DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop S2-25-26
Baltimore, Maryland 21244-1850

State Demonstrations Group

February 27, 2024

Jennifer Strohecker
Director
Utah Division of Medicaid and Health Financing
Department of Health
PO Box 143101
Salt Lake City, UT 84101

Dear Director Strohecker:

The Centers for Medicare & Medicaid Services (CMS) completed its review of the Evaluation Design, which is required by the Special Terms and Conditions (STCs), specifically, STC #17, of the section 1115 demonstration, "Utah Medicaid Reform 1115 Demonstration" (Project Nos: 11-W-00145/8 and 21-W00054/8), effective through June 30, 2027. CMS has determined that the Evaluation Design, which was initially submitted on March 14, 2023 and revised on February 5, 2024, meets the requirements set forth in the STCs and our evaluation design guidance, and therefore approves the state's Evaluation Design.

CMS has added the approved Evaluation Design to the demonstration's STCs as Attachment I. A copy of the STCs, which includes the new attachment, is enclosed with this letter. In accordance with 42 CFR 431.424, the approved Evaluation Design may now be posted to the state's Medicaid website within 30 days. CMS will also post the approved Evaluation Design as a standalone document, separate from the STCs, on Medicaid.gov.

Please note that an Interim Evaluation Report, consistent with the approved Evaluation Design, is due to CMS one year prior to the expiration of the demonstration, or at the time of the extension application, if the state chooses to extend the demonstration. Likewise, a Summative Evaluation Report, consistent with this approved design, is due to CMS within 18 months of the end of the demonstration period. In accordance with 42 CFR 431.428 and the STCs, we look forward to receiving updates on evaluation activities in the demonstration monitoring reports.

We appreciate our continued partnership with Utah on the Utah Medicaid Reform 1115 Demonstration. If you have any questions, please contact your CMS demonstration team.

Sincerely,

Danielle Daly -S

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Date: 2024.02.27 09:57:03 -05'00'

Danielle Daly
Director
Division of Demonstration Monitoring and Evaluation

cc: Tyler Deines, State Monitoring Lead, CMS Medicaid and CHIP Operations Group

Utah Medicaid Reform 1115 Demonstration: Evaluation Design Document

Report prepared by the Public Consulting Group

Draft EDD Submittal Date: March 15, 2023

Final EDD Submittal Date: July 31, 2023

Revised Final EDD Submittal Date: December 20, 2023

Second Revised Final EDD Submittal Date: February 9, 2024

Project Nos. 11-W-00145/8 and 21-W-00054/8

PUBLIC CONSULTING GROUP

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A. General Background Information

1. Demonstration Name and Timing

On June 30, 2022, the Centers for Medicare & Medicaid Services (CMS) approved a five-year extension of Utah's section 1115 waiver, formerly known as the "Primary Care Network (PCN) Demonstration". The PCN Demonstration existed in the state for two decades and provided medical programs and benefits that were not otherwise allowable under federal rules.

The current extension is entitled "Medicaid Reform 1115 Demonstration (MRD)" and is approved for the five-year period from July 1, 2022, through June 30, 2027. Through the MRD, CMS has granted the state expenditure authorities to expand service offerings for vulnerable populations, move some members into integrated managed care plans, and to provide coverage to populations not otherwise eligible for Medicaid. The Utah Department of Health and Human Services (DHHS), Division of Integrated Healthcare (DIH) administers the Utah Medicaid program and is responsible for the implementation of adult Medicaid expansion.

2. Demonstration Goals

The Medicaid Reform 1115 Demonstration (hereafter, "the Demonstration" or "the 1115 Demonstration") expands coverage for populations not traditionally eligible for Medicaid through direct coverage or premium subsidies. By providing access to preventive care and enhanced services to vulnerable populations, the Demonstration aims to improve health outcomes and to reduce cost of care.

DHHS outlined the following goals in their Demonstration application:

1. Provide health care coverage for low-income Utahns eligible under the Demonstration who would not otherwise have access to, or be able to afford, health care coverage;
2. Improve beneficiary health outcomes and quality of life;
3. Lower the uninsured rate of low income Utahns;
4. Provide continuity of coverage for individuals eligible under the Demonstration;
5. Increase access to primary care;
6. Reduce uncompensated care provided by Utah hospitals;
7. Reduce barriers to health care and housing, an important social determinant of health;
8. Increase the utilization of preventive dental services, while reducing emergency dental procedure costs;
9. Improve access to services across the continuum of care;
10. Provide for better care coordination for individuals transitioning to community-based care;
11. Reduce the utilization of emergency departments and inpatient hospital settings for treatment where utilization is preventable or medically inappropriate; and
12. Reduce the overdose death rate.

With the addition of the Substance Use Disorder (SUD) and Serious Mental Illness (SMI) Institution for Mental Diseases (IMD) amendment approvals, the state has expanded its objectives to include the following for individuals with SUD and/or SMI:

1. Improve access to services across the continuum of care;
2. Provide for better care coordination for individuals transitioning to community-based care;
3. Reduce the utilization of emergency departments and inpatient hospital settings for treatment, where utilization is preventable or medically inappropriate;
4. Reduce the overdose death rate; and
5. Improve access to care for physical health conditions for these individuals.

3. DESCRIPTION

Utah's 1115 Demonstration was first implemented in 2002 and has transformed over the last twenty years through extensions and amendments that have added new authorities and Demonstration populations.

The original PCN Demonstration focused on providing a limited package of preventive and primary care benefits (the PCN benefit) to adults ages 19-64 with household incomes up to 150 percent of the Federal Poverty Level (FPL) and a slightly reduced benefit package to Parent/Caretaker Relatives (PCR) who comprised the Current Eligibles population. With Medicaid expansion in April 2019, PCN program participants became eligible for full state plan benefits, and the PCN benefit has been phased out. The Current Eligible population will phase out in this Demonstration period (by December 31, 2023), eliminating disparities in benefit packages by parental status, and most relics of the original waiver.

The 1115 Demonstration has historically served as a vehicle to provide premium assistance to adults with household incomes above Medicaid eligibility requirements. In 2006, the Utah Department of Health (and Human Services DHHS) amended the 1115 Demonstration to establish the Health Insurance Flexibility and Accountability Employer Sponsored Insurance (HIFA-ESI) program, which provides premium assistance to adults with household incomes up to and including 150 percent of the FPL and CHIP-eligible children with family incomes up to 200 percent of the FPL. This was later amended to include adults with incomes up to 200 percent of the FPL and programmatically eligible adults and children obtaining coverage through COBRA[1]. Under the current 1115 Demonstration, premium assistance helps pay the individual's or family's share of monthly premium costs of ESI or COBRA and is aggregated under Utah's Premium Partnership for Health Insurance Program (UPP). Individuals in the Adult Expansion population with access to employer-sponsored insurance are required to enroll, with few exceptions. The state also increased the maximum assistance reimbursement amount in July 2021 making this program more substantial and potentially increasing the number of individuals covered by UPP.

In recent years, Utah's Demonstration has emphasized improving the behavioral health (BH) continuum of care. In November 2017, during the previous waiver period, the state received approval to provide Demonstration coverage to the Targeted Adult Medicaid (TAM) population. The TAM population consists of vulnerable adults ages 19-64, whose incomes are at or below 5 percent of the FPL, and who meet the detailed eligibility criteria within one of three targeted categories: chronically homeless, involved in the justice system and in need of BH treatment, or simply are in need of BH treatment. As of June 2022, enrollment in TAM was 9,384 individuals.

In March 2022, CMS approved the Housing Related Services and Supports (HRSS) amendment, allowing Utah to provide housing support services, such as tenancy supports, community transition services, and supportive living services to TAM individuals who meet additional eligibility criteria and exhibit one of seven risk factors. The HRSS are paid on a fee-for-service basis. Providers are required to enroll and are evaluated to ensure they meet HRSS qualifications which includes being a certified case management provider. Once care plans have been approved, providers can submit claims for HRSS and receive reimbursement. The HRSS amendment is the most recently approved amendment to Utah's 1115 Demonstration. As the program ramps up in the current waiver period, the state anticipates that HRSS will serve approximately 5000 individuals each year. By addressing crucial health related social needs in a high-needs population, the state hopes that the HRSS program will improve participant health outcomes or quality of life and reduce non-housing related Medicaid costs.

The 1115 Demonstration also includes components that focus on individuals with SUD and/or SMI, and youth with significant emotional disorder (SED) and/or behavioral challenges. Utah received approval of the SUD Implementation plan in November 2017. The Opioid Use Disorder (OUD) and SUD Program provides state plan behavioral health benefits to Demonstration participants. The state also received

[1] Consolidated Omnibus Reconciliation Act of 1986

authority to provide residential and inpatient OUD/SUD treatment services to all Medicaid beneficiaries while they are short term residents in treatment settings that qualify as IMDs.

The SMI/SED Implementation plan was approved in December 2020, and is similar in expenditure authority to the OUD/SUD program. The state is taking action to meet key milestones of the SMI/SED program including, ensuring quality of care in psychiatric hospitals and residential settings, improving care coordination and transitions to community-based care, increasing access to the continuum of care including crisis stabilization services, and earlier identification and engagement in treatment and increased integration. Together, the SUD and SMI components expand access to mental health services, opioid use disorder (OUD) and other substance use disorder (SUD) services. The 1115 Demonstration supports state efforts to enhance provider capacity, improve the availability of Medication Assisted Treatment (MAT) and improve access to a continuum of SMI evidence-based services at varied levels of intensity, including crisis stabilization services.

In February 2019, Utah received CMS approval to provide state plan Medicaid coverage to Former Foster Care Youth from another state (FFCYAS) who were ever enrolled in Medicaid in another state and are not otherwise Medicaid eligible in Utah. State plan coverage is provided to this population until 26 years of age.

In November 2019, Utah received CMS approval for the provision of intensive stabilization services (ISS) to Medicaid eligible children and youth under age 21 in state custody or at risk of being placed in state custody who are experiencing significant emotional and/or behavioral challenges. The ISS program provides both state plan BH services and home and community-based services (HCBS) that are not currently authorized through the state plan.

Other benefits under the current 1115 Demonstration include dental coverage for vulnerable populations and premium assistance for individuals with access to employer-sponsored insurance. The PCN Demonstration first provided an adult dental benefit to the Current Eligibles population in November 2006. CMS approved dental benefits for adults with disabilities or blindness in 2017. In 2019, the state chose to provide comprehensive dental benefits to TAM adults receiving SUD treatment because research showed that dental coverage could increase initiation and engagement in treatment for individuals living with SUD. Finally, in 2020 dental benefits were extended to Medicaid eligible individuals aged 65 and older and to TAM adults in need of porcelain or porcelain-to-metal crowns.

Larger populations covered in the current 1115 Demonstration period are the Adult Expansion (AE) population, consisting of adults 19-64 with incomes up to 133 percent of the FPL, and the AE members enrolled in integrated care plans authorized under the Utah Medicaid Integrated Care (UMIC) amendment. The UMIC members are a sub-group of the AE population. These, and the smaller Demonstration populations listed in Table 1, are the subject of the current evaluation. The independent evaluator (IE) will include research questions and hypotheses and measures for each of these populations in this design.

4. Populations

Table 1 provides a summary of the populations covered during the Demonstration period subject to the current evaluation. The Demonstration also authorized the Clinically Managed Residential Withdrawal Pilot from May 1, 2019, to April 1, 2021; this benefit became available statewide as of April 1, 2021 to all eligible Medicaid members. As a result, the State received approval on July 23, 2021, to remove this pilot project from the 1115 Demonstration and CMS is not requiring the State to evaluate this population. Additionally, the Current Eligibles population will phase out entirely by the end of 2023 and thus is not a focus of the current evaluation.

Table 1: Summary of Demonstration Populations Under Evaluation

Demonstration Population	Eligibility[2]	Benefits[2]	Estimated Number of Annual Enrollees[3]
Adult Expansion (AE)	Adults, age 19 through 64, who are not Current Eligibles, who are U.S. citizens/qualified non-citizens, are residents of Utah, and have household income at or below 133 percent of the FPL.	Expansion adults will receive state plan benefits. Expansion adults also receive benefits that are the equivalent of (b)(3) services under the state's 1915(b) PMHP waiver, which include; psychoeducational services, personal services, respite care and supportive living services (mental health services in residential treatment settings).	115,584
Utah Medicaid Integrated Care (UMIC- subset of Adult Expansion Population)	Adult Expansion members enrolled in the Utah Medicaid Integrated Care program, which operates in Utah's most populous counties: Davis, Salt Lake, Utah, Washington, and Weber.	Expansion adults will receive state plan benefits and benefits that are the equivalent of (b)(3) services under the state's 1915(b) PMHP waiver, which include; psychoeducational services, personal services, respite care and supportive living services.	82,110
Utah Premium Partnership Program (UPP)	**Demonstration Population III**- includes working adults, age 19 through 64, their spouses, and their children who are ages 19 through 26, with countable gross family incomes up to and including 200 percent of the FPL and participate in Utah's Premium Partnership for Health Insurance (UPP). **Demonstration Population V-** includes adults aged 19 through 64 with countable gross family income up to and including 200 percent of FPL, and the individual or custodial parent/caretaker is able to enroll in COBRA continuation coverage. **Current Eligible CHIP Children-** includes children up to age 19 with family income up to and including 200	Individuals in this eligibility category are eligible to receive premium assistance (through ESI or COBRA) in paying the employee's, individual's, or family's share of the monthly premium cost of qualifying insurance plans.	1,288

[2] Utah 1115 Waiver Renewal.pdf

[3] The annual estimates reflect the enrollment numbers reported in the Annual Monitoring Report for the period July 2021 – June 2022 for populations that are continuing from the prior waiver period. Estimates for TAM HRSS, a new population, are taken from the approved Waiver renewal.

Demonstration Population	Eligibility[2]	Benefits[2]	Estimated Number of Annual Enrollees[3]
	percent of the FPL who would meet the definition of a targeted low-income child. These children are eligible for the CHIP, but the children's parents have elected to receive premium assistance for the employee's share of the cost of ESI instead of receiving CHIP direct coverage. **Demonstration Population VI**-includes children up to age 19 with family income up to 200 percent of the FPL who would meet the definition of a low-income child.		
Targeted Adult Medicaid (TAM)	Includes adults, ages 19 through 64, with incomes below five percent of the FPL and no dependent children, who meet detailed criteria in one of three major categories: ● Chronic homelessness ● Involved in the criminal justice system and in need of BH treatment. ● In need of BH treatment	Individuals enrolled in this eligibility category receive full Medicaid state plan benefits.	9,384
TAM members receiving Housing Related Services and Supports (HRSS)	TAM members meeting at least one of the following risk factors: ● Living or residing in a place not meant for human habitation, a safe haven, or in an emergency shelter continuously; ● Currently living in supportive housing, but has previously met the definition of chronically homeless; ● Successfully completed a substance use disorder treatment program while incarcerated; ● Admitted to (and discharged from) the Utah State Hospital due to an alleged criminal offense;	Individuals enrolled in TAM who meet HRSS eligibility criteria receive full Medicaid state plan benefits, plus tenancy support services, community transition services, and supportive living services.	5,000

Demonstration Population	Eligibility[2]	Benefits[2]	Estimated Number of Annual Enrollees[3]
	● Involved in drug court or mental health court, including tribal court; ● Receives general assistance from the Utah Department of Workforce Services and has a substance use or mental health disorder diagnosis; or ● Civilly committed to (and discharged from) the State Hospital. eligibility criteria:		
Aged, Blind, Disabled Dental (ABD Dental)	**Dental Benefits for Aged Individuals**- includes individuals who are age 65 and older, and are eligible for Medicaid, who are eligible to enroll in the state plan under Section 1902(a)(10)(C) of the Act and 42 CFR 435.320 and 435.330. They receive dental benefits that are defined in the Utah Medicaid Provider Manual, Dental Services, and if needed, porcelain or porcelain-to-metal crowns. **Dental Benefits for Individuals with Blindness or Disabilities**- includes individuals who are blind or disabled, 18 and older, who are enrolled in the state plan under Section 1902(a)(10)(C) of the Act and 42 CFR 435.322, 435.324 and 435.330. They receive dental benefits that are defined in the Utah Medicaid Provider Manual, Dental Services, and if needed, porcelain or porcelain-to-metal crowns.	Individuals that are enrolled in this eligibility category will receive state plan dental benefits that are defined in the Utah Medicaid Provider Manual, Dental Services, and if needed, porcelain or porcelain-to-metal crowns.	Blind/ Disabled Dental 45,306 Aged Dental 398
TAM Dental	Individuals who are eligible for the Targeted Adult Medicaid program and are receiving SUD treatment, to receive state plan dental benefits, as well as porcelain or porcelain-to metal crowns.	Individuals enrolled in TAM who are receiving SUD treatment will receive state plan dental benefits that are defined in the Utah Medicaid Provider Manual, Dental Services, and if needed, porcelain or porcelain-to-metal crowns.	262

Demonstration Population	Eligibility[2]	Benefits[2]	Estimated Number of Annual Enrollees[3]
Serious Mental Illness (SMI) IMD	Medicaid recipients, age 21 through 64 receiving SMI services in IMD treatment settings.	Individuals will receive state plan services, including mental health treatment services provided in residential and inpatient treatment settings that qualify as an IMD.	8
Substance Use Disorder (SUD) IMD	Medicaid recipients, receiving OUD/SUD treatment services provided in a residential or IMD treatment setting.	Individuals will receive state plan services, including SUD treatment services provided in residential treatment settings that qualify as an IMD.	767
Intensive Stabilizations Services (ISS)	Medicaid eligible children and youth under age 21, who are in state custody, or at risk of state custody, and experiencing significant emotional and/or behavioral challenges.	Individuals eligible for this category will receive state plan and home community-based services.	Anticipate 20
Former Foster Care Youth from Another State (FFCYAS)	Individuals under age 26, who were in foster care under the responsibility of a state other than Utah, or a tribe in such other state when they turned 18 (or such higher age as the state has elected for termination of federal foster care assistance under title IV-E of the Act), were ever enrolled in Medicaid, are now applying for Medicaid in Utah, and are not otherwise eligible for Medicaid.	Individuals will receive state plan services.	17

5. CONTEXT

This Demonstration occurs in the years following the implementation of Medicaid Expansion, as Utah Medicaid continues its progression to managed care, and continues efforts to strengthen and integrate the behavioral health care continuum. In December 2019, Utah received authority to move a subset of their plans into integrated care models. The Utah Medicaid Integrated Care (UMIC) plan amendment enrolled beneficiaries in four new Integrated Managed Care Plans that manage both physical and behavioral health benefits for the Adult Expansion population. Prior to this time, Utah had separate physical health and behavioral health plans only. The intent is for the UMIC plans to provide more holistic care to the beneficiaries. Since these plans are new to Utah, outcome data is still being gathered. The Utah 1115 Waiver Demonstration Summative Report covering the previous waiver period is expected to investigate differences in quality metrics between ACO managed care plans and UMIC plans and will detail promising practices of the new integrated plans identified through qualitative interviews.

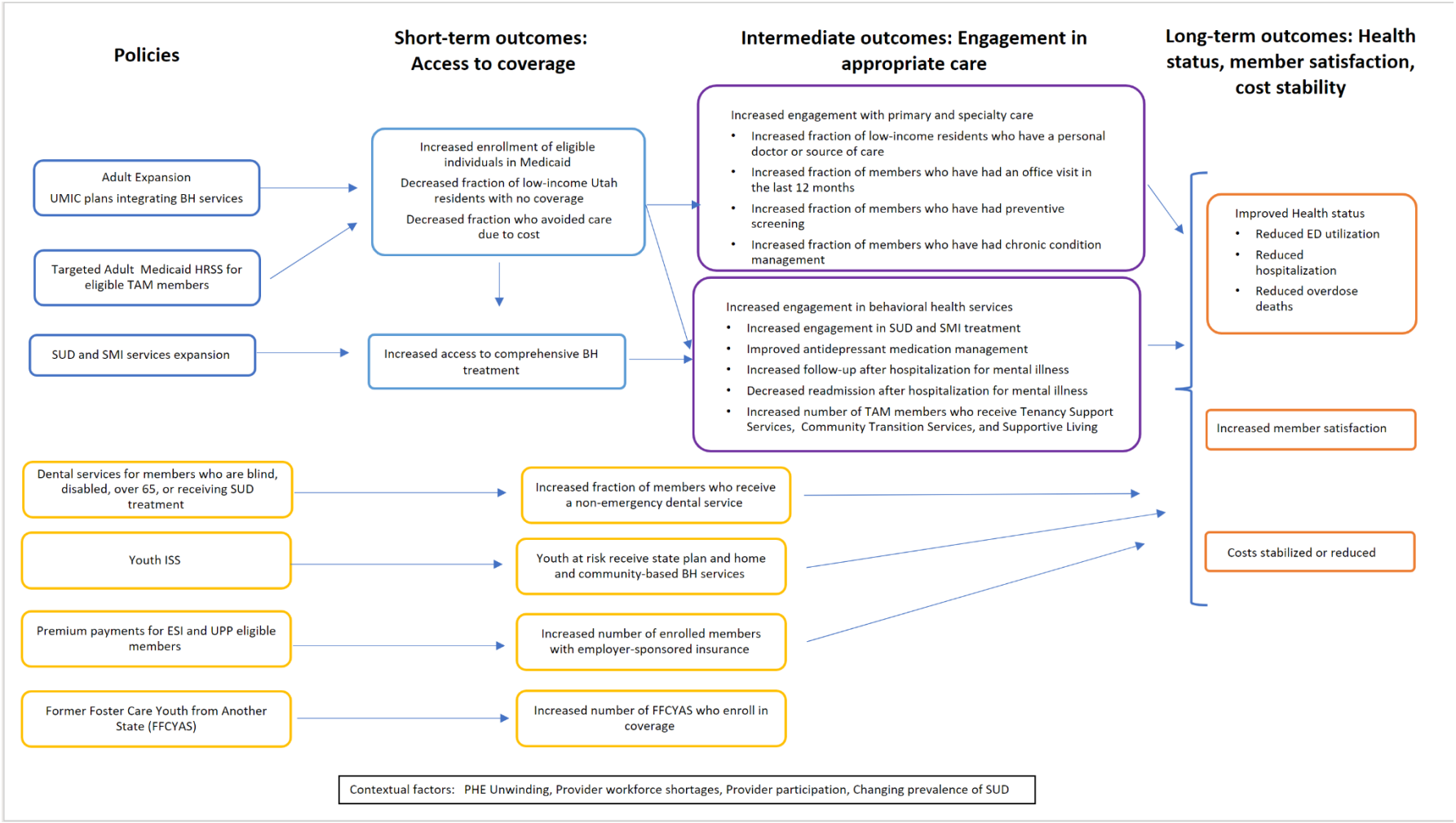
The Utah Medicaid 1115 Demonstration also coincides with the unwinding of the Medicaid Continuous Enrollment requirement associated with the Covid-19 pandemic beginning in 2020. Enrollment in Medicaid has remained high as states have been required to keep current Medicaid beneficiaries enrolled. The unwinding of continuous eligibility for Medicaid is set to begin on March 1, 2023.[4] Under Utah's unwinding plan[5], every member's case is slated for a full review, with cases spread over a 12-month period. Cases most likely to change programs or coverage are prioritized for review, and those most likely to remain Medicaid eligible deferred to later in the year. DHHS has begun communicating with providers and beneficiaries about the redetermination process. Members are urged to update their contact information and check the unwinding website[6] to learn their anticipated review date. Redetermination will likely affect enrollment numbers in the Demonstration, as some individuals move from one eligibility category to another, and individuals above income limits are transitioned off Medicaid coverage. This evaluation design includes qualitative interviews and process metrics on implementation as it will be a moderating factor that may affect Demonstration outcome.

[4] 10 Things to Know About the Unwinding of the Medicaid Continuous Enrollment Provision | KFF
[5] https://medicaid.utah.gov/unwinding/
[6] https://jobs.utah.gov/mycase/

B. Evaluation Questions and Hypotheses

1. Logic Model

Figure 1: Medicaid Reform Demonstration Overall Logic Model



2. Hypotheses and Research Questions

The logic model above illustrates how the Demonstration objectives are expected to be achieved by program activities, following a natural progression from proximate to distal outcomes as the Demonstration goes on. Each outcome is represented by a testable hypothesis, listed below, about the impact of the Demonstration activities, and a corresponding research question. Tables 9-16 specify the measures that will be used to assess each hypothesis.

The hypotheses are organized by population, and the evaluator was focused on the broad themes of increasing health care coverage, improving health outcomes and quality of life, increasing access to primary care, reducing utilization of ED visits and inpatient utilization, and reducing the cost of uncompensated care.

The first objective of the 1115 Demonstration, providing health care coverage for low-income Utahns eligible under the Demonstration who would not otherwise have access to healthcare coverage, is achieved through enrollment in a number of the Demonstration populations, including the Adult Expansion, TAM, UPP, and ISS. Individuals in these populations would not otherwise be eligible for Medicaid without the presence of the Demonstration in Utah.[7] The first hypothesis is thus focused on the impact of the 1115 Demonstration overall on the population of low-income UT residents. A larger fraction of low-income UT residents are expected to report having access to coverage and will demonstrate engagement in healthcare through national survey data, relative to reported access and engagement in other states. Similarly, the cost of uncompensated care is expected to go down relative to comparison states, as more low-income individuals in the state gain access to Medicaid. Engagement in care is expected to improve member satisfaction and lead to reductions in inappropriate care utilizations, measured as Low Value Care.

The second hypothesis is similar to the first hypothesis, but it focuses on the Adult Expansion population, specifically. The second hypothesis is that the Demonstration will improve healthcare access and engagement for the Adult Expansion population. The state hypothesizes that providing coverage to members covered under Medicaid expansion will cause members to engage in acute care, which will subsequently lead to a reduction in inpatient care and ED utilization. The Utah Medicaid Integrated (UMIC) population, which is a subpopulation of the Adult Expansion population, enrolls members in Utah's five-most populous counties in integrated care plans that integrate care for both their physical and behavioral health needs. Thus, the UMIC research questions are specific to the outcomes produced when members gain access to behavioral health care that is managed by managed care plans. It is anticipated that UMIC will reduce ED utilization and improve engagement in BH services among UMIC members.

The third hypothesis focuses on the TAM population. TAM members are eligible for Medicaid under the Demonstration, and thus the state hypothesizes that the Demonstration will continue to improve healthcare access and engagement for this population.

The fourth hypothesis addresses the HRSS program, which is a recent addition to the Medicaid Reform 1115 Demonstration. It is anticipated that the HRSS program will reduce severity of social needs and prevalence of risk factors, increase continuity of BH treatment and improve health outcomes for eligible members. Research questions include whether the services provided under the HRSS program are being received, care manager perspectives on incorporating this new benefit, whether there is unmet need, and whether HRSS improves perceived health status. Other research questions about the HRSS program focus on how HRSS affects engagement in acute care, reducing ED utilization, and whether it has an impact on the cost of care for eligible members.

The fifth and sixth hypotheses speak to BH services provided to Demonstration participants and Medicaid beneficiaries with SMI and SUD treated in Institutions of Mental Disease (IMD). The state anticipates that

[7] Individuals in the Current Eligibles population received expanded benefits through the waiver, although they would have received coverage regardless of the presence of the waiver.

BH coverage for residential and inpatient services provided to members in IMDs will lead to a reduction in inpatient stays, ED utilization, and rate of unplanned readmission among recipients, resulting in cost decrease or stabilization. The state also anticipates this will lessen unmet need and increase engagement in treatment to reduce overdose deaths in the long-term. The IE will monitor the impact of the state's efforts to increase access to crisis stabilization services. Greater utilization of non-hospital, non-residential services should lead to greater reductions in inpatient stays, ED utilization, and overdose deaths in the long-term.

Finally, the seventh hypothesis addresses smaller Demonstration populations, which include UPP/ESI, ISS, Blind and Disabled Dental, Aged Dental, TAM Dental, and FFCYAS. The state anticipates that utilization for the services provided to these populations will increase and total cost of care will decrease, as these members engage in acute and preventive care. Although the number of Adult Expansion members enrolled in Employer Sponsored Insurance will grow due to the new provision present in this waiver requiring enrollment in ESI for all Adult Expansion members who have access to insurance through their employers, the number of members enrolled in ESI is not projected to exceed 1,385 members during this Demonstration period. As a result, the ESI population by itself is unlikely to lead to reductions in uncompensated care and inappropriate care utilization. In addition, the number of individuals in the FFCYAS population, and the number receiving ISS, were both very small in the prior Demonstration period. Therefore, the evaluation will include counts and a qualitative summary of program implementation.

1. Hypothesis 1: The Demonstration overall will improve access to coverage and engagement in health care for low-income UT residents.

    - Primary research question 1.1: Did the fraction of low-income residents with no coverage decrease, relative to comparison states?
    - Primary research question 1.2: Did the cost of uncompensated care decrease relative to comparison states?
    - Primary research question 1.3: Did the fraction of low-income residents who avoided care due to cost decrease, relative to comparison states?
    - Primary research question 1.4: Did the fraction of low-income residents who have a personal doctor or usual source of care increase, relative to comparison states?
    - Primary research question 1.5: Did the fraction of low-income residents who had a primary or specialty care appointment in the last year increase, relative to comparison states?
    - Primary research question 1.6: Did the fraction of low-income residents who had a preventive screening in the last year increase, relative to comparison states?
    - Primary research question 1.7: Did member satisfaction increase, relative to baseline?
    - Primary research question 1.8: Did Low Value Care decrease among Demonstration participants, relative to baseline?

2. Hypothesis 2: The Demonstration will improve healthcare access and engagement for the Adult Expansion population.

    - Primary research question 2.1: Did inpatient hospital utilization decrease, relative to baseline, for the Adult Expansion population?
    - Primary research question 2.2: Did ED visits decrease, relative to baseline, for the Adult Expansion population?
        - Subsidiary research question 2.2a: Did ED visits for BH conditions decrease, relative to baseline, for the Adult Expansion population?
        - Subsidiary research question 2.2.b: Did UMIC plans reduce ED visits for BH conditions for Adult Expansion population, relative to FFS or physical health-only ACO plans?

- Primary research question 2.3: Did engagement in primary and ambulatory care increase, relative to baseline, for the Adult Expansion population?
- Primary research question 2.4: Did engagement in behavioral health care increase, relative to baseline, for the Adult Expansion population?
    - Subsidiary research question 2.4.a: Did UMIC plans improve engagement in behavioral health care for the Adult Expansion population, relative to FFS or physical health-only ACO plans?
- Primary research question 2.5: Did engagement in treatment for chronic conditions increase, relative to baseline, for the Adult Expansion population?
- Primary research question 2.6: Did preventive cancer screening increase, relative to baseline, for the Adult Expansion population?

3. Hypothesis 3: The Demonstration will improve healthcare access and engagement for the TAM population.

    - Primary research question 3.1: Did inpatient hospital utilization decrease, relative to baseline, for the TAM population?
    - Primary research question 3.2: Did ED visits decrease, relative to baseline, for the TAM population?
        - Subsidiary research question 3.2.a: Did ED visits for BH conditions decrease, relative to baseline, for the TAM population?
    - Primary research question 3.3: Did engagement in primary and ambulatory care increase, relative to baseline, for the TAM population?
    - Primary research question 3.4: Did engagement in behavioral health care increase, relative to baseline, for the TAM population?

4. Hypothesis 4: The HRSS program for the TAM population will increase continuity of BH treatment and improve health outcomes for eligible members.

    - Primary research question 4.1: Did eligible individuals receive the intended HRSS services?
    - Primary research question 4.2: Did engagement in HRSS program mitigate participants' social needs in the measurement period?
    - Primary research question 4.3: Did ED visits decrease, relative to baseline, for HRSS recipients?
        - Subsidiary research question 4.3.a: Did ED visits for BH conditions decrease, relative to baseline, for HRSS recipients?
    - Primary research question 4.4: Did engagement in primary and ambulatory care increase, relative to baseline, for HRSS recipients?
    - Primary research question 4.5: Did engagement in behavioral health care increase, relative to baseline, for HRSS recipients?
    - Primary research question 4.6: Was the total cost of care, exclusive of HRSS, reduced for HRSS participants?
    - Primary research question 4.7: From participants' perspective, did the HRSS services meet their housing-related needs and support their engagement in behavioral health care?

5. Hypothesis 5: The SMI and SUD Demonstrations increased access to appropriate treatment.

    - Primary research question 5.1: Did the number of individuals receiving services for SMI and/or SUD increase, relative to baseline?
    - Primary research question 5.2: Did ED visits for BH conditions decrease among individuals with SMI and/or SUD diagnoses, relative to baseline?
    - Primary research question 5.3: Did inpatient days (outside of IMDs) decrease, relative to baseline, for individuals with SMI and/or SUD?
    - Primary research question 5.4: Did engagement in SUD treatment increase among individuals with SUD diagnoses relative to baseline?
    - Primary research question 5.5: Did unplanned readmission following hospitalization for psychiatric treatment decrease among individuals with SMI relative to baseline?
    - Primary research question 5.6: Did utilization of any mental health service increase among low-income residents, relative to comparison states?
    - Primary research question 5.7: Did the number of individuals needing but not receiving SUD treatment decrease among low-income residents, relative to comparison states?
    - Primary research question 5.8: Did the rate of overdose deaths decrease, relative to baseline?
    - Primary research question 5.10: Did the number of individuals receiving crisis stabilization services increase (with an emphasis on non-hospital, non-residential services[8]?

6. Hypothesis 6: The SMI and SUD Demonstrations stabilized or reduced cost of care for these populations.

    - Primary research question 6.1: Did the total cost of care for individuals with SMI diagnoses change, relative to baseline?
        - Subsidiary research question 6.1.a: Did costs related to the diagnosis and treatment of SMI change, relative to baseline? (SMI-IMD costs + other SMI costs + non-SMI costs)?
        - Subsidiary research question 6.1.b: What types of care (inpatient + non-ED outpatient, + ED outpatient + pharmacy, + long-term care) are the primary drivers of the cost of care for the SMI population?
    - Primary research question 6.2: Did the total cost of care for individuals with SUD diagnoses change, relative to baseline?
        - Subsidiary research question 6.2.a: Did costs related to the diagnosis and treatment of SUD change, relative to baseline? (SUD-IMD costs + other SUD costs + non-SUD costs)?
        - Subsidiary research question 6.2.b: What types of care (inpatient + non-ED outpatient, + ED outpatient + pharmacy, + long-term care) are the primary drivers of the cost of care for the SUD population?

7. Hypothesis 7: The Demonstration delivered coverage/ services appropriately to individuals in the smaller Demonstration populations.

    <u>UPP/ESI</u>

    - Primary research question 7.1: Did the number of individuals receiving coverage increase relative to baseline?
    - Primary research question 7.2: What was the average total Medicaid cost of care for enrollees?

[8] This includes services made available through crisis call centers, mobile crisis units, and coordinated community response services as defined in STC 12.4 SMI/SED Financing Plan.

- Primary research question 7.3: Did the pmpm cost for enrollees change over time?

ISS

- Primary research question 7.4: Did the number of individuals receiving ISS increase relative to baseline?

Aged, Blind and Disabled Dental (ABD), TAM Dental

- Primary research question 7.5: Did dental service provision increase relative to baseline?
- Primary research question 7.6: Did the rate of ED visits for dental conditions decrease relative to baseline?
- Primary research question 7.7: What was the average cost of dental services?

Former Foster Care Youth from Another State (FFCYAS)

- Primary research question 7.8: How many FFCYAS received coverage?

C. Methodology

1. Evaluation Approach

The Independent Evaluator (IE) will use a mixed-methods evaluation approach that will combine administrative and survey data as well as qualitative data to address the goals and hypotheses presented in the Demonstration application and answer all research questions listed above.

The evaluation will employ multiple comparison strategies, both in-state and out-of-state. For the adult expansion and TAM populations, and the SUD and SMI waiver populations, Interrupted Time Series (ITS) will be used to compare trends during the Demonstration period to baseline (regression analysis will be conducted if there are enough members in these groups to support it). To assess the impact of introduction of UMIC plans, regression analysis will compare members in three plan types – fee for service, physical health-only ACO, and UMIC.

Results will be stratified by demographic characteristics SMI/SUD status, and plan type, when sufficient numbers are available to permit comparisons. A summary of the characteristics of the Demonstration populations as of the end of the previous waiver period (June 30, 2022) is provided in Table 9 in the Subgroup Analyses section.

Comparisons to Medicaid beneficiaries in other states also provide valuable context. A difference-in-difference (DiD) comparison, and a synthetic control method (SCM), will be used to compare the impact of the Demonstration as a whole on the aggregate Medicaid population to Medicaid beneficiaries in other states. Out-of-state comparisons will address the research question “Did the Demonstration as a whole improve health care access and quality for the Medicaid beneficiary population?”

Member perspectives will be collected through a customized member survey, and through interviews of members receiving HRSS services. Where a survey provides a broader and more representative sample, individual interviews allow for in-depth understanding of member experiences. Additional qualitative data will be collected through key informant interviews with stakeholders. Together, these complementary methods will enable a comprehensive evaluation of the Demonstration.

2. Target and Comparison Populations

As summarized in Table 1, the Demonstration provides coverage and services for multiple populations. Out-of-state comparison using national survey data and other publicly available data sources will be used for investigating the impact of the Demonstration as a whole on the full Medicaid eligible population. For specific populations, the comparison will be to pre-Demonstration trends. For UMIC plans, the comparison will be to other plan types without integrated BH services. The Demonstration populations (the target groups) and the approach to comparisons are shown below in Table 2.

Table 2: Demonstration Populations and Comparisons

Demonstration (target) Population	Program Start	Baseline Years	Comparison[1]	Analytic Approach
Substance Use Disorder (SUD) IMD	November 1, 2017	November 1, 2017 - June 30, 2022	Pre-demonstration baseline	Trend over time, Interrupted Time Series
Targeted Adult Medicaid (TAM)	November 1, 2017	November 1, 2017 - June 30, 2022	Pre-demonstration baseline	Trend over time, Interrupted Time Series
Adult Expansion Population	July 1, 2018 (partial expansion, up to 100% of the FPL)	July 1, 2018- June 30, 2022	Pre-demonstration baseline	Trend over time, Interrupted Time Series
Utah Medicaid Integrated Care (UMIC- subset of the Adult Expansion Population)	January 1, 2020	N/A	Three plan types: FFS, ACO, UMIC	Multiple Linear Regression
Serious Mental Illness (SMI) IMD	December 1, 2020	December 1, 2020 - June 30, 2022	Pre-demonstration baseline	Trend over time, Interrupted Time Series

[1] The term "pre-demonstration baseline" refers to the time period before the start of the current Demonstration period; before July 1, 2022.

Several demonstration populations are too small to feasibly conduct a comparison to a baseline period. The analytic approaches for these demonstration populations are primarily trend over time and descriptive statistics due to low enrollment.

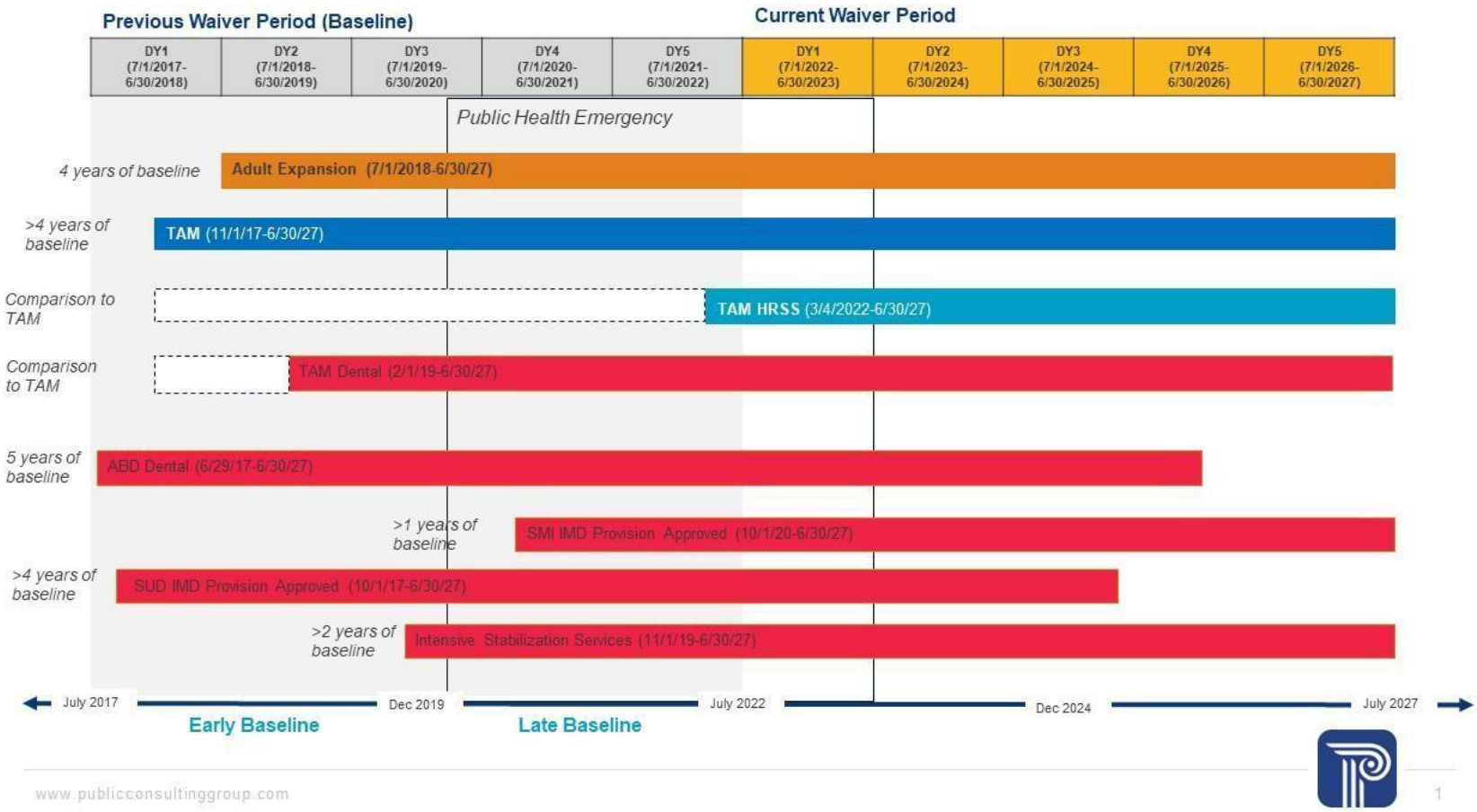
Table 3: Small Demonstration Populations

Demonstration (target) Population	Program Start	Analytic Approach
Utah Premium Partnership Program (UPP)	May 30, 2003	Trend over time, descriptive statistics
Aged, Blind, Disabled Dental (ABD Dental)	June 29, 2017	Trend over time, descriptive statistics
TAM Dental	February 1, 2019	Trend over time, descriptive statistics
Former Foster Care Youth from Another State (FFCYAS)	February 1, 2019	Counts (small population size)
Intensive Stabilizations Services (ISS)	November 1, 2019	Counts (small population size)
TAM members receiving Housing Related Services and Supports (HRSS)	March 4, 2022	Trend over time, descriptive statistics, qualitative interviews and analysis

3. Evaluation Period

This evaluation will cover the five-year Demonstration period from July 1, 2022, through June 30, 2027. The pre-Demonstration baseline will be the previous waiver period from July 1, 2017- June 30, 2022. The IE acknowledges that many policies authorized under this waiver are continuations of policies implemented in previous waiver periods. The goal of this evaluation is to quantify any gains realized in the current waiver period. As a result, the baseline period for each analysis will be specific to program start dates listed in Table 2. Please see Figure 2 below for more information. Sensitivity analysis will be conducted to determine whether excluding part of 2020 due to the Covid-19 PHE is appropriate.

FIGURE 2: PERFORMANCE PERIOD AND BASELINE BY POPULATION



4. Evaluation Measures

Evaluation hypotheses and corresponding measures are listed in Section F.4., Evaluation Tables.

5. Data Sources

The evaluation will use the following quantitative and qualitative data sources:

- National Surveys and Other Publicly Available Data Sources:
  - Behavioral Risk Factor Surveillance System (BRFSS)
  - National Survey of Drug Use and Health (NSDUH)
  - National Academy for State Health Policy's (NASHP) Hospital Cost Tool (HCT)
- Utah Specific Data Sources:
  - Medicaid Administrative Data
  - Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey
  - Custom member survey
  - Participant interviews with TAM members receiving HRSS
  - Key Informant Interviews (KIIs)

National Surveys and Other Publicly Available Data Sources

Measures employing national survey data and other publicly available data sources for an out-of-state comparison will use a three-year pre-Demonstration baseline.

BRFSS

The BRFSS is a large, high-quality federal survey that may be used to measure outcomes of interest for out-of-state comparison groups. Importantly, the BRFSS contains respondents' state identifiers and demographic variables needed for comparison purposes. The IE will use the BRFSS data to inform research questions related to coverage and access to care among low-income residents (Table 6).

The BRFSS insurance coverage question outcome does not allow determination of the source of coverage (e.g., Medicaid, Medicare, or private insurance) for years prior to 2022. In order to approximate which respondents are Medicaid eligible and who fall below 138 percent of the FPL, a continuous value for household income will be imputed using the midpoint of BRFSS income category. Using imputed income with household size allows the ability to link to annual thresholds for 138 percent FPL in each state. This method will be employed for the years prior to 2022 only.

The IE has also conducted power analysis for using the BRFSS. Our analyses will have high statistical power due to the large sample sizes involved. We estimated the minimum detectable effect sizes for each of our outcomes using Hu & Hoover's (2018) power equation for non-randomized longitudinal difference-in-difference studies:

$$MDES = \frac{T(1-\rho)\sigma}{bkn} \times \left(z_{1-\frac{\alpha}{2}} + z_{1-\beta}\right)^2$$

Where:

MDES = the minimum detectable effect size, defined as a percentage point change in outcome
T = the total number of time periods
b = the number of pre-intervention periods
k = the number of post-intervention periods
n = sample size
σ = standard deviation
ρ = serial correlation

$z_{1-\frac{\alpha}{2}}$ = The critical z-value for statistical significance

$z_{1-\beta}$ = desired statistical power

The final analysis will include 5 pre-intervention years and three post-intervention years. We used BRFSS data to identify serial correlations, standard deviations, and sample sizes for each study outcome. Serial correlation is the relationship between state-level means in consecutive years. We then calculated minimum detectable effect sizes (MDES) at 80% power for and α=0.05. The MDES ranges from 0.41% to 0.58% for our access outcomes. For preventive service outcomes, the MDES ranges from 0.54% (receipt of annual checkup) to 2.29% (receipt of HPV test in past 12 months). The sexual and reproductive health questions are only asked of female respondents in even years, which limits our ability to detect smaller effects.

Table 4. Minimum Detectable Effect Sizes

Outcome	Serial correlation	Standard deviation	Sample size	MDES
Insurance Coverage	0.891	0.478	116,482	0.41
Having a personal doctor	0.840	0.488	116,893	0.48
Avoided care due to cost	0.796	0.460	117,000	0.58
Receipt of annual checkup	0.809	0.482	115,376	0.54
Receipt of mammogram in past 12 months	0.758	0.430	26,814	1.41

Notes: SD = Standard deviation. MDES = Minimum detectable effect size (percentage point change) at 80% for a difference-in-differences analysis with α=0.05.

NSDUH

To investigate the SUD and SMI waiver impact, the IE will use the NSDUH public use dataset. NSDUH collects data annually on incidence and treatment of mental health and substance use conditions. Key NSDUH questions address whether individuals have experienced BH conditions, and whether they have received treatment. The NSDUH public use dataset does not contain enough information to conduct a power analysis.

NASHP HCT

To investigate the Demonstration's impact on uncompensated care costs, the IIE will use the NASHP HCT. The HCT provides a range of measures for hospital revenue, costs, profitability, and break-even points across over 4,600 hospitals nationwide. The underlying dataset includes variables extracted and calculated from the national Healthcare Cost Report Information System (HCRIS).

Table 5. National Surveys and Other Publicly Available Data

Survey	Topic	Survey Questions
BRFSS	Health Risk Factors	• Insurance Coverage • Having a personal doctor • Avoided care due to cost • Receipt of annual checkup • Receipt of mammogram in past 12 months
NSDUH	BH Needs and Services	• Received treatment for SUD in the last 12 months

		• Received treatment for mental health condition in the last 12 months • Needed, but did not receive, treatment for BH condition
NASHP Hospital Cost Tool	Uncompensated Care Cost	• Uncompensated care/bad debt as a percentage of net patient revenue, and as a percentage of operating expenditures

Medicaid Administrative Data

The IE anticipates receiving claims and other Medicaid administrative data, such as eligibility files, from the state on an annual basis. Administrative data is expected to be of high quality, in terms of completeness and accuracy.

The IE anticipates having access to aggregate CAHPS data collected by the health plans and reported to DHHS. Health plans are able to distinguish between ACO and UMIC plan enrollment in CAHPS data and report this information to the state. This data will allow for comparisons of plan types.

CAHPS data will also be used to analyze differences in access to care coordination and patient satisfaction between subgroups. Because CAHPS data will be available only in aggregate, subgroup analysis will be limited to the available demographic stratifications: age, race (White and Other), ethnicity (Hispanic/ Not Hispanic), and gender.

Custom member survey

The member survey will be applied to previously enrolled as well as current members in the adult expansion and TAM populations.

Beneficiaries will be surveyed in one wave during the evaluation period. Examples of survey topics are summarized below in Table 3: Member Survey Topics.

Table 6: Member Survey Topics

Research Question	Example topics
Did members' self-report of ability to obtain care change?	• Perceived impact of coverage on the ease of obtaining care • Ease of obtaining BH services • Barriers to engaging in care
Did members receive person-centered care management?	• Perceptions of care coordination • Perceptions of shared decision-making with providers
Did members' self-report of overall health status change?	• Perceived impact of coverage on health status • Stability of individuals in recovery for SUD or SMI
How do members experience the eligibility process?	• Knowledge of eligibility requirements • Experience with enrollment • Experience with eligibility redetermination

Survey Design

The IE will design the survey to assess the impact of the Demonstration on members' access to and engagement in health care. The survey will cover key topic areas related to members' recent history of health care coverage, access to health care (whether they have a primary care provider, if they have seen a specialist when needed, the regularity with which they obtain preventive care, etc.), and experience with

care coordination. Being mindful of respondent burden, the IE aims for the survey length to not exceed 12 minutes when administered by phone.

Sample Frame Development and Sampling

The IE will work with DHHS to obtain the necessary member data, from which the IE will select a sample of members to survey. The sample will be comprised of 4,000 members. Assuming an approximately 35% response rate, we expect n=1,400 completed surveys (expected confidence interval of +/-2.54 at the 95% confidence level). To ensure that the sample accurately reflects the member population, the IE will conduct implicit random sampling using the appropriate variables available in the Pathways member database, such as gender, age, race/ethnicity, income, and length of enrollment in the program.

Assuming equal propensity for non-response between subgroups, we expect that this sample size will allow for reliable estimates for some subgroups of interest within a margin of error of +/- 5 percentage points, including by age group (individuals aged 19-26 years, aged 27-44 years, and aged 45-64 years), sex, and some racial and ethnic groups (Asian, White, Hispanic, Black, American Indian/Alaska Native and individuals of multiple races).

The ability to detect a significant difference between two groups is in part dependent on the measured prevalence of an outcome, and it will vary for each variable captured in the survey. Generally, if the prevalence of an outcome is around 50% in one group, this study is powered to detect a difference of 6.7 to 15.7 percentage points between respondents of different age groups, genders and racial and ethnic groups, with probability (power) of 80% at the 95% confidence level. If the prevalence of an outcome is very rare or very common (e.g., prevalence of 5% or 95%), this study is powered to detect smaller differences of 2.5 to 9.4 percentage points.

Survey Preparation

To maximize response rates, the IE will prepare the survey for three modes of data collection – mail, online (via smartphone/tablet device/PC), and phone. Each version will be thoroughly tested for quality control. The survey will also be translated into Spanish for interviewing respondents whose preferred language may be Spanish. Additional languages may be added if a need is identified.

Survey Administration

The IE will send the survey by mail to all members in the selected sample together with a cover letter (which will include an online link to the survey), and postage paid business reply envelope. For beneficiaries for whom email addresses are available, we will also send an email invitation with a link to the survey, followed by weekly reminder emails. After 21 days from the mailing, the IE will begin phone follow-up to non-respondents to administer the survey over the phone. To maximize response rates, the IE will make up to five phone attempts to each non-respondent at different times of day and during different days of the week including weekdays and weekends.

Data Analysis and Reporting

The IE will apply weights to the survey data to ensure that the weighted distribution of survey respondents accurately reflects the distribution of the member population on key population metrics, including gender, age, race/ethnicity, income, and length of enrollment in the program. Analysis of the survey data will focus on understanding members' access to health care, availability of employer-sponsored health insurance, and plans to transition to commercial health insurance. The IE will include analysis by key subgroups of interest, such as gender, age, and race/ethnicity.

Participant interviews with members receiving HRSS

Participant interviews will provide a necessary understanding of the experience of members receiving HRSS, including facilitators and barriers impacting the key outcome measures. The IE will conduct phone interviews to directly capture the input of participants, with privacy protections in accordance with CMS guidelines. One wave of interviews will be conducted, with 75-80 individuals in each wave (based on projected enrollment of approximately 5000 individuals). For this component of the evaluation, the IE is

partnering with a doctoral-level social worker and researcher with expertise in interviewing individuals experiencing housing insecurity and BH conditions, Dr. Palmira Santos. Dr. Santos will lead development of the interview guides, conduct interviews, and analyze results.

Potential interviewees will be approached by their case managers, who will explain that the purpose of the evaluation is to improve the program and ask for permission to release their phone number. If an individual chooses to participate, the interviewer will receive only a first name (or chosen alias) and phone number for each participant. When a participant is reached by phone the interviewer will explain the evaluation and seek informed consent before beginning the interview.

Interviewees will be given a gift card as a thank-you, in a small amount for a store that does not sell alcohol or cigarettes.

Table 7: HRSS Beneficiary Interview Topics

Research Question	Example topics
How do participants' interaction with care managers happen? In what ways is it helpful, or not helpful?	Outreach approach, engagement, and follow through. Understanding of your needs and perspective – took steps to assist or explained limitations of service
What role did the HRSS case manager have in participants' housing situation?	Addressing specific patient needs, timeliness, role of other housing liaisons
What factors enhance or inhibit participants' engagement in behavioral health care?	Factors (barriers/facilitators) to access, coordination, continuity, and outcome
Are participants experiencing unmet needs for health care, including SUD and SMI treatment?	Participation in behavioral and physical health services and support. Use of the ED and hospitalizations (avoidable and/or BH related) – perspective on alternatives. Participation in preventive, acute and chronic condition services
Do participants perceive their life circumstances have changed since receiving HRSS services?	Previous and current life (SDOH, family, work etc.) situation

Key Informant Interviews

Qualitative data on program implementation will be gathered through key informant interviews (KIIs) with providers and state administrators. A total of 25-30 KIIs are planned; three at each of the four health plans, five state employees participating in implementation, at least three community-based providers, and case managers supporting HRSS.

In addition to the administrative contacts from the ACOs and MCOs, the IE will interview at least three community-based providers, such as primary care providers and behavioral health clinicians, who directly serve Medicaid patients at sites such as community health centers, in order to capture the perspective of front-line clinicians working through the UMIC Demonstration. These providers will be asked about topics including integration of behavioral health care, barriers to access, and their perceptions of patients' engagement in care.

Because HRSS is a new component of the Demonstration, interviews with case managers will provide essential insights into the challenges and successes during implementation. Case managers will be asked about topics including their observations regarding communication with members and providers, ways in which HRSS services are effective or not, and promising practices in care coordination for a population with housing instability.

Semi-structured key informant interviews lasting 30-45 minutes per contact will be conducted by phone or videoconference, with privacy protections in accordance with CMS guidelines. Interviews will be recorded and transcribed. The IE will develop Interview guides in collaboration with DHHS for providers, health plans, and for state administrators involved in implementation of the Demonstration. The interview guide and questions will be tailored to the interviewee role. For example, state administrators will be invited to discuss the program rollout and feedback received from plans, health plan representatives will be asked about the plan's approach to integrating BH services, and questions regarding telehealth experiences will be directed towards clinicians.

As appropriate, interviews will explore successes and challenges with regard to program implementation, especially in light of the PHE, and other topics drawn from the logic model; examples are shown in Table7.[9] Interview guides will include questions that address disparities and health equity as appropriate for the interviewee's role. This may include population health analysis strategies, language services, and targeted outreach programs.

Table 8: Topics for Key Informant Interviews

Research Question	Example topics
Was the Demonstration implemented effectively?	• Perceived successes and challenges in implementation ○ Care integration with behavioral health • Perceived steps towards integrating behavioral health with physical health services, e.g., screening and referrals • Perceived impact of the PHE/pandemic on member engagement • Perceptions about the role of telehealth in achieving Demonstration goals
To what extent are BH services integrated with physical health services?	• Screening and referrals • Care coordination for members with BH conditions • Sharing of patient data across practices
Did enrollment or outcomes differ by demographic factors?	• Perceptions of barriers to access and participation in care • Steps health plans/providers are taking to identify, understand, and address disparities in access and engagement

6. Analytic Methods

Quantitative Analyses

The evaluation design includes multiple analytic strategies to answer the research questions and provide robust conclusions. The proposed approach is to use quasi-experimental analyses, employing descriptive statistics, trends over time, interrupted time-series analysis (ITS), regression, difference-in-differences (DiD), and synthetic control methods (SCM) Quasi-experimental analyses will be conducted where data is available. Multivariate regression will be used to model outcomes over time, following individuals longitudinally. This approach allows for the trend over time to be adjusted for changes in the Demonstration populations as members enter and leave the Populations. For example, for Hypotheses 4, 5, and 6, interrupted time series will be used where data is available over the time period of interest.

For smaller Demonstration populations and small subgroups where regression analysis is not feasible, the evaluation will focus on trends over time. For example, Hypothesis 6 focuses on the smaller demonstration populations; most research questions for this hypothesis will be addressed with description statistics, such as service counts and cost over time

The specific analytic method for each research question is provided in section F.4 Evaluation Tables.

[9] KIIs will cover topics relevant to the evaluation of the Adult Expansion and ESI components of the Demonstration as well; these are covered in separate evaluation designs.

Table 9: Summary of Analytic Tactics to be used for Evaluation

Method	Comparison	Data sources
Subgroup comparison	Demonstration participants stratified by demographic and health factors	Encounter data, Administrative data
Event study/ time series	Trend during Demonstration vs baseline	Encounter data, Administrative data
Difference in difference; Synthetic Control Methods	Pre/Post change in Utah vs Pre/Post change in other states; predicted outcomes for 'synthetic UT'	National surveys and other Public data sources

Descriptive statistics

The evaluation will provide summary tables of population size and characteristics, and outcomes for the three groups of Demonstration participants. Data will be analyzed using standard tests as rates, proportions, frequencies, and measures of central tendency (e.g., mean, median, mode). These tables will be used to develop a quantitative picture of the population, to describe raw trends, and to identify characteristics that will be included as covariates in regression modeling.

Prior to performing regression analysis of the plan types within AE, the composition of the beneficiary population in the three groups (FFS, ACO, and UMIC) will be compared to identify differences in demographic or clinical characteristics. ANOVA/MANOVA tests will be used as a first pass comparison of mean outcomes for the three groups. For metrics derived from BRFSS survey data, results for Utah will be compared to national averages for each year.

Trend over time and linear regression modeling

Outcomes of interest will be plotted over time for the duration of the Demonstration. The trend for each evaluation group will be modeled using multivariate linear regression and compared. The null hypothesis will be that the three groups have identical trends. In order to account for demographic characteristics such as age and gender that may differ among the three groups, the IE will use inverse probability of treatment weighting. Individuals in the two intervention groups will be assigned weights based on the composition of the reference group, producing three groups that are equivalent for measurable characteristics and allowing any difference in outcomes to be attributed to the intervention.[10]

For the measures with binary outcomes the models will be logistic; Poisson models will be used for count-based outcomes. The mixed effects logistic regression model accommodates for both fixed and random effects. In this case, it allows for the fact that members can appear multiple times in the datasets and that they can appear different numbers of times resulting in unbalanced data. The models will include the 'client id' variable as a random effect. The outcome variable will be the binary or count outcome. To assess changes over time for each population a fixed effects for measurement year and population will be included in addition to an interaction term between them. Measurement year will be included as a continuous variable after plotting raw trends to assess linearity. Adjusted models will include the

[10] Austin PC, Stuart EA. Moving towards best practice when using inverse probability of treatment weighting (IPTW) using the propensity score to estimate causal treatment effects in observational studies. Stat Med. 2015; 34(28):3661–79. Epub 2015/08/05. https://doi.org/10.1002/sim.6607 PMID: 26238958; PubMed Central PMCID: PMC4626409.

covariates gender, race/ethnicity, age as a continuous variable, region, and SMI/SUD diagnosis group, as appropriate. When adjustment variables besides age, gender and race are not statistically significantly associated ($p < 0.05$) we will proceed with a stepwise selection to reduce the number of covariates in the model. We will also run stratified mixed models by gender, age group and race/ethnicity with the same adjustment procedures, if subgroup size is adequate. Models are described in the following formulas.

Mixed logistic regression model

$$logit(Y = 1_{ij}) = \beta_0 + \beta_1 Pop_i + \beta_2 MY_{ij} + \beta_3 MY_{ij} * Pop_i + \beta_x X_i + \gamma_{0i}$$

Mixed Poisson regression model

$$\log(Y)_{ij} = \beta_0 + \beta_1 Pop_i + \beta_2 MY_{ij} + \beta_3 MY_{ij} * Pop_i + \beta_x X_i + \gamma_{0i} + \ln(offset)$$

Where Y corresponds to outcome of interest with a different expression depending on its distribution, β_0 to the overall intercept of the model, $\beta_1 Pop_i$ to the effect of belonging to a certain population group compared to the reference group (current eligible), $\beta_2 MY_{ij}$ to the effect of measurement year as a continuous variable, $\beta_3 MY_{ij} * Pop_i$ is the interaction effect between population and measurement year which allows us to estimate change over time between populations, $\beta_x X_i$ corresponds to individual level adjustment covariates, and γ_{0i} corresponds to the random intercept of each client to account for the clustering effect of appearing in more than one measurement year. In the case of Poisson models, the model includes an offset, for EDU corresponding the total number of clients and for IPU to the total member-months.

Difference-in-difference

To examine the impact of the demonstration on its overarching aim of improved access, PCG will conduct a difference-in-difference (DiD) analysis to model the effect of the demonstration in Utah relative to comparison states. The comparison states are those states not exposed to the treatment of interest – in this case, all other states that either (1) have not expanded Medicaid, or (2) expanded Medicaid before the pre-intervention period (July 1st 2017 – June 30th 2022) The parallel trends assumption will be tested over the five years before the demonstration period. Sensitivity analysis will be conducted to determine whether the PHE influences the baseline or the parallel trends assumption.

The DiD model equation is:

$$Y_{its} = \boldsymbol{\alpha_s} + \boldsymbol{\beta_t} + \beta_2 Expansion_s + \beta_3 Post_t + \beta_4 Intervention_s \times Post_t + \boldsymbol{\delta X_{it}} + \varepsilon_{ist}$$

Where:

Y_{its} = Our outcome(s) of interest
α_s = A vector of state fixed effects
β_t = A vector month and year fixed effects
$Intervention_s$ = A binary indicator for residence in our treated state (Utah)
$Post_t$ = A binary indicator for whether the outcome occurred during the demonstration period
δX_{it} = A vector of observed individual-level characteristics

Covariates will include respondent age, education, employment status, household size, veteran status, sex, household income, homeownership status, presence of children in the household, survey month, and whether the survey was conducted via landline or cell phone. The regression coefficient β_4 thus represents our regression-adjusted estimates of changes in outcomes associated with Utah's Medicaid expansion, after controlling for state, month, year, and observed covariates.

Synthetic control method

In addition to the DiD approach, the IE will use synthetic control methods (SCM) to estimate the association between implementation of the Demonstration and study outcomes. SCM have been employed to evaluate state-level policy impacts because they are particularly useful when estimating the impact of a policy change that affects a small number of treatment groups (i.e., a state).[11,12,13,14] These methods are a quasi-experimental approach similar to traditional difference-in-difference (DID) estimation but require fewer assumptions to obtain estimates of association. DID assumes that any differential changes in outcomes between treated and control groups are attributable to the policy change. Yet treated and control groups are often nonequivalent in terms of pre-treatment outcome levels, trends in outcomes, and other important covariates. To mitigate this limitation, researchers typically attempt to control for observed variables that may be associated with both treatment likelihood and the outcome of interest. However, treatment and control groups may still differ in terms of outcome pre-trends and levels due to unobserved factors. This introduces potential selection issues, which may bias any estimates of association.

In contrast, SCM constructs a synthetic control. The synthetic control is constructed using a weighted average of the states included, with weights determined through a fully empirical process; weights for individual control units may range from 0 to 1 and are assigned so the synthetic control is as similar as possible to the treated group in terms of outcome pre-trends. Unlike traditional regression, inclusion of covariates is not required to achieve equivalence between treated and control groups.

Public Health Emergency; Sensitivity Analysis

The pre-Demonstration baseline period to be used for all quasi-experimental methods includes the period where the Covid-19 pandemic had a profound impact on health care utilization. First, trends for UT and controls will be modeled with and without the most affected months in 2020 and 2021. This sensitivity analysis will help to identify whether the groups have been impacted differentially. If the pattern changes observed in the first quarter of the Public Health Emergency are similar for all evaluation groups, then confounding of the results by pandemic impacts is less likely. The most affected quarters may be omitted from the baseline depending on the results.

Subgroup Analyses

The evaluation will seek to understand how different subgroups of participants are impacted by the Demonstration. Analyses will partition participants by gender, race/ethnicity, age, and SMI/ SUD diagnosis status. Where possible, race will include White, Black, Asian, Latinx, and Native American populations and Ethnicity will be characterized as Hispanic/Not Hispanic Due to the low prevalence of some subgroups, it may be necessary to combine racial and ethnic groups for purposes of stratification. As seen in Table 10 below, 45% of race/ethnicity data gathered during the previous waiver period was missing. It is unlikely the evaluation will be able to identify racial/ethnic disparities in outcomes due to the high amount of missing data unless there is substantial improvement in the availability of this data. While data on region is available (urban, rural, frontier), the state does not plan to conduct subgroup analyses by geographic location because the geography variable is confounded with Plan Type. Specifically, Adult Expansion members in 5 counties *must* enroll in the UMIC plans with integrated physical and behavioral health benefits. In 8 other

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[11] Abadie, A., 2012. *Synthetic control methods for comparative case studies: estimating the effect of California's tobacco control program. J Am Stat Assoc* 105(490):493-505. https://www.tandfonline.com/doi/abs/10.1198/jasa.2009.ap08746

[12] Rudolph, K.E., *et al.*, 2015. *Association between Connecticut's Permit-ti-Purchase handgun law and homicides. Am J Public Health* 105(8):e49-e54. https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2015.302703

[13] Santella-Tenorio, J. *et al.*, 2020. *Association of recreational cannabis laws in Colorado and Washington state with changes in traffic fatalities. JAMA* 180 (8):1061-1068. https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2767647

[14] Bhatt, A. *et al.* 2020. *Association of changes in Missouri firearm laws with adolescent and young adult suicides by firearms. JAMA Netw Open* 3(11). https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2772526

counties, Adult Expansion *must* enroll in an ACO and a Prepaid Mental Health Plan. In the remaining counties of the state, members may enroll in an ACO or stay with FFS.

Table 10: Previous Waiver Demonstration Period; Population Characteristics

Demographic / Health Characteristic		Adult Expansion (N= 92,026)	Targeted Adult Medicaid (N=9,582)
Gender	Male	44,703 (48.6%)	7,223 (75.4%)
	Female	47,323 (51.4%)	2,359 (24.6%)
Age	19-44	62,781 (68.2%)	6,948 (72.5%)
	45-54	15,821 (17.2%)	1,791 (18.7%)
	55-64	13,424 (14.6%)	843 (8.8%)
Race/ethnicity	Other/Missing	41,772 (45.4%)	3,840 (40.1%)
	White (non-Hispanic)	14,963 (16.3%)	1,634 (17.1%)
	Hispanic, Black, AIAN, Pacific Islander	35,291 (38.3%)	4,108 (42.9%)
SMI/SUD Diagnosis	None	66,539 (72.3%)	1,781 (18.6%)
	SMI Only	3,155 (3.4%)	171 (1.8%)
	SUD Only	16,658 (18.1%)	5,652 (59.0%)
	Both SMI/SUD	5,674 (6.2%)	1,978 (20.6%)

NOTE: The characteristics shown above represent every person ever enrolled during the previous waiver demonstration period (7/1/2017--6/30/2022), as of their last appearance in the claims data.

Cost Analyses for SUD and SMI Demonstrations

The analytic methods for the SUD Demonstration cost analysis are detailed below. *The same approach will be taken for the SMI Demonstration.* The only difference being the target group and the dates of the pre-demonstration baseline periods (outlined in Section C. Methodology, Table 2).

SUD demonstration target group beneficiaries will be identified based on claims and encounters with an SUD diagnosis and/or procedure code. Pharmacy claims and encounters with a dispensed drug for Medication Assisted Treatment (MAT) will also be used to identify the population of interest. Once a beneficiary has been identified, they will remain in the population of interest until 11 months pass without another qualifying SUD claim or encounter.

There will be three levels of cost analyses:

I. Total Cost of Care = Total Medicaid Costs (claims and managed care capitation payments) + federal costs (Total Medicaid Costs * the Utah specific Federal Financial Participation rate)

II. Costs related to the diagnosis and treatment of SUD = SUD-IMD costs + other SUD costs + non-SUD costs

III. Source of care cost drivers = inpatient + non-ED outpatient, + ED outpatient + pharmacy, + long-term care

The Total Cost of Care will not include administrative costs, as the State does not currently track administrative costs specific to these demonstrations. Given the large number of waivers and amendments in Utah, it is not possible to estimate administrative costs separately.

Within each of the three levels, the results will be stratified by: SUD diagnosis only; SMI/SUD dual diagnosis. Given the lack of a comparison group, an interrupted time series model will be used to estimate the linear effects of the SUD demonstration. The IE will conduct both a logit model for estimating zero-cost months and a generalized linear model [GLM] for estimating non-zero cost months. The GLM model will use log costs to account for costs that are not normally distributed.

Qualitative analysis

Qualitative analysis will be used for key informant interview transcripts. The research questions to be addressed, with corresponding example topics, are listed in Table 10 (Attachment 4). Interviews will address these questions by probing for perspectives from providers and from administrators involved in implementing the Demonstration. Thematic analysis using a coding tree derived from the Demonstration logic model will be used to excerpt transcripts. Additional themes that arise during coding will be added to the analysis. Results of provider interviews will be used to add context to the quantitative findings regarding experience of care, beneficiary engagement, and barriers to engagement. Results of provider and administrator interviews will address implementation and will inform the Evaluation Report chapter on Lessons Learned and Recommendations.

D. METHODOLOGICAL LIMITATIONS

1. **Lack of a true comparison group.** The Demonstration is implemented statewide, making a perfect comparison group impossible. To mitigate this limitation, the IE plans to use both in-state comparison among benefit groups, and out-of-state comparisons using national survey data sources.

2. **Sample size.** Full UMIC participation is projected to be around 60,000 individuals. The data set for specific outcomes may not have sufficient size statistical analysis on all subgroups of interest. The IE will explore disparities in outcomes by race/ethnicity within the groups where numbers are sufficient. To further investigate health equity, KII interview guides will include questions about health plan efforts to identify and remediate disparities in access, such as population health analyses and targeted outreach. TAM and other populations are smaller. For the smallest populations, regression analysis is unlikely to be feasible, so descriptive and trend over time analyses will be used and stratification will be limited. For the ISS population and the FFCYAS population, the number of individuals may be too small to support significance testing, in which case descriptive results will be provided.

3. **Health Plan Reporting.** The independent evaluator will receive aggregate CAHPS data reported in aggregate by the health plans, stratified by gender, age, and race/ethnicity. Patient-level data is not available for privacy reasons. Data aggregation will limit the available subgroup analyses that can be performed. The current age and race/ethnicity reporting buckets for CAHPS data are limited and are not standardized across health plans. In order to aggregate data across the population, the IE will combine categories as needed, creating wider age bands, and characterizing race as White/Other.

4. **Lack of data on source of insurance coverage in national survey data.** The use of national survey data allows for out of state comparison groups but limits the ability to specifically identify individuals enrolled in the Demonstration. As noted in Section C.5 the BRFSS insurance coverage outcome does not allow determination of the source of coverage (e.g., Medicaid, Medicare, or private insurance) As a result, it is not possible to identify individuals enrolled in Medicaid and thus not possible to determine if respondents fall into the Demonstration group or are enrolled in Medicaid in comparison states. While an approximation will be achieved by using income and household size to define a sample representing Demonstration participants as closely as possible, the inclusion of respondents who may not be part of the Demonstration group or be Medicaid enrolled in comparison states is expected to attenuate the effect estimates. While differences in BRFSS responses between Utah and the comparison states are of interest, the evaluation's results should be interpreted as associations and may not necessarily be directly attributed to the Demonstration.

5. **Historic effects.** The impacts of the Covid-19 pandemic/PHE were profound in 2020 and 2021 and are likely to continue to influence health care delivery well into the current Demonstration period. Analytic techniques described above will be used to minimize confounding by PHE effects during the baseline period. The PHE unwinding will take place during the Demonstration period, with eligibility redeterminations beginning in April 2023, and may lead to unusual levels of disenrollment and enrollment category changes. Ongoing direct and indirect impacts of the PHE such as staffing shortages will be considered in interpreting findings.

6. **Data availability for national surveys and other publicly available data sources.** The evaluation design includes national surveys and other publicly available data sources for some research questions that involve comparisons between states and over time. The design plan is contingent on data release schedules, the elements included in public use files, the timing and process for accessing restricted data, and the comparability of the surveys to previous years. The NASHP HCT utilizes cost reports submitted by hospitals; as such, hospital reporting errors may be introduced. Should barriers be encountered, the IE will explore other options.

F. ATTACHMENTS

1. INDEPENDENT EVALUATOR

As required by the Centers for Medicare & Medicaid Services (CMS) and the Section 1115 Demonstration's Special Terms and Conditions (STCs), DHHS conducted an open solicitation process to secure a third-party evaluator to conduct an evaluation of the State of Utah's Section 1115 Demonstration.

The State issued one contract for all evaluation activities and the production of required CMS reports.[15] As the successful bidder, Public Consulting Group (PCG) demonstrated the following qualifications:

- Experience conducting program evaluations for programs administered by the federal department of Health and Human Services.
- Ability to provide at least two examples of program evaluations conducted meeting the above criterion.
- Experience with Medicaid claims data.
- Experience complying with human subjects' protection and data confidentiality laws (state and federal)
- Experience with quantitative and qualitative evaluation design, implementation, analysis, and reporting, and impact evaluations in public health and social services settings.

Consistent with the requirements of the State of Utah Division of Purchasing, DHHS selected and retained PCG as an independent evaluator to complete the independent evaluation of the Demonstration. DHHS contracted with the evaluator, PCG, to promote an independent evaluation, following the general requirements for each state contractor as well as project-specific standards.

The third-party evaluator, PCG, will conduct an evaluation following guidelines set forth by DHHS and CMS. The Department retains responsibility for monitoring the Demonstration activities and providing oversight of the evaluation design and overall approach for the contractor. To ensure a fair and impartial evaluation and mitigate any potential conflict of interest, the independent evaluator, PCG, will:

- Conduct an evaluation of the 1115 Demonstration hypotheses for the Adult Expansion, Current Eligible, Targeted Adult Medicaid (TAM), Targeted Adult Dental (TAM-Dental), Blind and Disabled Dental (BDD), Aged Dental, Employer-Sponsored Insurance (ESI), Utah Premium Partnership (UPP), Intensive Stabilization Services (ISS), and Former Foster Care Youth from Another State (FFCYAS) populations of the 1115 waiver, as well as for the Serious Mental Illness (SMI) and Substance Use Disorder (SUD) components[16], to determine if the goals and objectives of the Demonstration have been achieved.
- Meet the evaluation requirements of the 1115 Demonstration STCs.
- Follow the CMS approved evaluation design.
- Provide DHHS with the required annual interim evaluation report and summative evaluation report at the end of the 1115 Demonstration approval period, by the due dates outlined in the contract.
- Provide future evaluations as required by the contract, at the option of DHHS, and develop the evaluation design and implement the design upon CMS approval.
- Complete any required IRB applications, data sharing agreements, or other documents needed to protect human subjects and data confidentiality.
- Appropriately safeguard evaluation data in compliance with HIPAA requirements, protection of human subjects, data sharing agreements, state or federal laws, and other applicable regulations.

[15] This procurement sought an Independent Evaluator for all the components of the current waiver period which runs from July 1, 2022, through June 30, 2027. PCG was awarded a five-year contract covering these components.

[16] The Utah Department of Health requested that PCG develop a single comprehensive Evaluation Design for the Utah Medicaid Reform 1115 Demonstration encompassing all evaluation populations and waiver components

The 1115 Demonstration evaluation conducted by PCG will determine if the goals and objectives of the 1115 Demonstration have been achieved. The evaluation will meet the requirement of the 1115 Demonstration STCs, follow the CMS approved evaluation design, and provide required deliverables.

DHHS staff worked with the evaluator to identify and address concerns that might arise during the administration of the contract. By requiring initial satisfaction of these standards by the contracting party in order to be awarded the contract, as well as ongoing maintenance of the requirements during the term of service, DHHS is in a position to receive an objective evaluation report that is the product of a fair, impartial, and conflict-free evaluation.

2. Evaluation Budget

Table 11: Estimated Evaluation Budget

Evaluation Activity	DY22 (7/1/2023 – 6/30/2024)	DY23 (7/1/2024 - 6/30/2025)	DY24 (7/1/2025 - 6/30/2026)	DY25 (7/1/2026 - 6/30/2027)	DY26 (7/1/2027 - 6/30/2028)	(7/1/2028 - 6/30/2029)	(7/1/2029 - 6/30/2030)	Total
	Renewal Yr1	*Renewal Yr2*	*Renewal Yr3*	*Renewal Yr4*	*Renewal Yr5*	*Post Yr1*	*Post Yr2*	
Project Management	$49,500	$49,500	$55,688	$61,875	$61,875	$61,875	$61,875	**$402,188**
Evaluation Design	$90,000	$16,875	$0	$0	$0	$0	$0	**$106,875**
Quantitative Data Collection, Cleaning and Analysis	$0	$45,000	$226,350	$0	$0	$282,938	$16,875	**$571,163**
Key Informant Interviews (Administrators, service providers) Data Collection, Cleaning and Analysis	$0	$0	$67,500	$64,688	$0	$0	$0	**$132,188**
HRSS Participant Interviews One Wave of 75-80	$75,000	$50,000	$0	$0	$0	$0	$0	**$125,000**
Beneficiary survey (One wave AE and TAM)	$0	$180,000	$0	$0	$0	$0	$0	**$180,000**
Midpoint Assessment of SUD and SMI waivers (Due June 2025)	$71,100	$71,100	$0	$0	$0	$0-	$0	**$142,200**
Interim Report (Due June 2026)	$0	$0	$56,250	$11,250	$0	$0	$0	**$67,500**
Summative Report	$0	$0	$0	$22,500	$22,500	$22,500	$101,250	**$168,750**
Total	**$285,600**	**$412,475**	**$405,788**	**$160,313**	**$84,375**	**$367,313**	**$180,000**	**$1,895,863**

3. Timeline and Major Milestones

Figure 3: Evaluation Timeline

4. Evaluation Tables

Table 12: Evaluation Summary, Hypothesis 1, Low-income UT residents

Hypothesis 1: The 1115 Demonstration overall improved access to coverage and engagement in health care for low-income UT residents.				
Comparison Strategy	**Measure Name**	**Measure Description**	**Data source**	**Analytic Approach**
Primary research question 1.1: Did the fraction of low-income residents with no coverage decrease, relative to comparison states?				
Comparison states	Any coverage	Fraction with any health insurance coverage	BRFSS	Difference-in-difference Synthetic control model
Primary research question 1.2: Did the cost of uncompensated care decrease relative to comparison states?				
Comparison states	Uncompensated care cost	Uninsured/bad debt as a percentage of net patient revenue, and as a percentage of operating expenditures	NASHP HCT	Difference-in-difference Synthetic control model
Primary research question 1.3: Did the fraction of low-income residents who avoided care due to cost decrease, relative to comparison states?				
Comparison states	Avoided care due to cost	Fraction who delayed or avoided needed care because of cost	BRFSS	Difference-in-difference Synthetic control model
Primary research question 1.4: Did the fraction of low-income residents who have a personal doctor or usual source of care increase, relative to comparison states?				
Comparison states	Has a personal doctor	Fraction who says they have one person they think of as their person doctor or provider	BRFSS	Difference-in-difference Synthetic control model
Primary research question 1.5: Did the fraction of low-income residents who had a primary or specialty care appointment in the last year increase, relative to comparison states?				
Comparison states	Had a primary or specialty appointment	Had a checkup or visit with a specialist in the last 12 months	BRFSS	Difference-in-difference Synthetic control model
Primary research question 1.6: Did the fraction of low-income residents who had a preventive screening in the last year increase, relative to comparison states?				
Comparison states	Had a preventative screening	Fraction who reported having a mammogram in the last 12 months	BRFSS	Difference-in-difference Synthetic control model

Primary research question 1.7: Did member satisfaction increase, relative to baseline?				
Pre-Demonstration baseline	Member satisfaction	Getting needed care Getting needed care quickly How well doctors communicate	CAHPS	Descriptive statistics; Trend over time
Primary research question 1.8: Did Low Value Care decrease among Demonstration participants, relative to baseline?				
Pre-Demonstration baseline	Low Value Care	List of low value care scenarios appropriate for the Demonstration will be developed	Claims	Trend over time Interrupted Time Series

Table 13: Evaluation Summary, Hypothesis 2, Adult Expansion / UMIC

Hypothesis 2: The Demonstration will improve healthcare access and engagement for the Adult Expansion population.				
Comparison Strategy	**Measure Name**	**Measure Description**	**Data source**	**Analytic Approach**
Primary research question 2.1: Did inpatient hospital utilization decrease, relative to baseline, for the Adult Expansion population?				
Pre-Demonstration baseline	Inpatient Utilization (IPU)	Inpatient admissions per member per year	Claims	Trend over time Interrupted Time Series
Primary research question 2.2: Did ED visits decrease, relative to baseline, for the Adult Expansion population?				
Pre-Demonstration baseline	ED visits (EDU)	ED visits per member per year	Claims	Trend over time Interrupted Time Series
Subsidiary research question 2.2.a: Did ED visits for BH conditions decrease, relative to baseline, for the Adult Expansion population?				
Pre-Demonstration baseline	ED-BH visits (EDU-BH)	ED visits for BH condition per member per year	Claims	Trend over time Interrupted Time Series
Subsidiary research question 2.2.b: Did UMIC plans reduce ED visits for BH conditions for Adult Expansion population, relative to FFS or physical health-only ACO plans?				
Plan Type Comparison: UMIC, FFS/PMHP, ACO/PMHP	ED-BH visits (EDU-BH)	ED visits for BH condition per member per year	Claims	Multiple linear regression; ANOVA

Primary research question 2.3: Did engagement in primary and ambulatory care increase, relative to baseline, for the Adult Expansion population?				
Pre-Demonstration baseline	Adults' Access to Preventative/Ambulatory Health Services (AAP)	Fraction of beneficiaries who had an ambulatory or preventive care visit during the measurement year	Claims	Trend over time Interrupted Time Series
Primary research question 2.4: Did engagement in behavioral health care increase, relative to baseline, for the Adult Expansion population?				
Pre-Demonstration baseline	Antidepressant Medication Management (AMM)	Adults with a diagnosis of major depression who were newly treated with antidepressant medication and remained on their antidepressant medications.	Claims	Trend over time Interrupted Time Series
Pre-Demonstration baseline	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	Fraction with a new episode of alcohol or other drug dependence who: 1) initiated treatment within 14 days of diagnosis. 2) engaged in continued treatment within 34 days of the initiation visit.	Claims	Trend over time Interrupted Time Series
Pre-Demonstration baseline	Follow-Up After Hospitalization for Mental Illness (FUH)	Following discharge for mental illness or intentional self-harm, fraction with outpatient follow-up in 7 days, and within 30 days.	Claims	Trend over time Interrupted Time Series
Pre-Demonstration baseline	30-Day All-Cause Unplanned Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (REA)	The rate of unplanned, 30-day, readmission for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease.	Claims	Trend over time Interrupted Time Series
Subsidiary research question 2.4.a: Did UMIC plans improve engagement in behavioral health care for Adult Expansion population, relative to FFS or physical health-only ACO plans?				
Plan Type Comparison: UMIC, FFS/PMHP, ACO/PMHP	Antidepressant Medication Management (AMM)	Adults with a diagnosis of major depression who were newly treated with antidepressant medication and remained on their antidepressant medications.	Claims	Multiple linear regression; ANOVA

Plan Type Comparison: UMIC, FFS/PMHP, ACO/PMHP	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	Fraction with a new episode of alcohol or other drug dependence who: 1) initiated treatment within 14 days of diagnosis. 2) engaged in continued treatment within 34 days of the initiation visit.	Claims	Multiple linear regression; ANOVA
Plan Type Comparison: UMIC, FFS/PMHP, ACO/PMHP	Follow-Up After Hospitalization for Mental Illness (FUH)	Following discharge for mental illness or intentional self-harm, fraction with outpatient follow-up in 7 days, and within 30 days.	Claims	Multiple linear regression; ANOVA
Plan Type Comparison: UMIC, FFS/PMHP, ACO/PMHP	30-Day All-Cause Unplanned Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (REA)	The rate of unplanned, 30-day, readmission for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease.	Claims	Multiple linear regression; ANOVA
Primary research question 2.5: Did engagement in treatment for chronic conditions increase, relative to baseline, for the Adult Expansion population?				
Baseline	Monitoring for persistent medications (MPM)	Assesses adults who received at least 180 treatment days of ambulatory medication therapy for a select therapeutic agent (for hypertension or heart disease) during the measurement year and received at least one therapeutic monitoring event for the therapeutic agent during the measurement year:	Claims	Trend over time
Pre-Demonstration baseline	Engagement in Diabetes Care (EDC)	Adults with type 1 or type 2 diabetes who had at least two A1C tests in the year	Claims	Trend over time Interrupted Time Series
Primary research question 2.6: Did preventive cancer screening increase, relative to baseline, for the Adult Expansion population?				
Pre-Demonstration baseline	Breast Cancer Screening (BCS)	Women 50 years and over who had at least one mammogram to screen for breast cancer in the past two years	Claims data	Trend over time

Table 14: Evaluation Summary, Hypothesis 3, TAM

Hypothesis 3: The Demonstration will improve healthcare access and engagement for the TAM population.				
Comparison Strategy	**Measure Name**	**Measure Description**	**Data source**	**Analytic Approach**
Primary research question 3.1: Did inpatient hospital utilization decrease, relative to baseline, for the TAM population?				
Pre-Demonstration baseline	Inpatient Utilization (IPU)	Inpatient admissions per member per year	Claims	Trend over time Interrupted Time Series
Primary research question 3.2: Did ED visits decrease, relative to baseline, for the TAM population?				
Pre-Demonstration baseline	ED visits (EDU)	ED visits per member per year	Claims	Trend over time Interrupted Time Series
Subsidiary research question 3.2.a: Did ED visits for BH conditions decrease, relative to baseline, for the TAM population?				
Pre-Demonstration baseline	ED-BH visits	ED visits for BH condition per member per year	Claims	Trend over time Interrupted Time Series
Primary research question 3.3: Did engagement in primary and ambulatory care increase, relative to baseline, for the TAM population?				
Pre-Demonstration baseline	Adults' Access to Preventative/Ambulatory Health Services (AAP)	Fraction of beneficiaries who had an ambulatory or preventive care visit during the measurement year	Claims	Trend over time Interrupted Time Series
Baseline	Monitoring for persistent medications (MPM)	Assesses adults who received at least 180 treatment days of ambulatory medication therapy for a select therapeutic agent (for hypertension or heart disease) during the measurement year and received at least one therapeutic monitoring event for the therapeutic agent during the measurement year:	Claims	Trend over time

Primary research question 3.4: Did engagement in behavioral health care increase, relative to baseline, for the TAM population?				
Pre-Demonstration baseline	Follow-Up After Hospitalization for Mental Illness (FUH)	Following discharge for mental illness or intentional self-harm, fraction with outpatient follow-up in 7 days, and within 30 days.	Claims	Trend over time Interrupted Time Series
Pre-Demonstration baseline	30-Day All-Cause Unplanned Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (REA)	The rate of unplanned, 30-day, readmission for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease.	Claims	Trend over time Interrupted Time Series
Pre-Demonstration baseline	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	Fraction with a new episode of alcohol or other drug dependence who: 1) initiated treatment within 14 days of diagnosis. 2) engaged in continued treatment within 34 days of the initiation visit.	Claims	Trend over time Interrupted Time Series

Table 15: Evaluation Summary, Hypothesis 4, TAM HRSS

Hypothesis 4: The Demonstration will improve healthcare access and engagement for the TAM HRSS population.				
Comparison Strategy	**Measure Name**	**Measure Description**	**Data source**	**Analytic Approach**
Primary research question 4.1: Did eligible individuals receive the intended HRSS services?				
N/A	Service counts	HRSS services received	Claims	Descriptive statistics; Trend over time
N/A	Found housing	Fraction of HRSS participants who moved into housing.	Administrative	Descriptive statistics; Trend over time

Primary research question 4.2: Did engagement in HRSS program mitigate participants' social needs in the measurement period?				
N/A	Health-related social needs	Reduced acuity on needs-based criteria (such as assistance with one or more Activities of Daily Living (ADLs))	Administrative	Health-related social needs
Primary research question 4.3: Did ED visits decrease, relative to baseline, for HRSS recipients?				
N/A	ED visits (EDU)	ED visits per member per year	Claims	Trend over time
Subsidiary research question 4.3.a: Did ED visits for BH conditions decrease, relative to baseline, for HRSS recipients?				
N/A	ED-BH visits	ED visits for BH condition per member per year	Claims	Trend over time
Primary research question 4.4 Did engagement in primary and ambulatory care increase, relative to baseline, for HRSS recipients?				
Baseline	Adults' Access to Preventative/Ambulatory Health Services (AAP)	Fraction of beneficiaries who had an ambulatory or preventive care visit during the measurement year	Claims	Trend over time
Baseline	Monitoring for persistent medications	Assesses adults who received at least 180 treatment days of ambulatory medication therapy for a select therapeutic agent (for hypertension or heart disease) during the measurement year and received at least one therapeutic monitoring event for the therapeutic agent during the measurement year:	Claims data	Trend over time
Primary research question 4.5: Did engagement in behavioral health care increase, relative to baseline, for HRSS recipients?				
Baseline	30-Day All-Cause Unplanned Readmission Following	The rate of unplanned, 30-day, readmission for Demonstration beneficiaries with a primary	Claims	Trend over time

	Psychiatric Hospitalization in an Inpatient Psychiatric Facility (REA)	discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease.		
Baseline	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	Fraction with a new episode of alcohol or other drug dependence who: 1) initiated treatment within 14 days of diagnosis. 2) engaged in continued treatment within 34 days of the initiation visit.	Claims	Trend over time
Baseline	Follow-Up After Hospitalization for Mental Illness (FUH)	Following discharge for mental illness or intentional self-harm, fraction with outpatient follow-up in 7 days, and within 30 days.	Claims	Trend over time
Primary research question 4.6: Was the total cost of care, exclusive of HRSS, reduced for HRSS participants?				
Baseline	Cost of care	PMPM cost, exclusive of HRSS	Claims	Trend over time Interrupted Time Series
Primary research question 4.7: From participants' perspective, did the HRSS services meet their housing-related needs and support their engagement in behavioral health care?				
N/A	How do participants' interaction with care managers happen? In what ways is it helpful, or not helpful?	Participants' Perceptions	Participant Interviews	Qualitative analysis
N/A	How easy or difficult is it to find appropriate housing with HRSS assistance? Are participants satisfied with their housing arrangements?	Participants' Perceptions	Participant Interviews	Qualitative analysis

N/A	What factors enhance or inhibit participants' engagement in behavioral health care?	Participants' Perceptions	Participant Interviews	Qualitative analysis
N/A	What factors enhance or inhibit participants' engagement in behavioral health care?	Participants' Perceptions	Participant Interviews	Qualitative analysis
N/A	Do participants perceive their health has changed since receiving HRSS services?	Participants' Perceptions	Participant Interviews	Qualitative analysis

Table 16: Evaluation Summary, Hypothesis 5, SMI/SUD

Hypothesis 5: The SMI and SUD Demonstrations increased access to appropriate treatment.				
Comparison Strategy	**Measure Name**	**Measure Description**	**Data source**	**Analytic Approach**
Primary research question 5.1: Did the number of individuals receiving services for SMI and/or SUD increase, relative to baseline?				
Baseline year (DY1)	Service Counts: SUD	Number of members receiving SUD treatment	Claims	Descriptive statistics; Trend over time
Baseline year (DY1)	Service Counts: SMI	Number of members receiving SUD treatment	Claims	Descriptive statistics; Trend over time
Primary research question 5.2: Did ED visits for BH conditions decrease among individuals with SMI and/or SUD diagnoses, relative to baseline?				
Pre-Demonstration baseline Stratify by: SMI only, SUD only, SMI/SUD dually diagnosed	ED-BH visits	ED visits for BH condition per member per year	Claims	Trend over time Interrupted Time Series
Primary research question 5.3 Did inpatient days (outside of IMDs) decrease, relative to baseline, for individuals with SMI and/or SUD?				

Pre-Demonstration baseline Stratify by: SMI only, SUD only, SMI/SUD dually diagnosed	Inpatient days	Inpatient days PMPY, exclusive of IMD stays	Claims	Trend over time Interrupted Time Series
Primary research question 5.4: Did engagement in SUD treatment increase among individuals with SUD diagnoses relative to baseline?				
Pre-Demonstration baseline	Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	Fraction with a new episode of alcohol or other drug dependence who: 1) initiated treatment within 14 days of diagnosis. 2) engaged in continued treatment within 34 days of the initiation visit.	Claims	Trend over time Interrupted Time Series
Primary research question 5.5: Did unplanned readmission following hospitalization for psychiatric treatment decrease among individuals with SMI relative to baseline?				
Pre-Demonstration baseline	30-Day All-Cause Unplanned Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility (REA)	The rate of unplanned, 30-day, readmission for Demonstration beneficiaries with a primary discharge diagnosis of a psychiatric disorder or dementia/Alzheimer's disease.	Claims	Trend over time Interrupted Time Series
Primary research question 5.6: Did utilization of any mental health service increase among low-income residents, relative to comparison states?				
Comparison states	Mental health treatment	Percentage who reported receiving mental health (non-SUD) treatment in the last 12 months	NSDUH	Difference-in-difference; Synthetic control model
Primary research question 5.7: Did the number of individuals needing but not receiving SUD service decrease among low-income residents, relative to comparison states?				
Comparison states	SUD treatment	Percentage who reported receiving SUD treatment in the last 12 months	NSDUH	Difference-in-difference; Synthetic control model
Primary research question 5.8: Did the rate of overdose deaths decrease, relative to baseline?				

Pre-Demonstration baseline	Overdose deaths	State rate of overdose deaths	Administrative	Trend over time Interrupted Time Series
Primary research question 5.9: Did the number of individuals receiving crisis stabilization services increase (with an emphasis on non-hospital, non-residential services)?				
Pre-Demonstration baseline	Crisis stabilization services	Crisis Stabilization service count	Claims	Trend over time Interrupted Time Series

Table 17: Evaluation Summary, Hypothesis 6, SMI/SUD Cost of Care

Hypothesis 6: The SMI and SUD Demonstrations stabilized or reduced cost of care for these populations.				
Comparison Strategy	**Measure Name**	**Measure Description**	**Data source**	**Analytic Approach**
Primary research question 6.1: Did the total cost of care for individuals with SMI diagnoses change, relative to baseline?				
Pre-Demonstration baseline	Total Cost of Care	Total costs per beneficiary per month is the sum of the state's Medicaid costs (inpatient, outpatient, pharmacy, long-term care, IMD, and MCO capitated payments) and the federal cost (total Medicaid * FMAP for Utah).	Claims	Interrupted time series
Subsidiary research question 6.1.a: Did costs related to the diagnosis and treatment of SMI change, relative to baseline? (SMI-IMD costs + other SMI costs + non-SMI costs)?				
Pre-Demonstration baseline	Costs related to the diagnosis and treatment of SMI	These costs include *SMI-IMD costs + other SMI costs + non-SMI costs*	Claims	Interrupted time series
Subsidiary research question 6.1.b: What types of care (inpatient + non-ED outpatient, + ED outpatient + pharmacy, + long-term care) are the primary drivers of the cost of care for the SMI population?				

Pre-Demonstration baseline	Source of treatment cost drivers	These costs include inpatient + non-ED outpatient, + ED outpatient + pharmacy, + long-term care	Claims	Interrupted time series
Primary research question 6.2: Did the total cost of care for individuals with SUD diagnoses change, relative to baseline?				
Pre-Demonstration baseline	Total Cost of Care	Total costs per beneficiary per month is the sum of the state's Medicaid costs (inpatient, outpatient, pharmacy, long-term care, IMD, and MCO capitated payments) and the federal cost (total Medicaid * FMAP for Utah).	Claims	Interrupted time series
Subsidiary research question 6.2.a: Did costs related to the diagnosis and treatment of SUD change, relative to baseline? (SUD-IMD costs + other SUD costs + non-SUD costs)?				
Pre-Demonstration baseline	Costs related to the diagnosis and treatment of SMI	These costs include *SMI-IMD costs + other SMI costs + non-SMI costs*	Claims	Interrupted time series
Subsidiary research question 6.2.b: What types of care (inpatient + non-ED outpatient, + ED outpatient + pharmacy, + long-term care) are the primary drivers of the cost of care for the SUD population?				
Pre-Demonstration baseline	Source of treatment cost drivers	These costs include *inpatient + non-ED outpatient, + ED outpatient + pharmacy, + long-term care*	Claims	Interrupted time series

Table 18: Evaluation Summary, Hypothesis 6, Small Demonstration Populations: UPP/ESI, ISS, ABD Dental & TAM Dental, ISS, FFCYAS

Hypothesis 7: The Demonstration delivered coverage/ services appropriately to individuals in the smaller Demonstration populations.				
Comparison Strategy	**Measure Name**	**Measure Description**	**Data source**	**Analytic Approach**
UPP/ESI				
Primary research question 7.1: Did the number of individuals receiving coverage increase relative to baseline?				
Baseline year (DY1)	Enrollment	Number of unique individuals enrolled in each plan (UPP/ESI)	Claims	Descriptive statistics Trend over time
Primary research question 7.2: What was the average total Medicaid cost of care for enrollees?				
Baseline year (DY1)	Total cost of care	Total cost of care (paid claims plus premium payments) for each plan (UPP/ESI)	Claims	Descriptive statistics Trend over time
Primary research question 7.3: Did the pmpm cost for enrollees change over time?				
Baseline year (DY1)	Average pmpm expenditure	Total per member per month cost of care (paid claims plus premium payments) for each plan (UPP/ESI)	Claims	Descriptive statistics Trend over time
ISS				
Primary research question 7.4 Did the number of individuals receiving ISS increase relative to baseline?				
Baseline year (DY1)	ISS Service Recipients	Number of unique individuals who received ISS	Claims	Counts
ABD Dental, TAM Dental				
Primary research question 7.5: Did dental service provision increase relative to baseline?				
Baseline year (DY1)	Dental Service Recipients	Number of unique individuals who received dental services	Claims	Descriptive statistics Trend over time

Stratify by Dental type: Aged, Blind/Disabled, TAM				
Baseline year (DY1) Stratify by Dental type: Aged, Blind/Disabled, TAM	Dental Services	Number of dental services provided	Claims	Descriptive statistics Trend over time
Primary research question 7.6: Did the rate of ED visits for dental conditions decrease relative to baseline?				
Baseline year (DY1) Stratify by Dental type: Aged, Blind/Disabled, TAM	ED Visits for Dental diagnoses	Number of ED visits with a primary diagnosis for a dental condition	Claims	Descriptive statistics Trend over time
Primary research question 7.7: What was the average cost of dental services?				
Baseline year (DY1) Stratify by Dental type: Aged, Blind/Disabled, TAM	Cost of Dental Claims	Total cost of claims paid for dental services	Claims	Descriptive statistics Trend over time
FFCYAS				
Primary research question 7.8: How many FFCYAS received coverage?				
Baseline year (DY1)	Number of FFCYAS	Number of unique individuals in FFCYAS coverage group	Required Monitoring Reports	Counts