rates by Pilots.

Exhibit 135: Percent of WPC Enrollees 18 to 59 years old with Controlled Blood Pressure, by Program Year
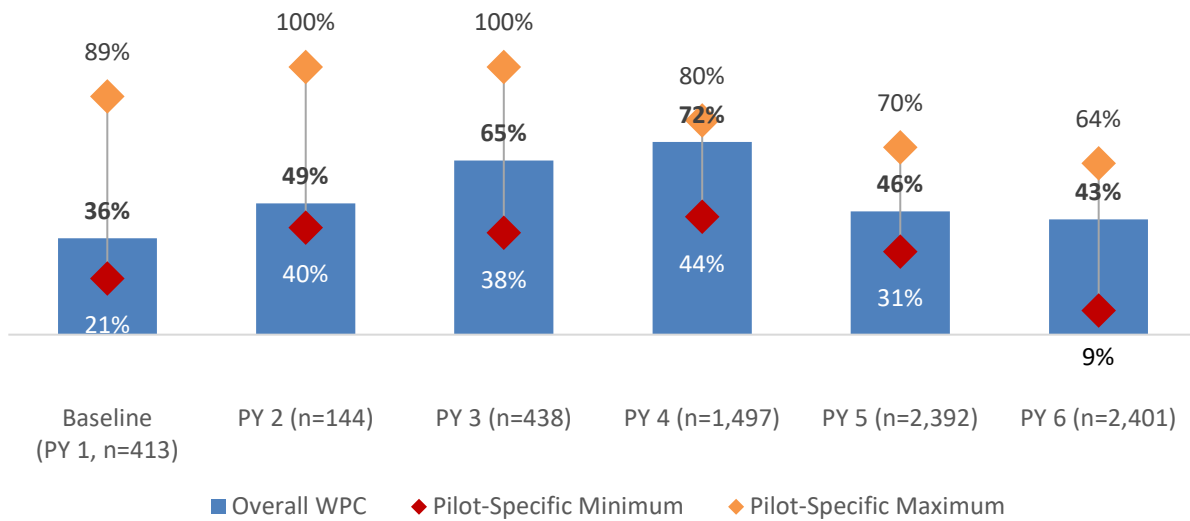
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 1 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. Controlled blood pressure was defined as less than 140/90 mmHg for those age 18 to 59.

Exhibit 136: Percent of WPC Enrollees 60 to 85 years old and Diabetic with Controlled Blood Pressure, by Program Year
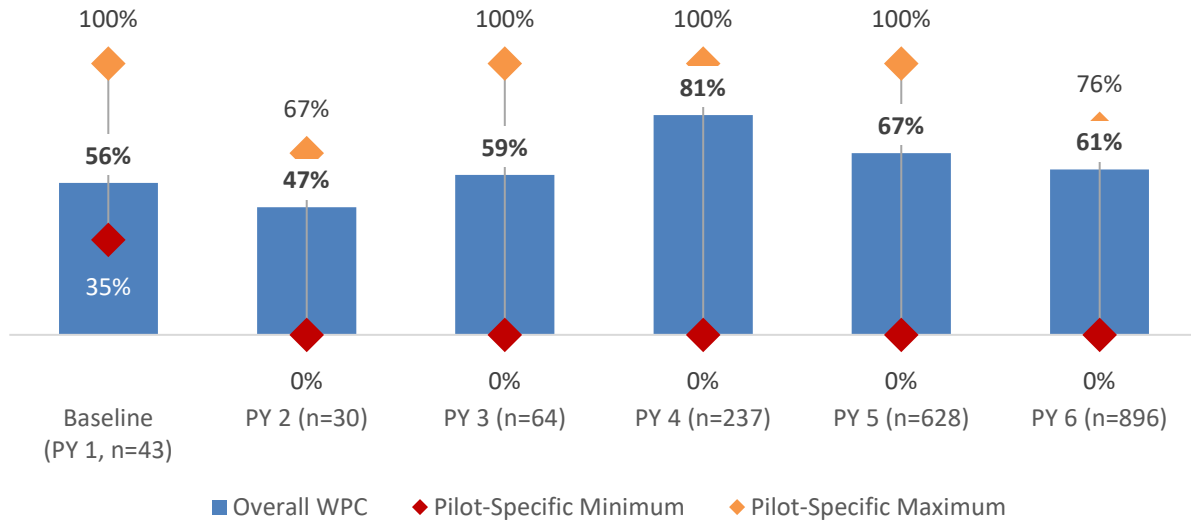
	Baseline (PY 1, n=43)	PY 2 (n=30)	PY 3 (n=64)	PY 4 (n=237)	PY 5 (n=628)	PY 6 (n=896)
Pilot-Specific Maximum	100%	67%	100%	100%	100%	76%
Overall WPC	56%	47%	59%	81%	67%	61%
Pilot-Specific Minimum	35%	0%	0%	0%	0%	0%

Legend: ■ Overall WPC ◆ Pilot-Specific Minimum ◆ Pilot-Specific Maximum

Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 2 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. Controlled blood pressure was defined as less than 140/90 mmHg for those age 60 to 85 with a diagnosis of diabetes. A rate of 0% indicated that no enrollees had controlled blood pressure in the measurement year.

Exhibit 137: Percent of WPC Enrollees 60 to 85 years old and not Diabetic with Controlled Blood Pressure, by Program Year
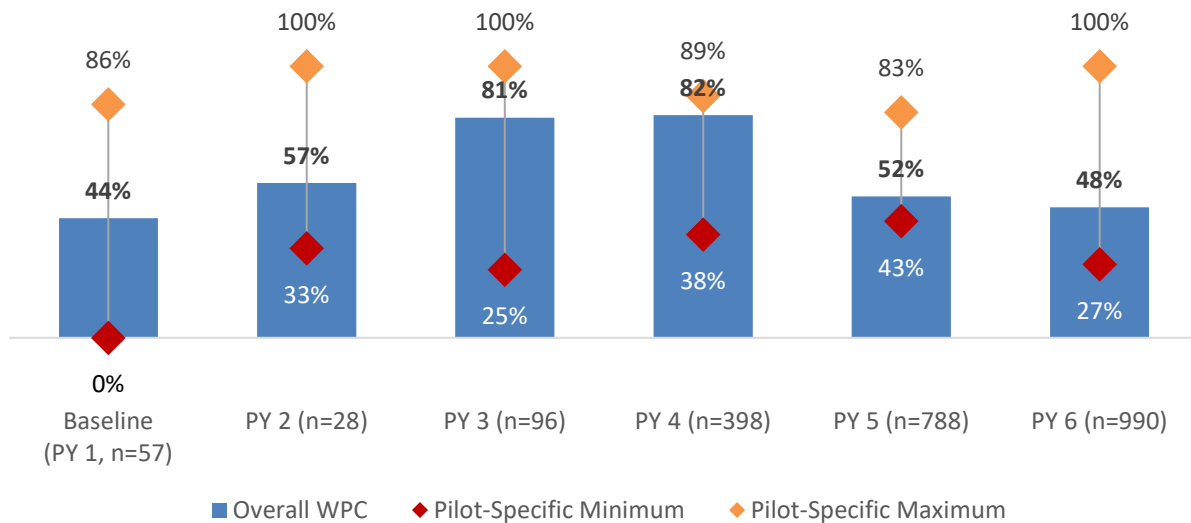
	Baseline (PY 1, n=57)	PY 2 (n=28)	PY 3 (n=96)	PY 4 (n=398)	PY 5 (n=788)	PY 6 (n=990)
Pilot-Specific Maximum	86%	100%	100%	89%	83%	100%
Overall WPC	44%	57%	81%	82%	52%	48%
Pilot-Specific Minimum	0%	33%	25%	38%	43%	27%

Legend: ■ Overall WPC ◆ Pilot-Specific Minimum ◆ Pilot-Specific Maximum

Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6

Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 3 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. Controlled blood pressure was defined as less than 150/90 mmHg for those age 60 to 85 without a diagnosis of diabetes. A rate of 0% indicated that no enrollees had controlled blood pressure in the measurement year.

Variant Metric: Comprehensive Diabetes Care (CDC)

Twelve WPC Pilots elected to report the percent of enrollees age 18 to 75 with either Type 1 or Type 2 diabetes, who had controlled Hemoglobin A1c (HbA1c), with a value of less than 8% (CDC). The overall CDC rate increased from 52% in baseline, to 58% in PY 3, and ended at 54% in PY 6 (Exhibit 138). There was variation by Pilot, ranging from a low of 0% in baseline to a high of 100% in PY 2.

Exhibit 138: Percent of Adult Enrollees with Diabetes Who Had Controlled HbA1c, by Program Year
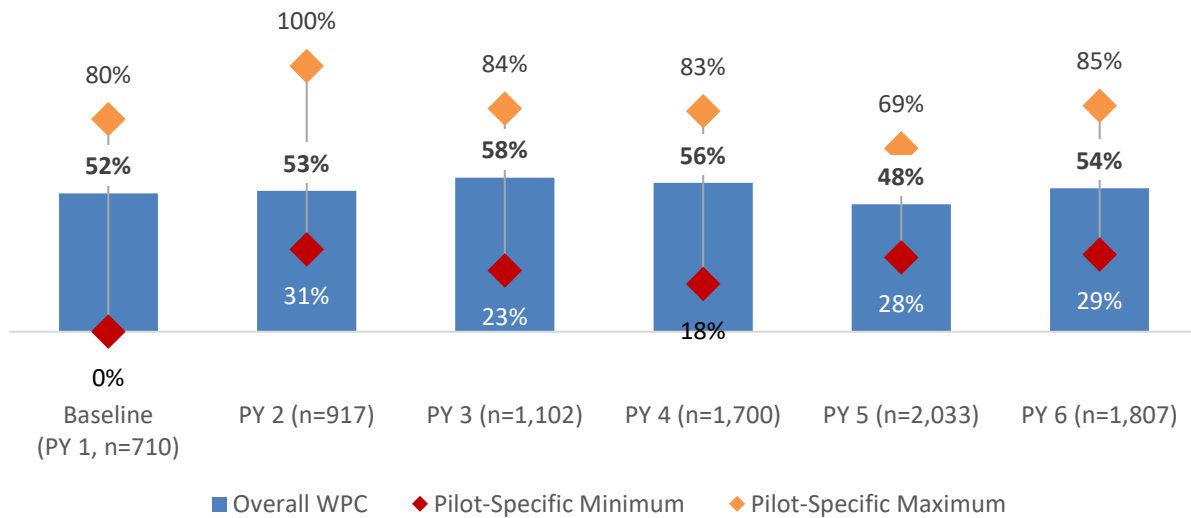
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 7 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. A rate of 0% indicated that no enrollees had controlled HbA1c scores in the measurement year. HbA1c is the hemoglobin A1c test that measures the average level of blood sugar.

Variant Metric: PHQ-9/Depression Remission at 12 Months (NQF 0719)

Fifteen WPC Pilots elected to report the percent of enrollees age 18 or older with major depression or dysthymia who reached remission measured at 12 months, plus or minus 30 days, after an index visit (NQF 0719). There was some increase in the overall NQF 0719 rate, but it remained low all years of the program, at 4% or less (Exhibit 139). There was variation by Pilot, ranging from a low of 0% in all measurement years to a high of 100% in PY 3. Variation was largely due to small denominators.

Exhibit 139: Percent of Enrollees Age 18 or Older with Major Depression or Dysthymia Who Reached Remission at 12 Months, by Program Year
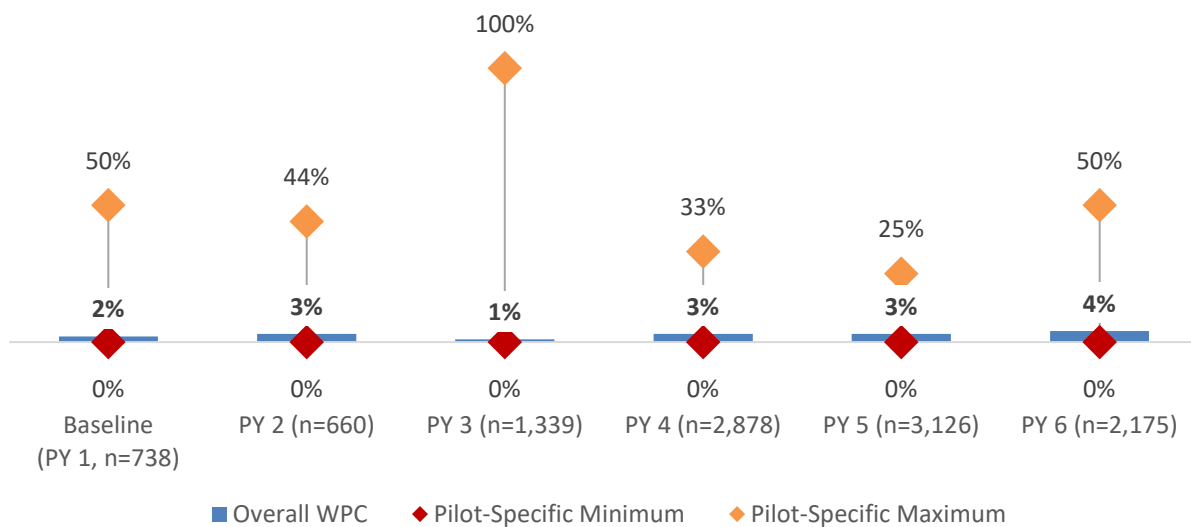
Source: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 8 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. A rate of 0% indicated that no enrollees reached remission in the timeframe.

Pilot Assessment of Challenges to and Impact of WPC on Better Health

Pilots reported on challenges to achieving better health, factors that promoted better health, and their overall their perceptions of aspects of care delivery that were impacted by WPC.

In PY 6 follow-up interviews and bi-annual narrative reports, Pilots described their challenges to control of high blood pressure and provision of comprehensive diabetes care were closely related to the shift to telehealth during the earlier phases of the COVID-19 pandemic and limited availability of primary care appointments, which led to enrollees who were concerned with contracting COVID-19 to forgo or delay care. Furthermore, a small group of Pilots had

financial incentives tied to these metrics or reported activities focused specifically on diabetes or blood pressure control. Instead, most focused on health education (e.g., nutrition class, access to a dietitian, providing information on diabetes) to impact these metrics.

Pilots also described conducting quality improvement studies to divert patients from the ED to more appropriate settings. These studies aimed to understand enrollee behavior and motivation for ED visits, as well as best practice methods for diverting patients from the ED, including use of mobile crisis teams and real-time notifications of ED visits to primary care providers. These studies were complemented with care coordinator efforts to build trust with enrollees and help navigate enrollees to more appropriate settings.

> *"Understanding what leads people to utilize the Crisis System as their primary source of care will be an ongoing process; early exploration indicates the reasons are much more varied than expected. We are developing approaches to talk with consumers and families to better understand their needs so we can better work with them to design the crisis continuum of care and interventions that are optimized to meet their needs."* -Alameda
>
> *"WPC practitioners report difficulty breaking ER visit habits when office visits are less accessible due to a shortage of physicians in the community, especially when medicine is urgently needed after normal business hours."* -Shasta

In PY 5 surveys, Pilots perceived rated the impact of WPC on improved enrollee health and well-being at 8.3 out of 10, where 0 is "very low impact" and 10 is "very high impact" (Exhibit 140). Pilots also indicated a moderately high impact of WPC on reducing inappropriate emergency department visits and hospitalization (7.7).

Exhibit 140: WPC Pilot Perceptions of Impact on Aspects of Better Health, PY 5
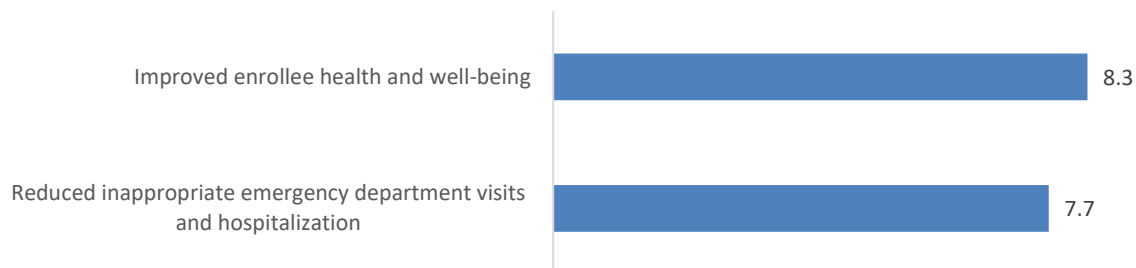
Improved enrollee health and well-being	8.3
Reduced inappropriate emergency department visits and hospitalization	7.7

Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.
Note: Ratings of impact on a scale of 0-10, where 0 = "very low" and 10 = "very high".

Chapter 12: Lower Cost

This chapter addresses the following evaluation question: "To what extent did WPC Pilots reduce costs of health care for WPC enrollees compared to the control group and were total Medi-Cal expenditures reduced during the WPC program?"

Data sources for this chapter included *Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6 and Medi-Cal enrollment and claims data. UCLA used the *Quarterly Enrollment and Utilization Reports* to identify enrollees and dates of enrollment. UCLA calculated estimated payments for all services provided to WPC enrollees and the control group before WPC and during WPC using Medi-Cal claims and encounter data. Dental claims were not included as part of this analysis.

Medi-Cal payments were estimated by creating unique categories of service and attributing a fee to each Medi-Cal claim in that category (Appendix A: Attributing Estimated Medi-Cal Payments to Claims). The resulting measure estimates the annual average payment per beneficiary. This methodology allowed UCLA to estimate payments for WPC enrollees and the control group before each enrollee's WPC enrollment and during WPC and assess if payments for WPC enrollees declined more than for the control group using the DD methodology. UCLA developed DD models to measure changes in total estimated payments and in specific categories of services including outpatient services, outpatient medications, ED visits, hospitalizations, and long-term care stays. These estimates were adjusted for beneficiary demographics, health status, and use of services pre-WPC. Further details can be found in Appendix A. The findings were not subject to potential seasonality in service utilization due to rolling enrollment throughout the year and measuring change following the date of enrollment per beneficiary.

The payment amounts reported in this section are estimates and are not equivalent to actual Medi-Cal expenditures for multiple reasons, including significant differences between this attribution methodology vs. per member per month payments to managed care plans for enrolled beneficiaries. These estimated payments are primarily intended to compare change in trends between WPC enrollees and the control group. See Appendix A for further detail and limitations.

UCLA measured trends before and during WPC for each metric based on the date of an individual WPC enrollee's enrollment. UCLA examined changes in trends before and during WPC using a difference-in-difference (DD) analysis by modeling the changes in yearly increments up to two years (Pre-Year 1 and Pre-Year 2) before WPC enrollment and up to five-year increment (Year 1, 2, 3, 4, and 5) during WPC. For these, the DD analysis measured the

trends or change in yearly rates from Pre-Year 2 vs. Pre-Year 1 for both WPC enrollees and the control group; the change in the yearly rate during WPC from Year 1 to Year 5 for both WPC enrollees and the control group; and the difference between the changes in WPC enrollees vs. the control group from before to during WPC. These estimates were adjusted for beneficiary demographics as well as health status and use of services pre-WPC.

To better understand WPC outcomes, UCLA examined the program impact on enrollees with serious mental illness (SMI), substance use disorders (SUD), or experiencing homelessness (SMI/SUD/HML enrollees) compared to enrollees without these complicating conditions. The latter group was composed of enrollees who were medically complex including those with multiple chronic conditions and those at high risk for various reasons (MC/HR enrollees).

UCLA created seven measures of health care costs and examined the trends on an annual basis. These measures were not required by WPC as performance metrics. UCLA used these measures to illustrate potential changes in health care costs associated with better care and better health measures under WPC. The estimated changes in costs by category of service do not sum to the overall costs because each change was modeled separately.

Total Estimated Medi-Cal Payments

UCLA measured total estimated Medi-Cal payments before and during WPC as described above. These estimates include payments for all health and behavioral services used by beneficiaries such as outpatient services, hospitalizations, outpatient pharmaceuticals, imaging and laboratory services, behavioral health services, and long-term care stays.

WPC was expected to lead to a decline in total costs. Exhibit 141 shows that total estimated payments per beneficiary per year were significantly increasing before WPC for both WPC enrollees and the controls by $3,205 and $2,943, respectively. The total estimated payments decreased during WPC by $955 and $834 for WPC enrollees and controls, respectively. The declines in total estimated payments from before WPC to during WPC per beneficiary per year were significantly greater for WPC enrollees compared to the control groups by $383 (DD).

Exhibit 141: Trends in Total Estimated Medi-Cal Payments Before and During WPC, PY 2 - PY 6
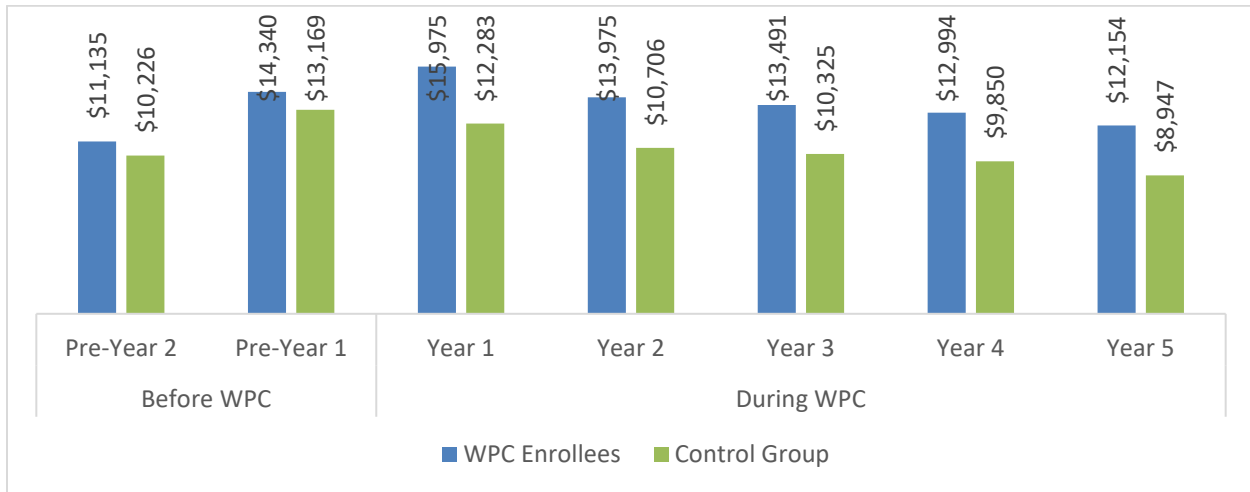
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	$3,205*	-$955*	-$4,160*	
Control Group	$2,943*	-$834*	-$3,777*	-$383*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Additional analyses showed that difference in the change in total payment per year from before to during WPC between enrollees and controls differed between SMI/SUD/HML enrollees and MC/HR enrollees. Compared to controls, MC/HR enrollees saw declining rates in total cost per beneficiary per year from before to during WPC that was $581 less than controls (Exhibit 142). Comparatively, SMI/SUD/HML enrollees saw a decline of $311 compared to controls.

Exhibit 142: Trends in Total Estimated Medi-Cal Payments Before and During WPC, PY 2 - PY 6, by Subpopulations
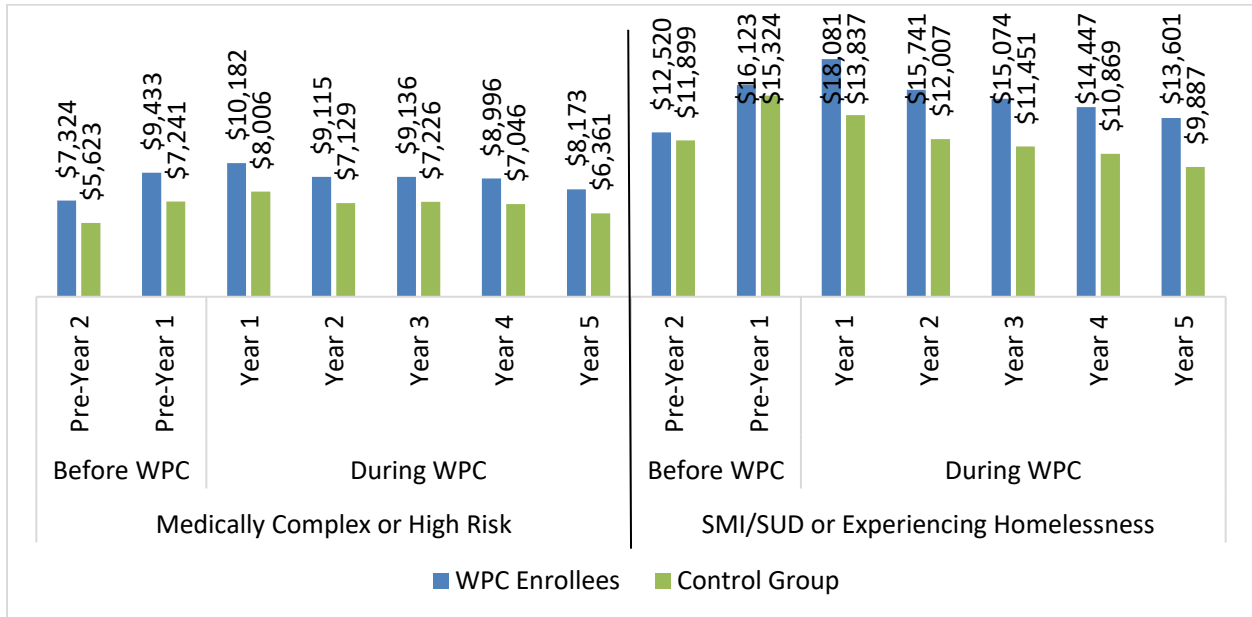
		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	$2,108*	-$502*	-$2,611*	
	Control Group	$1,618*	-$411*	-$2,030*	-$581*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	$3,604*	-$1,120*	-$4,724*	
	Control Group	$3,425*	-$988*	-$4,413*	-$311*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Estimated Payments for Outpatient Services

UCLA estimated Medi-Cal payments for outpatient services. Outpatient services are likely to increase due to unmet need and increased access to these services, but payments are likely to decrease once health needs are addressed and service use declines. Exhibit 143 shows that estimated payments for outpatient services were significantly increasing per beneficiary per year before WPC for both WPC enrollees and the controls by $690 and $632, respectively. Both groups had declines in estimated outpatient payments during WPC by $285 and $247 per beneficiary per year for WPC enrollees and controls, respectively. The declining rates of outpatient costs from before to during WPC was greater among WPC enrollees compared to controls by $96 per beneficiary per year (DD).

Exhibit 143: Trends in Estimated Medi-Cal Payments for Outpatient Services Before and During WPC, PY 2 - PY 6
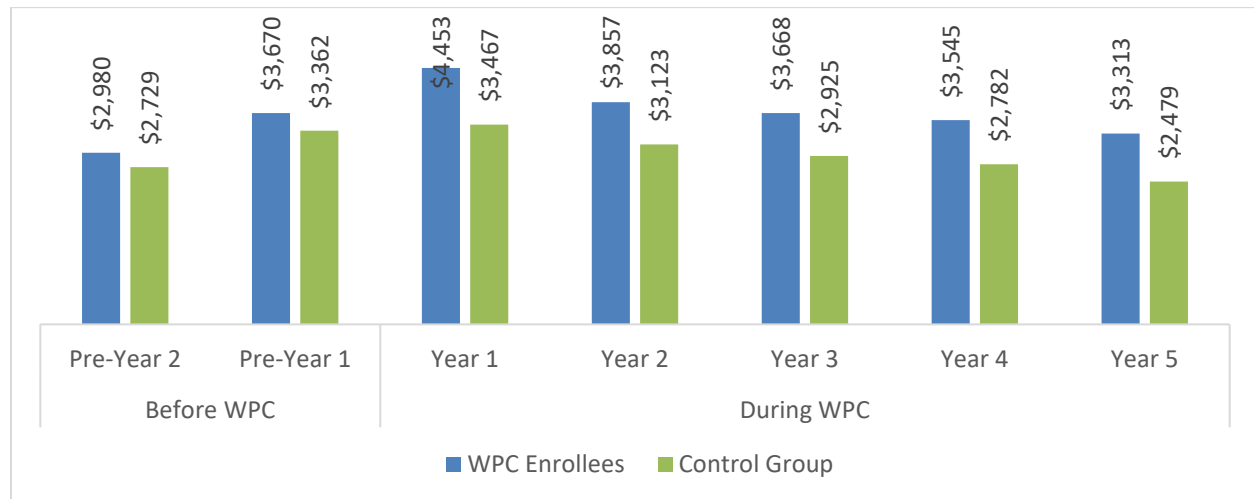
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	$690*	-$285*	-$975*	
Control Group	$632*	-$247*	-$880*	-$96*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Both SMI/SUD/HML enrollees and MC/HR enrollees saw declining rates of outpatient services costs compared to controls, but it was greater among MC/HR enrollees ($185 vs. $63; Exhibit 144).

Exhibit 144: Trends in Estimated Medi-Cal Payments for Outpatient Services Before and During WPC, PY 2 - PY 6, by Subpopulations
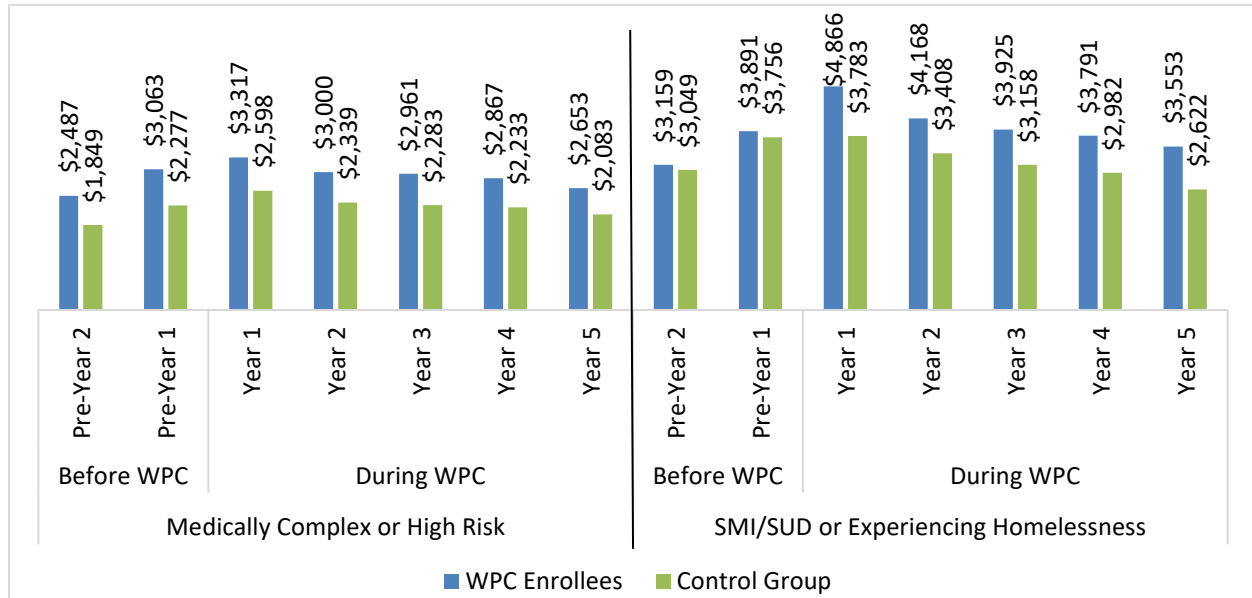
		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	$576*	-$166*	-$742*	
	Control Group	$428*	-$129*	-$557*	-$185*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	$732*	-$328*	-$1,060*	
	Control Group	$707*	-$290*	-$997*	-$63*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Estimated Payments for Outpatient Medications

UCLA estimated Medi-Cal payments for outpatient medications. Payments for outpatient medications are likely to increase due to unmet need and increased access to these medications, but payments are likely to stabilize or decrease once health needs are addressed. Exhibit 145 shows that estimated outpatient medication payments per beneficiary per year were significantly decreasing before WPC for both WPC enrollees and the controls by $50 and $44, respectively. The estimated payments decreased at a slower rate during WPC by $10 and $63 per beneficiary per year for WPC enrollees and controls, respectively. Therefore, the change in yearly costs of outpatient medication from before WPC to during WPC was significantly more for WPC enrollees compared to the controls by $58 (DD).

Exhibit 145: Trends in Estimated Medi-Cal Payments for Outpatient Medications Before and During WPC, PY 2 - PY 6

	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	-$50*	-$10*	$39*	
Control Group	-$44*	-$63*	-$19*	$58*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 82years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Exhibit 146 shows that the increasing rates of outpatient medication costs for WPC enrollees compared to controls was greater for MC/HR enrollees ($119 vs. $36).

Exhibit 146: Trends in Estimated Medi-Cal Payments for Outpatient Medications Before and During WPC, PY 2 - PY 6, by Subpopulations
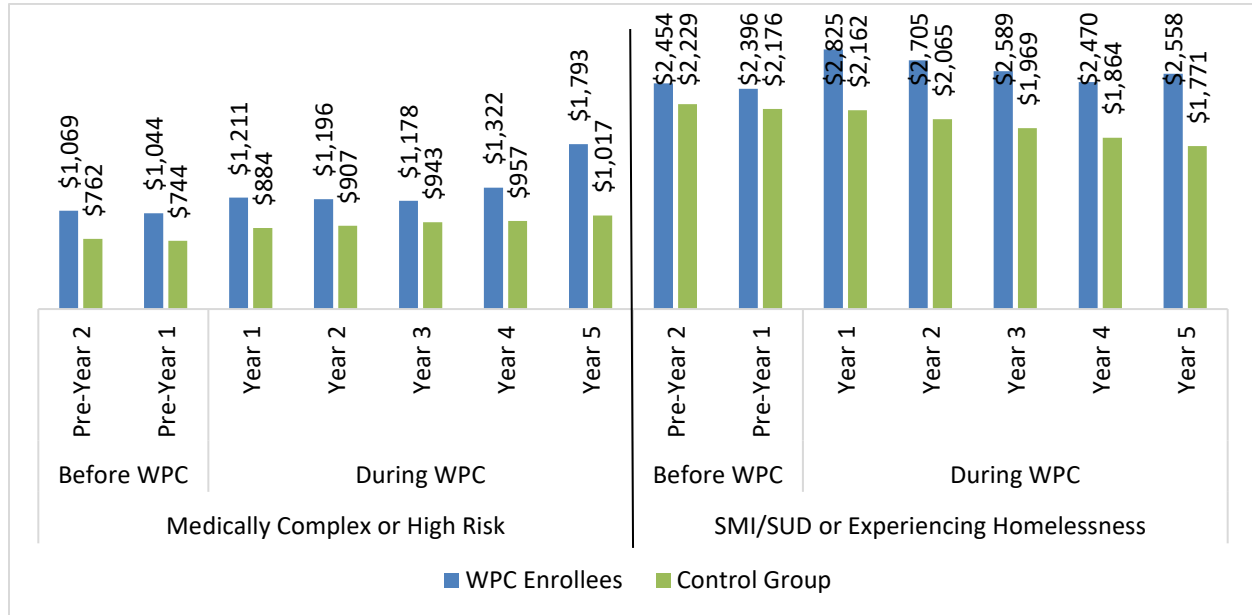
		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	-$25*	$145*	$171*	
	Control Group	-$18*	$33*	$51*	$119*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	-$58*	-$67*	-$8*	
	Control Group	-$53*	-$98*	-$45*	$36*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Estimated Payments for Emergency Department Visits

UCLA estimated Medi-Cal payments for emergency department (ED) visits followed by discharge. The anticipated direction of the measure and DD under WPC is decrease, consistent with an intended decline in ED visits. Exhibit 147 shows that estimated emergency department visit payments were significantly increasing before WPC for both WPC enrollees and the controls by $193 and $187 per beneficiary per year. The estimated payments decreased during WPC by $60 and $49 for WPC enrollees and controls, respectively. The annual change in trends from before WPC to during WPC declined by $18 more per year for WPC enrollees compared to the control group (DD).

Exhibit 147: Trends in Payments for Emergency Department Visit Before and During WPC, PY 2 - PY 6
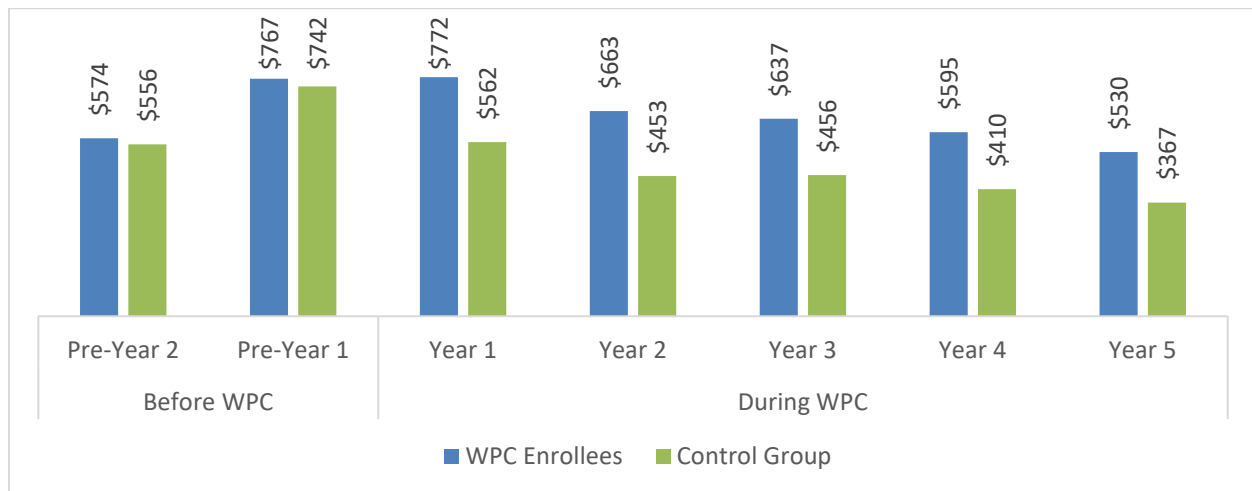
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	$193*	-$60*	-$254*	
Control Group	$187*	-$49*	-$235*	-$18*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Comparing the impact of WPC on the estimated costs of emergency department visits among enrollees with and without the highest need conditions showed that compared to controls the trends in emergency department costs from before to during WPC increased for MC/HR enrollees ($21 per beneficiary per year), but declined for SMI/SUD/HML enrollees (-$32 per beneficiary per year; Exhibit 148).

Exhibit 148: Trends in Estimated Emergency Department Payments Before and During WPC, PY 2 - PY 6, by Subpopulations
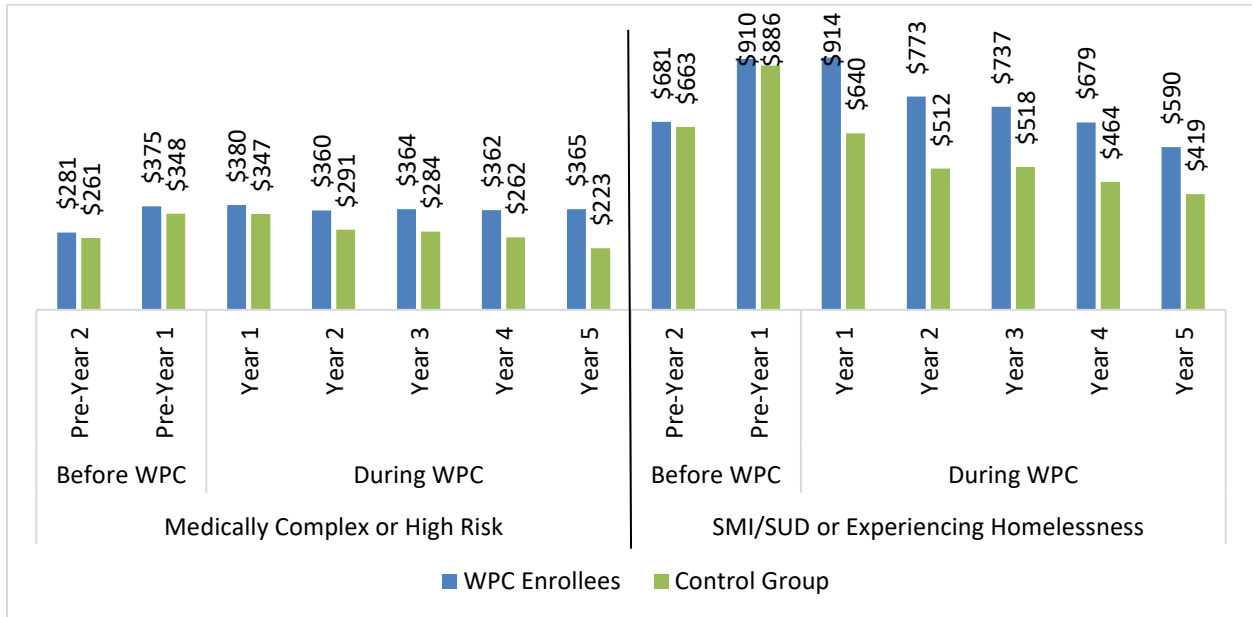
		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	$94*	-$4*	-$98*	
	Control Group	$88*	-$31*	-$119*	$21*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	$229*	-$81*	-$310*	
	Control Group	$223*	-$55*	-$278*	-$32*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Estimated Payments for Hospitalizations

UCLA estimated Medi-Cal payments for hospitalizations. The anticipated direction of the measure and DD is decrease consistent with an intended decline in hospital stays. Exhibit 149 shows that estimated hospitalization payments were significantly increasing before WPC for both WPC enrollees and the controls ($752 and $585 per beneficiary per year, respectively). The estimated payments for hospitalizations decreased significantly during WPC by $472 and $329 for WPC enrollees and controls, respectively. The change in trends for estimated hospitalization payments declined significantly more from before WPC to during WPC for WPC enrollees compared to the control group ($310 per beneficiary per year; DD). This significant decline compared to controls was present for both SMI/SUD/HML enrollees (-$360) and MC/HR enrollees (-$172; data not shown).

Exhibit 149: Trends in Payments for Hospitalizations Before and During WPC, PY 2 - PY 6
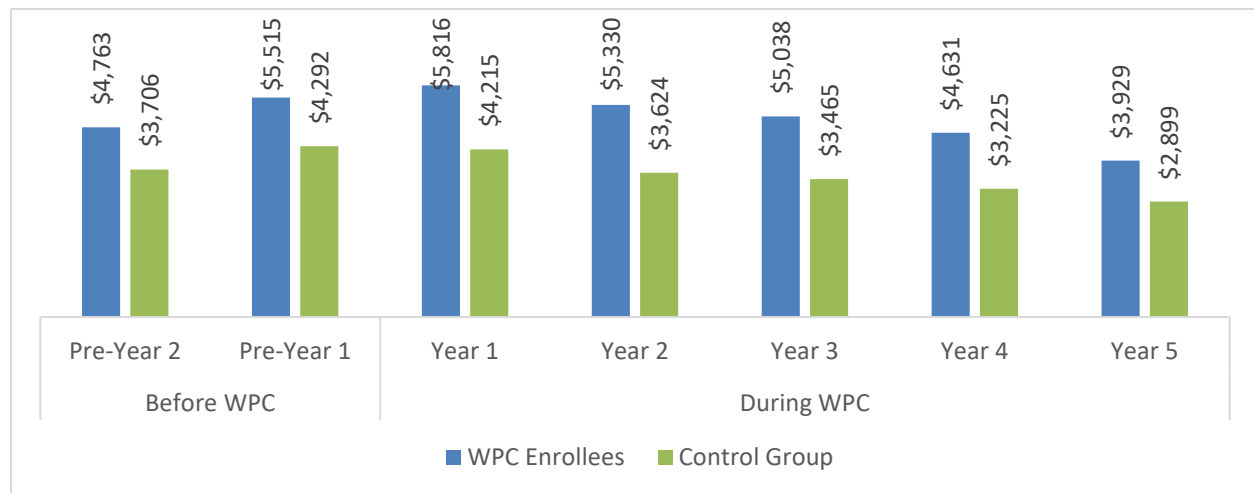
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	$752*	-$472*	-$1224*	
Control Group	$585*	-$329*	-$914*	-$310*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Estimated Payments for Long-Term Care Stays

UCLA estimated Medi-Cal payments for long-term care stays. Payments for long-term care stays are likely to increase over time consistent with an anticipated increase in long-term care stays. Exhibit 150 shows that estimated payments for long-term care stays were decreasing before WPC for both WPC enrollees and the controls by $77 and $128 per beneficiary per year, respectively. The estimated payments significantly increased during WPC by $313 and $249 for WPC enrollees and controls, respectively. The change in annual trends of estimated payments for long-term care stays from before WPC to during WPC did not differ significantly between WPC enrollees and the control group (DD).

Exhibit 150: Trends in Estimated Medi-Cal Payments for Long-Term Care Stays Before and During WPC, PY 2 - PY 6
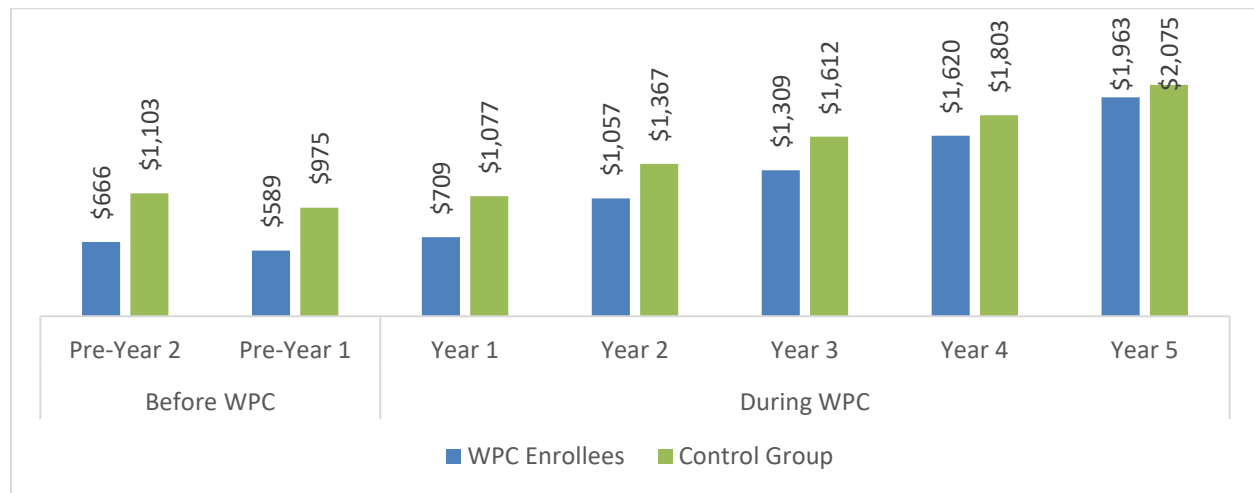
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	-$77*	$313*	$391*	
Control Group	-$128*	$249*	$377*	-$13

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). Long-term care includes stays at skilled nursing facilities and intermediate care facilities.

There was a significant difference in trends in estimated payments for long-term care between WPC enrollees and controls when restricting to MC/HR enrollees (Exhibit 151). The increasing estimated costs from long-term care stays was smaller among these WPC enrollees by $79per beneficiary per year compared to controls. Comparatively, SMI/SUD/HML enrollees saw an increase of $47 compared to controls.

Exhibit 151: Trends in Estimated Long-Term Care Stays Before and During WPC, PY 2 - PY 6, by Subpopulations

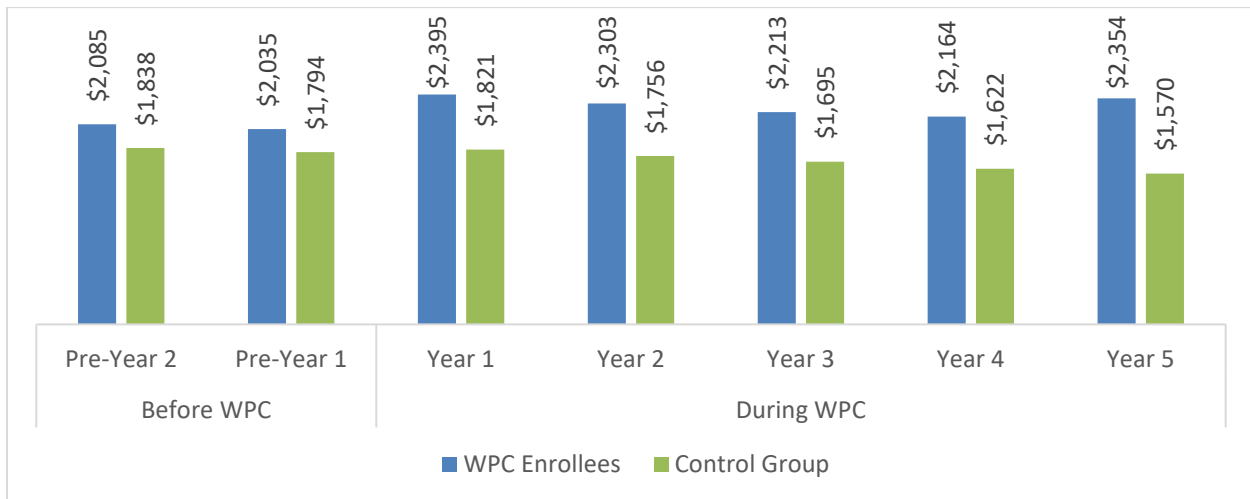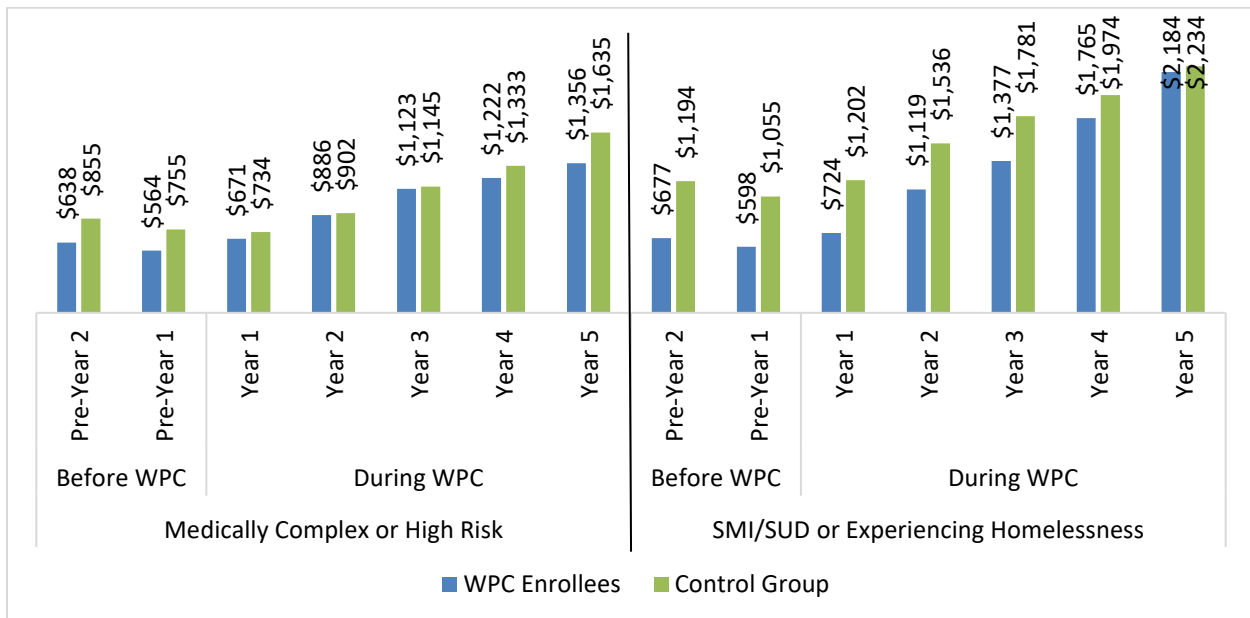|		Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
Medically Complex or High Risk	WPC Enrollees	-$74*	$171*	$246*	
	Control Group	-$99*	$225*	$325*	-$79*
SMI/SUD or Experiencing Homelessness	WPC Enrollees	-$79*	$365*	$444*	
	Control Group	-$139*	$258*	$397*	$47*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). SMI/SUD is serious mental illness or substance use disorder.

Estimated Payments for Residual Medi-Cal Payments

UCLA estimated Medi-Cal payments for all residual services paid by Medi-Cal (apart from dental services) not included in the previous service categories. The residual categories include home health, dialysis, hospice, laboratory, radiology, therapy (e.g., physical, occupational, speech, respiratory), non-institutional residential care (e.g., mental health), among others. The use of such services may have increased due to care coordination and unmet need. Exhibit 152 shows that estimated residual Medi-Cal payments increased during WPC by $157 and $159 for WPC enrollees and controls, respectively. During WPC, the cost of residuals continued to increase for enrollees as slower rate ($12 per beneficiary per year), but declined for controls (-$37). The change in annual estimated payments for residual Medi-Cal payments from before WPC to during WPC declined significantly less for WPC enrollees than the control groups by $50 (DD). While this change in trend compared to controls was present for both groups of WPC enrollees, it was greater among SMI/SUD/HML enrollees ($63 per beneficiary per year) than MC/HR enrollees ($17; data not shown).

Exhibit 152: Trends in Estimate Medi-Cal Payments for Residual Medi-Cal Before and During WPC, PY 2 - PY 6
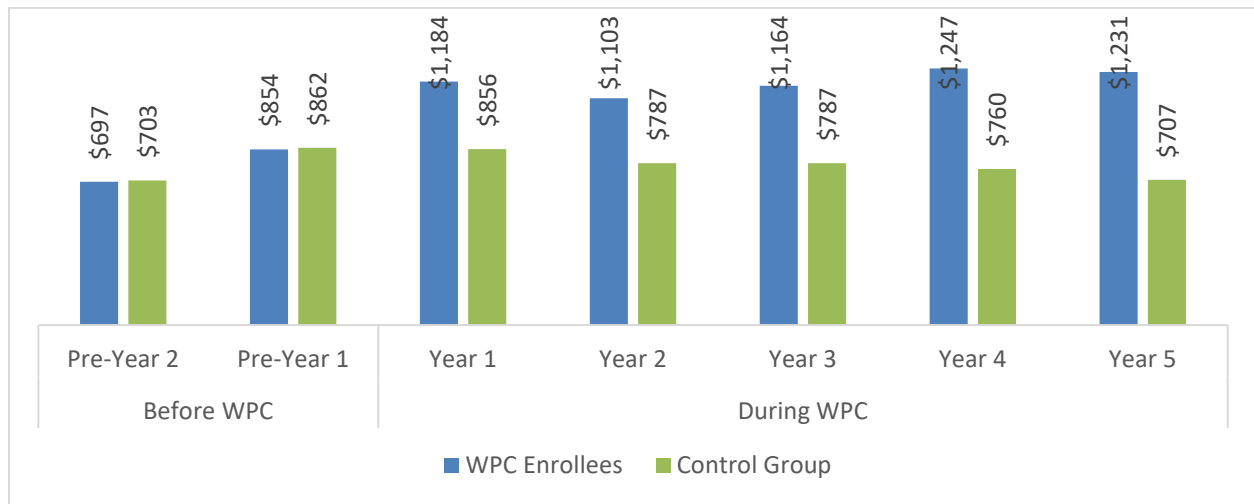
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	$157*	$12*	-$145*	
Control Group	$159*	-$37*	-$196*	$50*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group). The residual categories include home

health, dialysis, hospice, laboratory, radiology, therapy (e.g., physical, occupational, speech, respiratory), non-institutional residential care (e.g., mental health), among others.

UCLA examined at the descriptive breakdown of residual estimated Medi-Cal payment before and during WPC. The proportion of residual payments that resulted from hospice care, community-based adult services, therapy services, and home health services increased from before to during WPC for WPC enrollees.

Chapter 13: WPC Services and Outcomes for Enrollees Experiencing Homelessness

All 25 WPC Pilots provided some form of housing and supportive services to enrollees, either directly, through partner organizations, or through linkages within the community. This chapter addresses the following evaluation question: "To what extent did the Pilot increase access to housing and supportive services and improve housing stability, if applicable?" In addition to addressing this question, this chapter includes data on characteristics of enrollees experiencing homelessness and Pilot-reported metrics relevant to this population.

Furthermore, UCLA provides updated information since the [interim report](#) on strategies used by Pilots to identify and outreach to individuals experiencing homelessness, track and retain these enrollees, and leverage alternative funding sources to provide them with housing or housing support. This chapter also provides additional data since the interim report on specific types of housing and supportive services offered by WPC Pilot and their partners, with and without WPC funding.

Data sources for this chapter include PY 3 and PY 5 LE surveys, as well as PY 6 follow-up interviews with leadership and frontline staff. Additional qualitative data around challenges and solutions was provided in 25 WPC mid-year and annual narrative reports. Characteristics of enrollees experiencing homelessness and housing outcomes were obtained from enrollment and utilization reports from 25 Pilots and Medi-Cal enrollment and claims data. For additional detail on data sources and methodology, please see Appendices [C](#), [D](#), [E](#), and [F](#).

Quantitative data sources for this chapter included *Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6 and Medi-Cal enrollment and claims data. UCLA used the *Quarterly Enrollment and Utilization Reports* to identify enrollees experiencing homelessness, their dates of enrollment, and patterns of enrollment. UCLA also used Medi-Cal claims data, which included both managed care and fee-for-service encounters, to construct WPC metrics per the WPC Technical Specifications.

UCLA used the *Annual WPC Variant and Universal Metric Reports* submitted by Pilots to DHCS from baseline to PY 6 to report on three variant metrics on housing, calculated by Pilots based on administrative data. UCLA reported a weighted average rate for the available metrics across all Pilots that reported each metric. For additional detail on data sources and methodology please see Appendices [A](#) and [B](#).

Approaches to Enrolling and Delivering Housing Support Services to Individuals Experiencing Homelessness and At-Risk-Of-Homelessness Populations

As detailed in the interim report, in PY 3 surveys, Pilots rated increasing enrollee access to housing support services (e.g., housing navigation, tenancy support) as a relatively high priority (8.7 of 10).

Although all Pilots reported providing WPC services to at least some individuals experiencing homelessness, 15 Pilots explicitly identified individuals experiencing homelessness as a primary target population. Nine Pilots also chose individuals at-risk-of-homelessness as a primary target population. Monterey and San Francisco solely focused on individuals experiencing homelessness and no other target populations.

Identification of Individuals Experiencing Homelessness

Pilots utilized various methods for determining if a prospective enrollee was experiencing homelessness or at-risk for homelessness. In PY 5 surveys, Pilots most often reported utilizing a standardized tool, such as the Vulnerability Index - Service Prioritization Decision Assistance Tool (VI-SPDAT), or a definition, such as the United States Department of Housing and Urban Development (HUD), to assess enrollee homelessness or risk of homelessness (14 of 25). Eight Pilots reported receiving data or assessment(s) from another source (e.g., Homeless Management Information System (HMIS), hospitals/EDs, coordinated entry system (CES), continuum of care (COC), partner referrals). Five Pilots reported use of a Pilot modified version of a standardized tool/definition to assess homelessness and risk.

Outreach to Individuals Experiencing Homelessness

In bi-annual narrative reports and PY 6 follow-up interviews, Pilots discussed their approaches to engaging and maintaining communication with individuals experiencing homelessness. Pilots highlighted significant challenges with outreach and engagement due to outdated or unavailable contact information, the transience associated with homelessness, and an unwillingness to engage with County services due to prior negative experiences.

Successful approaches to outreach included in-person communication through visits to homeless shelters or encampments and other areas where these populations gathered. Alameda, Napa, Riverside, Kings, and San Francisco had dedicated homeless outreach teams that worked primarily in the field. Several Pilots noted that efforts to locate individuals often required direct coordination with WPC partners and local organizations such as shelters,

churches, and police departments. Pilots emphasized the importance of consistency and trust building when working with individuals experiencing homelessness; these efforts were key to establishing rapport, which led to successful enrollment and retainment in WPC.

Outreach strategies were adjusted to account for COVID-19 response, and some benefits were recognized with individuals receiving short-term housing and supportive resources in a single location with efforts such as Project Roomkey.

> *"I think that one of the things that we do on the Homeless Outreach Team is … take each interaction as a separate interaction, so if Case Manager hasn't been successful building a connection and rapport with a client, he doesn't say, well, I tried five times, it didn't work. He goes out and tries it 50 times and eventually it will almost always work, where you can engage and build trust."* - Marin

> *"Our onsite presence at the shelters has afforded us the opportunity to successfully outreach to, and ultimately enroll in many cases, some of the most vulnerable, transient and hard to reach beneficiaries of our target populations"* -Kern

Selected examples of WPC outreach and engagement activities for individuals experiencing homelessness are outlined in Exhibit 153.

Exhibit 153: Selected Examples of Outreach Approaches for Individuals Experiencing Homelessness in WPC

WPC Pilot	Selected Examples
Alameda	"Street Health" outreach teams visited encampments, community partners, and medical providers and referred prospective enrollees to WPC. Prior to enrollment, case managers dedicated time to build trust, identify basic barriers to services that could be addressed (e.g., transportation), and delineate goals. "Street Health" included a street psychiatry outreach program comprised of a psychiatrist, a nurse case manager, and a community outreach worker; who conducted psychiatric evaluations and administered medication and substance use disorder treatment to individuals in homeless encampments. Alameda also utilized their 211 call center as a method for identifying individuals seeking housing resources.
Kern	Kern maintained a presence in shelters for continuous outreach and engagement. Co-location and the use of a peer support specialist (i.e., ability to build trust and rapport with people experiencing homelessness based on lived experience) were strategies identified as fundamental to successful engagement.
Monterey	Monterey primarily identified individuals experiencing homelessness through outreach at shelters, encampments, and healthcare facilities, as well as through referrals from partner organizations. Teams of public health and licensed vocational

WPC Pilot	Selected Examples
	nurses would actively outreach throughout the county, specifically targeting areas with the highest concentration of individuals experiencing homelessness.
Napa	Enrollees were identified through referrals from various organizations and partners, including healthcare clinics, police and fire departments, and shelter systems. Outreach was conducted in shelters and through street-engagement by a multi-disciplinary team. Outreach teams performed initial intake assessments, enrolled individuals, and entered them into the county's coordinated entry system.
Riverside	Riverside's homeless outreach teams were responsible for connecting homeless individuals to social support services and acquiring basic documentation needed to apply for Medi-Cal, and subsequently enroll into WPC. Riverside also had WPC Housing Navigators in the coordinated entry system to help with housing access for WPC enrollees.
San Francisco	San Francisco identified and auto-enrolled beneficiaries using a data-driven approach within their coordinated care management system records. New enrollments and engagement occurred when staff of the county's Homeless Outreach Team or Street Medicine and Shelter Health programs met with and enrolled previously unidentified individuals experiencing homelessness. WPC staff co-location within the County's extensive shelter system provided an opportunity for consistent and meaningful engagement of enrollees.

Sources: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021 and WPC Mid-Year and Annual Narrative Reports, PY 2 (2017) - PY 6 (2021).

Housing Support Services

In PY 5, all but one Pilot reported providing one or more housing related service either through the LE or through partner organizations (Exhibit 154).

Housing support services (e.g., tenancy support, completing applications for the coordinated entry system, supporting housing search, or obtaining housing funds) were most often provided by partner organizations using WPC funds (21 of 25 Pilots) or by partner organizations using alternative funding sources such as Housing and Disability Advocacy Program (HDAP) funds (16). Direct assistance with housing search (e.g., finding available temporary or permanent housing stock) was the most common service provided by partner organizations (19).

Ten LEs provided housing support services in-house using WPC funds, with the most common service involving assistance completing applications for the coordinated entry system (8), followed by tenancy support (e.g., counseling and training individuals to move in or remain in temporary or permanent housing; 7).

Exhibit 154: Type of Housing Support Service(s), Provided by Lead Entity or WPC Partner Organization, Using WPC Funds or an Alternative Funding Source, PY 5

Type of housing support service

Any housing support service(s)
- 21
- 16
- 10

Provided assistance with housing search
- 19
- 11
- 6

Provided assistance obtaining housing funds
- 16
- 13
- 6

Completed applications for coordinated entry
- 15
- 12
- 8

Provided tenancy support
- 17
- 10
- 7

■ Provided by WPC partner with WPC funds
■ Provided by WPC partner with alternative funds
■ Provided by LE with WPC funds
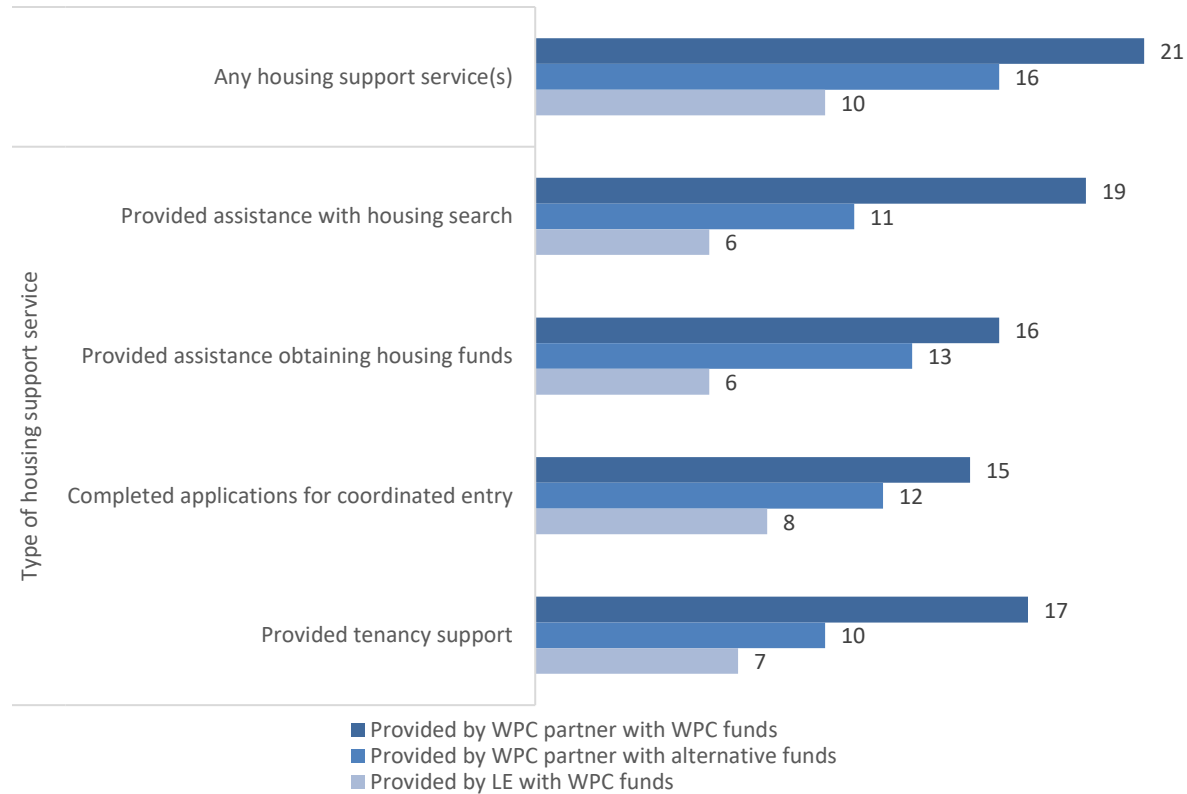
Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.
Notes: Tenancy support includes counseling and training individuals to move in or remain in temporary or permanent housing; housing search includes finding available temporary or permanent housing stock; assistance with obtaining housing funds includes assistance with housing choice vouchers or rental subsidies.

Direct housing resources and services (e.g., funds for security deposit, home items, utilities, or housing improvements; landlord incentives, medical respite, motel vouchers, short- or long-term housing) were provided by nearly all Pilots using WPC (22) and alternate (21) funds. Most LEs relied on partner organizations to provide these services, although over half of LEs also provided at least some of these services in-house (14; Exhibit 155).

Partner organizations most often used WPC funds to provide ongoing assistance with enrollee-landlord relationships after enrollees were housed (18). LEs most often directly provided motel vouchers (8), medical respite (7), and short-term housing stays (7).

Exhibit 155: Type of Direct Housing Services and Resources Provided by Lead Entity or WPC Partner Organization, Using WPC Funds or an Alternative Funding Source, PY 5

Funds

Any direct housing service(s) and/or resource(s)
- 22
- 21
- 14

Funds for furniture, appliances, or other home items
- 12
- 16
- 5

Funds for security deposit
- 10
- 16
- 5

Funds for utilities
- 8
- 16
- 5

Funds for housing improvements for specific health needs
- 6
- 17
- 5

Landlord relationships

Ongoing assistance with enrollee-landlord relationships
- 18
- 9
- 3

Legal support for issues related to housing/tenancy issues
- 7
- 13
- 3

Landlord incentives
- 5
- 12
- 4

Short-term housing

Provide medical respite to homeless
- 10
- 6
- 7

Provide motel vouchers or equivalent
- 8
- 14
- 8

Provide short-term housing in a shelter
- 7
- 18
- 7

Long-term housing

Provide permanent, long-term housing
- 16

Legend:
- Provided by WPC partner with WPC funds
- Provided by WPC partner with alternative funds
- Provided by LE with WPC funds

Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.
Notes: Funds for housing improvements for specific health needs (e.g., accessibility ramp); landlord incentives (i.e., prior to enrollee move-in to encouraging renting to WPC enrollees). WPC funds could not be used for direct housing/to provide permanent, long-term housing (e.g., pay rent).

"If we're going to be working with a client after they get housed… we try to get a release of information. So that we can work with that landlord and figure out what's going on, what's working, what's not working, if they're not paying their rent, the landlord can usually notify us, and we (WPC) can help with that… And… it can [help] avoid them failing out of housing." -Placer

"The recuperative care program … provides a safe place for clients, the homeless clients who are transitioning from hospitalization… they would be discharged to the street, but they need a safe place to recuperate… [With recuperative care] these clients have a place, at least for 30 days, to recuperate after they have been discharged from hospital so that they are not on the street post hospitalization. And… they have a case manager that checks on them to ensure that they are able to recover safely." -San Mateo

In PY 5, nearly all Pilots (23) promoted a "Housing First" approach in which provision of permanent housing was prioritized (i.e., persons experiencing homelessness were not required to address behavioral health problems or graduate from other service programs before accessing housing; Exhibit 156). Over half of Pilots (15) participated in streamlining processes or program restructuring around delivery of housing services, while slightly fewer (12) participated in streamlining processes or programs that affected financing of housing services and/or promoting policy and legislation to increase housing availability. Eight Pilots engaged in activities related to workforce training of housing navigation and/or co-location of housing services with other service programs.

Exhibit 156: Pilot Participation in Activities to Promote Community, Policy, and/or Systems Change Related to Homeless Assistance, PY 5

Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.

"In order to really achieve health and wellness, you do have to have the base of Maslow's hierarchy in place… we've had housing programs for a long time, but really the health programs and the housing programs had never really been in the same sandbox... So [now] looking at how some of the medical services are delivered… they really have embraced a housing first approach… There's more understanding about the barriers that inhibit or prohibit people from accessing or keeping appointments… the nature of what people are experiencing when they're living unsheltered or without a stable home." -Shasta

Tracking and Retention

Given the transience associated with homelessness and difficulty in maintaining contact post-WPC enrollment, tracking and retention efforts required collaboration with partners. In PY 3 surveys, LEs reported on the degree of buy-in for data sharing among partners on a scale of zero (very low) to ten (very high). Out of all partner types (e.g., health plans, hospitals, mental health providers), LEs identified housing providers as having the highest buy-in at a mean of 7.7 of 10 (data not shown).

In PY 5 surveys, 20 LEs reported participation in direct collaboration activities with a housing agency as a part of WPC (Exhibit 157). Over half of LEs (13 of 25) had established universal consent forms or other data sharing agreements with housing agencies (e.g., MOUs, BAAs). Ten LEs participated in a coordinated assessment system with a housing agency to identify and prioritize high-risk/high-need patients for receipt of housing services.

Exhibit 157: Participation of Lead Entity with Housing Agency in Select Collaboration Activities, PY 5

Activity	Value
Utilized a universal consent form for data sharing with housing agency	13
Established data sharing agreements with housing agency	13
Participated in a housing coordinated entry/assessment system	10
Shared care coordinators with a housing agency	8
Physical co-location of housing agency staff to facilitate access to services and/or resources	5
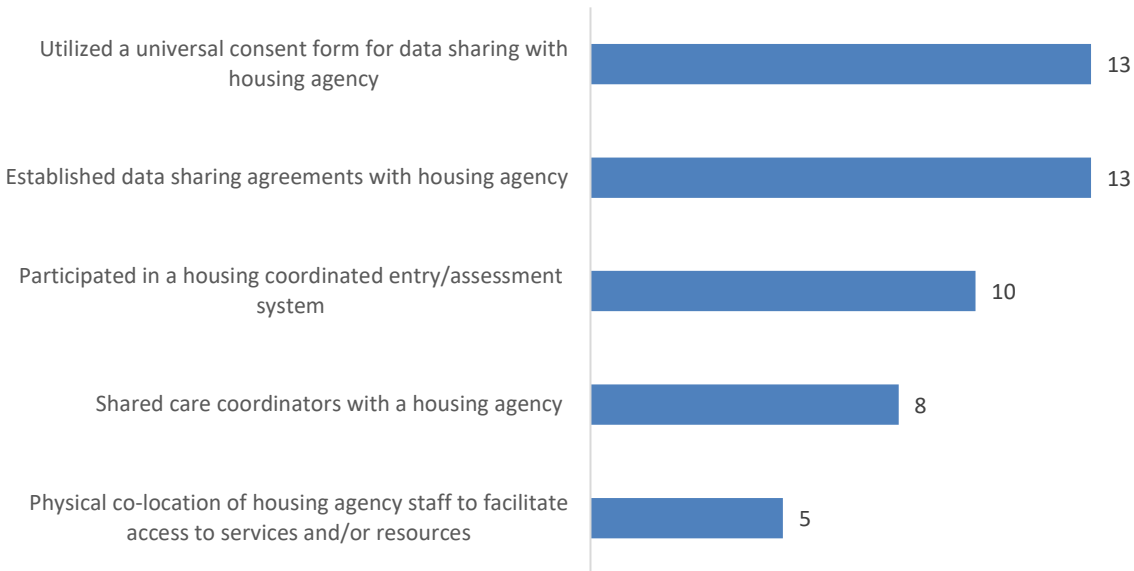
Source: PY 5 Lead Entity (LE) Survey (n=25), June-August 2020.

> *"And that (flexible housing) pool does not pay for rent, but it does pay for application fees, furniture, deposits, which really help get the enrollee into housing and not like just alone. And it's not a lot, most often the funds pay for, again, a deposit, an application fee, first month's rent, a mattress, and some toilet paper, but it's something. And I think that's a huge part of retention from my perspective. ... Since we increased it in October, some housing partners are saying, well, can we go back and actually apply those funds to retention purposes? So, let's go back and see our folks who were housed, do they need some cooking utensils, can we do that to help keep them in their housing?"*
> *–Sacramento*

Specialized Housing Staff in Care Coordination Teams

In PY 5 surveys, 20 Pilots reported use of housing navigators to provide care coordination (16), clinical consultation (13), and/or enrollee outreach (10). Eight Pilots also used housing navigators in a supervisory role (data not shown).

In follow-up interviews, Pilots indicated that inclusion of dedicated housing staff and particularly peer support staff as part of the care coordination team was essential to effectively engaging enrollees experiencing homelessness in care. In PY 5 surveys, nearly all (22) Les

reported the use of housing support specialists, many of whom had previous lived experience of homelessness or risk of homelessness to provide housing and supportive services for WPC enrollees.

Selected examples of approaches to inclusion of specialized housing staff in WPC are provided in the interim report, in "Chapter 13: Homeless WPC Enrollee Services and Outcomes".

> *"The staff, they have to be a good listener. They have to be aware of their surroundings. They have to be empathetic. If someone said, 'I don't want to be bothered today.' They had to take that and say, 'Okay, I understand, can we try again tomorrow?' Back away from them. Give them a chance to get to know you and trust you and that's the basis of working with this population. And you find out that they start to call you and depend on you more and more and more if you want to treat them like you want to be treated, whether they have alcohol and drug problems or whether they're mentally ill, you still want to treat them with respect. That's the biggest thing is treating them a respect and like human beings and so this way you're going to be successful ." - Monterey*

Enrollment Patterns and Characteristics of WPC Enrollees Experiencing homelessness

Under WPC, Pilots were required to identify enrollees experiencing homelessness in their quarterly *WPC Enrollment and Utilization Reports*, regardless of whether or not they were a target population. UCLA used the homeless indicator to provide a profile of these enrollees. Of the 247,887 enrollees in WPC, 124,414 (50 %) were identified as experiencing homelessness. However, some Pilots reported difficulties in obtaining this data and therefore the number of these enrollees may be under reported.

Enrollment Patterns and Size

Exhibit 158 shows the unduplicated enrollment of WPC enrollees experiencing homelessness by month. The cumulative enrollment of these enrollees increased from 25,752 at the end of PY 2 to 124,414 at the end of PY 6. Total enrolled as of December 2021 was 50,610.

Exhibit 158: Unduplicated Monthly and Cumulative Total WPC Enrollment among Enrollees Experiencing Homelessness, January 2017 to December 2021
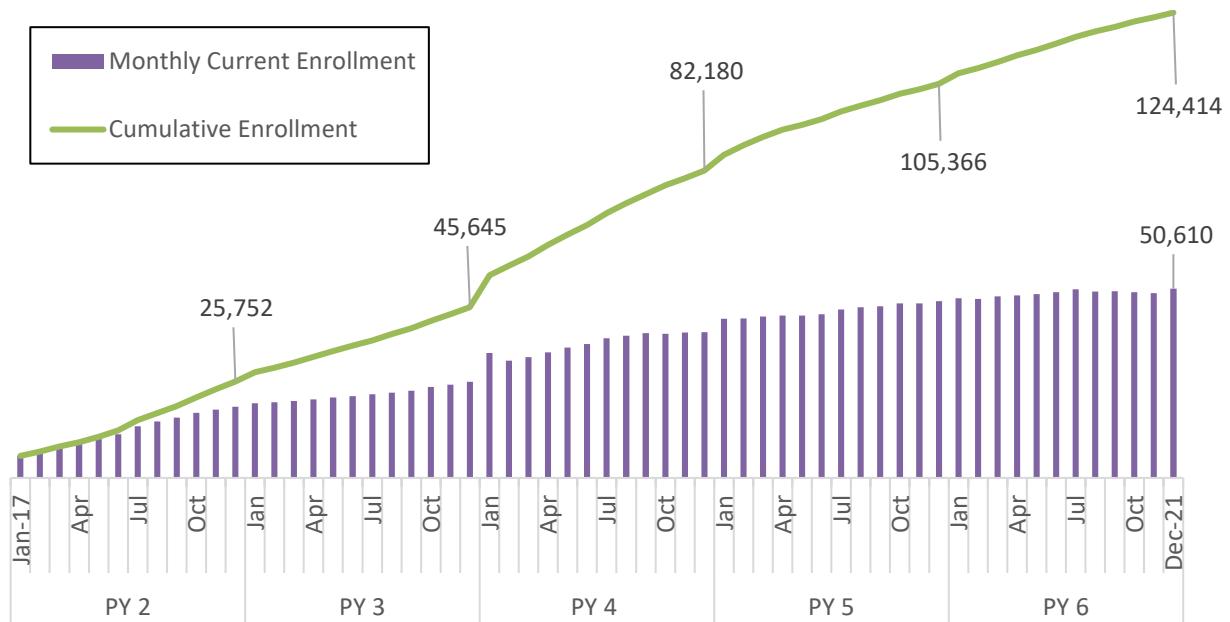
Source: *Whole Person Care Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 124,414 unique individuals. Excludes individuals who received outreach or other WPC services but did not enroll.

Exhibit 45 shows the total, unduplicated WPC enrollment of enrollees experiencing homelessness through PY 6 by Pilot, indicating none in Sonoma and a high of 56,413 enrollees in Los Angeles. Three Pilots had counts over 10,000 and eight had counts over 1,000.

Exhibit 159: Total Unduplicated Enrollment in WPC by Pilot among Enrollees Experiencing Homelessness, December 2021
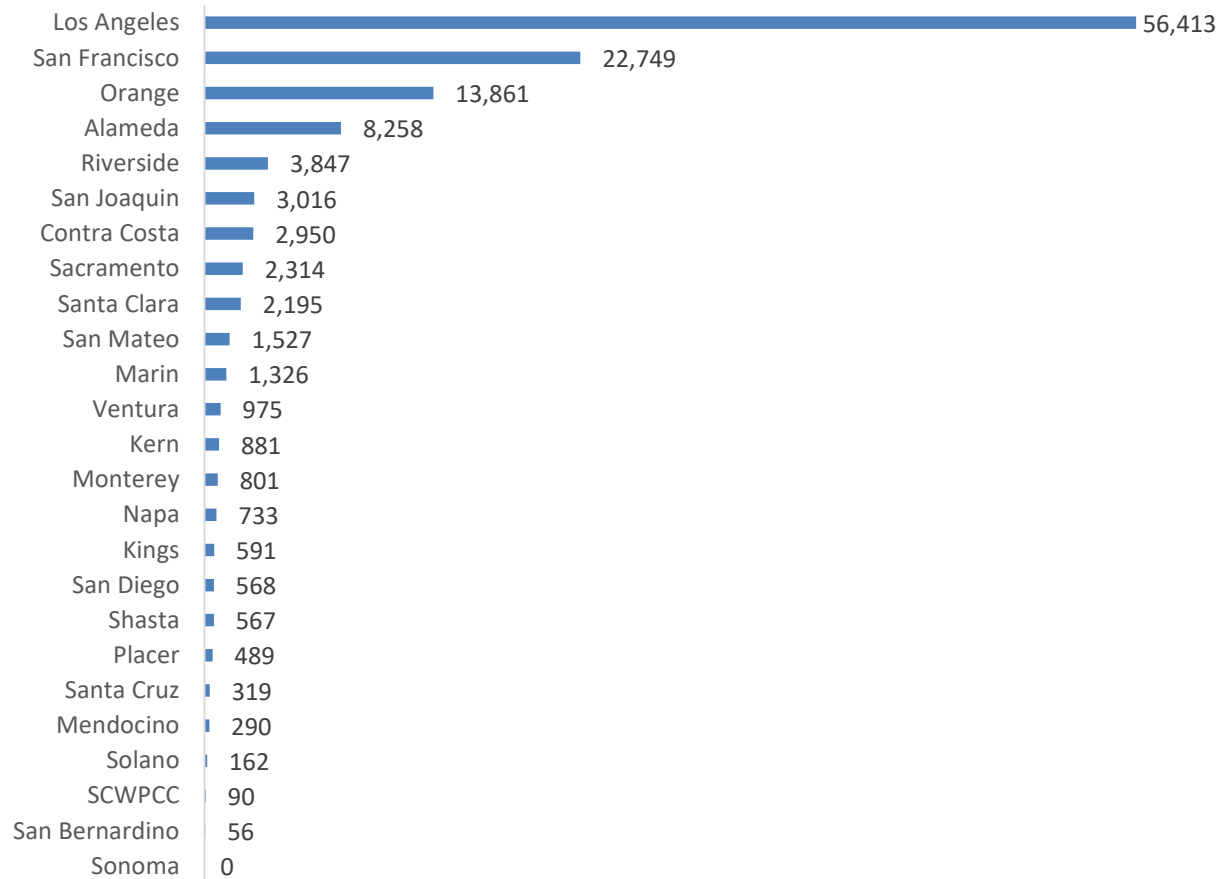
Pilot	Count
Los Angeles	56,413
San Francisco	22,749
Orange	13,861
Alameda	8,258
Riverside	3,847
San Joaquin	3,016
Contra Costa	2,950
Sacramento	2,314
Santa Clara	2,195
San Mateo	1,527
Marin	1,326
Ventura	975
Kern	881
Monterey	801
Napa	733
Kings	591
San Diego	568
Shasta	567
Placer	489
Santa Cruz	319
Mendocino	290
Solano	162
SCWPCC	90
San Bernardino	56
Sonoma	0

Source: *Whole Person Care Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 124,414 unique individuals. Excludes individuals who received outreach or other WPC services but did not enroll. SCWPCC is the Small County Whole Person Care Collaborative.

Exhibit 160 shows the percent of total WPC enrollees experiencing homeless by Pilot. Among Pilots that had selected homelessness or at-risk-of-homelessness as their only primary target population, all or most (96% in Monterey and 95% in Napa) were experiencing homelessness. However, there was significant variation among Pilots with homelessness as one of their primary target populations and those that had not selected this population as a target.

Exhibit 160: Percent of WPC Enrollees Experiencing Homelessness by Pilot, January 2017 to December 2021
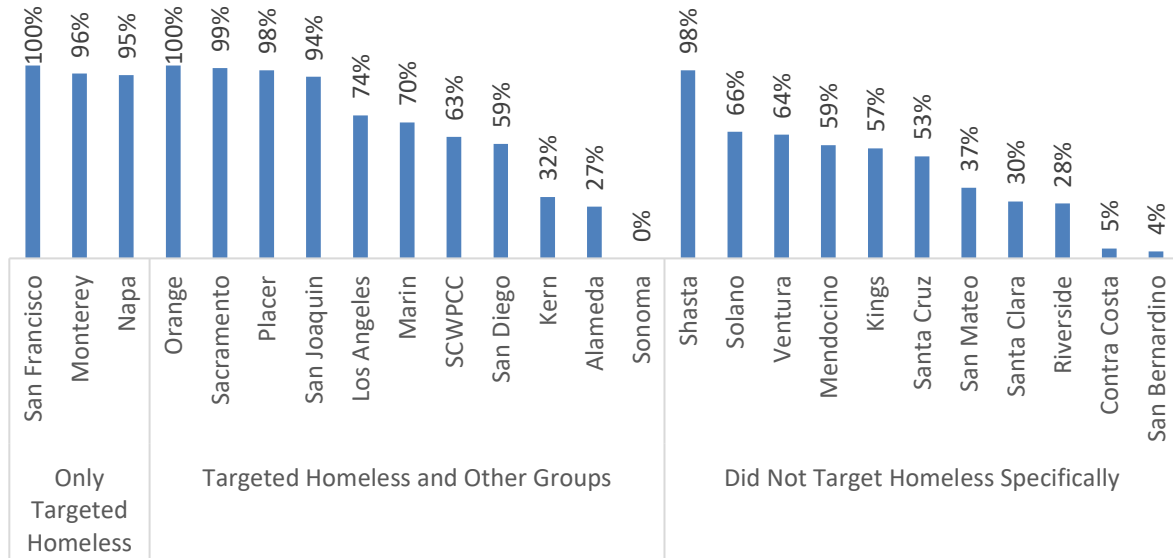
Source: *Whole Person Care Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 124,414 unique individuals. Excludes individuals who received outreach or other WPC services but did not enroll. SCWPCC is the Small County Whole Person Care Collaborative. Sonoma County did not report on homelessness but did identify 14% of their enrollees in the homeless target population.

Exhibit 47 displays the length of enrollment among WPC enrollees experiencing homelessness through PY 6. Enrollees experiencing homelessness were most commonly enrolled for 1-6 months (37%). The mean, median, and mode length of enrollment in the program for enrollees experiencing homelessness was 15, 10, and 1 months, respectively (data not shown).

Exhibit 161: Length of Enrollment in WPC Among Enrollees Experiencing Homelessness, January 2017 to December 2021
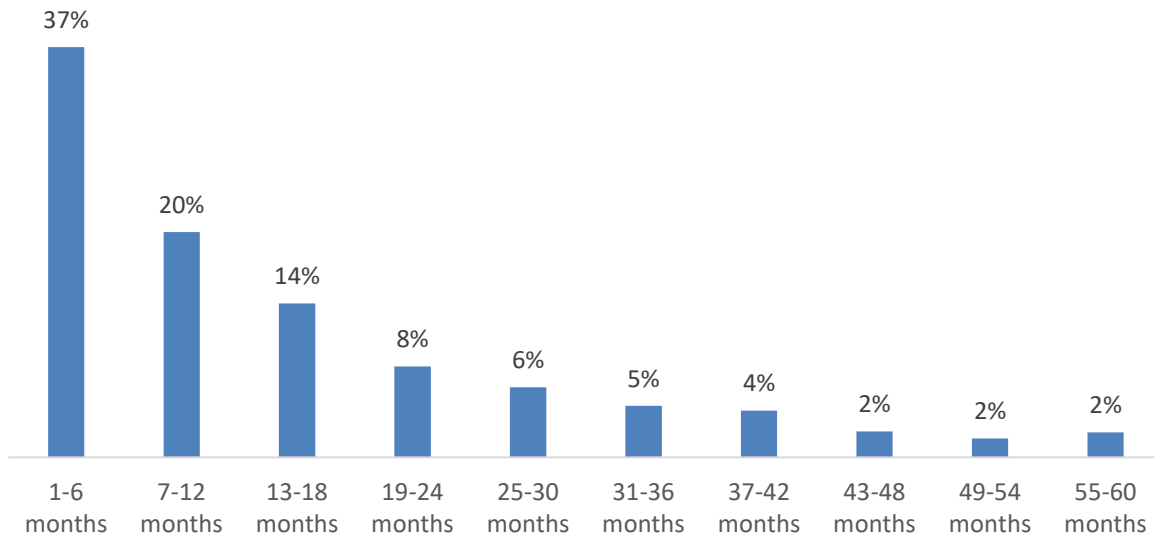
Source: *Whole Person Care Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 124,414 unique individuals. Excludes individuals who received outreach or other WPC services but did not enroll. Includes enrollees who enrolled at two Pilots without cross enrollment.

Demographics

Of the 124,414 total enrollees experiencing homelessness, 119,912 (96%) were Medi-Cal enrollees during their two years prior to WPC enrollment and described in Exhibit 162. The majority of these enrollees were male (64%), ages 50-64 (34%), White or Black (28%), and primarily communicated in English (92%).

Exhibit 162: Demographics of WPC Enrollee Experiencing Homelessness
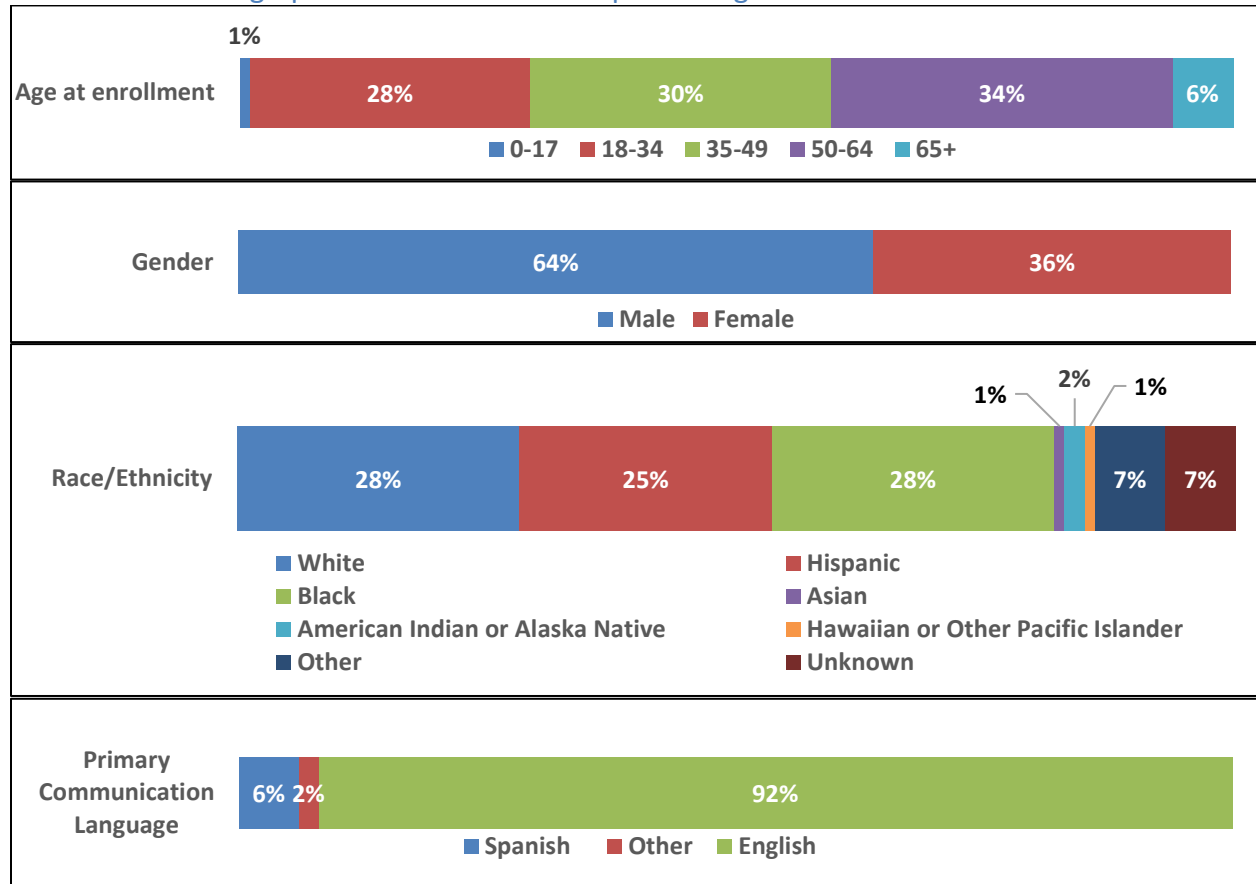
Source: Medi-Cal enrollment data from January 2015 to December 2021 and Quarterly Whole Person Care Enrollment and Utilization Reports from PY 2 to PY 6.

Notes: Overall enrollee population includes 125,331 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment data. All data are reported using Medi-Cal enrollment data during the 24 months prior to WPC enrollment.

Health Status

Analyses of Medi-Cal claims show that enrollees experiencing homelessness most often had hypertension (34%), depression (41%), and drug use disorders (41%; Exhibit 163). Other mental health conditions such as depressive disorders (38%), anxiety disorders (35%), and schizophrenia and psychotic disorders (32%) were also common.

Exhibit 163: Proportion of WPC Enrollees Experiencing Homelessness with Chronic Conditions
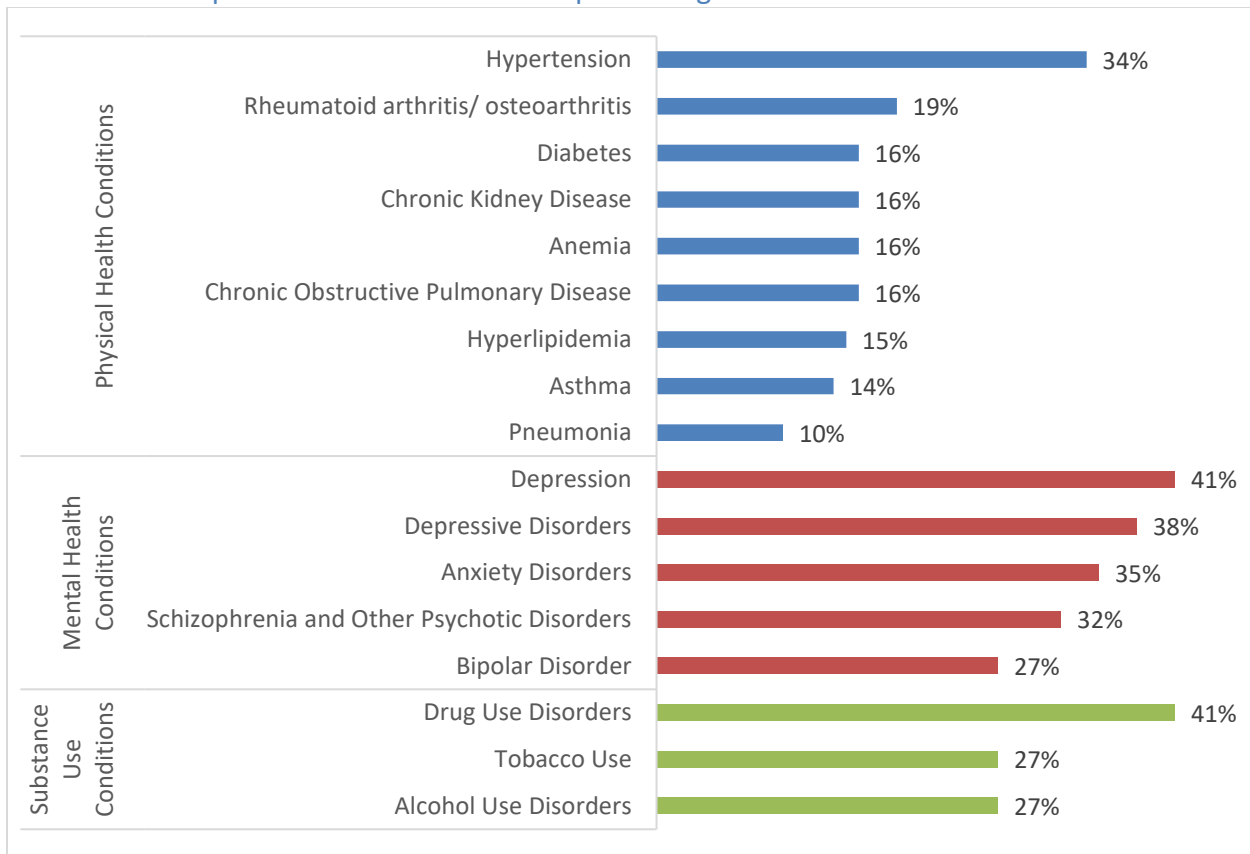
Source: Medi-Cal enrollment and claims data from January 2015 to December 2021 and Quarterly Whole Person Care Enrollment and Utilization Reports from PY 2 to PY 6.

Notes: Enrollee population includes 119,911 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment and claims data. Chronic and disabling conditions were determined using algorithms developed by the CMS Chronic Conditions Data Warehouse (CCW). Conditions with at least 10% prevalence were reported.

Estimated WPC Service Use and Cost

Using *WPC Quarterly Enrollment and Utilization Reports*, Exhibit 164 shows the proportion of WPC enrollees experiencing homelessness and not experiencing homelessness that received different specific WPC services. The rates of receipt of outreach (75% vs 70%), care coordination (88% vs. 91%), housing support (68% vs. 72%), benefit assistance (81% vs 76%), transportation (61% vs 64%), and legal services (69% vs 68%) was similar between enrollees experiencing homelessness and not experiencing homelessness. However, enrollees experiencing homelessness more frequently received re-entry services and medical respite and less frequently received employment assistance and health education.

Exhibit 164: Proportion of WPC Enrollees Experiencing Homelessness and Not Experiencing Homelessness That Received WPC Services, PY 2 to PY 6
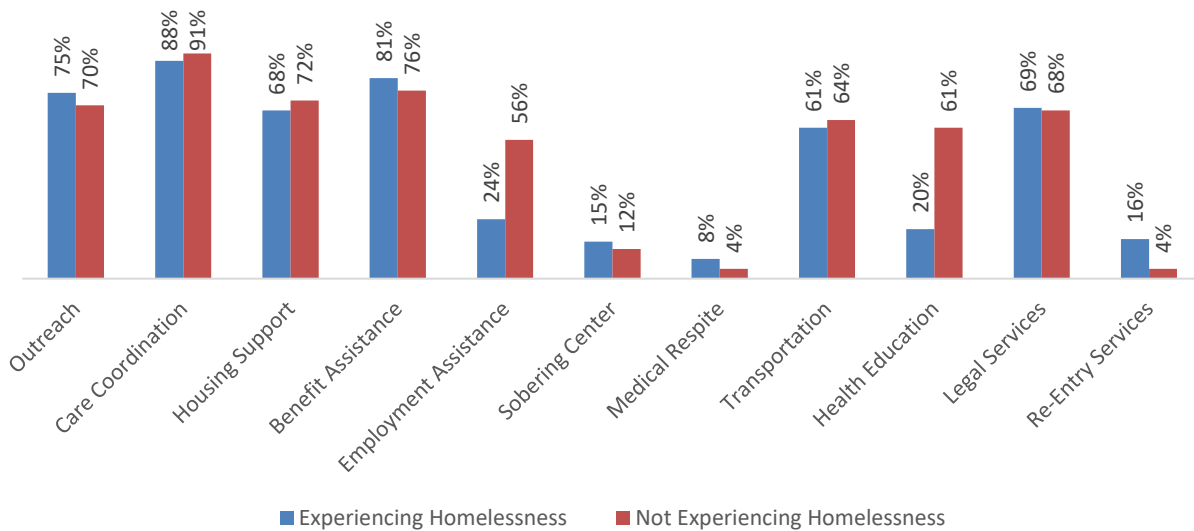
Source: *WPC Quarterly Enrollment and Utilization Reports* (n=25), PY 2 to PY 6.
Notes: Includes 132,925 individuals with enrollment in WPC identified as experiencing homelessness and 115,674 individuals with enrollment in WPC not identified as experiencing homelessness. Service estimates indicates that the enrollee received a fee-for-service intervention or per-member per-month intervention bundle that included the service, but does not guarantee individual use of that service.

The average cost of services received by enrollees experiencing homelessness was $8,481 and higher than $3,798 estimated for enrollees not experiencing homelessness (data not shown). Furthermore, the average cost of services per month was $407 for enrollees experiencing homelessness compared to $267 for enrollees not experiencing homelessness.

Trends in Pilot-Reported Housing Metrics

To assess housing services UCLA calculated the weighted average rates across Pilots for three housing services variant metrics (Exhibit 165). These metrics were not available for Pilots that lacked sufficient data due to data sharing issues did not enroll individuals experiencing homelessness, or did not deliver services to those enrolled in a given reporting period. See Appendix B for further details on reporting for each metric.

Exhibit 165: Housing Metrics Selected by WPC Pilots

Universal vs. Variant	Metric Name and Number	Description	Baseline Year	Reporting Years	Numbers of Pilots Reporting by Year	Improvement measured by Increase or Decrease
Variant	Permanent Housing (PH)	PH: Percent of homeless who were permanently housed longer than 6 consecutive months' experience of permanently housed	PY 2	PY 3, PY 4, PY 5, PY 6	4 in PY 2 9 in PY 3 11 in PY 4 12 in PY 5 11 in PY 6	Increase
8Variant	Housing Services (HS)	HS: Percent of homeless who received housing services after being referred for housing services	PY 2	PY 3, PY 4, PY 5, PY 6	12 in PY 2 13 in PY 3 15 in PY 4 16 in PY 5 14 in PY 6	Increase
Variant	Supportive Housing (SH)	SH: Percent of homeless who received supportive housing after being referred for supportive housing	PY 2	PY 3, PY 4, PY 5, PY 6	6 in PY 2 6 in PY 3 7 in PY 4 8 in PY 5 6 in PY 6	Increase

Source: PY 1 (baseline), PY 2, and PY 3 Annual WPC Variant and Universal Metric Reports and Whole Person Care Universal and Variant Metrics Technical Specifications (March 22, 2019).

Variant Metric: Permanent Housing

Twelve WPC Pilots elected to report the percentage of enrollees experiencing homelessness who were permanently housed and reached seven months of permanent housing (PH) during the measurement year. The overall PH rate decreased slightly from 99% in PY 2 to 94% in PY 3 before increasing to back to 99% in PY 5 (Exhibit 166). The PH rates varied by Pilot with differences as low as 5% and as high as 100% in PY 3. One large Pilot represented between 82% and 95% of the enrollees in the denominator each year and had a very high success rate. The PH rate was lower for the remaining Pilots. Without this influential Pilot, the PH rates were

lower during PY 3 at 50% and between 85% and 89% during the other reporting years (data not shown).

Exhibit 166: Proportion of Enrollees Formerly Experiencing Homelessness in Permanent Housing Who Reached the Seventh-Month, by Program Year
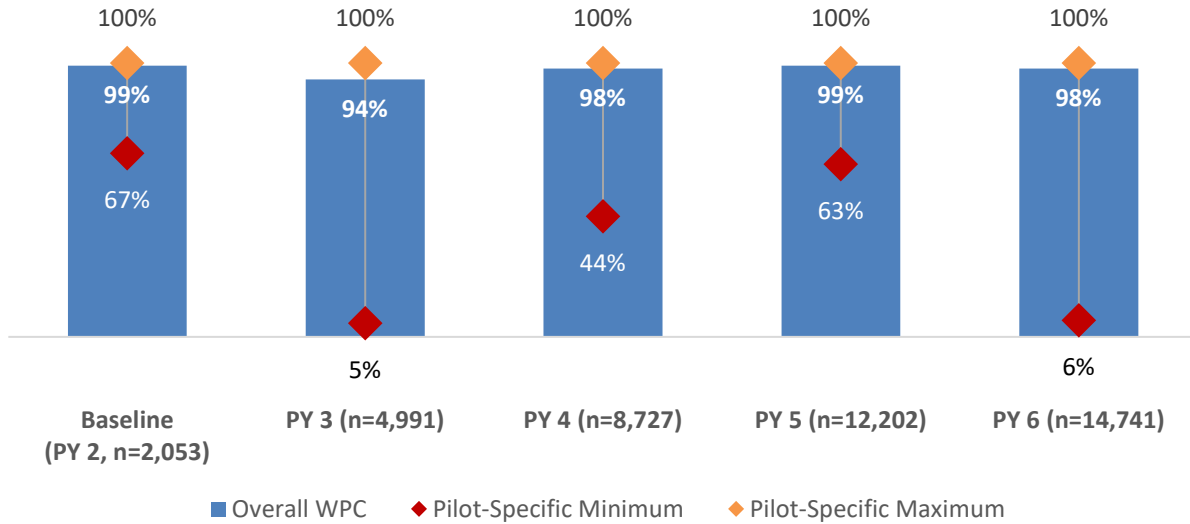
Sources: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 10 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot.

Variant Metric: Housing Services

A subset of 16 WPC Pilots elected to report the metric that measured proportion of enrollees experiencing homelessness who received housing services after being referred for housing services (HS). One Pilot was excluded from the analysis due to differences in their denominator methodology. The overall HS rate increased from 47% in PY 2 to 78% in PY 5 before declining to 61% in PY 6 (Exhibit 167). There was large variation in HS rates by Pilot, ranging from a low of 0% to a high of 100% in PY 5. Overall, the number of individuals receiving housing services each year ranged from 525 in PY 2 to 7,032 in PY 5 (including data from the Pilot that was excluded from the rate analysis; data not shown).

Exhibit 167: Proportion of Homeless Enrollees Who Received Housing Services After Being Referred for Housing Services, by Program Year
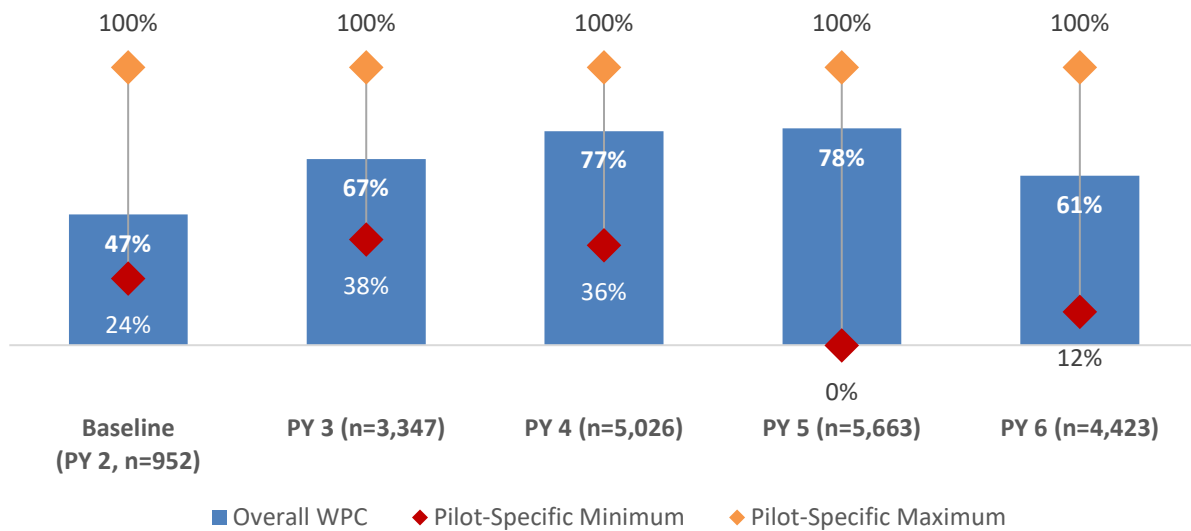
Sources: WPC Annual Universal and Variant Metric Reports, baseline through PY 6
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 11 provides details on which Pilots reported in each year. The denominator size is shown as sample size per year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. These data exclude one large Pilot that included all enrollees in the denominator rather than only those referred for housing services, leading to reported rates of 1% to 22%. The inclusion of this Pilot would have led to a WPC rate of 6% in PY 2 and 36% in PY 5.

Variant Metric: Supportive Housing

A subset of 8 WPC Pilots elected to report the percentage of homeless enrollees who received supportive housing after being referred for supportive housing (SH). One Pilot was excluded from the rate analysis due to differences in their denominator methodology. The overall SH rate varied from year to year, with rates consistently below the baseline rate of 42% in PY 2 (Exhibit 168). There was variation in SH rates by Pilot, ranging from a low of 0% to a high of 100% in some years. One Pilot represented between 63% and 87% of the enrollees in the denominator each year and had a very low success rate. The SH rate was higher for the remaining Pilots. Without this influential Pilot, the SH rates started at 51% in PY 2 and increased to 85% in PY 5 before declining to 28% in PY 6 (data not shown).

Overall, the number of individuals receiving housing services each year ranged from 399 in PY 2 to 2,756 in PY 5 (including data from the Pilot that was excluded from the rate analysis; data not shown).

Exhibit 168: Proportion of Homeless Enrollees Who Received Supportive Housing after Being Referred, by Program Year
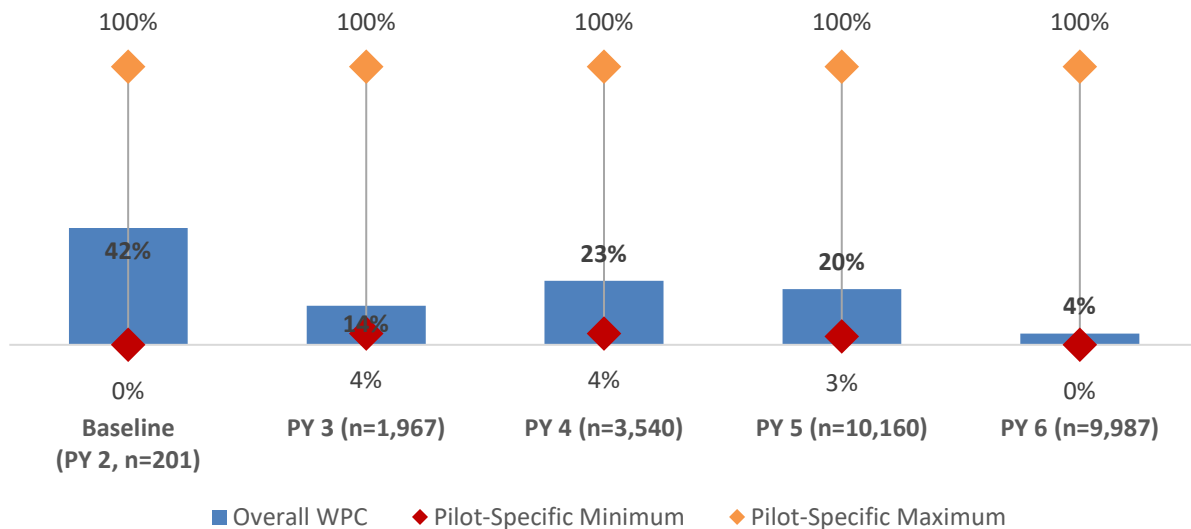
Source: PY 2 Annual, and PY 3 Annual WPC Variant and Universal Metric Reports.
Notes: Only Pilots that reported on this metric were included in the analysis. The number of Pilots reporting varied by year. Appendix B, Exhibit 12 provides details on which Pilots reported in each year. Bars represent the range reported by Pilots, with minimum being the lowest rate reported by a Pilot and maximum being the highest rate reported by a Pilot. These data exclude one large Pilot that included all enrollees in the denominator rather than only those referred for housing services during PY 2 and PY 3, leading to reported rates of 4% and 7%, respectively. The inclusion of this Pilot would have led to overall WPC rates of 5% in PY 2 and 37% in PY 5.

Comparison of Adjusted Trends Between WPC Enrollees Experiencing Homelessness and their Controls, Before and After WPC Implementation

UCLA measured trends in metrics before and during WPC for WPC enrollees that were experiencing homelessness and their matched controls to assess the impact of WPC on individuals experiencing homelessness. Because controls did not have reported homelessness by the Pilots, UCLA matched enrollees and their controls using a propensity score methodology that included a UCLA created indicator of homelessness. This indicator used both address-based and claims-based methods to identify individuals likely to be homeless.

Metrics were based on the date of an individual WPC enrollee's enrollment. UCLA examined changes in trends before and during WPC using a difference-in-difference (DD) analysis by modeling the changes in yearly increments up to 2 years (Pre-Year 1 and Pre-Year 2) before WPC enrollment and up to 5 years (Year 1, 2, 3, 4, and 5) during WPC. For these, the DD analysis measured the annual change from Pre-Year 2 vs. Pre-Year 1 for both WPC enrollees and the control group; the annual change during WPC from Year 1 to Year 5 for both WPC enrollees and the control group; and the difference between the changes in WPC enrollees vs. the control group from before to during WPC. Further details can be found in Appendix A.

Health Service Utilization

Ambulatory Care: Emergency Department Visits

Ambulatory Care: Emergency Department Visits is a WPC universal metric that measures the rate of emergency department (ED) visits that do not result in hospitalization. UCLA reported this metric per 1,000 beneficiaries per year. The intended direction of the metric and DD is decrease. Exhibit 169 shows an increase in the number of ED visits before WPC by 384 visits per 1,000 beneficiaries per year for WPC enrollees experiencing homelessness and by 322 visits for their controls. During WPC, this rate declined by 264 and 130 visits per year for enrollees and controls, respectively. The declining trend from before to during WPC was significantly greater for enrollees compared to the control group by 196 visits (DD).

Exhibit 169: Trends in Ambulatory Care: Emergency Department Visits per 1,000 Beneficiaries per Year among WPC Enrollees Experiencing Homelessness Before and During WPC, PY 2 - PY 6
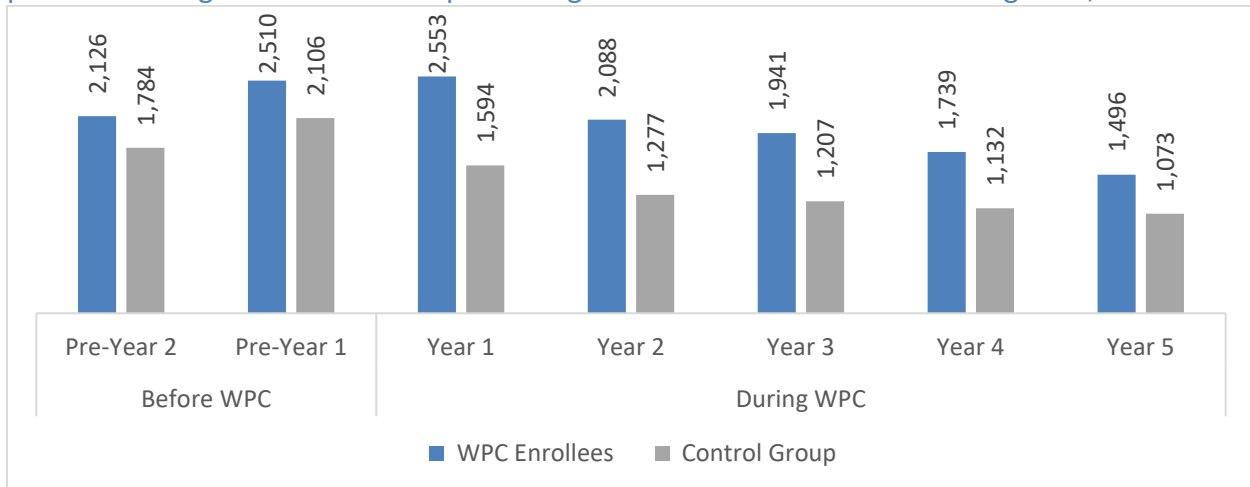
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	384*	-264*	-649*	
Control Group	322*	-130*	-453*	-196*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: Includes ED visits that do not result in hospitalization. * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Inpatient Utilization

Inpatient Utilization is a WPC universal metric that measures the rate of acute inpatient care and services. UCLA reported this metric per 1,000 beneficiaries per year. The intended direction of the metric and DD is decrease. Exhibit 170 shows an increase in the number of hospitalizations before WPC by 184 and 173 stays per 1,000 beneficiaries per year for enrollees experiencing homelessness and their controls, respectively. During WPC, this rate declined by 71 stays for enrollees, while it declined by 34 stays for controls. The declining trend from before to during WPC was significantly greater for enrollees compared to the control group by 48 stays (DD).

Exhibit 170: Trends in Inpatient Utilization per 1,000 Beneficiaries per Year among WPC Enrollees Experiencing Homelessness Before and During WPC, PY 2 - PY 6
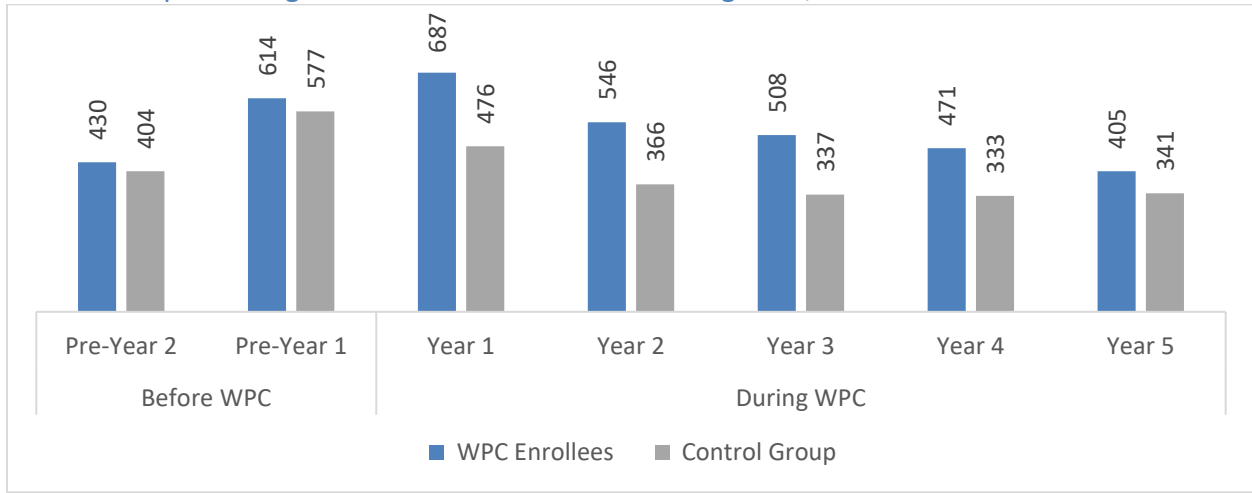
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	184*	-71*	-254*	
Control Group	173*	-34*	-206*	-48*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Mental Health Services

UCLA calculated the number of mental health services per 1,000 beneficiaries per year as an optional measure of service utilization under HHP. There is no intended direction for this measure. Mental health services are likely to increase due to unmet need and increased access, but this use is likely to decrease once health needs are addressed. Exhibit 171 shows that mental health services were increasing prior to enrollment for WPC enrollees experiencing homelessness and their controls by 1,941 and 1,358 services per 1,000 beneficiaries per year, respectively. After enrollment, both groups had declining rates of mental health services by 1,096 and 806 services, respectively. The declining trend from before to during WPC was significantly greater for enrollees compared to the control group by 873 services (DD).

Exhibit 171: Trends in Mental Health Services per 1,000 Beneficiaries per Year among WPC Enrollees Experiencing Homelessness Before and During WPC, PY 2 - PY 6

	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	1,941*	-1,096*	-3,037*	
Control Group	1,358*	-806*	-2,164*	-873*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Mental health services were identified as services with a mental health procedure code. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Substance Use Disorder Services

UCLA calculated the number of substance use disorder (SUD) services per 1,000 beneficiaries per year as an optional measure of service utilization under WPC. There is no intended direction for this measure. Exhibit 172 shows SUD service use was increasing prior to enrollment for both WPC enrollees experiencing homelessness and their controls by 885 and 704 services per 1,000 beneficiaries per year, respectively, and then rates declined after enrollment by 160 and 246 services, respectively. Overall, the declining change in trend from before to during WPC was not significantly different for WPC enrollees compared to controls (DD).

Exhibit 172: Trends in Substance Use Disorder Services per 1,000 Beneficiaries per Year among WPC Enrollees Experiencing Homelessness Before and During WPC, PY 2 - PY 6

	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	885*	-160*	-1,044*	
Control Group	704*	-246*	-949*	-95

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: * Denotes p≤0.05, a statistically significant difference. SUD services were identified as services with a SUD treatment procedure code or an NDC for pharmacotherapy. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Follow-Up After Hospitalization for Mental Illness

Follow-Up After Hospitalization for Mental Illness is a WPC universal metric that measures the percentage of discharges for beneficiaries 6 years of age and older hospitalized for treatment of selected mental illness diagnoses who had a follow-up visit with a mental health practitioner at (1) 7-days or (2) 30-days. The intended direction of the metric and DD is increase.

Exhibit 173 shows that the trends for 7-day follow-up was not changing before WPC for individuals experiencing homelessness. After enrollment, the WPC enrollees had higher rates of 7-day follow-up. However, there was no significant yearly change in 7-day follow-up during WPC and no significant difference in the yearly change from before to during when comparing enrollees and controls (DD).

Exhibit 173: Trends in Follow-Up After Hospitalization for Mental Illness within 7 Days among Enrollees Experiencing Homelessness Before and During WPC for WPC Enrollees and the Control group, PY 2 - PY 6
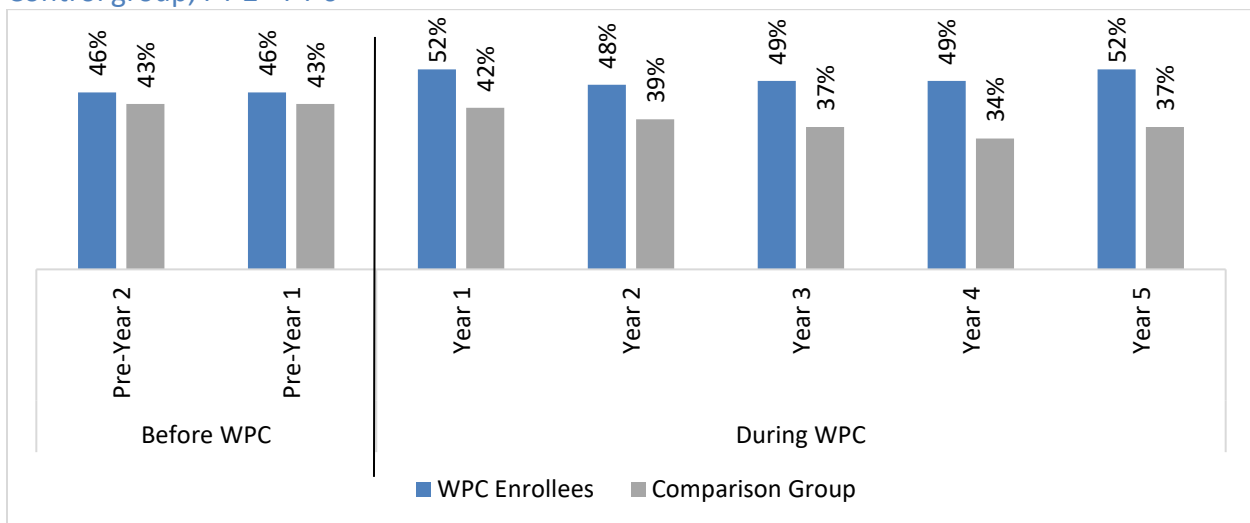
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	0.0%	0.1%	0.1%	
Control Group	0.0%	-1.2%	-1.3%	1.3%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Exhibit 174 shows that trends for 30-day follow-up. Trends were similar to those seen at 7-days expect that controls had a significant declining yearly change during WPC.

Exhibit 174: Trends in Follow-Up After Hospitalization for Mental Illness within 30 Days among Enrollees Experiencing Homelessness Before and During WPC for WPC Enrollees and the Control group, PY 2 - PY 6
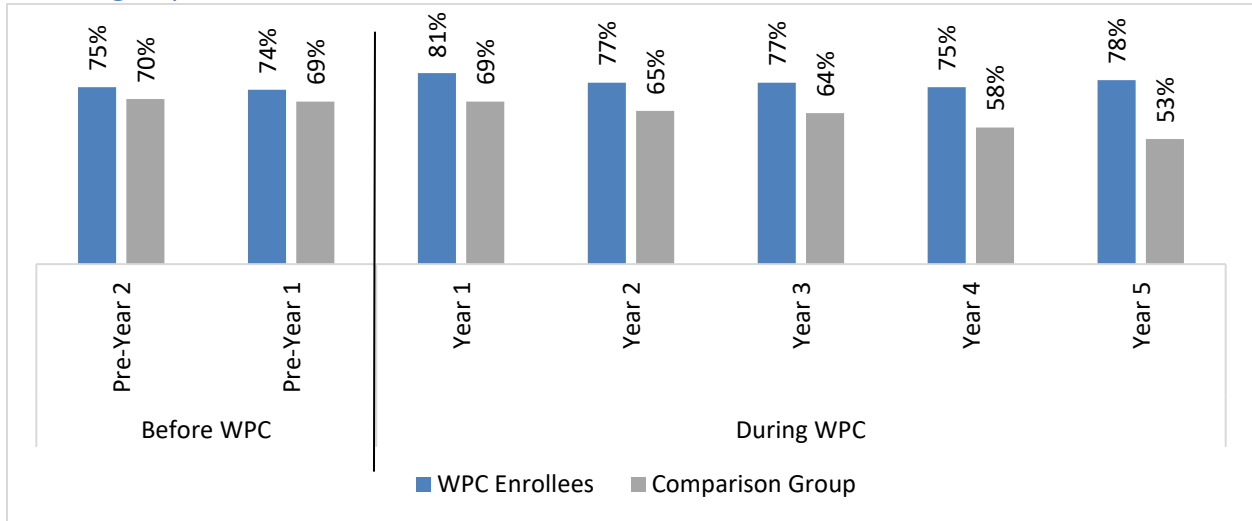
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	-0.7%	-0.9%	-0.2%	
Control Group	-0.6%	-3.8%*	-3.2%	3.0%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Initiation and Engagement of Alcohol and Other Drug Dependence Treatment

Initiation of Alcohol and Other Drug (AOD) Dependence Treatment is a WPC universal metric measuring the percentage of adolescent and adult beneficiaries with a new episode of AOD dependence who initiated treatment through an inpatient AOD admission, outpatient visit, intensive outpatient encounter or partial hospitalization within 14 days of the diagnosis. The intended direction of this metric and DD is increase.

For rates of initiation of AOD treatment among WPC enrollees experiencing homelessness and their controls, both enrollees and controls saw a significant increasing rate before WPC by 1.9% and significant declining rates during WPC by 0.9% and 0.7%, respectively (Exhibit 175). There was no significant difference between WPC enrollees and controls in their trends from before to during WPC (DD).

Exhibit 175: Trends in Initiation of Alcohol and Other Drug Dependence Treatment among WPC Enrollees Experiencing Homelessness Before and During WPC, PY 2 - PY 6
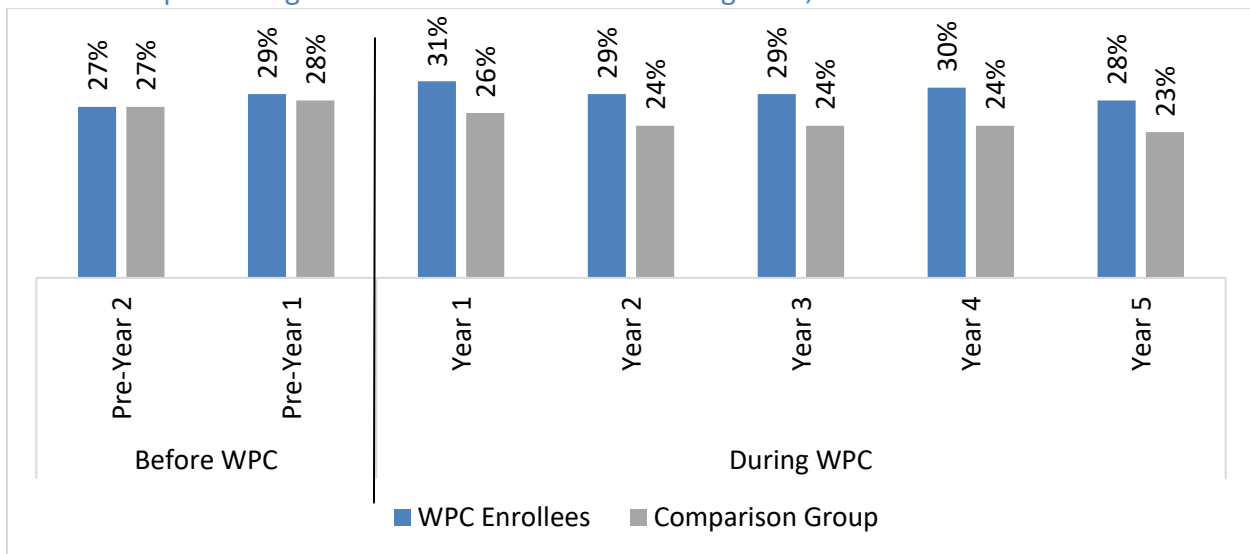
	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	1.9%*	-0.9%*	-2.7%*	
Control Group	1.9%*	-0.7%*	-2.6%*	-0.2%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Engagement of AOD Dependence Treatment is a WPC universal metric that measures the percentage of adolescent and adult beneficiaries who initiated treatment and who had two or more additional services with a diagnosis of AOD within 30 days of the initiation visit. The intended direction of this metric and DD is increase.

WPC enrollees had an increase in their rate of engagement of AOD dependent treatment during WPC. Exhibit 176 shows that trends in yearly rates of engagement in AOD treatment did not change for WPC enrollees either before WPC or during WPC. Comparatively, the controls had significantly declining rates year-to-year during WPC. WPC enrollees had a significantly greater change in year-to-year rates from before WPC to during WPC compared to the controls (2.8%; DD).

Exhibit 176: Trends in Engagement of Alcohol and Other Drug Dependence Treatment among HHP Enrollees Experiencing Homelessness Before and During HHP by SPA, PY 2 - PY 6

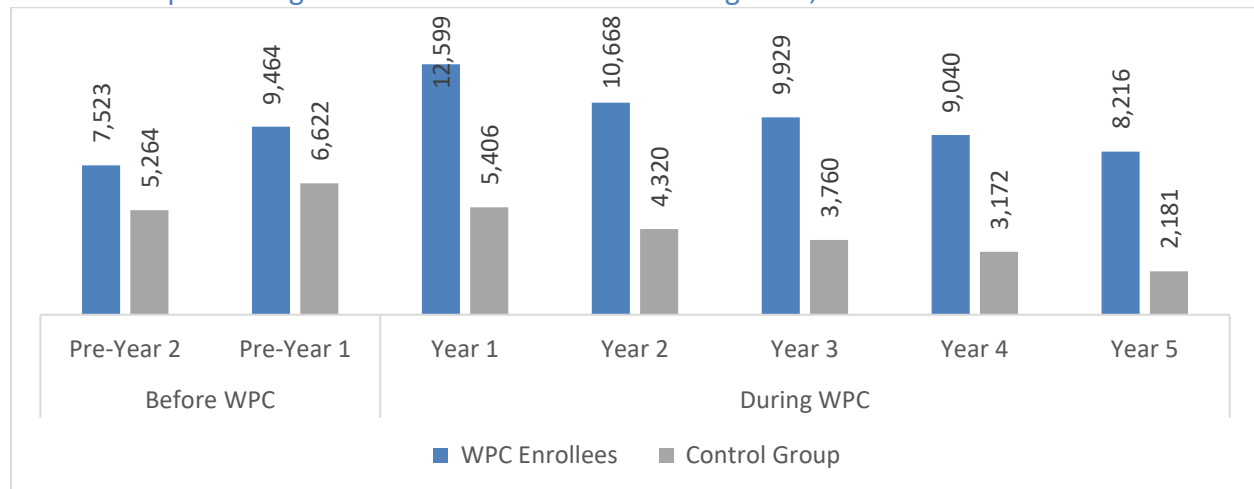|	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	0.6%	0.1%	-0.5%	
Control Group	0.6%	-2.7%*	-3.3%*	2.8%*

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.

Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

All-Cause Readmission

All-Cause Readmission is a WPC variant metric that measures the number of acute inpatient stays during the measurement year that were followed by an unplanned acute readmission for any diagnosis within 30 days for beneficiaries ages 21 and older. The intended direction of the metric and DD is decrease.

Both WPC enrollees and controls experiencing homelessness had lower rates of all-cause readmissions during WPC. Exhibit 177 shows that the yearly change in readmission rates did not significantly change before WPC and then significantly declined during WPC. However, WPC enrollees and controls did not significantly differ in their changing rates from before to during WPC (DD).

Exhibit 177: Trends in All-Cause Readmission following an Acute Inpatient Admission, Before and During WPC for WPC Enrollees and the Control Group, PY 2 - PY 6
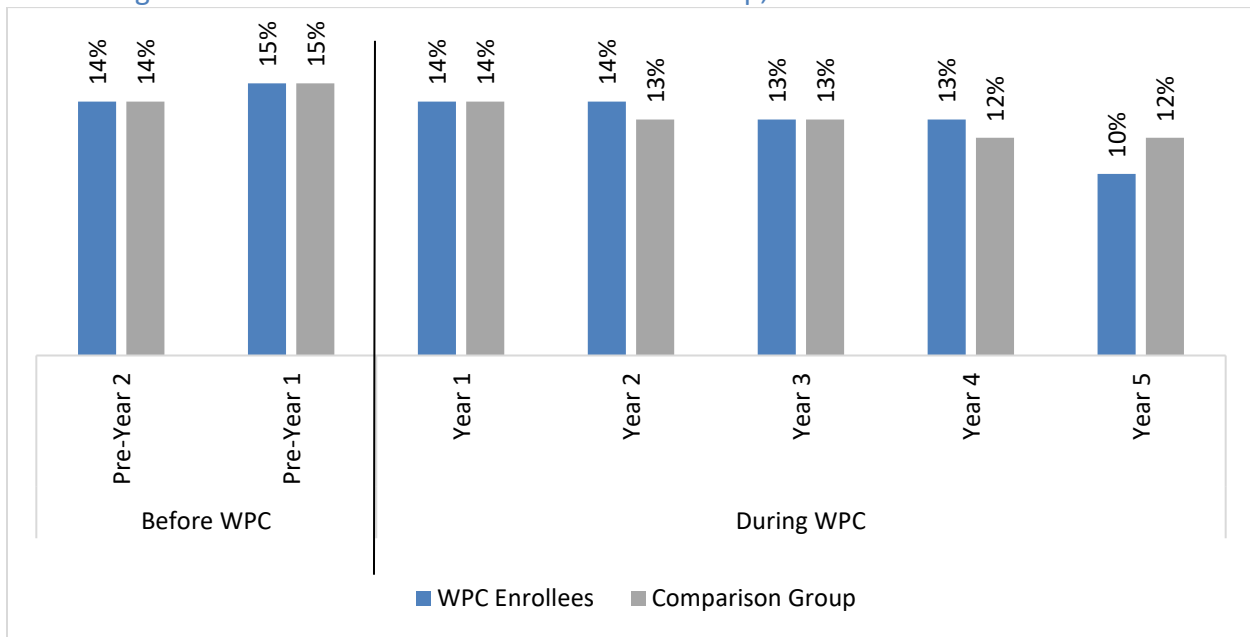
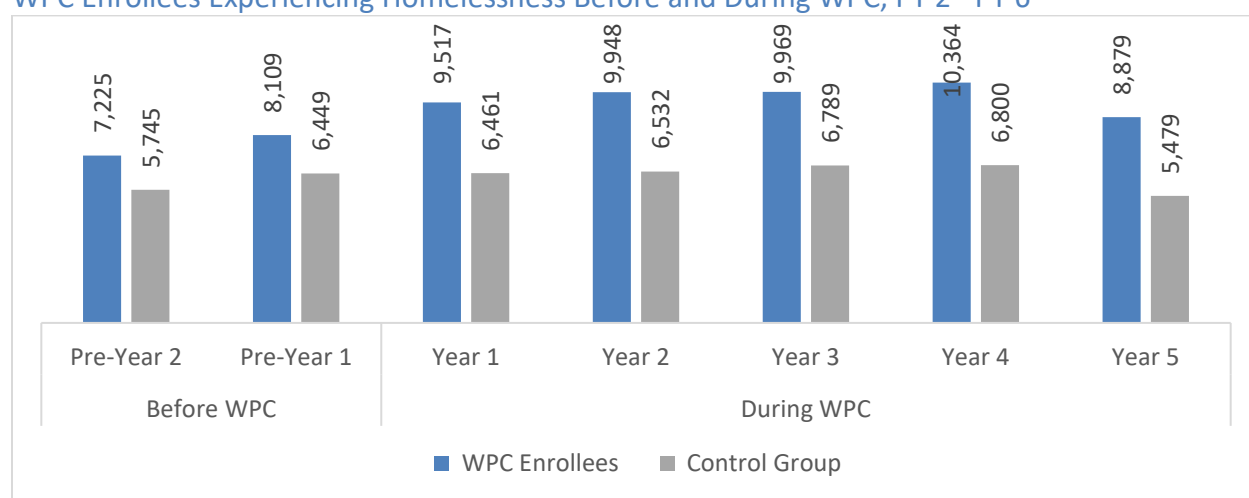|	Yearly Change Before WPC	Yearly Change During WPC	Difference Between Changes	Difference-in-Difference (DD)
WPC Enrollees	1.1%*	-1.0%*	-2.1%*	
Control Group	1.1%*	-0.6%*	-1.7%*	-0.4%

Source: Medi-Cal claims data from January 1, 2015, through December 31, 2021.
Notes: * Denotes p≤0.05, a statistically significant difference. Change Before WPC is calculated as: (1 year before WPC minus 2 years before WPC divided). Change During WPC is calculated as: (5 years of WPC minus 1 year of WPC)/4. Difference between changes is calculated as: (Change During WPC –Change Before WPC). Difference-in-difference is calculated as: (Difference between changes for WPC enrollees – Difference between changes for control group).

Challenges and Successes

In PY 6 follow-up interviews and narrative reports, the most common challenges Pilots faced in serving enrollees at-risk of or experiencing homelessness included: lack of affordable housing stock, difficulty obtaining data on housing outcomes, and successfully linking enrollees to appropriate supportive services once housed. Pilots emphasized that access to secure and stable housing was key for enrollees to improve their overall health. Pilots also recognized the importance of supportive and sustained services once enrollees were housed to stay successfully housed long-term.

> *"Housing is a challenge. There is not a lot of housing stock… In the last year, we have seen rents increased so greatly, and access to housing has become even tighter than it was previously…. It's not just about paying rent, it's also the expenses that it takes to get into housing. A lot of our enrollees, maybe their credit score isn't up to par for certain landlords. And in response to that, a mechanism will be like, they pay a double deposit or maybe they pay first and last month's rent at the same time. And they have to apply to multiple different apartments… all of these expenses really start to add up."* - Sacramento

Approaches to Address Housing Challenges

Pilots attempted to work with local partners to secure access to low-income housing. Several Pilots reported that relationships with local housing agencies or authorities enabled the prioritization of services for WPC enrollees and emphasized the importance of convening committees with representation from multiple sectors to share data and strategies to identify, engage, and prioritize vulnerable clients for health, housing, and social services.

Pilots provided information on how they leveraged other funding sources within the county to pay for rent and other costs that were not eligible expenditures under WPC. Over half of WPC Pilots used their flexible housing subsidy pools housing funds to provide financial assistance to individuals facing challenges in accepting or maintaining placement for housing. This funding was used for a variety of purposes including security deposits, rent payments, and incentives to landlords. Some Pilots used other funding sources, such as federal and local grants. Partnerships offered opportunities for expanded housing. For example, in Placer, donations from Sutter Health assisted with the procurement of multiple properties for use by WPC enrollees.

Additionally, many Pilots found more targeted outreach and engagement with individuals experiencing homelessness as a result of integrating WPC with COVID-19 response. More specifically, COVID-19 emergency housing projects expanded short-term housing availability for many WPC enrollees and facilitated care coordination through co-located medical, behavioral, and social services. Pilots reported collaborative efforts to transition short-term emergency COVID-19 housing projects to long-term supportive housing programs. For example, in Alameda, the County purchased two Project Roomkey hotel sites in Oakland, with the intention of converting the 240 rooms into permanent supportive housing.

While many housing challenges persisted, the effectiveness of housing and provision of supportive services to homeless enrollees was viewed as moderately successful by Pilots and many had intentions of continuing these efforts through Cal-AIM.

> *"The pandemic has provided opportunities for Care Connect to coordinate and collaborate with a range of housing partners at a much deeper level and has also led to new opportunities to collaborate and support consumers. Additional funding through the CARES Act and FEMA, as well as the additional flexibility in WPC PY 5 (2020) funding is helpful, however coordinating all these funding sources within short and changing timelines has been challenging."* -Alameda
>
> *"Care coordination staff have become increasingly proficient in their ability to address the housing needs for WPC patients through system protocols developed which identify homelessness or at risk of homelessness, being able to see the patient's housing status in the HMIS system, developing relationships with housing agencies, and gaining familiarity with eligibility criteria and types of housing available."* -Santa Clara

Chapter 14: Sustainability and Transition to CalAIM

This chapter describes sustainability of WPC Pilots after Medi-Cal 2020 waiver funding ended. This includes efforts by DHCS to create two new Medicaid benefits and services called Enhanced Care Management (ECM) and Community Support (CS) benefits and services to be administered by Medicaid managed care plans. These benefits were modeled after WPC care coordination services delivered by Pilots. DHCS further promoted sustainability by organizing meetings between Pilots and Medicaid managed care plans and provided technical assistance to address challenges. .

UCLA examined whether Pilots contracted with Medi-Cal managed care plans to provide ECM and CS benefits and services as part of CalAIM, as well as the infrastructure and support that facilitated the transition from WPC to CalAIM. Consistent with evaluation goals, UCLA also assessed the extent to which Pilots maintained: (1) inter-organizational collaboration between WPC partners, (2) data sharing infrastructure needed to support integration of care, and (3) care coordination protocols under CalAIM or independently.

Data sources for this chapter include DHCS administrative data on ECM and CS providers as of May 2022 and after conclusion of negotiations between Medi-Cal managed care plans. These data indicated whether LEs or their partners were going to serve as ECM or CS providers. Further data on challenges and successes of transition were obtained from PY 6 mid-year and annual narrative reports. PY 6 (2021) LE surveys and follow-up interviews with leadership and frontline staff provided perspective on Pilot readiness and transition intentions, as well as Pilot-reported CalAIM transition planning efforts. The PY 5 (2020) surveys were used to obtain the most recent information on specific services Pilots provided under WPC. For additional detail on data sources and methodology please see Appendices C, D, E, and F.

Planning and Preparation for Transition

Transition of WPC to ECM and CS under CalAIM was originally planned for January 2021, but these plans were delayed due to the advent of the COVID-19 pandemic. DHCS received a one-year extension for WPC to continue providing services through the end of 2021 to minimize disruptions in care for enrollees.

In January 2021, DHCS embarked on a yearlong transition planning process. DHCS allowed WPC Pilots to utilize one of two different methods to support WPC enrollee transitions: (1) WPC Pilots could work directly with MCPs to identify members that qualified for transition through utilization and enrollment data, or (2) WPC Pilots could use DHCS as an intermediary and share member utilization and enrollment data with DHCS to develop a transition plan. For the latter,

LEs submitted a list of the CINs of WPC enrollees whom they identified as eligible to transition to ECM/CS; DHCS checked the members' plan assignment and sent the list to each MCP respectively. As part of the WPC closeout requirements, each WPC Pilot had to provide a model of care, detailing CalAIM services and activities, as well as confirmation of their contract(s) with MCP(s).

Exhibit 178 shows a timeline of key dates and activities related to the WPC transition under CalAIM.

Exhibit 178: Timeline of Key Dates and Activities for WPC Transition to CalAIM
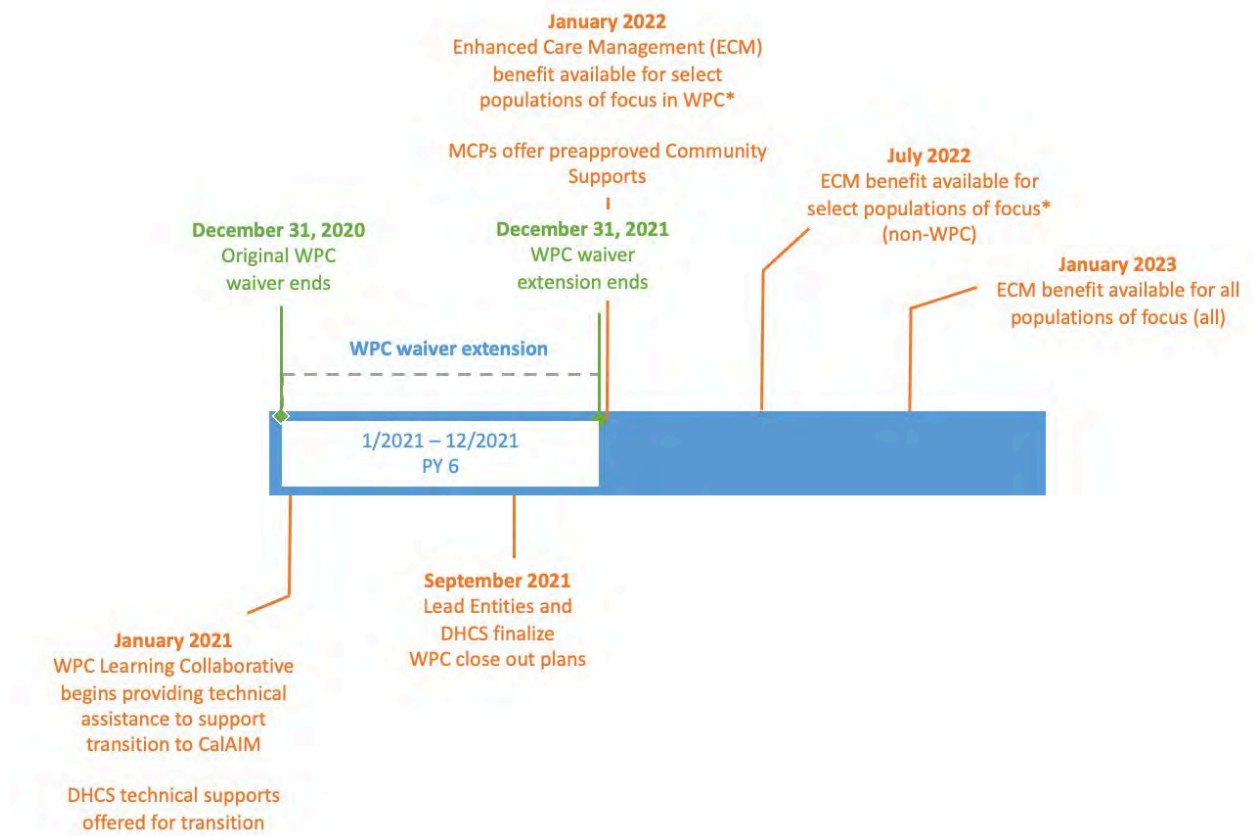
Notes: CalAIM "Select populations of focus" includes: individuals and families experiencing homelessness; high utilizer adults; adults with serious mental illness or substance use disorder (SMI/SUD); and adults and children/youth transitioning from incarceration. "All populations of focus" includes: adults at risk for institutionalization and eligible for long-term care; nursing facility residents who want to transition to community; and children and youth. "WPC close out plans" detailed Pilots' transition plans for their WPC enrollees. MCPs is Medi-Cal Managed Care Plans. DHCS is California Department of Healthcare Services.

Technical Support for Transition

In 2021, the WPC Learning Collaborative, which had provided LEs with technical assistance (TA) on key elements of WPC implementation since the beginning of the Pilot, turned its attention to primarily supporting the transition to new Medi-Cal benefits and services under CalAIM. The Learning Collaborative, led by Aurrera Health Group, provided TA to LEs by sharing new and revised DHCS policies and guidance, providing LEs with the opportunity to discuss operationalization of the policies, and offering a forum for Pilots to ask DHCS target questions. Aurrera Health Group, in partnership with the California Safety Net Institute, also entered into a new contract with the California Healthcare Foundation to run a parallel "Peer to Peer" group, which focused solely on transitioning eligible WPC enrollees to ECM and CS.

DHCS held monthly CalAIM transition meetings to review DHCS-issued transition documents, as well as bi-weekly technical advisory meetings for MCPs and WPC programs to discuss common barriers and issues encountered during the transitioning process. When needed, DHCS facilitated ad-hoc meetings with WPC Pilots and/or MCPs to discuss and resolve complex issues unique to a specific county.

Additionally, the WPC Services and Transition to Managed Care Mitigation Initiative provides direct funding for former WPC Pilot Les that meet specific criteria to pay for existing WPC services that map to ECM/CS services before they transition to CalAIM. Ten LEs were approved for a total of $137 million in sustaining services until 2024.

Pilot Participation in Transition Planning Meetings

In PY 6 surveys, all LEs reported that they participated in transition planning meetings with DHCS from mid-PY 5 to mid-PY 6 (26 of 26), and most also met with Medi-Cal MCPs (24) and other WPC partners (22; Exhibit 179). The majority of LEs (24) met with MCPs regarding CalAIM planning. Of these LEs, 23 reported discussing specific CS services with MCPs and 91% of LEs felt they had meaningful input in the transition planning process (data not shown). Many LEs (17) also reported discussing CalAIM with other WPC partners (17).

Exhibit 179: Lead Entity Participation in Transition Planning Meetings with DHCS, Medi-Cal Managed Care Plans, and Other WPC Partners, August 2020-May 2021
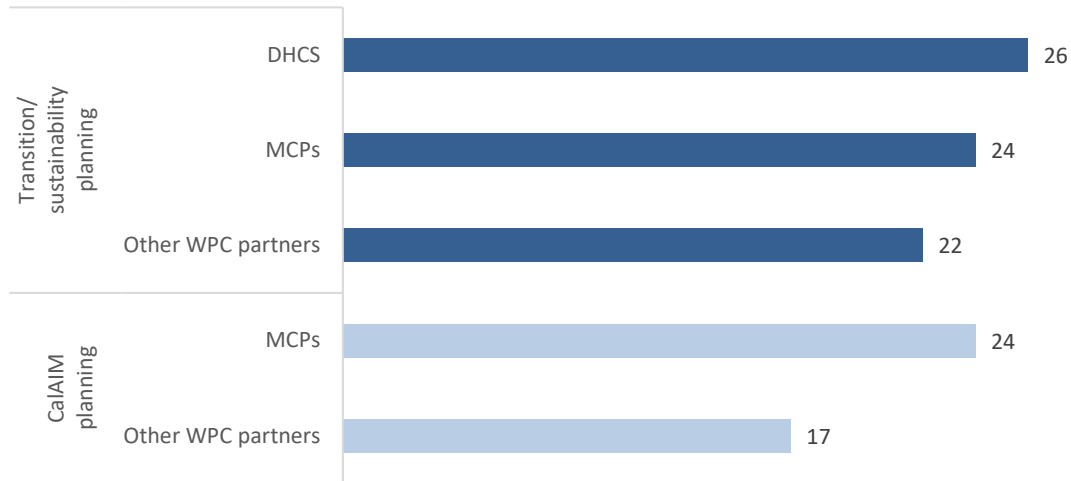
Source: PY 6 Lead Entity (LE) Survey (n=26), May-June 2021.
Notes: DHCS is California Department of Health Care Services. MCPs are Medi-Cal Managed Care Plans.

Additional detail on transition planning meetings provided in PY 6 annual narrative reports indicated that meetings between MCPs and Pilots were typically tailored to the specific circumstances and environment of each individual Pilot. Meetings varied in the extent to which they focused on transition of WPC enrollees to the ECM benefit within CalAIM or on infrastructure and changes needed for WPC partner(s) to serve as ECM or CS providers.

The specific start dates of CalAIM planning efforts varied by county and the available resources at the time. Some counties had geographic access to several neighboring MCPs and initiated transition planning at an earlier stage of their program.

"The executive leaders of Health Care Services Agency (Office of the Agency Director, Behavioral Health, and Public Health), the two health plans (Alameda Alliance and Anthem Blue Cross), and the two large safety net provider organizations (Alameda Health System and Community Health Center Network) met on a monthly basis throughout the year. The group discussed evolving plans for transition of services and infrastructure at the end of Whole Person Care, and how to stay in coordination as timelines changed... This regular cadence created a reliable space for communication, problem solving, collaboration, and coordination, primarily for sustainability planning through this evolving landscape... The group of executives has gelled in a friendly and supportive way that will serve the safety net care system well into the future... together the parties analyzed the alignment of services, the capacity of the

> *current and possible provider networks, the transition processes, and the financial opportunities and risk to lay the foundation for ongoing decision-making for sustaining as many of the AC Care Connect services as possible once the program would come to an end." -Alameda*

Participation in Enhanced Care Management

ECM is a new Medi-Cal benefit to provide eligible enrollees with intensive care coordination that addresses their clinical and non-clinical needs. ECM began implementation in January 2022, and is aligned with WPC best practices in requiring (1) use of a single, dedicated care manager to coordinate care and various delivery systems and (2) meeting enrollees "where they are at" (e.g., home, shelter, street) through in-person engagement and service delivery. DHCS estimated that approximately 15,000 WPC enrollees across 23 counties were eligible to transition from WPC Pilots to ECM on January 1, 2022.

Eligible enrollees include any of the following seven CalAIM "populations of focus" for the program: (1) individuals and families experiencing homelessness, (2) adult high utilizers, (3) adult SMI/SUD, (4) adults transitioning from incarceration, (5) adults at risk for institutionalization and eligible for long-term care, (6) nursing facility residents who want to transition to community, and (7) children and youth. The first four populations correspond to WPC "target populations;" the remaining three are new under ECM. Participating MCPs are required to provide ECM services to all eligible enrollees by January 2023. However, contracted ECM providers can choose which populations of focus to serve.

In PY 6 surveys, 18 (of 26) LEs reported plans to serve as ECM providers. As of May 2022, DHCS reported that all 18 LEs were participating as ECM providers. In five counties (Kings, Los Angeles, Marin, Mendocino, and Sacramento), selected partners of the LE, rather than the LE were participating. As of May 2022, Solano and SCWPCC LEs and partners were not participating as ECM providers. These two Pilots also did not participate in the PY 6 extension year (2021).

Exhibit 180 shows populations within each WPC-participating county that are being served through ECM as of May 2022. The most common target populations for ECM are individuals experiencing homelessness and adults with SMI/SUD (23 of 23 counties, respectively), followed by high utilizers (17) and justice-involved (14).

All counties that identified SMI/SUD and individuals experiencing homelessness as a target population in WPC continued to serve adult SMI/SUD and individuals and families experiencing homelessness under ECM. Similarly, all counties that identified high-utilizers and justice involved as a target population in WPC continued to serve adult high utilizers and adults transitioning from incarceration under ECM, except Placer.

All WPC-participating counties, except Placer, began serving new populations of focus under ECM, with the biggest increases seen in the percentage of counties serving adults with SMI/SUD (from 35% in WPC to 100% in ECM) and adults transitioning from incarceration (from 17% to 61% in ECM).

Exhibit 180: Populations of Focus, Served through Enhanced Care Management and Whole Person Care, May 2022

WPC Pilot	Target Population in WPC				Not a Target Population in WPC		
	Individuals and families experiencing homelessness	Adult high utilizers	Adult SMI/SUD	Adults transitioning from incarceration	Adults at risk for institutionalization and eligible for long-term care	Nursing facility residents who want to transition to community	Children and youth
Alameda	✓*	✓*	✓	-	-	-	-
Contra Costa	✓	✓*	✓	✓	✓	✓	✓
Kern	✓*	✓*	✓	✓*	-	-	-
Kings	✓	-	✓*	✓	-	-	-
Los Angeles	✓*	✓*	✓*	✓*	✓	✓	✓
Marin	✓*	✓*	✓	✓	✓	✓	✓
Mendocino	✓	-	✓*	✓	✓	-	✓
Monterey	✓*	✓	✓	✓	-	-	-
Napa	✓*	-	✓	-	-	-	-
Orange	✓*	-	✓*	✓	-	-	-
Placer	✓*	*	✓*	*	-	-	-
Riverside	✓	✓	✓	✓*	-	-	-
Sacramento	✓*	✓*	✓	✓	✓	✓	✓
San Bernardino	✓	✓*	✓	-	✓	-	✓
San Diego	✓*	✓*	✓	✓	✓	✓	✓
San Francisco	✓*	✓	✓	-	-	-	-
San Joaquin	✓*	✓*	✓*	✓	✓	✓	✓
San Mateo	✓	✓*	✓	✓	✓	✓	-
Santa Clara	✓	✓*	✓	✓	✓	✓	✓
Santa Cruz	✓	✓	✓*	-	-	-	-
Shasta	✓	✓*	✓	-	-	-	-
Sonoma	✓*	-	✓*	-	-	-	-
Ventura	✓	✓*	✓	-	-	-	-

Source: Cal-AIM Transition Spreadsheets by Medi-Cal Managed Care Plan, Submitted to California Department of Healthcare Services, May 2022.

Notes: ✓ indicates population of focus under Enhanced Care Management. * Indicates a target population under Whole Person Care.

Community Supports

Under CS, MCPs are permitted to provide eligible enrollees with 14 pre-approved services designed to address social determinants of health. CS were intended to serve as a cost-effective alternative to traditional services covered by Medi-Cal, and include services such as housing support and day rehabilitation. CS services are not restricted to ECM populations of focus, and eligible enrollees can receive CS in addition to ECM. DHCS estimated that approximately 8,000 WPC enrollees were eligible to transition to various CS services on January 1, 2022.

In PY 5 surveys, UCLA collected systematic data from Pilots on six WPC services that were subsequently pre-approved CS services. These included: (1) environmental accessibility adaptations, (2) housing deposits, (3) housing tenancy and sustaining services, (4) housing transition navigation services, (5) recuperative care/medical respite, and (6) sobering centers (Exhibit 181; CS services are defined in the footnote below). Pilots may have elected to provide other CS services as part of WPC (e.g., short-term post-hospitalization housing), but UCLA did not collect systematic data on the extent to which these services were provided.

As of May 2022, DHCS reported that all WPC Pilots were providing CS, although specific CS services offered varied by county. The most commonly provided CS services are housing tenancy and sustaining services (20 of 23), housing transition/navigation services (20), and recuperative care/medical respite (18); these are services that were also offered through WPC. Services that were not commonly offered through WPC, were less likely to be offered through CS (see Appendix U: Comprehensive Community Support Offerings by County).

When comparing DHCS data from May 2022 to PY 5 survey data, results indicate a high degree of continuity of service provision from WPC to CS, particularly for environmental accessibility adaptations (100% who provided in WPC provide as CS), housing tenancy and sustaining services (85%), and provision of housing deposits (79%).

Exhibit 181: Participation of WPC Pilots in Selected Community Supports by County, May 2022

County	Environmental Accessibility Adaptations	Housing Deposits	Housing Tenancy and Sustaining Services	Housing Transition/Navigation Services	Recuperative Care/Medical Respite	Sobering Centers
Alameda	✓*	✓*	✓*	✓*	✓*	*
Contra Costa	*	*	✓*	*	✓	
Kern	*	✓*	✓*	✓*	✓*	
Kings	*	✓*	✓	✓*	✓	✓*
Los Angeles	*	✓*	✓*	✓*	✓*	✓*
Marin	*	*	✓*	✓*	*	
Mendocino	*	*	*	*	*	*
Monterey		✓*	✓*	✓		✓*
Napa		✓		✓	✓	
Orange	*	✓*	✓*	✓	✓*	
Placer	✓*	✓*	✓*	✓*	✓*	✓
Riverside	*	✓*	✓*	✓*	✓	✓*
Sacramento	✓*	✓*	✓*	✓	✓*	✓
San Bernardino		✓	✓	✓*	*	*
San Diego	✓*	✓	✓*	✓*	✓*	
San Francisco	*	*	*	*	✓*	*
San Joaquin	*	✓*	✓	✓*	✓*	✓*
San Mateo	✓*	✓*	✓*	✓*		*
Santa Clara	*	✓*	✓*	✓	✓*	*
Santa Cruz		✓*	✓*	✓*	✓*	
Shasta	*	✓*	✓*	✓	✓	*
Sonoma		✓	✓*	✓	✓	*
Ventura	*	✓*	✓*	✓*	✓*	
Number Offering CS Service	5	19	20	20	18	7
Percent Offering Service Through CS Who Offered Through WPC	100%	79%	85%	65%	67%	71%

Source: Cal-AIM Transition Spreadsheets by Medi-Cal Managed Care Plan, Submitted to California Department of Healthcare Services, May 2022.

Notes: ✓ indicates service under Enhanced Care Management. * Indicates a service under Whole Person Care.

As defined in [DHCS Community Support Policy Guide](#), Environmental Accessibility Adaptations (e.g., Home Modifications) are physical adaptations to a home that are necessary to ensure the health, welfare, and safety of the individual, or enable the individual to function with greater independence in the home. Housing Deposits assist with identifying, coordinating, securing, or funding one-time services and modifications necessary to enable a person to establish a basic household that do not constitute room and board. Housing Tenancy and Sustaining Services ensure maintaining safe and stable tenancy once housing is secured. Recuperative Care/Medical Respite is short-term residential care for individuals who no longer require hospitalization, but still need to heal from an injury or illness (including behavioral health conditions) and whose condition would be exacerbated by an unstable living environment. Sobering Centers are alternative destinations for individuals who are found to be publicly intoxicated (due to alcohol and/or other drugs) and would otherwise be transported to the emergency department or jail.

Transition Challenges and Successes

Exhibit 182 shows the most common challenges and successes related to transition under CalAIM as reported in PY 6 mid-year and annual reports.

In PY 6, the most frequently mentioned challenge in bi-annual narrative reports was that the scope of services and eligibility requirements for ECM differed from WPC (14 of 23). Pilots were concerned that clients would no longer receive the same intensity of touch that allowed for necessary trust and rapport building. Furthermore, Pilots were able to define their target population eligibility criteria for WPC but the eligibility criteria for ECM was viewed as stricter. For example, the most common definition for high utilizers in WPC was individuals with 3 or more emergency department (ED) visits in the last 12 months. For ECM, individuals with 5 or more ED visits in the last 6 months were considered to be high utilizers. Alameda estimated that their eligible pool for high utilizers would be cut by 90% due to narrowly defined target population definitions.

There was also uncertainty around continued use of data sharing infrastructure developed through WPC (12). Due to changing requirements for reporting for CalAIM at the time, these Pilots lacked clarity in whether existing data systems would be sufficient and able to handle the CalAIM requirements. Pilots noted that there was a significant workload required for the transition to CalAIM (10), and that this came in the midst of still providing services for current WPC enrollees in PY 6. Lastly, Pilots noted that dissatisfaction with the proposed rates and contracting processes (8), as reimbursements were significantly lower than those provided under WPC.

> *"As the WPC Pilots end and services transition to managed care benefits, the flexibility to implement innovative approaches to patient care will decrease as providers are held to rigid regulatory requirements. Opportunities to innovate will be further restricted by funding shortfalls, with insufficient rates to support the scope of services offered under WPC. For example, CCHS WPC will no longer be able to support program provided cell phones, non-medical transportation, and free legal aide. These initiatives made possible by WPC funding have been tangible benefits that provide vital services to patients." - Contra Costa*

Despite these challenges, Pilots made significant progress in their sustainability planning and transition to CalAIM. Most often, Pilots noted success in regular planning meetings and workgroups, which brought participating partners together to discuss the necessary next steps (18). Often as a result of these meetings, Pilots emphasized success in the transition/hand-off of qualifying WPC enrollees to ECM (16). Many Pilots utilized their data sharing platforms to facilitate the transition of enrollees to ECM and had concrete plans to utilize this infrastructure in CalAIM, particularly for reporting requirements and partner communication (15). Thirteen Pilots noted success in establishing workflows for ECM and specific CS services.

> *"We successfully negotiated a contract with our local MCP to transition our 70 WPC clients to ECM and have incorporated new policies and procedures for the purpose of reporting timely and accurate member data to the Central California Alliance for Health. Our clients did not experience or notice a change in services due to the collaboration we were able to have with our partners during the closeout process." -Monterey*

Exhibit 182: Commonly Identified Challenges and Successes in Transition to CalAIM among WPC Pilots, PY 6
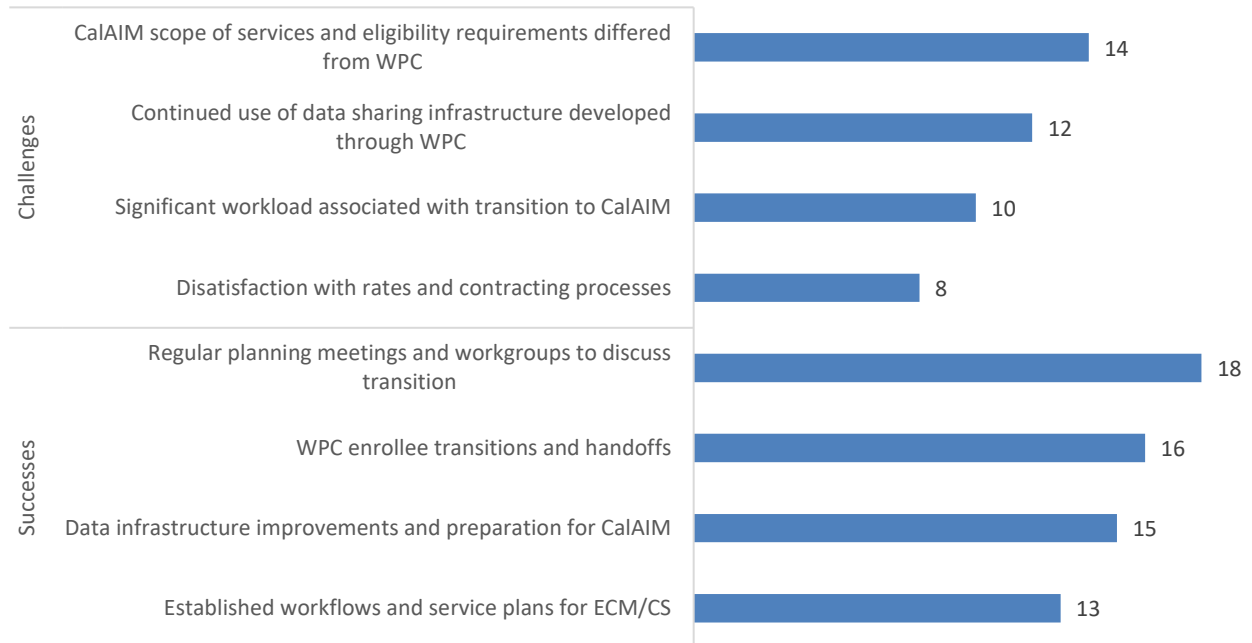
Source: PY 6 (2021) Mid-Year and PY 6 Annual Narrative Reports (n=23).
Note: Numbers indicate WPC Pilots that mentioned the thematic challenge at least once across the reporting period.

Sustainability of WPC Goals and Pilot Innovations after WPC

During interviews in 2020 and before extension of WPC due to the COVID-19 pandemic, the majority of Pilots had indicated plans to sustain their relationships with other WPC partners and to maintain data sharing infrastructure and housing support services regardless of CalAIM. As of May 2022, all Pilots (either LE and/or their partners) that participated in PY 6 were participating in CalAIM. Key components of WPC that Pilots aimed to sustain to some degree through CalAIM included: (1) inter-organizational collaboration between WPC partners, (2) data sharing infrastructure needed to support integration of care, and (3) care coordination protocols.

Inter-organizational Collaboration between WPC Partners

As indicated in PY 6 surveys, LEs intended to maintain relationships with WPC partners regardless of CalAIM (21 of 23), with 11 LEs that indicated that CalAIM would be a mechanism to sustain those relationships with their partners. While LEs emphasized that partnerships established through WPC facilitated the transition to CalAIM, uncertainty remained about maintaining strength in those partnerships after WPC and the initial transition.

WPC governance structures required participation from specific partner types, encouraging collaboration and communication. Without such formal structures and financial incentives to facilitate inter-organizational collaboration within CalAIM, Pilots anticipated challenges in delivery of services by separate ECM and CS entities.

> *"While CalAIM is a good first attempt at incorporating WPC successes into the existing Medi-Cal medical billing model it does miss some of the success found in coordination and collaboration of services. CalAIM acknowledges the need for enhanced or intensive case management and the need for whole person care approach, including some social service and person-centered services. It, however, misses one of the most important needs identified and addressed in the Whole Person Care Program Model… that is coordinating services, collaborating client support, and including the client's voice in the services that they receive. CalAIM acknowledges the need to address more than just the diagnosed medical or mental health needs of a person and attempts to provide funding for some assistance with basic living. However, it does not facilitate coordination of care among providers... It is up to the providers to reach out and establish relationships with other providers without knowing who that would be… We don't have mechanisms ourselves really, except the relationships and how they become, so nature and organic, that's what we're relying on right now because the funding structure isn't supporting maintenance of those relationships." -Shasta*

Data Sharing Infrastructure Needed to Support Integration of Care

Through WPC, many LEs established data sharing infrastructure (e.g., formal data sharing agreements with partners, care management platforms, event-based notifications). CalAIM was viewed as a strong mechanism for continuing data sharing infrastructure and processes established through WPC for the majority of Pilots. In PY 6 surveys, 15 of 23 Pilots expressed intentions to maintain data sharing infrastructure established through WPC regardless of CalAIM, whereas 13 had concrete plans to sustain via ECM. Fifteen Pilots had intentions to maintain existing data sharing agreements through CalAIM (data not shown).

In PY 5 surveys, almost all Pilots (22 of 23) believed that data platforms and tools established through WPC would facilitate their transition to CalAIM. These tools were critical to ongoing case management, program monitoring, and strategic improvements (data not shown).

Pilots described ways in which their data sharing infrastructure would continue through CalAIM as highlighted in Exhibit 183.

Exhibit 183: Illustrative Examples of Plans to Sustain WPC Data Sharing Infrastructure under CalAIM

Pilot	Illustrative Example
San Diego	San Diego developed a "who's in jail" push notification feature, which alerted case managers through text and e-mail when an enrollee was in jail. This allowed case managers to appropriately respond and organize resources. Due to the success of the feature, it was adopted for CalAIM.
San Francisco	In preparation for CalAIM, San Francisco assessed capacity of providers to appropriately document services in alignment with Medi-Cal standards across relevant record systems. WPC funded and launched the addition of a comprehensive care coordination module within EPIC called Compass Rose; EPIC will be utilized for CalAIM as it meets the reporting requirements.
Santa Clara	As learned for WPC reporting, Santa Clara utilized a database design approach within HealthLink. This approach will be utilized for CalAIM reporting to reduce reporting burden as report developers will not need to understand and navigate the vast HealthLink data system. Modifications were made to existing workflows, evaluating what changes were needed for CalAIM's launch.
Marin	Marin used lessons learned from their WPC legal/policy framework for data sharing in CalAIM.
Sacramento	Beginning in mid-PY 6, Sacramento revised their monthly data dashboard to depict month-by-month comparisons of data categories such as total active enrollments, services provided to active enrollees by month (e.g., care coordination, housing, and service supports), housing disposition (permanent, transitional, shelter), clinical and housing hub provider panel size, and MCP assignments. The new transition-centric dashboard provided better understanding of enrollee movement across and out of the program, and facilitated tracking of themes and trends to inform the design and workflow of the transition process.

Source: PY 6 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=26), June-September 2021.

Care Coordination

ECM will use a single dedicated care coordinator, which in PY 6 interviews, many WPC Pilots identified as a "best practice" approach.

Pilots emphasized the importance of ECM was viewed as a strong mechanism for continuing key care coordination elements established through WPC. As indicated in PY 6 surveys, 16 Pilots had intentions of maintaining care coordination processes (e.g., intake/assessments, linkages to services, communication pathways) through ECM. Eighteen Pilots had intentions of sustaining WPC staff through ECM, with 11 of those maintaining peer support staff (data not shown). high-intensity, field-based or in-person contact to meaningful enrollee engagement. When considering the transition to ECM, WPC Pilots had concerns about the intensity of touch possible with ECM defined scope and rates. More specifically, Pilots had concerns about inability to build the necessary trust and rapport to actively engage prospective enrollees in needed services.

> *"The minimal amount of funding that is going to go to this work, will mean that hardly any hands-on, real time spent with their clients... You figure the actual cost that goes into even someone being seen for an hour a week, which is about what we were asking the wellness coaches [to do]. Sometimes, it's a little bit more time, because you can't sit there and like, 'We have an hour and then your time's up.' You want to build a trusting relationship, and [there's] really, really private parts of somebody's life." -Mendocino*

Conclusions

This final report presented findings from the comprehensive statewide evaluation of Whole Person Care (WPC) in California during the six years of implementation. The report provides extensive evidence of how the infrastructure for WPC implementation was developed by WPC Pilots, what processes were followed to implement the program, what services were delivered, and whether WPC led to better care, better health, and lower costs. These conclusions are detailed below.

Structure of WPC Pilots

Available data suggest that WPC Pilots successfully achieved WPC goals of "increased integration among county agencies, health plans, providers, and other entities within the county that serve high-risk and high-utilizing beneficiaries" and "developed infrastructure that would ensure local collaboration among the entities participating in the WPC Pilots over the long term." Pilots chose Lead Entities (LE) that had the leadership and administrative capacity to effectively implement WPC, with the majority being county health services or public health departments and agencies. Pilots also included other county agencies, health plans, and community providers as partners. Reflecting Pilots' commitment to improving integration of health and human services, over a third of partners were housing support or other social service providers. LEs invested considerable effort to meaningfully engage partners in WPC (e.g., regular meetings, case conferences, etc.). Partners reported significant impact of WPC on goals such as improved data sharing, integration of care, and care delivery.

Health Information Technology and Data Sharing Infrastructure

WPC Pilots were required to "improve data collection and sharing amongst local entities to support ongoing case management, monitoring, and strategic program improvements in a sustainable fashion." All Pilots succeeded in improving their data sharing capacity by investing considerable effort and resources into related activities despite barriers. Initial progress was slow due to the considerable start-up activities required to support data sharing (e.g., overcoming legal and cultural barriers to data sharing, research into and procurement of appropriate care management platform(s), training and modifying workflows to facilitate uptake by frontline staff). However, by the end of WPC, all Pilots successfully established data sharing agreements with at least some partners and most Pilots expanded, acquired, or developed a care management platform to facilitate tracking of enrollee-level data. Other important data sharing infrastructure established through WPC included universal enrollee consent forms, processes to support real-time data access by frontline staff working in the field, integration of care management platforms with existing electronic health records (EHRs), and real-time notification of emergency department or inpatient hospital visits. Most LEs financially incentivized partners to develop needed data sharing infrastructure and report on required

data elements, and viewed these incentives as important for ensuring partner's participation in data sharing activities. Although most Pilots reported continued room for improvement (e.g., in functionality of selected data sharing platforms), all Pilots were able to share the most important data needed to support enrollee outreach and engagement, care coordination, monitoring of partner performance, and quality improvement activities. Overall, Pilots viewed WPC as critical for facilitating development of new data sharing infrastructure and in facilitating cross-sector coordination needed to effectively manage enrollee care.

Key barriers to data sharing included considerable efforts required for start-up activities, developing data sharing agreements across a variety of partners, identifying and procuring care management platforms, and supporting staff buy-in, readiness, and transition to new data sharing systems. Pilots addressed these challenges by investing sufficient effort into the development of innovative and effective data sharing systems and tools, financially incentivizing partners to adapt and uptake needed infrastructure to support care coordination activities, and providing training and updating workflows to support data-informed decision making and/or quality improvement efforts.

WPC Enrollment Size, Patterns, and Trends

WPC Pilots were required to identify eligible Medi-Cal beneficiaries using pre-defined inclusion criteria, enroll them in WPC, and engage enrollees in care. Evidence from the evaluation indicated that Pilots succeeded in these activities, with a steady growth in enrollment culminating in 249,378 unique beneficiaries, including the majority who were high utilizers or experiencing homelessness and many who had serious mental illness or substance use disorders (SMI/SUD) conditions or were justice-involved.

Pilots experienced early barriers to initial enrollment of eligible Medi-Cal beneficiaries into WPC and with maintaining enrollee engagement over time, often due to the lack of trust and hesitancy of specific target populations to engage with services. Pilots reported successfully addressing these challenges over time by employing solutions that were often directly the result of observed challenges and included active trust and rapport building, policy and procedure changes (e.g., formalized contracts, warm-handoffs, clear guidelines), and better data sharing. WPC Pilots were able to reach high enrollment numbers by using innovative and tailored approaches for identifying eligible enrollees including referrals from community-based partners, predictive modeling to identify at-risk beneficiaries, and field-based outreach at medical facilities, streets, or shelters where enrollees lived. Another important innovation was employing staff with lived experience for outreach and engagement of eligible population such as those experiencing homelessness who had higher levels of medical mistrust or those who were justice-involved and required warm-handoffs at county jails and probation offices upon

release. These efforts may have contributed to longer enrollment particularly among enrollees with SMI/SUD.

WPC Services Offered and Delivered

WPC Pilots aimed "increase coordination and appropriate access to care" and "increase access to housing and supportive services." Analysis of data showed that Pilots not only offered more basic services such as outreach, care coordination, and housing support but many added other supportive services including benefit assistance, health education, legal services, employment services, sobering centers, and medical respite to address social needs and avert recidivism or avoidable use of emergency departments (ED) and hospitals. WPC allowed Pilots to deliver WPC services under bundles of services paid through per-member, per-month (PMPM) payments or individual services paid on a fee-for-service (FFS) basis. Services provided by LEs were frequently bundled and services provided by partners were frequently not bundled. As a result, assessment of receipt of specific services per enrollee overall was not possible. Nevertheless, analyses showed targeted use of some services by enrollee need such as highest rates of medical respite for enrollees with chronic physical conditions. Examining the average payment by enrollee as a proxy for service intensity, showed the highest amounts for individuals with SMI/SUD, followed by enrollees with chronic physical conditions and lowest amounts for the COVID-19 population and enrollees at-risk of homelessness.

WPC Care Coordination

WPC Pilots aimed to "increase coordination and appropriate access to care for the most vulnerable Medi-Cal beneficiaries." Evidence suggests Pilots were successful in developing diverse and appropriate infrastructure (e.g., staffing, data sharing, standardized protocols) and effectively delivered care coordination services (e.g., needs assessment, care plan, referrals) needed to support effective care coordination. Pilots experienced including challenges in hiring and retaining staff, developing connections to services with limitations or restrictions (i.e., housing programs for specific populations), and difficulty with initial engagement of appropriate interdisciplinary partners. Pilots were able to overcomes these challenges using innovative and notable solutions, including development of multidisciplinary care coordination teams who had access to data across partners, standardized care coordination protocols, working with partners in new ways that improved understanding of mutual goals for shared clients, and financial incentives to WPC partners. Additional innovation included employment of care-coordination staff with "lived experience" (e.g., CHWs) and clinical expertise to address enrollee needs, offered tiered care coordination services and varied caseloads to match the complexity of enrollee need.

Further successes in care coordination included regular and comprehensive assessment of medical, behavioral health, and social needs, development of comprehensive care plans, linking enrollees to appropriate service, and promoting accountability among care coordination teams. Pilots used innovative and creative strategies to engage enrollees in care including providing/arranging transportation to and from appointments and offering incentives (e.g., meals, personal care items) and service delivery to enrollees where they lived.

Pilots reported a limited number of universal and variant metrics but did not have other standard deliverables related to care coordination and access to care to social services in their applications. Therefore, UCLA developed a conceptual framework to compare the success of Pilots in care coordination to an evidence-based framework. The analyses suggests Pilots were successful in developing diverse and appropriate infrastructure (e.g., staffing, data sharing, standardized protocols) and effectively delivered of care coordination services (e.g., needs assessment, care plan, referrals) needed to support effective care coordination through WPC. WPC Quality Improvement, Program Monitoring, and Stakeholder Engagement

WPC aimed to "achieve targeted quality and administrative improvement." Pilots were required to engage in regular quality improvement activities and submit biannual Plan-Do-Study-Act (PDSA) reports documenting Pilot-led efforts to improve outcomes and metric performance. Evidence indicated substantial effort by Pilots in these quality improvement activities focusing on improving WPC implementation (e.g., ensuring development of a comprehensive care plan within 30 days of enrollment) and improving specific outcomes/metrics (e.g., reducing hospitalizations, diverting patients from the ED to more appropriate settings). Quality improvement and program monitoring activities allowed Pilots to meaningful adjust their implementation approach throughout the course of the Pilot and were perceived as positively contributing to Pilot performance and as helping Pilots identify which elements of their Pilot to prioritize for sustainability after the close of WPC.

WPC and COVID-19

The COVID-19 pandemic started in early 2020, during the fourth year of WPC implementation and resulted in the program being extended for an additional year. UCLA investigated the extent to which COVID-19 impacted WPC implementation, enrollment, and enrollees, as well as

whether the impact of the pandemic was similar among enrollees and their matched controls. The finding indicated that Pilots were able to respond to the challenges presented by the pandemic quickly and minimize its impact on WPC enrollment and service use. The findings also highlighted the unanticipated value of WPC investments in system-wide integration in responding to emergencies such as COVID-19. Specific findings suggested that Pilots were able to respond to COVID-19 protocols that prevented in-person outreach and delivery of care coordination and created new needs among the targeted populations. These efforts included changing their original workflows, using new tools and strategies, and developing other innovative approaches in response to the challenges presented by the pandemic. Some changes were relatively simple (e.g., ability to collect consent over the phone instead of mandating in-person verbal consent), and others were more complex (e.g., expanded short-term housing opportunities, creating a "one stop shop" centered around COVID-19 isolation housing).

Early in the pandemic, Pilots limited in-person outreach and shifted to primarily telephonic care coordination, but most had reverted to previous practices by the close of the program. The changes were possible due to the of infrastructure and processes established through WPC, including availability of screening protocols, trained and experienced staff, and data sharing agreements and platforms. These efforts likely led to the continued growth of WPC enrollment throughout 2020 and into 2021. As the pandemic continued, many Pilots tailored WPC efforts to align with new COVID-19 initiatives such as Project RoomKey and Project HomeKey. Analysis further indicated that the rate of COVID-19 infections and use of related services were similar for WPC enrollees and controls. The findings also indicated a prolonged reduction in ED visits and hospitalizations but a shorter-term impact on primary care and specialty care utilization most likely due to the increased use of telehealth services.

Enrollee Demographics, Health Status, and Prior Health Care Utilization

WPC Pilots aimed to enroll the "most vulnerable Medi-Cal beneficiaries" but had flexibility in choosing from seven populations of focus (e.g., high utilizers, individuals with chronic physical or behavioral health conditions, individuals experiencing homelessness). Data showed that all WPC Pilots successfully enrolled the most vulnerable Medi-Cal beneficiaries who were at risk of being or who were high utilizers. Specifically, data showed many enrollees were from communities of color; had high prevalence of multiple chronic physical conditions, mental health conditions, and substance use disorders; and/or had an upwards trajectory in use of emergency department visits and hospitalizations prior to enrollment.

Better Care

WPC aimed to use care coordination and WPC services to "increase appropriate access to care and improve beneficiary care outcomes." Evaluation findings provided support for this WPC goal and further insights on how patterns of care changed over time and for important sub-

groups of high utilizer Medi-Cal beneficiaries. Specifically, data showed that enrollees use of outpatient services increased in the first year of WPC. Comparing trends from before to during WPC, enrollees had a reduction in primary care, an increase in specialty care, a decline in mental health care, and an increase in substance use treatment for enrollees overall vs. the control group. These patterns likely indicated that WPC enrollees were overusing primary care services prior to enrollment in lieu of other appropriate care due to limited specialty care access and underdiagnosis and underuse of mental health and substance use treatment prior to enrollment. Following enrollment, care coordination that included assessing need and treating unmet need led to increased access to care early on and more appropriate use of services in the right settings in the following periods.

Additional analyses of two important subgroups of enrollees, those with serious mental illness/substance use disorders/experiencing homelessness (SMI/SUD/HML) and those who were medically complex or high risk (MC/HR) showed two somewhat different trajectories and pattern of change for each group. Data showed a greater initial increase in mental health and substance use disorder services for MC/HR enrollees after enrollment; a greater decline in primary care for SMI/SUD/HML than MC/HR enrollees; similar decline in specialty care for both groups; a decline in mental health care for SMI/SUD/HML but an increase for MC/HR group; and an increase in substance use treatment for MC/HR and a decline for SMI/SUD/HML. These findings likely indicated a greater overuse of primary care services for the SMI/SUD/HML, which was addressed by provision of more mental health care rather than substance use treatment. On the other hand, evidence indicated likely presence of undetected and untreated mental health and substance use disorders for the MC/HR group that led to greater use of mental health care and substance use treatment.

Further evidence supported delivery of better care under WPC and based on WPC metrics, including the increase in mental health hospitalizations with a follow-up outpatient visit within seven days, engagement in substance use treatment, provision of comprehensive care plans, and suicide risk assessment of enrollees with major depressive disorders. Surveys and interviews with Pilots provided additional insights on how some metrics may have improved such as use of financial incentives to motivate achieving specific metrics. Changes in utilization patterns were also supported by Pilots perceived increases in access and delivery of comprehensiveness and timely care despite challenges such as availability of same or next-day primary care appointments and shifts to telehealth due to the COVID-19 pandemic.

Better Health

WPC aimed to "reduce inappropriate emergency and inpatient utilization" and "improve health outcomes for the WPC population." Evaluation findings provided support for this WPC goal and

yielded further insights into how patterns of care changed over time and for important sub-groups of WPC enrollees. Importantly, data showed an overall reduction in ED visits and hospitalizations and an increase in long-term stays for enrollees relative to the control group. Reductions in ED visits could be attributed to changing patterns of outpatient care, described in the Better Care chapter, and to intensive efforts by Pilots to employ more effective ED diversion strategies. Reductions in hospitalizations, coupled with lack of change in all-cause readmissions, could be attributed to a decline in first-time hospitalizations. Increases in long-term stays may have occurred as enrollees were assessed for need and diverted from hospitals to lower intensity settings to receive rehabilitation services.

Additional analyses of SMI/SUD/HML and MC/HR subpopulations showed slightly different patterns of change in these groups. Specifically, analyses indicate a larger decline in ED visits for the SMI/SUD/HML than the MC/HR group, a greater decline in hospitalizations for the SMI/SUD/HML than the MC/HR group, and a greater increase in long-term stays for the SMI/SUD/HML than the MC/HR group. The findings further emphasized the concentration of avoidable ED visits and hospitalization among enrollees with SMI/SUD/HML and the likely importance of care coordination in helping navigate these patients to more appropriate care settings.

Analyses also revealed positive impacts of WPC on other aspects of health, including better control of blood pressure and Pilot-reported improvements in overall health, comprehensive diabetes care management, and depression remissions. The principal challenge reported by Pilots as limiting their ability to improve enrollee health was the COVID-19 pandemic and enrollee concerns of contracting COVID-19, which limited their willingness to engage in appropriate care.

Lower Costs

UCLA assessed seven measures of health care costs that corresponded to majority of utilization measures examined in Better Care and Better Health chapters. Together, these measures illustrated potential changes in pattern of care and their associated costs under WPC. The evaluation findings provided support for reduction in overall costs, an estimated $383 per enrollee per year. The examination of costs for relevant categories of service showed that the decline in overall costs was likely accomplished through a decline in hospitalizations, outpatient services, and emergency department visits. This was despite increases in prescription medication costs and other residual services and no decline in cost of long-term care stays. These finding likely reflect the potential for savings when avoidable hospitalizations, emergency department visits, and outpatient services are reduced.

Evidence further showed a greater decline in overall costs and outpatient costs, a greater increase in outpatient medication costs, an increase in ED costs, and a decline in long-term costs for MC/HR enrollees vs. those with SMI/SUD/HML. At the same time, the findings from the Better Care chapter indicated increased use of mental health services and substance use treatment and findings from Better Health chapter indicated a smaller decline in hospitalizations and ED visits. It is likely that reduction in outpatient costs occurred because these enrollees were better managed with medications and their previously untreated or undiagnosed needs were better addressed. However, it is also likely that when these enrollees had ED visits, they were likely to be for emergent conditions such as alcohol and drug poisonings and required more intensive interventions.

For SMI/SUD/HML enrollees, evidence showed a decline in overall, outpatient, ED, and hospitalization costs, an increase in long-term care costs, and a greater decline in hospitalization costs and greater increase in cost of residual services compared to MC/HR enrollees. At the same time, the findings in the Better Health chapter showed a greater decline in ED visits and hospitalization but an increase in long-term stays. It is likely that many of the emergency departments visits that were avoided were non-emergent and these enrollees' needed outpatient or social services. It is also likely that reduced hospitalizations were also avoidable and low-cost.

WPC Enrollees Experiencing Homelessness Services and Outcomes

WPC targeted beneficiaries who were experiencing or at-risk of homelessness and aimed to "increase access to housing and supportive services." Evaluation findings showed that Pilots succeeded in enrolling mostly beneficiaries who were experiencing homelessness, provided housing support services to them using innovative and effective approaches, and improved their outcomes. Pilots did this through strategic and innovative approaches in outreach and WPC care delivery that matched the needs and living conditions of these enrollees. More specifically, many had higher rates of behavioral health conditions, higher utilization of emergency departments, mental health services and substance use services. Therefore, Pilots provided a higher intensity WPC service utilization and focused on provision of permanent housing following the "housing first" approach. Pilots innovated solutions to address challenges of lack of WPC funding for housing costs and chronic lack of adequate housing supply by leveraging other funding sources and working with external partners. These efforts succeeded in permanent housing for some and retention by other types of financial supports. These efforts and more intensive care coordination likely resulted in increased access to more appropriate mental health services such as timely follow-up care for mental health hospitalizations and engagement in alcohol and other drug dependence treatment as well as reductions in acute care utilization in emergency department visits and hospitalizations.

Sustainability and Transition to CalAIM

Before the extension of WPC, the majority of Pilots had indicated plans to sustain relationships with other WPC partners and to maintain data sharing infrastructure and housing support services regardless of CalAIM. During the WPC extension, Pilots further reiterated their commitment to supporting improved integration of care through established infrastructure and other funding sources within their County, where possible.

DHCS promoted sustainability of WPC in two significant ways, including developing new Medicaid benefits and services through CalAIM Enhanced Care Management (ECM) and Community Supports and providing extensive support to facilitate contracting (e.g. learning collaboratives) between Medicaid managed care plans and Pilots as the providers of new services and benefits modeled on WPC under CalAIM. Further, former Pilots that met specific criteria had the opportunity to continue receiving direct funding through the WPC Services and Transition to Managed Care Mitigation Initiative in order to pay for existing WPC services that map to ECM and Community Support services before they transitioned to CalAIM. Funding was made available beginning January 2022 and ran through March 2024. Services that did not continue under CalAIM were not eligible for funding.

DHCS created two new Medi-Cal benefits and services called Enhanced Care Management (ECM) and Community Supports (CS) under CalAIM that could be provided to similar beneficiaries or "populations of focus" Under CalAIM. In preparation for CalAIM, DHCS embarked on a one-year effort to provide technical assistance and other supports. Pilot reported transition challenges included need for clarity in scope of services and eligibility requirements for ECM, and these challenges were addressed through facilitation of meetings and provision of policies and guidance to Pilots and managed care plans by DHCS and contractors. Pilots found the regular planning meetings and workgroups brought participating managed care plans and WPC partners together to discuss the necessary next steps. These efforts led to participation of all WPC Pilots, either the LEs or Pilot partners in ECM and CS, with variations by county. This transition insured that the major goals of WPC including promoting development of local public-private partnerships that were supported by data sharing infrastructure in order to provide care coordination to Medicaid beneficiaries who were high utilizers of care were sustained. Specifically, participating WPC Pilots had the needed expertise in provision of care to SMI/SUD, justice-involved, high utilizers, and individuals experiencing homelessness including expertise in providing needed housing services, recuperative care, and medical respite.

Implications

The evaluation findings stated above described a major and expansive effort by California Department of Health Care Services to address the needs of the most vulnerable Medi-Cal beneficiaries who were at risk of or high utilizers of acute services in emergency departments

and hospitals. WPC was specifically focused on care coordination and housing support services in recognition of the most important needs of these beneficiaries. Provision of these services was anticipated to lead to more appropriate use of medical and behavioral health services offered by Medi-Cal and subsequently guide WPC enrollees into more appropriate care settings and reduce avoidable acute care and its associated costs. To achieve these goals, WPC was designed as a localized program that was based on public-private partnerships and therefore could be customized to some degree to fit the existing infrastructure, resources, and population characteristics of each locality. The public-private partnership approach to program implementation required the establishment of data sharing infrastructure and ways to bridge over organizational silos and data confidentiality requirements.

The evaluation findings provided detailed information on what Pilots did to establish partnerships and the other infrastructure and how they succeeded in delivery of WPC services. Evaluation findings further illustrated challenges Pilots faces and innovations they used to overcome them. Ultimately, the findings showed that WPC achieved its goal of guiding patients to more care appropriate settings and receipt of needed services to improve their health. The extensive assessment of two important subgroups of enrollees, including those with serious mental illness, substance use disorders, or experiencing homelessness vs. others who were at high risk or with multiple chronic conditions highlighted that program savings were notably greater for the latter enrollees. Given that savings were not realized for the former group despite significant reductions in their use of potentially avoidable acute care suggest that the high need for continuous care over time overshadowed these cost savings.

The early successes of the WPC were instrumental in California's efforts to sustain several aspects of WPC under CalAIM, including creation of Enhanced Care Management (ECM) and Community Supports (CS) covered services under Medi-Cal managed care.[1] While the coverage of these services became the responsibility of Medi-Cal Managed Care Plans (MCPs), California invested significant effort to retain the infrastructure and processes created by WPC Pilots by facilitating contractual agreements between MCPs and LEs or their partners. In addition, CalAIM's PATH initiative funding was made available to former WPC Pilot Lead Entities until the services transitioned to managed care coverage under CalAIM. CalAIM seeks to retain best practices at the local level and continuity of care for enrollees.

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[1] ECM is a new statewide Medi-Cal benefit available to select "Populations of Focus" that will address clinical and non-clinical needs of the highest-need enrollees through intensive coordination of health and health-related services; beneficiaries will have a single Lead Care Manager who will coordinate care and services among the physical, behavioral, dental, developmental, and social services delivery systems. CS are new social support services provided by Medi-Cal managed care plans as cost effective alternatives to traditional medical services or settings, including services such as medically supportive foods or housing supports.

The implications of the WPC evaluation findings are numerous. Broadly, the implementation approach, best practices, and reasoning behind Pilot decisions are helpful for ongoing implementation of ECM and CS, planning the expansion of ECM and CS in new localities where no Pilots were operating, or in other states contemplating similar interventions. The differences in outcomes between beneficiaries who need extensive and continuous services and those whose health profile is less complex is helpful in forming expectations of the outcomes and associated savings of such programs for various beneficiaries. Importantly, the findings implied that navigating very complex beneficiaries to appropriate settings may reduce their health care spending less than those with less complexity but could lead to well-being and other significant system-wide benefits such as reducing congestion in acute care settings. These findings also indicate the need for a closer look at subgroups of this population such as those who are recently experiencing or have been chronically experiencing homelessness, and those with SMI vs. SUD but no other complications. It is likely that there are multiple categories of complexity among such enrollees. Each requires different tailored interventions, and provision of care could lead to different trajectories in service use and related costs.

Appendix A: Data Sources and Analytic Methods for Quantitative Analysis

WPC Quarterly Enrollment and Utilization Reports

UCLA used *WPC Quarterly Enrollment and Utilization Reports* to analyze WPC enrollment and utilization of WPC services. All Pilots submitted quarterly reports during the time they had implemented WPC from January 1, 2017, to December 31, 2021.

Analytic Methods

Exhibit 184 shows the enrollment data obtained from these reports. If there were conflicting data for individual enrollees between quarterly reports, UCLA used the more recent data. Enrollees that were enrolled in more than one Pilot at the same time were excluded from analysis (n=576). An additional 1,492 individuals were enrolled in more than one Pilot, but not at the same time. These individuals were counted as unique enrollees for each Pilot they enrolled in during the program.

Exhibit 184: Beneficiary-Level Variables

Data Elements	Definitions
Pilot	Pilot in which enrollee is enrolled.
Monthly Enrollment Status	Indicator for WPC enrollment status for a particular month.
Enrollment Date	The date an enrollee starts to enroll in WPC.
Disenrollment Date	The date an enrollee disenrolled from WPC.
Reason for Disenrollment	Reason for disenrollment from a standardized list developed by DHCS.
Number of Times Disenrolled	The number of times each enrollee disenrolled from the MCP throughout their enrollment.
Length of Enrollment	The differences between disenrollment date and enrollment date. If an enrollee enrolls in and disenrolls from WPC on the same date, the length of enrollment will be one day.
Target Population	Indicator to inclusion in up to seven target populations. Enrollees were included in a target population if ever reported as part of a given target population.
Homeless Indicator	Indicator of experiencing homelessness that was separate from homeless target population.

Notes: Data from WPC Quarterly Enrollment and Utilization Reports from January 1, 2017, to December 31, 2021.

UCLA further used the *WPC Quarterly Enrollment and Utilization Reports* to identify monthly utilization of Pilot-created WPC service categories. These included per-member, per-month (PMPM) and fee-for-service (FFS) categories. Pilots reported whether enrollees were included

in each PMPM category each month (yes/no) and how many times they received an FFS category each month (numerical integer).

Limitations

UCLA analyzed the enrollment data provided by WPC Pilots. Enrollment and utilization data did not always align, with some enrollees having no reported WPC services. In some cases, this was the result of services that were not reimbursed through PMPM and FFS, but in other cases it resulted from lack of engagement in the program. Pilot methodology for reporting of target populations differed, with some Pilots reporting on all target populations regardless of whether the target population was a primary target of the Pilot and others only reporting on those that were a primary target. As a result, some enrollees that would meet the criteria of a given target population are not included in that population. One of the standardized disenrollment reasons, "graduated," was not added until 2018 and as a result some enrollees that successfully left the program are not accurately captured as disenrolling for that reason.

Medi-Cal Enrollment and Claims Data

UCLA used Medi-Cal eligibility and claims data from January 1, 2015, to December 31, 2021, to create the demographics, health status indicators, health care utilization indicators, WPC performance metrics, and UCLA-created metrics used in this report. Claims data included both managed care and fee-for-service encounters, including Short-Doyle claims. Claims did not include dental claims.

Analytic Methods

Demographic Indicators

Exhibit 185 displays demographic indicators created by UCLA using Medi-Cal monthly eligibility data. UCLA calculated age based on an enrollee's WPC enrollment date. On the rare occasion enrollment data included more than one birthday for an enrollee, UCLA used the latest birthday reported. While not common, if the Medi-Cal enrollment data contained conflicting data for gender, race, or language for an WPC enrollee, UCLA used the most frequently reported category.

Exhibit 185: Demographic Indicators

Indicators	Definitions
Age	Enrollee's final age in years at the time of WPC enrollment.
Gender	Indicates whether an enrollee is male or female.
Race	The race label for an enrollee: White, Hispanic, African American, Asian American and Pacific Islander, American Indian and Alaska Native, other, or unknown.

Indicators	Definitions
English as Primary Language	Indicating whether an enrollee's primary language is English or not.
Number of Months with Full Scope Coverage	Full scope coverage is defined as at enrollment in at least one dental MCP and another non-dental MCP during the eligible date period. The number of months that an enrollee is full scope is reported for the year prior to the enrollee's initial enrollment in WPC.

Health Status Indicators

UCLA used Medi-Cal claims data from January 1, 2015, to December 31, 2021, to assess health status of WPC enrollees prior to their enrollment in WPC. UCLA used the criteria set by CMS's [Chronic Condition Warehouse (CCW)](#) to obtain a complete list of chronic condition and potentially chronic or disabling condition categories that were present in the two years prior to an enrollee's enrollment in WPC (baseline). Additionally, UCLA created two indicators to identify enrollees with serious mental illness and substance use disorders based on ICD codes from the CCW definitions.

WPC Metrics and Measures

WPC metrics were calculated based on WPC metric specifications. WPC metrics were grouped by whether they measured progress towards better care, better health or lower costs. All metrics were reported in the aggregate and included data for two years prior to and five years following each individual's enrollment in WPC when possible. UCLA assessed any length of enrollment or required number of months of enrollment on Medi-Cal enrollment rather than WPC enrollment in order to be consistent between WPC enrollees and the control group. All metrics were reported annually in order to assist in interpretation of findings. Exhibit 186 includes descriptions of all WPC metrics and how changes in the metric are to be interpreted.

Exhibit 186: WPC Metrics, Definitions, and Intended Direction

Metric	Description	Improvement Measured by Increase or Decrease
Follow-Up After Hospitalization for Mental Illness within 30 days	Percentage of discharges for enrollees age 6 and older who were hospitalized for treatment of selected mental illness diagnoses and who had a follow-up visit with a mental health practitioner within 30 days.	Increase
Follow-Up After Hospitalization for Mental Illness within 7 days	Percentage of discharges for enrollees age 6 and older who were hospitalized for treatment of selected mental illness diagnoses and who had a follow-up visit with a mental health practitioner within 7 days.	Increase

Metric	Description	Improvement Measured by Increase or Decrease
Initiation of Alcohol and Other Drug Abuse or Dependence Treatment	Percentage of enrollees who initiate treatment through within 14 days of the diagnosis.	Increase
Engagement of Alcohol and Other Drug Abuse or Dependence Treatment	Percentage of WPC enrollees who initiate treatment and who had two or more additional AOD services or MAT within 34 days of the initiation visit.	Increase
Controlling High Blood Pressure	Percentage of WPC enrollees ages 18 to 85 who had a diagnosis of hypertension (HTN) and whose blood pressure (BP) was adequately controlled during the measurement year.	Increase
Comprehensive Diabetes Care	Percentage of enrollees with type 1 or type 2 diabetes that received HgA1c testing during the measurement year.*	Increase
All-Cause Readmissions	The number of acute inpatient stays during the measurement year that were followed by an unplanned acute readmission for any diagnosis within 30 days and the predicted probability of an acute readmission.	Decrease
Ambulatory Care: Emergency Department (ED) Visits	The total number emergency department (ED) visits resulting in discharge normalized by the total number of Medi-Cal enrolled member months, multiplying the result by 1,000. UCLA multiplied the findings by 12 in order to report rate as per 1,000 beneficiary per year.	Decrease
Inpatient Utilization	The total number of inpatient visits normalized by the total number of Medi-Cal enrolled member months, multiplying the result by 1,000. UCLA multiplied the findings by 12 in order to report rate as per 1,000 beneficiary per year.	Decrease

Source: Detailed information for each metric is available in WPC Metric Specifications.
Note: *The WPC metric specified examining rates of controlled diabetes (HgA1c<8%), but reporting rates of tests results were too low in the Medi-Cal claims data.

Additional Healthcare Utilization Measures

UCLA also created additional measures of healthcare utilization indicators using Healthcare Effectiveness Data and Information Set (HEDIS) 2019 Volume 2 definitions, National Uniform Claim Committee taxonomy designations, the Chronic Conditions Warehouse, and the American Medical Association's Current Procedure Terminology (CPT) Codebook. Exhibit 187 displays these indicators.

Exhibit 187: Healthcare Utilization Indicators

Indicators	Definitions	Improvement Measured by Increase or Decrease
Number of Primary Care Services per 1,000 Beneficiaries per Year	The number primary care provider services during the year for every 1,000 beneficiaries.	Decrease
Number of Specialty Services per 1,000 Beneficiaries per Year	The number of specialty services during the year for every 1,000 beneficiaries.	Increase
Number of Mental Health Services per 1,000 Beneficiaries per Year	The number of mental health services during the year for every 1,000 beneficiaries.	Decrease
Number of Substance Use Disorder Services per 1,000 Beneficiaries per Year	The number of substance use disorder services during the year for every 1,000 beneficiaries.	Increase
Number of Long-Term Care Stays per 1,000 Beneficiaries per Year	The number of the long-term care stays during the year for every 1,000 beneficiaries	Increase

Control Group Construction

In order to construct the control group, UCLA needed to identify a large group of Medi-Cal beneficiaries that were similar to WPC enrollees and had sufficient variability to improve the chance of identifying a match for each enrollee. This was accomplished through a multi-step process. In the first step, UCLA used a very broad set of selection criteria to pull a limited number of variables on possible controls. These selection criteria included Med-Cal beneficiaries that had any of the following during the two years prior to WPC implementation or during the five years of WPC implementation (January 1, 2015 – December 31, 2022):

- Any emergency department visit
- Any hospitalization
- Any claim with a place of service or ICD that indicated homelessness
- An address-based keyword that indicated homelessness

For these beneficiaries, UCLA obtained annual data on their age, gender, county of residence, number months enrolled in Medi-Cal, homelessness status, and emergency department, hospital and outpatient utilization.

For the second step, UCLA used a stratified sampling process to find potential controls for each annual cohort of WPC enrollees. Each annual cohort was matched using data from two years prior to their WPC enrollment and the year of WPC enrollment (for example, 2017 enrollees were matched using data from 2015 through 2017). UCLA selected 10 possible controls for each enrollee that matched based on age group, gender, homelessness status, hospitalization patterns, emergency department visit patterns, outpatient utilizations patterns, and county of residence. If ten possible controls were not identified, UCLA used an urban, suburban, or rural county status instead of exact county or no county indicator to identify potential controls. Once an individual was identified as a potential control, they were removed from the pool available for matches with other annual cohorts. This process identified 2.7 million potential controls.

UCLA then obtained complete administrative Medi-Cal monthly enrollment and claims data from January 2015 to December 2021 for 275,840 individuals reported in *WPC Quarterly Enrollment and Utilization Reports* and for 2.7 million individuals that were potentially eligible for WPC based on the preliminary matching process described above.

UCLA used 64 variables indicating demographic, health status, service utilization, and cost to select the control group (Exhibit 188). Demographic variables were constructed from Medi-Cal enrollment data. Health status variables were constructed from claims data and included measures of chronic and behavioral health conditions (e.g., asthma, diabetes, hypertension, chronic kidney disease). Additional variables that measured differential in utilization rates and payments between baseline years were created when possible.

Exhibit 188: Variables Used to Select the Control Group

Indicator	Description
Demographics (41 indicators)	
Age Group (5 indicators)	Age at the start of WPC enrollment (0-17, 18-34, 35-49, 50-64, or 65+ years)
Gender (1 indicator)	Reported Gender in Medi-Cal Enrollment (Male or Female)
Race/Ethnicity (5 indicators)	Reported Race/Ethnicity in Medi-Cal (White, Hispanic, Black, Asian or Pacific Islander, or Native American/Other/Unknown)
Language (1 indicator)	English as the preferred language
Two years of baseline data (1 indicator)	Indicator of whether beneficiary had one or two years of baseline data.
Homelessness (2 indicator)	Indicator of homelessness during each baseline year.
County (26 indicator)	County of residence (26 WPC counties)
Health Status (12 indicators and variables)	
CCW chronic conditions (1 variable)	Count of the number of CCW chronic and disabling conditions during baseline.
Chronic condition category (3 indicators)	Indicators of chronic condition count (0, 1-2, or 3 or more) during baseline.

Indicator	Description
Serious Mental Illness (2 indicators)	Indicators of serious mental illness during baseline years (pre-year 1 and pre-year 2).
Substance Use Disorder (2 indicators)	Indicators of substance use disorder during baseline years (pre-year 1 and pre-year 2).
Hypertension (1 indicator)	Indicator of hypertension during baseline.
Diabetes (1 indicator)	Indicator of diabetes during baseline.
CDPS score (2 variables)	CDPS score in each baseline year.
Service Utilization and Estimated Medi-Cal Payments (11 variables)	
Utilization differential (6 variables)	Change in emergency department, hospital, mental health services, substance use disorder services, primary care services, and specialty services utilization from pre-year 1 to pre-year 2.
Cost differential (5 variables)	Change in total, emergency department, hospital, outpatient and outpatient prescription costs from pre-year 1 to pre-year 2.

For a limited number of enrollees (n=6,694) that did not have any baseline data, UCLA identified controls based on age group, gender, race, county, and whether they experienced homelessness during the first year of the program. Furthermore, for enrollees with only one year of baseline data (n=26,706), UCLA identified controls based on the total estimated costs and utilization rates rather than the differential between the two baseline years.

Due to the phased implementation of WPC, UCLA grouped WPC enrollees into 20 cohorts based on the quarter in which they enrolled and selected a potential pool of control beneficiaries for each cohort. This method ensured that the control group beneficiaries had a similar baseline period to their matched enrollee. To select the final matched control group, UCLA used the MatchIt package in R to estimate a propensity score in generalized additive models for modeling non-linear effects and avoiding overfitting using the variables in Exhibit 188 to identify two controls for each enrollee.

UCLA used sampling with replacement. The final control group to WPC enrollee ratio was 1.75. To balance the sample, each control group beneficiary that was matched to multiple WPC enrollees was included in the control sample separately for each enrollee, resulting in two matched controls for each enrollee. Exhibit 189 shows the characteristics of enrollees and their matched controls with two years of baseline data and effect of the matching. Data showed that the balance between WPC enrollees and controls improved for nearly all indicators and variables, particularly for measures of utilization and cost.

Exhibit 189: Comparison of Select Characteristics of WPC Enrollees with Two Years of Baseline Data and Matched Control Beneficiaries

		WPC Enrollees (n= 200,030)	Before Match Control Group (n = 400,060)	After Match Control Group (n = 400,060)
Age (at time of enrollment)	% 0-17	2%	4%	4%
	% 18-34	31%	32%	33%
	% 35-49	27%	24%	25%
	% 50-64	32%	28%	27%
	% 65+	8%	12%	10%
Gender	% male	54%	52%	54%
Race/Ethnicity	% White	26%	25%	27%
	% Latinx	27%	40%	38%
	% African American	24%	12%	13%
	% Asian	6%	10%	8%
	% Other or Unknown	16%	14%	14%
Homelessness	UCLA-constructed indicator	45%	18%	21%
Chronic Condition Category	0	32%	35%	34%
	1-2	38%	34%	36%
	3+	30%	31%	30%
Select Chronic Conditions	Hypertension	25%	25%	24%
	Diabetes	14%	16%	15%
	Serious Mental Illness	36%	17%	24%
	Substance Use Disorders	27%	13%	18%
Utilization Differential in Baseline	Emergency Department	-32	4	-18
	Hospital Stays	-11	-2	-9
	Mental Health Services	-137	-28	-102
	SUD services	-69	-27	-61
	Primary Care Services	-68	-35	-56
	Specialty Services	-31	-36	-46
Cost Differential in Baseline	Total costs	-222	-56	-208
	Emergency Department	-14	0	-13
	Hospital Stays	-120	10	-110
	Outpatient	-56	-31	-55
	Outpatient Medication	-1	-6	-1
	Long-Term Care Stays	-12	-20	-11

For metrics that focused on specific subpopulations, UCLA developed unique matched control groups based on whether individuals met the denominator criteria (e.g., hospitalized for mental illness) before WPC, during WPC or is both time periods.

Difference-in-Difference Models

UCLA assessed the impact of WPC for the overall WPC population and for enrollees with SMI/SUD or those experiencing homelessness (SMI/SUD/HML enrollees) and enrollees that were medically complex or otherwise high-risk (MC/HR enrollees) separately, using the difference-in-difference (DD) modeling approach. All models were controlled for demographics (gender, age, race/ethnicity, primary language, months of Medi-Cal enrollment), program characteristics (Pilot County, year of enrollment, and enrollment in HHP), acute care utilization indicator (at-risk, low, medium, high and super utilization), and health status indicators (baseline CDPS risk scores, specific baseline chronic conditions, and total count of chronic conditions at baseline). Additionally, models were adjusted for the number of full-scope Medi-Cal enrollment months and the number of months of WPC enrollment during the COVID-19 pandemic.

UCLA used logistic regression models for binary metrics (e.g., Controlling High Blood Pressure), and Poisson models for utilization and cost variables (for inpatient and long-term care costs, UCLA used a zero-inflated count model with Poisson distribution). The exposure option within a Generalized Linear Model (GLM) was used to adjust for different number of months of Medi-Cal enrollment and the subsequent different lengths of exposure to WPC. All analyses of individual-level metrics were analyzed based on Medi-Cal member months.

UCLA measured trends before and during WPC for each metric or measure based on the date of an individual WPC enrollee's enrollment. UCLA examined changes in trends before and during WPC by modeling the changes in yearly increments up to 2 years (Pre-Year 1 and Pre-Year 2) before WPC enrollment and up to 5 years (Year 1, 2, 3, 4, and 5) during WPC. For these, the DD analysis measured the trends or change in yearly rates from Pre-Year 2 vs. Pre-Year 1 for both WPC enrollees and the control group; the change in the yearly rate during WPC from Year 1 to Year 5 for both WPC enrollees and the control group; and the difference between the changes in WPC enrollees vs. the control group from before to during WPC. The findings were not subject to potential seasonality in service utilization due to rolling enrollment throughout the year and measuring change following the date of enrollment per beneficiary.

Limitations

UCLA analysis of Medi-Cal data had limitations. One of the key target populations of WPC was individuals experiencing homelessness. However, Medi-Cal enrollment and claims data do not identify individuals that experience homelessness. As a result, UCLA created an indicator of homelessness based on Medi-Cal eligibility and claims data, which is likely subject to estimation error. The analysis in this report did not include complete claims data for the last four months

of 2021. UCLA received data for those months after the current analyses were completed and further examination showed that DD findings did not change.

The identification of chronic conditions may be subject to underreporting because due to use of primary and secondary diagnoses associated with each service.

UCLA was not able to find a control group that had similar levels of utilization or payments AND similar trends in utilization or payment prior to WPC enrollment. Therefore, the control group includes beneficiaries with higher or lower levels of utilization or payments at baseline than the WPC enrollees.

Attributing Estimated Medi-Cal Payments to Claims

Background

The great majority of services under Medi-Cal are provided by managed care plans that receive a specific capitation amount per member per month and do not bill for individual services received by Medi-Cal beneficiaries. While managed care plans are required to submit claims to Medi-Cal, these claims frequently include payment amounts of unclear origin that are different from the Medi-Cal fee schedule. A small and unique subset of Medi-Cal beneficiaries are not enrolled in managed care and receive care under the fee-for-service (FFS) reimbursement methodology and have claims with actual charges and paid values. FFS claims are reimbursed primarily using fee schedules developed by Medi-Cal. The capitation amounts for managed care plans are developed using the same fee schedules by Mercer annually, using complex algorithms and other data not included in claims.

To address the gaps in reliable and consistent payment data for all claims, UCLA estimated the amount of payment per Medi-Cal claim under WPC using various Medi-Cal fee schedules for services covered under the program. The methodology included (1) specifying categories of service observed in the claims data, (2) classifying all adjudicated claims into these service categories, (3) attributing a dollar payment value to each claim using available fee schedules and drug costs, and (4) examining differences between these and available external estimates. UCLA estimated payments for both managed care and FFS claims to promote consistency in payments across groups and to avoid discrepancies due to different methodologies.

The payment estimates generated using this methodology are not actual Medi-Cal expenditures for health care services delivered during WPC. Rather, they represent the estimated amount of payment for services and are intended for measuring whether WPC led to efficiencies by

reducing the total payments for WPC enrollees before and after the program, and in comparison, to a group of comparison patients in the same timeframe.

Service Category Specifications

Data Sources

UCLA used definitions from multiple sources to categorize and define different types of services. These sources included Medi-Cal provider manuals, HEDIS value set, DHCS 35C File, American Medical Association's CPT Codebook, National Uniform Code Committee's taxonomy code set, and other available sources.

- DHCS's Medi-Cal provider manuals included billing and coding guidelines for provider categories and some services.
- The HEDIS Value Set by the National Committee for Quality Assurance used procedure codes (CPT and HCPCS), revenue codes (UBREV), place of service codes (POS), and Systematized Nomenclature of Medicine-Clinical Terms (SNOMED CT) to define value sets that measure performance in health care. For example, the HEDIS value set "ED" is a combination of procedure codes that describe emergency department services and revenue codes specifying that services were provided in the emergency room.
- DHCS Paid Claims and Encounters Standard 35C File (DHCS 35C File) provided specifications to managed care plans on how claims must be submitted and contained detailed information about claims variables and their meaning and utility, such as vendor codes describing the location of services and taxonomy codes describing the type of provider and their specializations.
- The American Medical Association's Current Procedure Terminology (CPT) Codebook contained a list of all current procedural terminology (CPT) codes and descriptions that are used by providers to bill for services.
- The National Uniform Claim Committee's (NUCC's) Health Care Provider Taxonomy code set identified provider types such as Allopathic and Osteopathic Physician and medical specialties such as Addiction Medicine defined by taxonomy codes.

UCLA also used other resources to address gaps in definitions. For example, hospice codes that were used in claims submitted before 2016 were not included in the Medi-Cal provider manual, but UCLA collected the pre-2016 hospice codes from other DHCS guidelines.

Methods

UCLA constructed eighteen mutually exclusive categories of service (Exhibit 190). Available claims data included managed care, fee-for-service, and Short-Doyle. Some categories were defined using complementary definitions from more than one source.

UCLA assigned claims to only one of the eighteen service categories to avoid duplication when calculating total estimated WPC payments. The outpatient services category may include claims included in other categories and therefore is not included in calculation of the total estimated payment in this report. UCLA assigned claims to the first service category a claim meets the criteria for as ordered in Exhibit 190. All services, apart from primary care visits, provided on the day of an ED visit were grouped as part of the ED visit to represent the total cost of the visit. For example, patients may have received transportation to an emergency department and laboratory tests during the emergency department visit, and these services were included in the ED category rather than the transportation or laboratory services categories. This approach may have included lab or transportation services in the ED category that were not part of the ED visit, and may have undercounted lab and transportation in their respective categories. However, this was necessary because claims data lacked information on the specific time of day when services were rendered. Similarly, all claims for services received during a hospitalization were counted as part of the same stay and were excluded from other categories of service, except for primary care visits on the day of admission. Other categories were identified solely by the procedure code or place of service and were not bundled with other services occurring on the same day, such as long-term care, home health/ home and community-based services, community-based adult services, FQHC services, labs, imaging, outpatient medication, transportation, and urgent care.

Some claims lacked the information necessary to be categorized and were classified under an "Other Services" category. These frequently included physician claims without a defined provider taxonomy and durable medical equipment codes that were billed separately and could not be associated with an existing category.

Exhibit 190: Description of Mutually Exclusive Categories of Service*

Order	Service category	Definition source	Description
1	Emergency Department Visits (ED)	HEDIS	Place of service is hospital emergency room and procedure code is emergency service
2	Hospitalizations	DHCS 35C File	Place of service is inpatient and admission and discharge dates are present and are on different days

Order	Service category	Definition source	Description
3	Hospice Care	DHCS 35C File, HEDIS, and DHCS Medi-Cal Provider Manuals	Provider is hospice or procedure code is hospice service
4	Long-Term Care (LTC) Stays	DHCS 35C File	Claim is identified as LTC or provider is LTC organization; stays one day apart are counted as one visit, stays two or more days apart are separate stays
5	Home Health and Home and Community-Based Services (HH/HCBS)	DHCS 35C File and DHCS Medi-Cal Provider Manuals	Provider is a home health agency or home and community-based service waiver provider, procedure is home health or home and community-based service
6	Community-Based Adult Services (CBAS)	DHCS 35C File and DHCS Medi-Cal Provider Manuals	Provider is adult day health care center or procedure code is community-based adult service, which are health, therapeutic and social services in a community-based day health care program
7	Federally Qualified (FQHC) and Rural Health Center (RHC) Services	DHCS 35C File	Provider is an FQHC or RHC
8	Laboratory Services	DHCS 35C File	Claim is identified as clinical laboratory, laboratory & pathology services, or laboratory tests
9	Imaging Services	DHCS 35C File	Claim is identified as portable x-ray services or imaging/ nuclear medicine services
10	Outpatient Medication	DHCS 35C File	Claim is identified as pharmacy
11	Transportation Services	DHCS 35C File	Claim is identified as medically required transportation
12	Primary Care Services	National Uniform Claim Committee	Provider is allopathic and osteopathic physician (with specialization in adult medicine, adolescent medicine, or geriatric medicine, family medicine, internal medicine, pediatrics, or general practice), or physician assistant or nurse practitioner (with specialization in

Order	Service category	Definition source	Description
			medical, adult health, family, pediatrics, or primary care)
13	Specialty Care Services	National Uniform Claim Committee	Provider is allopathic and osteopathic physician or physician assistant or nurse practitioner (with all specializations not captured in the Primary Care Services category)
14	Outpatient Facility Services	DHCS 35C File	Claim is identified as outpatient facility
15	Dialysis Services	DHCS 35C File and CPT Codebook	Provider is a dialysis center and procedure is dialysis
16	Therapy Services	DHCS Medi-Cal Provider Manual	Procedure code is occupational, physical, speech, or respiratory therapy
17	Urgent Care Services	National Uniform Claim Committee	Provider is ambulatory urgent care facility
18	Other Services	N/A	Provider, procedure, or place of service is not captured above
N/A	Outpatient Services	HEDIS	Claim type is outpatient and procedure code, revenue code, or place of service code is outpatient (including FQHC).

Source: UCLA Methodology.
Note: * indicates categories are mutually exclusive except for outpatient services category

UCLA found that four of the above categories made up the majority (87%) of total payments for WPC claims in 2019 (Exhibit 191). These categories were hospitalizations (37%), outpatient services (28%), outpatient medication (15%), emergency department visits (7%; Exhibit 191).

Exhibit 191: Percentage of 2019 Total Estimated Payments by Category of Service for WPC Medi-Cal Claims

Category of Service	Percentage of Total Estimated Payment
All Categories	**100%**
Outpatient Services	28%
Outpatient Medication	15%
Emergency Department Visits	7%
Hospitalizations	37%
All other categories	13%

Source: UCLA analysis of Medi-Cal Claims data from January 1, 2019, to December 31, 2019

Attributing Payments to Specific Services

To attribute payments to each category of service, UCLA developed methods to calculate an estimated payment for each category based on available data. Exhibit 192 displays the categories of service and what is included in the calculation of estimated payments for each category.

Exhibit 192: Category of Service and Payment Descriptions

Category of Service	Calculation of Estimated Payment
Emergency Department Visits (ED)	Payments for all services taking place in the emergency department of a hospital, including services on the same day of the ED visit, excluding services by PCPs and FQHCs and RHCs. Two sub-categories are reported: ED visits followed by hospitalizations and all other ED visits that are followed by discharge.
Hospitalizations	Payments for all services that take place during a hospitalization, excluding visits with primary care providers on the first or last day of the stay, FQHC visits on the first or last day of the stay, or ED visits that preceded hospitalization
Hospice Care	Payments for hospice services in an LTC facility or Home Health setting, excluding hospice services rendered during a hospitalization
Long-Term Care (LTC) Stays	Institutional fees billed by LTC facilities; the per diem rate includes supplies, drugs, equipment, and services such as therapy
Home Health and Home and Community-Based Services (HH/HCBS)	Payments for services provided by a home health agency (HHA) and services provided through the home and community-based services (HCBS) waiver
Community-Based Adult Services /(CBAS)	Payments for community-based adult services and for services rendered at an adult day health care center
Federally Qualified (FQHC) and Rural Health Center (RHC) Services	Payments for all services provided in an FQHC or RHC
Laboratory Services	Payments for laboratory services, except those provided during a hospitalization or ED visit
Imaging Services	Payment for imaging services, except those provided during a hospitalization, ED visit, or LTC stay

Category of Service	Calculation of Estimated Payment
Outpatient Medication	Payments for outpatient drug claims, excluding prescriptions filled on the same day as an ED visit or on the day of discharge from a hospitalization
Transportation Services	Payments for medically required transportation, excluding transportation on the same day as an inpatient admission or an emergency department visit
Primary Care Services	Payments for services provided by a primary care physician
Specialty Care Services	Payments for services provided by a specialist, excluding services provided during an inpatient stay or an emergency department visit, and excluding facility fees
Outpatient Facility Services	Facility fees paid to hospital outpatient departments and ambulatory surgical centers
Dialysis Services	Payments for dialysis services rendered in a dialysis center
Therapy Services	Payments for occupational, speech, physical, and respiratory therapy services
Urgent Care Services	Payments for services provided in an urgent care setting
Other Services	Payments for services not captured above
Outpatient Services	Payments for all services delivered in an outpatient setting

Source: UCLA Methodology.

UCLA used all available Medi-Cal fee schedules and supplemented this data with other data sources as needed. Payment data sources, brief descriptions, and the related categories of services they were attributed to are provided in Exhibit 193.

Exhibit 193: Payment Data Sources

Source	Description	Applicable Service Categories
Medi-Cal Physician Fee Schedule Annual files 2013 to 2021 inflated/ deflated to 2019	Contains rates set by DHCS for all Level I procedure codes that are reimbursable by Medi-Cal for services and procedures rendered by physicians and other providers	ED, Hospitalizations, Hospice, LTC, HH/HCBS, CBAS, Imaging, Transportation, Primary Care, Specialty Care, Dialysis, Urgent Care, Other, and Outpatient Services
Durable Medical Equipment (DME) Fee	Contains rates set by CMS for Level II procedure codes for durable medical	ED, Hospitalizations, Hospice, LTC, HH/HCBS,

Source	Description	Applicable Service Categories
Schedule Annual files 2017 to 2021 inflated/ deflated to 2019	equipment such as hospital beds and accessories, oxygen and related respiratory equipment, and wheelchairs	CBAS, Transportation, Primary Care, Specialty Care, Dialysis, Urgent Care, and Other
Average Sales Price Data (ASP) for Medicare Part B Drugs Annual files 2014 to 2021 inflated/ deflated to 2019	Contains rates set by CMS for procedure codes for physician-administered drugs covered by Medicare Part B	ED, Hospitalizations, Hospice, LTC, Primary Care, Specialty Care, and Other
CMS MS-DRG grouping software, DHCS's APR-DRG Pricing Calculator 9/30/2021 deflated to 2019	Contains Diagnostic Related Grouping (DRG) codes used for hospitalizations (CMS), base rate per DRG (DHCS) and DRG weights (CMS)	Hospitalizations, LTC
FQHC and RHC Rates 12/19/2018 inflated to 2019	Contains rates set by DHCS for services provided by FQHCs and RHCs	FQHC and RHC
Hospice per diem rates Annual files 2020 and 2021 deflated to 2019	Contains rates set by DHCS for hospice stays and services	Hospice
Nursing Facility Level A per diem rates Annual files 2019, and 2020 and 2021 (deflated to 2019)	Contains per diem rates set by DHCS per county for Freestanding Level A Nursing Facilities	LTC, Hospice
Distinct Part Nursing Facilities, Level B Annual files 2019, and 2020 and 2021 (deflated to 2019)	Contains per diem rates set by DHCS for nursing facilities that are distinct parts of acute care hospitals	LTC, Hospice
Home Health Services Rates	Contains billing codes and reimbursement rates set by DHCS for	Home health

Source	Description	Applicable Service Categories
Annual files 2020 to 2021 deflated to 2019	procedure codes reimbursable by home health agencies	
Home and Community-Based Services Rates 8/1/2020 deflated to 2019	Contains billing codes and reimbursement rates set by DHCS for the home and community-based services program	Home and community-based services
Community-Based Adult Services Rates 8/1/2020 deflated to 2019	Contains billing codes and reimbursement rates set by DHCS for community-based adult services	Community-based adult services
National Average Drug Acquisition Cost (NADAC) File Annual files 2019, and 2020 and 2021 (deflated to 2019)	Contains per unit prices for drugs dispensed through an outpatient pharmacy setting based on the approximate price paid by pharmacies, calculated by CMS	Outpatient medication
Clinical Laboratory Fee Schedule Annual files 2019, and 2020 and 2021 (deflated to 2019)	Contains rates set by CMS for clinical lab services	Laboratory
Therapy Rates 8/1/2020 deflated to 2019	Contains billing codes and reimbursement rates set by DHCS for physical, occupational, speech, and respiratory therapy	Therapy
Ambulatory Surgical Center (ASC) Fee Schedule Annual files 2019, and 2020 and 2021 (deflated to 2019)	Contains billing codes and reimbursement rates set by CMS for facility fees for ASCs	ED, Hospitalizations, Outpatient Facility
Outpatient Prospective Payment System (OPPS) File Annual files 2019, and	Contains billing codes and reimbursement rates set by CMS for facility fees for hospital outpatient departments	ED, Hospitalizations, Outpatient Facility

Source	Description	Applicable Service Categories
2020 and 2021 (deflated to 2019)		

Payments were attributed based on available service and procedures codes included in each claim. A specific visit may have included a physician claim from the providers for their medical services and a facility claim for use of the facility and resources (e.g., medical/ surgical supplies and devices) where service was provided.

The Medi-Cal Physician Fee Schedule contained monthly updated rates for all procedures that were reimbursable by Medi-Cal to providers and hospital outpatient departments. Each procedure code had multiple rates that varied based on provider type (e.g., physician, podiatrist, hospital outpatient department, ED, community clinic) and patient age. UCLA distinguished between these rates, but the paid amount for FFS still varied within the same procedure code, likely due to the directly negotiated rates between the providers and DHCS. For the purpose of WPC cost evaluation, UCLA used the procedure code with the most expensive rate when adequate information was lacking.

UCLA also included a payment augmentation of 43.44% for claims for physician services provided in county and community hospital outpatient departments following DHCS guidelines. UCLA did not include any other reductions or augmentations that may have been applied by Medi-Cal due to limited information in claims data. Some procedures such as those performed by a qualified physical therapist in the home health or hospice setting did not have a fee in the Medi-Cal physician fee schedule but had fees in the Medi-Cal Provider Manual and UCLA used these fees when applicable.

A number of claims lacked procedure codes but had a revenue code such as "Emergency Room-General" or "Freestanding Clinic- Clinic visit by member to RHC/FQHC". UCLA obtained documentation from DHCS that enabled identification of a price using outpatient revenue codes alone.

CMS's Durable Medical Equipment (DME) Fee Schedule included billing codes that are reimbursable by Medi-Cal for DMEs such as hospital beds and accessories, oxygen and related respiratory equipment, and wheelchairs. Rates for other medical supplies such as needles, bandages, and diabetic test strips were found in DHCS's Medical Supplies Fee Schedules.

FQHCs and RHCs consist of a parent organization with one or more clinic sites and are paid a bundled rate for all services during a visit. DHCS publishes FQHC and RHC Rates for each clinic within the parent organization.

Payments for outpatient medication claims were calculated using the national drug acquisition cost (NADAC), which contains unit prices for drugs. UCLA calculated the drug cost by multiplying the unit price by the number of units seen on the claim. Drugs administered by physicians were priced using CMS's Average Sales Price Data (ASP) for Medicare Part B drugs.

Facility fees were priced based on the ambulatory surgical center (ASC) fee schedule or the outpatient prospective payment system (OPPS) depending on whether the billing facility was an ASC or an outpatient department.

Medi-Cal paid most LTC institutions such as nursing and intermediate care facilities for the developmentally disabled on a per-diem rate, while long-term care hospital stays were reimbursed via diagnosis related group (DRG) payments. Per diem rates for LTC facilities were obtained directly from DHCS's long-term care reimbursement webpage, and these rates varied by type of facility. Rates for hospice services were based on DHCS's hospice care site and hospice room and board rates were based on the Nursing Facility/ Intermediate Care facility fee schedule. UCLA lacked some variables in claims data that were needed to calculate some LTC and hospice payments, such as accommodation code which specifies different rates for each nursing facility depending on the type of program including the "nursing facility level B special treatment program for the mentally disordered" or "nursing facility level B rural swing bed program". In these cases, UCLA used the rates associated with accommodation code 1: "nursing facility level B regular", which were higher than other accommodation code rates.

Hospitalizations are paid based on diagnosis related groups (DRGs), a bundled prospective payment methodology that is inclusive of all services provided during a hospitalization, except for physician services. Identification and pricing of DRGs varies by payers such as Medi-Cal and Medicare. In California, DHCS uses 3M's proprietary APR-DRG Core Grouping Software to assign DRGs and 3M's APR-DRG Pricing Calculator to calculate prices for Medi-Cal DRG hospitals. APR-DRGs have more specific DRGs for Medicaid populations such as pediatric patients and services such as labor and delivery and incorporate four levels of illness severity.

However, UCLA did not have access to this software and used 3M's publicly available CMS MS-DRG grouping software for the Medicare population, which includes Medicare-Severity DRGs (MS-DRGs) and their corresponding weights. MS-DRGs only include two levels of severity of illness, with complications or without complications. UCLA used this software to assign a DRG to each hospitalization based on procedure code, diagnosis, length of stay, payer type, patient

discharge status, and patient age and gender. Although CMS uses the Inpatient Prospective Payment System to assign hospital prices based on the MS-DRGs, UCLA used available data and publicly available prices for DHCS's APR-DRG Pricing Calculator to calculate payments for each DRG. DHCS's APR-DRG Pricing Calculator used multiple hospital and patient-level variables to calculate the final payment for hospitals, and UCLA incorporated some of these variables into the estimated payment (such as patient age and hospital status of rural vs. urban) but could not incorporate other modifiers due to data limitations (such as other health coverage and whether or not the hospital was an NICU facility).

UCLA calculated the estimated payment by starting with the base rate from DHCS's APR-DRG Calculator, which was $12,832 for rural hospitals and $6,507 for urban hospitals. This base rate was multiplied by the weight assigned to each MS-DRG, which modified the base rate to account for resources needs for a given DRG. For example, more severe hospitalizations such as "Heart Transplant or Implant of Heart Assist System with major complications" had a high weight of 25.4241 but "Poisoning and Toxic Effects of Drugs without major complication" had a lower weight of 0.7502. This rate was further modified by one available policy adjuster, which increased the payment amount by patient age and was higher for those under 21 (1.25) than those 21 and older (1). Overall payment for a hospitalization was calculated by adding the estimated payments for physician specialist services that occurred during the hospitalization.

When no fees were found for procedure codes in any payment data sources, UCLA used the most frequent paid amount seen in fee-for-service claims for the procedure code. These included procedures such as tattooing/ intradermal introduction of pigment to correct color defects of skin and excision of excessive skin. When outlying units of service were found on the claim, UCLA used the 90th percentile value of units for the procedure code rather than the observed units. All claims were included in a category of service and were assigned a price.

For dual beneficiaries, Medi-Cal is the secondary payer (payer of last resort) and covers a portion of the costs of the service. However, UCLA lacked information on percentage of services paid for by Medi-Cal for dual managed care beneficiaries. Therefore, UCLA used Medi-Cal claims data to calculate payments for these dual beneficiaries using the same methodology as non-dual managed care beneficiaries. Dual beneficiaries made up 15% of the beneficiaries population in 2019.

For the purpose of evaluation, all payments were calculated using the 2019 fee schedules when available. In the absence of 2019 data, UCLA inflated or deflated payment amounts using the paid amounts for similar FFS claims in available data. Using the 2019 fees removed the impact of inflation and pricing changes in subsequent analyses.

Comparison of Estimated Payments with Medi-Cal Paid Amounts

UCLA examined the potential bias that may have resulted due to the methodology used to estimate payments by comparing the estimated FFS payments with Medi-Cal paid amounts in FFS claims. Exhibit 194 shows that the estimated FFS payments were 7% lower than paid amounts for all services. There was underlying variation by category of services. For example, outpatient medication payments were 3% higher while estimated payments for hospitalizations were 8% lower.

Exhibit 194: Comparison of Estimated Fee-for Service Payments and Paid Amounts for 2019 WPC Medi-Cal Claims

Category of Service	Difference Between Estimated Payment and Medi-Cal Payment
All Categories	**-7%**
Outpatient Services	-5%
Outpatient Medication	3%
Emergency Department Visits	-7%
Hospitalizations	-8%
All other categories	-16%

Source: UCLA analysis of Medi-Cal Claims data from January 1, 2019, to December 31, 2019.

UCLA further compared the difference in estimated payments for FFS and managed care claims and found that managed care payments were 26% lower than the FFS claims ($226 vs $168; Exhibit 195).

Exhibit 195: Comparison of Average Fee-for-Service and Managed Care Payments per Claim for 2019 WPC Medi-Cal Claims

Average Medi-Cal Payment per Claim for FFS Claims	Average Estimated Payment per Claim for Managed Care Claims
$226	$168

Source: UCLA analysis of Medi-Cal Claims data from January 1, 2019, to December 31, 2019.

Limitations

There were limitations associated with UCLA's payment estimates including the availability of needed data and access to fee schedules and other pricing resources. UCLA did not aim to calculate exactly what DHCS paid for claims, but rather to measure the impact of WPC on cost compared to the control group. The reasons for differences between costs and estimated payments are described below.

The first limitation was related to using the MS-DRG relative weights for Medicare for hospitalization, which were higher than Medi-Cal. This likely led to higher estimated payments for hospitalization. Second, MS-DRG only identified the levels of severity as with and without complication rather than four level used by APR-DRG. Third, DHCS uses multiple criteria to adjust hospital payments, but UCLA was only able to adjust for urban and rural rates.

A second limitation was related to availability of fee schedules for accurate pricing. The WPC evaluation required analysis of multiple years of claims data and UCLA used all available fee schedules to price procedures, supplies, and facilities from multiple years and inflated prices to 2019 dollars whenever necessary. UCLA always used the most recent rate for a procedure. The inflation rates used were based on medical care Consumer Price Index provided by US Bureau of Labor Statistics without adjusting for regional-specific inflation rates. Not all procedures that appeared in the claims data had corresponding rates in all the available fee schedules. Procedures that required Treatment Authorization Requests (TARs) lacked a fee-schedule and are frequently more expensive than covered services. Some specific procedures had no fees in the Medi-Cal fee-schedule. When fee schedules were missing, UCLA attributed the most frequently observed price from the paid amount for a similar FFS claim. If the procedure did not appear in any FFS claims, UCLA assigned the median allowed amount from all managed care claims for the given procedure code.

A third limitation was related to outlier values for service units, some of which were extremely high. UCLA attributed the 95th percentile value instead of the original value in the claim, potentially underestimating payments for some claims.

Finally, UCLA modeled the estimated total payments and payments for each category of service separately. As a result, it was not possible to present the component categories as a proportion of the total payments. Given the differences in approach to costing each category of service and the resulting differences in error and biases, presenting the categories in comparison to one another and as part of the total, may lead to misinterpretations.

Appendix B: Data and Analyses Methods for Pilot-Reported Metrics

Overview of Data and Analysis Methods for Self-Reported Metrics

Overview of Self-Reported Metrics

DHCS required Pilots to regularly report on fifteen DHCS-defined metrics to track progress in better care and better outcomes for WPC enrollees. All Pilots participating in WPC were required to report on a specific subset of five metrics, called "universal metrics" that were collected from all Pilots. The universal metrics were: (1) Ambulatory Care Emergency Department Visits per 1,000 WPC Member months; (2) Inpatient Utilization per 1,000 WPC Member Months; (3) Follow-Up After Hospitalization for Mental Illness; (4) Initiation and Engagement of Alcohol and Other Drug Dependence Treatment, and (5) Comprehensive Care Plan completion.

DHCS also required Pilots to select at least four additional metrics out of the remaining ten metrics, called "variant metrics." Some Pilots changed their variant metrics during WPC implementation due to data collection challenges or changes to strategies or target populations.

Under WPC, progress in metrics was compared after enrollment to the baseline period. For quantitative health care utilization metrics, DHCS designated PY 1 as the baseline period and Pilots gathered this data retrospectively for individuals who were enrolled in the first 18 months of WPC enrollment (1/1/2017 to 6/30/2018). For these metrics, progress was measured starting in PY 2. For other quantitative metrics, the baseline period was PY 2 for individuals who were enrolled in the first 18 months of WPC enrollment to allow Pilots to gather this data. For these metrics, progress was measured starting in PY 3.

Data Source

UCLA analyzed Pilot-reported metrics from the *Annual WPC Variant and Universal Metric Reports* reported to DHCS. Data included the rate and the numerator and denominator used to calculate that rate, for each metric annually. A limited number of metrics were also reported semi-annually, but these data were not included in the analysis. Additionally, metrics that UCLA was able to recreate using Medi-Cal data (Ambulatory Care Emergency Department Visits per 1,000 WPC Member months, Inpatient Utilization per 1,000 WPC Member Months, Follow-Up

After Hospitalization for Mental Illness, and Initiation and Engagement of Alcohol and Other Drug Dependence Treatment) were not included in this analysis.

Methods

UCLA calculated the weighted average for each metric by summing the numerators and the denominators separately for all Pilots that reported data, and then dividing the overall numerator by the overall denominator. Pilots may not have reported data if they had limited enrollment during the measurement period or had other constraints on data availability. When the Pilot reported zero or no values, UCLA examined the reports to determine if the Pilot did not report the metric at all, or if the numerator was zero. UCLA excluded Pilots from the analyses who did not report a value.

Detailed Methods by Self-Reported Metric

This section describes the details of the methods that Pilots used to calculate each of the self-reported metrics, and includes:

- An overview of the metric and any sub-metrics.
- Measurement specifications, including the numerator and the denominator.
- The baseline period, baseline population, and frequency of reporting.
- A summary of whether Pilots reported on this metric in each year.

The details in this section are based on the *Whole Person Care Universal and Variant Metrics Technical Specifications Guide* revised by DHCS on March 22, 2019, and on the *WPC Variant and Universal Metrics Report* spreadsheet that included instructions for Pilots regarding how to report on the universal and variant self-reported metrics.

Variant Metric: Control Blood Pressure

Pilots reported the percent of enrollees whose blood pressure was adequately controlled during the measurement year. Three sub-metrics were reported: (1) the percent of enrollees with hypertension age 18-59, whose blood pressure was less than 140/90 mm Hg, (2) the percent of enrollees with hypertension age 60-85 with a diagnosis of diabetes, whose blood pressure was less than 140/90 mm Hg, and (3) the percent of enrollees with hypertension age 60-85 without a diagnosis of diabetes, whose blood pressure was less than 150/90 mm Hg. This metric was modeled on the HEDIS Controlling High Blood Pressure metric. However, the official HEDIS measure was revised in 2019, after implementation of data collection for WPC, and no longer distinguishes between the three groups based on age and diabetes status.

For each of the three sub-metrics, Pilots calculated the percent of enrollees with controlled blood pressure by dividing a numerator (number with controlled blood pressure) by a denominator (number in the group). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year who were of the appropriate age and diabetes status for each of the three sub-metrics; and had at least one outpatient visit with a diagnosis of hypertension during the first six months of the measurement year. Enrollees were excluded from the denominator if they used hospice services or a hospice benefit during the measurement year. The numerator consisted of the number of members in the denominator whose most recent blood pressure (both systolic and diastolic) was adequately controlled. This most recent blood pressure reading must have occurred after the diagnosis of hypertension. If multiple blood pressure measurements occurred on the same date, or were noted in the chart on the same date, then the lowest systolic and lowest diastolic blood pressure readings were used. If no blood pressure was recorded during the measurement year, then the enrollee was assumed to have uncontrolled blood pressure.

The baseline period consisted of calendar year 2016 (January 1, 2016, through December 31, 2016). Because no one was enrolled in WPC during the baseline period, Pilots defined the baseline population as the cohort that was enrolled in WPC from January 1, 2017, through June 30, 2018, per DHCS specifications. Pilots then gathered Medi-Cal data retrospectively for the baseline year for this enrollee population. This metric was reported annually.

Exhibit 196: Reporting for Variant Metric: Control Blood Pressure, Age 18-59

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda	x			x				x	A	x			x			x		
Contra Costa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Kern	x			x			x			x			x			x		
Kings		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Los Angeles		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Marin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Mendocino	x			x			x			x			x			x		
Monterey	x			x			x			x			x			x		
Napa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Orange		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Placer		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Riverside	x				x	A	x			x			x			x		
Sacramento		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino	x			x			x			x			x			x		
San Diego		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Francisco		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz	x			x			x			x			x			x		
SCWPCC		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Shasta		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Solano		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Sonoma		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Ventura	x				x	A	x			x			x			x		

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Exhibit 197: Reporting for Variant Metric: Control Blood Pressure, Age 60-85, with Diabetes

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda	x			x				x	A	x			x			x		
Contra Costa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Kern		x	A	x			x			x			x			x		
Kings		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Los Angeles		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Marin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Mendocino	x			x			x			x			x			x		
Monterey	x			x			x			x			x			x		
Napa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Orange		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Placer		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Riverside	x				x	A	x			x			x			x		
Sacramento		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino	x			x			x			x			x			x		
San Diego		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Francisco		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz	x			x			x			x			x			x		
SCWPCC		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Shasta		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Solano		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Sonoma		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Ventura	x				x	A	x			x			x			x		

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Exhibit 198: Variant Metric: Control Blood Pressure, Age 60-85, without Diabetes

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda	x			x				x	A	x			x			x		
Contra Costa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Kern	x			x			x			x			x			x		
Kings		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Los Angeles		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Marin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Mendocino	x			x			x			x			x			x		
Monterey	x			x			x			x			x			x		
Napa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Orange		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Placer		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Riverside	x				x	A	x			x			x			x		
Sacramento		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino	x			x			x			x			x			x		
San Diego		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Francisco		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz	x			x			x			x			x			x		
SCWPCC		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Shasta		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Solano		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Sonoma		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Ventura	x				x	A	x			x			x			x		

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Variant Metric: Incarcerations per 1,000 Member Months

Pilots reported the number of incarcerations per 1,000 member months. Two sub-metrics were reported: (1) the number of incarcerations per 1,000 member months for those age 14 or older as of June 30 of the measurement year, mainly reported in mid-year reports, and (2) the number of incarcerations per 1,000 member months for those age 14 or older as of December 31 of the measurement year, mainly reported in annual reports. Because this analysis focused on annual data, only the second sub-metric was included in this report.

Pilots calculated the incarceration rate by dividing a numerator by a denominator, and multiplying the result by 1,000. The denominator consisted of a count of member months for all individuals enrolled in WPC at any time during the measurement year. Member months were based on WPC enrollment rather than Medi-Cal enrollment. Enrollees were excluded from the denominator if they used hospice services or a hospice benefit during the measurement year. The numerator consisted of the total number of incarcerations experienced by those in the denominator population; one enrollee could have multiple incarcerations during the reporting period.

The baseline period consisted of calendar year 2016 (January 1, 2016, through December 31, 2016). Because no one was enrolled in WPC during the baseline period, Pilots defined the baseline population as the cohort that was enrolled in WPC from January 1, 2017, through June 30, 2018, per DHCS specifications. Pilots then gathered Medi-Cal data retrospectively for the baseline year for this enrollee population. This metric was reported twice per year, once for the sub-metric that included those age 14 or older as of June 30 of the measurement year, and again for the sub-metric that included those age 14 or older as of December 31 of the measurement year.

Exhibit 199: Reporting for Variant Metric: Incarcerations per 1,000 Member Months

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Contra Costa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Kern		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Kings	x			x			x			x			x			x		
Los Angeles	x			x			x			x			x			x		
Marin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Mendocino		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Monterey		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Napa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Orange		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Placer		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Riverside	x			x			x			x				x	A		x	A
Sacramento		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Diego	x				x	E	x			x			x			x		

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Francisco	x			x			x			x			x			x		
San Joaquin	x			x			x			x			x			x		
San Mateo		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
SCWPCC		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Shasta		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Solano		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Sonoma		x	E		x	E	x			x			x			x		
Ventura		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Variant Metric: Overall Beneficiary Health

Pilots reported the percent of enrollees that provided a self-reported rating of their health as "Excellent" or "Very Good." Two sub-metrics were reported: (1) the percent of enrollees reporting "Excellent" or "Very Good" overall health, and (2) the percent of enrollees reporting "Excellent" or "Very Good" emotional health. This metric was constructed from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey.

For each of the two sub-metrics, Pilots calculated the percent of enrollees who rated their health as "Excellent" or "Very Good" by dividing a numerator (number that reported those levels of health) by a denominator (number that answered the survey questions). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year, who were enrolled a total of six months in WPC during the measurement year with multiple allowable gaps. Enrollees were excluded from the denominator if they used hospice services or a hospice benefit during the measurement year. The numerator consisted of the number of responses with answers of "Excellent" or "Very Good," and was calculated separately for overall health and for mental or emotional health.

Unlike other WPC metrics, the baseline reporting period for this metric was calendar year 2017 rather than 2016. This is because data on this metric could not be gathered before WPC enrollment began. This metric was reported annually.

Exhibit 200: Reporting for Variant Metric: Overall Beneficiary Health - Overall Health

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda					x	NR		x	NR		x	NR		x	NR		x	NR
Contra Costa				x			x			x			x			x		
Kern					.	A	x		A	x			x				x	A
Kings					x	NR		x	NR		x	NR		x	NR		x	NR
Los Angeles					x	NR		x	NR		x	NR		x	NR		x	NR
Marin					x	E	x			x			x			x		
Mendocino					x	NR		x	NR		x	NR		x	NR		x	NR
Monterey					x	NR		x	NR		x	NR		x	NR		x	NR
Napa					x	A	x			x			x			x		
Orange					x	NR		x	NR		x	NR		x	NR		x	NR
Placer					x	NR		x	NR		x	NR		x	NR		x	NR
Riverside				x			x			x			x			x		
Sacramento				x			x			x			x			x		
San Bernardino				x			x			x			x			x		
San Diego					x	NR		x	NR		x	NR		x	NR		x	NR
San Francisco					x	NR		x	NR		x	NR		x	NR		x	NR

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin					x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo					x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara					x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz					x	NR		x	NR		x	NR		x	NR		x	NR
SCWPCC					x	NR		x	NR		x	NR		x	NR		x	D
Shasta					x	NR		x	NR		x	NR		x	NR		x	NR
Solano					x	NR		x	NR		x	NR		x	NR		x	D
Sonoma					x	NR		x	NR		x	NR		x	NR		x	NR
Ventura					x	NR		x	NR		x	NR		x	NR		x	NR

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Exhibit 201: Reporting for Variant Metric: Overall Beneficiary Health - Emotional Health

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda					x	NR		x	NR		x	NR		x	NR		x	NR
Contra Costa				x			x			x			x			x		
Kern					x	A		x	A	x			x				x	A
Kings					x	NR		x	NR		x	NR		x	NR		x	NR
Los Angeles					x	NR		x	NR		x	NR		x	NR		x	NR
Marin					x	E	x			x			x			x		
Mendocino					x	NR		x	NR		x	NR		x	NR		x	NR
Monterey					x	NR		x	NR		x	NR		x	NR		x	NR
Napa					x	A	x			x			x			x		
Orange					x	NR		x	NR		x	NR		x	NR		x	NR
Placer					x	NR		x	NR		x	NR		x	NR		x	NR
Riverside				x				x	A	x			x			x		
Sacramento				x			x			x			x			x		
San Bernardino				x			x			x			x			x		
San Diego					x	NR		x	NR		x	NR		x	NR		x	NR
San Francisco					x	NR		x	NR		x	NR		x	NR		x	NR

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin					x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo					x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara					x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz					x	NR		x	NR		x	NR		x	NR		x	NR
SCWPCC					x	NR		x	NR		x	NR		x	NR		x	D
Shasta					x	NR		x	NR		x	NR		x	NR		x	NR
Solano					x	NR		x	NR		x	NR		x	NR		x	D
Sonoma					x	NR		x	NR		x	NR		x	NR		x	NR
Ventura					x	NR		x	NR		x	NR		x	NR		x	NR

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Variant Metric: Comprehensive Diabetes Care

Pilots reported the percent of enrollees age 18 to 75 who had either Type 1 or Type 2 diabetes, who had controlled Hemoglobin A1c (HbA1c), with a value of less than 8.0%. Both types of diabetes were combined into this single metric. This metric closely followed the HEDIS measure for Comprehensive Diabetes Care, CDC-H8. According to DHCS specifications, WPC Pilots were expected to use both claim/encounter and pharmacy data to identify enrollees with diabetes for this metric, although an enrollee only had to be identified as having diabetes through one of the two methods to be included.

Pilots calculated the percent of enrollees with controlled HbA1c by dividing a numerator (number with controlled HbA1c) by a denominator (number with diabetes). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year who were age 18 to 75 as of December 31 of the measurement year, and had a diagnosis of Type 1 or Type 2 diabetes during the measurement year or the year prior to the measurement year. Enrollees were excluded from the denominator if they used hospice services or a hospice benefit during the measurement year. The numerator consisted of the number of members in the denominator whose most recent HbA1c test during the measurement year showed a level less than 8.0%. If no HbA1c test was conducted during the measurement year, then the enrollee was assumed to have uncontrolled HbA1c.

The baseline period consisted of calendar year 2016 (January 1, 2016, through December 31, 2016). Because no one was enrolled in WPC during the baseline period, Pilots defined the baseline population as the cohort that was enrolled in WPC from January 1, 2017, through June 30, 2018, per DHCS specifications. Pilots then gathered Medi-Cal data retrospectively for the baseline year for this enrollee population. This metric was reported annually.

Exhibit 202: Reporting for Variant Metric: Comprehensive Diabetes Care

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Contra Costa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Kern	x			x			x			x			x			x		
Kings	x			x			x			x			x			x		
Los Angeles		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Marin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Mendocino	x			x			x			x			x			x		
Monterey	x			x			x			x			x			x		
Napa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Orange		x	A	x				x	A	x			x			x		
Placer		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Riverside	x				x	A	x			x			x			x		
Sacramento		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino	x			x			x			x			x			x		
San Diego		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Francisco		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Joaquin	x			x			x			x			x			x		
San Mateo	x			x			x			x			x			x		
Santa Clara		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz	x			x			x			x			x			x		
SCWPCC		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Shasta	x			x			x			x			x			x		
Solano		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Sonoma		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Ventura	x			x			x			x			x			x		

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Variant Metric: Depression Remission at 12 Months

Pilots reported the percent of enrollees age 18 or older with major depression or dysthymia who reached remission measured at 12 months, plus or minus 30 days, after an index visit. One single metric was reported. This metric closely followed the Minnesota Community Measurement metric for depression care.

Pilots calculated the percent of enrollees with depression remission at 12 months by dividing a numerator (number who reached remission) by a denominator (number age 18 or older with a diagnosis of depression). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year who were of the appropriate age, and who had an index visit that met all of the following criteria: face-to-face visit or contact with a relevant provider, PHQ-9 result greater than 9, an active diagnosis of major depression or dysthymia, and no prior index visit during the measurement year. Enrollees were excluded from the denominator if they had an active diagnosis of bipolar disorder or personality disorder, if they were a permanent nursing home resident during the measurement year, if they used hospice services or a hospice benefit during the measurement year, or if they died prior to the end of the measurement year. The numerator consisted of the number of members in the denominator who had a PHQ-9 result of less than five, 12 months (plus or minus 30 days) after an index visit, assessed from December 2 prior to the measurement year through January 30 of the year after the measurement year.

The baseline period consisted of calendar year 2016 (January 1, 2016, through December 31, 2016). Because no one was enrolled in WPC during the baseline period, Pilots defined the baseline population as the cohort that was enrolled in WPC from January 1, 2017, through June 30, 2018, per DHCS specifications. Pilots then gathered Medi-Cal data retrospectively for the baseline year for this enrollee population. This metric was reported annually.

Exhibit 203: Reporting for Variant Metric: Depression Remission at 12 Months

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda	x			x				x	A	x			x			x		
Contra Costa	x			x			x			x			x			x		
Kern	x			x			x			x			x			x		
Kings		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Los Angeles		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Marin		x	A		x	A	x			x			x			x		
Mendocino		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Monterey		x	A	x			x			x			x			x		
Napa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Orange		x	NR		x	NR		x	NR		x	NR	x			x		
Placer		x	A		x	A	x			x			x			x		
Riverside	x			x			x			x			x			x		
Sacramento		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino	x			x			x			x			x			x		
San Diego		x	NR		x	NR		x	NR	x			x			x		
San Francisco		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara	x			x			x			x			x			x		
Santa Cruz	x				x	A	x			x			x			x		
SCWPCC		x	NR		x	NR		x	NR	x			x				x	D
Shasta	x			x			x			x			x			x		
Solano		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Sonoma		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Ventura	x			x			x			x			x					

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Variant Metric: Major Depressive Disorder - Suicide Risk Assessment

Pilots reported the percent of enrollees age 18 or older with a diagnosis of major depressive disorder (MDD) who had a suicide risk assessment completed during the visit in which a new diagnosis or recurrent episode was identified. One single metric was reported. This metric closely followed the suicide risk assessment measure endorsed by the American Medical Association (AMA)-convened Physician Consortium for Performance Improvement, also adopted by the Federal Electronic Clinical Quality Improvement (eCQI) Resource Center.

Pilots calculated the percent of enrollees who received a suicide risk assessment by dividing a numerator (number that received an assessment) by a denominator (number with major depression). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year who were of appropriate age and had a diagnosis of major depressive disorder (MDD). The numerator consisted of the number of members in the denominator who had a suicide risk assessment completed during the visit in which a new diagnosis or recurrent episode was identified.

The baseline period consisted of calendar year 2016 (January 1, 2016, through December 31, 2016). Because no one was enrolled in WPC during the baseline period, Pilots defined the baseline population as the cohort that was enrolled in WPC from January 1, 2017, through June 30, 2018, per DHCS specifications. Pilots then gathered Medi-Cal data retrospectively for the baseline year for this enrollee population. This metric was reported annually.

Exhibit 204: Reporting for Variant Metric: Major Depressive Disorder - Suicide Risk Assessment

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda	x			x				x	A	x			x			x		
Contra Costa	x			x			x			x			x			x		
Kern	x			x			x			x			x			x		
Kings		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Los Angeles		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Marin		x	A		x	A	x			x			x			x		
Mendocino		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Monterey		x	A	x			x			x			x			x		
Napa		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Orange		x	NR		x	NR		x	NR		x	NR	x			x		
Placer		x	A		x	A	x			x			x			x		
Riverside	x			x			x			x			x			x		
Sacramento		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino	x			x			x			x			x			x		
San Diego		x	NR		x	NR		x	NR	x			x			x		

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Francisco		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Joaquin		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara	x			x			x			x			x			x		
Santa Cruz	x				x	A	x			x			x			x		
SCWPCC		x	NR		x	NR		x	NR	x			x				x	D
Shasta	x			x			x			x			x			x		
Solano		x	NR		x	NR		x	NR		x	NR		x	NR		x	D
Sonoma		x	NR		x	NR		x	NR		x	NR		x	NR		x	NR
Ventura	x			x			x			x			x					

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Variant Metric: Permanent Housing

Pilots reported the percent of enrollees who were initially homeless, and then were permanently housed for longer than six consecutive months. One single metric was reported. This metric was created by DHCS.

Pilots calculated the percent of enrollees who were permanently housed for longer than six months by dividing a numerator (homeless enrollees who reached a seven-month time point in housing) by a denominator (homeless enrollees who reached a six-month time point in housing). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year who were initially homeless, and who reached a six-month time point in permanent housing between December 1 of the prior year and November 30 of the measurement year. Enrollees were excluded from the denominator if they used hospice services or a hospice benefit during the measurement year. The numerator consisted of the number of members in the denominator who reached the seven-month time point in permanent housing between January 1 and December 31 of the measurement year.

Unlike other WPC metrics, the baseline reporting period for this metric was calendar year 2017 rather than 2016. This is because data on this metric could not be gathered before WPC enrollment began. This metric was reported annually.

Exhibit 205: Reporting for Variant Metric: Permanent Housing

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda					x	E	x			x			x			x		
Contra Costa					x	NR		x	NR		x	NR		x	NR		x	NR
Kern					x	NR		x	NR		x	NR		x	NR		x	NR
Kings					x	NR		x	NR	x			x			x		
Los Angeles				x			x			x			x			x		
Marin					x	NR		x	NR		x	NR		x	NR		x	NR
Mendocino					x	NR		x	NR	x			x			x		
Monterey				x			x			x			x			x		
Napa					x	E	x			x			x			x		
Orange					x	NR		x	NR	x			x			x		
Placer					x	NR		x	NR		x	NR		x	NR		x	NR
Riverside					x	E	x			x			x			x		
Sacramento					x	E	x			x			x			x		
San Bernardino					x	NR		x	NR		x	NR		x	NR		x	NR
San Diego					x	E	x			x			x					
San Francisco				x			x			x			x			x		

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin					x	NR		x	NR		x	NR		x	NR		x	NR
San Mateo					x	NR		x	NR		x	NR		x	NR		x	NR
Santa Clara					x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz					x	NR		x	NR		x	NR		x	NR		x	NR
SCWPCC					x	NR		x	NR		x	NR		x	NR		x	D
Shasta					x	E	x			x			x			x		
Solano				x				x	A		x	A		x	A		x	D
Sonoma					x	NR		x	NR		x	NR		x	NR		x	NR
Ventura					x	NR		x	NR		x	NR		x	NR		x	NR

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Variant Metric: Housing Services

Pilots reported the percent of enrollees who were homeless, and who received housing services after being referred to housing services. One single metric was reported. This metric was created by DHCS.

Pilots calculated the percent of enrollees who received housing services after being referred by dividing a numerator (number who received services) by a denominator (number referred to services). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year who were referred for housing services between January 1 and December 31 of the measurement year; these services were limited to those received after the enrollee's first WPC enrollment date within the measurement year. Enrollees were excluded from the denominator if they used hospice services or a hospice benefit during the measurement year. The numerator consisted of the number of members in the denominator who received housing services after being referred.

Unlike other WPC metrics, the baseline reporting period for this metric was calendar year 2017 rather than 2016. This is because data on this metric could not be gathered before WPC enrollment began. This metric was reported annually.

Exhibit 206: Reporting for Variant Metric: Housing Services

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda					x	NR		x	NR		x	NR		x	NR		x	NR
Contra Costa					x	NR		x	NR		x	NR		x	NR		x	NR
Kern				x			x			x			x			x		
Kings					x	NR		x	NR	x			x			x		
Los Angeles					x	NR		x	NR		x	NR		x	NR		x	NR
Marin				x			x			x			x			x		
Mendocino					x	NR		x	NR		x	NR		x	NR		x	NR
Monterey				x			x			x			x			x		
Napa					x	NR		x	NR		x	NR		x	NR		x	NR
Orange					x	NR		x	NR	x			x			x		
Placer				x			x			x			x			x		
Riverside				x			x			x			x			x		
Sacramento				x			x			x			x			x		
San Bernardino					x	NR		x	NR		x	NR		x	NR		x	NR
San Diego					x	NR		x	NR		x	NR		x	NR		x	NR

UCLA Center for Health Policy Research
Health Economics and Evaluation Research Program

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Francisco				x			x			x			x			x		
San Joaquin				x			x			x			x			x		
San Mateo				x			x			x			x			x		
Santa Clara					x	NR		x	NR		x	NR		x	NR		x	NR
Santa Cruz				x			x			x			x			x		
SCWPCC				x			x			x			x				x	D
Shasta					x	NR		x	NR		x	NR		x	NR		x	NR
Solano					x	NR		x	NR	x			x				x	D
Sonoma					x	E	x			x			x			x		
Ventura				x			x			x			x			x		

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

D: Dropped out of WPC

Variant Metric: Supportive Housing

Pilots reported the percent of enrollees who were homeless, and who received supportive housing after being referred to supportive housing. One single metric was reported. This metric was created by DHCS.

Pilots calculated the percent of enrollees who received supportive housing after being referred by dividing a numerator (homeless enrollees who received supportive housing) by a denominator (homeless enrollees referred to supportive housing). The denominator consisted of a subset of all individuals enrolled in WPC at any time during the measurement year who were referred for supportive housing between December 1 of the prior year and November 30 of the measurement year; these services were limited to those received after the enrollee's first WPC enrollment date within the measurement year. Enrollees were excluded from the denominator if they used hospice services or a hospice benefit during the measurement year. The numerator consisted of the number of members in the denominator who received supportive housing after being referred.

Unlike other WPC metrics, the baseline reporting period for this metric was calendar year 2017 rather than 2016. This is because data on this metric could not be gathered before WPC enrollment began. This metric was reported annually.

Exhibit 207: Reporting for Variant Metric: Supportive Housing

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda				x			x			x			x			x		
Contra Costa					x	NR		x	NR		x	NR		x	NR		x	NR
Kern				x			x			x			x			x		
Kings					x	NR		x	NR		x	NR	x			x		
Los Angeles					x	NR		x	NR		x	NR		x	NR		x	NR
Marin					x	NR		x	NR		x	NR		x	NR		x	NR
Mendocino					x	NR		x	NR		x	NR		x	NR		x	NR
Monterey					x	NR		x	NR		x	NR		x	NR		x	NR
Napa					x	NR		x	NR		x	NR		x	NR		x	NR
Orange					x	NR		x	NR	x			x				x	NR
Placer					x	NR		x	NR		x	NR		x	NR		x	NR
Riverside				x			x			x			x			x		
Sacramento					x	NR		x	NR		x	NR		x	NR		x	NR
San Bernardino					x	NR		x	NR		x	NR		x	NR		x	NR
San Diego					x	NR		x	NR		x	NR		x	NR		x	NR
San Francisco				x			x			x			x			x		

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Joaquin					x	NR		x	NR		x	NR					x	NR
San Mateo					x	NR		x	NR		x	NR					x	NR
Santa Clara				x			x			x			x			x		
Santa Cruz					x	NR		x	NR		x	NR		x	NR		x	NR
SCWPCC					x	NR		x	NR		x	NR		x	NR		x	D
Shasta					x	NR		x	NR		x	NR		x	NR		x	NR
Solano				x			x			x			x				x	D
Sonoma					x	NR		x	NR		x	NR		x	NR		x	NR
Ventura					x	NR		x	NR		x	NR		x	NR		x	NR

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Universal Metric: Comprehensive Care Plan

Pilots reported the percent of enrollees who received a comprehensive care plan, accessible by their entire care team, within 30 days of enrollment and within 30 days of the enrollee's anniversary of enrollment in WPC. Two sub-metrics were reported: (1) the percent of enrollees who received a comprehensive care plan, accessible by the entire care team, within 30 days of enrollment, and (2) the percent of enrollees who received a comprehensive care plan, accessible by the entire care team, within 30 days of the enrollee's twelve-month anniversary date of enrollment in WPC. This metric was created by DHCS.

For each of the two sub-metrics, Pilots calculated the percent of enrollees with a comprehensive care plan by dividing a numerator (number with a plan within 30 days of enrollment or anniversary) by a denominator (number of enrollees that were new or had an anniversary). The denominator consisted of the number of enrollees who were either new to WPC, or who had a twelve-month anniversary as an enrollee in WPC, depending on the sub-metric. The numerator consisted of the number of members in the denominator population who had a comprehensive care plan within 30 days of enrollment, or their twelve-month anniversary of enrollment, depending on the sub-metric.

Unlike other WPC metrics, the baseline reporting period for this metric was calendar year 2017 rather than 2016. This is because data on this metric could not be gathered before WPC enrollment began. This metric was reported annually.

Exhibit 208: Reporting for Universal Metric: Comprehensive Care Plan - Within 30 Days of Enrollment

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda				x			x			x			x			x		
Contra Costa				x			x			x			x			x		
Kern				x			x			x			x			x		
Kings				x			x				x	A		x	A	x		
Los Angeles				x			x			x			x			x		
Marin				x			x			x			x			x		
Mendocino				x			x			x			x			x		
Monterey				x			x			x			x			x		
Napa					x	E	x			x			x			x		
Orange					x	A		x	A	x			x			x		
Placer				x			x			x			x			x		
Riverside				x			x			x			x			x		
Sacramento				x			x			x			x			x		
San Bernardino				x			x			x			x			x		
San Diego					x	E	x			x			x			x		

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Francisco				x			x			x			x			x		
San Joaquin				x			x			x			x			x		
San Mateo				x			x			x			x			x		
Santa Clara				x			x			x			x			x		
Santa Cruz				x			x			x			x			x		
SCWPCC					x	E	x			x			x				x	D
Shasta				x			x			x			x			x		
Solano				x			x			x			x				x	D
Sonoma					x	E	x			x			x			x		
Ventura				x			x			x			x			x		

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Exhibit 209: Reporting for Universal Metric: Comprehensive Care Plan - Within 30 Days of Twelve-Month Anniversary of Enrollment

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
Alameda							x			x			x			x		
Contra Costa							x			x			x			x		
Kern								x	A	x			x				x	A
Kings							x				x	A	x			x		
Los Angeles							x			x			x			x		
Marin							x			x			x			x		
Mendocino							x			x			x			x		
Monterey							x			x			x			x		
Napa							x			x			x			x		
Orange								x	A	x			x				x	A
Placer							x			x			x			x		
Riverside							x			x			x			x		
Sacramento							x			x			x			x		
San Bernardino							x			x			x			x		
San Diego								x	E	x			x			x		

Pilot	PY1 (2016, Baseline)			PY2 (2017, Enrollment Year 1)			PY3 (2018, Enrollment Year 2)			PY4 (2019, Enrollment Year 3)			PY5 (2020, Enrollment Year 4)			PY6 (2021, Enrollment Year 5)		
	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]	Included	Excluded	Exclusion Reason[1]
San Francisco								x	E		x	A		x	A		x	A
San Joaquin							x			x			x			x		
San Mateo							x			x			x			x		
Santa Clara							x			x			x			x		
Santa Cruz								x	E	x			x			x		
SCWPCC							x			x			x				x	D
Shasta							x			x			x			x		
Solano							x			x			x				x	D
Sonoma								x	E	x			x			x		
Ventura							x			x			x			x		

[1] Exclusion reasons:

A: Availability (the LE was reporting on this metric, but data was not available for this period)

E: Enrollment (the LE was reporting on this metric, but enrollment or program activities did not begin early enough to report for this period)

NR: Not Reporting (the LE did not report on this metric at all for these periods)

Appendix C: Data and Analyses Methods for Narrative Reports

Overview of Data and Analysis Methods for Narrative Reports

Data Source

The UCLA evaluation team used data from ten rounds of narrative reports (PY 2 – PY 6 mid-year and annual) submitted by WPC Pilots to the California Department of Health Care Services. Data in these reports covered January 2017 through December 2021. In these reports, WPC Pilots were asked to report on program achievement, success, and progress as well as on program challenges, barriers, and lessons learned in three major domains: care coordination, data and information sharing, and data reporting. WPC Pilots were also asked to report on outcomes and sustainability of WPC. A complete overview of reporting requirements for these narrative reports can be found in Attachment GG Special Terms and Conditions.

Methods

All narrative reports were reviewed for completeness and imported into the qualitative analysis software NVIVO. To facilitate analysis, all reports were organized by WPC Pilot. Both inductive and deductive coding methods were applied for analysis. After developing an initial codebook based on sections outlined in the narrative reports (deductive coding), the codebook was subsequently refined to reflect emergent themes in the data (inductive coding) and to eliminate redundancies and repetitions across sections of the report. All narrative reports were coded and reviewed by at least two members of the team, and five primary themes from the initial coding process were identified: (1) care coordination; (2) data and information sharing; (3) identifying, engaging, and enrolling eligible beneficiaries; (4) biggest barriers to WPC success; and (5) WPC outcomes and sustainability. An additional round of coding was conducted to identify and quantify specific subthemes within the data. Only the most prevalent subthemes were included in the final evaluation report.

Limitations

The qualitative analysis of narrative reports relied on self-reported data from participating WPC Pilots. While efforts were made to validate responses and perspectives within and across the data sources when possible, there is potential for responses to have been subject to response or social desirability bias. Due to the concurrence of WPC with other programs focused on

redesign of care processes and payment, the effects of WPC cannot fully be separated from other programs.

Appendix D: Data and Analysis Methods for Lead Entity Surveys

Data and Analysis Methods for Lead Entity Surveys

Data Sources

PY 3 LE Survey

To gain insight into WPC implementation in the early stages of the program, UCLA administered a PY 3 survey from July-September 2018 to key program staff from Lead Entities (n=27) participating in WPC Pilots.

The survey included 74 closed and open-ended questions on various domains:

- Questions about the local context of the Pilot and motivation for participation;
- Questions about WPC infrastructure, resources and implementation;
- Questions about intra- and inter-agency communication, decision-making and collaborative processes and participation in learning collaboratives;
- Questions about processes developed regarding potential and current WPC enrollees; and
- Questions about program monitoring activities, performance trends and perceived impact of WPC.

The PY 3 survey assessed health information technology infrastructure, specific activities related to project implementation, ratings of level of effort, staffing and workforce development, participation in quality improvement activities, and challenges and solutions.

COVID-19 Impact Survey

To gain insight into WPC Pilots' response to the pandemic, UCLA administered a COVID-19 impact survey in April 2020 to WPC LEs (n=25). Napa and Plumas (of the Small County WPC Collaborative) did not complete a survey; Plumas was no longer participating in the WPC Pilot at the time.

The brief, rapid response survey assessed (1) how WPC infrastructure and integrated care delivery approach may have helped with local response to COVID-19, and (2) the impact of the COVID-19 pandemic on WPC enrollment, staffing, and services.

PY 5 LE Survey

To gain insight into WPC implementation in the later stages of the program, UCLA administered a PY 5 survey from July-September 2018 to key program staff from Lead Entities (n=25) participating in WPC Pilots. Napa and Plumas (of the Small County WPC Collaborative) did not complete a survey; Plumas was no longer participating in the WPC Pilot at the time.

The survey included 55 closed and open-ended questions on various domains:

- Additional detail on data sharing infrastructure and resources;
- Care coordination processes and supports;
- Specific housing related services;
- Integration of health and social services;
- Perceived impact of WPC; and
- Sustainability and the transition to CalAIM.

PY 6 LE Survey

In PY 6, UCLA fielded an additional survey to LE leadership in all WPC Pilots during the waiver extension year (n=26). LEs that did not participate in PY 6 were asked to complete with perspective through PY 5 (Solano, as well as Mariposa and San Benito of the Small County WPC Collaborative). Surveys provided additional information on WPC implementation, changes to WPC since the PY 5 survey, and updates on sustainability planning and progress on transition to CalAIM.

All Surveys

For all four surveys, questions constituted a variety of structures including yes/no, multiple choice, ranking, Likert scale, and matrix. Surveys were pilot-tested among stakeholders at a selection of Pilots. Following pilot testing, UCLA revised the structure and content of the survey to address stakeholder feedback before deploying the final version of the survey to all Lead Entities.

Surveys were administered via SurveyMonkey. WPC Pilot contacts at each Lead Entity were emailed a link to complete the survey and were instructed to involve additional team members who were most knowledgeable about implementation of specific WPC domains. Surveys were

filled out predominantly by leaders (directors, administrators, and program managers) in each Lead Entity.

The survey instruments are available in Appendices O and P.

Methods

Data were analyzed using Excel and Stata. Descriptive analyses were conducted to assess Lead Entity characteristics on the different survey domains. Members of the UCLA team recoded responses to open-ended questions or responses to Likert Scale and matrix questions as needed to appropriate categories.

Throughout the final evaluation report, UCLA presents the most recent survey results – where appropriate, UCLA presents multiple data points over time.

Limitations

The analysis of the surveys relied on self-reported data from participating WPC Pilots. While efforts were made to validate responses and perspectives within and across the data sources when possible, there is potential for responses to have been subject to response or social desirability bias. Due to the concurrence of WPC with other programs focused on redesign of care processes and payment, the effects of WPC cannot fully be separated from other programs.

Furthermore, the scope of the evaluation did not include surveys of WPC enrollees, which may have provided further insight into how WPC services met enrollee needs and improved their health.

Appendix E: Data and Analyses Methods for Follow-up Interviews with Lead Entity and Frontline Staff

Overview of Data and Analysis Methods for Follow-up Interviews

Data Source

To gain in-depth understanding of WPC implementation, UCLA conducted semi-structured interviews with key informants from all participating WPC Pilots (n=26). Interviews were conducted from June to September 2021 and lasted roughly 90 to 120 minutes. UCLA conducted interim interviews (n=27) from September 2018 to March 2019.

WPC Pilot contacts were asked to include individuals with expertise on the county's WPC implementation and care coordination processes. Each WPC Pilot participated in at least two interviews: one with frontline staff (i.e., care coordinators, Public Health Nurses, frontline supervisors, social workers), and one with key leadership and management (i.e., WPC Directors, project managers). Interviews were conducted with WPC Pilots via Zoom video conferencing and recorded with software or handheld audio recorders. Interviews were led by a member of the UCLA evaluation team, with input from additional members, as appropriate. A total of 58 interviews were conducted with 167 individual key informants.

Interviews focused on greater understanding of concepts such as care coordination workflows, data sharing infrastructure, communication and decision-making processes, impact of COVID-19, and inter-agency collaboration with partner organizations. Additional topics included: the general impact of WPC, synergy with other projects, leadership and staff buy-in, recommendations for ongoing implementation of the program, and plans for sustainability of key WPC components and transition to CalAIM. See Appendix X for the interview protocol used for both frontline staff and Lead Entity interviews.

Methods

Interviews were transcribed verbatim using Rev.com transcription services and de-identified prior to analysis. A codebook was developed based on key evaluation questions and interview content, using both inductive (i.e., based on emergent themes from coding of initial interviews) and deductive coding (i.e., based on a priori themes and components of the interview protocol). After establishing a codebook, the transcribed interviews were distributed among five members of the study team for coding analysis. During the coding process, study team members met regularly to discuss emerging themes and refine the codebook as needed. See

Exhibit 210 for the qualitative codebook used for the qualitative analysis. Analyses was completed using NVivo software.

Limitations

Follow-up interviews relied on self-reported data from participating WPC frontline staff and key leadership and management. While efforts were made to validate responses and perspectives within and across the data sources when possible, there is potential for responses to have been subject to response or social desirability bias. Due to the concurrence of WPC with other programs focused on redesign of care processes and payment, the effects of WPC cannot fully be separated from other programs.

Furthermore, the scope of the evaluation did not include interviews with WPC enrollees, which may have provided further insight into how WPC services met enrollee needs and improved their health.

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Exhibit 210: Codebook Used for Preliminary Coding of Follow-up Interviews, PY 6

NODES

Respondent Role
Who are respondents, how involved in WPC

County and Organizational Context
Description of other programs that may overlap with WPC (Health Homes, PRIME, etc.), LE motivation for participating in WPC, rural/urban, etc.

WPC Program
Summary of Pilot and core elements of the Pilot; includes changes over time, & how pilot funded

Pandemic impact
Impact of pandemic on Pilot, Pilot response, and any specific services provided to COVID-19 impacted individuals. May double-code with other domains.

Pilot Leadership and Governance
Governance structure (e.g., admin committees), frequency of meetings, how decisions made re: Pilot program design, operations, etc.

Partners
Any references to established relationships with other organizations or to departments/divisions within same umbrella organization (e.g., partnership changes, quality of communication, factors affecting engagement, etc. This does not include one-time interactions with frontline staff at other organizations/departments)

Data sharing/ IT Infrastructure
Any references to data sharing, HIE or other data repository, case management software or other infrastructure for tracking referrals, services, & care coordination or to facilitate reporting/outcome tracking

Enrollee outreach and engagement
Any references to strategies used to outreach to or identify individuals eligible for WPC, engage them in care, or when to disenroll / graduate from care

Care Coordination
Definition of care coordination, how care coordination works (e.g., needs assessment, care plan, referral tracking), who is on the care coordination team, Accountability, how WPC staff communicate with one another or with other providers in the community

Other Services
References to other services provided as part of WPC, including housing support, recuperative care, BH care, sobering center stays, etc.

Staffing
Any references to recruitment or retention, turnover, caseload, type of staff used, supervisor & staff orientation, supervisor/staff skills & training, staff concordance with target populations, references to burnout, compassion fatigue, etc.

Community engagement
Any references to inclusion of client/enrollee or staff perspectives in WPC planning, implementation, or QI

Contracting and Contract Incentives
Any references to contracting with the state or with WPC partners, factors affecting time intensity or specialized knowledge for contracting, effectiveness of contract incentives, and perceived utility for CalAIM. [Also include references to RFP/RFA, MOU, data sharing agreements that were signed, etc.]

Diversity, equity, or inclusion
Any references to Pilot efforts to address disparities, or consider DEI in program planning, implementation, or evaluation activities.

Lessons Learned, Facilitators, or Barriers
Lessons learned, Facilitators, or Barriers (anticipate double-coding with other content)

WPC Outcomes
Perceived Impact, including benefits and unanticipated consequences, including client successes.

WPC Sustainability and transition to CalAIM
Factors affecting sustainability of WPC, plans during transition to CalAIM, perceptions of CalAIM, etc.

Pilot-Internal Evaluation & QI Activities
Internal evaluation activities & QI

Technical Assistance and Desired Support for State
Perceptions of provided TA or of QI activities, what they wish the state had done

Illustrative and Interesting quotes

Social Determinants of Health (new)
Explicit references to social determinants of health, social needs, social factors

Other
Any important content that doesn't fit elsewhere

Collections / Sets:

Whole Person Care Final Evaluation Report |Appendix E: Data and Analyses Methods for Follow-up Interviews with Lead Entity and Frontline Staff

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- County/LE
- Legacy, Expansion, New
- Program Size (Target Pop): Small (<=1,000), medium, Large (10,000+)
- Program Structure: Centralized vs. De-centralized
- Program Structure: Some contracted vs. All Contracted vs. Not Contracted
- Cost: Large, medium, small
- Target population: High Utilizers, SMI/SUD, Chronic Physical Conditions, Homelessness and/or At Risk of Homelessness, Justice Involved
- Interview Type: Leadership and Strategy, Frontline Supervisor; Frontline Staff

Appendix F: Data and Analyses Methods for Partner Surveys

Overview of Data and Analysis Methods for Partner Surveys

Data Source

To gain a comprehensive understanding into WPC implementation, UCLA developed a survey for participating partners from WPC Pilots. The interim partner survey was conducted from July to October 2018, and included a total of 227 partners from 25 Lead Entities. A total of 227 partners from 25 Lead Entities participated in the survey. Partner surveys from two counties were excluded: Plumas withdrew from participation, another delayed implementation due to fires (Sonoma). The final partner survey was conducted from June to August 2020, with various types of partner agencies, including community clinics, hospitals, private human and social service providers, county mental health and housing agencies, probation/law enforcement agencies, private mental health and substance abuse agencies as well as other types of county and private agencies. A total of 166 partners from 25 Lead Entities participated in the survey. Partner surveys from two counties were excluded: Plumas withdrew from participation, and Napa did not participate.

The majority of questions in the final partner survey were identical to questions from the PY 5 LE survey; the PY 5 partner survey was more limited in scope than the PY 3 partner survey. Questions explored specific activities related to project implementation, ratings of level of effort, staffing and workforce development, changes in collaboration as a result of WPC, and challenges and solutions to project implementation. Questions constituted a variety of structures including yes/no, multiple choice, ranking, Likert scale, and matrix.

Final partner surveys were conducted via Qualtics. WPC Pilots provided an email link to their partner agencies to complete the survey. Partners were advised to involve additional team members as needed to ensure questions were answered by the person most knowledgeable about specific WPC domains. Surveys were mainly completed by leaders (directors, administrators, and program managers) of the partner agencies.

Methods

Data were analyzed using Excel and Stata 12.

Descriptive analyses were conducted to assess partner organization characteristics on the survey domains.

Limitations

PY 5 partner surveys relied on self-reported data from participating partner organizations from WPC Pilots. While efforts were made to validate responses and perspectives within and across the data sources when possible, there is potential for responses to have been subject to response or social desirability bias. Due to the concurrence of WPC with other programs focused on redesign of care processes and payment, the effects of WPC cannot fully be separated from other programs.

Appendix G: Data and Analyses Methods for PDSA Reports

Overview of Data and Analysis Methods for PDSA Reports

Data Source

WPC Pilots were required to submit Plan Do Study Act (PDSA) reports for Universal and Variant metrics semi-annually and annually in order to report on quality and performance improvements. WPC Pilots were also required to submit a PDSA Pilot summary worksheet. Pilots organized PDSAs into category types that included: (1) ambulatory care, (2) care coordination, (3) comprehensive care plan, (4) data, (5) inpatient utilization, and (6) other.

DHCS provided Pilots with a template for PDSA reporting. WPC Pilots were asked to report the following for each PDSA project: (1) WPC Lead Entity, (2) project lead (name/phone number/email), (3) reporting period, (4) PDSA project, (5) target population, (6) PDSA size, (7) status, (8) PDSA type, (9) start date, (10) recent revision date, (11) report date, (12) project description, (13) revision, (14) results, and (15) next steps.

Methods

PDSAs reports were sent to UCLA by DHCS and reviewed for completeness. UCLA received PDSAs for the following reporting years: PY 2 mid-year through PY 6 annual. PDSA reports were compiled into Excel and categorized by both Pilot and reporting year. Counts were developed for PDSA type and length of days per PDSA project by PDSA type, Pilot, and reporting year. Counts of PDSA reports were also calculated based on continuity through all reporting periods.

Appendix H: WPC Services Offered through PMPM Bundles and FFS

Methodology

In order to categorize the services reported by WPC pilots into eleven common service groups, UCLA used (1) WPC Quarterly Enrollment and Utilization Reports from PY 2 to PY 6; (2) PY 5 (2020) LE survey (n=25); and (3) WPC Annual Invoices from PY 2 to PY 6.

Pilots had the flexibility to provide services that would best fit the needs of their target populations and could be delivered with existing or newly developed infrastructure and resources. While no single service was specifically required by the program, all Pilots were expected to provide care coordination and housing support services as needed to address the needs of beneficiaries. Additionally, services delivered by Pilots could only be identified through an examination of bundled (PMPM or per-member per-month) or specific services (FFS or fee-for-service) that Pilots used to report to DHCS and receive payment. Bundled services varied in what combinations of services were included and associated costs, as they were tailored by each Pilot to fit the needs of the population they expected to serve. As part of the LE survey in 2020, UCLA asked Pilots to identify which of 20 services were offered through each PMPM and FFS category. For this analysis, two Pilots in the Small Counties WPC Pilot (San Benito and Mariposa) were analyzed separately as each used different bundles of services and had different rates. Napa and Plumas counties were excluded from this service analysis because Napa did not respond to the LE Survey and Plumas dropped out of WPC in PY 3. Categories that were added in 2021 after the 2020 LE survey were excluded from this analysis when information on which services were provided through these categories was not available. These were primarily COVID-19-related services.

From the 20 specific services included in the survey, UCLA aggregated the findings into 11 categories of services: (1) Outreach; (2) Care Coordination; (3) Housing Support; (4) Benefit Assistance; (5) Employment Assistance; (6) Sobering Centers; (7) Medical Respite; (8) Transportation; (9) Health Education; (10) Legal Services; and (11) Re-Entry Services. In Exhibit 211 services offered through each PMPM and FFS category is shown along with the rate of each category for each program year that were pulled from the WPC Annual Invoices. The rate was used to calculate the total service cost per enrollee

Exhibit 211: FFS and PMPM Categories, Associated Services, and Associated Annual Rates, 2017 to 2021

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Alameda	FFS Category 4	Del #8. Housing Education & Legal Assistance--individual legal assistance			X							X		$1,755	$1,755	$1,755	$1,755	$1,755
Alameda	FFS Category 7	Del #14. Sobering Center - Bed days		X				X						$239	$239	$239	$239	$239
Alameda	FFS Category 8	Del #15. SUD Diversion - Assessment hours		X										$229	$229	$229	$229	$229
Alameda	FFS Category 9	Del #15. SUD Diversion - Court visit encounters, hours										X		$229	$229	$229	$229	$229
Alameda	FFS Category 10	Del #15. SUD Diversion - Drug testing w/ Care Manager contact, hours		X										$229	$229	$229	$229	$229
Alameda	FFS Category 11	Del. #16 Portals to Substance Use Disorder Treatment - Linkage		X										$155	$155	$155	$155	$155
Alameda	FFS Category 12	Del. #16 Portals to Substance Use Disorder Treatment – helpline		X							X			$155	$155	$155	$155	$155
Alameda	FFS Category 19	Del #19. Completed IBH Care Coordination for patients at FQHC		X										$102	$102	$102	$102	$102
Alameda	FFS Category 20	Del #20b. BH Medical Homes - Nurse Care Coordinators- referrals		X										$154	$154	$154	$154	$154
Alameda	FFS Category 25	Del #20c. BH Medical Homes - Patient transport referrals								X				$131	$131	$131	$131	$131
Alameda	FFS Category 28	Del #7A.1 Expansion: Outreach and Engagement Encounters; Homeless Street Outreach	X	X										N/A	N/A	$150	$150	$150

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Alameda	FFS Category 29	Del #7A.2 Expansion: Outreach and Engagement Encounters; Facility/Home	X	X										N/A	N/A	$100	$100	$100
Alameda	FFS Category 30	Del #7A.3 Expansion: Outreach and Engagement Encounters; In-Reach	X	X										N/A	N/A	$50	$50	$50
Alameda	FFS Category 31	Del #10c. Short-Term Housing Assistance Fund-eligible expenses per client												N/A	N/A	$4,500	$4,500	$4,500
Alameda	FFS Category 32	Del #16d. Helpline Care Navigation Contacts – hours		X										N/A	N/A	$155	$155	$155
Alameda	FFS Category 33	Del #48. Respite Program		X					X					N/A	N/A	$250	$250	$250
Alameda	FFS Category 35	Del #49b. Benefits Enrollment and Advocacy Services; Accessible locations				X								N/A	N/A	$290	$290	$290
Alameda	FFS Category 37	Del #68c. Coordinated Entry Assessments (HomeBase)		X										N/A	N/A	N/A	$200	$200
Alameda	FFS Category 38	Del #68d. Health Assessment Screening and Documentation (HomeBase)		X										N/A	N/A	N/A	$400	$400
Alameda	FFS Category 41	Del #69. Coordinated Entry Assessments (hotels)		X										N/A	N/A	N/A	$200	$200
Alameda	FFS Category 42	Del #70. Health Assessment Screening and Documentation (hotels)		X										N/A	N/A	N/A	$400	$400
Alameda	PMPM Category 1	Care Management Services Bundle Tier 1		X										$321	$321	$321	$321	$321
Alameda	PMPM Category 2	Care Management Services Bundle Tier 2		X										$474	$474	$474	$474	$474

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Alameda	PMPM Category 3	Skilled Nursing Facility Transitions												$315	$315	N/A	N/A	N/A
Alameda	PMPM Category 4	Enhanced Housing Transition Service Bundle												$324	$324	N/A	N/A	N/A
Alameda	PMPM Category 5	Housing & Tenancy Sustaining Service Bundle												$211	$211	N/A	N/A	N/A
Alameda	PMPM Category 6	Trust Health Center Street Psychiatric Team	X	X										N/A	$1,353	$1,353	$1,353	$1,353
Alameda	PMPM Category 7	Health, Housing and Integrated Services Bundle Tier 1		X	X	X						X		N/A	$300	$300	$300	$300
Alameda	PMPM Category 8	Health, Housing and Integrated Services Bundle Tier 2		X	X	X						X		N/A	$400	$400	$400	$400
Alameda	PMPM Category 9	Health, Housing and Integrated Services Bundle Tier 3		X	X	X						X		N/A	$575	$575	$575	$575
Alameda	PMPM Category 10	Health Housing and Integrated Services Bundle (HomeBase)		X	X	X						X		N/A	N/A	N/A	$575	$575
Contra Costa	FFS Category 1	Housing Transition Services FFS			X									N/A	$4,500	$4,500	$4,500	N/A
Contra Costa	PMPM Category 1	Comprehensive Case Management Tier A	X	X	X	X	X			X	X	X		N/A	N/A	N/A	N/A	$326
Contra Costa	PMPM Category 2	Comprehensive Case Management Tier B	X	X	X	X	X			X	X	X		N/A	N/A	N/A	N/A	$146
Contra Costa	PMPM Category 3	Long Term Stay (Tier C)	X	X	X	X	X			X	X	X		N/A	N/A	N/A	N/A	$2,134
Kern	FFS Category 3	Benefits Advocacy				X								N/A	$239	$133	$133	$133
Kern	FFS Category 4	Screening Assessment and Referral	X	X										N/A	$147	$147	$147	$147

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Kern	FFS Category 5	Information and Referral	X											N/A	$90	$90	$90	N/A
Kern	FFS Category 6	Respite Care		X					X					N/A	N/A	$85	$85	N/A
Kern	FFS Category 8	Care Pods												N/A	N/A	$300	$300	$300
Kern	FFS Category 9	Community Integration Treatment												N/A	N/A	$77	$77	$77
Kern	PMPM Category 1	Housing Navigation		X	X									$480	$480	$480	$480	$480
Kern	PMPM Category 2	Employment Services		X			X							$200	$200	$200	$200	$200
Kern	PMPM Category 3	WPC Care Coordination		X		X				X	X	X		$450	$450	$450	$450	$450
Kern	PMPM Category 4	90-Day Post-Incarceration Coordination		X		X				X	X	X	X	$1,800	$1,800	$1,800	$1,800	$1,800
Kern	PMPM Category 5	Moderate Housing Support			X									N/A	$171	$171	$171	$171
Kings	FFS Category 1	Short Term Recupertive Care Unit	X	X				X		X			X	$150	$150	$150	$150	N/A
Kings	FFS Category 2	Community Integration		X		X				X				$205	$205	$205	$205	N/A
Kings	FFS Category 3	Engagement	X	X	X					X	X			$166	$166	$166	$166	N/A
Kings	FFS Category 4	SSI Advocacy	X	X		X				X		X		$2,225	$2,225	$2,225	$2,225	N/A
Kings	PMPM Category 1	Care Coordination	X	X	X		X			X	X	X		$526	$526	$526	$526	N/A
Kings	PMPM Category 2	Housing Navigation	X	X	X					X		X		$157	$157	$157	$157	N/A
Kings	PMPM Category 3	Comp. Care Coordination/Low Ratio	X	X	X		X			X	X	X		$1,152	$1,152	$1,152	$1,152	N/A
Los Angeles	FFS Category 1	Sobering Center	X	X	X			X						N/A	N/A	N/A	N/A	$279
Los Angeles	FFS Category 2	Outreach & Engagement	X	X	X	X								N/A	N/A	N/A	N/A	$225

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Los Angeles	FFS Category 3	Outreach & Engagement (Street Teams)	X	X	X	X								N/A	N/A	N/A	N/A	$518
Los Angeles	PMPM Category 1	Benefits Advocacy Services		X	X	X						X		N/A	N/A	N/A	N/A	$835
Los Angeles	PMPM Category 2	Homelessness Care Support Services	X	X	X	X				X		X		N/A	N/A	N/A	N/A	$380
Los Angeles	PMPM Category 3	Tenancy Support Services (TSS)	X	X	X	X				X		X		N/A	N/A	N/A	N/A	$124
Los Angeles	PMPM Category 4	Recuperative Care Services	X	X	X	X			X	X		X		N/A	N/A	N/A	N/A	$6,154
Los Angeles	PMPM Category 5	Psychiatric Recuperative Care Services	X	X	X	X			X	X		X		N/A	N/A	N/A	N/A	$9,540
Los Angeles	PMPM Category 6	Justice Re-entry - Adult Jail Referral	X	X	X	X				X		X	X	N/A	N/A	N/A	N/A	$409
Los Angeles	PMPM Category 7	Justice Re-entry - Adult Community Referral	X	X	X	X	X			X		X	X	N/A	N/A	N/A	N/A	$821
Los Angeles	PMPM Category 8	Justice Re-entry - Extended Adult Care	X	X	X	X	X			X		X	X	N/A	N/A	N/A	N/A	$409
Los Angeles	PMPM Category 10	Justice Re-entry - Enhanced Care Coordination		X	X	X	X			X	X	X	X	N/A	N/A	N/A	N/A	$1,629
Los Angeles	PMPM Category 11	Intensive Service Recipient (ISR)	X	X										N/A	N/A	N/A	N/A	$1,103
Los Angeles	PMPM Category 12	Residential and Bridging Care: Residential and Bridging Care Delivery		X										N/A	N/A	N/A	N/A	$2,194
Los Angeles	PMPM Category 13	Residential and Bridging Care: Enhanced Care Coordination	X	X	X	X				X				N/A	N/A	N/A	N/A	$3,291
Los Angeles	PMPM Category 14	Substance Use Disorder Engagement, Navigation, and Support (SUD-ENS)	X	X	X	X				X	X	X		N/A	N/A	N/A	N/A	$577

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Los Angeles	PMPM Category 15	Medically Complex - Transitions of Care	X	X	X	X				X	X	X		N/A	N/A	N/A	N/A	$452
Los Angeles	PMPM Category 16	Kin To Peer	X	X	X	X				X	X			N/A	N/A	N/A	N/A	$1,271
Los Angeles	PMPM Category 17	MAMA's Neighborhood	X	X	X	X				X	X	X		N/A	N/A	N/A	N/A	$766
Marin	FFS Category 1	Information and Referral	X											$90	$90	$90	$90	$90
Marin	FFS Category 2	Screening, Assessment, and Referral	X										X	$147	$147	$147	$147	$147
Marin	FFS Category 3	Person-centered Care Plan		X										$147	$147	$225	$225	$225
Marin	FFS Category 4	Client Move-In Fee			X									N/A	$2,701	$4,500	$4,500	$4,500
Marin	FFS Category 5	Field-Based Engagement of Homeless Individuals	X											N/A	N/A	$392	$392	$392
Marin	FFS Category 6	VI-SPDAT Assessment		X										N/A	N/A	$60	$60	$60
Marin	FFS Category 7	90+ day Residential SUD & Third + Episode of Residential Treatment SUD							X					N/A	N/A	$145	$145	$145
Marin	PMPM Category 1	Comprehensive Case Management		X	X	X	X			X	X	X		$270	$270	$270	$270	$270
Marin	PMPM Category 2	Housing-Based Case Management		X	X	X	X			X	X	X		$540	$540	$540	$540	$540
Marin	PMPM Category 3	Case Management for Individuals with Mild to Moderate Mental Health Conditions and Complex Psycho-social Challenges		X	X	X	X			X	X	X		N/A	$462	$462	$462	$462
Marin	PMPM Category 4	Housing Locator			X									N/A	N/A	$700	$700	$700
Mariposa	FFS Category 1	Outreach & Engagement	X	X										$250	$250	$250	$250	$250

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Mariposa	FFS Category 2	Respite Care							X					$500	$500	$500	$500	$500
Mariposa	PMPM Category 1	Comprehensive Care Coordination		X	X	X	X		X	X	X	X		$1,721	$1,721	$1,721	$1,721	$1,721
Mariposa	PMPM Category 2	Housing Supports			X	X	X							$1,389	$1,389	$1,389	$1,389	$1,389
Mendocino	FFS Category 1	Medical Respite Services		X	X	X		X	X	X				$154	$154	$154	$154	N/A
Mendocino	FFS Category 2	Mental Health Transitional Support		X	X	X	X	X		X				$150	$150	$150	$150	$150
Mendocino	PMPM Category 1	High Intensity Coordination Bundle	X	X	X	X	X	X		X	X	X		$816	$816	$816	$816	$816
Mendocino	PMPM Category 2	Short Term Care Coordination Bundle	X	X	X	X	X	X		X	X	X		$564	$564	$564	$564	$564
Monterey	FFS Category 3	Housing Placement and Support	X	X	X	X								$288	$77	$77	$77	$77
Monterey	FFS Category 4	Sobering Center	X	X			X							$217	$288	$288	$288	$288
Monterey	FFS Category 6	Sobering Center SunStreet						X						N/A	$217	$217	$217	$217
Monterey	FFS Category 8	Housing Navigation & Tenancy Support		X	X	X								N/A	$2,575	$2,575	$2,575	$2,575
Monterey	FFS Category 9	Rapid Rehousing		X	X	X								N/A	$2,574	$2,574	$2,574	$2,574
Monterey	FFS Category 10	Franciscan Workers CM	X	X	X									N/A	$308	$308	$308	$308
Monterey	PMPM Category 1	Community Based Case Management Services	X	X	X	X				X				$308	$989	$706	$706	$706
Monterey	PMPM Category 2	Community Based Case Management Services	X	X		X				X	X	X		$989	$308	N/A	N/A	N/A
Orange	FFS Category 1	Recuperative Care		X		X	X		X	X	X	X	X	$181	$181	$181	$181	$181
Orange	FFS Category 2	Move-in Bundle												N/A	N/A	$4,500	$4,500	$4,500

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Orange	PMPM Category 1	Hospital & Clinic Homeless Navigation Services	X	X		X	X			X	X	X		$121	$121	$121	$121	$121
Orange	PMPM Category 2	Supportive and Linkage Services provided by Drop-In Center Providers	X	X		X	X			X	X	X		$216	$216	$216	$216	$216
Orange	PMPM Category 3	SMI Specific Outreach & Navigation	X	X		X				X				$208	$208	$208	$208	$208
Orange	PMPM Category 4	Jail In-Reach and Release Services						X						N/A	N/A	$1,594	$1,594	$1,594
Orange	PMPM Category 6	Housing Navigation & Sustainability Services	X	X	X	X	X			X	X	X		N/A	N/A	$960	$960	$960
Placer	PMPM Category 1	Comprehensive Complex Care Coordination		X		X	X			X	X	X		$1,521	$1,521	$1,361	$1,242	$1,242
Placer	PMPM Category 2	Medical Respite Care Program		X					X	X	X			$8,826	$8,826	$9,713	$10,666	$10,666
Placer	PMPM Category 3	Housing Services		X	X	X				X	X			$1,603	$1,603	$1,757	$1,838	$1,838
Placer	PMPM Category 4	Engagement	X	X		X	X			X	X	X		$2,112	$2,112	$2,176	$2,253	$2,253
Riverside	FFS Category 1	Screening/Outreach	X	X	X	X		X						$239	$239	$239	$263	$263
Riverside	FFS Category 2	Benefits Advocacy	X	X	X	X								N/A	$239	$239	$239	$239
Riverside	PMPM Category 1	RN Case Management	X	X	X	X	X	X		X	X	X		$350	$350	$350	$350	$350
Riverside	PMPM Category 2	Housing Support Case Management	X	X	X	X		X		X				$469	$469	$469	$469	$469
Sacramento	FFS Category 1	ICP+ Bed Days		X					X	X	X	X		N/A	N/A	$257	$257	$257
Sacramento	FFS Category 2	Outreach and Referral FFS	X	X		X	X			X	X	X		$225	$225	$225	$225	$225
Sacramento	FFS Category 3	0												N/A	N/A	$1,178	N/A	N/A

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Sacramento	PMPM Category 1	Housing Bundle		X	X	X	X			X	X			$375	$375	$375	$375	$375
Sacramento	PMPM Category 2	Higher Intensity Case Management & Navigation Services		X						X	X			$537	$537	$537	$537	$537
Sacramento	PMPM Category 3	Lower Intensity Case Management & Navigation Services		X						X	X			$282	$282	$282	$282	$282
San Benito	FFS Category 1	Outreach & Engagement	X	X										$366	$366	$366	$366	$366
San Benito	PMPM Category 1	Comprehensive Care Coordination		X		X	X	X	X	X	X	X	X	$1,657	$1,657	$1,657	$1,657	$1,657
San Benito	PMPM Category 2	Housing Navigation and Supports			X	X	X							$1,936	$1,936	$1,936	$1,936	$1,936
San Bernardino	FFS Category 1	Field-based Outreach Activity	X	X	X	X		X	X	X	X			N/A	N/A	N/A	N/A	$217
San Bernardino	FFS Category 2	55+ Housing Services			X									N/A	N/A	N/A	N/A	$218
San Bernardino	PMPM Category 1	Case Coordination		X		X		X	X		X			N/A	N/A	N/A	N/A	$283
San Diego	FFS Category 1	Outreach & Engagement Encounter *	X					X						N/A	N/A	N/A	N/A	$204
San Diego	PMPM Category 1	Service Integration Phase 2 *		X	X	X	X		X	X	X	X		N/A	N/A	N/A	N/A	$851
San Diego	PMPM Category 2	Service Integration Phase 3		X	X	X	X		X	X	X	X	X	N/A	N/A	N/A	N/A	$681
San Diego	PMPM Category 5	High Acuity Teams		X	X	X			X	X		X		N/A	N/A	N/A	N/A	$3,952
San Francisco	FFS Category 1	Medical Respite Services												N/A	N/A	N/A	N/A	$134

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
San Francisco	FFS Category 2	days in SUD trmt setting for SUD												$140	$140	$140	$140	N/A
San Francisco	FFS Category 3	days in Medical Respite for medical and psychiatric conditions	X	X				X	X	X				$134	$134	$134	$134	N/A
San Francisco	FFS Category 4	Resource Center Services	X	X	X	X						X		N/A	N/A	N/A	N/A	$83
San Francisco	FFS Category 5	Coordinated Entry Expansion Services	X	X	X									N/A	N/A	N/A	N/A	$255
San Francisco	FFS Category 6	Rapid Targeted Coordination and Navigation Services	X	X						X				N/A	N/A	N/A	N/A	$53
San Francisco	FFS Category 7	Outreach and Engagement services	X	X		X								N/A	$16	$16	$16	N/A
San Francisco	PMPM Category 1	Outreach and Engagement Services												N/A	N/A	N/A	N/A	$16
San Francisco	PMPM Category 2	Care Coordination Services	X	X						X				N/A	N/A	N/A	N/A	$315
San Francisco	PMPM Category 3	Enhanced Housing Transition Services			X	X								N/A	N/A	N/A	N/A	$348
San Francisco	PMPM Category 4	Housing and Tenancy Stabilization Services			X									N/A	N/A	N/A	N/A	$422
San Francisco	PMPM Category 5	PMPM5 High Intensity HUMS Care Team		X		X				X				N/A	N/A	N/A	N/A	$1,060
San Joaquin	FFS Category 1	Recuperative Care		X	X			X	X					N/A	N/A	N/A	N/A	$85
San Joaquin	FFS Category 2	Care Coordination	X	X	X	X				X				$56	$56	$56	$56	N/A
San Joaquin	FFS Category 3	BHS Integration Team	X	X	X	X		X		X				N/A	N/A	N/A	N/A	$137
San Joaquin	PMPM Category 1	Care Coordination	X	X	X	X		X		X				N/A	N/A	N/A	N/A	$56

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
San Joaquin	PMPM Category 2	High Intensity Care Bundle	X	X	X	X				X				N/A	N/A	N/A	N/A	$501
San Joaquin	PMPM Category 3	Low Intensity Care Bundle	X	X	X	X				X				N/A	N/A	N/A	N/A	$430
San Mateo	PMPM Category 1	Bridges to Wellness with TCM Adjustment	X	X	X	X				X		X		N/A	N/A	N/A	N/A	$636
San Mateo	PMPM Category 2	Behavioral Health and Recovery Services with TCM Adjustment	X	X		X		X		X	X	X		N/A	N/A	N/A	N/A	$829
Santa Clara	FFS Category 1	Outreach and Engagement		X		X			X	X	X	X		N/A	N/A	N/A	N/A	$100
Santa Clara	FFS Category 2	Medical Respite		X	X	X			X	X				N/A	N/A	N/A	N/A	$376
Santa Clara	FFS Category 3	Sobering Station	X	X		X		X	X	X		X		N/A	N/A	N/A	N/A	$246
Santa Clara	FFS Category 4	Patient Outreach	X	X		X				X				N/A	N/A	$100	$100	N/A
Santa Clara	FFS Category 5	Access & Referral – Housing Assessment	X	X	X	X	X	X	X	X	X	X		N/A	N/A	N/A	N/A	$1,000
Santa Clara	PMPM Category 1	Rehabilitation and Peer Support	X	X	X	X	X			X	X			N/A	N/A	N/A	N/A	$137
Santa Clara	PMPM Category 2	Short Term Care Management	X	X		X				X	X	X		N/A	N/A	N/A	N/A	$1,283
Santa Clara	PMPM Category 3	Mid Term Care Management	X	X		X				X	X	X		N/A	N/A	N/A	N/A	$1,364
Santa Clara	PMPM Category 4	Long Term Care Management	X	X	X	X			X	X		X		N/A	N/A	N/A	N/A	$883
Santa Clara	PMPM Category 5	Nursing Home Transitions		X	X	X				X		X		N/A	N/A	N/A	N/A	$2,077
Santa Cruz	FFS Category 1	Housing Support												$4,500	$4,500	$4,500	$4,500	N/A
Santa Cruz	FFS Category 2	Tenancy Support												N/A	N/A	N/A	N/A	$3,000
Santa Cruz	FFS Category 3	Outreach and Referrals	X											N/A	N/A	N/A	N/A	$175

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Santa Cruz	FFS Category 4	Screening, Assessment and Eligibility		X										N/A	N/A	N/A	N/A	$300
Santa Cruz	FFS Category 5	Recuperative Care Center (RCC)							X					N/A	N/A	N/A	N/A	$400
Santa Cruz	PMPM Category 1	Behavioral Health PMPM Bundle												N/A	N/A	N/A	N/A	$502
Santa Cruz	PMPM Category 2	Clinic Health PMPM Bundle		X	X	X				X	X			N/A	N/A	N/A	N/A	$501
Santa Cruz	PMPM Category 3	Intensive Housing Supports PMPM			X					X				N/A	N/A	N/A	N/A	$718
Santa Cruz	PMPM Category 4	Intermediate Housing Supports PMPM			X					X				N/A	N/A	N/A	N/A	$171
Shasta	FFS Category 1	Sobering Center						X						N/A	N/A	$250	$250	$250
Shasta	FFS Category 2	Mobile Crisis Center	X											N/A	N/A	$134	$134	$134
Shasta	FFS Category 3	Tenancy Support			X									N/A	N/A	$4,500	$4,500	$4,500
Shasta	PMPM Category 1	Medical Services	X	X						X	X			$595	$595	$595	$595	$595
Shasta	PMPM Category 2	Housing Case Management	X	X	X	X	X			X	X			$816	$816	$816	$816	$816
Solano	PMPM Category 1	PMPM Bundle	X	X	X	X	X			X	X	X		$454	$454	$454	$454	N/A
Sonoma	FFS Category 1	Outreach and Engagement Services	X	X		X		X					X	$49	$49	$49	$49	N/A
Sonoma	FFS Category 2	Short Term Recuperative Care Services												N/A	N/A	$130	$130	N/A
Sonoma	PMPM Category 1	Intensive Case Management Bundle	X	X	X	X	X	X		X	X	X		$1,366	$1,366	$1,366	$1,366	N/A
Ventura	FFS Category 1	Recuperative Care Program		X	X				X					$129	$129	$129	$129	N/A
Ventura	FFS Category 2	Mobile Outreach Services		X	X	X			X	X				$169	$169	$169	$169	N/A

Pilot	Category	Category Name	Outreach	Care Coordination	Housing Support	Benefit Assistance	Employment	Sobering Centers	Medical Respite	Transportation	Health Education	Legal Services	Re-Entry Services	2017 Rate	2018 Rate	2019 Rate	2020 Rate	2021 Rate
Ventura	FFS Category 3	Targeted Outreach and Ancillary Services												N/A	N/A	$1,000	$400	N/A
Ventura	FFS Category 4	SSI/SSDI Application Navigation	X	X		X						X		N/A	N/A	$150	N/A	N/A
Ventura	PMPM Category 1	Engagement Bundle	X	X										$318	$318	$318	$318	N/A
Ventura	PMPM Category 2	Care Coordination	X	X						X	X			$270	$270	$270	$270	N/A
Ventura	PMPM Category 3	Field-based Care Coordination Bundle	X	X	X	X	X			X	X	X		$224	$224	$224	$224	N/A

Source: WPC Pilot Surveys from PY 5, *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021, and *WPC Annual Invoices* from PY 2 to PY 6.

Notes: X indicates the service was provided by the given category. N/A indicates the category was not offered in the given year.

Appendix I: Pilot Primary Target Populations and Reporting

Overall WPC Program

Exhibit 212 provides an overview of the primary target populations by WPC Pilot. Each Pilot developed and defined their own target population(s). Primary target populations were defined as those groups that each Pilot aimed to directly influence and designed their services to address the specific needs of these groups.

Exhibit 212: Primary Target Population by Pilot

WPC Pilot	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk-of-Homeless-ness	Justice-Involved
Alameda	X			X		
Contra Costa	X					
Kern	X			X	X	X
Kings		X	X			
Los Angeles	X	X	X	X	X	X
Marin	X			X	X	
Mendocino			X			
Monterey				X		
Napa				X	X	
Orange			X	X		
Placer	X	X	X	X	X	X
Riverside						X
Sacramento	X			X		
San Bernardino	X					
San Diego	X			X	X	
San Francisco				X		
San Joaquin	X		X	X	X	
San Mateo	X					
Santa Clara	X					
Santa Cruz		X	X			
Shasta	X					
Solano	X		X			
Sonoma			X	X	X	
Ventura	X					
San Benito (SCWPCC)	X			X	X	
Mariposa (SCWPCC)	X		X			

WPC Pilot	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk-of-Homeless-ness	Justice-Involved
Plumas (SCWPCC)			X	X		

Source: Initially provided in PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; verified in Pilot specific case studies in February-April 2022.
Note: SCWPCC is the Small County Whole Person Care Collaborative. SMI/SUD is serious mental illness and substance use disorder.

In Exhibit 213, the target populations of individual enrollees identified by each Pilot in their quarterly *Enrollment and Utilization Reports* are listed. Pilots varied in whether they reported only on individual-level inclusion in their primary target populations or expanded to report on additional target populations. The COVID-19 target population was added during PY 5 and was not included as a primary target population due to its delayed implementation.

Exhibit 213: Enrollee Target Populations Reporting by WPC Pilot, PY 2 to PY 6

WPC Pilot	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-Risk-of-Homeless-ness	Justice-Involved	COVID-19
Alameda	X			X		X	X
Contra Costa	X						
Kern	X	X	X	X	X	X	
Kings		X	X	X	X	X	X
Los Angeles	X	X	X	X	X	X	
Marin	X			X	X		
Mendocino	X	X	X	X	X	X	
Monterey	X	X	X	X	X	X	
Napa	X			X	X		
Orange	X	X	X	X	X	X	
Placer	X	X	X	X	X	X	
Riverside	X	X	X	X	X	X	X
Sacramento	X	X	X	X	X		
San Bernardino	X	X					
San Diego	X	X	X	X	X	X	
San Francisco	X			X			X
San Joaquin	X		X	X	X	X	X
San Mateo	X		X	X			
Santa Clara	X	X	X	X	X	X	X
Santa Cruz	X	X	X	X	X	X	X
Shasta	X	X	X	X	X		
SCWPCC	X	X	X	X	X	X	X
Solano	X	X	X	X	X	X	X

WPC Pilot	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-Risk-of-Homeless ness	Justice-Involved	COVID-19
Sonoma	x	x	x	x	x		
Ventura	x	x	x	x	x		

Source: *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Includes 237,603 unique enrollees in WPC Pilots with a target population reported. When count for a target population was less than ten individuals, it was not reported. SMI/SUD is serious mental illness and/or substance use disorder. SCWPCC is the Small County Whole Person Care Collaborative.

In the following section, we describe the original target population of each WPC Pilot as described in their application, updates to the target population after implementation as described by Pilot leadership in UCLA-led interviews and the target populations of individual enrollees identified in *WPC Quarterly Enrollment and Utilization Reports.* We also describe UCLA's ultimate determination of each Pilot's primary target population(s).

Alameda's Target Populations

Description from Application

In their application, the Alameda County Health Care Services Agency (HSCA) identified the target populations of their WPC Pilot as three primary groups:

1. Care Coordination Population – Individuals with complex conditions who may be receiving care management in one system, but actually need care coordination that crosses multiple systems.

2. High Users of Multiple Systems – Medi-Cal beneficiaries who have come in contact with at least two of the following systems: medical, mental health, substance abuse treatment or criminal justice. Individuals are identified using data from the managed care plan, Alameda Alliance for Health, and Alameda County Behavioral Health Care Services.

3. Homeless Persons – Medi-Cal beneficiaries who meet at least one of the Housing and Urban Development (HUD) category definitions of homelessness.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Alameda County HCSA indicated that their target populations included individuals that are on Medi-Cal and had a history of homelessness in the past two years, high utilizers of multiple systems, and Medi-Cal beneficiaries already in a care management program (full-service partnerships). UCLA determined that the primary target populations for Alameda were high utilizers and the homeless.

Pilot Reporting of Target Populations by Enrollee

In *WPC Enrollment and Utilization Reports,* Alameda only reported individuals in four target populations (Exhibit 214). These target populations included the primary target populations of their Pilot as well as two additional target populations.

Exhibit 214: Alameda WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X			X		X	X
Pilot's Primary Target Populations	X			X			

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Contra Costa's Target Populations

Description from Application

In their application, Contra Costa Health Services indicated that their target population was "Medi-Cal recipients who are primarily and repeatedly accessing health care services in high-acuity settings due to the complexity of their unmet medical, behavioral health and social needs." More specifically, the Pilot used data to identify individuals with the following in one year: skilled nursing facility stay, more than six ED visits, more than six inpatient days or more than two inpatient admissions. They aimed to use their data warehouse to develop a data-driven, real-time algorithm to identify individuals that meet the target population criteria.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Contra Costa indicated that they developed a sophisticated predictive risk model that included information from a variety of county sources. These data sources included information on a potential enrollee's service utilization, chronic conditions, justice involvement and social determinants of health. Contra Costa's primary target population was solely high utilizers to provide enrollment flexibility.

Pilot Reporting of Target Populations by Enrollee

In Contra Costa's enrollment and utilization reports, they reported WPC enrollees in one target population: high utilizers. Given that their predictive risk model aimed to identify individuals that were high utilizers or are at-risk of becoming a high utilizer, their individual reporting aligns with their primary target population (Exhibit 215).

Exhibit 215: Contra Costa WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X						
Pilot's Primary Target Populations	X						

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Kern's Target Populations

Description from Application

In their application, Kern Medical Center (KMC) identified their target population as high utilizers, defined as high utilizers of emergency and inpatient services, with a focus on individuals that are homeless, at-risk of homelessness or have been recently incarcerated. Additionally, all enrollees were required to be eligible for Medi-Cal. The local health plans were supposed to provide lists of individuals that met these criteria.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, KMC indicated that changes to their target populations occurred due to changes in their program. The original intention was to identify high utilizers through lists provided by the two local health plans. However, KMC identified several limitations to this method, including:

- Homeless individuals and those at-risk of homelessness were not identified or captured by the health plans.

- Soon-to-be-released or recently incarcerated individuals were not captured by the health plans.

- The contact information provided by the health plans was typically not current or effective.

As a result, KMC modified their outreach and recruitment process to include referrals from the Housing Authority, in addition to the placement of a physician within jail that identified soon-to-be-released inmates for inclusion in the program. KMC also created a website and email address that allowed for self-referral into the program. As a result, the target population no longer required individuals to be high utilizers - if need was identified through these other recruitment mechanisms, the individual was enrolled. As a result, UCLA identified the primary target population for Kern as high utilizers, homeless, at-risk-of-homelessness and justice-involved.

Pilot Reporting of Target Populations by Enrollee

Through access to several data sources, including behavioral health data and social determinant assessments, KMC was able to assess enrollees for all target populations identified by the State, apart from COVID-19. These reported target populations included those that were targeted by the Pilot (high utilizers, homeless, at-risk-of-homelessness and justice-involved) and target populations not directly targeted by the Pilot (chronic physical conditions and SMI/SUD; Exhibit 216).

Exhibit 216: Kern WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	
Pilot's Primary Target Populations	X			X	X	X	

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Kings' Target Populations

Description from Application

Kings Area Resource Enhanced Linkages (KARELink) aimed to reduce the number of adults with mental illnesses and co-occurring substance use disorders in their jails and to build a collaborative bridge to wellness for people with behavioral health issues who are homeless or at-risk of homelessness. The target population had to have a substance use disorder, mental health issue or chronic health condition of diabetes or high blood pressure.

In their application, Kings County Human Services Agency (KINGS HSA) indicated that their primary target population was the high cost, high utilizers of services who accessed care primarily on a crisis basis via an emergency room or did not access care on an ongoing basis and were often incarcerated. Individuals had to have at least one of the following:

1. Substance use disorder

2. Mental health issue

3. Chronic health conditions (diabetes or hypertension)

Changes during WPC and Primary Target Population Determination

Through UCLA structured interviews, KARELink leadership indicated that their target population was primarily SMI/SUD with chronic physical conditions. High utilizers and justice-involved were a subset of this population, but were not required for enrollment. As a result, UCLA determined their primary target populations to include SMI/SUD and chronic physical conditions.

Pilot Reporting of Target Populations by Enrollee

Initially, KARELink reported on four target populations: high utilizers, chronic physical conditions, SMI/SUD and justice-involved (Exhibit 217). After some changes to their reporting process, they were no longer reporting on high utilizers and justice-involved. The data used to determine an enrollee's target population came from the screening and assessment of the client by care coordinators.

Exhibit 217: Kings WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target		X	X	X	X	X	X

Populations Reporting						
Pilot's Primary Target Populations		X	X			

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Los Angeles' Target Populations

Description from Application

In their application, Los Angeles County Department of Health Services identified six target populations for their WPC Pilot: 1) individuals experiencing homelessness, 2) justice-involved individuals or individuals who are high utilizers of acute care services due to 3) serious mental illness (SMI), 4) substance use disorder (SUD), 5) complex medical issues, and 6) high-risk pregnant women. There was an overlap between the populations and where they did not overlap they still shared similar traits, including difficulty engaging into programs and common challenges to manage debilitating social inequities. Therefore, individuals could enter through any target population.

The homeless target population included all homeless or at-risk of homelessness individuals that were chronically homeless, had a physical or mental disability, had two or more chronic medical or behavioral health (e.g., mental health or substance use disorder) conditions, or were recent and/or recurrent care utilizers (e.g., multiple emergency department (ED) visits or hospitalizations for medical or psychiatric issues).

The justice-involved target population included justice system-involved individuals who were at the highest risk of medical, psychiatric, and/or substance use decompensation with one or more of the following: 1) recent or recurrent acute care utilization, 2) multiple and/or complex chronic medical conditions, 3) serious mental illness, 4) substance use disorders, or 5) pregnancy.

The mental health target population criteria varied depending on the program through which the enrollee were identified. For the Intensive Service Recipient (ISR) program, individuals must have had a severe mental health diagnosis and a minimum of six psychiatric hospital admissions in the previous year. For the Residential and Bridging Care (RBC) program, individuals must have had a serious mental illness and/or co-occurring substance use disorders in psychiatric inpatient units, or exited Institutions of Mental Disease (IMDs) and have been treated in

enriched residential settings. For the Kin to Peer (KTP) program, individuals must have lacked family or healthy social support systems and have been eligible for the ISR or RBS programs.

The substance use disorder target population had to have a substance use disorder and at least one of the following: 1) three or more ED visits related to SUD within in the past year, 2) two or more inpatient admissions for physical and/or mental health conditions, 3) three or more sobering center visits within the past year, 4) homeless (meeting HUD criteria), 5) part of foster system, 6) more than two residential SUD treatment admission within the past year, 7) history of two or more incarcerations with drug use, 8) drug court referral (to either Sentence Defender Court or Women's Re-Entry Court, and/or 9) history of overdose in the past two years.

The medically complex target population consisted of individuals with the Transitions of Care (TOC) program who were admitted to a Lanterman-Petris-Short (LPS) Act general acute care hospital who were on the LANES (Los Angeles Network for Enhanced Services) HIE with three or more admissions (medical or psychiatric) within the last six months and at least one of the following: 1) one or more avoidable hospital admissions related to a chronic medical problem, 2) homelessness, 3) SUD, 4) mental health disorder, and/or 5) incarceration within the last month.

The expectant mothers target population included pregnant women with one or more of the following: 1) homeless or at-risk of homelessness, 2) physical or mental disability, 3) chronic medical or behavioral health condition, 4) soon to be or recently released from incarceration.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Los Angeles indicated that target populations remained as described in the application. As a result, UCLA determined Los Angeles' primary target populations included all six standardized target population groups.

Pilot Reporting of Target Populations by Enrollee

Los Angeles' WPC Pilot reported on all six target populations identified by DHCS (Exhibit 218). In order to determine who was reported in each target population, they used data collected on target populations and homeless status from different programs in the pilot. If target populations information was unavailable, they determined enrollee's status based on program enrollment. For example, all individuals in the sobering centers were included in the SMI/SUD target population and all individuals in the re-entry programs were included in the justice-involved target population.

Exhibit 218: Los Angeles WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	
Pilot's Primary Target Populations	X	X	X	X	X	X	

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Marin's Target Populations

Description from Application

In their application, County of Marin's Department of Health and Human Services (Marin HHS) focused on two target populations:

1. Individuals who experienced homelessness or were at-risk of homelessness (including those released from institutions) and

2. Individuals who experienced complex medical conditions, behavioral health issues, and/or lacked social supports that interfered with standards of care, which resulted in high utilization and costs.

More specifically, the latter population included the top 10% of Medi-Cal beneficiaries by spending who had a diagnosis of a mental disorder, substance use disorder, traumatic brain injury, dementia or opioid use, two or more chronic conditions, and/or repeated incidents of avoidable emergency use, hospital admissions or nursing facility placement.

Changes during WPC and Primary Target Population Determination

Through UCLA interviews with Pilot leadership, Marin HHS indicated that their target population had expanded to include three groups. These groups were linked to their per-member-per-month (PMPM) bundles that provided care coordination. The homeless target population received housing based case management. The high utilizers received comprehensive case management. Lastly, individuals with a mental illness, substance use disorder and/or other health conditions that were not eligible for specialty Medi-Cal mental health plans received case management for individuals with mental health conditions and

complex psychosocial challenges. As a result, UCLA identified their primary target populations as high utilizers, homeless and at-risk-of-homelessness.

Pilot Reporting of Target Populations by Enrollee

In enrollment and utilization reports, Marin HHS reported on three target populations: high utilizers, homeless and at-risk of homelessness (Exhibit 219). The high utilizer target population aligned with the complex Med-Cal beneficiary population. The homeless and at-risk of homelessness populations aligned with the homeless target population. The third target population that aimed to address individuals with mental health conditions and complex psycho-social challenges often did not meet the SMI/SUD criteria because those with SMI could be eligible for specialty Medi-Cal mental health plans.

Exhibit 219: Marin WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X			X	X		
Pilot's Primary Target Populations	X			X	X		

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Mariposa's Target Populations

Description from Application

In their application, Mariposa County Human Services Department indicated that their target population would be individuals with a behavioral health condition (mental health, substance abuse or co-occurring diagnosis) and one or more of the following:

- Repeated incidents of emergency department (ED) use, hospital admissions or nursing facility placement

- Two or more chronic conditions

- Homeless or at-risk of homelessness

- Recently released from institutions (e.g., hospital, county jail, institutions for mental diseases, skilled nursing facility, etc.) or connection to the criminal justice system.

Changes during WPC and Primary Target Population Determination

During UCLA structured interviews, Mariposa indicated that their target population had evolved through implementation. Their focus shifted to high users of the ED due to the small size of the local ED (four beds). Their target population was then defined as high utilizers (three or more ED visits or one hospital admission per year) who had SMI/SUD and any of the following: homelessness, chronic conditions or justice-involved. As a result, UCLA identified their primary target populations as high utilizers and SMI/SUD.

Pilot Reporting of Target Populations by Enrollee

While Mariposa reported on all seven of the DHCS-designated target populations, the focus of their program was high utilizers and SMI/SUD (Exhibit 220). In order to determine a potential enrollee's utilization and SMI/SUD status they used data from the managed care plan in addition to self-report and observation.

Exhibit 220: Mariposa WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	X
Pilot's Primary Target Populations	X		X				

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Mendocino's Target Populations

Description from Application

In their application, Mendocino County Health and Human Services Agency (HHSA) indicated that their target population would be individuals with a SMI. They would prioritize high utilizers of mental health and/or medical services and those who experienced homelessness or housing instability, co-occurring SUD and/or recent interactions with the criminal justice system. In addition, enrollees needed to be eligible for Medi-Cal.

Changes during WPC and Primary Target Population Determination

Through structured interviews, UCLA determined that the target population for Mendocino County HHSA was still individuals with SMI, but in order to prioritize enrollees, they also required that enrollees fit into at least two other DHCS-defined target population groups: homeless, at-risk of homelessness, high utilization and justice involvement. UCLA determined their primary target population was SMI/SUD.

Pilot Reporting of Target Populations by Enrollee

In their enrollment and utilization reports, Mendocino County HHSA reported on all target populations (Exhibit 221). All of their enrollees were in the SMI/SUD target population. Because self-report was the data source for their target population, it is likely errors occurred in the target populations. Additionally, different agencies had different methodologies for reporting which resulted in inconsistencies among their population.

Exhibit 221: Mendocino WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	
Pilot's Primary Target Populations			X				

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Monterey's Target Populations

Description from Application

The Monterey County Health Department aimed to target homeless and chronically homeless Medi-Cal beneficiaries or Medi-Cal eligible individuals, which included those recently released from jail. Potential enrollees had to have two or more of the following:

- Two or more mental health unit admissions in the prior year,

- Two or more chronic health diagnoses

- Two or more ED visits within the past 12 months,

- One or more hospital admission within the prior 12 months or,

- Two or more prescribed medications (antidepressants, antipsychotics, mood stabilizers, diabetes medication, antihypertensives, cholesterol lowering medications, inhaled corticosteroids and bronchodilators, seizure medications and anticoagulants).

More specifically, Monterey County intended to use the HUD McKinney-Vento Homeless Assistance Act definition of homeless and the 2016 HUD Hearth definition of chronically homeless.

Changes during WPC and Primary Target Population Determination

Through UCLA interviews with Pilot leadership, Monterey County Health Department indicated that after implementation, they continued to focus on homeless individuals. They did not provide services to individuals that were at-risk of homelessness, rather they needed to already be living on the streets to receive services. The majority of the enrollees were also high-utilizers. UCLA determined that the primary target population of Monterey was homeless.

Pilot Reporting of Target Populations by Enrollee

Monterey County WPC pilot reported on six of the seven DHCS-defined target populations: high utilizers, chronic physical conditions, SMI/SUD, homeless, at-risk of homelessness, and justice-involved (Exhibit 222). Although they reported on many of the target populations, the main target population of the program was homeless individuals. The other criteria were not a requirement to participate and were used mainly to prioritize those that were enrolled in the program.

Exhibit 222: Monterey WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	
Pilot's Primary Target Populations				X			

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Napa's Target Populations

Description from Application

In their application, Napa County Health and Human Services Agency (HHSA) indicated that their target population would be individuals experiencing homelessness or at-risk of homelessness. They would prioritize these individuals for enrollment if they were high system users and have a physical disability, serious mental illness or substance use disorder, or co-occurring disorders.

Changes during WPC and Primary Target Population Determination

Through structured interviews with UCLA, Napa County HHSA indicated that they have mainly focused on chronically homeless individuals during the first phase of their Pilot. They used the HUD definition of homelessness and found that most of their chronically homeless enrollees have a SMI, SUD or other physical disability. However, they were no longer focusing on the criteria they outlined in their application for prioritizing enrollees. In addition, due to unexpected difficulties in gaining access to partner data, it was difficult to determine whether or not potential enrollees had the priority criteria prior to completion of a release of information consent form during the enrollment process. Ultimately, UCLA determined that their primary target populations were homeless or at-risk-of-homelessness.

Pilot Reporting of Target Populations by Enrollee

In their enrollment and utilization reports, Napa County HHSA reported on three target populations (Exhibit 223). They aimed to target homeless and individuals that are at-risk of homelessness, starting the program by only enrolling those that have been chronically homeless.

Exhibit 223: Napa WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X			X	X		
Pilot's Primary Target Populations				X	X		

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Orange's Target Populations

Description from Application

In their application, County of Orange Health Care Agency (HCA) indicated that they would target two populations: 1) homeless and 2) SMI and SMI homeless. The first target population was individuals experiencing homelessness. To ensure that this target population would benefit from WPC services, they focused on those individuals that had visited the ER for care, particularly those that accessed the ED two or more times in a rolling three-month period. The second target population included individuals with serious mental illness (SMI) and SMI homeless. Given that these individuals were served through the County's Behavioral Health Services and regulations prevented sharing of data from Behavioral Health, these individuals could not be properly identified through the initial homeless search.

Changes during WPC and Primary Target Population Determination

Through structured interviews, UCLA determined that the target population of Orange HCA's WPC pilot had evolved slightly from what was originally proposed in their application. Specifically, the target population of the Pilot was defined as homeless individuals. Individuals experiencing homelessness with SMI was a subpopulation of their target population. In general, individuals were engaged and enrolled into the Pilot through contacts with participating emergency departments, clinics and shelters and through outreach programs known to individuals experiencing homelessness. The additional criteria listed in the application was thus not required, but would likely be met given the method of engagement. UCLA determined that their primary target population were homeless and SMI/SUD.

Pilot Reporting of Target Populations by Enrollee

In their enrollment and utilization reports, Orange HCA reported on six target populations (Exhibit 224). The at-risk-of-homelessness target population was only used when an enrolled individual had initially secured housing. Once in the at-risk-of-homelessness target population, individuals were disenrolled from the pilot if they remained housed for six months.

Exhibit 224: Orange WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	
Pilot's Primary Target Populations			X	X			

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Placer's Target Populations

Description from Application

In their WPC application, Placer County Health and Human Services (HHS) indicated that they would focus on several target populations for their pilot to ensure serving enough individuals even though Placer is not a small county. They aimed to serve 450 adult individuals throughout the duration of the program who fit the following target populations:

1. History of repeated incidents of avoidable ED use and hospital readmissions (top 5% of their service population in terms of cost of services)

2. Two or more chronic health conditions (including heart disease, diabetes, COPD, unmanaged cholesterol, obesity, and high blood pressure)

3. Severe mental health diagnoses and/or substance use disorder

4. Currently homeless or at-risk of homelessness

5. Scheduled for release from jail and meet at least one WPC target population criteria

Additionally, individuals needed to be eligible for Medi-Cal.

Changes during WPC and Primary Target Population Determination

Through structured interviews with UCLA, they indicated that they had purposefully kept their target population as broad as possible in order to allow for flexibility in their program. Not only would they be able to serve more individuals, but they would also be able to test strategies to help a variety of populations. Ultimately, UCLA determined that Placer's primary target populations included all six DHCS-defined groups.

Pilot Reporting of Target Populations by Enrollee

At the individual-level, Placer reported enrollees in the six original target populations (Exhibit 225). They did not report on inclusion in the COVID-19 target population after it was added to the program.

Exhibit 225: Placer WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	

Pilot's Primary Target Populations	X	X	X	X	X	X	

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Riverside's Target Populations

Description from Application

In their application, Riverside University Health System (RUHS) was targeting probationers with the following criteria:

- New probationers

- On probation for at least one full year

- At-risk of or experiencing homelessness

- Have a behavioral health diagnosis

- Have a physical health diagnosis

Potential enrollees would be screened and enrolled at their first probation visit.

Changes during WPC and Primary Target Population Determination

During UCLA structured interviews, RUHS leadership indicated that their target population remains probationers. UCLA determined their primary target population was justice-involved.

Pilot Reporting of Target Populations by Enrollee

Initially, RUHS believed that enrollees needed to meet all six original target populations designated by DHCS for WPC. However, after the first year of enrollment, DHCS clarified that only screening and Medi-Cal eligibility was required. As a result, all enrollees are in the original six target populations in the first year, but are no longer in all the target populations starting in the second year (Exhibit 226).

Exhibit 226: Riverside WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target	X	X	X	X	X	X	X

Populations Reporting							
Pilot's Primary Target Populations						X	

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Sacramento's Target Populations

Description from Application

In their application, the city of Sacramento indicated that their Pilot would target individuals with repeated incidents of avoidable ED use and/or hospital admissions, defined as two or more ED visits or inpatient hospitalizations or one ED visit and two or more comorbid conditions, and those who are homeless or at-risk-of-homelessness. Additionally, potential enrollees would need to be Medi-Cal enrolled or eligible and reside in Sacramento County.

Changes during WPC and Primary Target Population Determination

Through structured interviews, UCLA determined that the target population of Sacramento's WPC Pilot remained high utilizers that are homeless. The data used to determine an enrollee's eligibility has evolved over implementation. Sacramento initially tried to get a list of potential enrollees from the health plan but found it was too difficult to outreach and engage through this method. They then transitioned to a hot-spotting method, which sought out locations where their target populations tended to be and developed a referral system at the ERs and hospitals. Ultimately, the pilot's primary target populations were homeless and high utilizers.

Pilot Reporting of Target Populations by Enrollee

In their enrollment and utilization reports, Sacramento initially reported on all target populations apart from justice-involved (Exhibit 227). Through clarification on reporting requirements with DHCS, they stopped reporting on all the target populations that were not in their target population criteria (chronic physical conditions and SMI/SUD). Sacramento had strict eligibility criteria and therefore, individuals that were not reported as high utilizers and homeless or at-risk of homelessness were likely misreported.

Exhibit 227: Sacramento WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19

Individual-level Target Populations Reporting	X	X	X	X	X		
Pilot's Primary Target Populations	X			X			

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

San Benito's Target Populations

Description from Application

In their application, San Benito County Health and Human Services Agency indicated that their target population would be individuals who are homeless or at-risk of homelessness and have one or more of the following:

- Behavioral health condition (mental illness, substance abuse or co-occurring diagnosis)

- Repeated incidents of ED use, hospital admissions or nursing facility placement

- Two or more chronic conditions

- Recently released from institutions or connections to the criminal justice system.

Additionally, enrollees needed to be between 18 and 64 years old and eligible for Medi-Cal.

Changes during WPC and Primary Target Population Determination

During UCLA structured interviews, San Benito indicated that through implementation the focus of the program had shifted to high-utilizing individuals that are homeless or at-risk of homelessness. This shift was mainly brought on by their first enrollees, whom typically were homeless or at-risk of homelessness and had a connection to the criminal justice system. Without evidence of high utilizations in the past, the goals of the Pilot to reduce the use of avoidable ED use and inpatient hospitalization were not going to be realized and these individuals were not benefiting from the services provided. Additionally, these first enrollees were often disenrolled quickly due to lack of engagement. UCLA determined the primary target populations to be high utilizers, homeless and at-risk-of-homelessness.

Pilot Reporting of Target Populations by Enrollee

While San Benito reports on all seven of the DHCS-designated target populations, the focus of their program was high utilizers, homeless and at-risk-of-homelessness (Exhibit 228). In order to determine a potential enrollee's utilization and homelessness status they used data from the hospital in addition to self-report and observation.

Exhibit 228: San Benito WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	X
Pilot's Primary Target Populations	X			X	X		

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

San Bernardino's Target Populations

Description from Application

In their application, San Bernardino County's Designated Public Hospital, Arrowhead Regional Medical Center (ARMC) indicated they aim to target the most vulnerable population at-risk for frequent, emergency medical and behavioral services. In order to determine the population, they collected data from ARMC, Public Health, and Behavioral Health and scored individuals based on emergency visits, inpatient hospital stays and urgent care visits. ARMC planned to update the list yearly and methodology for scoring as necessary. Initially, the scoring has been based on the following rubric:

Procedure	Point Value Given
Hospital medical inpatient	1 point per day
ED encounter	3 points per encounter/admission/event
Psychiatric/SUD inpatient admission	3 points per admission
Psychiatric/SUD acute care	1 point per day
Urgent/express/crisis care	1 point per event
Public health utilization	0.5 point per encounter
Flagged as Chronically Homeless (overrides either below)	300 points
Most recent prior residence homeless	200 points
Most recent prior residence temporary (receiving services, so at risk of homelessness)	150 points

Most recent prior residence permanent (receiving services, so at risk of homelessness)	100 points

This rubric was supposed to prioritize individuals that are both high utilizers and homeless or at-risk of homelessness. In addition, enrollees needed to be Medi-Cal eligible.

Changes during WPC and Primary Target Population Determination

ARMC continued to use a list of potential enrollees created using a scoring algorithm. However, there have been updates to the scoring algorithm. For example, the algorithm initially counting each inpatient day has been changed to counting each admission. Additionally, there were no longer elements about homelessness in the algorithm and instead chronic physical conditions have been included. ARMC used this system so that everyone in the county had the opportunity to be part of the Pilot. They were concerned that if they used referrals, there would be bias towards certain providers. The focus of the program was to address individuals with high utilization. Chronic physical conditions helped prioritize those individuals with potential for intervention. Ultimately, UCLA determined that high utilizers was the primary target population.

Pilot Reporting of Target Populations by Enrollee

In enrollment and utilization data, ARMC reported on two target populations that aligned with their target population scoring algorithm: high utilizers and chronic physical conditions (Exhibit 229).

Exhibit 229: San Bernardino WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X					
Pilot's Primary Target Populations	X						

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

San Diego's Target Populations

Description from Application

In their application, the County of San Diego Health and Human Services Agency indicated that their target population would be high-cost, frequent users of ED and/or inpatient services identified by the Medi-Cal managed care plans who:

- Are currently experiencing homelessness or are at-risk of homelessness and

- Have a mental health condition, substance use disorder, or chronic physical health condition/s

In addition, enrollees needed to be Medi-Cal eligible. San Diego defined high users as individuals having more than $40,000 in Medi-Cal paid claims and at least five ED visits or three inpatient hospitalizations. They aimed to exclude individuals with terminal illnesses.

Changes during WPC and Primary Target Population Determination

Due to the normal lag in Medi-Cal claims, which resulted in a delay identifying high-utilizers with health conditions or behavioral disorders, San Diego has focused less on lists of eligible enrollees from their managed care plans and relied more on community referrals. San Diego still defined their target population as individuals that are homeless or at-risk of homelessness and high utilizers. However, they have made a few exceptions to the high utilizer criteria if it was apparent that the individual had high need and was likely to end up a high utilizer without intervention. San Diego intended for the additional criteria included in the target population definition to assist in prioritizing enrollees and describe the enrolled population. UCLA determined the primary target populations to be high utilizers, homeless and at-risk-of-homelessness.

Pilot Reporting of Target Populations by Enrollee

San Diego reported on all six original target populations designated by DHCS (Exhibit 230). For first two quarters of 2018, they were building their relationship with the justice system and therefore were not able to systematically capture information on this target population. Additionally, as they developed the system used to capture all the information needed to determine an enrollee's target populations, there was a potential lag in the time to collect the necessary information. As a result, the most complete target population information might not have been available in the first months of enrollment.

Exhibit 230: San Diego WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	
Pilot's Primary Target Populations	X			X	X		

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

San Francisco's Target Populations

Description from Application

In their application, the San Francisco Department of Public Health (SFDPH) indicated that their target population was Medi-Cal enrolled homeless adults. In order to prioritize individuals for WPC services, SFDPH developed a risk-based stratification of the homeless population. Severe risk has been defined as the top 5% of urgent/emergency services and individuals homeless for more than 10 years (in SFDPH's Coordinated Care Management System (CCMS)). High risk was defined as the top 5% of urgent/emergency services and individuals homeless for less than 10 years (in CCMS). Elevated risk included individuals who were not part of the top 5% of urgent/emergency services and were homeless for less than 10 years (in CCMS).

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, San Francisco indicated the target population remained individuals experiencing homelessness identified through CCMS. They continued to use historical data to stratify their target population into severe risk, high risk and elevated risk. UCLA determined the primary target population was homeless.

Pilot Reporting of Target Populations by Enrollee

In San Francisco's enrollment and utilization reports, they reported WPC enrollees in three possible target populations: high utilizers, homeless, and COVID-19 (Exhibit 231). All enrollees were included in the homeless target population.

Exhibit 231: San Francisco WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X			X			X
Pilot's Primary Target Populations				X			

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

San Joaquin's Target Populations

Description from Application

In their application, the San Joaquin County Health Care Services Agency indicated that they would target three populations:

1. Adult Health Plan of San Joaquin (HPSHJ) that are assigned to the FQHC look-alike clinics and are over utilizers of the emergency department

2. Adults with a mental health and/or substance use disorder

3. Adults experiencing homelessness or at-risk of homelessness upon discharge from the hospital, medical center, psychiatric health facility, or county jail

In addition, the enrollee needed to be a Medi-Cal beneficiary.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, San Joaquin indicated that all enrollees had to fit into at least one target population, but often they fit into more than one. An enrollee might be referred for homelessness, but then later identified as a high utilizer as well. Data came from referral forms, EHS, HMIS, HIE, jails, among many other sources. UCLA determined that high utilizers, SMI/SUD, homeless and at-risk-of-homelessness were the primary target populations.

Pilot Reporting of Target Populations by Enrollee

San Joaquin reported individuals in all DHCS-defined target populations except chronic physical conditions (

Exhibit 232). San Joaquin did not use SMI/SUD in 2017 because partners were not providing the data as they were finalizing data sharing agreements. Many enrollees had mild to moderate mental illness rather than serious mental illness so were not identified as having mental illness. They added justice-involved later in 2018.

Exhibit 232: San Joaquin WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X		X	X	X	X	X
Pilot's Primary Target Populations	X		X	X	X		

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

San Mateo's Target Populations

Description from Application

In their application, San Mateo County Health System identified three target populations for their Pilot. These target populations included:

- High utilizers with mental illness and/or medical conditions who present frequently to EDs, Psychiatric Emergency Services (PES), and/or have avoidable or extended stays in residential treatment

- High utilizers with untreated SUD

- High utilizers with similar clinical profiles previously listed, but are also identified homeless or recently released from jail

Changes during WPC and Primary Target Population Determination

San Mateo has found in practice that these categories were often fluid. As initially designed, the target population was supposed to map to specific teams, but this has not been the case. As a result, the PMPM bundle did not accurately tell which services the client was receiving. If enrollees got a Behavior Health and Recovery Services (BHRS) "touch", they were in that bundle, but Bridges to Wellness served people in all three target populations and across all PMPMs. The initial list of enrollees was identified through referrals and lists of individuals with

more than four ED visits. Ultimately, UCLA determined that high utilizers was the primary target population.

Pilot Reporting of Target Populations by Enrollee

All enrollees were in the high utilizer target population (Exhibit 233). San Mateo determined if an enrollee was also included in the SMI/SUD target population depending on the services the enrollee received. Enrollees were included in the homeless target population based on registration information from their electronic health record. This information was not always up to date, and it is likely that the number of enrollees experiencing homelessness has been under reported.

Exhibit 233: San Mateo WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X		X	X			
Pilot's Primary Target Populations	X						

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Santa Clara's Target Populations

Description from Application

In their application, Santa Clara Valley Health and Hospital System (SCVHHS) indicated that their target population was high utilizers of multiple systems (HUMS) who are Medi-Cal enrolled, engaged in two or more systems of care and in the top 5% of utilizers for SCVHHS encounters over the past year. While they acknowledged that many individuals within this population have co-occurring physical and behavioral health issues, experience homeless and/or be justice-involved, they believed the program could make the most impact with the top 5% HUMS.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Santa Clara indicated that the Center for Population Health Improvement (CPHI) aggregated data from SCVHHS departments (e.g., Santa Clara Valley Medical Center, Office of Supportive Housing, Custody, Behavioral Health) and Valley Health

Plan claims. Based on these data sources they developed a statistical point system which assigned different values depending on the patient's type of clinical encounters in the past year (e.g., emergency and psychiatric encounters receive more points than an ambulatory care visit; inpatient stays are capped at 75th percentile). Santa Clara targeted the top 10% high-scoring individuals for enrollment in the program (~10,000 potential clients). Ultimately, this system aimed to identify high utilizers, which UCLA determined as the primary target population.

Pilot Reporting of Target Populations by Enrollee

In Santa Clara's enrollment and utilization reports, they identified individuals in all possible target populations (Exhibit 234).

Exhibit 234: Santa Clara WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	X
Pilot's Primary Target Populations	X						

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Santa Cruz' Target Populations

Description from Application

In their application, the County of Santa Cruz Health Services Agency (HAS) identified the WPC Pilot target population as adult Medi-Cal beneficiaries with at least one of the following characteristics:

- Repeated incidents of avoidable emergency use, hospital admissions, or nursing facility placement

- Two or more chronic conditions

- Mental health and/or substance use disorders

- Currently experiencing homelessness

- At-risk of homelessness and require intensive housing support to live in the community due to their mental illness, substance use disorder and co-occurring health condition

- Post incarceration; could include probation or parole status.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Santa Cruz indicated that they focused on those with co-occurring behavioral health (including SUD) and physical chronic conditions. In particular, they focus on high-cost chronic conditions, but they also took into account high-utilization or medication history when determining if an individual met their criteria. UCLA determined the primary target populations were chronic physical conditions and SMI/SUD.

Pilot Reporting of Target Populations by Enrollee

While the WPC Pilot reports on all seven target populations, the main focus of their pilot was individuals with co-occurring behavioral health and chronic physical conditions (Exhibit 235). This has been reflected by the fact that almost all enrollees were in the SMI/SUD target population, except for individuals with mild or moderate mental illness.

Exhibit 235: Santa Cruz WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	X
Pilot's Primary Target Populations		X	X				

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Shasta's Target Populations

Description from Application

In their application, the Shasta County Health and Human Services Agency (HHSA) indicated that their target population was adults ages 18 to 64 with two or more ED visits or hospitalizations in the last three months and are homeless or at-risk of homelessness. Potential enrollees also needed to fulfil one or more of the following criteria:

- SMI diagnosis

- SUD diagnosis

- Undiagnosed/undisclosed opioid addiction

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Shasta County HHSA indicated that their target population was high utilizers with an emphasis on individuals with chronic illness, SUD and homelessness. UCLA determined that their primary target population was high utilizers.

Pilot Reporting of Target Populations by Enrollee

While Shasta reported on all target populations except for justice-involved and COVID-19, the pilot aimed to provide services for individuals that met the high utilizer criteria (Exhibit 236).

Exhibit 236: Shasta WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X		
Pilot's Primary Target Populations	X						

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Solano's Target Populations

Description from Application

In their application, Solano identified their target populations as individuals with the highest medical utilization, repeated incidents of avoidable ED use, and two or more chronic and serious health conditions, with at least one being mental health and/or substance use disorders. Enrollees were identified using data from Partnership Health Plan.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Solano indicated that outreach and enrollment was originally intended to be based on a list compiled by the managed care organization which would identify high utilizers with chronic conditions. However, they found that individuals on the list were not always appropriate for the program and some individuals were not willing to participate in the program. Therefore, they expanded their approach to include referrals from community- based organizations (CBOs), emergency departments and clinics. Individuals referred into the program still needed to meet the Pilot eligibility criteria (e.g., high utilizer with two or more chronic conditions, one of which must be SMI and/or SUD). Solano expanded its definition of high utilizers, but individuals still needed to have repeated, avoidable ED use. The majority of enrollees were homeless or at-risk of homelessness. Ultimately, UCLA determined that high utilizers and SMI/SUD were the primary target populations.

Pilot Reporting of Target Populations by Enrollee

While Solano reported on all DHCS-designated target populations, the pilot target population of the pilot included only the high utilizer and SMI/SUD populations (Exhibit 237). Solano captured the additional target populations due to the information already being collected for reporting purposes.

Exhibit 237: Solano WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X	X	X
Pilot's Primary Target Populations	X		X				

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Sonoma's Target Populations

Description from Application

In their application, the County of Sonoma Department of Health Services Behavioral Health Division indicated that their target population has been individuals who are homeless or at-risk-of-homelessness who also have a serious mental illness and at least one of the following:

- Co-occurring health conditions including substance use disorders

- High users of emergency services

- Served by multiple agencies

In addition, the enrollee needed to be eligible for Medi-Cal. They also indicated that they would focus on elderly individuals who are difficult to place since they often experience the longest waits for appropriate placement.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Sonoma County indicated that their target population had changed from their initial application. In particular, individuals did not need to have a severe, persistent mental illness and Sonoma also worked with individuals with high/moderate mental health conditions. Additionally, included individuals could be high utilizers of mental health or medical emergency room services. UCLA determined the primary target populations as SMI/SUD, homeless and at-risk-of-homelessness.

Pilot Reporting of Target Populations by Enrollee

While Sonoma County did report on all but two of the target populations designated by DHCS (no justice-involved or COVID-19 reported), the specifically targeted populations of the Pilot were the SMI/SUD, homeless and at-risk of homelessness populations (Exhibit 238).

Exhibit 238: Sonoma WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X		
Pilot's Primary Target Populations			X	X	X		

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Ventura's Target Populations

Description from Application

In their application, Ventura County Health Care Agency identified their target population as adult (ages 18 or older) high utilizers with at least four ED visits and/or two inpatient visits. Furthermore, the Pilot prioritized individuals who are homeless or at-risk of homelessness and/or with SUD or mental illness. All enrollees needed to be Medi-Cal eligible.

Changes during WPC and Primary Target Population Determination

Through UCLA conducted interviews, Ventura indicated that they went with a general target population in order to have the most flexibility. As a result, Ventura would be able to serve any high-need population including individuals with multiple chronic conditions, SMI/SUD, or currently experiencing homelessness. High utilizer was their primary target population.

Pilot Reporting of Target Populations by Enrollee

While the pilot aimed to provide services for individuals that met their high utilizer criteria, they reported on five target populations (Exhibit 239). The pilot used a four-point question to determine if an enrollee is homeless.

Exhibit 239: Ventura WPC Pilot Target Populations

	High Utilizers	Chronic Physical Conditions	SMI/SUD	Homeless	At-risk of Homelessness	Justice-Involved	COVID-19
Individual-level Target Populations Reporting	X	X	X	X	X		
Pilot's Primary Target Populations	X						

Source: Whole Person Care Pilot Applications (n=25) 2016; PY 3 Follow-up Interviews with Lead Entities (LE) and Frontline Staff (n=27), September 2018-March 2019; Pilot specific case studies review in February-April 2022; and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6.

Appendix J: Selected Illustrative Examples of WPC PDSAs

Exhibit 240: Selected Illustrative Examples of WPC PDSAs Submitted by Category Type, PY 4-PY 6

PDSA Category Type	WPC Pilot	PDSA Name	Length (Days)	Summary of PDSA
Ambulatory Care	Alameda	Community Assessment and Transport Team Pilot	792	The Community Assessment and Transport Team (CATT) was a pilot program created in Alameda County in collaboration with other stakeholders. CATT was a mobile unit that provided services including: medical and mental health assessments, management, transportation, and referrals for mental health/behavioral health emergencies. The goal of CATT was to provide services without utilizing ambulance transport. CATT units were staffed with an Emergency Medical Technician (EMT) and Licensed Behavioral Health Clinician.
	Mendocino	Ambulatory Care	1,338	Mendocino's goal was to reduce the use of Emergency Department (ED) visits by WPC enrollees by 5% each year. They designed a program where each enrollee was assigned to a wellness coach to help them navigate social, medical, and behavioral assistance systems. The intention was to increase preventative measures, familiarize enrollees with their PCPs, and find alternatives to ED use.
	Riverside	Ambulatory Care: Emergency Department Visits	1,006	Riverside worked on a program that would provide real time notification of emergency department use to WPC Care Coordinators of WPC program participants. WPC Care Coordinators received detailed reports through Manifest Medex. Although

PDSA Category Type	WPC Pilot	PDSA Name	Length (Days)	Summary of PDSA
				there was some duplication and limitations, use of Manifest Medex increased for WPC enrollees.
Care Coordination	Marin	Care Coordination platform (WIZARD) RFP	455	Marin's care coordination platform, WIZARD, was not easy for staff to use. Their aim was to redesign WIZARD as an easy-to-use care coordination platform to meet the needs of case managers and program administration. The intention was to increase the ability to use the system for data analysis and reporting.
	Orange	Link all WPC Beneficiaries referred to Recuperative Care to a CalOptima Case Manager (PDSA8 – VAM)	1,550	Orange aimed to link WPC members receiving recuperative care services to CalOptima case managers in order to improve the coordination of medical and social support for WPC members.
	Santa Clara	Implementation of Audit tool to Enrollment process	197	Santa Clara implemented an audit tool in their enrollment packet to create guidelines and track specifics like social determinants of health in a consistent manner. Using this tool helped create a complete care plan by covering all requitements for documentation; this created consistency in documentation and increased accessibility of data to all care teams.
Comprehensive Care Plan	San Francisco	Increase the number of Comprehensive Care Plans for SF	1,285	San Francisco aimed to increase the number of comprehensive care plans available to care givers for homeless high users by 5% annually. This was accomplished by exploring data sharing

PDSA Category Type	WPC Pilot	PDSA Name	Length (Days)	Summary of PDSA
		Homeless individuals who need high level of care coordination		technologies and care coordinating intervention strategies. This PDSA has presented barriers like figuring out where to store the shared care plan so that the entire care team can see the documentation.
	San Mateo	Bridges to Wellness (BWT) Care Plans	1,500	San Mateo aimed to increase the proportion of participating beneficiaries with a comprehensive care plan (i.e., including mental and physical health needs, substance use, and housing needs) accessible by the entire care team.
	Small County	Weekly support groups with WPC clients to reduce PHQ9 scores (Depression) – (Cycle 4)	549	San Benito aimed to implement a project to improve enrollees' overall quality of life through weekly support meetings to improve PHQ-9 scores (depression). Monthly activities calendars were created and distributed to all WPC enrollees.
Data	Napa	Improve Quality of Data for DHCS Metrics Reporting	639	Napa aimed to improve the quality of data used for DHCS reporting metrics and to establish protocols and processes for data quality assurance. The objective was to streamline the process of data sharing between Public Health, FQHCs, and the Pilot.
	Sacramento	Housing Assistance Program Tracking Development	274	Sacramento developed data fields to document housing program assistance applications and outcomes. This was meant to aid the clinical provider in understanding length of time it takes for a person to be awarded housing assistance. Reports generated into Salesforce allowed for the clinical provider to track housing program assistance.

PDSA Category Type	WPC Pilot	PDSA Name	Length (Days)	Summary of PDSA
	San Diego	ConnectWellSD Data	1,910	San Diego set a goal that at least 85% of enrollee encounters would be entered into the ConnectWellSD system within two business days. The effectiveness of the ConnectWellSD infrastructure was evaluated through the utilization of the system by partners.
Inpatient Utilization	Kings	Kings Area Regional Transit (KART)	182	Kings aimed to the provide individuals experiencing homelessness with direct coordination to transportation appointments, without the need to call in advance. The objective was to create collaborative workflows with Kings Area Regional Transit (KART) to respond to same day transportation requests.
	Santa Cruz	Inpatient Utilization Data Sharing for High Utilizers	1,372	Santa Cruz established a systematic process to receive hospital and ED utilization data from the Santa Cruz Health Information Exchange (SCHIE) and Central California Alliance for Health (CCAH) for continuous monitoring purposes, program reporting, and quality improvement projects.
	Ventura	Health Outcomes: Inpatient Utilization	1,279	Ventura County aimed to achieve a minimum of a 5% reduction in inpatient utilization. The primary modality for reducing inpatient utilization was through high quality, intensive care coordination by WPC engagement, field, and central teams for WPC enrollees.
Other	Kern	Post-incarcerated enrollment and retention	1,551	Kern aimed to identify possible barriers to enrolling and retaining post-incarcerated clients into WPC. The intent was to work with Kern County's Sheriff Office to advertise WPC to the inmate population

PDSA Category Type	WPC Pilot	PDSA Name	Length (Days)	Summary of PDSA
				and start creating a trusting relationship between offenders and Kern WPC staff early on.
	Shasta	WPC Eligibility Criteria and Referral System	1,788	Shasta implemented ongoing monitoring and revision of their referral systems by refining and centralizing the referral process and adding in community education and outreach. SharePoint was an integral part of this process.
	Solano	Planning and Operations	1,551	Solano held monthly planning and operations meetings that were designed for key WPC partners to meet and work through operational issues in order to improve WPC.

Source: Program Year 4 Mid-Year, Program Year 4 Annual, Program Year 5 Mid-Year, Program Year 5 Annual and Program Year 6 Annual PDSA Reports (n=25).

Appendix K: Policy Brief Care Coordination Framework

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Health Policy Brief

October 2019

Whole Person Care Improves Care Coordination for Many Californians

Emmeline Chuang, PhD, Brenna O'Masta, MPH, Elaine M. Albertson, MPH, Leigh Ann Haley, MPP, Connie Lu, MPH, Nadereh Pourat, PhD

Delivery of integrated services may improve the patient experience and reduce health care use and costs.

SUMMARY: California's Whole Person Care (WPC) Pilots implemented under the Section 1115 Medicaid Waiver, "Medi-Cal 2020," are designed to coordinate medical, behavioral, and social services to improve the health and well-being of Medicaid beneficiaries with complex needs. We examined literature on care coordination and developed a framework for assessing the progress of WPC Pilot implementation in eight key areas. Three years into the program, results show that WPC Pilots successfully implemented many essential care coordination processes, but they continued to further develop needed infrastructure. These findings highlight opportunities and challenges in implementing a cross-sector care coordination program for patients with complex health and social needs.

The U.S. health care delivery system has long been fraught with inefficiencies rooted in part in fragmentation of care and professional silos. Frequently, patients with chronic and complex needs must navigate between medical, behavioral health, and social service providers who are not prepared or equipped to provide them with holistic care. Preliminary evidence suggests that delivery of integrated services may improve the patient experience and reduce health care use and costs.[1-3]

In 2016, California began implementing the WPC Pilot demonstration project to promote systematic delivery of coordinated care and evaluate its impact on health care costs and use for Medicaid (called Medi-Cal in California) beneficiaries.[4,5] The WPC Pilot is part of California's Section 1115 Medicaid waiver, known as "Medi-Cal 2020." The

aim of WPC is to improve coordination of medical, behavioral health, and social services for patients who use a high level of Medi-Cal services and ultimately improve patient health and reduce Medi-Cal expenditures.

A total of 25 pilot programs in 26 selected counties[a] (hereafter referred to as WPC Pilots) were established by 2017. All WPC Pilots were led by a single, designated lead entity (LE), typically a county Health and Human Services Agency. These LEs partnered with health plans and other service providers to coordinate medical, behavioral health, and social services for targeted Medi-Cal beneficiaries. Specifically, WPC Pilots were expected to systematically identify target populations, share data, coordinate care, and evaluate improvements in the health of enrolled populations.

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a Twenty-seven counties initially implemented WPC Pilots, but Plumas County (part of the Small County WPC Collaborative with Mariposa and San Benito Counties) dropped out in September 2018.

> *Effective cross-sector care coordination requires timely sharing of information among the care coordination team and providers.*

Acknowledging heterogeneity in how publicly funded services are structured and delivered across California, WPC Pilots had considerable flexibility in the selection of target populations, outreach methods, services provided, and outcomes tracked. WPC Pilots also differed significantly in the amount of WPC funds requested and allocated to develop infrastructure for care coordination.[6] Information on specific characteristics of each WPC Pilot is provided in Appendix 1: https://healthpolicy.ucla.edu/publications/Documents/PDF/2019/wpc-appendix-datatable.pdf.

What is Care Coordination?

The Agency for Healthcare Research & Quality (AHRQ) defines care coordination as "deliberately organizing patient care activities and sharing information among all of the participants concerned with a patient's care to achieve safer and more effective care."[7] Care coordination is distinct from care management, which is more focused on management of chronic medical and psychosocial conditions, and from case management, which includes services that help patients develop skills to access services and meet their basic needs.[9] We drew on elements of care coordination identified by AHRQ and an extensive review of the literature to develop a framework of elements critical for cross-sector care coordination. We then used this framework to assess care coordination under WPC.

Cross-Sector Care Coordination Framework

Cross-sector care coordination requires availability of infrastructure to support delivery of effective care coordination processes (Exhibit 1).

Care coordination infrastructure elements include (1) care coordination staffing that meets patient needs, (2) data sharing capabilities to support care coordination, (3) standardized organizational protocols to support care coordination, and (4) financial incentives to promote cross-sector care coordination.

Care coordination staffing that meets patient needs. To successfully coordinate care across sectors, staff must have sufficient capacity to effectively engage with patients to address a wide range of medical, behavioral, and social needs. Staffing levels appropriate for meeting patient needs include (1) developing a multidisciplinary team with relevant and diverse clinical expertise, (2) inclusion of peers with lived experience to build trust and promote compliance of complex patients, and (3) staff workload that ensures sufficient availability to meet patient needs.[10-12]

Data sharing capabilities to support care coordination. Effective cross-sector care coordination requires timely sharing of information among the care coordination team and providers. Data sharing infrastructure that facilitates this type of information exchange includes (1) formal agreements that define terms and conditions of data sharing with key partners; (2) a universal consent form to reduce barriers to sharing patient data; (3) use of an electronic data sharing platform that includes key information such as comprehensive care plans; (4) medical, behavioral health, and social service use data; and (5) capacity to track and report care coordination activities. Ideally, care coordinators can also access this data sharing system to (6) view and enter data (7) remotely (i.e., in the field) and (8) in real-time.[13-15]

Standardized organizational protocols to support care coordination. Standardized protocols help minimize undesirable variation in delivery of care coordination services.[16] These include protocols for (1) referring patients to needed medical, behavioral, and social services; and (2) monitoring receipt of services and tracking patient outcomes.

Financial incentives to promote cross-sector care coordination. Financial incentives can facilitate organizational buy-in and accountability for cross-sector care coordination.[5,17] Financial incentives that help align organizational priorities with these care coordination goals

Conceptual Framework of Cross-Sector Care Coordination   Exhibit 1

Cross-sector care coordination is built from the ground up, starting with a strong infrastructure that supports the care coordination team as they carry out care coordination processes.

Conduct needs assessments and develop comprehensive care plans

Actively link patients to needed services across sectors

Ensure frequent communication and follow-up to engage enrollees

Promote accountability within the care coordination team

3. Process Elements

2. Care Coordinator and Team

Care coordination staffing that meets patient needs

Data sharing capabilities to support care coordination

Standardized organizational protocols to support care coordination

Financial incentives to promote cross-sector care coordination

1. Infrastructure Elements

include use of payment mechanisms that (1) are risk-stratified and address financial risk assumed by providers and (2) reward better performance via incentive payments.

Care coordination process elements include (1) ensuring frequent communication and follow-up to engage enrollees, (2) conducting needs assessments and developing comprehensive care plans, (3) linking patients to needed services and follow-up to ensure receipt of services, and (4) following protocols to promote accountability among care coordination teams.

Ensure frequent communication and follow-up to engage patients. Effectively engaging complex patients in care coordination requires the adoption of patient-centered communication strategies. These include outreach or other contact with patients (1) in-person, at least initially, to build trust and engagement; (2) wherever and whenever they can be found, including in the field; and (3) frequent follow-up, i.e., more than once per month.[18]

Conduct needs assessments and develop comprehensive care plans. Full assessment of patient medical, behavioral, and social needs is essential to developing a comprehensive care plan. These care plans identify patient goals, the actions needed to achieve these goals, and resources or supports needed to ensure successful delivery of care.[14,15,19] Patients should have a single care plan shared across all providers that is updated regularly

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Exhibit 2   Care Coordination Infrastructure in WPC Pilots

Care coordination framework element	Alameda	Contra Costa	Kern	Kings	Los Angeles	Marin	Mariposa	Mendocino	Monterey	Napa	Orange	Placer	Riverside	Sacramento	San Benito	San Bernardino	San Diego	San Francisco	San Joaquin	San Mateo	Santa Clara	Santa Cruz	Shasta	Solano	Sonoma	Ventura	Total Pilots
Care coordination infrastructure																											
Care coordination staffing that meets patient needs																											
Multidisciplinary care coordination team composition*	CHW, N, SW, MD, H	CHW, N, SW, C, MH, BS, H	MA, MD, SW	CHW, BS, H, MH, C	CHW, SW	MA, N, SW, MH, H	MH, N, MD, H, SW	N, MH, BS, H, C, CHW	N, MH, SW, C, H, BS	SW, CHW, MH, N, H	MH, N, SW, CHW	CHW, N	N, MH, C, H, BS, CHW	CHW, N, SW, H	SW	CHW, C, N, SW	SW, CHW, MD, H, N	CHW, N, MH, MD, SW	MH, CHW, N	CHW, SW, N, MD, C	CHW, SW, N, MD, MH	SW	N, SW, BS, H	SW, CHW, H, MH, C, BS	C, BS, MH, SW, H, CHW, N	N, MH, CHW, MA, C, BS, H, MD	—
Use of workers with lived experience	•	•		•	•	•		•		•	•	•	•	•		•	•	•		•	•			•	•	•	20
Workload**	20-30	90-350	125-150	10-20	15-40	17-30	20-25	15-20	40	40	10-60	15	70-100	25-75	8-10	50	10-25	20-30	15-150	12-30	10-50	25	20-25	20	15	60	Median = 20-30
Data sharing capabilities to support care coordination																											
Data sharing agreements among key partners	Some	All	Some	All	All	All	All	Some	All	Some	All	Some	All	Some	Some	All	All	Some	Some	Some	All	All	All	All	All	Some	All=15, Some=11, None=0
Universal consent form		•	•	•	•	•	•	•		•	•		•	•	•		•			•			•	•		•	18
Electronic capture of comprehensive care plan		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•	•	22
Frontline staff track and report on care coordination activities in a single electronic system		•			•	•		•		•				•	•	•							•				10
Read and write access to shared data for frontline staff	•	•	•		•	•		•		•	•	•	•	•	•		•			•	•		•			•	21
Real-time access to shared data for frontline staff	•	•								•	•		•			•				•	•					•	9
Remote access to shared data for frontline staff	•	•		•	•	•	•		•		•	•	•	•	•		•						•		•	•	17
Access to medical, behavioral health and social service data		•		•	•		•			•	•	•	•	•	•			•	•	•				•	•		17

Data Source: WPC applications, mid-year and annual narrative reports submitted by WPC Pilots to the California Department of Health Care Services, interviews conducted with representatives of each Pilot from September 2018 to March 2019, and surveys of WPC organizations administered in the summer and fall of 2018.

* Types of staff directly involved in care coordination: CHW=Community Health Worker or Peer Support; MA=Medical Assistant, N=Nurse or Licensed Vocational Nurse, SW = Social Worker, C= Alcohol and Drug Counselor; MD=Physician or Nurse Practitioner, MH=Mental Health Professional/Counselor, BS=Benefit Support (includes job support), H=Housing Support.

** Workload refers to the average number of enrollees per care coordinator. Wide workload ranges were typically associated with WPC Pilots' use of risk-stratified PMPM bundles, in which intensity of services was tailored based on enrollee risk. In these situations, care coordinators working with higher acuity enrollees often had significantly lower caseloads than those working with lower acuity enrollees.

Care Coordination Infrastructure in WPC Pilots (continued)   Exhibit 2

Care coordination framework element	Alameda	Contra Costa	Kern	Kings	Los Angeles	Marin	Mariposa	Mendocino	Monterey	Napa	Orange	Placer	Riverside	Sacramento	San Benito	San Bernardino	San Diego	San Francisco	San Joaquin	San Mateo	Santa Clara	Santa Cruz	Shasta	Solano	Sonoma	Ventura	Total Pilots
Care coordination infrastructure																											
Standardized organizational protocols to support care coordination																											
Standardized referral protocols	•	•	•	•	•		•		•	•	•	•	•		•						•			•	•	•	16
Standardized protocols for monitoring and follow-up		•	•	•	•	•			•	•	•		•		•	•	•	•			•			•	•	•	17
Financial incentives to promote cross-sector care coordination																											
Risk-stratified PMPM bundles[†]	•	•		•	•		•					•			•			•			•					•	10
Contracted care coordination services (All)	All	None	None	All	Some	All	None	All	Some	All	All	None	None	All	None	None	All	Some	All	Some	Some	Some	Some	All	Some	Some	All=10, Some=9, None=7
Financial incentives for contractors[††]	•	–	–				•	–	•	•	•	–	–	•	–	–	•		•	•	•	•	•		•	•	14

† Pilots were identified as having risk-stratified PMPM bundles when enrollees were stratified into different PMPM bundles at intake based on an assessment of risk.

†† Financial incentives for contactors were assessed only when care coordination services were contracted out rather than provided directly by the lead entity.

to address changes in patient needs over time, i.e., more frequently than once per year.

Actively link patients to needed services across sectors. Active referral strategies, e.g., through directly arranging services on the patient's behalf, are more effective in service uptake than informational referral strategies, such as giving patients information about available treatment options and leaving them to navigate the rest.[16] Successful care coordination includes active referral to needed medical and behavioral health, including mental health or substance abuse treatment, and social services such as housing or benefits assistance.

Promote accountability within the care coordination team. Care coordination is most effective when accountability for different activities is clearly defined and monitored. Strategies that support accountability for care coordination could include regular meetings and case conferences with care coordinators or care teams to share expertise, negotiate differences in judgment, and define priorities for patient care.[20]

Evaluation of Care Coordination under WPC

Data for the evaluation of care coordination under WPC was gathered between September 2018 to March 2019 using WPC applications, a structured survey, and follow up interviews with leaders, care coordinators, and other WPC Pilot staff.[b] Additional details about care coordination efforts of individual WPC Pilots can be found here: *https://healthpolicy.ucla.edu/publications/search/pages/detail.aspx?PubID=1844.*

Infrastructure

WPC Pilots reported significant progress in establishing the infrastructure needed to coordinate the care of enrollees in the first 3 years of implementation (Exhibit 2).

Care coordination is most effective when accountability for different activities is clearly defined and monitored.

b See Data and Methodology section.

> *Over half of WPC Pilots reported successfully sharing comprehensive medical, behavioral health, and social services data with partners.*

Pilots differed, however, in infrastructure investments, data sharing, and other infrastructure in place prior to WPC.

Care coordination staffing that meets patient needs. Staffing varied across and within WPC Pilots based on target population(s) and identified needs. Care coordination services were often provided by non-clinical staff such as community health workers. Due to the complexity of enrollee care needs, however, all care coordination teams included at least some staff with clinical expertise (e.g., providers, nurses, social workers). Many WPC Pilots also used peers with lived experience (e.g., previously incarcerated or homeless peers) to help build trust and rapport with enrollees. Staff workload varied considerably across WPC Pilots depending on projected acuity of the target population and intensity of contact with enrollees.

Data sharing capabilities to support care coordination. WPC Pilots were required to develop new data sharing capabilities. By 2018, all 25 WPC Pilots had at least some formal data sharing agreements with key partners. Many had developed universal consent forms for sharing patient data, and nearly all used an electronic data sharing platform that included information on comprehensive care plans. WPC Pilots that did not yet have these capabilities reported challenges such as vendor delays and difficulty obtaining partner buy-in. Yet they typically had temporary solutions to facilitate data sharing (e.g., ShareFile, SharePoint, Box) until more efficient and permanent systems could be procured or implemented. Over half of WPC Pilots reported successfully sharing comprehensive medical, behavioral health, and social services data with partners. Pilots that did not yet share behavioral health data typically identified federal confidentiality laws protecting the privacy of substance use disorder patient records (42 CFR Part 2) as a major barrier. Less than half of WPC Pilots reported providing frontline staff with real-time notifications about patient events, such

as emergency department visits, but most WPC Pilots without this capability identified developing real-time notifications as a future priority.

Standardized organizational protocols to support care coordination. Around half of WPC Pilots had standardized protocols in place for referring enrollees to needed services (e.g., checklists) and tracking or following up with enrollees to assess referral outcomes. Several WPC Pilots cited the heterogeneity of enrollee service needs as a barrier to developing standardized referral protocols, particularly when referral processes were not integrated with an existing electronic platform to facilitate tracking. Pilots that contracted out care coordination services to multiple partners also cited partner preferences for developing and maintaining their own internal protocols as a barrier to standardization.

Financial incentives to promote cross-sector care coordination. Pilots were primarily reimbursed for care coordination under WPC using per-member, per-month (PMPM) payments for a bundle of services, though some received fee-for-service reimbursement to deliver additional services (e.g., outreach and engagement, assessments and screening). Eleven WPC Pilots stratified their PMPM bundles based on enrollee acuity or risk and tailored service intensity. The majority contracted with one or more external organizations (e.g., local health clinics or private social services providers) to supply some or all of their care coordination services. Of these, over half included financial incentives in contracts linked to the achievement of specific outcomes aligned with WPC goals (e.g., improving quality of documentation or scheduling a follow-up primary care visit within 7 days of hospital discharge).

Care Coordination Processes
WPC Pilots also reported significant progress in implementing key processes necessary

Care Coordination Processes in WPC Pilots — Exhibit 3

Care coordination framework element	Alameda	Contra Costa	Kern	Kings	Los Angeles	Marin	Mariposa	Mendocino	Monterey	Napa	Orange	Placer	Riverside	Sacramento	San Benito	San Bernardino	San Diego	San Francisco	San Joaquin	San Mateo	Santa Clara	Santa Cruz	Shasta	Solano	Sonoma	Ventura	Total Pilots
Care coordination processes																											
Ensure frequent communication and follow-up to engage patients																											
Enrollee contact more than once per month	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	26
Field-based outreach	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	26
Frequent in-person, on-going communication with enrollees	•	•		•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•		•	•	•	•	•	23
Conduct needs assessment and develop comprehensive care plan																											
Needs assessment more than once per year	•		•	•	•		•		•	•			•	•		•	•	•		•	•	•		•		•	16
Single shared care plan	•	•		•	•	•	•	•		•	•	•	•			•	•			•	•	•	•	•		•	20
Actively link patients to needed services across sectors																											
Active referral to medical care	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	26
Active referral to behavioral health care	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	26
Active referral to social services	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	26
Promote accountability within the care coordination team																											
Regular meetings with team to promote accountability	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	25

Data Source: WPC applications, mid-year and annual narrative reports submitted by WPC Pilots to the California Department of Health Care Services, interviews conducted with representatives of each Pilot from September 2018 to March 2019, and surveys of WPC organizations administered in the summer and fall of 2018.

for effective cross-sector care coordination (Exhibit 3). Their specific approach to these processes varied largely due to their WPC Pilot's target populations and the level of intensity of services they aimed to provide.

Ensure frequent communication and follow-up to engage patients. Many WPC Pilots required care coordinators to contact enrollees at least once per month. However, care coordinators in nearly all WPC Pilots reported contacting enrollees more frequently based on patient need. Most also reported using and prioritizing in-person outreach in the field rather than contacting enrollees by telephone. WPC Pilots described field-based outreach as particularly important for identifying and engaging homeless enrollees.

Assess patient needs and develop a comprehensive care plan. WPC Pilots were required to assess enrollee needs and develop a comprehensive care plan within 30 days of enrollment in WPC and, when appropriate, to repeat this process at least once per year. In practice, most WPC Pilots required care coordinators to re-assess enrollee needs and update care plans more frequently. To assist with accurate identification of needs, many WPC Pilots reported the use of validated instruments such as the Vulnerability Index —Service Prioritization Decision Assistance Tool and the Patient Health Questionnaire-9.

Actively link patients to needed services across sectors. All WPC Pilots reported use of active referral processes such as accompanying enrollees to appointments or facilitating

> *Field-based outreach was particularly important for identifying and engaging homeless patients.*

> *Continued investment in data sharing capabilities, staff training, and other infrastructure are needed to support effective cross-sector care coordination.*

warm hand-offs to medical, behavioral health, and social service providers. WPC Pilots reported perceived benefits of active referral to include the ability to ensure enrollees received important services, provide immediate follow-up after service receipt, and create additional opportunities for care coordinators to interact with enrollees and monitor enrollee needs and progress. Among WPC Pilots without standardized protocols for referral tracking and follow-up, active referral strategies were viewed as critical for helping informally "close the loop" on referrals.

Promote accountability within the care coordination team. WPC Pilots were required to identify providers and staff responsible for care coordination. Almost all WPC Pilots reported use of regular team meetings to keep one another informed of enrollee progress and promote accountability for care coordination activities. A number of WPC Pilots also reported regular case conferences or other opportunities to share challenges and brainstorm potential solutions. Accountability was generally described as more challenging in WPC Pilots where responsibility for care coordination was distributed across many partners. In these WPC Pilots, challenges included lack of consistency in care coordination activities, the potential for enrollees to have multiple designated care coordinators across different organizations, and a greater need for careful communication during hand-offs across organizations.

Future Steps

Our interim examination showed many WPC Pilots made significant progress in building needed infrastructure and delivering cross-sector care coordination services. By mid-2018, many WPC Pilots had successfully hired care coordinators, shared data across sectors despite multiple challenges, created standardized protocols to support care

coordination activities, and built financial incentives for performance into contracts with providers. Many WPC Pilots also established care processes to engage enrollees in care, developed comprehensive care plans, actively linked patients to needed services, and promoted accountability among care coordination teams. All Pilots described WPC as an important opportunity to improve cross-sector relationships and build more effective systems of care within their communities.

The implementation of WPC included significant and numerous challenges. Pilots acknowledged the need for further progress in multiple areas to achieve overarching WPC goals of better care, better health, and better efficiency. Our analyses identified specific strategies to address these challenges:

Invest more time to further develop the infrastructure to support cross-sector care coordination. Many WPC Pilots had limited or no cross-sector data sharing capabilities prior to WPC. Pilots that successfully created this infrastructure reported investing a significant amount of time, typically more than originally anticipated, to accomplish their goals within the first few years of implementation. Universal consent forms facilitate information sharing, but WPC Pilots noted the need to plan significant time for review by legal counsel in different organizations. WPC Pilots located in counties in which the majority of services were contracted out to private agencies emphasized the importance of allocating sufficient time to ensure partner buy-in and to align financial incentives within contracts with WPC goals. All WPC Pilots reported the importance of continued investment in data sharing capabilities, staff training, and other infrastructure needed to support effective cross-sector care coordination, even mid-implementation.

Promote person-centered practices that more effectively engage vulnerable patients in care. Pilots recognized the need for patient-centered outreach, communication, and referral strategies to engage enrollees in WPC services. Successful strategies reported by WPC Pilots to help foster enrollee self-efficacy included using case management in addition to care coordination to more effectively serve enrollees, the hiring of clinical staff that were only funded part-time by WPC to allow for direct provision of services as part of initial outreach and engagement efforts, and providing benefits assistance to help reduce Medi-Cal churn. All Pilots also reported ongoing adjustment of WPC programs (e.g., by reducing care coordinator caseloads or clarifying scope of work) to better meet enrollee needs.

Leverage WPC resources and partnerships to help address structural problems outside of WPC Pilots' control. Multiple WPC Pilots cited limited availability of long-term, permanent housing as a barrier. Similarly, several small and rural counties cited difficulties with recruitment and retention of staff and limited availability of private behavioral health providers accepting Medi-Cal as barriers to timely access to behavioral health services. Strategies used by some WPC Pilots to address this issue included leveraging WPC to ensure expedited access or priority placement for their enrollees and developing innovative partnerships to improve availability of services within the community, e.g., working with private homeowners to place people in new types of housing.

Author Information

Emmeline Chuang, PhD, is an associate professor of Health Policy and Management at the UCLA Fielding School of Public Health. Elaine M. Albertson, MPH, is a doctoral student in Health Policy and Management at the UCLA Fielding School of Public Health. Connie Lu is a project manager and research analyst at the UCLA Center for Health Policy Research. Leigh Ann Haley is a project manager and research analyst at the UCLA Center for Health Policy Research. Brenna O'Masta, MPH, is a project manager and research analyst at the UCLA Center for Health Policy Research. Nadereh Pourat, PhD, is associate director of the UCLA Center for Health Policy Research, director of the Center's Health Economics and Evaluation Research Program, professor of Health Policy and Management at the UCLA Fielding School of Public Health, and professor at the UCLA School of Dentistry.

Data and Methodology

UCLA developed the care coordination framework following a systematic review of the literature on cross-sector care coordination. Screening of 1,694 articles identified 27 articles addressing interventions to coordinate health and social services for high-use patient populations. These articles were evaluated for key themes and trends and directly informed the conceptual framework used in this report. Qualitative data sources used to assess WPC Pilot care coordination activities included WPC applications, mid-year and annual narrative reports submitted by WPC Pilots to the California Department of Health Care Services, semi-structured interviews conducted with key informants from each Pilot between September 2018 to March 2019 (n=27), and web-based surveys administered from July 2018 to October 2018 to key program staff in WPC Pilot Lead Entities (n=27) and Partners (n=227). UCLA coded reports and interviews for themes by multiple coders to ensure validity. Analysis were completed using NVivo 12.0 software. Analysis of survey data was completed using Excel and Stata 13.1.

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Appendix L: Policy Brief – A Snapshot of California's Whole Person Care Pilot Program

Health Policy Brief

May 2021

A Snapshot of California's Whole Person Care Pilot Program: Implementation Strategies and Enrollees

Nadereh Pourat, Brenna O'Masta, Leigh Ann Haley, and Emmeline Chuang

The Whole Person Care Pilot program coordinates medical, behavioral, and social services to improve the health and well-being of Medi-Cal beneficiaries with complex needs.

SUMMARY: The Whole Person Care (WPC) Pilot program implemented under California's Section 1115 Medicaid Waiver, "Medi-Cal 2020," coordinates medical, behavioral, and social services to improve the health and well-being of Medi-Cal beneficiaries with complex needs. In this policy brief, we analyze data from the interim statewide evaluation of WPC to present a snapshot of the 25 participating pilots, based on key implementation strategies and enrollee characteristics. The data can be used by organizations that are developing population health management programs for high-need, high-risk Medi-Cal beneficiaries under the California Advancing and Innovating Medi-Cal (CalAIM) initiative, as well as by other programs providing care to low-income patients.

A small proportion of the insured population is responsible for a relatively large proportion of the health services used in the United States.[1] Many of these individuals have complex medical, behavioral health, and social needs that require an integrated approach to care.[2] In 2016, the California Department of Health Care Services (DHCS) began a demonstration program called Whole Person Care (WPC) to promote the integrated delivery of care for Medi-Cal beneficiaries who use acute and costly services in multiple care areas. Under WPC, eligible beneficiaries receive care coordination and other services not traditionally covered by Medi-Cal to address medical, behavioral health, and social needs, with the aim of improving their health outcomes and overall well-being.

In 2017, 25 WPC pilots in 26 counties began enrolling eligible Medi-Cal beneficiaries. Pilots had flexibility in the specific target populations served and in how WPC was implemented.[3] WPC was originally scheduled to end in December 2020 but was extended for a year due to the COVID-19 pandemic.

Some of the services provided under WPC will be incorporated into CalAIM, a multiyear initiative planned by DHCS that is designed to use WPC approaches to improve beneficiaries' health outcomes. Under CalAIM, Medi-Cal managed care plans are expected to provide Enhanced Care Management (ECM) and In Lieu of Services (ILOS) through contracts with community-based providers, including organizations participating in WPC.[4] CalAIM is expected to begin implementation in January 2022. This policy brief provides a snapshot of each pilot's implementation strategies and enrollee characteristics to inform CalAIM transition planning. Data are drawn from the statewide evaluation of WPC conducted by the UCLA Center for Health Policy Research.[5,6]

The data indicate the importance of tailoring future efforts to the unique needs of various subgroups of Medi-Cal enrollees.

WPC Program Implementation Strategies

Exhibit 1 provides insight into similarities and differences by county across pilots in the target populations served, strategies used to identify and enroll eligible beneficiaries, care coordination approaches, other WPC services offered, and engagement of social service providers as partners. For example, data show that 16 pilots provided services to more than one target population, and 16 used street- or shelter-based outreach to identify eligible enrollees. Thirteen pilots used a single dedicated care coordinator to follow enrollees across all WPC-participating care settings, and 17 used co-located staff from different service sectors to facilitate access to care. Care coordinators' caseloads varied significantly across pilots (from 10 to 300), reflecting differing levels of enrollee need and intensity of services provided. Highlighting the importance of housing support to enrollees, 12 pilots offered tenancy support, landlord incentives, and funds to support housing placement. Many provided medical respite (18) and sobering centers (14).

WPC Enrollee Characteristics

Exhibit 2 provides insight into the WPC enrollee profile by county, including enrollment information, the demographics and health status of enrollees, and the utilization of services by these individuals prior to WPC enrollment. Pilots differed in multiple elements, such as the number of enrollees served (from fewer than 300 to more than 10,000); average length of enrollment (3–17 months); inclusion of adults 65 years of age or older (1%–22%); individuals experiencing homelessness (4%–100%); those affected by mental health conditions (30%–87%) or substance use disorders (12%–67%); and those ever involved with the justice system during enrollment (0%–100%). Data showed considerable variation across pilots in the average use of services pre-WPC (per enrollee, per year) for outpatient services (7.4–50.4), ED visits (1–5.8), and hospitalization rates (0.3–2.2).

WPC Pilot Profiles

Collectively, these data demonstrate how individual pilots tailored their approaches to address community-specific needs. For example, Los Angeles County's WPC pilot focused on all six target populations and used multiple programs and forms of outreach to identify and enroll eligible beneficiaries. A diverse care coordination team that included peer staff helped link enrollees to a medical home and services such as housing and medical respite. In another example, Riverside County's WPC pilot focused on serving the justice-involved population; co-located WPC enrollment staff with probation staff to enroll individuals in jails and prisons prior to release; and used a single dedicated care coordinator (typically, a registered nurse) to connect enrollees to a medical home and services, including employment assistance.

Implications for Transition to CalAIM

This snapshot is intended to inform efforts to transition the WPC program into ECM and ILOS components of CalAIM. Heterogeneity across pilots in program implementation and enrollee characteristics highlights the importance of tailoring future efforts to the unique needs of various subgroups of Medi-Cal enrollees with high utilization of services. In some counties, a narrower focus on specific target populations or smaller enrollment indicate that additional work is needed to expand enrollment to everyone with high levels of need and service use. The data also reflect the level of effort necessary to establish a specific infrastructure for effectively serving identified target populations.

Exhibit 1 — WPC Program Implementation Elements by Pilots as of July 2020

	Alameda	Contra Costa	Kern	Kings	Los Angeles	Marin	Mariposa (SCWPCC)	Mendocino	Monterey	Napa	Orange	Placer	Riverside
Primary target population 1. High utilizer; 2. Homeless; 3. At risk of homelessness; 4. Chronic physical conditions; 5. Severe mental illness/substance use disorders (SMI/SUD); 6. Justice-involved	1,2	1	1,2,3,6	4,5	1,2,3,4,5,6	1,2,3	1,5	5	2	2,3	2,5	1,2,3,4,5,6	6
Enrollment Strategies													
Identification approach 1. Street- or shelter-based outreach; 2. Health care facility outreach; 3. Referrals; 4. Administrative data (e.g., health plan eligibility lists); 5. Predictive modeling based on program criteria	4	2,3,5	1,2,3,4	1,2,3	1,2,3	1,2,3,4	3,4	2,3,4	1,2,3,4	–	1,2,3	1,2,3,5	3
Enrollment approach 1. At health care facilities; 2. Warm handoff at co-located organization; 3. On street, at shelter, or other community-based location; 4. By telephone; 5. Auto-enrollment and opt out	5	2,5	1,2,3,4	1,2,3,4	1,2,3,4,5	1,2,3	1,2,3	1,2,3,4	2,3,4	–	1,2,3	1,2,3,4	1,2
Care Coordination Approach													
Organization of care coordinators (CC) 1. Single CC; 2. Multiple CCs	1	1	1	1	2	2	1	1	2	–	2	1	1
Average CC caseload (by tier)	15	(25, 80, 300)	–	(30, 75)	25	(17, 30)	10	19	43	40	35	20	50
Selected types of staff included in care coordination team 1. CHW or staff with lived experience; 2. Licensed social worker or psychologist; 3. Physician or nurse practitioner	1,2,3	1,2,3	2,3	1	1,2,3	1,2,3	2,3	1,2,3	2	–	1,2,3	1,2	1,2,3
Type of co-located staff to facilitate access to services and resources 1. Medical; 2. Mental health; 3. Housing; 4. Non-housing social services; 5. Substance abuse	1,2	1	1,4	1,2,4,5	1,2,4,5	2	1,2,3,4,5	1,2	3,4	–	1,2,3,4,5	3,4	1,2,5
CCs have real-time access to at least some of the following data: 1. Medical; 2. Behavioral health; 3. Social services	1,2,3	1,2,3	1,3	1,2,3	1	1,2,3	No	1,3	No	–	1	1,2	1,2,3
Care coordinators can access needs assessment, comprehensive care plan, and referrals in the same system	✔	✔	✔	✔	✔	✔	✔	✔	✔	–	✔		
Selected WPC Services Offered													
Housing-related services 1. Housing navigation, tenancy support; 2. Landlord incentives; 3. Funds (e.g., security deposit, utilities)	1,2,3	1,3	1,2,3	1	1,2,3	1,2,3	1,2,3	1,3	1,2,3	–	1,2,3	1,2,3	1,2
Selected other services 1. Employment assistance; 2. Sobering center; 3. Recuperative care (medical respite)	2,3	1	1,3	1,2	1,2,3	1,3	1,3	1,2,3	1,2	–	1,3	1,3	1,2
Partnership Characteristics													
Total number of organizations participating in WPC pilot	42	12	15	8	50	39	11	8	17	12	34	24	14
Types of partners with highest engagement with WPC administration 1. Housing; 2. Justice; 3. Other social services	1,2,3	2,3	1,2,3	2,3	1,2,3	1,2,3	2	None	1,2,3	1,2,3	1,3	1,2,3	1,2,3

Note: Unavailable data are indicated by a dash (–).

(Exhibit 1 continues on next page)

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WPC Program Implementation Elements by Pilots as of July 2020   Exhibit 1

	Sacramento	San Benito (SCWPCC)	San Bernardino	San Diego	San Francisco	San Joaquin	San Mateo	Santa Clara	Santa Cruz	Shasta	Solano	Sonoma	Ventura
Primary target population 1. High utilizer 2. Homeless 3. At risk of homelessness 4. Chronic physical conditions 5. Severe mental illness/substance use disorders (SMI/SUD) 6. Justice-involved	1, 2	1, 2, 3	1	1, 2, 3	2	1, 2, 3, 5	1	1	4, 5	1	1	2, 3, 5	1
Enrollment Strategies													
Identification approach 1. Street- or shelter-based outreach 2. Health care facility outreach 3. Referrals 4. Administrative data (e.g., health plan eligibility lists) 5. Predictive modeling based on program criteria	1, 2, 3, 4	1, 2, 3, 4	4, 5	1, 2, 3	1, 2, 3, 4, 5	1, 2, 3, 4	1, 2, 3, 4	2, 4, 5	3, 4		1, 2, 3, 4	1, 3, 4	1, 2, 3, 4, 5
Enrollment approach 1. At health care facilities 2. Warm handoff at co-located organization 3. On street, at shelter, or other community-based location 4. By telephone 5. Auto-enrollment and opt out	1, 2	1, 2, 3	1, 2, 3	1, 2, 3, 4	5	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 3, 4		1, 2, 3	1, 2, 3, 4	1, 3, 4
Care Coordination Approach													
Organization of care coordinators (CC) 1. Single CC 2. Multiple CCs	2	1	2	2	2	1	2	1	1	2	1	–	2
Average CC caseload (overall and by tier)	(55, 75)	13	55	(5, 13)	176	75	(6, 31)	30	30	23	35	20	(50, 100)
Selected types of staff included in care coordination team 1. CHW or staff with lived experience 2. Licensed social worker or psychologist 3. Physician or nurse practitioner	1, 2, 3	None	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	2	1, 2	1, 2, 3	1, 2, 3
Type of co-located staff to facilitate access to services and resources 1. Medical 2. Mental health 3. Housing 4. Non-housing social services 5. Substance abuse	1, 3	2, 3, 4, 5	None	None	1, 3, 4	–	None	1, 4	None	None	None	None	3, 4
CCs have real-time access to at least some of the following data: 1. Medical 2. Behavioral health 3. Social services	1, 2, 3	1, 2, 3	No	1, 3	No	1, 3	1, 2, 3	No	1	No	2, 3	–	1, 2, 3
Care coordinators can access needs assessment, comprehensive care plan, and referrals in the same system	✔	✔	✔	✔	✔	✔					✔	–	✔
Selected WPC Services Offered													
Housing-related services 1. Housing navigation, tenancy support 2. Landlord incentives 3. Funds (e.g., security deposit, utilities)	1, 2, 3	1, 2, 3	1	1, 3	1, 3	1	3	1, 2, 3	1, 3	1, 3	1	–	1
Selected other services 1. Employment assistance 2. Sobering center 3. Recuperative care (medical respite)	1, 3	1, 2, 3	2, 3	1, 3	2, 3	2, 3	2	1, 2, 3	3	1, 2	1, 3	1, 2	1, 3
Partnership Characteristics													
Total number of organizations participating in WPC pilot	31	10	9	20	9	25	8	43	18	15	11	16	46
Types of partners with highest engagement with WPC administration 1. Housing 2. Justice 3. Other social services	1, 2, 3	1, 3	2, 3	2, 3	1, 3	1, 2	1	1, 3	None	1, 3	3	1, 3	1, 2, 3

Note: Unavailable data are indicated by a dash (–).

Exhibit 2 WPC Enrollment Profile by Pilots for the First Two Program Years, 2017–2018

	Alameda	Contra Costa	Kern	Kings	Los Angeles	Marin	Mariposa (SCWPCC)	Mendocino	Monterey	Napa	Orange	Placer	Riverside
Primary target population 1. High utilizer 2. Homeless 3. At risk of homelessness 4. Chronic physical conditions 5. Severe mental illness/substance use disorders (SMI/SUD) 6. Justice-involved	1 2	1	1 2 3 6	4 5	1 2 3 4 5 6	1 2 3	1 5	5	2	2 3	2 5	1 2 3 4 5 6	6
Enrollment Characteristics													
Total enrollment 1. Up to 300 2. 301–1,000 3. 1,001–10,000 4. >10,000	3	4	2	1	4	2	1	1	1	1	3	1	3
Ever disenrolled (%)	10	56	4	49	66	2	–	15	44	38	57	63	15
Mean length of overall enrollment, in months	7	13	5	7	11	3	5	9	14	9	11	14	6
Enrollee Demographics													
Age 0–20 at enrollment (%)	3	5	2	–	1	–	0	–	0	–	3	0	3
Age 45–64 at enrollment (%)	48	38	41	33	48	53	63	50	62	48	50	63	21
Age 65 years or older at enrollment (%)	6	15	4	–	5	12	–	10	14	5	7	10	1
Male (%)	56	40	53	55	62	63	52	50	48	61	59	58	76
White (%)	22	27	34	37	21	61	85	76	34	69	48	75	33
African American or Black (%)	44	22	13	11	35	16	0	–	–	–	6	–	15
Latinx (%)	12	24	41	43	28	10	–	7	34	19	25	7	43
Ever homeless during enrollment (%)	19	4	31	15	51	64	–	46	95	100	100	97	27
Ever justice-involved during enrollment (%)	–	–	42	30	2	0	–	48	–	0	0	20	100
Enrollee Health Status at Enrollment (Light Orange = Lowest %; Dark Orange = Highest %)													
Any chronic physical health condition (%)	73	59	53	64	69	69	82	85	89	75	61	72	37
Hypertension (%)	24	21	22	15	20	20	41	19	40	21	18	21	5
Diabetes (%)	11	15	12	13	12	8	–	12	30	11	9	12	2
Any chronic mental health condition (%)	65	33	30	54	58	62	67	80	71	70	49	66	33
Any substance use disorder (%)	38	12	15	22	24	37	–	48	52	50	31	44	23
Pre-WPC Utilization per Enrollee per Year (Light Orange = Lowest Quartile; Dark Orange = Highest Quartile)													
Number of outpatient services	22	10	20	15	20	19	20	33	27	16	11	13	7
Number of outpatient mental health services	11	3	3	5	11	6	6	19	8	4	4	4	3
Number of outpatient substance use disorder services	4	1	6	2	3	2	1	2	3	4	2	2	2
Number of emergency department visits	2.3	1.0	1.5	2.0	2.3	2.0	3.6	2.7	5.0	2.2	2.3	2.6	1.3
Number of hospitalizations	1.0	0.5	0.3	0.3	1.0	0.6	0.5	0.3	1.2	0.4	0.6	0.6	0.3

Notes: Unavailable or sparse data are indicated by a dash (–).

Health status conditions are based on CMS' Chronic Condition Warehouse condition categories.

Utilization is measured during two years pre-WPC enrollment.

Outpatient services include any service not provided in an inpatient setting, at the emergency department, or through long-term care

(Exhibit 2 continues on next page)

WPC Enrollment Profile by Pilots for the First Two Program Years, 2017–2018

Exhibit 2

	Sacramento	San Benito (SCWPCC)	San Bernardino	San Diego	San Francisco	San Joaquin	San Mateo	Santa Clara	Santa Cruz	Shasta	Solano	Sonoma	Ventura
Primary target population 1. High utilizer 2. Homeless 3. At risk of homelessness 4. Chronic physical conditions 5. Severe mental illness/substance use disorders (SMI/SUD) 6. Justice-involved	1 2	1 2 3	1	1 2 3	2	1 2 3 5	1	1	4 5	1	1 5	2 3 5	1
Enrollment Characteristics													
Total enrollment 1. Up to 300 2. 301–1,000 3. 1,001–10,000 4. >10,000	2	1	2	1	4	2	3	3	2	1	1	2	3
Ever disenrolled (%)	31	53	28	5	43	13	40	17	10	74	43	38	13
Mean length of overall enrollment, in months	8	5	11	5	14	7	16	17	13	12	13	5	11
Enrollee Demographics													
Age 0–20 at enrollment (%)	–	0	8	0	0	0	1	1	–	–	0	4	1
Age 45–64 at enrollment (%)	61	74	44	78	50	50	44	59	49	67	58	42	57
Age 65 years or older at enrollment (%)	8	–	6	–	8	4	22	8	22	–	9	11	3
Male (%)	57	52	45	58	72	52	52	49	60	50	48	50	46
White (%)	38	56	22	50	29	40	34	29	57	77	32	58	42
African American or Black (%)	31	0	18	15	31	18	7	8	–	–	35	5	4
Latinx (%)	9	41	46	11	11	26	27	34	11	5	10	12	38
Ever homeless during enrollment (%)	98	97	4	61	100	47	34	41	54	98	50	–	59
Ever justice-involved during enrollment (%)	0	61	0	9	–	14	0	0	15	0	–	0	0
Enrollee Health Status at Enrollment (Light Orange = Lowest %; Dark Orange = Highest %)													
Any chronic physical health condition (%)	61	82	86	85	64	74	85	81	89	89	91	74	82
Hypertension (%)	24	–	31	39	15	28	38	34	27	29	50	20	31
Diabetes (%)	14	–	21	25	6	14	23	25	14	19	28	12	19
Any chronic mental health condition (%)	49	85	71	70	57	63	62	53	87	80	65	70	67
Any substance use disorder (%)	33	67	24	51	42	38	31	28	35	53	46	41	43
Pre-WPC Utilization per Enrollee per Year (Light Orange = Lowest Quartile; Dark Orange = Highest Quartile)													
Number of outpatient services	19	16	24	31	23	26	26	22	50	24	27	22	26
Number of outpatient mental health services	4	5	10	8	8	9	10	5	29	6	4	9	7
Number of outpatient substance use disorder services	8	3	5	4	10	4	4	2	9	2	2	4	3
Number of emergency department visits	2.9	4.5	2.9	5.8	3.2	5.0	3.6	2.6	2.8	4.0	5.1	2.4	3.3
Number of hospitalizations	0.7	1.0	1.2	1.9	0.8	0.7	2.2	0.9	0.8	0.7	1.5	1.2	0.8

Notes: Unavailable or sparse data are indicated by a dash (–).

Health status conditions are based on CMS' Chronic Condition Warehouse condition categories.

Utilization is measured during two years pre-WPC enrollment.

Outpatient services include any service not provided in an inpatient setting, at the emergency department, or through long-term care.

Appendix M: Policy Brief – COVID-19

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Health Policy Brief

January 2022

Whole Person Care Program Successfully Navigated Around COVID-19 Challenges in 2020

Nadereh Pourat, Ph.D., Brenna O'Masta, MPH, Leigh Ann Haley, MPP, Weihao Zhou, MS, and Emmeline Chuang, Ph.D.

The state's five-year Whole Person Care (WPC) program was extended to December 2021 due to the COVID-19 pandemic.

SUMMARY: California implemented the Whole Person Care (WPC) Pilot program under "Medi-Cal 2020," a Section 1115 Medicaid Waiver program designed to coordinate the care of high-utilizing Medi-Cal beneficiaries across medical, behavioral health, and social service sectors. The COVID-19 pandemic stay-at-home orders began in mid-March 2020, during the last year of WPC implementation, and disrupted California's plans to transition WPC enrollees into a new program under the California Advancing and Innovating Medi-Cal (CalAIM) initiative. In this policy brief, we examine the impact of the pandemic on WPC implementation, enrollment, and health service utilization. We found that all WPC Pilots reported at least some pandemic-related alterations to WPC implementation. Total enrollment increased in 2020, with lower rates of new enrollment and disenrollment. The mid-March shutdown also resulted in an initial decline in enrollee health service utilization. However, by the end of 2020, primary care and specialty services had reverted to pre-pandemic patterns, while emergency department and hospitalization rates remained lower than pre-pandemic rates. In this policy brief, we discuss the implications of these findings for the transition to CalAIM and WPC evaluation.

At the request of the California Department of Health Care Services (DHCS), the state's five-year Whole Person Care (WPC) program was extended to December 2021 due to the COVID-19 pandemic. The extension was intended to prevent disruption of WPC services to enrolled beneficiaries while the state prepared for their transition to other programs planned under the CalAIM initiative. A statewide shelter-in-place order was enacted in California on March 20, 2020. The impact of the pandemic and its associated consequences —such as recession, job loss, and reduction in utilization of health care—are well documented and suggest a disproportionate impact on many WPC enrollees. In this policy brief, we examine the progress of the COVID-19 pandemic in California and its effects on WPC implementation and enrollee health care utilization. Our findings illustrate changes during the pandemic in WPC implementation and enrollment and in four categories of health service utilization. We also discuss potential implications for the evaluation of WPC and the implementation of CalAIM.

Spread of COVID-19 in California and WPC Counties

Nearly 2.3 million confirmed COVID-19 cases and 25,986 resulting deaths were reported in California in 2020. Our analysis of confirmed cases in WPC counties showed

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Most pilots said that pandemic-related shutdowns and social distancing requirements limited their ability to deliver WPC services in person.

a cumulative rate for that year of 5,844 confirmed cases per 100,000 residents, relatively similar to the statewide rate of 5,822. When examining the 14-day average daily case rate, we found two distinct peaks among WPC rates in late July (24 confirmed cases per 100,000) and late December (108 confirmed cases per 100,000; data not shown). Most WPC counties had peaks in the same time frame, but there were variations in the magnitudes of these peaks by county (data not shown). Trends in daily hospitalizations from COVID-19 mirrored trends in confirmed cases, peaking at 18 and 52 hospitalizations per 100,000 in July and December, respectively.

The Impact of the COVID-19 Pandemic on WPC Implementation

WPC Pilots reported the impact of the COVID-19 pandemic on WPC infrastructure and service delivery. Most (20 of 25) pilots said that pandemic-related shutdowns and social distancing requirements limited their ability to deliver WPC services in person. While many providers transitioned to care delivery through telehealth, pilots explained that it was difficult to make meaningful progress toward care management goals when enrollees frequently had inadequate access to cell phones, computers, the internet, or electricity. *"For many of our patients … {without} access to a smartphone … delivering telehealth services was virtually impossible. We … create{d} a room … and set up telehealth equipment … {for} our provider {to} see the patients from another room in the clinic." — WPC Pilot, Kern County*

More than two-thirds of pilots (17 of 25) reported limited capacity to deliver WPC services due to hiring freezes, staff safety concerns, or reassignment of staff to support other urgent COVID-response activities. For more than half of the pilots (16 of 25), pandemic-related restrictions also limited the ability of staff to engage in field-based outreach and provide warm handoffs or other supports needed to effectively engage certain

CALIFORNIA'S WPC AT A GLANCE:

Purpose
WPC was a Medicaid Section 115 Waiver demonstration project designed to coordinate medical, behavioral health, and social services for high-utilizing beneficiaries with complex needs.

Enrollees
Those enrolled were Medicaid beneficiaries with high service utilization, multiple chronic conditions, mental health conditions or substance use disorders, experiencing or at risk of homelessness, or recently incarcerated.

Pilots
Twenty-five entities from 26 of the 58 California counties provided WPC services using local partners. All pilots provided care coordination and housing support but varied in other services and enrollees targeted.

Timeline
The WPC Pilot program, begun in January 2016, was extended by one year beyond its original end date of December 2020 due to the COVID-19 pandemic.

enrollees in care, particularly those living on the streets or in homeless encampments. In some pilots (11 of 25), frontline staff also experienced challenges with the remote work environment, which impacted their ability to effectively collaborate with their care team and other WPC partners.

Pilots met these challenges by capitalizing on existing WPC infrastructure and, when possible, finding synergies with COVID-19 response activities. Many pilots (18 of 25) reported increased engagement of enrollees, as people could be reached more easily at home or shelters due to the shutdown.

Monthly Enrollment and Total Quarterly New Enrollment in WPC, January 2017 to December 2020

Exhibit 1

Source: UCLA analyses of WPC Quarterly Enrollment and Utilization Reports from January 2017 to December 2020

Note: 23 of 25 pilots started enrolling throughout 2017, and two pilots started enrolling in early 2018.

Some pilots (17 of 25) that partnered with short-term housing programs, such as Project Roomkey, were able to better identify eligible enrollees, engage them, and enroll them in WPC services, while also making progress toward care plan goals and increasing short-term housing opportunities. One pilot noted: *"Housing {homeless} individuals in hotels not only helped reduce the spread of COVID-19, it allowed for co-location of physical health, mental health, substance use, {and} housing services."* — WPC Pilot, Kings County

Several pilots (15 of 25) succeeded in improving collaboration in emergency operations and structures among county partners, as well as establishing closer collaboration with provider networks. Fewer than half of pilots (12 of 25) utilized centralized data systems to find and deliver WPC services to enrollees who were at higher risk from COVID-19.

The Impact of the COVID-19 Pandemic on WPC Enrollment

Exhibit 1 illustrates the trends in monthly enrollment and the total new enrollment per quarter during WPC, including the pandemic. A total of 96,563 Medi-Cal beneficiaries were enrolled in WPC in December 2020, an increase from 77,198 in December 2019. Total new enrollment in the last three quarters of 2020 was lower than it had been in the same quarters in 2019. There was also a 20% decline in average monthly disenrollment in 2020 compared to 2019 (data not shown).

Estimated Prevalence of COVID-19

The diagnosis code for COVID-19 was developed and utilized by providers starting in late March 2020. To estimate the prevalence of COVID-19 among WPC enrollees, we analyzed Medi-Cal claims starting in March 2020 and identified enrollees with services for which COVID-19 was the primary or

Many pilots reported increased engagement of some enrollees because they could be reached more easily at home or shelters due to the shutdown.

Exhibit 2

Proportion of WPC Enrollees With a COVID-19 Diagnosis From March to December 2020, by WPC Target Populations

Target Population	Percentage
Severe Mental Illness/Substance Use Disorder	5.5%
Chronic Physical Conditions	5.4%
At Risk of Homelessness	4.6%
Homeless	4.3%
All WPC	4.1%
Justice Involved	4.0%
High Utilizers	3.8%

Source: UCLA analyses of Medi-Cal enrollment and claims data from March 2020 to December 2020, and WPC Quarterly Enrollment and Utilization Reports from January 2017 to December 2020

Notes: COVID-19 diagnosis was identified using ICD code U07.1 in primary or secondary diagnosis per claim. Enrollees can be reported in more than one target population.

> *WPC enrollees with a COVID-19 diagnosis were more often female, ages 50 to 64, and Latinx.*

secondary diagnosis. A total of 8,738 WPC enrollees (4.1%) had at least one service with COVID-19 as the primary or secondary diagnosis (Exhibit 2). This proportion was highest for enrollees identified by the pilots as having severe mental illness or substance use disorders.

UCLA compared the demographics of WPC enrollees who had a COVID-19 diagnosis with the demographics of those who did not have this diagnosis (data not shown). WPC enrollees with a COVID-19 diagnosis were more often female (47% vs. 44%), ages 50 to 64 (35% vs. 31%), and Latinx (42% vs. 26%).

COVID-19–Related Service Use of WPC Enrollees

We examined the types of health services for COVID-19–related care utilized by WPC enrollees with a COVID-19 diagnosis in 2020. Enrollees most frequently used primary care services (42%) and emergency department visits (33%), followed by hospitalizations (22%), lab tests (18%), specialty services (12%), and stays in long-term care facilities, such as nursing homes and assisted living (8%) (Exhibit 3).

The median length of hospitalization for those with a COVID-19 diagnosis was five days (maximum of 114 days; data not shown).

Exhibit 3

Proportion of Enrollees With a COVID-19 Diagnosis Who Received Specific COVID-19–Related Services
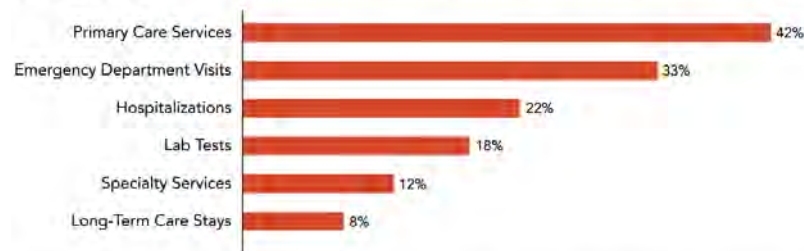
Service	Percentage
Primary Care Services	42%
Emergency Department Visits	33%
Hospitalizations	22%
Lab Tests	18%
Specialty Services	12%
Long-Term Care Stays	8%

Source: UCLA analyses of Medi-Cal enrollment and claims data from March 2020 to December 2020.

Notes: Services with COVID-19 as the primary or secondary diagnosis (identified using ICD code U07.1) only. Emergency department visits only include visits that did not result in hospitalization.

Monthly Utilization of Health Services per 1,000 Member-Months Among WPC Enrollees, 2019 Compared to 2020

Exhibit 4
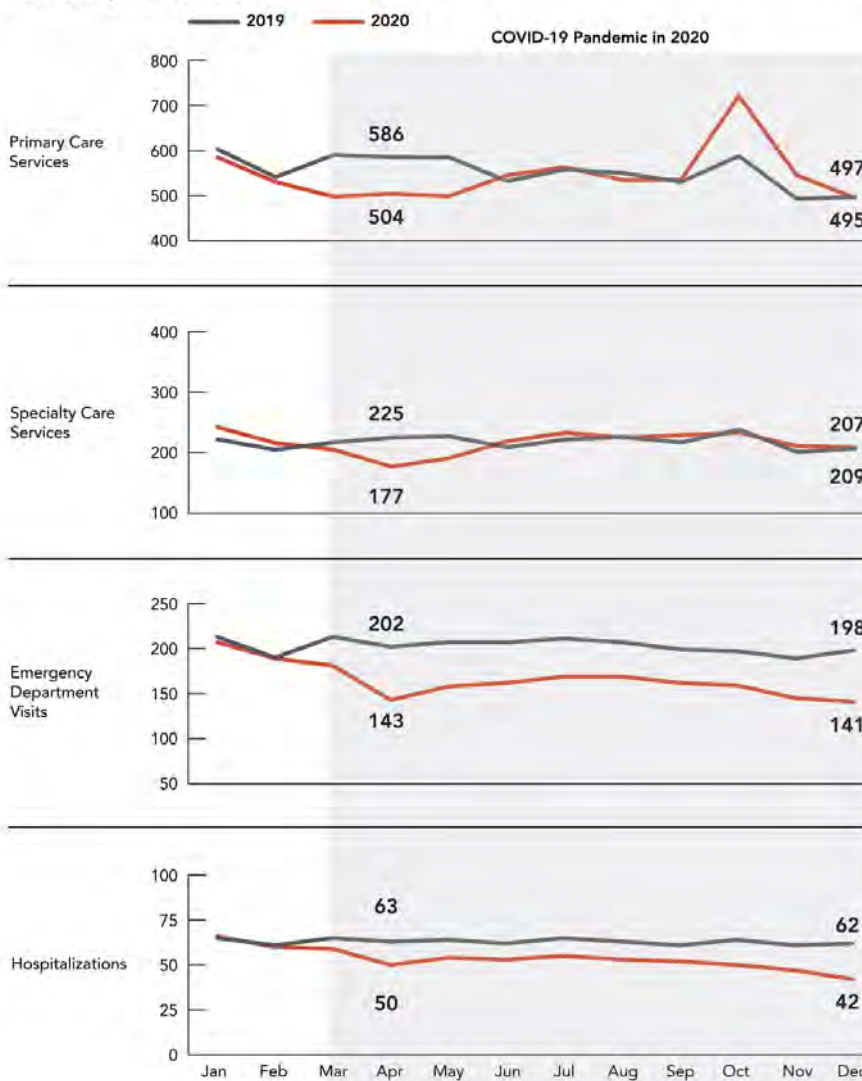
> *The number of ED visits declined in April 2020 relative to April 2019, and remained lower through December 2020 relative to December 2019.*

Source: UCLA analyses of Medi-Cal enrollment and claims data from March 2020 to December 2020.

Note: Member-months were based on Medi-Cal enrollment.

Changes in the Use of Health Services Before and During the COVID-19 Pandemic

We assessed service utilization patterns among WPC enrollees before and during the pandemic, and we found a decline in

April 2020 compared to April 2019 for all service types (Exhibit 4). By December 2020, however, rates of primary care and specialty service utilization were similar to those in December 2019. In contrast, the number of

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> *"The rate of services delivered through telehealth increased from fewer than 0.1% of primary and specialty services prior to the pandemic to 9% of primary and 10% of specialty services in December 2020."*

ED visits declined in April 2020 relative to April 2019, and the number remained lower in December 2020 relative to December 2019. A similar pattern was observed for hospitalizations.

Further analyses (data not shown) found that fewer than 0.1% of primary care and specialty services were delivered by telehealth prior to the pandemic. This rate changed to 2% of primary and 3% of specialty services in March 2020, and to 9% of primary and 10% of specialty services in December 2020.

Implications

Our analyses indicated that the COVID-19 pandemic altered the type and modality of WPC services and the patterns of WPC enrollment and health service utilization in 2020, which was the last planned year of WPC implementation. The ability of pilots to rely on WPC infrastructure and continue to deliver care coordination and housing support services may have mitigated the impact of the pandemic on enrollees.

These findings highlight the value of having future Medi-Cal programs incorporate an infrastructure similar to that of WPC, integrating elements such as partnerships with community-based organizations and data-sharing capabilities. This evidence supports CalAIM's intent to sustain and strengthen such infrastructure statewide. The ability of pilots to maintain continuity of care coordination and housing support

services during the pandemic is likely to have maintained the positive WPC outcomes—for instance, by improving access to needed services and preventing a high use of acute care. Therefore, WPC enrollees might be less likely to have pent-up demand for care coordination and housing support services than Medi-Cal beneficiaries not enrolled in WPC. These advantages are likely to continue after enrollees are transitioned to CalAIM in January 2022.

The low proportion of enrollees with a COVID-19 diagnosis reflects the subset of enrollees who received care for this condition rather than reflecting the prevalence of COVID-19. Nevertheless, the findings likely indicate the limited impact of COVID-19–related service use on our evaluation of WPC.

The pandemic's limited impact on the utilization of primary care and specialty services is likely due to the rapid increase in the provision of care using telehealth under emergency Medicaid waivers that allowed for the reimbursement of such visits on par with in-person visits. These findings further support the need to address digital access barriers to telehealth for WPC enrollees and other Medi-Cal beneficiaries. Lower use of ED visits and hospitalizations from pre- to post-pandemic rates also indicate the importance of addressing these changes in our evaluation of WPC.

Methods

Population-level COVID-19 data were created using the *Los Angeles Times* and the July 2019 U.S. Census population estimates. Subsequent COVID-19 rates were likely underreported at the start of the pandemic. WPC enrollment data were based on an analysis of WPC Quarterly Enrollment and Utilization reports from January 2017 to December 2020. The data on the effects of the COVID-19 pandemic on infrastructure and service delivery, and associated challenges and successes, were based on an analysis of WPC Program Year 5 Annual Narrative Reports from July to December 2020. Identification of enrollees with a COVID-19 diagnosis was based on a primary or secondary diagnosis of COVID-19 (ICD codes U07.1) in Medi-Cal claims data. Health service utilization data were based on an analysis of Medi-Cal enrollment and claims data from January 2019 to December 2020. Utilization rates were not adjusted for patient characteristics.

Author Information

Nadereh Pourat, Ph.D., is a professor of health policy and management at the UCLA Fielding School of Public Health, associate director of the UCLA Center for Health Policy Research, and director of the center's Health Economics and Evaluation Research Program. Brenna O'Masta, MPH, and Leigh Ann Haley, MPP, are project managers and research analysts at the UCLA Center for Health Policy Research. Weihao Zhou, MS, is a senior public administration analyst at the UCLA Center for Health Policy Research. Emmeline Chuang, Ph.D., is director of the Mack Center on Nonprofit and Public Sector Management in the Human Services at the University of California, Berkeley, and an associate professor in UC Berkeley's School of Social Welfare.

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Appendix N: Lead Entity Survey Instruments

Introduction and Instructions

The UCLA Center for Health Policy Research was selected by California Department of Health Care Services to evaluate the Whole Person Care (WPC) pilot program. This questionnaire is intended to assess how participating Lead Entities (LEs) have implemented the Pilot and to understand your efforts towards achieving WPC program goals.

This questionnaire is comprised of a mix of closed- and open-ended questions, and is divided into the following domains:

1. Respondent Information
2. The Local Context
3. Motivation for WPC
4. WPC Infrastructure and Resources
5. WPC Implementation
6. WPC Leadership, Communication, and Decision-Making Processes
7. Inter-agency Collaboration
8. Identifying and Retaining Eligible Beneficiaries
9. Perceived Impact of WPC
10. WPC Program Monitoring, Feedback, and Performance Improvement
11. WPC Learning Collaborative

This questionnaire is to be completed by the individual(s) most knowledgeable in implementing the WPC program **within the LE institution**, which may include one or more persons depending on the LE. The questions are intended to be distinct from LEs mid-year and annual reports to DHCS and narrowly focused on specific issues. In completing this questionnaire, **please focus on the LE perspective**. A separate companion questionnaire will solicit partner perspectives.

You can distribute the PDF version of this questionnaire to the most knowledgeable individual(s) **within the LE institution** to complete the relevant sections of the survey. However, we ask that all responses are entered online by one individual due to limitations of our online data system (SurveyMonkey). We anticipate that this questionnaire will take about 2-3 hours to complete.

For ease, please enable cookies on your browser. With cookies enabled, responses will be saved prior to submission of the questionnaire as long as the respondent uses the same computer and browser.

Confidentiality. Your responses on this questionnaire will be confidential. Only the UCLA evaluation team will have access to your individual responses. Only aggregated data will be included in evaluation reports and publications. **Your responses to this survey will not impact your WPC funding from DHCS.**

The evaluation team are available to answer your questions if needed. Please contact the UCLA evaluation team at wpc@chpr.em.ucla.edu with questions.

Domain 1: Respondent Information

1) Name of your LE organization: _____

This survey is focused on the LE perspective, and should be filled out by the individual(s) within the LE organization that are most knowledgeable about WPC. We realize there may be considerable variation across LEs in who these individual(s) may be. To provide context for survey responses, please provide the names of all individual(s) within the LE organization that completed the survey, their title and (if applicable) the LE department or division in which they are located, and their role in WPC (e.g., WPC program manager).

2) Names of Individual(s) within the LE completing this survey:

Name	Title	Department/Division (if applicable)	Role in WPC	Email/Contact Info	Questionnaire Domain(s) Addressed

3) On average, how often has your LE organization participated in meetings with WPC partners about the WPC pilot program during planning and implementation phases of WPC? We understand that each pilot will have different workgroup compositions and titles, but please try to fit your partner meetings into the categories described below. Any concerns can be noted in the comment section.

Meeting type	Planning phase	Implementation phase
Executive / steering committees	☐ Weekly ☐ Biweekly ☐ Monthly ☐ Quarterly ☐ Other (please specify _____) ☐ Does not apply	☐ Weekly ☐ Biweekly ☐ Monthly ☐ Quarterly ☐ Other (please specify _____) ☐ Does not apply
Data governance and sharing committees	☐ Weekly ☐ Biweekly ☐ Monthly	☐ Weekly ☐ Biweekly ☐ Monthly

	Planning phase	Implementation phase
	☐ Quarterly ☐ Other (please specify _____) ☐ Does not apply	☐ Quarterly ☐ Other (please specify _____) ☐ Does not apply
Operation committees	☐ Weekly ☐ Biweekly ☐ Monthly ☐ Quarterly ☐ Other (please specify _____) ☐ Does not apply	☐ Weekly ☐ Biweekly ☐ Monthly ☐ Quarterly ☐ Other (please specify _____) ☐ Does not apply

If you would like to comment on any of the items above, please specify and do so here:

Domain 2: The Local Context

This section asks questions about the environment under which WPC is being implemented, in particular which initiatives your LE was already participating in prior to or during WPC.

1) Is your LE participating in any other initiatives similar to WPC (e.g., similar goals, services, and/or clients/patients served)?
   [If no, skip to Domain 3].
   ☐ No
   ☐ Yes

1a. **[If yes]** Please provide the name of the initiative, funding sources (if applicable), approximate time frame (start and end dates), and extent to which there is synergy between this initiative and WPC. Examples of initiatives that could be similar to WPC: PRIME, Health Homes, and Full Service Partnerships.

Name of Initiative	Source(s) of funding:	Approximate time frame (start and end date):	On a scale from 0 to 10, where 0=No synergy and 10=Extremely high synergy, please indicate the extent to which there is synergy between this initiative and WPC?

Domain 3: Motivation for WPC

The following questions relate to perceived benefits of participating in the WPC program and how WPC fits with your LE's mission and overall strategic goals.

1) Please rate on a scale of 0 to 10, where 0=Not at all important and 10=Very important, the importance of the following to your LE's decision to participate in WPC. If a particular element is not applicable, please select N/A and explain in the comment section.

		N/A	0 = Not at all important	1	2	3	4	5 = Neither important nor unimportant	6	7	8	9	10 = Very important	Comment
a.	Synergy with existing programs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Consistency with organizational goals	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Improve integration of care for clients/patients with multiple needs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d.	Develop collaborative relationships with participating WPC entities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	Continue/maintain existing relationships with participating WPC entities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Getting necessary services for clients/patients	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Getting client/patient referrals from participating WPC entities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h.	Ease of implementation (e.g., due to concordance with	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

	N/A	0 = Not at all important	1	2	3	4	5 = Neither important nor unimportant	6	7	8	9	10 = Very important	Comment
existing processes of care)													
i. Low resource requirements (e.g., lowest cost, least staff time to implement)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
j. Reduce cost of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
k. Improve quality of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
l. Other (please specify _____)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

2) On a scale from 0 to 10, where 0=Very low and 10=Very high, please indicate the extent to which each of the following WPC pilot program goals and/or program components fits with your LE's overall strategic priorities. If a particular element is not applicable, please select N/A and explain in the comment section.

	N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
a. Manage the care of high risk and high utilizing populations	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b. Use of case management to manage health care utilization	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c. Earlier identification of patient/client needs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d. Identify clients/patients receiving services from more than 1 system	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

	N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
e. Reduce inappropriate emergency department visits and hospitaliza- tions	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f. Improve quality of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g. Coordinate health, be- havioral health and so- cial services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h. Sharing data with exter- nal partners	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
i. Increase client/patient access to housing and supportive services (e.g., housing navigation, ten- ancy support)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
j. Increase client/patient access to other social services (e.g., employ- ment assistance, TANF, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
k. Increase client/patient access to mental health and/or substance abuse treatment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

3) On a scale from 0 to 10, where 0=Very low and 10=Very high, please indicate the extent to which WPC program implementation is a priority for your organization.

0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Domain 4: WPC Infrastructure and Resources

This section asks questions around infrastructure and resources related to WPC activities. We are interested in learning about infrastructure and resources in place prior to WPC as well as efforts to develop additional infrastructure as part of WPC.

4) Please indicate whether your LE organization participated in **any** of the following activities with **INTERNAL** WPC partners prior to WPC and/or whether you are planning to implement **any** of these activities as part of WPC. Internal partners are organizations that work under the same umbrella agency as yours such as county hospital or county mental health department. If a particular element is not applicable, please select N/A. (Select all that apply)

	Prior to WPC	Part of WPC	N/A	Comment
Health information technology and data sharing				
a. Business associate agreements or memorandum of understanding	☐	☐	☐	
b. Date use or sharing agreements	☐	☐	☐	
c. Electronic sharing of client/patient information via a centralized data warehouse and/or a query-based record locator (e.g., health information exchange)	☐	☐	☐	
d. Bi-directional electronic referral	☐	☐	☐	
e. Shared electronic system for tracking care management services	☐	☐	☐	
f. Standardized electronic intake forms	☐	☐	☐	
g. Standardized diagnostic and/or evaluation or assessment tools	☐	☐	☐	
h. Standardized client/patient referral protocols	☐	☐	☐	
i. Real-time access to client/patient data by providers/staff	☐	☐	☐	
Care coordination				
a. Shared coordinated assessment system to identify high risk/need clients/patients and prioritize receipt of services	☐	☐	☐	
b. Use of shared care navigators or care coordinators to guide clients/patients receiving care	☐	☐	☐	
c. Co-location of providers or staff to facilitate access to services and/or resources	☐	☐	☐	
d. Multidisciplinary teams comprised of providers and/or staff from multiple organizations	☐	☐	☐	

		Prior to WPC	Part of WPC	N/A	Comment
e.	Warm hand-offs of clients/patients to partners	☐	☐	☐	
f.	Case conferences including multidisciplinary providers and staff to discuss joint care	☐	☐	☐	
g.	Other (please specify _____)	☐	☐	☐	

5) Please indicate whether your LE participated in any of the following activities with **EXTERNAL** WPC partners prior to WPC and/or whether you are planning to implement any of these activities as part of WPC. External partners are organization outside your umbrella agency such as health plans, community clinics, county probation/law enforcement, housing service providers, etc. If a particular element is not applicable, please select N/A. (Select all that apply)

		Prior to WPC	Part of WPC	N/A	Comment
Health information technology and data sharing					
a.	Business associate agreements or memorandum of understanding	☐	☐	☐	
b.	Date use or sharing agreements	☐	☐	☐	
c.	Electronic sharing of client/patient information via a centralized data warehouse and/or a query-based record locator (e.g., health information exchange)	☐	☐	☐	
d.	Bi-directional electronic referral	☐	☐	☐	
e.	Shared electronic system for tracking care management services	☐	☐	☐	
f.	Standardized electronic intake forms	☐	☐	☐	
g.	Standardized diagnostic and/or evaluation or assessment tools	☐	☐	☐	
h.	Standardized client/patient referral protocols	☐	☐	☐	
i.	Real-time access to client/patient data by providers/staff	☐	☐	☐	
Care coordination					
a.	Shared coordinated assessment system to identify high risk/need clients/patients and prioritize receipt of services	☐	☐	☐	
b.	Use of shared care navigators or care coordinators to guide clients/patients receiving care	☐	☐	☐	

		Prior to WPC	Part of WPC	N/A	Comment
c.	Co-location of providers or staff to facilitate access to services and/or resources	☐	☐	☐	
d.	Multidisciplinary teams comprised of providers and/or staff from multiple organizations	☐	☐	☐	
e.	Warm hand-offs of clients/patients to partners	☐	☐	☐	
f.	Case conferences including multidisciplinary providers and staff to discuss joint care	☐	☐	☐	
g.	Other (please specify _____)	☐	☐	☐	

6) Do you participate in a health information exchange? **[If no, skip to Domain 5].**
　　a.　☐ Yes
　　b.　☐ No

7) If you have participated in a health information exchange (HIE) prior to WPC and/or will participate in an HIE as part of WPC, please answer the following questions.
　　a.　Please specify the names of the health information exchange: _____
　　b.　Please indicate which agencies in your local government participate in the HIE (Select all that apply):
　　　　☐ Health services agency
　　　　☐ Mental health agency
　　　　☐ Substance abuse agency
　　　　☐ Human service agency (e.g., housing)
　　　　☐ Probation/law enforcement
　　　　☐ Other (please specify: _____)

　　c.　Please provide the year when your lead entity first began participating in the HIE (or anticipated start date if planned):
　　　　Date:　　Month　　Year

　　d.　Please indicate the type of data architecture model of this HIE:
　　　　　☐ Centralized 1: Centralized via County infrastructure/EHR

☐ Centralized 2: Centralized via third party organization
☐ Federated/decentralized (i.e., client/patient data owned and stored locally at point of service)
☐ Hybrid model (a cross between the centralized and federated architecture, e.g., where some data stored in a central-ized data repository)
☐ Other (please specify: _____)

e. Please specify what type of data is currently shared in your HIE (Select all that apply):
☐ Demographic data
☐ Medication history (e.g., medication prescribed)
☐ Lab and imaging results
☐ Health care encounter/visit data
☐ Mental health treatment encounter/visit data
☐ Substance abuse treatment encounter/visit data
☐ Other service encounter/visit data (e.g., social services)
☐ Client/patient medical history
☐ Other data on social determinants of health (e.g., income, employment, housing)
☐ Event-based notifications/alerts
☐ Other (please specify: _____)

f. Does the HIE under WPC have the following functionalities (select all that apply)?

☐ Aggregating data and reporting
☐ Track eligibility and enrollment
☐ Event notifications/alerts (e.g., to PCP upon hospital discharge)
☐ Tracking enrollees across various systems

If you would like to comment on any of the items above, please specify and do so here:

Domain 5: WPC Implementation

The questions in this section asks about implementation of the core components (as outlined in Attachment HH to the WPC Special Terms and Conditions) and overall implementation strategies as outlined in your LE's WPC application. Please answer these questions from the perspective of the LE.

1) Overall, on a scale from 0 to 10 where 0=Not at all and 10=Very much, how much have you had to change organizational policies and practices in order to implement WPC?

0 = Not at all	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very much	Comment
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

2) Please rate the overall level of effort required of your LE to implement the following WPC program activities on a scale where 0 =Very low and 10 =Very high. If you are not engaged in a specific activity, please select N/A.

	N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
a. WPC data governance (i.e., management of data being shared as part of WPC)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b. Other WPC program governance (e.g., participation in committee meetings)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c. Recruiting or hiring providers/staff to deliver WPC services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d. Ensuring sufficient physical space and/or other administrative infrastructure necessary to implement WPC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

		N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
e.	Executing Data Use Agreements (DUA) or Business Associate Agreements (BAAs) with LE and/or other WPC partners	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Data sharing with LE and/or other WPC partners for community needs assessment and program planning	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Data sharing with LE and/or other WPC partners to track WPC program results/outcomes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h.	Data sharing with LE and/or other WPC partners to identify opportunities to improve the WPC program	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
i.	Coordinating or integrating WPC activities with health plan partners	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
j.	Delivering WPC services (e.g., case management, housing navigation and tenancy support, linkage to re-entry, substance use disorder or mental health treatment, or other support services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
k.	Identifying eligible beneficiaries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
l.	Engaging eligible beneficiaries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
m.	Meeting WPC reporting requirements and timelines	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

3) On a scale from 0 to 10 where 0=Very low and 10=Very high, please rate the extent to which turnover or other changes to leadership within your LE has posed challenges to implementing WPC?

0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

4) On a scale from 0 to 10 where 0=Very low and 10=Very high, please rate the extent to which turnover or other staffing changes within your LE has posed challenges to implementing WPC?

0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

5) We are interested in learning about the ways in which your WPC program has changed from what was proposed in your original WPC application. Please rate the extent to which each of the following have changed over time on a scale of 0 =Not at all and 10 =Very much. If not applicable to your WPC program, please select N/A.

		N/A	0 = Not at all	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very much	Comment
a.	WPC program goals	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	WPC program governance structure	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Services delivered (e.g., case management, housing assistance, other support services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

		N/A	0 = Not at all	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very much	Comment
d.	Process(es) for sharing data with WPC partners	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	Process(es) for identifying or enrolling eligible beneficiaries in WPC	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Process(es) for engaging and retaining eligible beneficiaries in WPC program(s)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Universal or administrative metrics used to track and report WPC outcomes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h.	Other (please specify _____)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

6) On a scale from 0 to 10, where 0=Very low and 10=Very high, how would you characterize overall buy-in for data sharing and/or care coordination activities among each of the following categories of partners? If not applicable to your WPC program, please select N/A.

		N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
a.	Health plans	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Hospitals	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Other health care providers (e.g., community health centers)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

		N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
d.	Mental health providers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	Substance abuse treatment providers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Housing providers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Justice system	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h.	Other social service providers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
i.	Other (please specify _____)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

7) How is your LE using shared data as part of the WPC program (Select all that apply)?
☐ Inform collaborative community needs assessment with partners
☐ Inform collaborative program planning with partners
☐ Identify target populations
☐ Identify eligible Medi-Cal beneficiaries
☐ Provide real-time data access for providers/staff to use in developing care plans and/or coordinating care for clients/patients
☐ Support workflows for care transitions across different service settings
☐ Inform quality improvement efforts with partners
☐ Track and provide feedback to partners
☐ Other (please specify _____)

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Comment
b. All WPC partners are in agreement about WPC priorities	☐	☐	☐	☐	☐	
c. All WPC partners are in agreement about the best strategies to pursue to achieve WPC priorities	☐	☐	☐	☐	☐	
Leadership						
a. WPC leadership team is effective at keeping all WPC partners focused on tasks and objectives	☐	☐	☐	☐	☐	
b. WPC leadership team is skillful at resolving conflicts between WPC partners	☐	☐	☐	☐	☐	
Partner participation						
a. The WPC partners represent all types of organizations needed to successfully achieve program goals.	☐	☐	☐	☐	☐	
b. The WPC partners represent an appropriate cross-section of those who have a stake in the goals of WPC.	☐	☐	☐	☐	☐	
c. The level of commitment among all WPC partners is high.	☐	☐	☐	☐	☐	
Pace of development						
a. We are able to keep up with all the work necessary to implement WPC.	☐	☐	☐	☐	☐	
Perceived influence						
My organization has had significant influence in the following WPC activities:						
a. Defining partner roles and responsibilities	☐	☐	☐	☐	☐	
b. Customizing/adapting WPC goals to fit the needs of the local community	☐	☐	☐	☐	☐	

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Comment
c. Determining how WPC funding will be allocated to ensure completion of WPC activities	☐	☐	☐	☐	☐	
d. Determining how WPC services will be delivered to clients/patients	☐	☐	☐	☐	☐	
Perceived relevance and costs						
a. WPC enrollees are a small portion of my organization's clients/patients	☐	☐	☐	☐	☐	
b. WPC enrollees use a disproportionate level of resources compared with the rest of my organization's clients/patients	☐	☐	☐	☐	☐	
c. Currently available funding is not sufficient to cover organizational costs of implementing all WPC activities.	☐	☐	☐	☐	☐	

Domain 7. Inter-Agency Collaboration

The following questions address inter-agency collaboration and interactions with WPC partners, specifically in regards to how those relationships changed over the course of the WPC implementation.

1) Please indicate the ways in which *your LE* interacted with each of the following WPC partners PRIOR to WPC. Please select all that apply

Partner organizations	None / no prior inter-action	Planning	Administration	Service Delivery			Other
		Joint advo-cacy or other joint planning (e.g., as part of a community coalition)	Data sharing (e.g., for cli-ent/patient care, needs as-sessment)	Client/patient referrals	Communica-tion about cli-ent/patient needs or care	Joint service delivery (e.g., you deliver part of a ser-vice and con-tract for the rest)	(please specify in comments including partner name)
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐

Comment(s):

2) Please indicate the ways in which *your LE* CURRENTLY interacts with each of the following WPC partners. Please select all that apply.

Partner organizations	None / no prior inter-action	Planning Joint advo-cacy or other joint planning (e.g., as part of a community coalition)	Administration Data sharing (e.g., for cli-ent/patient care, needs as-sessment)	Service Delivery Client/patient referrals	Communica-tion about cli-ent/patient needs or care	Joint service delivery (e.g., you deliver part of a ser-vice and con-tract for the rest)	Other (please specify in comments including partner name)
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐

Comment(s):

Domain 8: Identifying and Retaining Eligible Beneficiaries

This section addresses questions on how target populations and eligible beneficiaries are identified and retained for the WPC program. Please answer each question in relation to WPC instead of what your organization might have been doing prior to WPC, unless specifically requested to do so.

1) Please indicate whether your WPC program is "opt-in" (eligible beneficiaries choose to enroll) or "opt-out" (all eligible beneficiaries enrolled until they choose to opt out).

☐ Opt in
☐ Opt out

Please describe your method for enrolling beneficiaries in your WPC program.

[   ]

2) On a scale from 0 to 10 where 0 =Not difficult and 10 =Extremely difficult, please indicate how difficult it has been to identify eligible beneficiaries, enroll eligible beneficiaries, and/or engage or retain eligible beneficiaries in WPC program(s)?

		N/A	0 = Not difficult	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely difficult	Comment
a.	Identify eligible beneficiaries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Enroll eligible beneficiaries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Engage or retain eligible beneficiaries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Domain 9: Perceived Impact of WPC

The questions in this section ask about the perceived impact of WPC thus far (e.g., in achieving programmatic goals, improving care for clients/patients, and/or improving other organizational outcomes). Unless specifically requested to do so, please answer each question from the perspective of the LE.

1) On a scale from 0 to 10, where 0=Not effective and 10=Extremely effective, please indicate how effective the WPC program has been thus far at achieving the following goals: [ADD DO NOT KNOW option]

		Unknown	0 = Not effective	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely effective	Comment
a.	Manage the care of high risk and high utilizing populations	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Increased use of case management to manage health care utilization	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Earlier identification of client/patient needs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d.	Improve identification of clients/patients receiving services from more than one system	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	Reduce inappropriate emergency department visits and hospitalizations	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Improve quality of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Improve coordination of health, behavioral health and social services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

	Unknown	0 = Not effective	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely effective	Comment
h. Increased data sharing between LE and partners (external and internal)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
i. Increase client/patient access to housing and supportive services(e.g., housing navigation, tenancy support)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
j. Increase client/patient access to mental health and/or substance abuse treatment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

2) Please indicate the extent to which the following areas have improved for the LE's clients/patients as a result of participating in WPC: [ADD DO NOT KNOW option]

	Unknown	0 = Not at all	1	2	3	4	5 = Neutral	6	7	8	9	10 = Very much	Comment
a. Coordination of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b. Continuity of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c. Access to needed services (health, behavioral health, and/or social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d. Access to affordable housing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e. Quality of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

		Unknown	0 = Not at all	1	2	3	4	5 = Neutral	6	7	8	9	10 = Very much	Comment
f.	Comprehensiveness of available services (health, behavioral health, and/or social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Timeliness of services provided (health, behavioral health, and/or social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h.	Overall patient/client well-being	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
i.	Provision of culturally competent services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
j.	Disparities in access to care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
k.	Disparities in outcomes of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
l.	Other WPC impact (please specify _____)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

3) Please indicate the extent to which the following have improved as a result of participating in WPC: If unknown, please select Unknown.

		Unknown	0 = Not at all	1	2	3	4	5 = Neutral	6	7	8	9	10 = Very much	Comment
a.	Extent to which WPC partners work together on collaborative projects	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Extent to which WPC partners collect and share data to inform community needs assessment and program planning	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

		Unknown	0 = Not at all	1	2	3	4	5 = Neutral	6	7	8	9	10 = Very much	Comment
c.	Extent to which WPC partners collect and share data for program monitoring and feedback	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d.	Extent to which WPC partners work together to pursue/ secure external funding	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	Organizational innovation (e.g., innovation in service delivery and/or programs or in how your organization approaches delivers care)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Your organization's awareness of service needs within the community	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	LE awareness of and access to inter-departmental resources for county residents	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h.	Other WPC impact (please specify _____)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Domain 10: WPC Program Monitoring, Feedback, and Performance Improvement

The following questions ask about how your LE monitors metrics, feedback, and performance improvement related to the WPC program. Please answer each question in relation to WPC instead of what your organization might have been doing prior to WPC, unless specifically requested to do so.

1) Are you tracking any metrics (e.g., process measures and/or outcome data) other than the universal and variant metrics required by the California Department of Health Care Services (DHCS)? **[If no, skip to question 2]**

☐ Yes
☐ No

1a. **[If yes]**, please list these metrics and briefly describe your rationale for tracking these metrics (e.g., to monitor WPC partner progress in implementing WPC activities).

[   ]

2) On average, how frequently are you collecting metrics related to WPC?

☐ Monthly (or more often)
☐ Quarterly
☐ Every 6 months
☐ Other (please specify _____)

3) In general, how is your LE using universal, variant, and/or other metrics being collected as part of the WPC pilot program? (Select all that apply)

☐ Track WPC partner progress in implementing WPC activities
☐ Inform quality improvement / performance improvement efforts
☐ Provide feedback on WPC processes and/or outcomes to partners
☐ Provide feedback on WPC processes and/or outcomes to frontline providers/staff responsible for delivering services to clients/patients
☐ Assess WPC impact on client/patient outcomes
☐ Compare outcomes across WPC partners

4) Please indicate the type(s) of individuals who have access to universal, variant, and/or other metrics being collected as part of the WPC pilot program. (Select all that apply)

☐ Senior leadership or administrative staff from my organization
☐ Senior leadership or administrative staff from WPC-participating Medi-Cal managed care plans
☐ Senior leadership or administrative staff from other WPC partners
☐ Clinical providers/staff providing WPC services
☐ Other providers and/or staff providing non-clinical WPC services
☐ Clients/patients or other lay members of the community
☐ Other (please specify: _____)
☐ Not applicable. We have not yet collected any of these data.

5) Prior to WPC, did your LE have experience implementing quality improvement activities in collaboration with WPC partners related to any of the following areas? (select all that apply)

☐ Coordination of health, behavioral health, and social services
☐ Sharing data
☐ Improving service access and/or outcomes for specific populations (e.g., high utilizers)
☐ Other (please specify: _____)
☐ No experience with QI activities in collaboration with WPC partners prior to WPC

6) On average, how often does your LE meet with WPC partners to discuss and/or implement quality improvement / performance improvement activities related to WPC?

☐ Never
☐ Weekly
☐ Monthly
☐ Quarterly
☐ Every six months
☐ Annually

7) Please indicate the types of individuals most commonly involved in the quality improvement / performance improvement activities described above (select all that apply)

☐ Senior leadership or other administrative staff from my organization
☐ Senior leadership or administrative staff from WPC-participating Medi-Cal managed care plans
☐ Senior leadership or administrative staff from other WPC partners (not health plans)
☐ Clinical providers/staff providing WPC services
☐ Other providers and/or staff providing non-clinical WPC services
☐ Clients/patients or other lay members of the community
☐ Other (please specify: _____)
☐ Not applicable. We have not yet conducted any quality improvement/performance improvement activities for WPC

8) On a scale from 0 to 10, where 0=Not useful and 10=Very useful, how useful have you found these quality improvement activities in implementing WPC and/or improving WPC program outcomes?

0 = Not useful	1	2	3	4	5 = Neutral	6	7	8	9	10 = Very useful	Comment
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Domain 11: WPC Learning Collaborative

The following questions are about externally provided technical assistance and/or other supports provided by the California Health Care Safety Net Institute, DHCS/Harbage Consulting, etc in developing and/or implementing the WPC program.

1) On a scale from 0=Very low to 10=Very high, please indicate the usefulness of the following support activities in implementation of WPC in your organization:

		0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
a.	Sharing information with and learning from other WPC pilots	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Technical assistance (e.g., one-on-one consulting, technical assistance related to legal issues, measurement issues, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

2) On a scale from 0 = Not effective to 10 = Extremely effective, please indicate which method of receiving technical assistance and/or other support for WPC pilot program activities was most effective/useful.

		0 = Not effective	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely effective	Comment
a.	Webinars	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Websites or other online data repositories	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Web-based discussion forums	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d.	Telephone meetings	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	In-person meetings	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Conclusion

1) Is there anything we haven't asked that you think is important for us to know? Please denote N/A if not applicable.

PY 5 Lead Entity Survey

Introduction and Instructions

The UCLA Center for Health Policy Research is the statewide evaluator of the Whole Person Care (WPC) pilot program. In an earlier survey, Lead Entities (LEs) were asked to report on their implementation activities and processes. In this survey, we ask LEs to provide additional information on Pilot implementation, progress towards achieving WPC goals, and plans for sustainability of key program components (e.g., data sharing and health information technology, care coordination processes, partnerships). In recognition of the current COVID-19 pandemic, we have incorporated several questions about its impact on WPC implementation and outcomes.

We are disseminating the survey in two parts. Part 1 includes the same questions for all LEs, and focuses on topics data sharing infrastructure, program impact, and sustainability. Part 2 is tailored specifically to each LE, and asks clarifying questions on services offered and the relationship of the LE with WPC partners.

This questionnaire is to be completed by the individual(s) most knowledgeable in implementing the WPC program **within the LE institution**, which may include one or more persons depending on the LE. The questions are intended to be distinct from LEs mid-year and annual reports to DHCS and are narrowly focused on specific issues. In completing this questionnaire, **please focus on the LE's perspective**. A separate companion questionnaire will solicit partner perspectives.

You can distribute the PDF version of this questionnaire (attached here) to the most knowledgeable individual(s) **within the LE institution** to complete the relevant sections of the survey. However, we ask that all responses are entered online by one individual due to limitations of our online data system (Qualtrics). We anticipate that this questionnaire will take about 1-2 hours to complete.

Please enable cookies on your browser to avoid unwanted complications interacting with the website. With cookies enabled, responses will be saved prior to submission of the questionnaire as long as the respondent uses the same computer and browser.

Confidentiality. Your responses on this questionnaire will be confidential. Only the UCLA evaluation team will have access to your individual responses. Only aggregated data will be included in evaluation reports and publications. **Your responses to this survey will not impact your WPC funding from DHCS.**

The evaluation team are available to answer your questions if needed. Please contact the UCLA evaluation team at wpc@chpr.em.ucla.edu with questions.

Respondent Information

1) Name of your LE organization: _____

This survey is focused on the LE perspective, and should be filled out by the individual(s) within the LE organization that are most knowledgeable about WPC. We realize there may be considerable variation across LEs in who these individual(s) may be. To provide context for survey responses, please provide the names of all individual(s) within the LE organization that completed the survey, their title and (if applicable) the LE department or division in which they are located, and their role in WPC (e.g., WPC program manager).

2) Names of Individual(s) within the LE completing this survey:

Name	Title	Department/Division (if applicable)	Role in WPC	Email/Contact Info	Questionnaire Domain(s) Addressed

WPC Data Sharing Infrastructure and Resources

This section asks questions around data sharing infrastructure and resources related to WPC activities.

1) Do you have data sharing agreements in place with all key WPC partners? Key partners are defined as those who have a high awareness of the WPC program structure and goals. These partners are actively involved in the program, either through day-to-day implementation or strategic planning. These partners were classified as a "3" (i.e., awareness of WPC and active involvement) in the revised partner lists submitted to UCLA in January-February 2020.

☐ Yes, all key partners
☐ Yes, some key partners
☐ No (please explain: _____)

2) What platforms or tools are you using to share data as part of WPC, and which types of partners can access data using these tools? These platforms/tools may have been implemented directly as part of WPC or used to support WPC data sharing activities.

Data Sharing Tool / Platform	Currently have?	Plan to sustain after WPC?	Developed specifically to support WPC?	Who Can Access? (Check all that apply)
Box, Dropbox, Drive, or other simple cloud-based data storage and file-sharing solution (i.e., with less sophisticated navigation capabilities)	Yes No	Yes, regardless of Cal-AIM Yes, depending on Cal-AIM No	Yes No	Care coordinators/care coordination team County health care or public health County mental health County substance abuse treatment County human services Local housing authority Probation/law enforcement Community-based health care organization(s) Community-based behavioral health organization(s) Community-based human service organization(s) Other (please specify _____)
Case/care management platform (i.e., shared electronic system for tracking care coordination or care management services)	Yes No	Yes, regardless of Cal-AIM Yes, depending on Cal-AIM No	Yes No	Care coordinators/care coordination team County health care or public health County mental health County substance abuse treatment County human services Local housing authority Probation/law enforcement Community-based health care organizations(s)

Data Sharing Tool / Platform	Currently have?	Plan to sustain after WPC?	Developed specifically to support WPC?	Who Can Access? (Check all that apply)
				Community-based behavioral health organizations(s) Community-based human service organization(s) Other (please specify ____)
EHR/EMR	Yes No	Yes, regardless of Cal-AIM Yes, depending on Cal-AIM No	Yes No	Care coordinators/care coordination team County health care or public health County mental health County substance abuse treatment County human services Local housing authority Probation/law enforcement Community-based health care organization(s) Community-based behavioral health organization(s) Community-based human service organizations Other (please specify ____)
Centralized repository or federated system of multiple repositories containing community-wide, longitudinal client records	Yes No	Yes, regardless of Cal-AIM Yes, depending on Cal-AIM No	Yes No	Care coordinators/care coordination team County health care or public health County mental health County substance abuse treatment County human services Local housing authority Probation/law enforcement Community-based health care organization(s) Community-based behavioral health organization(s) Community-based human service organization(s) Other (please specify ____)
Query-based exchange tool that provide access to detailed information on individual clients (e.g., prior laboratory results, clinical notes, etc.)	Yes No	Yes, regardless of Cal-AIM Yes, depending on Cal-AIM No	Yes No	Care coordinators/care coordination team County health care or public health County mental health County substance abuse treatment County human services Local housing authority Probation/law enforcement Community-based health care organization(s) Community-based behavioral health organization(s) Community-based human service organization(s) Other (please specify ____)

Data Sharing Tool / Platform	Currently have?	Plan to sustain after WPC?	Developed specifically to support WPC?	Who Can Access? (Check all that apply)
Web-based tool that provides clients with access to information about their care and allows them to track or otherwise manage their care	Yes No	Yes, regardless of Cal-AIM Yes, depending on Cal-AIM No	Yes No	Care coordinators/care coordination team County health care or public health County mental health County substance abuse treatment County human services Local housing authority Probation/law enforcement Community-based health care organization(s) Community-based behavioral health organization(s) Community-based human service organization(s) Other (please specify ____)
Event-based notifications/alerts of ED and/or hospital visits	Yes No	Yes, regardless of Cal-AIM Yes, depending on Cal-AIM No	Yes No	Care coordinators/care coordination team County health care or public health County mental health County substance abuse treatment County human services Local housing authority Probation/law enforcement Community-based health care organization(s) Community-based behavioral health organization(s) Community-based human service organization(s) Other (please specify ____)

If needed, please explain further nuances or details related to functionality and accessibility of your data sharing systems:

3) Please indicate whether your LE currently participates in any of these activities with the following types of WPC partner(s) as part of WPC. If a particular element is not applicable, please select N/A.

WPC activities	Managed care plan	Health care organization	Mental health treatment agency	Substance abuse treatment agency	Housing agency	Other social services agency	Other	N/A	Comment
a. Utilize a universal consent form	☐	☐	☐	☐	☐	☐	☐	☐	
b. Have established data sharing agreements, MOUs, BAAs	☐	☐	☐	☐	☐	☐	☐	☐	
c. Utilize standardized intake or assessment tools for WPC	☐	☐	☐	☐	☐	☐	☐	☐	
d. Participate in a coordinated assessment system to identify high-risk/high-need patients and prioritize receipt of service	☐	☐	☐	☐	☐	☐	☐	☐	
e. Have shared care navigators or care coordinators across two or more participating organizations	☐	☐	☐	☐	☐	☐	☐	☐	
f. Physical co-location of providers or staff from two or more participating organizations to facilitate access to services and/or resources	☐	☐	☐	☐	☐	☐	☐	☐	

Data Sharing Infrastructure to Support Coordination of Care

These questions address accessibility and usability of shared data for care coordination. Please answer them in regard to current status.

4) Do providers and staff responsible for coordination of care have access to any of the following types of data? (Check all that apply)

Type of data	Any access?	Access at point of care? (i.e., ability to access in the field or during meetings with clients)
ED or hospital utilization	☐	☐
Other medical service encounters	☐	☐
Mental health encounters	☐	☐
Substance use encounters	☐	☐
Social service benefits eligibility	☐	☐
Social service encounters (e.g., Child Protective Services, in-home supportive services)	☐	☐
Temporary housing / shelter	☐	☐
Justice system involvement (e.g., admission and discharge)	☐	☐
Other (Please specify: _____)	☐	☐

5) Which of the following can staff responsible for care coordination access in a single electronic database (i.e., rather than multiple systems)?
☐ Needs assessment(s)
☐ Comprehensive care plan
☐ Referrals
☐ Other (Please specify: _____)
☐ None of these

Identification, Engagement, and Enrollment of WPC Beneficiaries

6) What strategies does your Pilot use to identify eligible WPC beneficiaries? (Check all that apply)

☐ Street- or shelter-based outreach
☐ Hospital, SNF, or other care delivery facility outreach
☐ Referrals from WPC partners
☐ Referrals from other organizations not participating in WPC
☐ Target population lists provided by Managed Care Plans (e.g., based on a set of criteria provided by the Lead Entity)
☐ Predictive modeling or risk-based algorithm/score
☐ Self-referral
☐ Other (please specify: ___)

7) What strategies does your Pilot use to enroll eligible WPC beneficiaries in care? (Check all that apply)

☐ Enroll on the street- or shelter outreach
☐ Enroll at health care facility (at point of care)
☐ Warm hand-off from other provider/staff at point of care
☐ Auto enroll and notify by mail for opt-out
☐ Enrolled by telephone outreach
☐ Other (please specify: ___)

8) If you would like to provide any additional detail on your Pilot's strategies for identification, engagement, and enrollment of WPC beneficiaries, please do so here:

Needs Assessments

9) What types of information on clients' needs are systematically collected as part of the needs assessment process? (Check all that apply)

☐ Medical care
☐ Transportation to medical appointments
☐ Medication management accessibility
☐ Mental health
☐ Substance use
☐ Housing and housing stability
☐ Food access
☐ Utilities access (e.g., electricity, water)
☐ Interpersonal safety
☐ Social support
☐ Income
☐ Employment
☐ Legal support
☐ Dental care
☐ Vision care
☐ Education
☐ Other government benefits
☐ Other needs (please specify: ____)

10) What screening instruments, assessments, or tools are used to assess patient/client non-medical needs? (Check all that apply)

☐ VI-SPDAT (Vulnerability Index – Service Prioritization Decision Assistance Tool)
☐ PRAPARE (National Association of Community Health Centers' Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences)
☐ American Academy of Family Physicians SDH screening tool
☐ AHC-Tool (CMS AHC Health-Related Social Needs Screening tool)
☐ "Homegrown" tool (please describe: _____)
☐ Combination tool (i.e., adapted from other pre-existing and validated tools) (please describe: _____)
☐ Determined by care coordination team without a formalized assessment tool (please describe process: _____)
☐ Other (please specify: _____)

11) How does your Pilot determine if a patient/client is experiencing homelessness or at-risk for homelessness specifically? (Check all that apply)
☐ Use of a standardized tool/definition to assess (please specify: _____)
☐ Use of a Pilot modified version of a standardized tool/definition to assess (please specify: _____)
☐ Pilot receives data/assessment from another source (please specify: _____)
☐ Other (please specify: _____)

Care Coordination Staffing

12) Please indicate the type(s) of staff involved in care coordination for WPC and their role (Check all that apply).

Type of staff	Outreach	Care coordination or care management	Clinical consult	Supervision	N/A
Community health worker or other staff with lived experience	☐	☐	☐	☐	☐
Medical assistant or equivalent	☐	☐	☐	☐	☐
Nurse (RN, LVN, or PHN)	☐	☐	☐	☐	☐
Licensed social worker (MSW or LCSW)	☐	☐	☐	☐	☐
Unlicensed social worker	☐	☐	☐	☐	☐
Alcohol or drug counselor or equivalent	☐	☐	☐	☐	☐
Mental health counselor or equivalent	☐	☐	☐	☐	☐
Housing navigator or equivalent	☐	☐	☐	☐	☐
Benefits support staff	☐	☐	☐	☐	☐
Physician or nurse practitioner	☐	☐	☐	☐	☐
Clinical psychologist	☐	☐	☐	☐	☐
Other (please specify: ___)	☐	☐	☐	☐	☐

13) Please indicate the approximate caseload for care coordinators or members of the care coordination team serving as the primary contact for WPC enrollees. **If variable by acuity or bundle type, please specify range for each.**

14) We are interested in how patients may experience care coordination. Please indicate which of the following **best describes the dominant form** of care coordination for WPC enrollees:

☐ Single, dedicated care coordinator who follows enrollee across all WPC-participating care settings

☐ Multiple care coordinators within a care coordination team based on availability / schedule or expertise who follows enrollee across all WPC-participating care settings

☐ Multiple care coordinators across WPC partners who communicate with each other, as needed

☐ WPC enrollees may have different care coordinators in different care settings with which they are involved, and WPC staff are responsible for communicating with non-WPC coordinators about respective accountability and coordinating hand-offs

☐ Other (please specify ____)

Comment:

15) On a scale of 0 to 10, where 0 = Not at all difficult and 10 = Extremely difficult, how difficult has it been to recruit and retain staff in each of these positions?

Type of staff	Difficulty recruiting	Difficulty retaining
Community health worker or other staff with lived experience		
Medical assistant or equivalent		
Nurse (RN, LVN, or PHN)		
Licensed social worker (MSW or LCSW)		
Unlicensed social worker		
Alcohol or drug counselor		
Mental health counselor or equivalent		
Housing navigator or equivalent		
Benefits support staff		
Other (please specify: ___)		

16) Are care coordination services available outside of typical business hours (e.g., evenings or weekends)? Yes/No

16a. If yes, please rate on a scale of 0 to 10 where 0 = No control and 10 = Complete control the extent to which care coordinators have control over their work schedules

0 = No control	1	2	3	4	5 = Neutral	6	7	8	9	10 = Complete control
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

17) Does your Pilot require that community health workers or other staff with lived experience have any of the following credentials? (Check all that apply)

☐ High school degree
☐ Associate degree
☐ Four-year college degree or higher
☐ Certification (please specify: ___)
☐ Licensure (please specify: ___)
☐ Past experience in a care coordination role

18) Please indicate whether your Pilot has the following resources in place to support staff responsible for care coordination: (Check all that apply)

☐ Formal orientation for new hires that lasts longer than one day
☐ Shadowing other care coordinators or providers
☐ Team training / inter-professional training
☐ Opportunities for shared learning via collaborative care planning or joint discussion of cases
☐ Clinical skills training (e.g., trauma-informed care, motivational interviewing)
☐ Clinical supervision by a formally designated supervisor, i.e., in which supervisor and supervisee discuss specific cases, determine courses of action, and resolve problems related to a case)
☐ Supportive supervision provided by a formally designated supervisor, i.e., focused on discussing non-clinical issues, decrease job-related stress, improve staff motivation and morale
☐ Standard protocol for how communication about training will be disseminated to staff
☐ Other (please specify: _____)

19) Approximately how many full-time care coordinators does your Pilot have supporting WPC? ___
20) Approximately how many of these care coordinators quit in the last year? _____

21) If you would like to provide any additional information regarding staffing for WPC (e.g., facilitators and barriers to recruitment and retention of staffing), please do so here:

Care Coordination Elements

22) Pilots vary in specific approaches used to integrate care for WPC enrollees. In addition to conducting a needs assessment and developing a comprehensive, patient-centered care plan, please indicate which of the following activities WPC staff engage in on behalf of enrollees: (Check all that apply)

☐ Follow up with enrollees and/or service providers to monitor status of referrals
☐ Provide/arrange transportation to/from appointments
☐ Accompany enrollees to appointments
☐ Ensure warm hand-offs to other providers
☐ Regularly review data on enrollees with specific health risks or clinical conditions to identify potential problems and gaps in care and proactively reach out to enrollees to help address them
☐ Provide education / coaching around patient self-management education
☐ Implement disease management programs and/or strategies for select health conditions
☐ Assist with medication management and adherence

23) Please indicate which of the following currently apply to your Pilot.

Element		Element Description	Response Option	Comment
a.	Have risk-stratified PMPM bundles	PMPM bundles that include care coordination services are stratified based on the level of need or acuity of the enrollee	Yes/No	
b.	Contract for care coordination services	Some or all care coordination services are delivered by contracted partners rather than in-house at the Lead Entity organization	None/Some/All	
c.	Have financial incentives for contractors	Contracts for care coordination services include financial incentives or performance-based rewards for achieving specific milestones or performance targets	Yes/No/No contracted services	
d.	Have standardized referral protocols	Clear and established standardized organizational protocols or procedures for referring enrollees to medical, behavioral health, and/or social services	Yes/No	
e.	Have standardized protocols for monitoring and follow-up	Clear and established standardized organizational protocols or procedures for monitoring and follow-up on whether enrollees receive needed services	Yes/No	

Element	Element Description	Response Option	Comment
f. Communication with enrollees is in-person	The most common type of contact between care coordinator(s) and enrollee is in-person (rather than telephonic)	Yes/No	
g. Frequency of contact is more often than once per month	Care coordinator(s) regularly contact enrollees more than once per month	Yes/No	

24) Does each enrollee have a single, comprehensive care plan that is shared across partners involved in enrollee's care?
Yes, all / Yes, some /no

If yes to question above:
a. When appropriate for coordination of care, please indicate which partners have access to enrollee care plans:
☐ Managed care plan(s)
☐ Health care provider(s) (e.g., primary care provider, hospital)
☐ Mental health counselor/provider(s)
☐ Substance abuse treatment provider(s)
☐ Housing agency
☐ Justice involved organizations (e.g., jails, advocacy)
☐ Other (please specify: _____)

b. What mechanisms and tools are in place to monitor and promote accountability for meeting enrollee needs? (Check all that apply)
☐ Minimum weekly clinical supervision meetings involving care coordinator(s) and supervisor (e.g., in which supervisor and supervisee discuss specific cases, determine courses of action, and resolve problems related to a case, etc.)
☐ Conduct regular team meetings in which different stakeholders involved in enrollee care jointly discuss care of specific enrollee(s); may or may not include enrollee (please specify frequency: weekly, monthly, as needed, other)
☐ Care coordinator held accountable for meeting pre-established targets in performance review (please specify targets: _____)
☐ Require staff to document, log, or otherwise track care coordination encounters
☐ Other (please specify: _____)

Housing Related Services

28) Please indicate which of the following housing related services are provided by your Lead Entity or by a WPC partner organization using WPC funding or an alternative funding source (select all that apply).

	Provided by Lead Entity	Provided by WPC partner organization(s) using WPC funds	Provided by WPC partner organization(s) using alternative funds
Assistance services			
Tenancy support (e.g., counseling and training individuals to move in or remain in temporary or permanent housing)	☐	☐	☐
Completing applications for the Coordinated Entry system	☐	☐	☐
Housing search (e.g., find available temporary or permanent housing stock)	☐	☐	☐
Obtain housing funds (e.g., housing choice vouchers or rental subsidies)	☐	☐	☐
Direct services and resources			
Funds for security deposit (e.g., first and last month rent)	☐	☐	☐
Funds for furniture, appliances, or other home items	☐	☐	☐
Funds for utilities	☐	☐	☐
Funds for housing improvements for specific health needs (e.g., accessibility ramp)	☐	☐	☐
Legal support for issues related to housing/tenancy issues	☐	☐	☐
Landlord incentives (i.e., prior to enrollee move-in to encouraging renting to WPC enrollees)	☐	☐	☐
Ongoing assistance with enrollee-landlord relationships even after enrollees housed	☐	☐	☐

	Provided by Lead Entity	Provided by WPC partner organization(s) using WPC funds	Provided by WPC partner organization(s) using alternative funds
Provide medical respite to homeless	☐	☐	☐
Provide motel vouchers or equivalent to cover a few days stay	☐	☐	☐
Provide short-term housing in a shelter	☐	☐	☐
Provide permanent, long-term housing	☐	☐	☐

29) Does your LE participate in any of the following activities to promote community, policy, and/or systems change related to homeless assistance?

☐ "Housing First" approach in which provision of permanent housing is prioritized (i.e., persons experiencing homelessness are not required to address behavioral health problems or graduate from other service programs before accessing housing)
☐ Streamlining processes or program restructuring around delivery of housing services
☐ Streamlining processes or programs that affect financing of housing services
☐ Promoting policy and legislation to increase housing availability
☐ Workforce training in housing navigation
☐ Co-location of housing services with other service programs
☐ Other (please specify: _____)

30) Does your Pilot use peer support staff who were previously homeless or at risk of homelessness to provide housing and supportive services for WPC enrollees? (select all that apply)

☐ Yes, hired by LE
☐ Yes, hired by partner organization(s)
☐ No, do not utilize peer support

31) Is there anything else related to your Pilot's work with homeless or at risk of homeless enrollees (e.g., innovative housing strategies, strategies for promoting housing retention, efforts to ensure continuity or coordination of housing services provided, challenges, role of partnerships, etc.) that you would like to share with us?

Integration of Health and Social Services

This section focuses specifically on strategies or processes, other than referral, used by Pilots to promote health and human service integration as part of WPC.

32) What strategies or processes were used to promote health and social services integration in your Pilot? What type of social service partners were included in this effort? Please note we are only interested in strategies or processes that are more intensive than referral. In this context, "health" can include medical and behavioral health. (Please select all that apply)

Strategies or processes used to promote health and social service integration (Check if yes)	Types of social service partners (Check all that apply)
☐ Inclusion of health and human service agency partners in WPC planning and implementation	☐ Healthcare benefits eligibility ☐ Other benefits eligibility ☐ Children & family services (e.g., child welfare, childcare) ☐ Financial assistance services (e.g., CalWorks, cash assistance programs, EBT) ☐ Nutrition assistance services (e.g., CalFresh) ☐ Housing services ☐ In-home supportive services ☐ Employment & training services ☐ Other services (please specify ___)
☐ Coordinated or merged different funding sources with WPC into a single funding stream, to employ staff or provide services.	☐ Healthcare benefits eligibility ☐ Other benefits eligibility ☐ Children & family services (e.g., child welfare, childcare) ☐ Financial assistance services (e.g., CalWorks, cash assistance programs, EBT) ☐ Nutrition assistance services (e.g., CalFresh)

Strategies or processes used to promote health and social service integration (Check if yes)	Types of social service partners (Check all that apply)
	☐ Housing services ☐ In-home supportive services ☐ Employment & training services ☐ Other services (please specify ___)
☐ Promote data sharing	☐ Healthcare benefits eligibility ☐ Other benefits eligibility ☐ Children & family services (e.g., child welfare, childcare) ☐ Financial assistance services (e.g., CalWorks, cash assistance programs, EBT) ☐ Nutrition assistance services (e.g., CalFresh) ☐ Housing services ☐ In-home supportive services ☐ Employment & training services ☐ Other services (please specify ___)
☐ Use multidisciplinary teams that include staff from health and human services sectors	☐ Healthcare benefits eligibility ☐ Other benefits eligibility ☐ Children & family services (e.g., child welfare, childcare) ☐ Financial assistance services (e.g., CalWorks, cash assistance programs, EBT) ☐ Nutrition assistance services (e.g., CalFresh) ☐ Housing services ☐ In-home supportive services ☐ Employment & training services ☐ Other services (please specify ___)
☐ Co-locate health and social services staff in different settings	☐ Healthcare benefits eligibility ☐ Other benefits eligibility ☐ Children & family services (e.g., child welfare, childcare) ☐ Financial assistance services (e.g., CalWorks, cash assistance programs, EBT) ☐ Nutrition assistance services (e.g., CalFresh) ☐ Housing services ☐ In-home supportive services

Strategies or processes used to promote health and social service integration (Check if yes)	Types of social service partners (Check all that apply)
	☐ Employment & training services ☐ Other services (please specify ___)
☐ Cross-training health and social services staff	☐ Healthcare benefits eligibility ☐ Other benefits eligibility ☐ Children & family services (e.g., child welfare, childcare) ☐ Financial assistance services (e.g., CalWorks, cash assistance programs, EBT) ☐ Nutrition assistance services (e.g., CalFresh) ☐ Housing services ☐ In-home supportive services ☐ Employment & training services ☐ Other services (please specify ___)
☐ Other strategies (please specify ___)	☐ Healthcare benefits eligibility ☐ Other benefits eligibility ☐ Children & family services (e.g., child welfare, childcare) ☐ Financial assistance services (e.g., CalWorks, cash assistance programs, EBT) ☐ Nutrition assistance services (e.g., CalFresh) ☐ Housing services ☐ In-home supportive services ☐ Employment & training services ☐ Other services (please specify ___)

33) Briefly describe any novel initiatives (other than referral or data sharing) for integrating health and social services implemented as part of WPC.

34) Are you participating in any new initiatives for integrating health and social services now or in near term following WPC, either directly or indirectly as a result of participation in WPC? If yes, please specify.
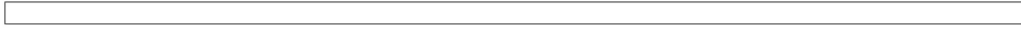
Perceived Impact of WPC

The questions in this section ask about your perceived impact of WPC Pilot program on your organization. Unless specifically requested to do so, please answer each question from the perspective of the LE.

35) On a scale from 0 to 10, where 0 = Very low and 10 = Very high, please indicate the LE's **perceived impact of the overall Pilot** on each of the overarching WPC pilot program goals. If a particular element is not applicable, please select N/A and explain in the comment section.

		N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
a.	Improved integration of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Improved care quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Decreased cost	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d.	Improved enrollee outcomes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

36) What information does your Pilot use to assess WPC impact on the following WPC program goals? (Please check all that apply)

	Improved integration of care	Improved care quality	Decreased cost	Improved enrollee outcomes
Feedback from WPC providers/staff	☐	☐	☐	☐
Review of DHCS-required performance metrics	☐	☐	☐	☐
Analysis of other administrative data	☐	☐	☐	☐
Other (Please specify ___)	☐	☐	☐	☐

37) On a scale from 0 to 10, where 0 = Very low and 10 = Very high, please indicate the LE's **perceived impact of the overall Pilot** on each of the following other WPC pilot program goals and/or program components. If a particular element is not applicable, please select N/A and explain in the comment section.

		N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
a.	Improving management of care of high risk and high utilizing populations	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Increasing data sharing and use of health information technology between WPC partners	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Identifying clients/patients receiving services from more than one system (e.g., medical, behavioral health, social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d.	Improving collaborative partnerships for program implementation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	Reducing inappropriate emergency department visits and hospitalizations	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Improved coordination of care for patients/clients	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Improved integration of health and social services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

38) On a scale from 0 to 10, where 0 = Not at all and 10 = Very much, please indicate the extent to which the following areas have improved **for WPC enrollees** as a result of implementing WPC:

		Unknown	0 = Not at all	1	2	3	4	5 = Neutral	6	7	8	9	10 = Very much	Comment
a.	Coordination of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b.	Continuity of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c.	Access to needed services (health, behavioral health, and/or social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d.	Access to affordable housing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e.	Comprehensiveness of available services (health, behavioral health, and/or social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f.	Timeliness of services provided (health, behavioral health, and/or social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g.	Targeted identification, outreach/engagement, and enrollment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
h.	Frequency and quality of communication with patient/client	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
i.	Extent to which care provided is patient-centered													

		Unknown	0 = Not at all	1	2	3	4	5 = Neutral	6	7	8	9	10 = Very much	Comment
j.	Overall patient/client well-being	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
k.	Other WPC impact on clients/patients (please specify _____)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Sustainability
As WPC funding will end in December 2020, this section is focused on attempts by LEs to maintain WPC progress and build upon it.

39) Please provide a general assessment of the likelihood of sustainability of the following key components of WPC:

		Not Applicable	Plans to sustain, regardless of Cal-AIM	Plans to sustain, depending on Cal-AIM	No plans to sustain	Comment
a.	Care coordination/clinical staff who were specifically hired for WPC	☐	☐	☐	☐	
b.	Relationships with internal partners	☐	☐	☐	☐	
c.	Relationships with MCPs	☐	☐	☐	☐	
d.	Relationships with external health care partners	☐	☐	☐	☐	
e.	Relationships with external behavioral health partners	☐	☐	☐	☐	
f.	Relationships with external social service partners	☐	☐	☐	☐	
g.	Relationships with housing providers	☐	☐	☐	☐	
h.	Other relationships with WPC partners	☐	☐	☐	☐	
i.	Care coordination processes (e.g., intake and assessment, development of comprehensive care plan, etc.)	☐	☐	☐	☐	
j.	Use of peer staff	☐	☐	☐	☐	
k.	Overall sustainability of WPC program goals	☐	☐	☐	☐	
l.	Data sharing agreements	☐	☐	☐	☐	

Domain 6: WPC Leadership, Communication, and Decision-Making Processes

The questions in this section ask about WPC collaborative leadership, communication and decision-making processes. The entities that comprise the WPC's leadership were defined in your WPC application Please answer these questions from the perspective of the LE.

1) To what extent do you agree / disagree with the following statements about WPC leadership, communication, and decision-making processes. Please answer these questions from the perspective of the LE organization; partners' perspectives will be assessed via a separate survey.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Comment
Communication and decision-making processes						
a. All participating WPC partners are involved in discussion about WPC	☐	☒	☐	☐	☐	
b. WPC leadership team has clear and explicit procedures for making important decisions	☐	☐	☐	☐	☐	
c. WPC decision-makers share ideas and information with partners	☐	☐	☐	☐	☐	
d. WPC partners willingly collaborate and co-operate with each other	☐	☐	☐	☐	☐	
e. My organization is informed as often as it should be about what is happening in WPC	☐	☐	☐	☐	☐	
f. Communication among WPC LE and partners happens both at formal meetings and informally	☐	☐	☐	☐	☐	
g. WPC partners have a clear sense of their roles and responsibilities in relation to the program	☐	☐	☐	☐	☐	
Vision consensus						
a. All WPC partners have a clear and shared vision of how to achieve WPC program outcomes	☐	☐	☐	☐	☐	

40) To what extent is your LE organization committed to sustaining the following goals even after the close of WPC? (e.g., in mission, vision, values statement or strategic plan and/or specific program(s) or initiative(s) for how to achieve).

	Not Applicable	Committed to sustaining, regardless of Cal-AIM	Committed to sustaining, with help of Cal-AIM	No plans to sustain	Comment
a. Increase integration and local collaboration among providers and systems	☐	☐	☐	☐	
b. Reduce inappropriate emergency and inpatient utilization	☐	☐	☐	☐	
c. Improve data collection and sharing among providers and systems	☐	☐	☐	☐	
d. Increase coordination and appropriate access to services	☐	☐	☐	☐	
e. Provide high-risk, high-utilizing clients with intensive, in-person care coordination or care management services	☐	☐	☐	☐	
f. Increase client access to housing and supportive services	☐	☐	☐	☐	
g. Address clients' other non-medical needs	☐	☐	☐	☐	

41) Please indicate if you have participated in any of the following (select all that apply):
☐ Sustainability planning meetings with Managed Care Plan (MCP) or other partners
☐ Sustainability planning meetings with DHCS
☐ Creation of a formal sustainability plan
☐ Securing additional funding to sustain existing WPC activities after December 2020
☐ Other (please specify: _____)

42) When did you begin formal sustainability planning?

Month: _____ Year: _____

43) Which types of WPC partners have been included in the sustainability planning activities identified above, as organized by the LE? (Check all that apply)
☐ None. Planning has been internal to LE only
☐ Internal partner organizations (i.e., organizations that work under the same umbrella agency as yours such as county hospital or county mental health department)
☐ Managed care plans
☐ External health care partners
☐ External behavioral health partners
☐ Housing partners
☐ Other external social service partners (i.e., organizations outside the umbrella agency that address social needs and promote well-being of clients)
☐ Other external partners (please specify _____)

44) Do you plan to apply to be an Enhanced Care Management (ECM) provider?
☐ Yes
☐ No

45) In what ways has WPC prepared you for Cal-AIM?
☐ Data sharing platform/infrastructure
☐ Development of necessary partner relationships
☐ Care coordination staff
☐ Care coordination workflows
☐ Quality improvement activities
☐ Understand population needs
☐ Other (please specify: _____)

46) If you would like to offer additional description of how your Pilot's WPC activities are integrated or sustained through Cal-AIM, please do so here:

47) Please identify the major drivers for your plans to continue WPC activities (Select all that apply).

☐ Strong partnerships established through WPC
☐ State priorities and policies
☐ Planned participation in CalAIM Enhanced Care Management (ECM) as a provider
☐ Population Health Management under Cal-AIM
☐ Staff training and development processes established
☐ Ongoing support from leadership and management
☐ Data and information technology infrastructure established
☐ Care coordination infrastructure and processes established
☐ Practices from WPC are now embedded in formal policies and procedures
☐ Anticipate operational funding will be available after WPC to support personnel and/or resources
☐ Compatible with organization's priorities or strategic plan
☐ Compatible with other ongoing initiatives/programs (please specify: _____)
☐ Other (please specify: _____)

48) Please identify any funding sources you might utilize to sustain WPC, other than CAL-AIM?

49) Please describe any impacts the Covid-19 outbreak has had on WPC sustainability.

50) If you have any additional thoughts related to sustainability of key WPC program components, please include here (e.g., synergies with other programs such as HHP, CAL-AIM implementation, etc.):

Overarching Questions and Conclusion

51) Was there <u>unexpected value</u> (i.e., positive) of implementing WPC? If so, please describe.
    a. Yes, there was unexpected value. (Please describe: _____)
    b. No, there was no unexpected value.

52) Were there <u>unintended consequences (i.e., negative)</u> of implementing WPC? If so, please describe.
    a. Yes, there were unintended consequences. (Please describe: _____)
    b. No, there were no unintended consequences.

53) What were the broad benefits your organization experienced by participating in WPC?

54) What were the broad challenges your organization faced by participating in WPC? Please report any challenges or additional detail not previously submitted in narrative reports to DHCS.

55) Is there anything we haven't asked that you think is important for us to know? Please denote N/A if not applicable.

PY 6 Lead Entity Survey

WPC Lead Entity Questionnaire

Introduction and Instructions

The UCLA Center for Health Policy Research is the statewide evaluator of the Whole Person Care (WPC) pilot program. In earlier surveys, Lead Entities (LEs) were asked to report on their implementation activities and processes, progress towards achieving WPC goals, impact of the COVID-19 pandemic, and plans for sustainability of key program components (e.g., data sharing and health information technology, care coordination processes, partnerships).

This survey is being conducted as part of the evaluation of WPC and with additional funding from the Robert Wood Johnson Foundation that focuses on better understanding the impact of the pandemic on WPC. This survey increases our understanding of WPC implementation, additional changes to WPC since our last survey, and updates on sustainability planning and progress- aspects of WPC that were not previously examined. The survey will be followed by semi-structured interviews to be conducted by Zoom or telephone in late spring and summer 2021.

This questionnaire is to be completed by the individual(s) most knowledgeable in implementing the WPC program **within the LE institution**, which may include one or more persons depending on the LE. The questions are intended to be distinct from LEs' mid-year and annual reports to the California Department of Healthcare Services (DHCS) and are narrowly focused on specific issues. We may reference your responses to this questionnaire in our follow-up interview.

You can distribute the Word version of this questionnaire to the most knowledgeable individual(s) **within the LE institution** to complete the relevant sections of the survey. However, we ask that all responses are entered online by one individual due to limitations of our online data system (Qualtrics). We suggest completing text responses in Word, and then copying and pasting responses into Qualtrics as needed. We anticipate that this questionnaire will take about 20-30 minutes to complete.

It is recommended to complete the survey on a computer, instead of a mobile device or tablet. Please enable cookies on your browser to avoid unwanted complications interacting with the website. With cookies enabled, responses will be saved prior to submission of the questionnaire as long as the respondent uses the same computer and browser.

Confidentiality. Your responses on this questionnaire will be confidential. Only the UCLA evaluation team will have access to your individual responses. Only aggregated data will be included in evaluation reports and publications. **Your responses to this survey will not impact your funding from DHCS.**

The evaluation team are available to answer your questions if needed. Please contact the UCLA evaluation team at wpc@chpr.em.ucla.edu with questions. We kindly ask that you submit the questionnaire by Friday, May 7th.

Respondent Information

Name of your LE organization: _____

This survey is focused on the LE perspective, and should be filled out by the individual(s) within the LE organization that are most knowledgeable about WPC. We realize there may be considerable variation across LEs in who these individual(s) may be. To provide context for survey responses, please provide the names of all individual(s) within the LE organization that completed the survey, their title, and (if applicable) the LE department or division in which they are located, and their role in WPC (e.g., WPC program manager). Please also provide contact information (e.g., email, phone number) in case any follow-up is required.

Name	Title	Department/Division (if applicable)	Role in WPC	Email/Contact Info

WPC Target Populations: Eligibility, Identification, Outreach, and Enrollment Procedures

1. Please identify the method for determining client eligibility for WPC and describe the criteria used to assign enrollees to target populations in your reports to DHCS. For example, a criterion for the high utilizer population might be "3+ Emergency Department visits in the last year". Please enter N/A if you do not assign any enrollees to this target population in your reports to DHCS.

Target Population	Method for determining (select all that apply)	Criteria (i.e., definition) used by your Pilot to assign enrollees to this target population in your reports to DHCS
High utilizers	☐ Standardized screening or assessment tool ☐ Electronic medical record or other medical data ☐ Other administrative data provided by WPC partners (internal or external) ☐ Enrollee self-report ☐ Care coordinator report ☐ Other (please specify)	
Chronic conditions	☐ Standardized screening or assessment tool ☐ Electronic medical record or other medical data ☐ Other administrative data provided by WPC partners (internal or external) ☐ Enrollee self-report ☐ Care coordinator report ☐ Other (please specify)	
Homeless	☐ Standardized screening or assessment tool ☐ Electronic medical record or other medical data ☐ Other administrative data provided by WPC partners (internal or external) ☐ Enrollee self-report ☐ Care coordinator report ☐ Other (please specify)	
At-risk of homelessness	☐ Standardized screening or assessment tool ☐ Electronic medical record or other medical data ☐ Other administrative data provided by WPC partners (internal or external) ☐ Enrollee self-report ☐ Care coordinator report ☐ Other (please specify)	
Serious Mental Illness/Substance Use Disorder (SMI/SUD)	☐ Standardized screening or assessment tool ☐ Electronic medical record or other medical data ☐ Other administrative data provided by WPC partners (internal or external) ☐ Enrollee self-report ☐ Care coordinator report ☐ Other (please specify)	
Justice involved	☐ Standardized screening or assessment tool	

	☐ Electronic medical record or other medical data ☐ Other administrative data provided by WPC partners (internal or external) ☐ Enrollee self-report ☐ Care coordinator report ☐ Other (please specify)
COVID-19	☐ Standardized screening or assessment tool ☐ Electronic medical record or other medical data ☐ Other administrative data provided by WPC partners (internal or external) ☐ Enrollee self-report ☐ Care coordinator report ☐ Other (please specify)

2. Please provide information about strategies currently used to **identify** persons eligible for WPC and how effective you found these strategies for identifying persons eligible for WPC.

Strategies	Currently used? (Yes/No)	How effective? 0=Not at all effective, 10=Highly effective)	Comment:
Street- or shelter-based outreach			
Hospital, SNF, or other care delivery facility outreach			
Referrals from WPC partner agencies (internal or external)			
Referrals from other agencies in the community			
Self-referral			
Target population lists provided by managed care plans			
Predictive modeling or risk-based algorithm/scores			
Other (please specify __)			

3. Please provide information about strategies used to **enroll** eligible WPC beneficiaries in care and how effective you found these strategies for facilitating enrollment.

Strategies	Currently used? (Yes/No)	How effective? (0=Not at all effective, 10=Highly effective)	Comment:
Enroll via street- or shelter-based outreach			
Enroll at health care facility or other point of care			
Warm hand-off from other provider/staff at point of care			
Auto-enroll and notify by mail for opt-out			
Enrolled by telephone outreach			

Other community outreach (please specify ___)			
Other (please specify ___)			

4. Please provide the following information on WPC outreach and enrollment activities (please enter "Unknown" if not known or "Not Tracked" if not tracked by your Pilot):

Average number of outreach attempts made per enrollee _____
Average percent of eligible beneficiaries who received outreach and were successfully enrolled
_____

Racial/ethnic Disparities

5. Has your Pilot engaged in any efforts to assess racial/ethnic disparities in WPC enrollee health, well-being, or other outcomes?
   a. Yes (briefly describe _____)
   b. No

WPC Contracts and Use of Incentives

6. WPC Lead Entities were required to contract with DHCS and Pilot partners. Please rate these contracting processes in (1) how time-intensive they were and (2) how much specialized staff knowledge was required to manage or execute them.

	Time intensiveness (0=Not time intensive, 10=Extremely time intensive)	Specialized staff knowledge on contracts required (0=No specialized knowledge on contracts, 10=Extremely specialized knowledge on contracts)	Comment:
Negotiating WPC contract with state (e.g., budget, deliverables)			
Meeting state reporting requirements for WPC (e.g., self-reported metrics, enrollment and utilization reports, narrative reports)			
Designing contract(s) with WPC partners			
Negotiating contract(s) with WPC partners			
Monitoring contract(s) with WPC partners			
Ensuring WPC partners meet contract reporting requirement(s)			
Other (please specify ___)			

7. Please describe the intended use of financial incentives in your contracts with WPC partners and your assessment of whether these incentives achieved their desired goals.

Goal of Incentive	Was this type of incentive used in contracts with any WPC partner? (Yes/No)	Prior experience using this type of incentive in other settings or projects? (Yes/No)	Please rate the degree to which this incentive achieved the desired goals (0=Not effective, 10=Highly effective)	How likely are you to continue using this type of incentive in future contracts? (0=Not at all likely, 10=Highly likely)
Promote partner engagement in WPC activities (e.g., attending meetings, reporting, data sharing)				
Promote development of data sharing infrastructure (e.g., increased functionality within existing or acquisition of				

Goal of Incentive	Was this type of incentive used in contracts with any WPC partner? (Yes/No)	Prior experience using this type of incentive in other settings or projects? (Yes/No)	Please rate the degree to which this incentive achieved the desired goals (0=Not effective, 10=Highly effective)	How likely are you to continue using this type of incentive in future contracts? (0=Not at all likely, 10=Highly likely)
new case management platform, HIE, EHR)				
Promote staffing infrastructure development (e.g., staff training, hiring, retention)				
Achieve process targets (e.g., referring X number of clients or achieving specific milestones)				
Improve clinical outcomes / meeting clinical benchmarks (e.g., decreased recidivism, decreased ED visits)				
Other incentives (please specify ____)				

8. Please identify any categories of incentives that you believe would be useful for CalAIM, e.g., that you will use in your own contracts or that you believe managed care plans should consider using in their contracts with Community-Based Care Management Entities (CB-CMEs)?

Goal of Incentive	Useful for CalAIM (Yes/No)	If yes, briefly explain or provide example:
Promote partner engagement in WPC activities (e.g., attending meetings, reporting, data sharing)		
Promote development of data sharing infrastructure		
Promote staffing infrastructure development (e.g., staff training, hiring, retention)		
Achieve process targets (e.g., referring a specific number of clients or achieving specific milestones)		
Improve clinical outcomes / meeting clinical benchmarks (e.g., decreased recidivism, decreased ED visits)		
Other incentives (please specify ____)		

Community Engagement

9. To what extent do you agree or disagree with the following statement? Please rate on a scale of
0=Strongly disagree to 10=Strongly agree.

	0=Strongly disagree to 10=Strongly agree
We allocated sufficient resources (i.e. time, staff, compensation) to capture key stakeholder input (e.g. frontline staff, patients/clients, other community members) throughout the Whole Person Care Pilot.	

10. Please rate on a scale of 1 to 5 (where 1=Never, 2=Rarely/Once each year, 3=Occasionally/Once each quarter, 4=Often/Once each month, 5=Always/At every decision-making point) how frequently each of these stakeholders were involved in: [Include a N/A response option]

	Design of the WPC Pilot (1=Never, 5=Always)	Implementation of the WPC Pilot (1=Never, 5=Always)	Evaluation or quality improvement efforts (1=Never, 5=Always)	Comment:
Frontline staff (e.g., those responsible for delivering WPC services, such as community health workers, care managers, peer support)				
Patients/clients				
Other community members (e.g., individuals not enrolled in WPC but that can represent perspectives of communities that could benefit from WPC services)				

11. Please rate the extent to which engaging these stakeholders influenced **design** of the WPC Pilot on the following on a scale of 0 to 10 (1=Not at all, 10=Great extent; enter N/A if these stakeholders were not involved in the activity.

	Design of the WPC Pilot (0=Not at all, 10=Great extent)	Comment:
Frontline staff (e.g., those responsible for delivering WPC services, such as community health workers, care managers, peer support)		
Patients/clients		
Other community members (e.g., individuals not enrolled in WPC but that can represent perspectives of communities that could benefit from WPC services)		

12. Please rate the extent to which engaging these stakeholders influenced **implementation** of the WPC Pilot on the following on a scale of 0 to 10 (1=Not at all, 10=Great extent; enter N/A if these stakeholders were not involved in the activity.

	Implementation of the WPC Pilot (0=Not at all, 10=Great extent)	Comment:
Frontline staff (e.g., those responsible for delivering WPC services, such as community health workers, care managers, peer support)		
Patients/clients		
Other community members (e.g., individuals not enrolled in WPC but that can represent perspectives of communities that could benefit from WPC services)		

13. Please rate the extent to which engaging these stakeholders influenced **evaluation or quality improvement efforts** of the WPC Pilot on the following on a scale of 0 to 10 (1=Not at all, 10=Great extent; enter N/A if these stakeholders were not involved in the activity.

	Evaluation or quality improvement of the WPC Pilot (0=Not at all, 10=Great extent)	Comment:
Frontline staff (e.g., those responsible for delivering WPC services, such as community health workers, care managers, peer support)		
Patients/clients		
Other community members (e.g., individuals not enrolled in WPC but that can represent perspectives of communities that could benefit from WPC services)		

WPC Impact and Sustainability

14. Please indicate if you have participated in any of the following since August 2020 (select all that apply):
   ☐ WPC transition or other sustainability planning meetings with Managed Care Plans (MCP)
   ☐ WPC transition or other sustainability planning meetings with other WPC partners
   ☐ WPC transition or sustainability planning meetings with DHCS
   ☐ CalAIM planning meetings with MCPs
   ☐ CalAIM planning meetings with organizations other than MCPs
   ☐ Other (please specify: _____)

15. Have you engaged in conversations with Medi-Cal MCPs in your county regarding services that plans could potentially contract with you or your WPC partners for under CalAIM's "In Lieu of Services" (ILOS)?

   ☐ Yes, some Medi-Cal MCPs in my county
   ☐ No

   If yes:

   13a. To what extent do you feel you or your WPC partners have had meaningful input in WPC transition planning or other CalAIM planning with managed care plans? (0=Not at all, 10=To a Great Extent)

   13b. Were services discussed? Yes/no

16. Which target populations is your LE interested in contracting to provide Enhanced Care Management (ECM) for under CalAIM? (Check all that apply)
   ☐ Not planning to serve as ECM provider
   ☐ Children or youth with complex physical, behavioral, or developmental health needs
   ☐ Individuals experiencing homelessness or chronic homelessness
   ☐ Individuals at risk of becoming homeless with complex health and/or behavioral health conditions
   ☐ High utilizers with frequent hospital admissions, short-term skilled nursing facility stays, or emergency room visits
   ☐ Individuals at risk for institutionalization who are eligible for long-term care services
   ☐ Nursing facility residents who want to transition to the community
   ☐ Individuals at risk for institutionalization with co-occurring chronic health conditions and SMI, SED, or SUD
   ☐ Individuals transitioning from incarceration who have significant complex physical or behavioral health needs requiring immediate transition to the community
   ☐ Other (please specify ____)

17. Please assess the likelihood of sustaining the following components of WPC (e.g., under Enhanced Care Management (ECM), In Lieu of Services (ILOS), another component of CalAIM, or through another mechanism):

	Not Applicable	Plan to sustain, regardless of CalAIM	Plans to sustain via ECM	Plan to sustain via ILOS	No plans to sustain	Comment
a. Staff hired specifically for WPC	☐	☐	☐	☐	☐	
b. Relationships with Managed Care Plans (MCPs)	☐	☐	☐	☐	☐	
c. Relationships with other WPC partners	☐	☐	☐	☐	☐	
d. Care coordination processes	☐	☐	☐	☐	☐	
e. Use of peer staff	☐	☐	☐	☐	☐	
f. Data sharing agreements	☐	☐	☐	☐	☐	
g. Data sharing infrastructure	☐	☐	☐	☐	☐	
h. Delivery system infrastructure created as part of WPC	☐	☐	☐	☐	☐	
i. Housing support services	☐	☐	☐	☐	☐	
j. Medical respite	☐	☐	☐	☐	☐	
k. Sobering centers	☐	☐	☐	☐	☐	
l. Other WPC services (please specify ___)	☐	☐	☐	☐	☐	
m. Other (please specify ___)	☐	☐	☐	☐	☐	

18. If you have any additional thoughts related to sustainability of key WPC program components, please include here (e.g., synergies with other programs such as Health Homes Program, CalAIM implementation, etc.):

Appendix O: COVID-19 Survey Instrument

Introduction and Instructions

The UCLA Center for Health Policy Research is the statewide evaluator of the Whole Person Care (WPC) pilot program. We are conducting a brief rapid response survey on (1) how WPC infrastructure and integrated care delivery approach may have helped with local response to COVID-19, and (2) the potential impact of the COVID-19 pandemic on WPC enrollment, staffing, and services.

We expect the survey to take no more than 10 minutes to complete.

Please enable cookies on your browser to avoid unwanted complications interacting with the website. With cookies enabled, responses will be saved prior to submission of the questionnaire as long as the respondent uses the same computer and browser.

Confidentiality. Your responses on this questionnaire will be confidential. Only the UCLA evaluation team will have access to your individual responses. Only aggregated data will be included in evaluation reports and publications.

The evaluation team are available to answer your questions if needed. Please contact the UCLA evaluation team at wpc@chpr.em.ucla.edu with questions.

If you are able to submit responses to the survey **as soon as possible** that would be greatly appreciated.

1) What is the name of your LE Organization?

2) This survey is focused on the LE perspective, and should be filled out by the individual(s) within the LE organization that are most knowledgeable about WPC. We realize there may be considerable variation across LEs in who these individual(s) may be. To provide context for survey responses, please provide the name of your LE and the names of all individual(s) within the LE organization that completed the survey, their title(s), and their role in WPC (e.g., WPC program manager).
   a. Name: _____
   b. Title: _____
   c. Role in WPC: _____

Impact of WPC on COVID-19 Response

3) On a scale of 1 to 5, where 1 = Not at all and 5 = Great extent, please indicate the extent to which the following informed or otherwise impacted your LE's response to COVID-19.

		N/A	1 = Very Low	2 = Low	3 = Medium	4 = High	5 = Very High	When applicable, please briefly describe how each of these elements was incorporated into your COVID-19 response efforts.
a.	WPC data sharing infrastructure	☐	☐	☐	☐	☐	☐	
b.	WPC staff	☐	☐	☐	☐	☐	☐	
c.	Care coordination processes (e.g., intake and assessment, development of comprehensive care plan, referrals, etc.)	☐	☐	☐	☐	☐	☐	
d.	Other WPC services	☐	☐	☐	☐	☐	☐	
e.	Relationships with health plans	☐	☐	☐	☐	☐	☐	

	N/A	1 = Very Low	2 = Low	3 = Medium	4 = High	5 = Very High	When applicable, please briefly describe how each of these elements was incorporated into your COVID-19 response efforts.
f. Relationships with health and behavioral health partners	☐	☐	☐	☐	☐	☐	
g. Relationships with social service partners	☐	☐	☐	☐	☐	☐	
h. Relationships with housing providers	☐	☐	☐	☐	☐	☐	
i. Relationships with other WPC partners (please specify: _____)	☐	☐	☐	☐	☐	☐	
j. Other (please specify: _____)	☐	☐	☐	☐	☐	☐	

Impact of COVID-19 on WPC

4) Please explain whether and how the COVID-19 outbreak has impacted the following processes and policies in response to COVID-19.

Process/Procedure/Policy	Process/procedure, policy has changed? (yes/no)	Briefly describe the changes.
a. Identifying beneficiaries eligible for WPC	Yes/no	
b. Enrollment of eligible beneficiaries in WPC	Yes/no	

		Yes/no	
c.	Engagement of eligible beneficiaries or enrollees in WPC services (e.g., field-based outreach)	Yes/no	
d.	Staffing policies and procedures (e.g., shift to telework, protocols for use of PPE, recruitment or retention policies and practices)	Yes/no	
e.	Care coordination policies or processes (e.g., frequency, modality, location in which provided)	Yes/no	
f.	Other WPC services	Yes/no	
g.	Other (please specify: _____)	Yes/no	

5) Is there anything we haven't asked that you think is important for us to know? Please denote N/A if not applicable.

THANK YOU!

Appendix P: Lead Entity and Frontline Staff Interview Protocols

Lead Entity Interview Protocol

WPC Key Stakeholder Interview Protocol – PROGRAM MANAGERS/ADMIN
General instructions

- **Introduction of team members**. "Hi, my name is ___ and these are my colleague(s) _____. He/she/They are with me today to help ensure I cover all the bases and to take notes. Thank you for taking the time to speak with us today. "
- **Broad evaluation goals**. "Before we begin, let me review some general information. This interview is being conducted as part of our evaluation of the Whole Person Care demonstration projects and as part of a Robert Wood Johnson Foundation-funded study focused on better understanding impact of the COVID-19 pandemic on WPC, and is designed to supplement information already being provided in your annual and semi-annual reports and in the survey administered earlier this year. We will ask questions about your overall assessment of the program, program changes before and after the pandemic, and lessons learned. We may also follow up on your responses to previous surveys conducted in 2020 and 2021 to better understand your Pilot and ensure we accurately represent your activities in our deliverables."
- **Interview format**: "We expect the interview to last between 1-1.5 hours. This interview is voluntary, and you are free to skip questions or stop or postpone the interview at any time."
- **Permissions**. "Because we value everything you have to say and want to make certain we don't miss anything, we would like to audio-record this interview. Is this okay with you? Only project staff will hear the recording and it will stay password protected on secure computers. Recordings will be transcribed, analyzed, and summarized. Your name will not be used in interview paperwork or in any final reports or publications. The recording is purely for our internal purposes. If you are not comfortable being recorded, we can take written notes instead."

[If Yes] Thank you. I will now turn on the recorder and re-ask this question of you to record your oral permission to record. [Turn on Recorder] This interview is being recorded. I am asking your oral permission to be recorded. Do you grant me your permission to record this interview session? [pause for "Yes" answer] As stated before in our earlier conversation, you can ask me to pause or turn off the recorder at any time.

[If No] OK, I will not be recording this session but only taking notes of our conversation.

[If recording] This is code number XXXXXX, and the date is XXXXXXX.

INTRODUCTION

1. Can you tell me a little bit about your role in [name of WPC project at their county]?
2. How long have you been in this role?

WPC PILOT PROGRAM

3. **What do you view as the "core elements" of your Pilot (e.g., in terms of partnership, infrastructure, or services developed and delivered) that were new or particularly innovative for your LE?**

4. **Can you tell us about synergy or potential overlap with any other programs or initiatives in your county such as Medi-Cal Health Homes, PRIME, Quality Incentive Program** (QIP; P4P program for public HC systems) and Enhanced Payment Program (EPP; supplements base rates that public HC systems receive from Medi-Cal MC)? **How have you handled or addressed overlap or potential duplication of services provided by other programs?**

CARE COORDINATION, STAFFING, AND OTHER SERVICES

5. **What does care coordination "look like" within your Pilot right now?**
   o Can you tell us a little bit about the staff involved in providing care coordination?
   o Were services provided as part of a team? What did that team look like?
   o How was accountability distributed across the team?
   o How did care coordinators communicate with other care managers or providers in other organizations / in the community?
   o What does the average caseload "look like" for this type of program?

6. **Any major lessons learned related to staffing** (recruitment, retention, training) for this type of program?
   o What skills are needed to be effective in this type of role?
   o What strategies does your Pilot use for recruitment / retention?

7. (If applicable) How effective did you find use of staff with lived experience? Were there differences in how clients responded to staff? How critical did you find use of staff with lived experience to client engagement and trust, or other factors that might influence the success of WPC? What strategies did you use to identify and recruit these staff? What about training and supervision – any unique considerations to keep in mind?

8. To what extent, if any, did you consider concordance with target population(s) in identifying and hiring staff for WPC?

9. Can you speak to any other major lessons learned in terms of coordinating or integrating care for target populations as part of WPC? (e.g., advice you might give to other counties or MCPs interested in implementing this type of initiative).

10. (If applicable) Can you tell us about any new services provided to enrollees as a result of WPC?

11. (If not previously addressed) **Were WPC services tailored based on target population** (as opposed to acuity of need or other criteria)? [This question won't apply to smaller Pilots but will to several of the larger ones]

ENROLLEE ENGAGEMENT

12. Overall, what has your experience been in identifying potential enrollees? What challenges have you faced? **What strategie(s) are you currently using to identify and outreach to eligible enrollees? Any major lessons learned?**

13. How did you determine when enrollees were ready to "graduate" from WPC?

14. In your 2021 survey, you specified ___ average number of outreach attempts per enrollee. Can you tell us a little bit about what that outreach looked like? For example, did that outreach occur in person, by telephone, or using a range of modalities?

15. Overall, what has your experience been in engaging potential enrollees in WPC? What challenges have you faced? Is your Pilot tracking engagement rates? **Any major lessons learned related to engagement?**

DATA SHARING INFRASTRUCTURE

16. **Can you tell me about new data sharing infrastructure developed as a result of your participation in WPC?**
    o Was this homegrown or purchased from a vendor? What is your experience with this tool? Would you recommend it to others?
    o Were you able to engage in bidirectional data sharing?

17. **What worked well and what would you have liked to improve on? Any major lessons learned in sharing data with WPC partners?**

PARTNER ENGAGEMENT
WPC is unique in the requirement that the Pilot be implemented by collaborative cross-sector partnerships. I'd like to ask a few questions about your partnership and key lessons learned related to partner engagement.

18.   **We had previously asked Les to identify WPC partner organizations as well as extent to which they were actively involved in WPC. We saw you had a total of X partners.** Is this accurate?

19.   **Were any other organizations involved in WPC** (e.g., "unfunded" partners that didn't directly receive any WPC funds but were still important to successful design, implementation, or impact of your program)?

20.   **Which partners did you feel were most critical to the success of your Pilot?**

21.   **Can you tell us a little bit about any changes to the ways in which relationships between you and your WPC partners changed over time?**
o   (If applicable) Can you tell us about what collaboration with your MCP(s) "looked like"?
o   (If applicable) **Can you tell us more about your relationship with county social services/human services, housing, sheriff's office, or probation?** How were these partners engaged in WPC? Was the relationship new? Any lessons learned in how to effectively engage or collaborate with these partners?

22.   **Any major lessons learned in partnership engagement, particularly for new partners?**
o   What strategies worked well for you in obtaining partner buy-in?
o   Were certain types of partners more challenging to engage than others?
o   Any changes to governance structure from what was originally proposed in your applications? [When I talk about governance structure, I am referring to initial plans for how Pilot-level decisions would get made, which partner organizations would be involved and how frequently you would meet, etc.]

23.   **Were there specific aspects of WPC that partners struggled the most with? Which aspects of WPC did partners have the most difficulty meeting goals for?**

COMMUNITY ENGAGEMENT
We are also interested in learning more about the ways in which Pilots may have engaged end-users of WPC (e.g., potential clients, frontline staff responsible for delivering services) in the design and implementation of WPC.
Note: These questions will only be asked if applicable based on responses in 2021 LE survey
24.   How have patients/clients or other members of the community been involved in the design or implementation of the Whole Person Care pilot? How about frontline staff (e.g. case managers, nurses, community health workers)?

25.   What structures do you have in place to capture patient/client feedback about the Whole Person Care pilot? What about frontline staff feedback?

26.   What kind of feedback or suggestions have you received from patients/clients about the Whole Person Care pilot? What kind of feedback have you received from frontline staff (e.g. case managers)?

27.   What impact, if any, has involving patient/client stakeholders had on the Whole Person Care pilot, either in terms of design, implementation, or outcomes? What about the impact of involving frontline staff?

28.   **Any major lessons learned in engaging these stakeholders in design, implementation ,or evaluation of WPC?**

DISPARITIES
Note: Depending on responses to the 2021 LE survey, may ask for examples or additional info re: efforts to address disparities or ensure equitable reach of WPC to diverse populations. May skip if nothing done. (Likely won't apply to small Pilots and those with very narrowly focused TPs)

CONTRACTING AND USE OF FINANCIAL INCENTIVES
Note: Questions in this section will be tailored based on responses to the 2021 LE survey and based on review of invoice/expenditure data. In general, questions focus on understanding factor that influence time-intensity or specialized knowledge required for contracting, use of financial incentives in contracts with WPC partners (and their perceived effectiveness), and perceived utility of different types of incentives for CalAIM *(particularly ECM and ILOS).*

COVID IMPACT
29.   **Can you tell me a little bit more about modifications/adjustments/adaptations made to the WPC Pilot Program?** [*Note: Review brief summary of key points from interview prep, and follow up on what's unclear. This question may overlap with specific questions in the Partnership, Staffing, Enrollee Engagement section*]

30.   **Overall, how did the COVID-19 pandemic affect your Pilot?** [*Only ask probes if not addressed in interview prep or in response to previous interview questions*]
   o   For example, to what extent have you redirected staff or other agency resources and activities to support public health emergency response efforts (e.g., vaccine outreach, testing, etc.)?
   o   What about your Pilot's ability to achieve intended program outcomes? Why?
   o   How did the pandemic affect WPC partnerships?

31. Please describe any ways in which WPC participation may have benefited COVID-19 response in your community. [Note: Goal is to identify illustrative examples if unclear based on prior responses in PY5 narrative or COVID-19 survey]

32. [If Pilot is serving new COVID-19 target population and if unclear based on responses to 2021 survey and PY5 narrative report] We saw that your Pilot has chosen to provide services to the new target population of COVID-19-impacted individuals. Can you tell us a little bit about processes for identifying and engaging these individuals? What differences have you seen in the types of services provided to these individuals?

33. **Are there any lessons learned or changes made to programs in response to the COVID-19 pandemic that you believe your organization may maintain even after the pandemic?** (e.g., telehealth, remote work arrangements for staff, etc.)

CRITICAL SUCCESS FACTORS AND LESSONS LEARNED
34. **Do you feel your WPC Pilot was successful at achieving original goals? Why or why not? Any major changes from what was originally planned to be aware of?**

35. **What do you view as the critical success factors affecting whether WPC outcomes/program benefits are realized**? (e.g., partnerships, infrastructures, types of services provided, staff used, etc.)
     o   What critical program elements should be carried forward to CAL-AIM to make it successful?

36. Do you have any advice for other counties or states considering whether to adopt similar program(s) (e.g., regarding best practices, major lessons learned, etc.)?

37. If you could have changed one thing about WPC, what would it have been?

WPC IMPACT
38. Other than direct funding of programs, can you speak to any additional benefits of WPC funding in your ability to implement the program?

39. **Could you speak to overall impact and value of WPC to your LE/county?**

40. If you conducted a separate, internal evaluation, what types of metrics did you look at and what did you find?

41. **Are there any specific questions you hope the UCLA evaluation will be able to address statewide?**

WPC SUSTAINABILITY

Note: Most questions in this section will be tailored based on Pilot responses to the 2021 survey.

42. **In what ways do you think your current program may change or pivot as a result of CalAIM? What program elements do you most hope to sustain? Are there any components of WPC not currently addressed in CAL-AIM that you wish could be retained?** [Note: If Pilot chose to discontinue WPC in PY6, instead ask about the decision to discontinue WPC, the factors that influenced this decision, and whether LE or any WPC partners may still participate in CalAIM as CB-CMEs]

43. **What do you perceive as the critical factors affecting sustainability of key WPC program elements?**

44. (If applicable) We are interested in learning more about certain ILOS identified in CalAIM that we didn't ask about in our 2021 survey. Can you tell us a little bit about whether WPC services included the following:
    a. Nursing facility transition/diversion to assisted living facilities
    b. Nursing facility transition to home /other community transition
    c. Personal care or homemaker services
    d. Medically tailored meals
    e. Asthma remediation

CONCLUSION

45. Is there anything we haven't asked at this point that you think would be important for us to know?

Frontline Staff Interview Protocol

WPC Key Stakeholder Interview Protocol – FRONTLINE SUPERVISORS OR STAFF

GENERAL INSTRUCTIONS

- **Introduction of team members**. "Hi, my name is ___ and these are my colleague(s) _____. He/she/They are with me today to help ensure I cover all the bases and to take notes. Thank you for taking the time to speak with us today. "
- **Broad evaluation goals**. "Before we begin, let me review some general information. This interview is being conducted as part of our evaluation of the Whole Person Care demonstration projects and as part of a Robert Wood Johnson Foundation-funded study focused on better understanding impact of the COVID-19 pandemic on WPC. We will ask questions about your experience with WPC and key lessons learned as part of the process."

- **Interview format**: "We expect the interview to last between 45-60 minutes. This interview is voluntary, and you are free to skip questions or stop or postpone the interview at any time."
- **Privacy:** "To protect privacy, throughout this interview it will be helpful if you can refer to your colleagues by title or role rather than name. If you forget and use names that is okay; we will redact names later."
- **Permissions**. "Because we value everything you have to say and want to make certain we don't miss anything, we would like to audio-record this interview. Is this okay with you? Only project staff will hear the recording and it will stay password protected on secure computers. Recordings will be transcribed, analyzed, and summarized. Your name will not be used in interview paperwork or in any final reports or publications. Instead, each participant receives a unique ID number that is used in place of your name or other identifying information. The recording is purely for our internal purposes. If you are not comfortable being recorded, we can take written notes instead."

[If Yes] Thank you. I will now turn on the recorder and re-ask this question of you to record your oral permission to record. [Turn on Recorder] This interview is being recorded. I am asking your oral permission to be recorded. Do you grant me your permission to record this interview session? [pause for "Yes" answer] As stated before in our earlier conversation, you can ask me to pause or turn off the recorder at any time.

[If No] OK, I will not be recording this session but only taking notes of our conversation.

[If recording] This is code number XXXXXX, and the date is XXXXXXX.

INTRODUCTION

1. **Can you tell me a little bit about your role in [name of WPC project at their county]?**
   2. How long have you been in this role?

   3. How would you describe your job to someone who knew nothing about it?
      - What is a typical day like?
      - What does a typical caseload "look like"?
      - What type(s) of outcomes are you held accountable for?
   4. What do you like best about your work? How does this work compare to other positions you have held?
   5. What are the biggest challenges you face in your role?
   6. What type of training if any did you receive to prepare for your role?

OVERVIEW OF PILOT

7. **What do you feel is innovative about the WPC Pilot, either in terms of the role it fills within your community, or in terms of the work you do with clients?**

    o   Are services being provided as part of WPC "new" for your organization or were already in place?

[*Only ask #8 if interviewing a program manager or supervisor in a WPC partner organization. If the respondent may be involved with WPC in multiple counties, ask them to compare their experience across counties, particularly in terms of how the LE engages partners and in perceived impact on integration of care within the community*]

8. Have you previously collaborated with the LE or with other partners prior to WPC? In what ways (if any) has participating in WPC changed your relationship with the LE or with other organizations in your community?

WPC is fundamentally about improved coordination or integration of care. However, in early interviews, we identified major differences across Pilots in how care coordination was defined and operationalized, and whether Pilots were providing intensive case management vs. only care coordination.

9.   Can you describe what care coordination "looks like" within your Pilot? (Note: Intent is to get a sense for whether Pilot provides care coordination vs. care management vs. case management)?

    o   **If you are part of a team, can you tell me a bit about how that team is structured or staffed?**
    o   Who else do you typically work with in caring for WPC enrollees?
    o   How are responsibilities distributed?
    o   How much flexibility in the way you approach your work?

10. **What skills or training have you found most valuable for effectively engaging with WPC enrollees and meeting their needs? [*Note: If a program manager, I would ask more broadly about lessons learned in staffing this type of program, and the types of skills they feel are important*]**

11.   **How do you communicate or coordinate care with other providers outside your organization / in the community?** Were there any opportunities for sharing lessons learned or problem solving with these other partners? What about with peers in WPC?

12.   How have you managed overlap or potential for duplication of services provided by other programs? (E.g. Health Homes or for clients with substance abuse treatment needs, services that may be provided as part of the DMS-ODS Pilot programs)

13.   **Can you speak to any major lessons learned in terms of coordinating or integrating care for target populations as part of WPC?** (e.g., advice you might give to other counties or MCPs interested in implementing this type of initiative).

14.   **How did the pandemic impact your work on the Pilot?**

ENROLLE IDENTIFICATION AND ENGAGEMENT

15. Overall, what has your experience been in identifying and engaging potential enrollees in WPC? **How do enrollees get connected to your program? What strategie(s) are you currently using to identify and outreach to eligible enrollees? Any key lessons learned?**
16. How easy or difficult do you find it to engage enrollees in WPC?
    o On average, how many outreach attempts needed before someone agrees to enroll?
    o Once enrolled, how often are you in communication with enrollees?
17. How do you typically communicate with enrollees?
18. How long do enrollees typically stay engaged?
19. We are interested in learning more about any efforts that Pilots may have engaged in to improve outreach and engagement of traditionally underserved populations in WPC. Are you aware of any efforts in this area? Do you have any thoughts about this?
20. **Any key lessons learned in successfully engaging with clients?**

DATA SHARING AND REPORTING

21. **What would you change about the way your organization tracks information about your clients?**

    o What type of information is currently being collected? Is there information you wish you had that is not currently available?
    o What do you think about the platform / tools being used to collect this information?
    o How useful do you find the information in informing your work with clients? What about in coordinating with other providers, or understanding what other provider(s) or doing?

COMMUNITY ENGAGEMENT

We are also interested in learning more about the ways in which Pilots may have engaged end-users of WPC (e.g., potential clients, frontline staff responsible for delivering services) in the design and implementation of WPC.

22. **How was your input requested in the design or implementation of the WPC Pilot? How was your input requested to identify ways the program could be improved? Can you identify any changes to the program as a result of suggestions you or your colleagues made?**
23. Were there any formal mechanisms in place for you to get feedback about how the program was going for clients/enrollees? What about informal strategies you may have used?
24. How were you involved in any quality improvement efforts for the Pilot?

25.   What impact do you think your feedback, or the feedback of your colleagues had on how the Pilot was designed, implemented, or adapted?

CRITICAL SUCCESS FACTORS AND LESSONS LEARNED
26.   **What are your perceptions of the overall impact and value of WPC within your community?**
27.   How does WPC compare to other programs you have worked on / for?
28.   **What do you view as the greatest strengths of the Pilot?**
29.   **If you could change one thing about the WPC program, what would it be?**
30.   **Particularly looking ahead to CalAIM, do you have any advice for other counties or states considering whether to adopt similar program(s) (e.g., regarding best practices, major lessons learned, etc.)?**
31.

CONCLUSION
31. Is there anything we haven't asked at this point that you think would be important for us to know?

Appendix Q: Partner Survey Instrument

Introduction and Instructions

The UCLA Center for Health Policy Research was selected by the California Department of Health Care Services to evaluate the Whole Person Care (WPC) pilot program. As part of the evaluation, we are administering questionnaires to partners to gather more information about their perceptions of WPC and its impact, communication and collaboration with other WPC partners, and WPC sustainability. In recognition of the current COVID-19 pandemic, we have incorporated questions about its impact on WPC implementation and outcomes.

Average time to complete this questionnaire will vary but is expected to be 45 minutes to an hour.

Confidentiality. Your responses will be kept confidential. No one outside the UCLA evaluation team, including LEs, other WPC partners, or DHCS will have access to your individual responses. Only aggregated data will be included in evaluation reports and publications. **Participation in the survey will not affect your organization's relationship with your LE or the LE's funding from DHCS**.

The evaluation team are available to answer your questions if needed. Please contact the UCLA evaluation team at wpc@chpr.em.ucla.edu with questions.

Respondent Information

1. Your Organization's Name _____

2. Your Role within the Organization _____
   ☐ Senior leadership (e.g., CEO, COO, Executive Director)
   ☐ Program level management (e.g., WPC manager or program director)
   ☐ Frontline supervisor
   ☐ Frontline staff (e.g., care coordinator, case manager)
   ☐ Other (please specify: _____)

3. Approximately how many FTEs does your organization have? _____

4. Please indicate your organization type. (Select all that apply).
   ☐ County mental health agency
   ☐ County substance abuse treatment agency
   ☐ County housing agency
   ☐ Probation / law enforcement
   ☐ Other public agency (please specify ____)
   ☐ Health plan
   ☐ Hospital
   ☐ Community clinic or clinic network
   ☐ Mental health or substance abuse treatment agency (not County)
   ☐ Human / social services provider (e.g., legal aid, housing, etc.; not County)
   ☐ Other community provider (please specify _____)

5. Is your organization partnering with more than one WPC Lead Entity (LE)? **[If no, skip to question 6]** ☐ Yes ☐ No
   5a. **[If yes]** Please specify which WPC Lead Entity (ies) you are working with (Select all that apply).
   ☐ Alameda County Health Care Services Agency

☐ City of Sacramento
☐ Contra Costa Health Services
☐ County of Marin, Department of Health and Human Services
☐ County of Orange, Health Care Agency
☐ County of San Diego, Health and Human Services Agency
☐ County of Santa Cruz, Health Services Agency
☐ County of Sonoma, Department of Health Services Behavioral Health Division
☐ Kern Medical Center
☐ Kings County Human Services Agency
☐ Los Angeles County Department of Health Services
☐ Mendocino County Health and Human Services Agency
☐ Monterey County Health Department
☐ Napa County
☐ Placer County Health and Human Services Department
☐ Riverside University Health System Behavioral Health
☐ San Bernardino County Arrowhead Regional Medical Center
☐ San Francisco Department of Public Health
☐ San Joaquin County Health Care Services Agency
☐ San Mateo County Health System
☐ Santa Clara Valley Health and Hospital System
☐ Small County Whole Person Care Collaborative
☐ Shasta County Health and Human Services Agency
☐ Solano County Health and Social Services
☐ Ventura County Health Care Agency

6. Please indicate the ways in which your organization is currently involved in WPC: (Select all that apply)
    ☐ Member of steering committee or workgroup responsible for WPC project management, oversight, or implementation
    ☐ Data sharing with LE or other WPC partners

☐ Identify and refer eligible patients/clients for enrollment

☐ Receive referrals from LE and/or other WPC partners

☐ Provide case management or care coordination for WPC enrollees

☐ Deliver other services to WPC enrollees (please specify: _____)

☐ Other (please specify: _____)

Inter-agency Collaboration

The following questions address inter-agency collaboration and interactions with other WPC partners.

7. Please indicate the ways in which *your organization* **CURRENTLY** interacts with each of the following WPC partners:

Partner organizations	None	Planning	Administration	Service Delivery			Other (please
		Joint advocacy or joint planning (e.g., as part of a community coalition)	Data sharing (e.g., for client/patient care, needs assessment)	Client/patient referrals	Communication about client/patient needs and/or care	Joint service delivery (e.g., you deliver part of a service and contract for the rest)	specify in comments including partner name)
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐

Partner organizations	None	Planning	Administration	Service Delivery			Other (please specify in comments including partner name)
		Joint advocacy or joint planning (e.g., as part of a community coalition)	Data sharing (e.g., for client/patient care, needs assessment)	Client/patient referrals	Communication about client/patient needs and/or care	Joint service delivery (e.g., you deliver part of a service and contract for the rest)	
	☐	☐	☐	☐	☐	☐	☐

Comment(s):

WPC Staffing

8. On a scale from 0 to 10, where 0 = Not at all difficult and 10 = Extremely difficult, please rate how difficult it has been to recruit and retain staff within your organization for WPC.

	N/A	0 = Not at all difficult	1	2	3	4	5 = Moderate difficulty	6	7	8	9	10 = Extremely difficult	Comment
Difficulty recruiting	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Difficulty retaining	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Perceived Impact of WPC

The questions in this section ask about the perceived impact of WPC on achieving programmatic goals, improving care for clients/patients, and/or improving other organizational outcomes. Please answer each question from **your organization's perspective**.

9. On a scale from 0 to 10, where 0 = Very low and 10 = Very high, please indicate **your perception of the overall WPC Pilot's impact** on each of these overarching goals. If a particular element is not applicable, please select N/A.

	N/A	0 = Very low	1	2	3	4	5 = Neither low nor high	6	7	8	9	10 = Very high	Comment
a. Improved integration of care	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b. Improved care quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
c. Decreased cost	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d. Improved enrollee outcomes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

10. On a scale from 0 to 10, where 0 = Not effective and 10 = Extremely effective, please indicate **the overall WPC Pilot's effectiveness** at achieving the following goals. If unknown or not perceived to be a goal of the WPC program, please select N/A.

	N/A	0 = Not effective	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely effective	Comment
a. Improving management of care of high risk and high utilizing populations	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
b. Increased data sharing with LE	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

	N/A	0 = Not effective	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely effective	Comment
c. Identifying clients/patients receiving services from more than one system (e.g., medical, behavioral health, social services)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
d. Improving collaborative partnerships for program implementation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
e. Reducing inappropriate emergency department visits and hospitalizations	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
f. Improved coordination of care for patients/clients	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
g. Improved integration of health and social services	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Sustainability

This section is focused on partner organizations efforts (in collaboration or independently of LEs) to maintain WPC progress and build upon it after funding ends in December 2020.

11. To what extent is **your organization** committed to sustaining the following goals even after the end of WPC? Please rate on a scale of 1 to 5, where 1 = Not at all committed and 5 = Extremely committed. If a particular element is not applicable, please select N/A.

		N/A	1 = Not at all Committed	2	3 = Committed	4	5 = Extremely Committed	Comment
a.	Increase system-wide and local integration and collaboration	☐	☐	☐	☐	☐	☐	
b.	Reduce inappropriate emergency and inpatient utilization	☐	☐	☐	☐	☐	☐	
c.	Improve system-wide and local data collection and sharing	☐	☐	☐	☐	☐	☐	
d.	Increase care coordination and access to services	☐	☐	☐	☐	☐	☐	
e.	Provide high-risk high-utilizing clients with care coordination or care management services	☐	☐	☐	☐	☐	☐	
f.	Increase client access to housing and supportive services	☐	☐	☐	☐	☐	☐	
g.	Address clients' other non-medical needs (i.e., not housing)	☐	☐	☐	☐	☐	☐	

12. Please indicate if you have participated in any of the following (select all that apply):

☐ Sustainability planning meetings with the Lead Entity

☐ Sustainability planning meetings with other partner organizations

☐ Creation of or contribution to a formal sustainability plan

☐ Securing additional funding to sustain existing WPC activities after December 2020

☐ Other (please specify: _____)

For Managed Care Plans only (only answer these questions if identified as "health plan"):

13. Please identify your plan's readiness to participate in the following CAL-AIM domains and identify elements of WPC that may have shaped planned Cal-AIM strategies/activities in each of these following domains. If a particular domain is not applicable to your Cal-AIM proposal, please write N/A.

Domain	Readiness (Scale of 0-10)
Enhanced Care Management (ECM)	
In-lieu of Services (ILS)	
Population Health Management	
Behavioral Health	
Participation in Full Integration Plan (intent to fully integrate physical, behavioral health, and oral health in a single contracted managed care entity)	

14a. Please identify elements that shaped your readiness for the Cal-AIM strategies detailed above (e.g., data sharing infrastructure, care coordination models, partnerships):

14. To what extent have you collaborated with LEs in planning for CAL-AIM? (Scale of 0 to 10, where 0 = No collaboration and 10 = Extremely high levels of collaboration)

0 = No collaboration	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely high levels of collaboration	Comment
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

15. To what extent have you collaborated with other WPC partners (i.e., not LE) in planning for CAL-AIM? (Scale of 0 to 10, where 0 = No collaboration and 10 = Extremely high levels of collaboration)

0 = No collaboration	1	2	3	4	5 = Neutral	6	7	8	9	10 = Extremely high levels of collaboration	Comment
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

15a. Please briefly explain rating (e.g., factors that facilitated collaboration, barriers to collaboration):

16. At this time, do you have formal plans to contract with any WPC LEs or other county agency partners for any of the following CAL-AIM domains: (Check all that apply)
☐ Enhanced Care Management providers
☐ In lieu of services
☐ Population health management
☐ Other (please specify: _____)

16a. If yes, please identify which Lead Entities or counties you may contract with.

16b. If no, what are the reasons/barriers to contracting with LEs or other county agency partners.

For all partners:

17. Please identify elements from WPC that may influence your organization's participation in CAL-AIM and/or strategies for implementing CAL-AIM.

18. If you have any additional thoughts related to sustainability of key WPC program components, please include here:

Impact of COVID-19 on WPC

19. Please briefly describe any positive impacts of WPC partnership, infrastructure, services, or staff on your organization's ability to respond to Covid-19:

20. Please briefly describe whether and how Covid-19 outbreak has affected your participation in WPC (e.g., changes to services, staffing policies and procedures, processes for identification, engagement, and/or enrollment).

Concluding Thoughts on Overall WPC Experience

21. What were the broad **benefits** your organization experienced by participating in WPC?

22. What were the broad **challenges** your organization faced by participating in WPC?

23. Is there anything we haven't asked that you think is important for us to know? Please denote N/A if not applicable.

THANK YOU FOR COMPLETING THE SURVEY!

Appendix R: General Glossary

Acronym	Definition
WPC	Whole Person Care
AHRQ	Agency for Healthcare Research and Quality
AOD	Alcohol and other drugs
BAA	Business Associate Agreement
BHS	Behavioral Health Services
Cal-AIM	California Advancing and Innovating Medi-Cal
CBP	Controlling Blood Pressure
CBP-18-59	Enrollees 18-59 years of age whose BP was <140/90 mm Hg
CBP-60-85-D	Enrollees 60-85 years of age with a diagnosis of diabetes whose BP was <140/90 mm Hg
CBP-60-85-ND	Enrollees 60-85 years of age without a diagnosis of diabetes whose BP was <150/90 mm Hg
CCP	Comprehensive Care Plan
CCP-A	Comprehensive care plan within enrollees' anniversary of enrollment
CCP-E	Comprehensive care plan within 30 days of enrollment
CDC	Comprehensive Diabetes Care
CE	Coordinated Entry
CFR	Code of Federal Regulations
CHR	Community health record
CHW	Community health workers
CMS	Centers for Medicare & Medicaid Services
CoC	Continuum of Care
CS	Community Supports
DD	Difference-in-Difference
DHCS	California Department of Health Care Services
DJI	Decrease Jail Incarcerations
ECM	Enhanced Care Management
ED	Emergency department
EHR	Electronic health record

EMR	Electronic medical record
FEMA	Federal Emergency Management Agency
FFS	Fee-for-Service
FQHC	Federally Qualified Health Center
HbA1C	Hemoglobin A1c
HIE	Health information exchange
HIPAA	Health Insurance Portability and Accountability Act
HMIS	Homeless Management Information System
HR	At high risk for various reasons
HS	Housing Services
HUD	Housing and Urban Development
LE	Lead Entity
MAT	Medication-assisted treatment
MC/HR	Enrollees with multiple chronic conditions or at high risk
MCP	Medi-Cal managed care plans
MDD	Major Depressive Disorder
MOU	Memorandum of Understanding
NQF 0719	National Quality Forum for Children Who Receive Effective Care Coordination of Healthcare Services When Needed
OBH	Overall Beneficiary Health
OBH-O	Enrollees' Overall Health
OBH-E	Enrollees' Emotional/Mental Health
OUD	Opioid Use Disorder
PDSA	Plan, do, study, act
PHI	Protected health information
PMPM	Per-member-per-month
P4O	Pay for outcomes
P4R	Pay for reporting
SCC	Small County Collaborative
SCWPCC	Small County Whole Person Care Collaborative
SMI	Serious mental illness
SMI/SUD/HML	Enrollees with serious mental illness (SMI), substance use disorders (SUD), or experiencing homelessness

SUD	Substance use disorder
TA	Technical Assistance
VI-SPDAT	Vulnerability Index – Service Prioritization Decision Assistance Tool

Appendix S: Enrollee Demographics, Health Status, and Prior Health Care Utilization by Target Population

WPC Enrollee Characteristics by Target Population

WPC Pilots were required to "receive support to integrate care for a particularly vulnerable group of Medi-Cal beneficiaries who have been identified as high users of multiple systems and continue to have poor health outcomes." This appendix further examines the following evaluation question, "What were the demographics of pilot enrollees?" by examining characteristics of WPC enrollees by target population.

The data sources included Medi-Cal enrollment and claims data between January 2015 and December 2021 and *WPC Quarterly Enrollment and Utilization Reports* from PY 2 to PY 6 (2017 through 2021). Of the 247,887 total WPC enrollees during program implementation, 228,680 enrollees that had an assigned target population and Medi-Cal enrollment and claims data.

The prevalence of chronic conditions was identified using the [CMS Chronic Conditions Data Warehouse](#) for WPC enrollees with Medi-Cal claims data, using the primary and secondary diagnosis at each encounter. UCLA calculated standardized rates of utilization to account for variations in length of enrollment in Medi-Cal or size of the population in a given target population and to facilitate comparisons across analytic groups. Utilization was calculated per 1,000 full-scope Medi-Cal member months for six-month intervals in the two years prior to an enrollees' first WPC enrollment date. Age was time-variant and was identified at the time of WPC enrollment. Time-invariant demographics such as race/ethnicity were identified using the most frequently reported value in enrollment data during the 24 months prior to enrollment into the program. Health status was measured as the presence of a condition at any point within 24 months prior to enrollment.

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Demographics

Exhibit 241: Demographics of WPC Enrollees by Target Population, Prior to WPC Enrollment

		High Utilizers	Homeless	SMI/SUD	At Risk for Homelessness	Chronic Conditions	Justice-Involved	COVID-19
Enrollment	N	126,054	119,911	50,122	45,121	22,593	50,366	34,580
Age at enrollment	% 0-17	1%	1%	<1%	1%	<1%	<1%	7%
	% 18-34	33%	28%	31%	32%	30%	39%	24%
	% 35-49	27%	30%	30%	31%	30%	32%	26%
	% 50-64	31%	34%	33%	33%	33%	25%	32%
	% 65+	8%	6%	6%	4%	6%	4%	11%
Gender	% male	52%	64%	61%	64%	60%	69%	56%
Race/ Ethnicity	% White	25%	28%	28%	31%	30%	23%	21%
	% Hispanic	28%	25%	31%	34%	36%	34%	20%
	% Black	24%	28%	26%	21%	18%	32%	23%
	% Asian	1%	1%	1%	1%	1%	<1%	1%
	% American Indian or Alaskan Native	4%	2%	2%	2%	3%	1%	10%
	% Hawaiian or Other Pacific Islander	2%	1%	1%	1%	1%	1%	2%
	% Other	10%	7%	3%	3%	4%	2%	18%
	% Unknown	6%	7%	8%	6%	7%	7%	6%
Primary Communication Language	% English	84%	92%	93%	92%	90%	95%	81%
	% Spanish	11%	6%	5%	6%	7%	4%	10%
	% Other	5%	2%	2%	1%	3%	1%	9%
Homelessness	Identified as homeless by Pilots	41%	67%	66%	65%	58%	69%	41%

Source: Medi-Cal enrollment data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.

Notes: Enrollee population includes 228,680 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment data and at least one target population. All data except for homelessness are reported using Medi-Cal enrollment data during the 24 months prior to WPC enrollment. Homelessness was based on a Pilot-reported indicator collected at enrollment. Enrollees may be reported in more than one target population by Pilots. SMI/SUD is serious mental illness and/or substance use disorder.

Health Status

Exhibit 242: Most Frequent Chronic Conditions Among WPC Enrollees by Target Population, 24 Months Prior to WPC Enrollment

	High Utilizers	Homeless	SMI/SUD	At Risk for Homelessness	Chronic Conditions	Justice-Involved	COVID-19
Physical Health Conditions							
Hypertension	35%	34%	37%	32%	40%	28%	33%
Diabetes	19%	16%	18%	16%	22%	13%	17%
Hyperlipidemia	17%	15%	18%	17%	20%	13%	17%
Rheumatoid arthritis/ osteoarthritis	17%	19%	20%	18%	21%	14%	17%
Anemia	17%	16%	18%	15%	19%	13%	15%
Chronic Kidney Disease	17%	16%	17%	15%	21%	12%	16%
Asthma	16%	14%	15%	13%	16%	13%	14%
Chronic Obstructive Pulmonary Disease	14%	16%	18%	15%	18%	13%	13%
Mental Health Conditions							
Depression	36%	41%	47%	41%	41%	39%	33%
Anxiety disorders	33%	35%	39%	35%	38%	31%	33%
Depressive disorders	33%	38%	44%	38%	38%	36%	30%
Schizophrenia and other psychotic disorders	23%	32%	37%	30%	28%	34%	19%
Bipolar disorder	20%	27%	32%	27%	28%	29%	15%
Substance Use Conditions							
Drug use disorders	29%	41%	43%	38%	42%	42%	31%
Tobacco use	22%	27%	28%	26%	28%	27%	20%
Alcohol use disorders	20%	27%	28%	26%	26%	24%	21%

Source: Medi-Cal enrollment and claims data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.

Notes: Enrollee population includes 228,680 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment data and at least one target population. Enrollees may be reported in more than one target population by Pilots. SMI/SUD is serious mental illness and/or substance use disorder. Chronic and disabling conditions were determined using algorithms developed by the CMS Chronic Conditions Data Warehouse (CCW). Conditions with at least 10% prevalence were reported. Patients with these conditions were identified based on the primary and secondary diagnosis in each encounter or claim.

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Utilization Prior to Enrollment

Selected Ambulatory Care Service Use Prior to Enrollment

Exhibit 243: Selected Ambulatory Care Service Use per 1,000 Medi-Cal Months Among WPC Enrollees by Target Population, Semi-Annually Prior to WPC Enrollment

	High Utilizers	Homeless	SMI/SUD	At Risk for Homelessness	Chronic Conditions	Justice-Involved	COVID-19
Primary Care Services							
19-24 months	266	192	226	189	277	147	228
13-18 months	281	209	248	210	303	158	243
7-12 months	292	229	278	231	337	177	255
1-6 months	303	259	313	267	373	196	275
Specialty Care Services							
19-24 months	124	124	146	127	187	88	143
13-18 months	140	133	162	140	212	96	148
7-12 months	156	145	179	154	234	103	161
1-6 months	172	163	198	174	257	115	167
Mental Health Services							
19-24 months	488	636	746	492	531	627	565
13-18 months	511	683	822	563	579	705	566
7-12 months	566	761	950	658	667	819	575
1-6 months	637	880	1133	823	786	972	610
Substance Use Disorder Services							
19-24 months	582	787	521	380	476	428	1247
13-18 months	588	815	568	436	502	465	1222
7-12 months	594	854	632	503	537	508	1199
1-6 months	610	878	727	594	608	574	1124

Source: Medi-Cal enrollment and claims data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.

Notes: Enrollee population includes 228,680 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment data and at least one target population. Enrollees may be reported in more than one target population by Pilots. SMI/SUD is serious mental illness and/or substance use disorder. Months before WPC enrollment.

Emergency Department Visits Prior to Enrollment

Exhibit 244: Emergency Department Followed by Discharge Visits per 1,000 Medi-Cal Member Months Among WPC Enrollees, Semi-Annually Prior to WPC Enrollment, by Target Population

	High Utilizers	Homeless	SMI/SUD	At Risk for Homelessness	Chronic Conditions	Justice-Involved	COVID-19
Overall ED							
19-24 months	164	203	215	181	207	179	151
13-18 months	175	215	229	189	222	188	163
7-12 months	201	229	254	204	241	202	170
1-6 months	221	258	281	231	266	213	183
ED with Any SUD Diagnosis							
19-24 months	23	36	39	34	35	34	24
13-18 months	29	44	47	38	43	39	33
7-12 months	35	51	56	42	49	44	39
1-6 months	41	60	65	49	57	48	46
ED with Any Mental Health Diagnosis							
19-24 months	36	57	61	52	52	53	35
13-18 months	44	67	73	58	63	60	46
7-12 months	53	77	86	65	72	69	53
1-6 months	62	91	101	78	85	75	62
ED with Diabetes Diagnosis							
19-24 months	8	9	10	9	12	7	6
13-18 months	8	10	11	9	14	7	7
7-12 months	10	11	13	10	15	8	7
1-6 months	11	12	14	12	16	9	7
ED with Hypertension Diagnosis							
19-24 months	11	13	14	12	15	10	9
13-18 months	12	15	15	13	17	11	10
7-12 months	14	16	17	14	19	12	11
1-6 months	15	18	19	16	21	13	11

Source: Medi-Cal enrollment and claims data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.
Notes: Enrollee population includes 228,680 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment data and at least one target population. Enrollees may be reported in more than one target population by Pilots. SMI/SUD is serious mental illness and/or substance use disorder. Months before WPC enrollment.

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Hospitalization Prior to Enrollment

Exhibit 245: Number of Hospitalizations per 1,000 Medi-Cal Months Among WPC Enrollees, Semi-Annually Prior to WPC Enrollment, by Target Population

	High Utilizers	Homeless	SMI/SUD	At Risk for Homelessness	Chronic Conditions	Justice-Involved	COVID-19
Overall Hospitalizations							
19-24 months	30	41	47	35	46	37	24
13-18 months	32	45	51	40	53	38	26
7-12 months	39	52	60	48	61	43	29
1-6 months	48	66	75	63	75	52	33
Hospitalization with Any SUD Diagnosis							
19-24 months	3	5	6	5	5	5	2
13-18 months	4	7	8	6	7	6	4
7-12 months	5	8	9	7	7	7	4
1-6 months	6	10	12	10	10	7	5
Hospitalization with Any Mental Health Diagnosis							
19-24 months	9	15	19	13	14	17	6
13-18 months	10	18	22	15	16	18	6
7-12 months	11	20	26	18	19	20	7
1-6 months	14	25	33	24	24	24	8
Hospitalization with Diabetes Diagnosis							
19-24 months	2	2	3	2	3	2	1
13-18 months	2	3	3	3	4	2	2
7-12 months	3	3	4	3	5	2	2
1-6 months	3	4	4	4	5	2	2
Hospitalization with Hypertension Diagnosis							
19-24 months	2	2	3	2	3	2	1
13-18 months	2	3	3	2	3	2	2
7-12 months	3	4	4	3	5	3	2
1-6 months	4	5	6	5	7	4	3

Source: Medi-Cal enrollment and claims data from January 2015 to December 2021 and *Whole Person Care Quarterly Enrollment and Utilization Reports*, January 2017-December 2021.

Notes: Enrollee population includes 228,680 enrollees who were enrolled during PY 2 through PY 6 and had Medi-Cal enrollment data and at least one target population. Enrollees may be reported in more than one target population by Pilots. SMI/SUD is serious mental illness and/or substance use disorder. Months before WPC enrollment.

Appendix T: Comprehensive Community Support Offerings by County

Exhibit 246: Participation of WPC Pilots in Community Supports by County

WPC Participating County	Community Supports Offered through WPC						New Community Supports Services (not offered through WPC)							
	Environmental Accessibility Adaptations	Housing Deposits	Housing Tenancy and Sustaining Services	Housing Transition/Navigation Services	Recuperative Care/Medical Respite	Sobering Centers	Asthma Remediation	Caregiver Respite Services	Community Transition Services	Day Habilitation Programs	Medically Supportive Meals	Nursing Facility Transition	Personal Care and Homemaker Services	Short-term Post-hospitalization Housing
Alameda	✓*	✓*	✓*	✓*	✓*	+	✓							
Contra Costa	+	+	✓*	+	✓		✓				✓			✓
Kern	+	✓*	✓*	✓*	✓*									
Kings	+	✓*	✓	✓*	✓	✓*								
Los Angeles	+	✓*	✓*	✓*	✓*	✓*	✓	✓					✓	✓
Marin	+	+	✓*	✓*	+									
Mendocino	+	+	+	+	+	+								
Monterey		✓*	✓*	✓		✓*								
Napa		✓		✓	✓									
Orange	+	✓*	✓*	✓	✓*									✓
Placer	✓*	✓*	✓*	✓*	✓*	✓	✓			✓	✓			✓
Riverside	+	✓*	✓*	✓*	✓	✓*								✓
Sacramento	✓*	✓*	✓*	✓	✓*	✓	✓	✓		✓	✓			✓

WPC Participating County	Community Supports Offered through WPC						New Community Supports Services (not offered through WPC)							
	Environmental Accessibility Adaptations	Housing Deposits	Housing Tenancy and Sustaining Services	Housing Transition/Navigation Services	Recuperative Care/Medical Respite	Sobering Centers	Asthma Remediation	Caregiver Respite Services	Community Transition Services	Day Habilitation Programs	Medically Supportive Meals	Nursing Facility Transition	Personal Care and Homemaker Services	Short-term Post-hospitalization Housing
San Bernardino		✓	✓	✓*	+	+								
San Diego	✓*	✓	✓*	✓*	✓*		✓	✓	✓	✓		✓		✓
San Francisco	+	+	+	+	✓*	+				✓				
San Joaquin	+	✓*	✓	✓*	✓*	✓*					✓			✓
San Mateo	✓*	✓*	✓*	✓*		+			✓			✓		
Santa Clara	+	✓*	✓*	✓	✓*	+	✓		✓	✓	✓	✓	✓	
Santa Cruz		✓*	✓*	✓*	✓*									✓
Shasta	+	✓*	✓*	✓	✓	+								✓
Sonoma		✓	✓*	✓	✓	+		✓			✓			✓
Ventura	+	✓*	✓*	✓*	✓*						✓			
Number Offering CS Service	5	19	20	20	18	7	7	3	3	5	7	3	2	11
Percent Offering Service Through CS Who Offered Through WPC	100%	79%	85%	65%	67%	71%	-	-	-	-	-	-	-	-

Source: Cal-AIM Transition Spreadsheets by Medi-Cal Managed Care Plan, Submitted to California Department of Healthcare Services, May 2022.

Notes: ✓ indicates service under ECM. * Indicates also a service under WPC. + indicates only a service under WPC.

As defined in DHCS Community Support Policy Guide, Environmental Accessibility Adaptations (e.g., Home Modifications) are physical adaptations to a home that are necessary to ensure the health, welfare, and safety of the individual, or enable the individual to function with greater independence in the home.

Housing Deposits assist with identifying, coordinating, securing, or funding one-time services and modifications necessary to enable a person to establish a basic household that do not constitute room and board. Housing Tenancy and Sustaining Services ensure maintaining safe and stable tenancy once housing is secured. Recuperative Care/Medical Respite is short-term residential care for individuals who no longer require hospitalization, but still need to heal from an injury or illness (including behavioral health conditions) and whose condition would be exacerbated by an unstable living environment. Sobering Centers are alternative destinations for individuals who are found to be publicly intoxicated (due to alcohol and/or other drugs) and would otherwise be transported to the emergency department or jail.

Appendix U: Pilot Specific Case Studies

The views expressed in this report are those of the authors and do not necessarily represent the UCLA Center for Health Policy Research, the Regents of the University of California, or collaborating organizations or funders.

The UCLA Center
for Health Policy Research
is affiliated with the
UCLA Fielding School of Public Health
and the UCLA School of Public Affairs.

Phone: 310-794-0909
Fax: 310-794-2686
Email: chpr@ucla.edu
www.healthpolicy.ucla.edu

UCLA Center for Health Policy Research | 10960 Wilshire Blvd. | Suite 1550 | Los Angeles, CA 90024 | t: 310.794.0909 | f: 310.794.2686 | healthpolicy@ucla.edu

www.healthpolicy.ucla.edu