



# The Hilltop Institute

## UMBC



Maryland Department of Health  
Master Agreement  
Annual Report of  
Activities and Accomplishments  
FY 2021

report



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## A Nationally Recognized Partnership

### The Hilltop Institute at UMBC

The Hilltop Institute at the University of Maryland, Baltimore County (UMBC), currently in its 27<sup>th</sup> year of service to the state of Maryland, is dedicated to advancing the health and wellbeing of people and communities. Nationally recognized for its expertise in Medicaid and state health policy, Hilltop is committed to addressing complex issues through informed, objective, and innovative research and analysis. With an extensive data repository and a staff of 50 full-time professionals—policy and financial analysts, data scientists, economists, attorneys, actuaries, public health professionals, and SAS programmers—Hilltop is uniquely positioned to conduct cutting-edge data analysis, policy research, and program development to address salient issues confronting publicly financed health care systems. Hilltop is guided by an external [Advisory Board](#) of highly regarded national experts in health policy, academicians, and health care executives. As state and federal governments continue to consider reforms to Medicaid and the health care financing and delivery system as well as address emerging challenges such as the coronavirus pandemic and the opioid crisis, Hilltop’s deep understanding of state health policy and expertise in data analytics is critical to Maryland’s efforts to continue to ensure access to quality, affordable health care for all Marylanders.

Since 1994, Hilltop has maintained a collaborative and highly productive partnership with the Maryland Department of Health (the Department) and—more specifically—the Maryland Medicaid Administration. This relationship is governed through an interagency agreement between UMBC (on behalf of Hilltop) and the Department’s Office of Innovation, Research, and Development. The Department has designated Hilltop as a business associate pursuant to the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule. In this capacity, Hilltop maintains an extensive data repository to support program development, operations, evaluation, research, policy analysis, and rate setting. The data repository includes Maryland Medicaid data dating back to 1991, as well as hospital discharge data and federal data sets required to support Hilltop’s analyses (e.g., nursing facility assessment data and Medicare data for Marylanders). Hilltop developed and continues to expand the reporting capability of the Maryland Medicaid DataPort, State Edition, a web-based data aggregation and visualization tool for the exclusive use of the Department that provides real-time data on Medicaid eligibility, utilization, and expenditures. Hilltop also hosts a [public site](#) that offers Medicaid eligibility information.

Each year, Hilltop develops risk-adjusted capitation payments for HealthChoice, Maryland’s Medicaid managed care program. In fiscal year (FY) 2021, HealthChoice had nine participating managed care organizations (MCOs), served about 1.4 million beneficiaries, and paid \$6.77 billion in capitated

payments to MCOs. Hilltop conducts the annual evaluation of HealthChoice required by the Centers for Medicare & Medicaid Services (CMS), as well as a multitude of ad hoc analyses each year to support further development and administration of the program. In FY 2021, Hilltop assisted the Department with the preparation of the renewal application for Maryland's §1115 HealthChoice waiver; worked closely with the Department to develop internal high-cost drug processes and policies; conducted a study to examine the effects of increasing participation in the Home and Community-Based Options Waiver (CO Waiver); continued to verify the completeness, accuracy, and reliability of encounter data; assisted the Department in monitoring the implementation of its Maternal Opioid Misuse (MOM) grant; and conducted a regional analysis and gap analysis for the new Opioid Operational Command Center (OOCC).

Hilltop analyzes provider fees to support state deliberations on payment rates and compliance with federal rules. Hilltop's analyses have been instrumental in the implementation and evaluation of Affordable Care Act (ACA) initiatives such as the Medicaid expansion, the Money Follows the Person (MFP) Rebalancing Demonstration, the Balancing Incentive Program, Community First Choice (CFC), and Medicaid health homes for individuals with serious and persistent mental illness (SPMI), serious emotional disturbance (SED), and opioid use disorder (OUD). Hilltop provides data analytics for the Department to support implementation and monitoring of the Maryland Total Cost of Care (TCOC) Model approved by CMS in 2019. In all areas of collaboration, Hilltop assists the Department in meeting its goal of ensuring that all Marylanders have access to affordable and appropriate health care.

Since the onset of the COVID-19 pandemic in January 2020, Hilltop has been instrumental in providing data analytics for the Department to support implementation and monitoring of temporary flexibilities granted to the states by CMS during the public health emergency. Hilltop has provided staff support to the state's COVID-19 Task Force, monitored hospital surge capacity, and reported on Medicaid enrollment and COVID-19 diagnoses, testing, and vaccinations in the Medicaid population. Hilltop also supported implementation of a global risk corridor to mitigate the financial impacts of COVID-19 on the nine MCOs participating in HealthChoice. Hilltop's longstanding partnership with the Department—together with its deep knowledge of state data and expertise in data analytics—enabled Hilltop to quickly turn around analyses critical to advancing the state's response to the pandemic.

Hilltop provides data analytics, technical support, and policy analysis to other divisions and entities of the Department (e.g., the Developmental Disabilities Administration [DDA], Behavioral Health Administration [BHA], Public Health Administration [PHA], Maryland Health Care Commission [MHCC], and the Health Services Cost Review Commission [HSCRC] and to other state agencies (e.g., the Maryland Health Benefit Exchange [MHBE], the Prescription Drug Affordability Board [PDAB]).

Through these relationships, Hilltop helps facilitate improved cross-agency coordination on data needs, analytics, and policy development. While Hilltop also conducts work for other states, the federal government, nonprofit agencies, and foundations, its relationship with the Department remains its primary focus.

## History

UMBC established The Hilltop Institute in 1994 as the Center for Health Program Development and Management in partnership with the Department. Together, Hilltop and the Department developed Maryland's High-Risk Patient Management Initiative, which aimed to provide access to health care services for individuals who were both medically fragile and financially indigent and to be managed in such a way that the state's scarce resources would be utilized in the most cost-effective manner. This program later became the Rare and Expensive Case Management (REM) program, and Hilltop managed it until 2004, when this task was assumed by the Department. Hilltop continues to provide data analysis and monitoring for the REM program.

As Hilltop's research and analytic expertise grew, the Department began requesting analyses and assistance in other areas as Maryland expanded its Medicaid program. Hilltop collaborated with the Department in the development of HealthChoice, Maryland's Medicaid managed care program launched in 1997, as well as the HealthChoice §1115 waiver applications. Today, Hilltop continues to conduct research and policy analysis for HealthChoice and develop capitated payment rates for health plans participating in the program. Over the years, Hilltop's role has evolved as the priorities and needs of the Department have changed, but its focus on data-driven research and analytics to inform program and policy development, implementation, and evaluation remains constant.

## Leveraging Our Work

Leveraging its knowledge of state health policy, access to Maryland health care data, and expertise in data analytics, Hilltop often collaborates with other states, agencies, foundations, and university faculty to conduct research that benefits the Maryland Medicaid program. In FY 2021, Hilltop developed an algorithm for the Maryland Primary Care Program (MDPCP)—which incentivizes practices to offer advanced primary care services under the state's TCOC Model—to identify an individual's relative risk of avoidable hospitalization. In partnership with Chesapeake Regional Information System for our Patients (CRISP), Maryland's health information exchange, Hilltop is using the algorithm to provide *risk stratification scores* monthly to primary care practices to assist care coordinators in triaging care. Hilltop also trained this model to predict COVID hospitalizations and is working with the MCOs to adapt the model for their use. Also, to support the TCOC Model, Hilltop is developing the multi-payer claims analytic tool (MCAT) for the HSCRC to automate data aggregation, visualization, and report generation for performance and quality monitoring. For the MHBE, Hilltop

modeled options for a state reinsurance program for Maryland’s ACA marketplace; the state’s reinsurance program, implemented for the 2019 plan year, has been credited with substantially lowering premiums for marketplace health plans. With funding from CRISP, Hilltop is examining transitions between different levels of care for individuals dually eligible for Medicare and Medicaid. With funding from the Robert Wood Johnson Foundation (RWJF) Health Data for Action program, Hilltop, in partnership with researchers at the University of Maryland Baltimore (UMB), tested a measure of hospital quality that assesses hospitals based on the frequency of downstream clinically relevant admissions as opposed to blanket 30-day all-cause readmissions. Also with UMB researchers, Hilltop is analyzing Medicaid data to create a statewide cohort of victims of violence and examine the care they receive for their injuries in order to better understand health care resources used by victims of violence. Building on its experience in working with the federal nursing facility Minimum Data Set (MDS) for the Department, Hilltop performed analytics and produced reports from the MDS and MHCC’s annual nursing facility survey under a contract from MHCC. With funding from RWJF, Hilltop partnered with Virginia Commonwealth University to produce a [report](#) on Maryland’s and Virginia’s experience with §1115 MOM waivers. For the Centers for Disease Control and Prevention (CDC) Foundation, Hilltop partnered with researchers from the University of South Carolina to examine the screening and treatment of sexually transmitted infections among Medicaid populations.

## National Recognition

Hilltop’s successful state/university partnership with the Department remains the mainstay of Hilltop’s work. This partnership continues to garner national attention. Hilltop is a founding member of AcademyHealth’s State-University Partnership Learning Network (SUPLN), established in 2014, and Hilltop’s executive director chairs the SUPLN steering committee. The network promotes evidence-based state health policy and practice through collaborations by state governments and state university research centers. Currently, Medicaid agencies in 26 states have active partnerships with 30 public universities. AcademyHealth receives funding from the Patient-Centered Outcomes Research Institute (PCORI) to support SUPLN convenings and research and dissemination activities.

In order to conduct cross-state research on Medicaid, SUPLN researchers developed the Medicaid Outcomes Distributed Research Network (MODRN). MODRN facilitates efficient, data-driven analyses without the need to share sensitive person-level data across states. States participating in MODRN use a common data model and standardized analytic code for conduct of local analyses of Medicaid administrative data. Then the states aggregate results to present cross-state comparisons of Medicaid initiatives to advance policymaking. Thirteen states now participate in MODRN.

In 2019, the National Institute on Drug Abuse (NIDA) awarded a three-year grant to MODRN researchers from Hilltop and eight other states—Kentucky, Michigan, North Carolina, Ohio,

Pennsylvania, Virginia, West Virginia, and Wisconsin—to harness the power of MODRN to assess OUD treatment quality and outcomes, with the goal of informing policy decisions on coverage and payment for evidence-based OUD treatments in Medicaid. The team developed cross-state reporting capability for 15 standardized measures of OUD treatment performance and linked Medicaid claims to vital statistics to examine the association between the quality of OUD treatment and fatal and non-fatal drug overdoses. The research team also conducted an extensive policy inventory of participating states that is being used to examine associations between Medicaid coverage policies, OUD treatment quality, and overdose outcomes. The work culminated in a proposal to NIDA that, if funded, will enable the MODRN team to examine inequities in access to medications for opioid use disorder (MOUD) to support policymakers in developing effective strategies for improving access to treatment.

### **Annual Report**

Effective July 1, 2019, The Hilltop Institute at UMBC renewed its five-year master agreement with the Maryland Department of Health, extending it through June 30, 2024. This annual report presents activities and accomplishments for FY 2021 (July 1, 2020, through June 30, 2021), the second year of this master agreement.

## Technical Assistance to Address the COVID-19 Crisis

In January 2020, the United States confirmed its first case of the coronavirus, which initially surfaced in China in 2019. The Secretary of Health and Human Services declared a public health emergency on January 31, 2020. The resulting COVID-19 pandemic has presented many challenges for state Medicaid programs. CMS granted states some temporary flexibilities during the public health emergency, issuing several temporary blanket waivers that removed some administrative barriers in order to allow states to provide better access to treatment, such as permitting audio-only telehealth services. Like many states, Maryland submitted several waiver requests (§1115, §1135, and §1915(c) Appendix K). CMS also provided states with temporary increased Federal Medical Assistance Percentage (FMAP).

Hilltop has been at the forefront of Maryland's efforts—working directly with the Department's Secretary, Medicaid Director, Medicaid Deputy Director, and Unified Area Command staff—providing daily support to the Department to implement emergency measures and monitor the crisis. In FY 2021, Hilltop continued to provide staff support and participate on the COVID-19 Task Force; monitored Medicaid enrollment, COVID-19 cases among the Medicaid population, and hospital occupancy/surge capacity; assisted with responses to media inquiries; and conducted a number of ad hoc analyses. In addition, Hilltop supported the implementation of a global risk corridor to mitigate the financial impacts of COVID-19 on the nine MCOs participating in HealthChoice.

### CARES Act

The Coronavirus Aid, Relief, and Economic Security Act (*CARES Act*) established the Coronavirus Relief Fund (the Fund) and appropriated \$150 billion to the Fund to be used to make payments for specified uses to states and certain local governments, the District of Columbia, and U.S. Territories. The Fund may be used for necessary expenditures incurred due to the public health emergency. Hilltop conducted reviews of the CARES Act and the various waivers and helped the Department interpret them. Hilltop also conducted several analyses to assist the Department in responding to requests for information by the federal government.

**Provider Relief Fund:** CMS requested that states submit provider-level CY 2018 through CY 2019 Medicaid fee-for-service (FFS) and managed care revenue data (inclusive of all Medicaid payments) and provider payment information for all Medicaid participating providers. To assist the Department in fulfilling this request, Hilltop reviewed a list of providers who requested a disbursement from the Health and Human Services (HHS) Provider Relief Fund. To verify the providers' identity, Hilltop produced documentation to indicate if the provider was included in the

CARES Act submission and/or a Medicaid provider in MMIS2. Hilltop also assisted with a request from the Maryland Department of Budget and Management to identify the Medicaid provider type for all Maryland providers who received a disbursement from the HHS Provider Relief Fund and appended one of three provider type categories to the file. Hilltop then updated this request to summarize all Maryland nursing home and assisted living providers who received a disbursement from the HHS Provider Relief Fund.

**Hiring Waiver Request:** One of the temporary changes implemented during the public health emergency was to allow family members to be paid to provide personal care services for individuals. To assist the Department in assessing the plan for these temporary changes that were implemented for CFC Residential Services Agency providers, Hilltop reviewed and interpreted the §1135 waiver, Appendix K, and related COMAR regulations.

### **Hospital Surge Capacity**

In May 2020, the Department requested that Hilltop assist the state in monitoring hospital surge capacity. Hilltop participates in an interagency team consisting of CRISP; the Maryland Hospital Association; the Maryland Institute for Emergency Medical Services Systems (MIEMSS); and other Department staff and consultants to collect, analyze, and monitor daily hospital occupancy and related data. Hilltop analyzed these data to develop daily briefing reports for the Medicaid director and the state's COVID-19 Task Force. Hilltop ran these reports seven days per week throughout FY 2021 and also responded to ad hoc questions about the data throughout the year. Hilltop hosted daily morning meetings with state leadership to review hospital capacity data and assist with planning efforts; the cadence of these meetings was reduced to two days per week in the spring of 2021. Hilltop also participated in daily afternoon data review meetings with the CRISP, MIEMSS, and MHA team; these meetings were phased out in the spring of 2021.

Hilltop also participated in an interagency team effort in the summer of 2020 to document statewide maximum hospital surge capacity. Hilltop developed a standard template to collect phased surge capacity data from the state's 50 acute hospitals treating COVID-19 patients and conducted interviews with hospital executives to complete the template. The interviews were used to inform second surge planning, operational decision-making, and resource allocation.

### **Other COVID Analyses and Support**

**COVID-19 and Hydroxychloroquine Monthly Reports:** In July 2020, Hilltop developed a COVID-19 dashboard and delivered monthly reports that calculated the number of Maryland Medicaid participants with COVID-19 diagnoses as well as the number of individuals with COVID-19

diagnoses that had been prescribed hydroxychloroquine (HCQ). The dashboard was later added to the DataPort, where it is updated monthly.

**Telehealth Expansion:** Under public health emergency authority, the Department expanded coverage of health care services provided through telehealth. To monitor these services, Hilltop completed several analyses for CY 2020. Hilltop examined telehealth visits and their corresponding billing modifier codes from January 1, 2020, through August 31, 2020, and provided the Department with a summary of their prevalence. Hilltop also provided the Department with an analysis of telehealth services delivered from January 1, 2020, through September 30, 2020, delineated by provider type. Hilltop reviewed all professional encounters for federally qualified health centers (FQHCs) during CY 2020, delineated by provider type. The analysis identified a notable change from CY 2019 in the provider type used for submitting FQHC encounters—instead of using an organizational provider type (e.g., FQHC), the FQHCs began identifying individual provider types (e.g., physician, nurse, etc.). Hilltop also updated a previous telehealth analysis for CY 2020 to support a fiscal note for Senate Bill 3, which proposed permanent expansion of some of the COVID-19 public health emergency telehealth services, and performed another analysis to describe telehealth services rendered to dually eligible participants. Hilltop analyzed telehealth services for behavioral and non-behavioral health in CY 2019 and CY 2020 and provided encounter data and FFS data on utilization of these services.

**COVID-19 Diagnosis and Testing:** In FY 2021, using CRISP and Medicaid data, Hilltop identified Medicaid participants who received at least one COVID-19 laboratory test and compared the demographic and enrollment characteristics of those who received at least one positive test and those who only tested negative in CY 2020 as of July 6, 2020, and July 15, 2020. In addition, using CRISP data, Hilltop analyzed COVID-19 data for Medicaid participants who received services through a Medicaid waiver program, resided in a nursing home or assisted living facility, or were recipients of a housing waiver during CY 2020.

Hilltop met with the Department to review goals for using the COVID-19 testing data structure of CRISP and National Electronic Disease Surveillance System (NEDSS) and discuss CRISP data quality issues. To prepare, Hilltop researched the number of antibody tests included in the CRISP data based on Logical Observation Identifiers Names and Codes (LOINC) and the option of transitioning to using NEDSS data. Hilltop also identified COVID-19 data from both sources and developed a crosswalk between CRISP and NEDSS data. Hilltop used NEDSS data to continue to analyze COVID-19 testing and diagnoses for participants who received services through a Medicaid waiver program, resided in a nursing home or assisted living facility, or were recipients of a housing waiver during CY 2020 and were enrolled in the Medicaid program.

**COVID-19 Vaccinations:** On behalf of the Department, Hilltop identified Medicaid participants who received at least one dose of the COVID-19 vaccination, provided their demographic and enrollment characteristics, and provided a summary of the number of vaccinations completed per month, delineated by vaccine manufacturer. Hilltop also identified participants under 16 years of age at the time they received their vaccination, as well as providers affiliated with FQHCs who are participating in, or have been invited to participate in, a federally sponsored COVID-19 vaccination program. In addition, Hilltop calculated the number of COVID-19 vaccine doses administered, the percentage of Medicaid participants receiving doses by MCO/FFS and non-Medicaid enrollment, delineated by age group, and the percentage change between weekly COVID-19 vaccine reports. Hilltop provided summary tables of the number and percentage of MCO participants aged 12 years and older who were fully vaccinated against COVID-19, received the first dose of the vaccine, or who did not receive the vaccine, delineated by age and MCO. Hilltop also provided sample data by age group and by county. Further, Hilltop provided data to the MCOs on COVID-19 vaccinations and the week-to-week percentage change for HealthChoice participants by county, local access area, and ZIP code, as well as statewide data. Hilltop provided and revised a data dictionary for updating the patient-level vaccination file.

To assist the Department's outreach efforts to increase vaccination rates in Maryland, Hilltop completed several analyses identifying populations of interest. Hilltop completed three weekly reports to identify home and community-based services (HCBS) recipients with support planners and documented recipients' vaccination status using data from ImmuNet. In a similar analysis, Hilltop provided weekly data to the Department documenting the vaccination status of Medical Day Care (MDC) service recipients. These data included person-level data points, as well as high-level, aggregate data tracking trends over time. Hilltop also identified all unvaccinated adults aged 65 and older in the FFS category and provided contact information to the Department to facilitate outreach to this population. Additionally, Hilltop provided an analysis of Medicaid-enrolled Program of All-Inclusive Care for the Elderly (PACE) participants and vaccination status, providing aggregate information on this population.

**Medical Day Care (MDC) Center Closures:** Hilltop completed an analysis for the Department that included information on the utilization of Medicaid-paid MDC services and additional temporary personal assistance service (PAS) hours authorized by the Department due to the closure of MDC centers during the public health emergency. Hilltop used these data to estimate the costs of providing MDC services and additional PAS temporary hours through the end of CY 2020. Hilltop then replicated this analysis to project the costs of providing services through March 2021, after which MDC centers resumed in-person operations.

**COVID-19, Private Duty Nursing (PDN), and PAS:** Hilltop provided an analysis, by month, of the authorization and use of Medicaid PDN services to determine any changes in service utilization due to COVID-19 from January 2020 to March 2020. Using the same methodology, Hilltop completed a subsequent analysis of services with a preauthorization span in April 2020 through June 2020. Hilltop also completed an analysis to estimate the number of school-aged children who might request a temporary increase in state plan PAS hours during the summer of FY 2021 due to the pandemic. This estimate was based on recently requested increases in PAS as documented in service plans of similarly aged program participants. Additionally, Hilltop provided the average number of personal assistance hours the cohort received during the summer of 2019.

## HealthChoice Program Support and Evaluation

In FY 2021, Hilltop continued to play a key role in supporting HealthChoice, Maryland’s Medicaid managed care program, by conducting an annual evaluation of the program, monitoring the performance of HealthChoice MCOs, and conducting special policy studies and analyses.

**HealthChoice §1115 Waiver Evaluation:** As in previous years, Hilltop partnered with the Department to monitor and report on the performance of the HealthChoice program. During this reporting period, Hilltop worked with the Department to restructure the annual evaluation by incrementally adding measures in preparation for the five-year Waiver Demonstration Evaluation covering CY 2017 through CY 2021 and the CY 2020 to CY 2023 HealthChoice renewal for CMS. Hilltop also provided feedback on CMS's comments to the Department's §1115 HealthChoice Demonstration Evaluation design for which the Department received final approval from CMS in April 2021. Hilltop submitted a draft and final Evaluation of the Maryland Medicaid HealthChoice Program for CY 2015 through CY 2019 and provided feedback for the Department’s presentation of the evaluation to the Maryland Medicaid Advisory Committee. The [report](#) provides a brief overview of the program and recent updates summarizing changes to the overall HealthChoice program, and then addresses the following five demonstration goals:

- Improve access to health care for the Medicaid population, including special populations
- Improve the quality of health services delivered
- Provide patient-focused, comprehensive, and coordinated care designed to meet health care needs by providing each member a single “medical home” through a primary care provider (PCP)
- Emphasize health promotion and disease prevention by providing access to immunizations and other wellness services, such as regular prenatal care
- Expand coverage to additional Marylanders with low income through resources generated by managed care efficiencies

The report covered access to and quality of care and service utilization for special populations such as children in foster care, REM participants, the ACA Medicaid expansion population, and racial/ethnic minorities. In addition, the report presented a section on preventive care—including maternal health and chronic diseases that included diabetes, HIV/AIDS, behavioral health conditions, mental health disorders (MHDs), substance use disorders (SUDs), and the new HEDIS® measure, “Follow-Up after Emergency Department Visit for MHD or SUD.” Preventive and chronic disease care measures, such as prenatal care, low birth weight, antidepressant medication adherence, and depression-related emergency department (ED) visits, align with Maryland’s

Statewide Integrated Health Improvement Strategy (SIHIS). Hilltop also added measures to describe enrollment in pilot programs to offer new services, such as institutions for mental disease (IMDs), Home Visiting Services (HVS), Assistance in Community Integration Services (ACIS), Increased Community Services (ICS), Dental Services for Former Foster Care Individuals, and National Diabetes Prevention and Family Planning programs.

Hilltop performed in-depth analyses for the report, including calculating the percentage of HealthChoice participants who received a Screening, Brief Intervention, and Referral to Treatment (SBIRT) service or other type of service (e.g., ambulatory care and outpatient ED use, inpatient admissions, and medication-assisted treatment [MAT] utilization). To further examine utilization rates, Hilltop calculated measures such as the average number of ED visits and the average length of a hospital stay. Hilltop compared ED utilization by participants with diabetes who received standard diabetes follow-up care services to those who did not to determine if there was a likelihood that the participants without follow-up care were high utilizers of outpatient ED services. Hilltop added disease-specific measures to explore the percentage of participants who had ED visits or inpatient admissions with a primary diagnosis of asthma or diabetes. To explore the effect of updates to the Medicaid enrollment process, Hilltop added measures to track the percentage of participants who were continuously enrolled in Medicaid, as well as a measure to determine the percentage of participants who had gaps in coverage during each year.

New in FY 2021, Hilltop conducted regression analyses to identify the associations between various health outcomes and characteristics of the appropriate populations incurring those outcomes. These analyses, which identify the effects of health services received while holding other population characteristics constant, were aimed at helping the Department assess the effectiveness of those interventions and subpopulations where greater interventions might be needed. Hilltop followed HEDIS® measurement criteria and population parameters to maintain comparability with national definitions and standards and addressed the following topics:

- Receipt of prenatal care in the first trimester and infant birth weight
- Adherence to antipsychotic medication management for individuals with schizophrenia and schizophrenia-related ED visits or inpatient admissions
- Adherence level of asthma-controller medication, and inpatient admissions and ED visits for asthma
- Receipt of diabetes HbA1c blood or eye screenings, and inpatient admission and ED visit for diabetes

**The REM Program:** The REM program serves individuals with multiple and severe health care needs. In FY 2021, Hilltop continued to provide analytical support to the REM program. Hilltop

prepared quarterly analytic reports for REM case managers and providers and included other analyses of the REM population in its evaluation of the HealthChoice program.

**Early and Periodic Screening, Diagnosis, and Treatment (EPSDT):** Hilltop provided sample data to the Department’s designated third party contractor in support of the annual EPSDT report to CMS (CMS-416). The information is used by CMS to assess the effectiveness of state EPSDT programs in terms of the number of individuals under the age of 21 (sorted by age group and basis of Medicaid eligibility) who are receiving child health screening services, referred for appropriate treatment, and receiving dental services. Child health screening services are defined for purposes of reporting on this form as initial or periodic screens required to be provided according to a state’s screening periodicity schedule. Hilltop also completed an analysis of the utilization of in-person, telehealth, and combination EPSDT services by Medicaid participants during CY 2020.

**Childhood Lead Reporting:** Maryland law requires all lead tests performed on children from birth through 18 years to be reported to the Maryland Department of the Environment (MDE) Childhood Lead Registry (CLR). Using a program it developed to implement an enhanced CLR/Medicaid data-matching process, Hilltop identifies Medicaid participants in the CLR data, identifies the corresponding MCOs for these children, reports the blood lead testing and elevated blood lead level rates, and develops monthly reports for the MCOs and an annual report for the Department and MDE.

Hilltop submitted monthly calendar-year-to-date reports for children aged 0 to 6 years to the Department. Hilltop also submitted an annual report—including a county-based analysis of lead testing results for HealthChoice children aged 12 to 23 months and 24 to 35 months—to MDE on behalf of the Department. The results of the lead tests were then reported to the MCOs for follow-up on children with elevated blood lead levels.

**CHIP Health Services Initiative State Plan Amendment:** In June 2017, CMS approved Maryland’s application for a Children’s Health Insurance Program (CHIP) Health Services Initiative (HSI) state plan amendment (SPA) to implement two initiatives aimed at removing asthma and lead triggers within the home. The Department developed these two initiatives in partnership with the Maryland Department of Housing and Community Development.

Program 1 conducts home assessments to identify lead hazards in the homes of low-income children with elevated blood lead levels and abates any identified hazards in the home. For Program 1, Hilltop conducted an analysis of children aged 0 through 18 years residing in 15 specified counties—Allegany, Anne Arundel, Calvert, Caroline, Carroll, Cecil, Garrett, Howard, Kent, Montgomery, Queen Anne’s, Somerset, Talbot, Washington, and Worcester—who

received a lead test as reported to the CLR from October 2019 to September 2020, and July 2019 to June 2020.

Program 2 provides home assessments that identify asthma triggers and conditions that could contribute to lead poisoning in the homes of low-income children with asthma and/or elevated blood lead levels and conducts educational home visits to help families address medication adherence, nutrition, and safe cleaning techniques. Hilltop's role in the project is to develop finder files to target at-risk households. For Program 2, Hilltop conducted an analysis of children enrolled in Medicaid who met the following criteria: 1) aged 0 through 18 years, 2) residing in Baltimore City, Harford County, Baltimore County, Frederick County, Charles County, Wicomico County, St. Mary's County, Dorchester County, or Prince George's County, and 3) either received a lead test as reported to the CLR or were identified as having an asthma claim or encounter in the above nine counties from October 2019 to September 2020, and July 2019 to June 2020.

**Value-Based Purchasing (VBP):** The goal of Maryland's VBP strategy is to improve quality of care and access by tying a portion of each MCO's capitation to its performance on a number of prescribed performance indicators or measures. As part of the HealthChoice evaluation, Hilltop monitors and reports on those measures. Hilltop completed the final ambulatory care VBP measure for HealthChoice participants with disabilities for CY 2019 and compared the final results for CYs 2018 and 2019. Hilltop delivered the final VBP scores on ambulatory care and lead screening to the MCOs for CY 2019. Hilltop also provided the Department with VBP targets for seven measures for CY 2021 based on the CY 2019 VBP results. Hilltop completed both the pre-preliminary and preliminary ambulatory care measure for CY 2020 and compared the final CY 2019 results with the pre-preliminary and preliminary CY 2020 results. In addition, Hilltop completed both the pre-preliminary and preliminary lead VBP measures for CY 2020, which calculated the percentage of children aged 12 to 23 months who received a lead test during the calendar year or the year prior.

At the request of the Department, Hilltop reviewed potential VBP measures, including the optimal asthma control measure, PCP connection after ED visit for asthma, and HEDIS-based measures on overprescribing or misuse of opioids. Hilltop then calculated the diabetes-related prevention quality indicator (PQI) measure composite scores by MCO in CY 2020. Hilltop also designed a new alternative payment structure for allocating a VBP incentive pool among plans based on performance and historical improvement on HEDIS and non-HEDIS quality measures. Hilltop developed the proposed MCO performance incentive methodology Public Health Incentive Program (PHIP) in consultation with the Department as a replacement for the VBP program.

**Managing for Results (MFR):** In FY 2021, Hilltop prepared the CY 2019 lead MFR measure, which included blood lead testing rates and elevated blood lead levels for children aged 12 to 23 months and 24 to 35 months—delineated by county and high-risk ZIP code in Baltimore City—who were enrolled in a HealthChoice MCO for 90 or more continuous days during CY 2019. Hilltop also prepared the FY 2021 MFR measures for CY 2019 and provided estimates for CY 2020 through CY 2022 for the following measures: percentage of children aged two years who had received necessary immunizations; percentage of children aged 12-23 months receiving a lead test; percentage of children receiving six or more well-child visits in the first 15 months of life; percentage of children receiving at least one well-child visits in the third, fourth, fifth, and sixth years of life; percentage of adolescents aged 12-21 years receiving at least one well-care visit; percentage of individuals aged 1 to 20 years who received preventive dental services; percentage of adolescents up to date on HPV vaccine by their 13<sup>th</sup> birthday; percentage of children and adolescents aged 1 to 17 years who were on two or more concurrent antipsychotic medications; percentage of adults with a new episode of alcohol or other drug dependence who initiated treatment; number of inpatient hospital admissions for diabetes short-term complications per 100,000 adult enrollees; percentage of adults hospitalized for treatment of mental illness receiving follow-up visits; and number of individuals with disabilities receiving state-funded services in community alternatives versus nursing facilities, delineated by service. Hilltop prepared asthma avoidable admission measures for CY 2019 and provided estimates for CY 2020 to CY 2022 for the Cigarette Restitution Fund.

**Encounter Data Reporting and Validation:** Through monthly, quarterly, and annual reports to the Department and the MCOs, Hilltop verified the completeness, accuracy, and reliability of encounter data and regularly reviewed the data to ensure validity. Encounter data were used to evaluate access to care and network adequacy, as well as to develop payment rates for HealthChoice. Monthly reports consisted of date of service analyses and MCO data submission projections. Quarterly reports classified MCO physician, outpatient, and dental encounter data by service category (physician, lab, x-ray, etc.); calculated a ratio of services per participant; validated inpatient encounters; and identified the use or overuse of default provider numbers for physician services.

In FY 2021, Hilltop produced the third annual report to meet CMS encounter data validation reporting requirements documented in [External Quality Review \(EQR\) Protocol 5, Activity 3](#). The annual report evaluates the Department's encounter data processing and reviews the encounter data. Documentation of the state's encounter data processing includes an overview of the electronic data interchange and the Medicaid Management Information System (MMIS2), as well as the validation process to ensure that encounters are accepted by the system. The review of

accepted encounters includes analysis of the volume of encounters submitted over time, utilization rates, completeness of identified fields, data accuracy, and timeliness of submission to the Department. The report incorporates Tableau® business intelligence platform visualization to meet the CMS requirement for visual analytics and is structured to incorporate data from Hilltop’s new Master Analytic Database (See description in Data Management and Web-Accessible Databases section, below). Hilltop also evaluated all electronic encounter data submitted by the MCOs in CY 2017 and CY 2019 and submitted the final report to the Department and Qlarant (the organization contracted by the Department to conduct MCO quality reviews). Hilltop reviewed CMS’ revised External Quality Review Protocol 5 Activity 3 and provided the Department with the new requirements and reviewed reasonability tests and grouped services for the age and sex appropriateness of diagnosis and procedure codes, including for delivery and dementia. Hilltop also provided a report of outlier encounters for review and to share with the MCOs for potential correction. Finally, Hilltop provided the missing NPIs on the PCP files received from MCOs. In addition, Hilltop provided Qlarant with nine statistically significant random samples of HealthChoice MCO encounter records from the hospital inpatient, outpatient, and physician services that occurred in CY 2019 for each Medicaid MCO. Hilltop also provided Qlarant with additional random samples because some encounters had an MCO number listed in the provider number field instead of a rendering or billing provider number.

**Encounter Data Reporting by MCOs:** Since January 1, 2018, the HealthChoice MCOs have been required to report the actual payment amounts for services in the MMIS when submitting their encounter data to the Department. The Department met with the MCOs in the spring of 2018 to improve their submission of medical encounters; by August 2018, MCOs were no longer submitting encounters with missing pay data, and paid fields with \$0 increased. In the fall of 2018, the Department discovered that the paid amount from institutional encounters were not populated sufficiently enough to be used for accurate analysis. This was corrected in mid-2020; MMIS2 now stores the correct sum for all the total paid institutional service lines. The Department continues to work with the MCOs to ensure the validity of institutional and medical encounters.

**Shadow Pricing:** To estimate the costs of MCO services (e.g., reporting MCO data to MHCC for the Medical Care Data Base [MCDB]), Hilltop continued to estimate or “shadow price” MCO payments to providers in FY 2021. This included developing different methodologies for different types of services. For professional services, shadow pricing includes 1) applying the FFS schedule to each procedure code, accounting for modifiers, units of service, and changes to fees over time, and 2) applying the average FFS payment to procedure codes that are not listed on the fee schedule. For regulated institutional services, because all-payer rate regulation limits the amount hospitals can bill, Medicaid MCOs must pay the amount charged by the hospital minus a discount.

**CAHPS® Health Plan Survey:** Hilltop delivered adult and child survey samples based on National Committee for Quality Assurance’s (NCQA’s) measurement year 2020 specifications for HealthChoice-eligible recipients for the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) health plan survey. MetaStar, a vendor contracted by the Department to review and certify that Hilltop’s SAS code meets NCQA requirements, audited source code and final sample frames. After receiving MetaStar approval, Hilltop transmitted final adult and child sample frames to the Department.

**State Health Improvement Process (SHIP):** At the request of the Department, Hilltop performed an analysis for the *State Health Improvement Process* on the utilization of dental, lead screening, ambulatory care, and well-visit services in CY 2019 by individuals in Medicaid. Specifically, Hilltop calculated—by county and race/ethnicity—the number and percentage of 1) Medicaid participants aged 0 to 20 years (with any period of enrollment as well as those with at least 320 days of enrollment in the calendar year) who had a dental visit; 2) pregnant women aged 21 years or older in the Medicaid program (with any period of enrollment and at least 90 days of enrollment in the calendar year) who had a dental visit; and 3) children aged 12 to 35 months in the Medicaid program (with at least 90 days of enrollment in the calendar year) who had a lead screening test. Hilltop also calculated—by age group, county, and race/ethnicity—the number and percentage of 1) Medicaid participants aged 0 to 64 years (with any period of enrollment and at least 320 days of enrollment in the calendar year) who had an ambulatory care visit; and 2) Medicaid participants aged 12 to 21 years (with any period of enrollment and at least 320 days of enrollment in the calendar year) who had a well-care visit.

**Community Health Pilots:** As part of the HealthChoice §1115 waiver renewal, the Department offers local governments the opportunity to request matching funds for two pilot programs.

The *ACIS* pilot program is intended for high-risk, high-utilizing Medicaid participants who are at high risk of homelessness when transitioning to the community from an institution, or at high risk of institutional placement. The first round of pilots was awarded in November 2017 and allotted for 190 individuals between three jurisdictions, called lead entities (LEs)—Baltimore City, Cecil County, and Montgomery County. Prince George’s County was granted an award in round two. Currently, the Department is accepting ACIS applications from local jurisdictions on a rolling basis until the 180 remaining slots are filled.<sup>1</sup> Hilltop provided significant amounts of targeted technical assistance to the Department and each of the LEs to ensure the integrity of the large amount of data collected for billing and evaluation purposes. Hilltop developed additional data validation programs to make the quarterly billing process more efficient, continued to identify flawed data

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<sup>1</sup> See <https://mmcp.health.maryland.gov/Pages/Assistance-in-Community-Integration-Services-Pilot.aspx>.

entries, and updated data templates when data errors were corrected by Hilltop in consultation with the LEs. Hilltop updated all the data template training materials and led an intensive training for all LEs and participating entities (PEs) to facilitate the entities in taking a more active role in providing clean data. Hilltop sent LE quarterly billing reports to the Department and to each LE. At the request of the Department, Hilltop also created and presented an infographic for Baltimore City's stakeholders. Hilltop continued to actively participate in monthly calls with the LEs and the Department, as well as quarterly learning consortiums led by the Department. In consultation with the Department, Hilltop prepared a memo regarding the impact of altering the methods used to count MMIS2 services for the annual program reviews. Finally, Hilltop worked with the Department on specifications and new variables for the CY 2020 ACIS program review, which Hilltop conducted and delivered.

The *HVS* pilot program expands home visiting services to Medicaid-eligible high-risk pregnant and post-partum women and their children up to age two. HVS is based on the evidence-based model, Healthy Families America (HFA), which uses home visits to assess the family's needs and provides resources for the health and wellbeing of the child and caregiver. There are two HVS pilots: one in Harford County and one in Garrett County. The Department and Hilltop monitor and evaluate the health and services provided to each participant in the HVS pilot and will continue to enroll new participants and provide services through December 31, 2021.<sup>2</sup> Hilltop continued to conduct analysis on newly enrolled participants as well as those who continued to receive services during FY 2021. Hilltop produced the annual evaluation of the HVS program for CY 2019. This report provides a summary of enrollment patterns and participants' demographic characteristics and analyzes service utilization among Medicaid participants enrolled in the HVS Pilot program in CY 2018 and CY 2019. Some of these measures are also included in the overarching *annual evaluation of the HealthChoice program*. Hilltop also provided the number of families who were discharged from the HVS program due to children turning two years of age. Hilltop provided consultation and continued the evaluation process of the health and services for the Medicaid participants enrolled in HVS. Specifically, Hilltop reviewed the data of each participant's coverage group as of the date of service and applied the FMAP to the total visit amount for both Harford and Garrett County and submitted quarterly billing reports. Hilltop also reviewed the number of participants who received services and total number of visits completed during the quarter and submitted visit reports on a quarterly basis.

**Pregnant Women:** To assist the Department in fulfilling a request for information on the Women, Infants, and Children (WIC) program, Hilltop calculated the number of women enrolled in Medicaid

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<sup>2</sup> See <https://mmcp.health.maryland.gov/Pages/Home-Visiting-Services-Pilot.aspx>

in FY 2020 who were pregnant, as well as the number of infants (children aged less than one year) and children aged one to four years, delineated by county and last coverage group.

**1095-B Tax Forms:** In FY 2021, Hilltop added a modified adjusted gross income (MAGI) coverage group indicator to the 2020 1095-B tax form file provided by the Department, which identified the eligibility system that made the eligibility determination so that questions from enrollees could be sent to the appropriate agency (either the Department, the Maryland Department of Human Services [DHS], or the MHBE).

**MCO Application Readiness Review:** During FY 2020, CareFirst of Maryland began the process of acquiring the University of Maryland HealthPartners HealthChoice MCO and submitted application documents to the Department. Hilltop reviewed all the documents submitted by CareFirst and provided comments to the Department. In addition, Hilltop participated in several in-person meetings with Department staff to review and discuss application materials. The transition was effective February 2021.

## Medicaid Rate Setting and Financial Analysis

### Medicaid Rate Setting

In FY 2021, the state of Maryland paid approximately \$6.77 billion in capitation payments to the nine HealthChoice MCOs, which provide health insurance for over 1.4 million Medicaid beneficiaries. Hilltop continued to conduct financial analyses to inform HealthChoice payment policy, develop capitation rates for MCOs, conduct financial monitoring of MCOs, and assist the Department with capitation rate recovery. Hilltop also staffed the Department's MCO Rate Setting Committee, provided consultation to the MCOs, and supported the financial review of MCOs performed by state-contracted auditors. In addition, Hilltop developed reimbursement rates for the Program of All-Inclusive Care for the Elderly (PACE).

**HealthChoice Rate Setting and Financial Analysis:** In FY 2021, Hilltop worked with the Department to develop risk-adjusted capitation payments for MCOs participating in HealthChoice. Maryland's risk-adjusted payment methodology uses the Johns Hopkins University Adjusted Clinical Groups (ACG) Case Mix System. This methodology is continually refined as needed to accommodate program and policy changes. Johns Hopkins provides an annual license to Hilltop for use of the ACG software, and Hilltop contracts with Johns Hopkins for ongoing support with the ACG system and the rate setting methodology.

During each annual rate setting cycle, Hilltop's responsibility for managing the Department's MCO Rate Setting Committee involves scheduling, developing the agendas for, and facilitating a series of seven two-hour public meetings with officials from the Department, the nine MCOs, Hilltop, and the actuarial services firm contracted by Hilltop (see "Competitively Procured Actuarial Services" below). The purpose of these meetings is to review the rate setting methodology and process, discuss methodological and policy issues of concern, present special analyses requested by the Department and/or the MCOs (e.g., regional analyses, constant cohort analyses, and cost analyses of new services and pharmaceuticals), and review the economic outlook and trends in other states' managed care rates. Due to COVID-19, alternative methodologies were used to develop rates for CY 2022. Hilltop worked closely with the Department, Optumas, the HSCRC, the MCOs, and the MCO Association to develop options to account for COVID-19 depressed utilization. Ultimately, the Department decided to use CY 2019 ACG assignments rather than CY 2020 ACG assignments. Hilltop also participates in one-on-one meetings between the Department and each of the nine MCOs to review preliminary rates developed by Hilltop with the assistance of the actuarial services firm. Hilltop also assisted with developing a risk corridor to protect the state and the MCOs from the unknown potential impact of COVID-19. Hilltop developed risk corridor methodologies for both CY 2020 and CY 2021 and provided initial calculations of the risk corridor

results to the Department. Maryland’s managed care rate setting process is highly regarded by federal officials, other states, and health plans for its transparency and collaborative, interactive nature, which allows the MCOs to be active participants. In addition, Maryland’s process—by employing the combined services of Hilltop and an actuarial services consulting firm—realizes significant cost savings compared to other states. Most states contract solely with an actuarial firm at much greater cost.

**Competitively Procured Actuarial Services:** UMBC competitively procures the services of an actuarial services firm to provide consultation to Hilltop on developing HealthChoice risk-adjusted capitated payment rates for participating MCOs, benchmark those rates against national trends and managed care rates in other states, present the rates to the MCOs, and actuarially certify the rates. CMS requires actuarial certification for the state to obtain federal financial participation for HealthChoice. In 2018, through a competitive procurement process, UMBC selected Optumas for actuarial services for HealthChoice rates for CY 2020 through CY 2024. In FY 2021, Hilltop worked extensively with Optumas to complete and certify CY 2021 HealthChoice capitation rates and initiate development of CY 2022 capitation rates.

**High-Cost Drug Model:** Stemming from a 2017 Joint Chairman’s Report (JCR) that studied potential improvements to Maryland’s Medicaid managed care rate setting system,<sup>3</sup> Hilltop and Optumas examined strategies for addressing high-cost, low-volume specialty drugs in the HealthChoice program. Optumas model various scenarios, and the Department implemented its new high-cost drug policy effective January 1, 2021, by carving Hepatitis C drugs back into the capitation rates with a risk pool, as well as making the MCOs not at risk for specific high-cost drugs with annual treatment costs above \$400,000. Hilltop worked closely with the Department to develop internal high-cost drug processes and policies, as well as develop the list of drugs over \$400,000.

**HealthChoice Financial Monitoring:** To better understand the cost differences among MCOs and the effect of capitation rates on plan performance, Hilltop examined MCO performance on selected measures and reported its findings to the Department. The report also compared the performance of provider-sponsored organizations (PSOs) to the performance of non-PSOs by analyzing specific variances in membership, premium income, and cost of medical care during CYs 2017 and 2018. In FY 2021, Hilltop prepared a complete financial report package that analyzed MCO underwriting performance.

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<sup>3</sup> The JCR recommended that the Department “leverage available tools to develop and implement a standardized framework for evaluating and determining risk of high-cost drugs.”

**Nursing Facility Pay-for-Performance (P4P) Analysis:** In FY 2021, Hilltop assisted the Department in developing nursing facility P4P scores and analysis. The 2019 JCR requested that the Department submit a plan to increase the size of the nursing facility quality program, refocus the program on reportable outcomes, and include incentives and disincentives. At the Department's request, Hilltop reviewed and recommended updates to the P4P model, which included development and implementation of a new P4P calculation model in addition to a new staff stability data collection methodology. Hilltop collaborated with the Department to develop the new P4P calculation model based on updated program criteria and measurement requirements for FY 2021.

**PACE Expansion:** In FY 2021, Hilltop continued to work with the Department on preparing for the expansion of the PACE program in Maryland. Hilltop updated the task list and timeline developed during the initial planning for PACE expansion. Hilltop also updated the analyses used to identify the potentially eligible population based on age, level of care (LOC), and location (both at the county and ZIP code level) and examined potential take-up rates. Hilltop also revised the scan of financial eligibility criteria across states' PACE programs. Hilltop has since made updates to the financial analyses, proposed regional rates and the data book outlining the current PACE program, proposed expansion, identified potential eligibles by county and ZIP code, and proposed regional rates. Additionally, Hilltop assisted the Department by leading discussions with representatives from Colorado, Pennsylvania, Virginia, and Washington, D.C. to learn about these jurisdictions' experience with expansion efforts, including methodologies used to identify the potentially eligible population, best practices, and lessons learned. Hilltop attended a webinar hosted by the National Academy for State Health Policy (NASHP) State Action Network to learn about the opportunity for Maryland to receive technical assistance with the expansion of PACE during an eight-month support period. Hilltop then assisted the Department with drafting the NASHP State Action Network application for technical assistance, which was submitted and later accepted by NASHP. Between May and December 2021, Hilltop and the Department will attend nine virtual technical assistance events targeting Maryland's PACE expansion efforts. After attending the kick-off meeting, Hilltop provided feedback on NASHP's workplan and technical assistance plan. Hilltop then attended the first of three targeted webinars, focused on encounter data collection and quality oversight. Finally, in preparation to draft a solicitation document, Hilltop compiled a review of solicitations from Washington, D.C., Pennsylvania, and Virginia, delivered this document to the Department, and reviewed a draft of the solicitation document.

### **Other Financial Analysis**

In FY 2021, Hilltop continued to provide the Department with consultation and financial analysis related to Medicaid provider reimbursement rates and physician payments. Hilltop also continued

the process of updating the fees paid to trauma centers by the Trauma and Emergency Medical Fund.

**Reimbursement Rates Fairness Act:** Pursuant to Senate Bill (SB) 481 (Chapter 464 of the Acts of 2002), the Department created an annual process to set the FFS reimbursement rates for Medicaid and CHIP in a manner that ensures provider participation. The law also directs the Department to submit an annual report to the Governor and various state House and Senate committees. In December 2020, on behalf of the Department, Hilltop completed the *20th annual report* examining physician fees paid by Maryland Medicaid and CHIP. The report includes a comparison of the Maryland Medicaid rates with Medicare and neighboring states' rates for the same services; a ranking of each state's reimbursement rates compared to Medicare reimbursement rates; and a discussion of whether the FFS rates and MCO provider rates will exceed the rates paid under the Medicare fee schedule.

**Physician Fees:** In addition to the analyses described above, in FY 2021, Hilltop provided consultation and technical assistance to the Department regarding increasing physician fees. Hilltop estimated the percentage of Medicaid fees to Medicare fees for evaluation and management (E&M) procedures. Hilltop also provided several analyses detailing options for increasing and decreasing physician fees to align with policy and budget initiatives. For all analyses, Hilltop trended utilization forward and provided the state and federal cost increase or savings. In consultation with the Department, Hilltop estimated the cost increase or savings associated and analyzed the following options:

- Raising E&M reimbursement rates to 93% of 2021 Medicare rates. This included a separate analysis with an enhanced federal match percentage.
- Aligning the U1 (trauma), 26, and technical component modifiers with the 2021 Medicare fee schedule. Hilltop also provided additional information on new codes, deleted codes, and codes where the previous fee schedule had inconsistencies and sent a completed template of all fees to the Department. Because the Medicare program released a second fee schedule in January 2021, Hilltop completed this analysis twice.

Hilltop also provided an alignment analysis for the U1 modifier for laboratory codes and a separate analysis of COVID-19 laboratory codes.

**Enteral Nutrition Fees:** In FY 2020, Hilltop worked with the Department to create a new fee schedule to transition enteral nutrition products from the Office of Pharmacy to the Durable Medical Equipment program, as required by CMS. This required changing the billing for these products from National Drug Codes to Healthcare Common Procedure Coding System (HCPCS) codes. In FY 2021, Hilltop continued this project, which included a meeting with stakeholders to

address concerns regarding the proposed fee schedule and adjusting the rate setting methodology in response to these concerns. Hilltop presented further analysis at an additional stakeholder meeting. Hilltop also conducted an analysis on three additional codes that were identified as requiring reimbursement rates after the original fee schedule was implemented.

**Non-Emergency Medical Transportation (NEMT):** Hilltop worked with the Department to create a new fee schedule to accommodate a transition from county-level administration to a single program overseen by the Department. This included a survey of NEMT reimbursement rates for all fifty states, Washington D.C., and Medicare. Hilltop used existing data sources, including the county-level Transportation Data Worksheet (TDW) reports, the 2019 JCR, and the county-level 440 reports to determine the current cost of the program. Hilltop also used the reported utilization from the TDW reports to determine the fiscal impact of various rate schedules for selected services. These included proposed pricing for mileage and trip costs based on other states' reimbursement rates, as well as examining rural and non-rural reimbursement rates and potential subsequent rider differentials.

**Vaccines and Long-Acting Reversible Contraception (LARC) Pricing:** Hilltop provided the Department with pricing data for several vaccine and LARC products that had been flagged as having out-of-date pricing. Hilltop provided summary data from the All-Payer Claims Database (APCD) as well as a service utilization analysis.

## Analytics to Support Health Reform

In FY 2021, Hilltop continued to support the Department's implementation of health care reform by conducting financial and policy analyses and providing consultation and technical assistance for Maryland's TCOC Model, Health Homes, CFC, and several other initiatives.

### Maryland TCOC Model

Under an agreement with CMS, Maryland launched the All-Payer Model in 2014 to transform the health care delivery system and improve care while moderating cost growth. The model transformed the way Maryland hospitals provide care, shifting away from a financing system based on volume of services to a system based on hospital-specific global revenues with value-based incentives. The model is designed to coordinate medical treatment for patients served in both hospital and non-hospital settings to improve health outcomes and rein in the growth of health care costs. In January 2019, the state signed an agreement with CMS for what is now called the TCOC Model, which holds the state accountable for total Medicare cost of care spending and new quality and population health targets. The TCOC Model has three components: the Hospital Payment Program, implemented in 2014 as part of the All-Payer Model and formerly known as Global Budget Revenue; the Care Redesign Program, implemented in 2017; and the MDPCP, implemented in January 2019. In FY 2021, Hilltop provided support and conducted several analyses to assist the Department in implementing the TCOC Model.

**TCOC:** As part of the requirements under the state's *agreement* for the TCOC Model with CMS, the HSCRC is required to report on and monitor TCOC. In particular, the HSCRC must monitor trends in health care costs within its regulatory domain and any cost shifting to unregulated settings. The TCOC report is a non-public report of Medicaid health care utilization and expenditure data that provides the Department and the HSCRC with an enhanced understanding of the shifts in health care services provided to Maryland Medicaid beneficiaries within and between regulated and unregulated settings. As of the publication of this report, Hilltop has collected initial CY 2018 and 2019 submissions from all nine MCOs and is in the process of requesting corrections and revisions.

Hilltop conducted several analyses to assist the Department and the HSCRC in fulfilling the HSCRC's obligation to report annually on the performance of the TCOC Model to CMS. At the request of the Department and the HSCRC, Hilltop provided several data tables for inclusion in the HSCRC's annual report to the Center for Medicare and Medicaid Innovation (Innovation Center). Hilltop provided total Medicaid costs, enrollment, and member months for CY 2019 and CY 2020, and broke the data out for participants eligible for either full or partial Medicaid benefits.

**Data Sharing with CRISP:** In FY 2021, Hilltop continued to provide periodic Medicaid eligibility and demographic information to CRISP for all Medicaid participants, culminating in a file covering all Medicaid participants enrolled through March 31, 2021. Hilltop also included data dictionaries and data from the Medicare buy-in file in these transmissions. The HSCRC uses the eligibility information to conduct hospital utilization analyses required for rate setting.

**Hospital System Modernization Workgroups:** Hilltop continued to provide consultation and support to the Medicaid representative of the HSCRC Commission meetings, Performance Measurement, and Payment Models Workgroups by attending meetings and answering various questions about the Medicaid data.

**Dual-Eligible Beneficiaries and the TCOC Model:** In FY 2021, Hilltop continued to assist the Department with the implementation of the MDPCP. Hilltop provided demographic and expenditure data on dual-eligible Medicaid participants.

## Health Homes

Section 2703 of the ACA created the option for state Medicaid programs to establish health homes for participants with chronic conditions. Health homes are intended to improve health outcomes by providing patients an enhanced LOC management and care coordination through the integration of somatic and behavioral health services. In FY 2014, Maryland amended its Medicaid state plan to establish a health home program. The program targets populations with behavioral health needs who are at high risk for additional chronic conditions, including those with SPMI, SED, and OUD.

**Health Home Program Monitoring and Evaluation:** In FY 2021, Hilltop revised the Maryland Medicaid Health Home Program Evaluation to include utilization information for dually eligible beneficiaries and health care cost information delineated by length of enrollment in a Health Home program. The evaluation covered CY 2013 through CY 2018. Hilltop conducted an analysis of the utilization rates per participant—delineated by length of Medicaid enrollment and dual Medicare enrollment—and estimated the trends in utilization over time. Hilltop also conducted an analysis of costs over time by type of service and provider setting and revised the analysis to include cost with and without physician claims. Hilltop combined the requested analyses into a [report](#), which describes the health and cost outcomes of participants in the Maryland Health Home program in 2018, delineated by enrollee characteristics such as coverage and program type. Hilltop compared services received from Health Home Psychiatric Rehab Program (PRP) providers and by program participants in CY 2018. Hilltop also provided data for Health Home participants by program type and dual enrollment in Medicare for CY 2013 through CY 2018 and prepared

quarterly deliverables of current Health Home participants that are dually eligible for Medicare by enrollment span.

## Home and Community-Based Services

As part of its effort to increase the utilization of HCBS, Maryland implemented the CFC program, consolidating the personal assistance services that were previously offered through the Living at Home (LAH) Waiver, the Waiver for Older Adults (WOA), and the Medical Assistance Personal Care Program (MAPC). In FY 2021, Hilltop continued to conduct analyses and provide programmatic support to CFC and other HCBS initiatives.

**Service Utilization and Cost Analyses:** Hilltop conducted several analyses on service utilization and costs for the long-term services and supports (LTSS) population. Hilltop generated ongoing quarterly CFC and CO Waiver reports, incorporating data for FY 2018 to FY 2021. These reports included total CFC and CO Waiver expenditures, unique CFC and CO Waiver participants, and average annual CFC and CO Waiver expenditures per person per fiscal year. The reports were updated on a quarterly basis. Additionally, Hilltop provided a report on DDA waiver participants, individuals on a DDA waiting list, and Autism Waiver participants enrolled in CFC.

**Community-Based Setting Final Rule:** On March 17, 2014, CMS issued a Final Rule defining what constitutes an HCBS setting. The goal of the rule is to ensure that individuals served by HCBS waivers are receiving services in integrated settings and are supported in accessing the greater community. The rule's focus is on the outcomes and experiences of the individuals. States must ensure that all HCBS settings comply with the new requirements by completing an assessment of existing state rules, regulations, standards, policies, licensing requirements, and other provider requirements. States must be in full compliance with the federal requirements by the timeframe approved in each state's Statewide Transition Plan (STP) but no later than March 17, 2023. CMS issued additional guidance on July 14, 2020, extending the compliance deadline date because of the COVID-19 pandemic.

In FY 2021, Hilltop continued to provide support to the Department by updating a training video for ALF providers to use when completing the New Provider Community Settings Self-Assessment. Hilltop also continued to house previous site visit checklist data completed by Department staff for ALFs, MDC providers, and senior center plus sites.

## Other Analyses and Technical Support

In FY 2021, Hilltop conducted a number of analyses for the Department to support program and policy deliberations related to Medicaid coverage, health services utilization, provider participation in the Medicaid program, behavioral health services, dental services, and LTSS. Hilltop also provided data analytics for federal grant applications submitted by the Department.

### Coverage and Health Services Utilization

**Health Insurance Coverage Protection Commission:** At the Department's request, Hilltop reviewed and provided comments on a draft of the Health Insurance Coverage Protection Commission's annual report.

**CARTS Reporting:** Hilltop contributed to the Department's annual report of core measures to CMS using the CHIP Annual Reporting Template System (CARTS) by analyzing Title XIX (Medicaid) and XXI (CHIP) enrollment for children newly enrolled in the second quarter of federal fiscal year (FFY) 2020.

**Medicaid and CHIP Program (MACPro) Reporting:** CMS requires states to report on the outcomes of HealthChoice and Health Home participants through a reporting system called MACPro. To help the Department complete its quality reporting to CMS for CY 2019, Hilltop reviewed a collection of proposed MACPro measures and provided feedback regarding the feasibility of using the Cognizant HEDIS® software to create the measures for the Medicaid population. Hilltop analyzed the data and produced the following measures for the Health Home and Adult and Child Core Sets: eligible population estimates, ambulatory care, ED visits, inpatient utilization, admission to an institution from the community, adult body mass index assessment, controlling high blood pressure, screening for depression and follow-up plan, plan all-cause readmission rate, follow-up after ED visit for alcohol and other drug abuse or dependence (new measure), initiation and engagement of alcohol and other drug dependence treatment, follow-up after hospitalization for mental illness, use of pharmacotherapy for OUD (new measure), use of opioids at high dosage in persons without cancer, metabolic monitoring for children and adolescents on antipsychotics (new measure), prevention quality indicators [PQI01-diabetes short-term complications, PQI03-chronic obstructive pulmonary disease or asthma in older adults, PQI08-heart failure, PQI15-asthma in younger adults, PQI92-prevention quality/chronic condition composite], and Health Home enrollee annual cost savings. In addition, Hilltop reviewed and prepared responses to the CMS Seek More Information questions related to the MACPro measure results.

**Annual Abortion Report:** To assist the Department in providing information for the Department of Legislative Services' annual abortion report, Hilltop conducted an analysis of Medicaid participants aged 15 to 44 years who had abortions from FY 2018 to FY 2020 and calculated the number and total costs of these services.

**Hepatitis C:** For the hepatitis C JCR, Hilltop calculated the number of HealthChoice participants who received a hepatitis C diagnosis and the number who received hepatitis C tests overall, delineated by MCO, and delineated by hepatitis C testing before and after the pandemic began. Hilltop also conducted an analysis on hepatitis C medication adherence broken out by MCO, and the number of participants treated for hepatitis C by fibrosis score for CY 2017 through CY 2020. This analysis was a follow-up to a previous data request for the Hepatitis C JCR and was meant to replicate a data run performed by the University of Maryland School of Pharmacy. Hilltop also provided data on the cost and utilization trends for hepatitis C drugs from CY 2016 to CY 2021 in response to a request for a fiscal note.

**Refugees:** In FY 2021, Hilltop updated analyses for refugees enrolled in Medicaid from CY 2013 to CY 2017 to include additional demographics. To accomplish this task, Hilltop updated programming to provide eligibility spans and reasons for cancellation of coverage.

## Provider Participation

**Electronic Health Record Incentive Program:** Hilltop developed questions for the Department's Medicaid Health IT Provider survey to gather data on the effectiveness of the EHR Incentive Program.

## Long-Term Services and Supports

In FY 2021, Hilltop prepared a report for the Maryland General Assembly on access to LTSS and the CO Waiver, initiated data exchange with dual-eligible special needs plans (D-SNPs) as required by CMS, and analyzed LTSS utilization and expenditures for Department reporting and compliance with CMS Medicaid waiver requirements. Hilltop used data from MMIS, MDS, Medicare, and *LTSSMaryland*—the state's integrated LTSS tracking system—including interRAI assessment data and plans of service.

**HCBS JCR:** The 2020 JCR from the Maryland General Assembly requested that the Department and Hilltop, in consultation with other stakeholders, submit a report to the budget committees that provided a cost-benefit analysis of expanding access to LTSS through HCBS waivers. Hilltop and the Department interpreted this directive to require an examination of the potential effects of increasing slots to Maryland's CO Waiver. Hilltop proposed an analytic approach involving four

distinct analyses and requested feedback from the Department. The proposed analyses included a literature review of the effects of expanding HCBS, a descriptive analysis of the CO Waiver registry population, an estimation of the effect of waiver services use on health care outcomes, and an examination of the association between waiver receipt and age at nursing facility admission. Based on feedback from the Department, Hilltop revised the proposed analytic approach—adding a fifth analysis to estimate the cost of expanding CO Waiver capacity—and prepared a presentation to engage the National Association of Elder Law Attorneys (NAELA). Hilltop made additional updates to the analytical approach to reflect feedback from stakeholders and the Department. Revisions included removing the analysis related to estimating the association between waiver services use and age at nursing facility admission and replacing it instead with a broader descriptive analysis related to CFC implementation and other rebalancing initiatives in Maryland. Hilltop prepared a second presentation for stakeholders that incorporated previous feedback and provided preliminary findings. Additionally, to inform the analyses, Hilltop and the Department engaged in conversations with the Technical Director of CMS’s Medicare-Medicaid Coordination Office. Hilltop shared a completed draft of the report with the Department and requested feedback. Hilltop then made revisions based on the Department’s feedback and delivered the final report. Finally, upon sharing the report and reviewing recommendations from NAELA, Hilltop delivered a memo with clarifying specifications to these stakeholders.

**D-SNP Integration:** Starting in January 2021, D-SNPs were required to provide state Medicaid agencies with data and information to ensure timely case management around care transitions for high-risk beneficiaries. Hilltop met with the Department and Cigna, CareFirst, and United Healthcare—the state’s three participating D-SNPs—to establish and test a protocol for data exchange that is in line with state requirements and Hilltop policies. Starting in late December 2020, Hilltop has received, processed, and delivered monthly membership files for the three D-SNPs and provided technical support as requested by plans or the Department. In preparation for a monitoring annual report, Hilltop developed guidelines related to the assessment of the implementation during the calendar year. Additionally, Hilltop attended an informational webinar hosted by the Center for Health Care Strategies to learn about other states’ experiences and best practices with D-SNP integration.

**PAS and LOC Appeals Hearings:** To expedite the processing of technical appeals for additional PAS hours, the Department requested that Hilltop provide data points related to denied PAS appeals with upcoming hearings. Hilltop completed a preliminary report and requested feedback on additional data points of interest for the Department. Since, Hilltop has received monthly finder files from the Department documenting pending PAS and LOC appeals hearings, which Hilltop has used to identify data points requested by the Department, including the difference in denied and

approved PAS hours and date of most recent interrail assessment. Hilltop and the Department meet monthly to discuss findings and potential changes to the monthly analyses.

**Autism Waiver Reporting:** Using the reporting mechanism it developed for the Department, Hilltop continued to analyze the “gray area” population in the Autism Waiver: individuals who would not be eligible for Medicaid state plan services if they were not enrolled in this waiver. The Department bills the Maryland State Department of Education (MSDE) for the cost of Autism Waiver services and state plan services for the gray area population. Hilltop produced quarterly reports to support the Department’s invoicing to MSDE. Hilltop also provided a separate summary and CSV file of claims related to the gray area population, which only used April and May 2021 MMIS2 data. In addition, Hilltop sent a monthly census report of the individuals in the Autism Waiver.

**Waiver Assurances Evidenced-Based Reporting (EBR):** In FY 2021, Hilltop produced four quarterly EBR reports for the Department describing the CO Waiver and CFC assurance measures (number and percentage of: waiver claims within a waiver span, waiver claims outside of a waiver span, participants with an annual LOC determination, participants who received an LOC determination prior to the initiation of services, participants with a plan of service (POS) updated annually, service plans that were revised based on change in participant needs, participants who reported during the annual interRAI assessment that their blood pressure was measured within the past year, participants whose POS addresses health and safety risk factors, and participants whose POS includes personal goals). In May 2020, one additional measure—participants interviewed during the annual quality survey who were satisfied with services—was put on hold as the Department sought a new contractor to administer the survey from which this datapoint is received. To assist the Department in identifying gaps in service plan review and development, Hilltop continued to produce monthly reports on Measure 94 (the list of individuals with an interRAI assessment indicating significant change but who had no new POS).

**Waiver Renewal Applications:** Hilltop provided cost neutrality estimates to assist the Department in preparing to submit a renewal application for the 1915(c) BI Waiver, CO Waiver, and MDC Services Waiver. Additionally, Hilltop provided estimates for the 1915(b)(4) Waiver renewal that allows selective contracting of supports planning providers for the CO Waiver. Hilltop also developed a crosswalk of the assurances, sub-assurances, and performance measures across the three waivers up for renewal.

**CMS 372 Reports:** Annually, Hilltop helps the Department determine cost neutrality for the state’s eight 1915(c) waivers: the CO Waiver, Autism Waiver, BI Waiver, MDC Waiver, Model Waiver, Community Pathways Waiver, Family Supports Waiver, and Community Supports Waiver. Hilltop

generated the FY 2019 372 Reports that calculated the number of unique waiver recipients, the total and average per capita annual waiver expenditures, the average per capita annual expenditures for all other Medicaid services, the average length of stay of waiver coverage by LOC, and the total days of waiver coverage in FY 2019. Hilltop generated CY 2019 372 Reports for DDA's Family Supports Waiver and Community Supports Waiver. Hilltop also provided additional information as requested to inform budget decisions, cost neutrality figures for the FY 2020 to 2024 Autism Waiver amendment, and responses to CMS's questions regarding the 372 Reports. In addition, Hilltop calculated the number of MFP participants in FY 2019.

**LTSS Chart Books:** In FY 2021, Hilltop began creating waiver dashboards using the Tableau® platform to replace chart books for the Autism Waiver, Brain Injury (BI) Waiver, and Model Waiver. Similar in content to the chart books, the dashboards include demographic, service utilization, and expenditure data for participants; however, the dashboards allow Department staff to easily perform additional analysis of the data to better suit their changing needs. Hilltop previewed the Autism dashboard to Department staff on February 2, 2021. Hilltop also created an [Autism Waiver infographic](#) for the Department to share with stakeholders. Hilltop staff began work on the BI and Model Waiver dashboards in March 2021 and expect to provide demonstrations of the dashboards to Department staff during the summer of 2021. Hilltop also worked on and delivered the [Autism Waiver Chart Book](#) for FY 2013 to FY 2017 and a draft HCBS Chart Book for FY 2014 to FY 2018. Additionally, Hilltop worked on the production of the CY 2014 to CY 2018 chart book for dual-eligible individuals and delivered [Volume 1: Nursing Facility Chart Book](#) for FY 2014 to FY 2018. Hilltop prepared a memo based on feedback provided by the Department on a draft version of the Nursing Facility Chart Book and noted items it would include in the next version, covering FY 2015 to FY 2019.

**Service Utilization and Expenditures:** To assist the Department in responding to the 2019 Kaiser Family Foundation Annual Survey, Hilltop completed several analyses. Hilltop calculated the FY 2020 Medicaid expenditures, delineated by waiver and in the aggregate, for Maryland's eight HCBS 1915(c) waivers and utilization and expenditures for Medicaid-paid PDN and home health services for FY 2018 through FY 2020. Hilltop provided a memo detailing the FY 2019 cost to Medicaid of providing services to chronic hospital users and nursing facility users, delineated by setting and by expenditure service category (e.g., inpatient, outpatient, durable medical supplies). Hilltop also identified MDC service users who had access to case management through other programs or were receiving assisted living services or residential rehabilitation/group home services. Hilltop developed a report detailing the number of individuals receiving institutional care and HCBS from FY 2014 to FY 2021. Hilltop calculated the number of users, claims, and expenditures for intensive individual support services and respite care services covered by the

Waiver for Children with Autism Spectrum Disorder in CYs 2019 and 2020. In addition, Hilltop developed an infographic on participant counts, expenditures, and stay days of those receiving hospice services during FY 2018 to FY 2021, by fiscal quarter, and presented it during the quarterly Hospice Stakeholder meeting in June 2021.

**LTSS Screening Data:** Using data available in *LTSS Maryland*, Hilltop provided a report of the number of Level 1 screens completed for FY 2018 to FY 2020, identified responses to the question pertaining to a history of BI, and captured the number of referrals to the Brain Injury Association of Maryland (BIAMD).

**StateStat (MD Measure):** Hilltop produced monthly updates for Maryland's StateStat (also called the MD Measure) report on the cumulative number of unduplicated waiver participants in Maryland from January 1, 2001, to May 31, 2021, for MFP and the CO and Autism Waivers.

**Plans of Service:** Hilltop produced quarterly reports calculating the amount of time that elapses from when a supports planner first submits a POS to the Department to when the final decision on the POS is made.

**CMS MFP Benchmarks:** In FY 2021, Hilltop continued to produce semi-annual reports for CMS on the state's progress in achieving MFP benchmarks. These reports provide information on HCBS expenditures for all Medicaid recipients, including expenditures for all 1915(c) waiver programs, home health services, and personal care if provided as a state plan optional service. The reports also provide information on HCBS spending on MFP participants (qualified, demonstration, and supplemental services), and HCBS capitated rate programs (to the extent that HCBS spending can be separated from the total capitated rate). Hilltop also assisted the Department in reporting on all activities related to housing assessments and applications for this population.

**MFP Reports:** Hilltop prepared weekly reports to identify progress for those who 1) were MFP-eligible via a submitted application, had no submitted applications in the previous nine months, did not have a developmental disability, and were not enrolled in MFP; and 2) were waiver applicants who had not made any progress toward enrollment. Reports also identified any supports planners who had more than 35 billed hours in a pay period, as well as individuals who had a negative self-reported living situation on the quality survey. In addition, Hilltop modified the LTSS weekly reports to accommodate ongoing changes to the SQL database structure.

**Institutional Transition Data:** To assist the Department in fulfilling a request for the No Wrong Door (NWD) Institutional Transitions Return on Investments (ROI) Calculator for the Administration for Community Living, Hilltop provided institutional transition data. The Maryland

Department of Aging participates as an NWD grantee and was requested to provide the data for the ROI calculator.

## Behavioral Health Services

**Screening, Brief Intervention, and Referral to Treatment (SBIRT):** *SBIRT* is an early intervention approach for individuals with nondependent substance use to effectively help them before they need more extensive or specialized treatment. For FY 2021, Hilltop provided SBIRT data in the Evaluation of the Maryland Medicaid HealthChoice Program.

**Behavioral Health Collaborative Care Model (CoCM) Pilot:** In FY 2021, on behalf of the Department, Hilltop validated and verified the CoCM Pilot's billing and intervention data submitted for June 2020, conducted a review of data from prior months, and delivered the final CoCM Pilot data analysis. Hilltop calculated the number of HealthChoice participants who received services from CY 2017 through CY 2019 for depression, mental health, and SUD through their MCO instead of receiving carved-out behavioral health services administered by the ASO for these conditions. Hilltop then prepared additional analysis in support of the Department's JCR on Collaborative Care.

**Section 1115 Waiver Planning:** In 2016, CMS approved Maryland Medicaid to expand coverage to include SUD treatment in IMDs. Effective July 1, 2017, the approval permitted residential SUD services to be provided in IMD settings to Medicaid-eligible individuals aged 21 to 64 years for American Society of Addiction Medicine (ASAM) levels 3.1, 3.3, 3.5, 3.7, and 3.7-WM (licensed as 3.7D in Maryland) for up to two non-consecutive 30-day stays in a one-year period. On January 1, 2019, the Department phased in coverage of ASAM level 3.1 and extended coverage to dual eligibles on January 1, 2020. The Department also received approval for a waiver amendment, effective July 1, 2019, to allow coverage for up to 15 days per month for ASAM level 4.0 beneficiaries with a primary SUD and a secondary MHD in inpatient hospital settings only. Hilltop conducted a number of analyses to support the Department's coverage expansion.

**SUD Monitoring:** In FY 2021, Hilltop reviewed feedback from CMS on the Department's SUD monitoring plan to evaluate the impact of the §1115 waiver on a monthly, quarterly, and annual basis. Hilltop attended meetings with the Department and CMS personnel and worked with the Department to review and respond to comments on Maryland's 1115 SUD Monitoring protocol. Hilltop provided updates, feedback, and questions for CMS to the Department. On behalf of the Department, Hilltop contributed to the development of MD SUD reporting template materials for CMS to establish protocols and targets, including SUD Monitoring protocol instructional notes and the Department's comments on predicted

changes in metrics and justification. Hilltop drafted a suggestion for a response to CMS on a plan to phase in reporting retrospective measures during the next three to four reporting periods. Hilltop provided general comments to the Department and drafted responses to CMS on proposed reporting metrics, measure attributes, and timelines.

**Measures Development:** Based on feedback from CMS, Hilltop conducted two data run-out (claims lag) analyses: one to assess time between billing and payment of claims, and one to present lags between when services were provided and then recorded in the MMIS system, delineated by MCO encounters and FFS claims for CY 2018. After the Department's review, Hilltop updated the analyses and prepared a summary memo and responses to CMS comments. In further response to CMS, Hilltop provided justification to use HEDIS® Cognizant software for the proposed measures, which included initiation and engagement of alcohol and other drug dependence treatment (IET); follow-up after discharge from the ED for mental health or alcohol and other drug; ED utilization and inpatient stays for SUD and per 1,000 Medicaid beneficiaries; readmissions among beneficiaries with SUD; and access to preventive/ambulatory health services for adult Medicaid beneficiaries with SUD. Hilltop also reviewed proposed IMD reporting measures and updated the SUD Monitoring protocol template and metric workbook with comments to submit to CMS for their approval.

**Serious Mental Illness (SMI):** Hilltop identified all eligible Medicaid participants who had a diagnosis of SMI or SED by county during CY 2019 and calculated the total cost of IMD services in FY 2019 and FY 2020 for this population.

**Corrective Managed Care (CMC) Program:** The CMC program identifies participants who may be receiving excessive quantities of controlled substances, especially when multiple prescribers and pharmacies are involved. If—despite the best efforts of the prescriber and pharmacist—there continues to be overutilization or perceived misuse of a controlled substance by a participant, then the participant can be “locked in” to a single pharmacy. Under a lock-in pharmacy agreement, the participant will be required to fill prescriptions for all medications at one predetermined pharmacy. On behalf of the Department and at the request of the MCOs, Hilltop continued to perform the administrative procedures to lock in designated Medicaid participants. In addition, Hilltop continued to answer questions for the MCOs related to pharmacy NPI records and lock-in start and end dates, and to ensure that all HIPAA requirements for confidentiality and protection of information are followed.

**Baltimore City Capitation JCR:** In 1994, the Department established the Baltimore City Capitation Project (the Capitation Program), which is operated by Behavioral Health Systems of Baltimore

(BHSB). The Capitation Program provides intensive, wraparound services to ensure individuals with SPMI maintain a community residence. In FY 2021, Hilltop conducted several analyses to assist the Department in responding to a JCR. Hilltop identified participants in the Capitation Program based on targeted procedure codes and Medicaid capitation payments in FY 2019 and FY 2020. Thereafter, Hilltop gave the Department participant lists that included demographic identifiers for the two authorized providers: Chesapeake Connections and Creative Alternatives. Hilltop also participated in two conference calls with the Department and BHSB to review the data collection tool used by the Capitation Program and address questions regarding data collection procedures, research questions, and evaluation logistics. Hilltop submitted potential measurement areas to include in a JCR for the Capitation Program and provided the Department with a CAPDAT data dictionary.

**Behavioral Health Chart Book:** Hilltop created the Medicaid Behavioral Health Services Chart Book, a collection of measures regarding behavioral health services from CY 2013 to CY 2020. The chart book included an analysis comparing the number of Medicaid FFS claims submitted by behavioral health providers in each month of CY 2019 and CY 2020 and claim counts by provider type. In addition, Hilltop included an analysis identifying Medicaid participants who had a SUD or behavioral health diagnosis; those who had a fatal overdose in CY 2019 and CY 2020; and those with a behavioral health diagnosis who did not receive services through the administrative services organization (ASO) from CY 2017 through CY 2019. Hilltop also included an analysis identifying the cost, number of services delivered, and number of clients served by OTPs in FYs 2018 and 2019. The chart book included behavioral health measures from the HealthChoice Evaluation (CY 2015 to CY 2019) and the Health Home Program Evaluation (CY 2013 to CY 2018). In addition to the chart book, Hilltop created an Appendix containing additional tables and figures.

### **Behavioral Health Planning**

**Commission to Study Mental and Behavioral Health:** In January 2019, Lt. Governor Rutherford announced [\*Executive Order 01.01.2019.02\*](#), signed by Governor Hogan, establishing the Commission to Study Mental and Behavioral Health in Maryland. The Commission, chaired by Lt. Governor Rutherford, is tasked with studying mental health in the state, including access to mental health services and the link between mental health issues and SUDs. The Commission includes representatives from each branch of state government; the Maryland Departments of Health, Public Safety and Correctional Services, and Human Services; the Maryland State Police; the Maryland Insurance Administration (MIA); and the Opioid Operational Command Center; as well as six members of the public with experience related to mental health. In May 2019, the Department requested that Hilltop provide staffing support to this Commission. Hilltop attended all seven of the Commission's virtual meetings in FY 2021 and drafted the Medicaid Director's

talking points for each meeting: August 25, 2020; October 6, 2020; November 5, 2020; December 8, 2020; January 19, 2021; March 9, 2021; and May 11, 2021. Hilltop continues to provide staff support to the Medicaid Director in his role as co-chair of the Commission's Finance Subcommittee, which is also co-chaired by the Insurance Commissioner. Hilltop worked with MIA staff to schedule and develop meeting agendas and notes for the five subcommittee meetings. Hilltop also drafted talking points for each meeting, managed email distribution lists for the subcommittee, and responded to various emails and telephone calls from subcommittee members and interested parties throughout the year. Hilltop works with the Lt. Governor's staff to ensure that the Finance Subcommittee's section of the Commission's website remains up to date. Hilltop also assisted with drafting the Finance Subcommittee's section of the Commission's *annual report*.

**Behavioral Health System of Care:** In 2019, the chairs of the Senate Finance Committee and the Health and Government Operations Committee requested the Department to convene a System of Care Workgroup to examine and make recommendations on how the state should provide, administer, and finance behavioral health services in conjunction with the TCOC Model. The Department requested that Hilltop provide project management support to these System of Care efforts and help ensure coordination with the Governor's Commission described above. Hilltop continued this role throughout FY 2021. Working with the Medicaid Director, Hilltop continues to manage six different stakeholder groups: a steering committee that includes state legislators and executive agency leaders, a Medicaid-behavioral health agency joint staff group, a behavioral health provider discussion group, a Medicaid MCO discussion group, a hospital discussion group, and the System of Care Workgroup. Work activities of some of these groups were placed on hold due to the pandemic.

Across the stakeholder groups, Hilltop worked with Department staff to schedule meetings; managed calendar invitations; drafted the corresponding meeting agendas and materials; maintained/continually updated participant and interested party email distribution lists; distributed meeting materials to participants; assisted with facilitating meetings; and drafted and distributed meeting minutes. Hilltop performed these activities for the following: biweekly meetings of the Medicaid-BHA staff group, four meetings of the System of Care Workgroup, one meeting of the Behavioral Health Community Discussion Group, and one meeting of the MCO Discussion Group. Although meetings were cut back in FY 2021 in response to the COVID-19 pandemic, re-launch efforts are currently underway.

Hilltop also participated in numerous ad hoc meetings and calls with staff to debrief and plan next steps. Throughout the year, Hilltop continually responded to various telephone calls and emails from workgroup members, stakeholders, and other members of the public regarding the System

of Care initiative. Hilltop also briefed/provided orientations to new Department and BHA staff to bring them up to speed on the project.

### **Services to Address Opioid Addiction**

In FY 2021, Hilltop conducted several analyses to assist the Department in addressing opioid addiction.

**Maternal Opioid Misuse (MOM):** CMS announced the MOM model grant opportunity to better align and coordinate the care of pregnant and postpartum Medicaid beneficiaries with OUDs. Hilltop assisted the Department in its application for this grant by providing data on pregnant women, new mothers, and infants. Maryland is among the ten states awarded MOM model funding for a five-year period of performance that began in January 2020. In FY 2021, Hilltop delivered tables describing the prevalence of pregnant women, pregnant women diagnosed with OUD, and enrollees diagnosed with neonatal abstinence syndrome (NAS) in preparation for the implementation of the MOM model. Estimates were conducted by geographic region, inclusion criteria definition, provider, and MCO. Hilltop also provided input on data sources and definitions to prepare for data reporting requirements. In addition, Hilltop provided consultation and compared estimates by inclusion criteria definitions for the eligible MOM program population. Hilltop prepared a county-level map showing prevalence of potentially eligible MOM participants and conducted an analysis to identify the number of Medicaid participants receiving SUD and OUD diagnoses and treatments from PCPs, delineated by provider and practice.

**OTPs:** In FY 2021, Hilltop calculated the cost, number of services delivered, and number of clients served by OTPs in FYs 2018 and 2019. Hilltop also completed an analysis of the utilization and costs of OTP services during FY 2019 and matched these Medicaid HCPCS codes to newly introduced Medicare HCPCS codes.

**Overdoses:** In FY 2021, Hilltop conducted several analyses related to overdoses. Hilltop matched vital statistics data with Medicaid data to calculate the number of Medicaid participants who died of an overdose (by an opioid or other drug) in CY 2019 and between January and September of CY 2020. Hilltop identified Medicaid participants who had a fatal overdose, as well as those who were enrolled in Medicaid within a year of death and at time of death for CY 2020. For Medicaid participants who had a fatal overdose, Hilltop identified the providers who administered services in the year prior to their death. Hilltop also analyzed the health care utilization and poisoning diagnoses of Medicaid participants for the year prior to their fatal overdose and provided participant demographics.

**MAT:** Hilltop provided monthly reports on MAT utilization for SUDs, focusing on three medications: buprenorphine, methadone, and naltrexone (Vivitrol). Hilltop provided utilization data for Medicaid participants for the months spanning January 2010 through May 2021. In addition, Hilltop provided utilization data by county for Medicaid participants spanning June 2019 through May 2021.

**Multi-State Analyses of OUD:** Through its membership in SUPLN and MODRN, Hilltop continued to participate in research to address OUD. In FY 2021, Hilltop facilitated the Department's review of MODRN's analysis of the relationship between discontinuation of MOUD and opioid overdoses, the examination of age-related trends in OUD diagnosis and treatment, and analyses for a NIDA-funded grant, describing patterns in OUD treatment performance. With support from both the NIDA grant and Hilltop's interagency agreement with the Department, Hilltop provided the Department with the MODRN OUD Project Steering Committee presentations, demonstrating Maryland's leadership in MOUD. On behalf of AcademyHealth, Hilltop facilitated the Department's review of the policy inventory developed by the MODRN team about changes over time in state policies regarding prior authorization and quantity limits. Hilltop also coordinated the review of the forthcoming policy inventory manuscript entitled *State Medicaid Agencies' Multi-Faceted Response to the Opioid Epidemic*. Along with nine other MODRN states, Hilltop contributed to the analysis of health care for pregnant women with OUD and related neonatal and child outcomes, concluding in a peer-reviewed publication in the *Journal of Addiction Studies*.<sup>4</sup> With three other states, Hilltop contributed to the analysis of polysubstance use disorders, whose results were published in an issue brief on AcademyHealth's website.<sup>5</sup> Additionally, along with 10 other states, Hilltop contributed to the analysis and writing of the peer-reviewed publication by the *Journal of the American Medical Association (JAMA)* on the use of MOUD.<sup>6</sup> Hilltop and the Department participated in SUPLN's annual meeting in December 2020 and attended the MODRN-related panel session at the 2021 AcademyHealth Annual Research Meeting (ARM) on *Opioid Use Disorder Policy, Treatment*

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<sup>4</sup> Jarlenski, M., Jarlenski, M., Kim, J., Ahrens, K. A., Allen, L., Austin, A., Barnes, A. J., Crane, D., Lanier, P., Mauk, R., Mohamoud, S., Pauly, N., Talbert, J., Zivin, K., & Donohue, J. M. (2021, February 5). Healthcare patterns of pregnant women and children affected by OUD in 9 state Medicaid populations. *Journal of Addiction Medicine*.

<https://pubmed.ncbi.nlm.nih.gov/33560699/>

<sup>5</sup> Donohue, J., Kennedy, S., & Sheets, L. (2021). *Polysubstance use disorders in four state Medicaid programs* (Issue Brief). AcademyHealth.

[https://academyhealth.org/sites/default/files/publication/%5Bfield\\_date%3Acustom%3AY%5D-%5Bfield\\_date%3Acustom%3Am%5D/polysubstance\\_use\\_disorders\\_brief\\_0.pdf](https://academyhealth.org/sites/default/files/publication/%5Bfield_date%3Acustom%3AY%5D-%5Bfield_date%3Acustom%3Am%5D/polysubstance_use_disorders_brief_0.pdf)

<sup>6</sup> The Medicaid Outcomes Distributed Research Network (MODRN). (2021). Use of medications for treatment of opioid use disorder among US Medicaid enrollees in 11 states, 2014-2018. *JAMA*, 326(2), 154-164.

<http://doi:10.1001/jama.2021.7374>.

*and Outcomes in 12 State Medicaid Programs.* Hilltop assisted with the preparation of analytical results, writing, and review of the NIDA disparities grant application, *Improving Racial Equity in Opioid Use Disorder Treatment in Medicaid.*

**Opioid Operational Command Center:** Hilltop assisted the Department with a grant from Maryland's OOC to implement a pilot program to expand a select number of outpatient mental health clinics (OMHC) into comprehensive crisis stabilization centers (CCSCs). As part of the planning process, Hilltop conducted an environmental scan to identify regulatory and licensing barriers to the expansion of OMHCs into CCSCs and examined how similar programs have been implemented in other states. Hilltop also revised the environmental scan based on feedback from the Department and other stakeholders and completed a final draft. In addition, Hilltop submitted and updated a methodology of a data analysis regarding ED visits, behavioral health ED visits, and the number of OMHCs for the data analysis paper. Hilltop reviewed and provided feedback on the methodology proposed for the Substance Use Treatment Gaps Analysis developed by the OOC to assess treatment capacity at the county and state level. In addition, Hilltop provided an overview of opioid-related accredited quality measures and descriptions of the HEDIS measures titled Initiation and Engagement of Alcohol and Other Drug Dependence Treatment (IET) and Pharmacotherapy for Opioid Use Disorder (POD).

## Dental Services

**Dental JCR:** In FY 2021, to assist the Department in its response to the Maryland General Assembly, Hilltop analyzed the utilization of Medicaid dental services by children, pregnant women, and adults. Hilltop analyzed the use of dental services by Medicaid enrollees in CY 2019 by region, type of service, and age group (children aged 0 to 20 and 4 to 20, adults aged 21 to 64, and pregnant women aged 14 and older). Hilltop analyzed the use of dental services from CY 2017 to CY 2019 by former foster care participants. Measures included the number and percentage of former foster care participants enrolled in Medicaid for 90 days, 320 days, or any period who had dental services, by region and type of service. In addition, Hilltop measured the percentage by region of former foster children enrolled in Medicaid for any period who received a preventive/diagnostic visit followed by a restorative visit in CY 2019. To determine whether there were reductions in ED use for dental reasons, Hilltop counted former foster children enrolled in Medicaid for any period who had an ED visit with a dental primary diagnosis or a dental procedure code, by region. In addition, Hilltop analyzed the utilization of dental services from CY 2015 to CY 2019 by REM participants aged 4 to 64 years enrolled in Medicaid for 90 days, 320 days, or any period who had dental services, by age group; and analyzed the utilization of Medicaid dental services by dually eligible adults through the adult dental pilot program in CY 2019, by type of

service. Hilltop calculated the number of dentists participating in Medicaid who billed for one or more services or billed more than \$10,000, by region, as well as the total cost of dental services for CY 2019. Hilltop also calculated total cost and number of dental visits by FFS only and FFS and MCO combined. Hilltop delivered the Maryland Medicaid Dental Program: CY 2015 to CY 2019, Chart Book based on the Dental JCR, which included dental visits for children, pregnant women, non-pregnant adults, and former foster care and REM participants.

**Claims Paid to Dental Providers:** On behalf of the Department, Hilltop identified the claims paid to Maryland Medicaid dental providers for Maryland Medicaid FFS participants for CY 2019 through the first two quarters of CY 2020. This request was completed to fulfill a Maryland Public Information Act request.

### Other Data Analytics and Support

**Maryland HIV Medicaid Affinity Group:** In FY 2017, the Department convened the Maryland HIV Medicaid Affinity Group, involving the Medicaid Program and the Prevention and Health Promotion Administration (PHPA). The purpose of this group is to establish consistent and frequent (at least monthly) data exchanges to better inform both administrations about Medicaid participant HIV testing and care continuum participation, provide richer information for linkage and re-engagement efforts, and form the basis for quality improvement efforts with Medicaid payers and providers. Hilltop supports the Medicaid program within the HIV Affinity Group through a DUA between the Department, Hilltop, and the PHPA. Hilltop's role is to provide technical support and analytics—specifically to match participants from PHPA HIV surveillance data to Medicaid eligibility data and extract service utilization data for these participants from MMIS2. In FY 2021, Hilltop updated the HIV Affinity DUA and identified the number of Medicaid participants who had at least one HIV screening and/or received pre-exposure prophylaxis (PrEP), as well as Medicaid participants with an HIV diagnosis from CY 2014 through CY 2019.

**National Diabetes Prevention Program:** The National Diabetes Prevention Program (National DPP) runs the Lifestyle Change Program, an evidence-based program established by the CDC to prevent or delay the onset of type 2 diabetes. The Department received approval to expand coverage of the Lifestyle Change Program to all eligible HealthChoice participants as of September 1, 2019. By identifying participants early through screening and testing for prediabetes (PD), the Department hopes to reduce the incidence of diabetes and increase the quality of life for Medicaid participants. In FY 2021, Hilltop developed DPP eligibility determination technical specifications. Hilltop also developed and revised the DPP eligibility algorithm and analyzed participation in the HealthChoice DPP and utilization of services from September 1, 2019, to November 30, 2020. In

addition, Hilltop prepared data sets to allow for the creation of a diabetes/prediabetes flag in CRISP data for Medicaid participants from CY 2016 to CY 2020.

**Emergency Transportation:** At the Department's request, Hilltop identified the number of MCO encounters with a provider type of ambulance transport (ambulance company (T1)) and procedure code of ambulance service, advanced life support, emergency transport, or level 1 (A0427) and the FFS claims for corresponding ambulance transport with the same Medicaid participant and date of service and procedure code (A0427) during CY 2018 and CY 2019. Hilltop also provided feedback for conducting the analysis without Medicare crossover claims. Hilltop analyzed Medicaid services billed by the 14 Jurisdictional Emergency Medical Systems Operational Programs (JEMSOPs) in Maryland for ambulance trips completed in CYs 2019 and 2020; FFS claim for ambulance rides with corresponding MCO encounters on the same date of service in FYs 2019 and 2020; and all FFS procedures billed by JEMSOPS in FYs 2019 and 2020.

**Telehealth:** In FY 2021, Hilltop analyzed the utilization of Assertive Community Treatment and gave the Department utilization rates by the presence of telehealth modifiers for FY 2018 through FY 2020. Hilltop also provided the Department with cost estimates for a potential Store and Forward expansion to Medicaid based on the current volume of radiology, dermatology, and ophthalmology services via telehealth.

**Healthy Kids:** In FY 2021, Hilltop provided the Department with MMIS encounter data and FFS data for the annual children's preventive health data request for the Maryland Healthy Kids nurses chart review for CY 2020.

**Births and Maternal Health:** Hilltop matched kick payments received in CY 2018 to labor and delivery claims and provided data on the average labor and delivery payment rates for CYs 2018 and 2019. Hilltop also calculated the number of children aged 0 to 3 years and pregnant women enrolled in Medicaid by county of residence for CY 2019 and calculated the number of FFS and MCO deliveries in FY 2019, delineated by county and age group.

**Life after Welfare:** Hilltop conducted preliminary analysis for DHS on results from the initial matching for an external data request to obtain Medicaid enrollment periods between CY 2010 and CY 2020 for former Temporary Cash Assistance (TCA) recipients. Hilltop provided the final person and month-level data file with monthly indicators of enrollment in the Maryland Medicaid program for individuals in families who had a TCA case closed between January 2010 and July 2020.

**MHBE Race/Ethnicity Mapping:** Hilltop reviewed the race and ethnicity data from the MHBE recorded for participants who enrolled in Medicaid through the Exchange and compared them with race and ethnicity data available in MMIS to help the Department obtain a more accurate record of a participant’s race and ethnicity.

**Provider Type:** Hilltop provided the number of professional encounters billed by FQHCs, delineated by provider type, from CY 2019 to CY 2020, and provided examples that demonstrate that provider type is linked to the rendering provider, not the billing/pay-to provider, in professional fee MCO encounters.

**HSCRC Chronic Conditions Measure:** Hilltop reviewed measure specifications and SAS programming from the HSCRC to begin a project on applying the measure developed by IMPAQ International—Timely Follow-Up after Acute Exacerbation of Chronic Conditions—for the HealthChoice population using MMIS data.

**Medicaid FFS Hospital Costs:** Hilltop analyzed the cost of inpatient admissions at DC Children’s Hospital compared to similar services at Johns Hopkins University and University of Maryland Hospitals in FY 2020 and FY 2021.

## Data Analytics for Federal Grant Applications

**Maternal and Child Health Block Grant:** The Title V Maternal and Child Health (MCH) block grant provides funding to states to support initiatives aimed at improving the health of mothers and children. The grant application includes a list of questions pertaining to Medicaid and MCHP enrollment and service utilization by pregnant women, infants, and children in CY 2020. As in past years, Hilltop analyzed enrollment and utilization data and provided responses to 19 questions on the 2021 application.

## Data Requests from External Researchers and Agencies

Hilltop fulfills requests for Medicaid data from external researchers and federal and state agencies for use in program planning, monitoring, and evaluation. Upon approval of a data request by the Department, Hilltop works with the researcher or agency representative to develop a detailed scope of work (SOW) that is consistent with HIPAA regulations requiring covered entities to make reasonable efforts to ensure that the “minimum necessary” protected health information (PHI) is disclosed. The SOW is included in the Institutional Review Board (IRB) submission to the Department (if IRB approval is required under federal guidelines), as well as the DUA. In FY 2021, Hilltop continued to use the new multi-party DUA template for data requests, developed in FY 2018 by the Department and UMBC to clearly specify approved uses of the data and ensure

compliance with data security, management, and destruction requirements. If the data request is not a task included in Hilltop's master agreement with the Department, then Hilltop also develops a budget for the data request and arranges for payment from the requester.

In FY 2021, the Department and UMBC/Hilltop executed seven DUAs with external agencies, and Hilltop proceeded to fulfill these data requests. Data requests can vary from one-time extractions of summarized tabulations of Medicaid data to multiple extractions of individual-level claims and encounters for a specified study population along with a comparison group extracted through propensity score matching. In some instances, Hilltop matches person-level Medicaid claims with person-level data from other sources or performs analytics for the data requester. Table 1 on the following page lists the data requests for which DUAs were executed in FY 2021.

## Data Requests

Requesting Organization	Description of Data Request
ABT Associates	<i>HUD's Supportive Services Demonstration</i> : Medicaid and managed care enrollment, participant demographic data, claims, and encounter data from CY 2015 through CY 2020 for Medicaid participants living in Section 811 units and other HUD-funded housing programs
Benefits Data Trust	Newly enrolled Medicaid participants for outreach to enroll in other public services
CRISP	Matching of COVID diagnosis and testing data
Johns Hopkins University School of Medicine	Medicaid children in Baltimore public schools for comparison and evaluation of the Rales School Health Clinic
The Lewin Group	Medicaid claims and encounters for monitoring and evaluation of the HSCRC TCOC Model
MedStar Health Research Institute	Aggregated data on prevalence of cancer diagnoses in support of SUPLN research proposal to National Cancer Institute and American Cancer Society
University of Maryland School of Pharmacy	Eligibility, claims, and encounters of persons receiving anti-HIV prescriptions and served by selected pharmacy providers to assure regular fulfillment of prescription drug therapy

## Data Management and Web-Accessible Databases

In its role as a business associate of the Department pursuant to the HIPAA Privacy Rule, Hilltop maintains Maryland Medicaid data and a number of other data sets to support policy analysis, performance evaluation, development of risk-adjusted payment methodologies, and capitation rate setting for managed care on behalf of the Department. Data requests ranging from ad hoc reports to long-term trend analyses can be processed promptly with Hilltop's sophisticated data management technology.

In FY 2021, Hilltop continued implementing business process improvements for responding to data requests from the Department more efficiently. Hilltop completed 1,254 programming requests and moved more than 25 separate projects to the centralized project repository, which has shared permissions. Hilltop's version-control system continues to be used for coordinating work among programmers and includes all the processes housed within the centralized project repository.

### Data Sets

**Maryland Medicaid Data:** MMIS data include FFS claims (inpatient, outpatient, physician, MCO, capitation, and special services), MCO encounters (hospital, physician, lab, nursing facility, etc.), eligibility, special program eligibility, and provider information for the Maryland Medicaid program. Hilltop receives MMIS data from the Department monthly—except for provider data, which it receives quarterly. However, plans to accept provider data monthly are underway. Hilltop loads these data into analytic formats in its data repository for usage in web applications and operational reporting, as well as policy, financial, and evaluation studies. Included in the transmissions from the Department are FFS claims (medical, institutional, and pharmacy) and MMIS eligibility and encounter data. Hilltop's data repository appends and historically reconciles over 100 million Medicaid records per month. The full repository that Hilltop houses contains more than 1.25 billion records and 2,000 variables.

**LTSSMaryland:** Built by Hilltop, FEi Systems, and the Department, *LTSSMaryland* is a person-centered information system supporting a broad array of community-based care functions. Business processes revolve around the main client record, which provides users with a detailed chronology of participant interactions. The system supports the use of the interRAI assessment and other tools to accommodate federal guidelines, allows unified and customized reports across community-based programs, and provides increased support for person-centered care planning. The *LTSSMaryland* system supports several waivers and programs, including the CO, MDC, DDA, and BI Waivers; REM, CFC, CPAS, ICS, and MFP programs; and reportable events, quality survey, and nurse monitoring. The *LTSSMaryland* system also supports electronic billing and claims

processing for attendant care, interRAI assessments, environmental modification assessments, and home-delivered meals using the Provider Portal (formerly known as the In-Home Supports Assurance System, or ISAS), CO Waiver registry, support planner activities, and nurse monitoring activities. Hilltop receives a weekly SQL server database containing a full backup of *LTSSMaryland*. This database contains information on program eligibility and participation, health assessments, and POS for Maryland Medicaid LTSS recipients. Hilltop used data from *LTSSMaryland* in many of the analyses described in the Community First Choice, Home and Community-Based Services, and Long-Term Services and Supports sections of this report.

In FY 2021, Hilltop continued to support the Department's ongoing effort to develop and enhance *LTSSMaryland*. Hilltop contributed to implementation planning for the Model Waiver module. Hilltop continued requirements gathering and design review for REM releases 1.3 and 1.4, REM PDN assessment updates, additional REM enhancements, nurse monitoring documentation updates, POS temporary services and workflow enhancements, POS signature page revisions, updates to LOC logic, home-delivered meals POS cap, BIAMD and BI user role updates and alerts, BI provider unassignment process, and MDC enrollment packet updates related to provider COVID compliance. Hilltop also provided technical assistance to expand or improve numerous existing modules, including MDC, REM, provider enrollment, and clinical support, as well as user role functionality updates for the BIAMD and BI Waiver administrators. Hilltop continues to work with the Department to develop business processes, define system requirements, review use cases and report requirements, and assist with system trainings.

**Minimum Data Set:** Hilltop receives MDS data monthly and maintains the data for routine and special analyses to better understand the health status, health care usage, and health care costs of nursing facility residents in Maryland. These data are routinely linked to Maryland Medicaid recipient data for analyses at the individual, aggregate individual, and facility levels. The MDS data are also the source of case-mix information (specifically resource utilization groups) that are used to calculate Medicaid nursing facility payments. The data, stored in raw and refined formats, include all MDS assessments for Maryland nursing facility residents since the beginning of federal requirements for such assessments in October 1998. Separate resident and facility identification files are also included in the full MDS database.

**Maryland Hospital Discharge Data:** Hilltop receives data on hospital admissions and discharges semi-annually from the HSCRC. These data are used in HealthChoice rate setting and other analyses requested by the Department. In FY 2021, Hilltop received quarterly files from hMetrix containing inpatient and outpatient HSCRC data from CY 2006 to CY 2020.

**Medicare Data:** Hilltop maintains three distinct sources of Medicare data. The Claim and Claim Line Feed data are included in the algorithms used by the MDPCP. The Research Identifiable Files—available for Medicaid recipients with dual Medicare coverage from CY 2007 through CY 2018—are used to link with Medicaid claims for analyses of dual-eligible beneficiaries. The All-Payer Claims Database (APCD) obtained from MHCC includes Medicare data that are used in a variety of analyses. (See Medical Care Data Base, below.)

**Medical Care Data Base:** In FY 2017, the Department and MHCC executed a DUA that requires Hilltop to process and transmit to MHCC Medicaid data for the MCDB, which is part of MHCC's APCD. The DUA also allows Hilltop to receive a copy of the commercial and Medicare data from the MCDB for use in carrying out Medicaid analyses for the Department. The DUA was amended in FY 2020 to allow Hilltop to send to MHCC Medicaid FFS data in addition to MCO data. The DUA was amended again in FY 2021, allowing Hilltop to send the Medicaid data to MHCC semi-annually. As required under the DUA, in FY 2021, Hilltop prepared quarterly reports to MHCC describing the Department's use of MCDB data. Hilltop transferred all MCO and FFS data for CY 2019. At the request of MHCC, Hilltop developed data dictionaries to accompany the files. MHCC did not deliver a copy of the commercial data during this fiscal year.

**COVID Data:** Hilltop receives a weekly feed of COVID vaccination and testing data from CRISP that it analyzes for the Department. Although the COVID vaccination and testing data are provided by CRISP, the source of the vaccination data is ImmuNet, Maryland's Immunization Information System, and the source of the testing data is NEDSS. Hilltop generates weekly COVID reports with these data for the Department. In addition, Hilltop displays these data in the COVID dashboard on the DataPort, which is updated weekly (See below for a description of the DataPort).

**eMedicaid:** The Department provides Hilltop with data from eMedicaid, a database developed and maintained by the Department that is accessible through a web-based portal and allows health care practitioners to enroll as a Medicaid provider, verify recipient eligibility, and obtain payment information. In addition, eMedicaid offers a case management tracking tool for providers participating in Maryland's Medicaid Health Homes. Hilltop uses eMedicaid data to identify dual-eligible Health Home participants' health care utilization patterns. In addition, Hilltop uses eMedicaid data to report program enrollment, participant characteristics, Health Home service delivery, and clinical outcomes for the Health Home evaluation reports.

### **Databases Developed and Maintained for the Department**

Hilltop has developed several interactive websites and databases that it continues to maintain and update monthly for the Department.

**DataPort:** In FY 2021, Hilltop continued development of the Maryland Medicaid DataPort, State Edition. The DataPort uses a Tableau® front end and gives authorized Department users additional data exploration tools that provide tiered levels of data granularity. Hilltop has trained 44 Department staff in the use of the DataPort. The DataPort currently includes five years of eligibility and capitation data. In FY 2021, Hilltop expanded the service utilization module to include telehealth measures and built in the ability to query for participants diagnosed with COVID-19. COVID-19 vaccination and lab data streams from ImmuNet, NEDSS, and CRISP were incorporated into the DataPort and linked to Medicaid data for reporting purposes. The DataPort contains an extensive Resources module with navigation tips, training manuals, Medicaid resources, FAQs, a data dictionary, waiver and non-waiver special program code definitions, and a ZIP code/county locator tool. In FY 2022, Hilltop will continue to develop the DataPort, State Edition by adding a Long-Term Services and Supports module as well as begin development of the public edition, which will eventually replace Maryland Medicaid eHealth Statistics.

**Master Analytic Database:** In FY 2021, Hilltop expanded upon the initiative it began in FY 2018 to upgrade the back end of the decision support system (DSS) with a high-performance data warehouse model. Hilltop also continued development of the multi-purpose SQL Server database to house the back-end data for the DataPort. The database, called the Master Analytic Database, is updated monthly with Maryland Medicaid MMIS data. Currently, there are tables to support the eligibility, capitation, and service utilization sections of the DataPort, as well as lookup tables for formatting coded variables. The database includes a recipient table with current demographic and geographic fields and a provider table with provider-level information for all Medicaid providers. Automated audit procedures were added in FY 2021 to verify that data transferred from Hilltop's data warehouse to the Master Analytic Database are complete. When the database is updated each month, an extract-transform-load (ETL) process is run to apply modeling schemes and techniques that create database views. These views serve as the source data for the DataPort and are designed to minimize query time for users. The architecture of the Master Analytic Database uses modeling techniques that enable a wide variety of data questions to be asked by users and includes a high-performant system with the capability to quickly respond to very fine-grained questions.

**Legacy DSS:** Hilltop continued to maintain the legacy DSS for the Department. The DSS provides password-protected web-based access to 20 years of Maryland Medicaid data, including payment, eligibility, and service data delineated by recipient and provider. Users can query the DSS using both custom and standard reporting functionality that includes maps, charts, and multiple-year trends. Department users now access these data through the DataPort. The DSS is maintained for benchmark testing and to provide access to data that have not yet been included in the DataPort.

**Maryland Medicaid eHealth Statistics:** Hilltop continued to maintain [Maryland Medicaid eHealth Statistics](#), a public website that primarily provides data on Medicaid eligibility by age, coverage type, and MCO. This site provides researchers, community leaders, practitioners, and the public at large with ready access to up-to-date eligibility data.

**Immunization Registry:** Hilltop continued to prepare and import immunization data for Medicaid beneficiaries to the Maryland Immunization Registry (ImmuNet). Hilltop collected data from various databases—including eligibility, claims, and provider files—to compile data on each Medicaid participant who had an immunization procedure during the period reported. The data provided demographic and other information on these individuals. Hilltop updates this database semi-annually. Hilltop also gave each MCO data about vaccination records for its Medicaid participants.

## Appendix: List of Abbreviations

ACA	Affordable Care Act (Patient Protection and Affordable Care Act)
ACG	Adjusted Clinical Groups
ACIS	Assistance in Community Integration Services
ALF	assisted living facility
APCD	All-Payer Claims Database
ASAM	American Society of Addiction Medicine
BHA	Behavioral Health Administration
BHSB	Behavioral Health Systems of Baltimore
BI	Brain Injury (Waiver)
BIAMD	Brain Injury Association of Maryland
CAHPS®	Consumer Assessment of Healthcare Providers and Systems
CARES	Coronavirus Aid, Relief, and Economic Security (Act)
CARTS	CHIP Annual Reporting Template System
CCSC	comprehensive crisis stabilization center
CDC	Centers for Disease Control and Prevention
CFC	Community First Choice
CHIP	Children’s Health Insurance Program
CLR	Childhood Lead Registry
CMC	Corrective Managed Care (Program)
CMS	Centers for Medicare & Medicaid Services
CO	Home and CommunityBased Options (Waiver)
CoCM	Collaborative Care Model
CPT	Current Procedural Terminology
CRISP	Chesapeake Regional Information System for Our Patients
CY	calendar year
DDA	Developmental Disabilities Administration

DHS	Maryland Department of Human Services
DPP	Diabetes Prevention Program
D-SNP	dual-eligible special needs plan
DSS	Decision Support System
DUA	data use agreement
E&M	evaluation and management
ED	emergency department
EPSDT	Early and Periodic Screening, Diagnosis, and Treatment
EQR	external quality review
ETL	extract-transform-load
FFS	fee-for-service
FFY	federal fiscal year
FMAP	Federal Medical Assistance Percentage
FY	fiscal year
HCBS	home and community-based services
HCPCS	Healthcare Common Procedure Coding System
HCQ	hydroxychloroquine
HHS	U.S. Department of Health and Human Services
HIPAA	Health Insurance Portability and Accountability Act
HSCRC	Maryland Health Services Cost Review Commission
HSI	Health Services Initiative
HVS	Evidence-Based Home Visiting Services
ICS	Increased Community Services
IET	initiation and engagement of alcohol and other drug dependence treatment
IMD	institution for mental disease
IRB	Institutional Review Board
ISAS	In-Home Supports Assurance System

JCR	Joint Chairman’s Report
LAH	Living at Home (Waiver)
LARC	long-acting reversible contraception
LE	lead entity
LOC	level of care
LTSS	long-term services and supports
MACPro	Medicaid and CHIP Program
MAPC	Medical Assistance Personal Care
MAT	medication-assisted treatment
MCDB	Medical Care Data Base
MCH	Maternal and Child Health
MCHP	Maryland Children’s Health Program
MCO	managed care organization
MDC	medical day care
MDE	Maryland Department of the Environment
MDPCP	Maryland Primary Care Program
MDS	Minimum Data Set
MFP	Money Follows the Person
MFR	Managing for Results
MHBE	Maryland Health Benefit Exchange
MHCC	Maryland Health Care Commission
MHD	mental health disorder
MIA	Maryland Insurance Administration
MMIS2	Medicaid Management Information System
MODRN	Medicaid Outcomes Distributed Research Network
MOM	Maternal Opioid Misuse (Model)
MOUD	medications for opioid use disorder

MSDE	Maryland State Department of Education
NAELA	National Association of Elder Law Attorneys
NCQA	National Committee for Quality Assurance
NEDSS	National Electronic Disease Surveillance System
NIDA	National Institute on Drug Abuse
NPI	National Provider Identifier
NWD	No Wrong Door
OMHC	outpatient mental health clinic
OOCC	Opioid Operational Command Center
OTP	opioid treatment program
ODU	opioid use disorder
P4P	pay-for-performance
PACE	Program of All-Inclusive Care for the Elderly
PAS	personal assistance services
PCORI	Patient-Centered Outcomes Research Institute
PCP	primary care provider
PD	prediabetes
PDN	private duty nursing
PE	participating entity
PHA	Public Health Administration
PHI	protected health information
PHIP	Public Health Incentive Program
PHPA	Prevention and Health Promotion Administration
POS	plan of service
PRP	psychiatric rehab program
PSO	provider-sponsored organization
REM	Rare and Expensive Case Management

ROI	return on investments
RWJF	Robert Wood Johnson Foundation
SB	Senate Bill
SBIRT	Screening, Brief Intervention, and Referral to Treatment
SED	serious emotional disturbance
SFTP	secure file transfer protocol
SHIP	State Health Improvement Process
SMI	serious mental illness
SOW	scope of work
SPA	state plan amendment
SPMI	serious and persistent mental illness
STP	Statewide Transition Plan
SUD	substance use disorder
SUPLN	State-University Partnership Learning Network
TCA	Temporary Cash Assistance
TCOC	Total Cost of Care
TDW	Transportation Data Worksheet
VBP	value-based purchasing
VSA	Maryland Vital Statistics Administration
WIC	Women, Infants, and Children
WOA	Waiver for Older Adults



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