MARYLAND
Department of Health

Maryland Department of Health

§1115 HealthChoice Demonstration Evaluation Design

July 9, 2019

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Acronyms

ACA	Patient Protection and Affordable Care Act
ACIS	Assistance in Community Integration Services
AIDS	Acquired immunodeficiency syndrome
ASO	Administrative services organization
CAHPS®	Consumer Assessment of Healthcare Providers and Systems
CLR	Childhood Lead Registry
CMS	Centers for Medicare and Medicaid Services
CRISP	Chesapeake Regional Information System for our Patients
CY	Calendar year
ED	Emergency department
EPSDT	Early and Periodic Screening, Diagnosis and Treatment
EQRO	External quality review organization
FFS	Fee-for-service
HEDIS®	Healthcare Effectiveness Data and Information Set
HIE	Health information exchange
HIV	Human immunodeficiency virus
HVS	Home Visiting Services
ICS	Increased Community Services
IMD	Institutions for mental disease
IT	Information technology
LARC	Long-acting reversible contraceptive
MCO	Managed care organization
NCQA	National Committee for Quality Assurance
OUD	Opioid use disorder
REM	Rare and Expensive Case Management
SBIRT	Screening, Brief Intervention and Referral to Treatment
SUD	Substance use disorder

Background and History of Maryland's §1115 Demonstration

Following approval of the §1115 waiver by the Centers for Medicare and Medicaid Services (CMS) in October 1996, Maryland implemented the HealthChoice program and moved its fee-for-service (FFS) and health maintenance organization enrollees into a managed care payment system in July 1997.[1] HealthChoice managed care organizations (MCOs) receive a predetermined monthly capitated payment in exchange for providing covered services to participants. Since the program's inception, HealthChoice has provided oversight to the continuing standards of high-quality coordination of care and controlling Medicaid costs by providing a patient-focused system with a medical home for all beneficiaries; building on the strengths of the established Maryland health care system; providing comprehensive, prevention-oriented systems of care; holding MCOs accountable for high-quality care; and achieving better value and predictable expenses.

Subsequent to the initial grant, the Maryland Department of Health[2] (the Department) requested and received several program renewals—in 2002, 2005, 2008, 2011, 2013 and 2016. In June 2016, Maryland applied for its sixth extension of the HealthChoice demonstration, which CMS approved for the period of calendar years (CYs) 2017 to 2021. The current waiver period builds on the innovations of the previous extensions by focusing on developing cost-effective services that target the significant and complex health care needs of individuals enrolled in Maryland Medicaid. Specifically, the demonstration will implement initiatives to address the social determinants of health, such as those encountered by individuals with substance use disorders (SUD), high-risk pregnant women and former foster care participants, among others.

As of May 2019, HealthChoice served over 1.2 million participants, constituting approximately 86 percent of Medicaid recipients in Maryland, over 310,000 of which receive coverage under the ACA's Medicaid expansion.

In June 2018, Maryland applied for an amendment to the HealthChoice demonstration, which CMS approved effective March 18, 2019 through December 31, 2021. This amendment approval authorizes the state to carry out the HealthChoice Diabetes Prevention Program (DPP); expand medical managed intensive inpatient services (ASAM 4.0); develop an adult dental pilot program; increase the Assistance in Community Integration Services (ACIS) pilot program annual enrollment cap; and modify the family planning program effective upon approval of MD SPA 18-0005 so that women of childbearing age who have a family income at or below 250 percent of the FPL and who are not otherwise eligible for Medicaid, CHIP or Medicare, but had Medicaid pregnancy coverage will be eligible for the HealthChoice family planning program for 12 months immediately following the two-month post-partum period.

In June 2019, Maryland will apply for another amendment to the HealthChoice demonstration to establish a limited Collaborative Care Pilot Program. Upon approval, the program will be included in the §1115 HealthChoice evaluation as well.

[1] CMS was then known as the Health Care Financing Administration.
[2] Formerly known as the Maryland Department of Health and Mental Hygiene.

Initial evaluation of new participants in HealthChoice due to the ACA expansion have suggested that not only does this population have significant, complex health needs, but they may also have limited health literacy or struggle with homelessness, leading to challenges in the appropriate use of care. Therefore, in addition to assuring that efforts to improve the quality of care throughout the HealthChoice demonstration continue during the current waiver period, the Department requested—and CMS approved—to implement or continue the following program expansions:

1) Residential Treatment for Individuals with SUDs;
2) Community Health Pilots: Home-Visiting Services (HV);
3) Community Health Pilots: Assistance in Community Integration Services (ACIS);
4) Dental Services for Former Foster Care Individuals;
5) Increased Community Services (ICS);
6) Family Planning;
7) Diabetes Prevention Program (DPP); and
8) Adult Dental Pilot Program.

CMS requires evaluations of all §1115 waiver demonstrations. The Department and its Independent Evaluator (the Hilltop Institute at the University of Maryland, Baltimore County) will prepare a summative evaluation comparing HealthChoice's performance results with the research hypotheses.

Through the implementation and continuation of the HealthChoice demonstration, the Department aims to improve the health status of low-income Marylanders by meeting the following goals:

1) Improve access to health care for the Medicaid population;
2) Improve the quality of health services delivered;
3) Provide patient-focused, comprehensive and coordinated care by providing Medicaid participants with a single medical home;
4) Emphasize health promotion and disease prevention; and
5) Expand coverage to additional low-income Marylanders with resources generated through managed care efficiencies.

As part of the fifth goal listed above, this draft evaluation design outlines evaluation questions for the eight program expansion components outlined above.

Evaluation Questions and Hypotheses

As discussed above, the Maryland §1115 HealthChoice demonstration is a mature program, providing services to over one million participants annually. Evaluation questions will therefore focus on changes implemented during the waiver renewal period. The following three major questions, stated as hypotheses, will be addressed:

1. Eligibility and enrollment changes implemented during the current HealthChoice waiver period will increase coverage and access to care for HealthChoice participants.

2. Payment approaches implemented during the current HealthChoice waiver period will improve quality of care for HealthChoice participants.
3. Innovative programs address the social determinants of health and will improve the health and wellbeing of the Maryland population.

Hypothesis 1 represents the continuing need for HealthChoice to assure and improve coverage and access to eligible populations. Because Maryland Medicaid participants, with a few excepted groups, are nearly completely covered by MCOs, improvements to access must now address more subtle and difficult barriers to enrollment and obtaining access to services. The evaluation study will ask whether the following two policy changes made an impact in improving access:

- Did the initiation of automated renewals of coverage—based on data indicating no substantial changes in participants' financial position—reduce the amount of time Medicaid-eligible individuals were without Medicaid coverage?
- Does automated selection of an MCO after one day for new participants, who in the past were permitted up to twenty-eight days to select an MCO, speed new participants' ability to access services?

Hypothesis 2 concerns how incentivizing providers through larger and quicker payment would increase their provision of high-priority, high-quality care. This hypothesis will generate questions regarding these three policy initiatives:

- Do additions to value-based purchasing goals result in higher rates of achievement of those goals, without reducing the outcomes achieved by previously existing goals?
- Do programs incentivizing greater attention to problems of particular concern among children (*e.g.*, asthma and lead exposure) help to reduce the incidence of those problems?
- Do programs restricting access to prescription drugs that may be subject to misuse control the rates of such misuse?

Hypothesis 3 involves the largest number of policy initiatives, although many are currently being implemented as pilot programs and so will have relatively limited enrollment. Therefore, the research questions around pilot programs will benefit from the ability to compare participants' results with the results of a control group. This hypothesis will produce the following policy questions:

- Does the opportunity to treat acute cases of SUD in residential treatment in institutions for mental disease (IMDs) improve the control of SUDs?
- Can home visiting services for new and expectant mothers improve outcomes for both children and their mothers?
- Will the ACIS pilot help the outcomes and living situations of persons at risk of institutionalization?
- If dental benefits are extended to currently non-covered populations—young adults discharged from foster care, and dual eligibles—would these benefits also result in reduced incidence and costs of conditions related to dental disease?
- Does ICS reduce the lengths of nursing facility stays for program participants?

- Does coverage of contraception under family planning services result in increases in the use of contraceptive drugs and devices to help families plan their families?
- Does implementation of the National Diabetes Prevention Program (National DPP), proven to be sufficiently-effective to become a covered service under Medicare, work equally well with preventing diabetes diagnoses for a Medicaid population?

All of these hypotheses and the research questions they generate are consistent with the goals of Title XIX and XXI in improving the health and wellbeing of low-income and chronically-ill populations.

Driver Diagram

Table 1 provides a driver diagram, offering a visual representation of the aims of the 2017-2021 waiver period, along with a closer look at the measures that the Department intends to employ to assess HealthChoice's performance against the stated hypotheses. In addition to the proposed measures, the Department will continue to monitor the development and release of new sources of information—such as upcoming surveys or HEDIS® measures—that may serve to evaluate the demonstration.

Table 1. Driver Diagram for Maryland §1115 Waiver Evaluation

Aims	Primary Drivers	Secondary Drivers
Eligibility and enrollment changes implemented during the current HealthChoice waiver period increase coverage and access to care for HealthChoice participants.	Auto-renewal process	Periods of continuous enrollment without interruption
		Decreases in the frequency of disenrollment and reenrollment (churn)
	MCO auto-assignment after one day policy	Improved service utilization of new participants (>120 day six-month enrollment gap)
Payment approaches implemented during the current HealthChoice waiver period improve quality of care for HealthChoice participants	Value-Based Purchasing (VBP) Program	Better rates of HbA1c control
		Increased well-child visits for children under 15 months in age
	CHIP Health Services Initiative addressing lead and asthma	Healthy Homes for Healthy Kids (Program 1)
		Childhood Lead Poisoning Prevention and Environmental Case Management Program (Program 2)
	Statewide health IT solutions	Streamlined Corrective Managed Care targeting prescription drug abuse
Innovative programs address the social determinants of health and improve the health and wellbeing of the Maryland population	IMD Exclusion Waiver	Improving rates of initiation and engagement of alcohol and other drug dependence treatment among members with SUD
		Better follow-up care after ED visit for alcohol and other drug abuse or dependence
		Lower rates of acute inpatient stays that had any SUD/opioid use disorder (OUD) diagnosis
		Reduced lengths of stay in acute inpatient and residential settings for treatment for SUD

		Increased rates of medication-assisted treatment (MAT) among participants with OUD
		Decreased rates of readmission to the same level of care or higher among members discharged from residential treatment facilities.
		Improved rates of members receiving any addiction treatment for SUD
		Decreased cost of care for individuals with SUD including co-morbid physical and mental health conditions
		Reduction in opioid-related mortality
	Evidence-Based Home Visiting Services Pilot	Increased well-child visits for children under 15 months in age
		Improved attendance at post-partum visits
		Improving rates of initiation and engagement of alcohol and other drug dependence treatment
		Decreased ED visits
		Increased dental utilization
		Increased post-partum contraceptive uptake
	Assistance in Community Integration Services Pilot	Decreased ED visits (incl. Potentially Avoidable Utilization)
		Decreased inpatient admissions
		Better follow-up care after hospitalization
		Reduced admissions to CFR 578.3 facilities
	Dental benefits for former foster care children	Reduction in utilization for other health conditions found to be highly-related to oral health
		Reduction in ED use for dental-related conditions

	Pilot for Adult Dental Benefits improves outcomes related to dental care	Reduction in utilization for other health conditions found to be highly related to oral health
		Reduction in ED use for dental-related conditions
	Increased Community Services Program	Reduction in nursing facility admissions and lengths of stay
	Family Planning Program	Increased uptake of contraceptive methods due to inclusion in Maryland Health Connection
	HealthChoice Diabetes Prevention Program	Improved medication utilization practices
		Appropriate reduction in total cost of care
		Decreased diabetes incidence
		Reduction in ED Services
		Reduction in all-cause hospital admissions

Methodology

Evaluation Design

Depending on the specific sub-population affected by policies and their related research questions, the evaluation will use multiple methodologies to create valid and rigorous tests of the programs in question. The Maryland Department of Health recognizes that implementing a policy in pursuit of the driver diagram's predicted results must test whether those results occurred because of the policy or as a result of other factors (changes in economic or social conditions that could change the mix of participants, externally-driven trends in disease incidence and prevalence, or policies implemented outside of the HealthChoice program that pursue the same goals, among other factors). An environmental survey could identify policy changes and other economic and technological trends of potential impact. The qualitative analysis would attempt to assess the counterfactual: *i.e.*, would the changes (or absence of changes) observed in the relevant measures have occurred without the implementation of the particular HealthChoice program initiative? Can those changes be explained by the causes suggested in a systematic survey of alternatives? If not, the program can be said to have had an impact, although the value of that impact might not be quantifiable.

Target and Comparison Populations

Because Medicaid is fluid in its enrollment of individuals, it is not always possible to maintain the programs' focus on particular beneficiaries or beneficiary groups. Some of these programs

evaluated apply to the HealthChoice populations as a whole, or a subpopulation which intrinsically cannot be divided into intervention and comparison groups, such as new participants. In this case, the best way to measure effects is to compare trends before and after the implementation of the program, using statistical methodologies such as pooled cross-section time series that separate between fixed effects and time-varying effects to control for exogenous changes outside of the program implementation.

On the other hand, a number of the programs are pilot studies with limited enrollment or implementation in specific geographic areas. Such programs can identify non-participants—who might be selected randomly or matched using propensity scoring techniques—in order to serve as a comparison group. Specific decisions about which approach might be used to create a comparison group will need to await the availability of sufficient data on the program participants, their number and their clinical, demographic, and geographic characteristics.

Evaluation Period

The evaluation period covers outcomes measured during the renewal period of Maryland Medicaid's §1115 waiver. In some cases (*i.e.*, for certain measures), it may be necessary to look at data from before the renewal period in order to better identify trends in the measure in question. Because The Hilltop Institute at the University of Maryland, Baltimore County is the repository for Maryland Medicaid's MMIS, it would require little additional effort to incorporate these additional data to improve the validity of an analysis relying on trends over time, such as difference in difference methods or pooled cross-section time series.

Data Sources

In general, Maryland's evaluation of the HealthChoice demonstration includes the entire population of participants, which supports a more robust evaluation than does a sampling-based methodology. This approach is facilitated by Hilltop, the Independent Evaluator. Hilltop maintains managed care encounters and FFS claims for the entirety of the Maryland Medicaid program. An overview of these and other data sources the Department will utilize follows. As with past reports, the evaluation will disaggregate certain sub-populations—such as foster care participants and dual eligibles—to assess programs focusing on these particular populations. The evaluation will also identify measures for stratification across MCOs to determine differences in the provision and quality of care.

Due to the distinct attributes of the HealthChoice population, the evaluation will not take into consideration any additional populations for purposes of comparison. The Department believes that year-to-year trend comparisons of the enrolled population provide a more meaningful analysis. Approximately 86 percent of Maryland Medicaid participants are enrolled in managed care. The remaining 14 percent consists largely of much smaller populations with greater health complexities: dual eligibles, spend-down recipients and participants in other partial benefit programs. Hence, the evaluation will not compare participants in the HealthChoice program with either the non-HealthChoice FFS population, Medicare beneficiaries or the commercially-insured.

Table 2 (Measurement Framework) identities the anticipated source for each measure.

Fee-For-Service Claims and Managed Care Encounters (MMIS2)

The Department will leverage its existing relationship with Hilltop, which, in addition to conducting research, analysis and evaluation of publicly-funded health care, serves as the warehouse for Maryland Medicaid FFS claims and managed care encounters received via MMIS2 (and previously MMIS1). Data are updated monthly and stored in analytic, SAS-ready data sets. Hilltop's data warehouse contains person-level demographic information, which allows for matching with other databases. In addition, this arrangement facilitates a variety of analyses, including cost, service utilization, provider network adequacy, enrollment trends and access to and quality of care.

Because 86 percent of Maryland Medicaid recipients participate in HealthChoice and are enrolled in an MCO, the majority of their somatic health services are covered through the managed care benefit and quantified via encounter submissions. Maryland's somatic MCO encounter reporting has been shown to be robust, correct and timely, with MCOs given six months to submit encounter data to the Department. Encounter data are used to determine medical loss ratios and, in rate-setting, give MCOs significant incentive to provide complete and accurate encounter data.

Several Medicaid benefits are carved out from the managed care package so that, even if enrolled with a HealthChoice MCO, a participant might receive some services outside of the MCO. Some of the key carved-out services include dental and behavioral health benefits, both of which are administered by administrative services organizations (ASOs), in addition to certain pharmacy benefits. Individuals participating in the Rare and Expensive Case Management (REM) program also receive their benefits on an FFS basis. FFS providers are allotted up to 12 months to submit claims, meaning that it is important to allow at least a year for claims run-out.

Notes on data: Within the HealthChoice evaluation, measures identified as part of an established domain—such as HEDIS® or CAHPS®—will follow the specifications of those domains unless otherwise noted. Measures evaluating the emergent nature of ED visits will utilize the classification methodology identified by Billings et al from New York University.[3] Individuals with behavioral health diagnoses will be identified using the criteria outlined in Maryland regulation.[4]

Vital Statistics Administration

One of the key requirements of the HealthChoice demonstration's Residential Treatment for Individuals with SUD is to monitor the incidence of opioid-related mortality. Maryland's MMIS2 does not contain information regarding cause of death. The Department will collaborate with Maryland's Vital Statistics Administration to obtain the data necessary to populate this measure.

[3] Billings J, Parikh N, Mijanovich T. (2000). Emergency room use: The New York story. The Commonwealth Fund. Available https://wagner.nyu.edu/files/admissions/Billings%20-%20Emergency%20Room%20Use%20-%20The%20New%20York%20Story.pdf; accessed 5 April 2017.
[4] COMAR 10.09.70.02(L).

Department of Human Services

Hilltop, while able to identify foster care participants by their coverage group in MMIS2, does not maintain access to foster care participants in the subsidized adoption program. Subsidized adoption participants are excluded from the Department's analysis of foster care in the HealthChoice evaluation; therefore, the Department coordinates with the Maryland Department of Human Services to obtain updated foster care subsidized adoption lists on an annual basis.

Department of the Environment

While Medicaid claims and encounters contain information regarding blood lead testing, they do not include information on the results of those tests. To report on the number of HealthChoice children with elevated blood lead levels, the Department will utilize the statewide Childhood Lead Registry (CLR). Maintained by the Maryland Department of the Environment, the CLR performs childhood blood lead surveillance for Maryland and provides results to the Department, including to Medicaid and local health departments as needed for case management.

External Quality Review Activities

As part of its Medicaid quality strategy, the Department works with an external quality review organization (EQRO) to evaluate the quality of care provided to HealthChoice participants annually. To fulfill related measures, this evaluation may utilize the results of activities conducted by the EQRO.

Medicaid Outcomes Distributed Research Network (MODRN)

MODRN is a joint project of 11 participating states to advance quality measurement in addiction treatment through development of a common set of measures that examine state to state variation of treatments and outcomes for SUD. These measures include: identification, initiation and engagement measures, medication, treatment duration, counseling and monitoring, Follow-up and general, preventive medical care, opioid and benzodiazepine prescribing, acute care use and overdose outcomes and pregnancy and OUD/Neonatal Abstinence Syndrome (NAS). Selected measures will be used to evaluate the IMD element of the waiver program.

HealthCare Effectiveness Data and Information Set (HEDIS®)

The Department requires HealthChoice MCOs to report all Medicaid measures applicable to Medicaid, except measures exempted by the Department or if the services are carved out of the managed care benefit package (see Fee-for-Service Claims and Managed Care Encounters, above). HEDIS® requires input of high-quality encounter and enrollment data to construct comparison groups based on specific clinical criteria, as defined by diagnosis and procedure codes, and demographic characteristics such as age. MCOs follow the guidelines for HEDIS® data collection and specifications for measure calculations and receive an annual HEDIS® compliance audit by a competitively-procured organization licensed by the National Committee for Quality Assurance (NCQA).

Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Survey

Maryland regulations require HealthChoice MCOs to participate in the annual CAHPS® survey, which a competitively-procured NCQA-certified contractor conducts on behalf of the Department. The contractor administers the survey to a random sample of eligible adult and child members enrolled in HealthChoice per NCQA protocols. For the HealthChoice evaluation, the Department will leverage the survey components measuring aspects of care for which participants are the best source of information to assess participant satisfaction and quality of care.

Maryland Department of Health Sources

Several of the measures proposed for the HealthChoice evaluation will rely on systems and programs internal to the Department, including ICS program, *LTSSMaryland* system, and internal program quality surveys.

Chesapeake Regional Information System for our Patients (CRISP)

The Department also collaborates with CRISP to explore innovative ways to calculate quality measures. As the state-designated health information exchange (HIE), CRISP serves as the foundation underlying many of Maryland's health information technology (IT) initiatives. In addition to the substantive and growing number and types of health care providers sharing data, CRISP has established connectivity with all 47 of Maryland's acute-care hospitals, uniquely situating Maryland to improve health outcomes and increase clinical efficiency. In addition to hospital data, the HIE also currently contains laboratory data from hospital-based laboratories and Maryland's two main private laboratories. CRISP contains radiology imaging data and has master patient index capability. The master patient index links individual patients across multiple providers and health systems, greatly facilitating the coordination of care.

Analytic Methods

Where there are pilot interventions or benefits limited to certain populations, a sample of participants and non-participants could may be selected based on a propensity scoring model, matching participants on their predicted propensity to join the program. The propensity score would be based on a multivariate probit regression model, which would generate an estimated probability for each individual participant to become a participant if the program were offered them. Cases and controls would then be matched on their predicted probability scores, and further multivariate modeling would then test the effects of the interventions. Once such approach available when there are distinct participants and non-participant comparison groups is the difference-in-differences model. This multivariate technique takes account of trends in exogenous factors that jointly affect both the study and the comparison, and measures whether the differences between the groups change over time after controlling for these factors.

To measure program effects for populations that cannot be separated into case and control groups, an interrupted time-series analysis is suitable for program measurements that are frequently repeated and can be measured prior to the initiation of the HealthChoice policy intervention.

Methodological Limitations

Within evaluation study designs, a major concern is whether the effects of an intervention can be separated from other activities and external influences that may affect the measured outcomes of that intervention. External changes that may affect HealthChoice performance include the following:

- Economic trends, such as changes in employment or inflation;
- Introduction of new medical care standards or technology (*e.g.*, a new pharmaceutical protocol for behavioral health issues);
- Epidemiology of disease patterns, such as a flu epidemic;
- Simultaneous implementation of other physical health and behavioral health models, such as accountable health organizations and behavioral health homes;
- Changes in case-mix (*e.g.*, relative severity of illness); and
- State and federal policy changes.

Any external changes beyond the control of the HealthChoice program make isolating the effects of HealthChoice more difficult. As a preliminary stage, a qualitative environmental survey would identify policy changes and other economic and technological trends of potential impact. The Department and the Independent Evaluator will consult with interest groups in communities of concern to identify other health and social service initiatives that may affect the outcomes. This qualitative analysis would attempt to define the counterfactual; *i.e.*, if the changes observed in the relevant measures would have occurred without the HealthChoice program, and if those changes could be explained by the causes suggested in a systematic survey of alternatives. If not, then the analysis can conclude that the HealthChoice program had an impact, although that impact still would need to be quantified.

Special Methodological Considerations

Certain pilot studies are small in scope, having relatively-low enrollment observable at this point in time. The analysis will likely need to pool the experience of pilot program participants over several years, along with that of any comparison group than can be constructed through propensity scoring or other techniques. Pooled cross-sectional time series may be used when the outcomes of interest—*e.g.*, a healthy birth weight or cumulative expenditures—can be measured on a yearly (or some other regular) basis.

Nevertheless, even pooled over the five-year time period, some of the pilots may not have attained enough participation to have sufficient statistical power in order to measure whether the outcomes observed are truly the effect of the intervention or simply occurred by chance. There may also be a lack of data necessary to build a truly "comparable" comparison group. This will limit the external validity of the evaluation and not allow for drawing conclusions about the policy's effectiveness or ineffectiveness. Although we cannot predict which policy evaluations will face this dilemma, should evaluators be unable to observe statistically-significant differences in a given pilot, we will report whether the policy results occurred in the expected direction and magnitude.

Table 2. Design Table for the Evaluation Period

Research Question	Outcomes used to address the research question	Sample or subgroups to be compared	Data sources	Analytic methods
Hypothesis 1: Eligibility and enrollment changes implemented during the current HealthChoice waiver period increase coverage and access to care for HealthChoice participants.				
Implementation of auto-renewal improved continuity of enrollment and reduced enrollment churn.	Spans of coverage without interruptions	All HealthChoice participants	MMIS	Interrupted time-series analysis of trends pre-and post- policy implementation
	Persons disenrolling and reenrolling within six months		MMIS	Interrupted time-series analysis of trends pre-and post- policy implementation
The auto-assignment to MCOs after one day policy improved service utilization among new participants.	Mean duration until services first used by new participants	New participants (>120 day six-month enrollment gap)	MMIS	Interrupted time-series analysis of trends pre-and post- policy implementation
Hypothesis 2: Payment approaches implemented during the current HealthChoice waiver period improve quality of care for HealthChoice participants.				
Additions to Value Based Purchasing incentive payment program led to increases in utilization	HbA1c control (added in CY 2019)	Population diagnosed with diabetes, subanalysis by MCO	MMIS, HEDIS	Interrupted time-series analysis of trends pre-and post- policy implementation
	Well-child visits for children under 15 months in age	Children < 15 months of age, subanalysis by MCO	MMIS, HEDIS	Interrupted time-series analysis of trends pre-and post- policy implementation

CHIP Health Services Initiative improved outcomes related to lead and asthma	Percentage of children with elevated blood lead levels (BLL) who have received services	Participants in Healthy Homes for Healthy Kids versus non-participants (Program 1)	MMIS using ICD-10 coding of BLL, Blood Lead matching, Local Health Departments, Childhood Lead Registry	Difference-in-differences analysis of trends between participants and non-participants
	Among those will elevated BLL, the proportion whose follow up blood lead test was below 5µg/dL	Expansion of the Childhood Lead Poisoning Prevention and Environmental Case Management Program versus non-participants (Program 2)		
	Asthma: Fewer nights awakened; fewer days with shortness of breath; fewer days of rescue inhaler use; reduced asthma-related ED and inpatient use		Local Health Departments HEDIS MMIS	
Streamlined Corrective Managed Care decreases prescription drug abuse	No. of persons on CMC	Persons using Rx identified for CMC, enrolled on CMC and not enrolled	MMIS	Difference-in-differences analysis of trends between participants and non-participants
	No. of overdoses			
Hypothesis 3: Innovative programs address the social determinants of health and improve the health and wellbeing of the Maryland population.				
IMD Exclusion Waiver results in improved outcomes for SUD	Probability of initiation and engagement of alcohol and other drug dependence treatment	Persons with SUD, users of IMD compared with non-users	MMIS, HEDIS	Estimated odds ratio of IMD to Non-IMD users, controlling for level of care in IMD, using binary outcome regression

	Follow-up after discharge from the ED for mental health or alcohol or other drug dependence		MMIS	Odds ratio of follow up within seven and 30 days after discharge using binary outcome regression
	ED utilization for consequences of SUD, including opioid overdoses			Frequency of ED use with primary DX of SUD, controlling for IMD participation and level of care, using event-count regression models
	Use of MAT services among persons with OUD and IMD placement			Frequency of ED use with primary DX of SUD, controlling for IMD participation and level of care, using event-count regression models
	Presence of discharge planning in making effective linkages to community-based care	IMD users		Summary statistics of completed discharge planning, use of services post discharge, using Chi-square or t-tests
	Readmission frequency to the same level of care or higher			Pooled cross-sectional time-series counts of readmissions
	Tabulations of spending inclusive of IMD and outpatient treatment	Persons with SUD, users of IMD compared with non-users		Pooled cross-sectional time-series counts of costs
	Overall cost of care for individuals with SUD including co-morbid			Pooled cross-sectional time-series spending inclusive of IMD and outpatient treatment, controlling

	physical and mental health conditions			for persons with and without IMD use
	Death by OUD	Deaths by OUD among Medicaid participants		Incidence of OUD in binary regression model comparing IMD and non-IMD.
The HVS Pilot improves health outcomes for participating families and children	Length of time between initiation of well child visits, frequency of visits around appropriate ages in months	HVS participants compared to non-participants	MMIS	Difference-in-differences
	Length of time to mother's first post-partum visit		MMIS	Hazard rate models
	Mother's initiation of SUD treatment if diagnosis of SUD, pre- or post-natal, compared to non-participants		MMIS	Hazard rate models
	Mother and newborn use of ED for all causes and for primary diagnosis of injury, poisoning or trauma		MMIS	Binary outcome regression
	Mother's use of dental services, pre- and post-partum		MMIS	Binary outcome regression, controlling for participation in HVS

	Post-partum contraceptive uptake		MMIS prescription filled for contraceptives	Binary outcome regression, controlling for participation in HVS
	Mothers and infants admission rates, within one year of birth		MMIS	Event count models, controlling for participation in HVS
ACIS pilot improves health outcomes for participants	Pre- and post- living situation	ACIS participants vs Non-participants	Enrollment data	Interrupted time-series analysis
	ED visits (incl. potentially-avoidable utilization)		MMIS, HEDIS	Event count models, controlling for participation
	Inpatient admissions			Event count models, controlling for participation
	HEDIS Follow Up after Hospitalization (FUH)			Event count models, controlling for participation
	Frequency of admissions to NH, Behavioral Health, inpatient acute care from users of CFR 578.3 facilities	Users of CFR 578.3 facilities compared to non-users		Event count models, controlling for participation
Dental benefits for former foster care	Frequency of ED visits with dental diagnoses		MMIS	Pooled cross-sectional time series

children reduced potentially-avoidable utilization	Diagnoses of diabetes, MCH, inflammatory disease	Former foster care children compared to similar age groups		Compare to similar age groups in multivariate binary outcome regression
Pilot for Adult Dental Benefits improves outcomes related to dental care	Reduction in ED use for dental related conditions	Dual eligible pilot participant and non-participants	MMIS	Difference-in-differences
	Diagnoses of diabetes, MCH, inflammatory disease compared to similar age groups in multivariate regression		MMIS	Compared to similar age groups in multivariate binary outcome regression
ICS	Transitions of long stay nursing facility residents to community settings	Nursing facility residents participating and not participating in the pilot	MMIS	Compare length of stay of ICS participants with similar nursing facility residents in a multivariate regression.
Family Planning increases utilization of family planning services	Effect of inclusion in Maryland Health Connection on enrollment and uptake of prescription contraceptives (daily and/or LARC)	Uptake of prescription contraceptives (daily and/or LARC)	MMIS	Multivariate pooled cross-sectional time series, for binary outcome of daily prescription, LARC, and of any contraceptive
HealthChoice Diabetes Prevention Program improves health outcomes for participants	All-cause hospital admissions	Compare DPP participants to non-participants	MMIS	Event count models
	Prescription utilization			Frequency (count) of prescriptions
	Total cost of care			Pooled cross-section time series analysis of costs

	Diabetes incidence			Binary outcome regression
	ED Services			Event count models

Attachments

Independent Evaluator and Evaluation Budget

Selection of the Independent Evaluator

The Hilltop Institute has provided consultation, technical support and program assistance to the Department since 1994. Hilltop provides technical support to the Department on several projects designed to improve the Maryland Medicaid program. The responsibilities of Hilltop are to: 1) assist the Department in managing the HealthChoice program, including rate-setting and data and policy analysis; 2) provide data analyses, rate-setting support and policy development of innovative proposals for the delivery of long-term services and supports; 3) provide administrative support activities; 4) facilitate database development; and 5) produce and disseminate studies, reports and analyses. Hilltop's long-standing role in warehousing and interpreting Maryland Medicaid claims data—in addition to its invaluable experience shadow-pricing claims—further supports its role as Independent Evaluator of the HealthChoice demonstration.

Evaluation Budget

The list of assigned personnel and their respective contributions and work effort is contained in Appendix A. The cost for the evaluation, inclusive of salary, fringe benefits and university overhead totals approximately $628,667.

The relationship between the Department and The Hilltop Institute is governed by a multi-year Master Agreement and Business Associate Agreement, with a scope of work and budget negotiated on an annual basis.

Timeline and Major Milestones

As described in the Data Sources section above, Medicaid claims and encounters for health care services are not immediately available for analysis. FFS providers are allowed 12 months to submit claims for payment, and MCOs are permitted six months to submit encounters. MMIS2 data are not considered completed until 12 months have passed for submission of FFS claims. Hilltop receives MMIS2 data on a monthly basis. For example, a claim or encounter paid on May 15, 2022 would be included in the data submission to Hilltop in early June 2022.

The evaluation period for participants will extend thru December 31, 2021. To accommodate the FFS claims run-out period, Hilltop will delay its analysis until 12 months have passed from the culmination of the demonstration period, until after January 1, 2023. With the summative evaluation due to CMS in June 2023, this will allow approximately six months for data processing and analysis for those measures that rely on claims and encounters.

Table 3 provides a summary of the schedule of state deliverables for the demonstration period.

Table 3. Summary of Milestones for Completion of the Summative Evaluation Report

Milestone	Date
Draft evaluation design submitted	April 21, 2017
Draft evaluation design re-submitted	July 9, 2019
Last day of the HealthChoice demonstration period	December 31, 2021
Last day for MCO providers to submit encounters for inclusion in analysis	June 30, 2022
Last day for fee-for-service providers to submit claims for inclusion in analysis	December 31, 2022
Due data for draft of summative evaluation report	June 30, 2023
Due date for final summative evaluation report	*(Within 30 days of receipt of CMS comments)*
Final approved summative evaluation posted to the Department's website	*(Within 30 days of CMS approval)*

Appendix A. Budget Justification for The Hilltop Institute

Estimated Personnel Effort and Other Costs for Summative HealthChoice Evaluation
Period of Performance: 7/1/22 – 6/30/23
Budget Justification

This is the estimated budget for the final HealthChoice Summative evaluation due June 30, 2023. During years 1-4 of the waiver, data collection and analysis will be ongoing and will culminate in interim annual reports.

Personnel and Other Costs:

Executive Direction, .21 FTE ($44,342): The executive direction team will be responsible for overall supervision of the project and will provide assistance with project management and coordination with MDH. The team will provide management oversight of the evaluation team and final review and approval of the evaluation analysis.

Project Supervision and Direction, .32 FTE ($56,902): This team will be responsible for overall supervision of the project and will provide assistance with project management and expertise on the analysis of Medicaid utilization data and risk adjustment.

Methodology and Methods Team, .29 FTE ($42,214): The methodology and methods team will develop methodologies needed for the evaluation, and will work with the Maryland Department of Health to coordinate new data collection outside of encounter reporting. The team will advise on the application of appropriate statistical methods to the analysis of the evaluation data.

Programming Team, .7 FTE ($92,511): The programming team will have primary responsibility for SAS programming to calculate HealthChoice outcome measures, including HEDIS and other quality measures.

Policy Analysts, 1.42 FTE ($198,218): The policy analyst team will collaborate with MDH on stakeholder communication, analyze Medicaid utilization data, participate in the development of information needed for the evaluation, and will work with MDH to coordinate new data collection outside of encounter reporting. The team will provide technical support to SAS programmers on data analysis and risk adjustment and will contribute to data analysis, regression analysis, and interrupted time series analyses.

Editor, .03 FTE ($5,666): The editor will provide editorial services and graphics support for the evaluation report.

Fringe Benefits: Fringe benefit charges are estimated at 35%.

Travel and Conference Calls: Local travel and conference calls are estimated at $400 annually to meet with the Department.

Programming Subcontracts: Additional programming subcontracting costs are estimated at $20,000 annually.

Overhead: Facilities and Administrative (F&A) recovery rate applied to this project is 25%.

Annual Estimated Budget in FY 2023: $628,667