

The Hilltop Institute



analysis to advance the health of vulnerable populations

**Maryland Department of Health
Master Agreement
Annual Report of Activities and Accomplishments: FY 2017**

October 2017

Table of Contents

A Nationally Recognized Partnership	1
The Hilltop Institute at UMBC	1
History	2
Leveraging Our Work.....	3
National Recognition	4
Annual Report	4
HealthChoice Program Support and Evaluation	5
Medicaid Rate Setting	11
Analytics to Support Health Reform.....	14
Medicaid Expansion	14
Maryland All-Payer Model	15
Health Homes.....	18
Community First Choice.....	19
Home and Community-Based Services	20
Other Support	21
Financial Analysis	22
Other Analyses and Technical Support.....	24
Coverage and Health Services Utilization	24
Provider Participation.....	26
Long-Term Services and Supports	27
Dual-Eligible Beneficiaries	30
Behavioral Health Services	30
Other Data Analytics and Support	33
Data Analytics for Federal Grant Applications	37
Data Management and Web-Accessible Databases	38
Data Sets.....	38
Databases Developed and Maintained for the Department.....	40



A Nationally Recognized Partnership

The Hilltop Institute at UMBC

The Hilltop Institute at the University of Maryland, Baltimore County (UMBC), currently in its 23 year of service to the state of Maryland, is dedicated to advancing the health and wellbeing of vulnerable populations. Hilltop, nationally recognized for its expertise in Medicaid and state health policy, is committed to addressing complex issues through informed, objective, and innovative research and analysis. With an extensive data warehouse and a staff of almost 50 full-time professionals—policy and financial analysts, 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. As state and federal governments continue to consider reforms to Medicaid, the insurance marketplaces, and the health care financing and delivery system, Hilltop’s deep understanding of state health policy and expertise in data analytics will be 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 agency. This relationship is governed through an annual intra-governmental agreement between UMBC (on behalf of Hilltop) and the Department’s Office of Planning. 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 warehouse to support program development, research, policy analysis, and rate setting. The data warehouse 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 home assessment data and Medicare data for individuals in Maryland who are eligible for both Medicare and Medicaid [dual-eligible beneficiaries]). Hilltop developed and supports a web-based Decision Support System (DSS) for the exclusive use of the Department that provides real-time data on Medicaid eligibility, utilization, and expenditures, as well as 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) 2017, HealthChoice had eight participating managed care organizations (MCOs), served over 1.1 million beneficiaries, and paid \$5.4 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 that program. In FY



The Hilltop Institute

2017, CMS renewed Maryland’s 1115 waiver for HealthChoice, and Hilltop is providing support to the Department in planning and implementing new benefits and initiatives such as residential treatment for individuals aged 21 to 64 with substance use disorder (SUD), integrated physical and behavioral health services, the Evidence-Based Home Visiting Services Pilot Program, and the Assistance in Community Integration Services Pilot Program. Hilltop prepares analyses of 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 ACA initiatives such as the Medicaid expansion, the Money Follows the Person (MFP) Rebalancing Demonstration, the State Balancing Incentives Program, Community First Choice (CFC), and Medicaid health homes for individuals with serious persistent mental illness, serious emotional disturbance, and opioid SUD. Hilltop also provides the Department with analytic support related to implementation of the Maryland All-Payer Model and monitoring the effects of this new statewide financing and delivery system on the Medicaid program. 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.

Hilltop provides data analytics and research and policy support to other divisions and entities of the Department (e.g., the Developmental Disabilities Administration, Behavioral Health Administration, Public Health Division, Maryland Health Care Commission [MHCC], Health Services Cost Review Commission [HSCRC], and Community Health Resources Commission [CHRC]) and to other state agencies (e.g., the Maryland Health Benefit Exchange [MHBE] and the Maryland Department of Aging). 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 (the Center) in partnership with the Department. Initially chartered to design and manage Maryland’s High-Risk Patient Management Initiative, Hilltop (as the Center) was staffed by nurses, case managers, and analysts. The scope of work in the contract with the Department was focused on support for Maryland’s most vulnerable populations—those who were both medically fragile and financially indigent—to access the health care services they needed. Not only did these individuals have multiple, complex health care needs, but the cost to the state of providing services to them was extremely high. The Department had two goals: 1) help this population access health care; and 2) manage the program in such a way that the state’s scarce resources would be utilized in the most cost-effective manner. Together, the Department and UMBC designed a university-based center that would develop and manage this unique



program and provide research and analytics to determine whether the program was accomplishing its goals. Hilltop provided case management for the Rare and Expensive Case Management (REM) program 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 of Medical Assistance (Maryland's Medicaid program) as it expanded. Hilltop collaborated with the Department in the development of HealthChoice, 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 HealthChoice providers. Over the years, Hilltop's role has evolved as the priorities and needs of the Department have changed.

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 organizations to conduct research that benefits the Maryland Medicaid program. With funding from the Robert Wood Johnson Foundation (RWJF), Hilltop, Benefits Data Trust (BDT), and researchers from the Johns Hopkins University School of Nursing examined the extent to which dual-eligible beneficiaries in Maryland were enrolled in the Supplemental Nutritional Assistance Program (SNAP) and Maryland Energy Assistance Program (MEAP) and then modeled the potential effect of program participation on nursing home admissions. In 2015-2016, Hilltop partnered with MHCC to analyze commercial claims in the Medical Care Data Base—Maryland's all-payer claims data base—to compare spending patterns across five regions of the country as part of *Getting to Affordability* sponsored by RWJF and the Network for Regional Healthcare Improvement (NRHI). In 2017, Hilltop—building on its experience in working with the federal nursing home Minimum Data Set (MDS) for the Department—secured a competitively-bid contract from MHCC to conduct analytics and produce reports from the MDS and MHCC's annual nursing home survey. Under Maryland's 2015 State Innovation Model (SIM) design award from CMS, Hilltop collaborated with the Department to develop a conceptual model for an accountable care organization (ACO) for dual-eligible beneficiaries in the state, estimating baseline costs and modeling shared savings. For the MHBE, Hilltop has assisted with the design of a reinsurance program for the Maryland marketplace. Hilltop is also assessing the extent to which four projects funded under the CHRC's grant program are impacting health care utilization and costs for Medicaid participants.



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. A 2014 article in the *Journal of Health Politics, Policy, and Law*, titled *Supporting the Needs of State Health Policy Makers through University Partnerships*, prominently featured Hilltop and its partnership with the Department. In that same year, the Department and Hilltop joined other established and developing state/university partnerships as members of the State-University Partnership Learning Network (SUPLN) coordinated by AcademyHealth. The network was formed to support evidence-based state health policy and practice through collaborations by state governments and state university research centers. In 2016, AcademyHealth received funding from the Patient-Centered Outcomes Research Institute (PCORI) to convene SUPLN annual meetings and support an environmental scan of partnerships' research capabilities, data availability, and interest in collaborative, cross-state research. Currently, the SUPLN is developing a feasibility study for a Medicaid distributed research network (DRN) that would facilitate cross-state comparative research studies by SUPLN-participating states. Hilltop's executive director chairs the SUPLN steering committee, and the network has grown to include 25 state/university partnerships. The partnership between the Department and Hilltop is widely recognized as a model to which other states aspire.

Annual Report

In FY 2014, The Hilltop Institute at UMBC entered into a five-year Master Agreement with the Maryland Department of Health that will extend through FY 2018. This annual report presents activities and accomplishments for FY 2017 (July 1, 2016, through June 30, 2017).



HealthChoice Program Support and Evaluation

In FY 2017, Hilltop continued to play a key role in supporting HealthChoice, Maryland's 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 submitted the waiver evaluation report for calendar year (CY) 2011 through CY 2015. This report provided a brief overview of the program and recent program updates and then addressed the following evaluation topics: coverage and access to care, the extent to which HealthChoice provides a medical home and continuity of care, and the quality of care delivered to participants, including the use of dental, somatic, and behavioral health services. The report also included a section that covered vulnerable populations, such as children in foster care, pregnant women, persons with HIV/AIDS, the REM program, and access to care among racial/ethnic minorities. In addition, the report presented a section on the ACA Medicaid expansion population and its demographics, service utilization, and prevalence of mental health and SUD diagnoses during CYs 2014 and 2015, the first two years of the expansion.

For the evaluation report, Hilltop continued to perform in-depth analyses on such topics as enrollment trends and service utilization measures (e.g., ambulatory care and emergency department [ED] use among HealthChoice participants and provider network adequacy). Hilltop integrated results from other studies, such as the Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys, and guided report design. These activities gave the evaluation increased depth and policy context and allowed the Department to better demonstrate the program's achievements.

Rare and Expensive Case Management: The REM program serves individuals with multiple and severe health care needs. In FY 2017, Hilltop provided 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. In addition, Hilltop produced a draft chart book on REM service utilization for the Department to review.

Early Periodic Screening, Diagnosis, and Treatment: Hilltop provided a randomized sample of children from the Medicaid Management Information System (MMIS) encounter data for the Maryland Healthy Kids/EPSTDT MCO performance reviews conducted in CY 2017.



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). Hilltop uses a program it developed to implement an enhanced CLR/Medicaid data-matching process, which identifies Medicaid enrollees in the CLR data, identifies the corresponding MCOs for these children, reports the blood lead testing and elevated blood lead level rates, and develops quarterly (now monthly) reports and an annual report. The results of the lead tests are then reported to the MCOs for follow-up of children with elevated blood lead levels. Hilltop began this analysis and quarterly reporting process in FY 2008 and continued to produce these quarterly reports for the Department throughout FY 2017. Per the Department's request, effective January 2017, Hilltop began reporting lead screenings monthly rather than quarterly. Hilltop also shared with the Department the annual county-based analysis of lead testing results for HealthChoice children aged 12 to 23 months and 24 to 35 months that was submitted to MDE. In addition, Hilltop conducted an analysis of children aged 0 through 6 years who received a lead test as reported to the MDE CLR from the first quarter of FY 2016 through March 2017. The purpose of this analysis was to determine the average number of lead tests per month if the threshold for an elevated lead level were lowered from 10 to 5 ug/dL. Hilltop also calculated the number of children identified as having an elevated lead level each quarter beginning in the first quarter of FY 2016 (July 2016) through March 2017.

Lead Joint Chairmen's Report: To assist the Department in preparing a lead joint chairmen's report (JCR) to the Maryland Legislature, Hilltop drafted a full description of the CLR analyses that are performed each year, provided a list of the data variables and attributes of the CLR, responded to various questions from Department staff to clarify what analyses Hilltop performed and explain the results of the analyses, and provided edits and comments to the report. In addition, Hilltop calculated the number of unique providers who billed for onsite environmental lead inspection for enrolled children in CYs 2009 to 2015, a service that was added as a result of a 2009 state plan amendment.

Lead Screening Specifications Re-Evaluation: In FY 2017, CMS distributed a guidance on lead screenings requesting states to check the number of children they reported as having been screened. The Department's numbers did not match those that CMS sent, so the Department asked Hilltop to conduct another analysis and calculate the number of children aged 0 through 5 years who had had a lead screening in federal fiscal year (FFY) 2015 using two different methods to determine if there were different results.

Childhood Lead Registry Essay Review: Hilltop reviewed an essay written by the director of the Environmental Health Bureau in the Department's Prevention and Health Promotion Administration about the CLR and Immunet (Maryland's Immunization Information System) and provided comments and suggestions to clarify the childhood lead reporting process.



Value-Based Purchasing: In FY 2016, Hilltop reviewed the value-based purchasing (VBP) technical specifications used in CY 2016 and made updates to reflect changes in the specifications for 2017 ambulatory care and lead VBP measures. Hilltop recalculated the VBP incentives based on the new methodology and compared these incentives with those calculated using the old methodology. To assist the Department in estimating the relative differences in Federal Medical Assistance Percentage (FMAP) contributions to VBP bonus payments, Hilltop calculated the number of HealthChoice enrollees in 2015 and the number of enrollees who were enrolled in the program for at least 320 days in 2015, delineated by FMAP category. Additionally, Hilltop prepared the HealthChoice VBP targets for CY 2017. Hilltop calculated the final encounter data VBP measures for CY 2015 and provided each MCO with a final analysis of its lead testing and ambulatory care visit VBP measures for CY 2015. Hilltop completed the final ambulatory care VBP measure for HealthChoice enrollees with disabilities for CY 2015 and the preliminary ambulatory care measure for CY 2015. Hilltop also completed the final lead VBP results for CY 2015; the preliminary lead VBP measure for CY 2016, which calculated the percentage of children aged 12 to 23 months who received a blood lead test during the calendar year or the year prior to the calendar year; and the final lead VBP measure for CY 2015. Finally, Hilltop answered questions the Department had about the findings. At the Department's request, Hilltop also revised the methodology for the lead VBP measure for the final run to allow lead tests received during a fee-for-service (FFS) eligibility period to be included in the numerator. Hilltop provided the final lead measure to Delmarva for validation of Hilltop's coding. Hilltop also calculated the rates for the Supplemental Security Income (SSI) population and lead measures by MCO for CYs 2012 through 2015. In addition, Hilltop brainstormed alternatives to the current VBP payment methodology and proposed optional payment methods.

Managing for Results: In FY 2017, Hilltop prepared the CY 2015 lead Managing for Results (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 who were enrolled in a HealthChoice MCO for 90 or more continuous days during CY 2015, as well as projections for CY 2016 to 2018. Hilltop prepared the actual asthma avoidable admissions measures for CY 2015 and provided estimates for FYs 2016 to 2018 for the Cigarette Restitution Fund. In addition, Hilltop prepared racial disparities MFR measures, calculating average annual growth for enrollment and ambulatory care visits by race and the racial disparities gaps for CY 2015 and estimates for CYs 2016-2018. Hilltop analyzed the birth weight of newborns in the HealthChoice program and provided the percentages of total births of newborns with very low birth weights for CY 2015 and estimates for CYs 2016 to 2018. Hilltop also updated the Data Definitions and Control Procedures document, the Program Performance Discussion document, and the MFR Performance Measures spreadsheet to include the rates for the avoidable hospital admissions for children aged 6 to 17 years and adults aged 18 to 64 years. Finally, after calculating the



percentage of older adults and individuals with disabilities receiving state-funded services in community alternatives versus nursing facilities, Hilltop provided the actual percentages for CY 2015 and estimates for CYs 2016 to 2018.

Encounter Data Reporting and Validation: Through monthly, quarterly, and annual reports to the Department and the MCOs, Hilltop verified the completeness, correctness, 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 enrollee; validated inpatient encounters; and identified the use or overuse of default provider numbers for physician services. The annual report focused on identifying the percentage of enrollees who used services within the past calendar year, the ratio of service users to enrollees, the distribution of diagnoses, diagnoses per claim, and cohorts by risk-adjusted category assignments. The report also compared encounters for specialized AIDS services with encounters in specific AIDS diagnostic categories. In FY 2017, Hilltop produced an encounter data validation report on MCO encounters for CY 2015.

CAHPS Health Plan Survey: Hilltop prepared adult and child survey sample frames based on National Committee for Quality Assurance's 2017 specifications of HealthChoice-eligible recipients for the CAHPS health plan survey. HealthcareData Company (HDC), an MDH vendor contracted to review and certify that Hilltop's SAS code meets NCQA requirements, audited source code and final sample frames. After receiving HDC approval, Hilltop transmitted final adult and child sample frames to the Department.

Shadow Pricing: The HealthChoice MCOs are not required to report the actual payment amounts for services when submitting their encounter data to the Department. However, the Department often has the need to estimate the costs of services, such as for their new requirement to report MCO data to MHCC's Medical Care Database (MCDB). To support the Department in this effort, Hilltop continued to estimate or "shadow price" MCO payments to providers in FY 2017. 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 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 6 percent discount.



Verifying Provider Directory Listings: In FY 2017, Hilltop continued to work with the Department to verify provider contact information listed in each MCO's online provider directories for primary care providers. Hilltop collaborated with the Office of Planning and the Office of Health Services to revise and expand the telephone survey developed in FY 2016 completed with a convenience small sample of 205 HealthChoice providers. Hilltop developed a method to select a representative sample of providers that would allow for the survey to draw inferences about all MCO primary care providers and summarized the approach that was used. Hilltop then hired and trained individuals to make 1,207 survey calls, managed administration of the survey to the sample of 361 providers, analyzed survey data, and drafted the corresponding sections of the Department's report on the project.

HEDIS Measure Eligibility: To help the Department complete its quality reporting to CMS for FFY 2015, Hilltop calculated the number of MCO participants that meet eligibility requirements for the HEDIS emergency department utilization (EDU) and children and adolescents' access to primary care practitioners (CAP) measures. Hilltop also calculated the number of MCO participants eligible for the HEDIS ambulatory care (AMB) measure, delineated by age and gender for CY 2015.

State Health Improvement Process: At the request of the Department, Hilltop performed an analysis for the State Health Improvement Process (SHIP) on the utilization of dental, lead screening, ambulatory care, and well-care visit services by individuals in Medicaid for CY 2015. Specifically, Hilltop calculated—by county and race/ethnicity—the number and percentage of 1) Medicaid participants aged 0 to 20 years (any period of enrollment and 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 (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 (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 (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 (any period of enrollment and at least 320 days of enrollment in the calendar year) who had a well-care visit. In addition, Hilltop updated the analyses of well care, ambulatory care, and dental services for CYs 2012 to 2014.

Primary Care Provider Utilization Study: To help the Department better understand the level of utilization of primary care providers by Medicaid enrollees, Hilltop developed templates (and instructions on how to use them) that MCOs could use to report this information in FY 2016. In FY 2017, Hilltop continued to collect the reports and analyze the data, which resulted in the



discovery of various data issues with the MCOs' data. Hilltop drafted memos to each of the MCOs detailing the data issues found in the templates they submitted.

MCO Review Tool: Hilltop revised the instrument used to review MCO applications, adding the full COMAR citation next to the pertinent sentence and updating the Access and Capacity to reflect the recent COMAR updates.

MCO Application Review: Hilltop conducted a legal sufficiency review of the application from a health plan seeking approval to be a HealthChoice MCO, summarized review findings, and provided consultation to the Department on which COMAR criteria the organization had met and which it had not. Hilltop also contracted with a clinical consultant to review medical necessity criteria and other clinical aspects of the application.

Community Health Pilots: Hilltop provided consultation on the proposed approach and measures the Department was considering for its evaluation of the two Community Health Pilots authorized by CMS in the 2017 HealthChoice 1115 waiver renewal: Evidence-Based Home Visiting Services Pilot Program and the Assistance in Community Integration Services Pilot Program. Hilltop reviewed the Department's proposed measures, consulted on data sources, and proposed outcome measures that could be derived using MMIS data.

Dental Joint Chairmen's Report: In FY 2017, to assist the Department in its response to the Maryland General Assembly, Hilltop performed an analysis on the utilization of Medicaid dental services by children, pregnant women, and adults for CY 2015. Hilltop used the following measures: the number and percentage of children aged 0 to 20 years who had a dental visit while enrolled in Medicaid for any period in the calendar year, by age group; the number and percentage of children aged 0 to 20 years who had a preventive/diagnostic dental visit followed by a restorative dental visit while enrolled in Medicaid for any period in the calendar year; the number and percentage of children aged 4 to 20 years who had a dental visit while enrolled in Medicaid for 320 or more days in the calendar year, by type of service and age group; the number and percentage of children aged 4 to 20 years who had a dental visit while enrolled in Medicaid for 320 or more days in the calendar year, by region; and the number and percentage of children aged 0 to 20 years who had an ED visit with any dental diagnosis or procedure made while enrolled in Medicaid for any period in the calendar. Hilltop provided the same data for CYs 2011 to 2014 for trend analysis.



Medicaid Rate Setting

In FY 2017, the state of Maryland paid \$5.4 billion in capitation payments to the eight HealthChoice MCOs, which provide health insurance for more than 1.1 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 for All-Inclusive Care for the Elderly (PACE), and began a process to update the rates paid to trauma centers by the Trauma and Emergency Medical Fund.

HealthChoice Rate Setting and Financial Analysis: In FY 2017, 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 eight MCOs, Hilltop, and the actuarial services firm contracted by Hilltop (see below). The purpose of these meetings is to review the rate setting methodology and process, discuss methodological and policy issues of concern to both the MCOs and the Department, present special analyses requested by the Department and/or the MCOs (e.g., regional analyses, constant cohort analyses, cost analyses of new services and pharmaceuticals), and review the economic outlook and trends in managed care rates in other states. Hilltop also schedules and facilitates one-on-one meetings between the Department and each of the eight MCOs to review preliminary rates developed by Hilltop with the assistance of the actuarial services firm. 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, permitting active participation by MCOs. 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.

In FY 2017, Hilltop worked extensively with the actuarial firm Optumas to complete and certify CY 2017 HealthChoice capitation rates and initiate development of CY 2018 capitation rates.



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 in order for the state to obtain federal financial participation for HealthChoice. In 2015, UMBC selected Optumas through a competitive procurement process to provide actuarial services for development of HealthChoice rates for CYs 2016-2019.

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. In FY 2017, Hilltop analyzed specific variances in membership, premium income, and cost of medical care during CYs 2013 and 2014 and prepared a complete financial report package that analyzed MCO underwriting performance.

Nursing Home and Program for All-Inclusive Care for the Elderly Rate Setting: In FY 2017, Hilltop assisted the Department in developing nursing home “Pay for Performance” scores and analysis, administered a wage survey database, and provided a Medicare upper payment limit calculation. In addition, Hilltop continued to develop the annual calendar year rates for Hopkins Elder Plus, a PACE program in Baltimore City.

Reconciliation of Medicaid Payments for Trauma Procedures: In 2003, SB 479 (Chapter 385 of the Acts of 2003) created a Trauma and Emergency Medical Fund financed by motor vehicle registration surcharges. Based on this law, the Medicaid program is required to pay physicians 100 percent of the Medicare facility rates when they provide trauma care to Medicaid enrollees. In FY 2017, some Medicaid trauma providers asserted that the Medicaid FFS program and Medicaid MCOs were not paying them at the correct Medicare facility rate for trauma care and asked the Department to pay the differential between what they were paid and the Medicare facility fee payments for July 1, 2015, through December 31, 2016. The Department evaluated the issue and determined that the MMIS factors that were used to determine the Medicare facility fee had not been updated. The Department updated the factors effective January 1, 2017, and tasked Hilltop with calculating differential amounts between what was paid for each trauma claim, and what should have been paid and determining the amounts of the supplemental payments owed to trauma providers. Hilltop calculated the number of physician encounters with a trauma diagnosis from 2010 to 2015, delineated by MCO and type of service performed in the trauma center; calculated the payment differentials for FFS trauma claims to determine overpayments and underpayments; and provided a list of variables to be used by the MCOs to report their trauma claims. Hilltop also continued to calculate monthly supplemental



reimbursement payments for the Trauma and Emergency Medical Fund based on the newly updated trauma rates.



Analytics to Support Health Reform

In FY 2017, 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 the Medicaid expansion, Maryland's All-Payer Model, Health Homes, CFC, and several other initiatives.

Medicaid Expansion

In FY 2017, Hilltop continued to support the Department in monitoring the Medicaid expansion. Beginning in CY 2014, the ACA gave states the opportunity and incentives to expand Medicaid eligibility to adults with household incomes up to 138 percent of the federal poverty level (FPL), and Maryland was one of the states that chose to expand Medicaid.

Reporting on the Medicaid Population: In FY 2017, Hilltop continued to conduct analyses and provide assistance to the Department in determining trends in service utilization and costs before and after the 2014 Medicaid expansion. At the request of the HSCRC and the Chesapeake Regional Information System for our Patients (CRISP), and with the Department's permission, Hilltop provided CRISP with eligibility and demographic information for all Medicaid participants enrolled between January 1, 2013, and March 31, 2017. These data and accompanying data dictionaries were sent in five transmission throughout the year.

In addition, Hilltop conducted a number of analyses on the expansion population for the Department. Hilltop analyzed participants enrolled in coverage groups that made up the Medicaid expansion population as of August 31, 2016, and determined any prior Medicaid coverage of this population. Hilltop identified individuals with any period of MCO enrollment in September 2016 who were not enrolled in an MCO in August 2016, and then looked backward for prior Medicaid enrollment in the past year. Hilltop then conducted additional analysis to ascertain the elapsed time between the beginning of their previous coverage span and their September 2016 MCO enrollment, as well as similar analyses of new MCO enrollees in August 2016 not enrolled in an MCO in July 2016 and those who were enrolled in August or September, but not in the following month. Hilltop also calculated the number of individuals in the expansion population who were not yet enrolled in an MCO in November and December 2016, delineated by MCO and coverage group. In addition, to help the Department fulfill a request from the Legislature, Hilltop calculated the number of individuals in the Medicaid expansion population in the most recent month, delineated by county, and provided a snapshot of this population, delineated by age, race/ethnicity, gender, and county as of January 31, 2017.



Projecting Medicaid Enrollment: In FY 2017, Hilltop continued work begun in FY 2016 to project Medicaid enrollment to assist the Department with program budgeting. Hilltop developed econometric models that forecasted monthly Medicaid enrollment by coverage category. These models also estimated the effects of Maryland’s employment and unemployment rates on enrollment for different Medicaid coverage categories. Hilltop researched the current forecasting literature and provided consultation about formulating the unemployment rate assumptions that would be used for forecasting Medicaid enrollment for FY 2017 and FY 2018. Hilltop also provided multiple Medicaid enrollment forecasts during the fiscal year.

Report Card on Enrollment Process: At the Department’s request, Hilltop developed a database of those newly enrolled in Medicaid so that the Department, through a subcontractor, could reach out to them to learn about their experience with the enrollment process.

Data-Sharing with the Maryland Health Benefit Exchange: In FY 2017, to share data between the Department, Hilltop, and the MHBE, a three-way data use agreement (DUA) was necessary. Hilltop drafted the scope of work and provided its data management plan, data storage location, and data users for the agreement; and worked with the MHBE and the Department to facilitate execution of the agreement. Once the DUA was established, Hilltop began sending data to the MHBE. Hilltop created two finder files for February 2017—one for the expansion population and one for all others—and sent them by SFTP to the MHBE. Hilltop also worked with the Department and the MHBE to resolve questions about and issues with the data.

Maryland All-Payer Model

Under 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 is transforming 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 to rein in the growth of health care costs. In FY 2017, Hilltop continued to provide significant support and conducted a number of analyses to assist the Department in implementing the Model.

Total Cost of Care (TCOC): As part of the requirements under the state’s All-Payer Model Agreement 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. In FY 2017, Hilltop analyzed the MCO-reported data and worked with individual MCOs to assist them in ensuring that the data they reported were accurate; assisted the Department in working with the HSCRC to verify those providers that



were regulated by the HSCRC; analyzed and summarized the data and provided the results to the Department; calculated the Medicaid MCO statewide average per member per month (PMPM) based on the HealthChoice Financial Monitoring Report (HFMR) for CYs 2013, 2014, and 2015; and calculated the monthly Medicaid enrollment for CY 2015, delineated by dual-eligible status. In addition, Hilltop revised the TCOC reporting template instructions—removing references/definitions/appendices that only applied to the other payers (Medicare, APCD)—so that the document would read as instructions for Medicaid only. Hilltop also updated all instructions and definitions to ensure that they were consistent with the analytics terminology, added instructions for the MCOs to send the reports by SFTP, and conducted additional analyses of FFS claims for non-dual eligibles in response to questions from the HSCRC.

All-Payer Model Evaluation: Hilltop conducted an analysis of providers billing for professional urgent care-related codes in FY 2016 to assist the Department in responding to an HSCRC request for this information for the evaluator of the All-Payer Model, the Lewin Group. The Department, Hilltop, and Lewin executed a three-way DUA to allow Hilltop to provide data to Lewin for the purpose of the evaluation. Lewin contracted with Hilltop to provide raw Medicaid claims, encounter, enrollment, and provider data spanning CYs 2010 through 2016, as well as accompanying data dictionaries and consultation on the data. Hilltop submitted data to Lewin in January, March, April, and June 2017.

Developing Accountable Care Organizations for Dual Eligibles (D-ACOs): In FY 2016, the Department received a second CMS SIM design award to develop an integrated delivery network (IDN) for Maryland’s dual eligibles that aligns with the All-Payer Model. Using SIM grant funds carried over from the prior fiscal year, in FY 2017, Hilltop collaborated with the Department, EBG Advisors (the Department’s contractor), and Optumas to develop a conceptual model for a D-ACO. Optumas had previously been engaged by Hilltop to develop baseline cost estimates under Maryland’s first SIM design award.

Hilltop’s chart book titled *Maryland Non-DD Full-Benefit Dual-Eligibles: Selected Demographic and Service Use Data* provided baseline information on Maryland’s dual-eligible population as work on the D-ACO began. Working with the Department, EBG Advisors, and Optumas, Hilltop provided further analytics and policy guidance to support stakeholder deliberations and develop, test, and finalize the design of the D-ACO. As background for Optumas, Hilltop summarized the CFC program, reviewed and commented on a data book drafted by Optumas on dual eligibles, and reviewed and commented on a concept paper on care delivery redesign drafted by EBG Advisors. Hilltop reviewed slides for Duals Delivery Workgroup meetings and presented data at the meetings. Hilltop also developed a methodology using nursing home Minimum Data Set (MDS) assessment data to model risk for hospital



admission from a nursing home. Hilltop participated in a dual eligibles risk adjustment subgroup, provided a list of providers who see dual eligibles to CRISP so that CRISP could target outreach to providers with high volumes of dual eligibles, and provided the Department with the number and percentage of dual eligibles in Maryland, delineated by county. Hilltop proceeded to calculate the amount and percentage of CY 2015 Medicaid expenditures to providers within and outside of the proposed D-ACO region (Baltimore City and Baltimore, Montgomery, and Prince George's Counties) for dual eligibles without developmental disabilities who reside in the region. In addition, Hilltop reviewed a list of FFS eligibility flags for full dual-eligible individuals in the SIM geographic area. Hilltop also determined the distribution of Medicaid costs for full dual eligibles with no developmental disabilities in the proposed D-ACO region in CY 2015 to help the Department understand how to limit and categorize where the D-ACO program would be best located. Optumas and Hilltop worked together to provide a description of the inpatient trend methodology for the SIM population.

A Hilltop review of clinical and functional assessment instruments currently used in the Maryland Medicaid system that cover five domains—activities of daily living (ADLs), instrumental activities of daily living (IADLs), medical conditions, cognitive function and memory and/or learning difficulties, and behavior difficulties—provided information for the Department on the assessments' intended target population, scope, and current use for eligibility and/or rate determination. To aid in the Department's understanding of the impact of a proposal by the HSCRC to obtain a waiver of the three-day inpatient stay rule for entering a skilled nursing facility (SNF), Hilltop modeled two approaches: a tiered approach and an actuarial approach. Specifically, Hilltop assessed and controlled for the effects on the Medicaid nursing home population of relaxing the three-day hospital stay requirement and discussed the policy implications of each approach.

Planning for Primary Care Transformation: In addition to the D-ACO, a key component of the state's Progression Plan for the All-Payer Model is system-wide primary care transformation through the Maryland Primary Care Program (MDPCP). In FY 2017, Hilltop identified dual-eligible beneficiaries receiving services in CY 2015 from anticipated MDPCP providers and the number of services received; calculated the number of dual eligibles (delineated by full and partial dual-eligible status) who had received a service by an anticipated MDPCP provider in CY 2015, sorted by county; and provided a list of provider specialty codes. Hilltop conducted an analysis of CY 2015 utilization and costs for dual-eligible beneficiaries by various provider types (e.g., mobile treatment programs, drug clinics, psychiatric rehabilitation facilities, federally qualified health centers, and mental health clinics). Hilltop also updated the analysis to include local health departments, Alcohol and Drug Abuse Administration (ADAA) certified programs, and home health agencies, and updated the analysis again to include community-based substance



use and mental health treatment services utilization and costs. Hilltop also calculated the number of dual-eligible beneficiaries who had at least one evaluation and management (E&M) visit during CY 2015, delineated first by provider type and then by county and specialty type.

All-Payer Hospital System Modernization Workgroups: In FY 2016, Hilltop continued to provide consultation and support to the Medicaid representative of the HSCRC Performance Measurement, Payment Models, and TCOC Workgroups by attending meetings and answering various questions about the Medicaid data.

Medicaid Participating Providers: In order to assist the Department in fulfilling a request by the HSCRC for its Annual Monitoring Report to CMS on the performance of the All-Payer Model, Hilltop calculated the unduplicated number of providers participating in the Medicaid program in CY 2015, delineated by specialty.

Health Homes

Section 2703 of the ACA created the option for state Medicaid programs to establish health homes for enrollees with chronic conditions. Health homes are intended to improve health outcomes by providing patients an enhanced level of care 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 serious and persistent mental illness, serious emotional problems, and opioid substance use disorders (SUDs).

Health Home Program Evaluation: In FY 2017, Hilltop continued to conduct several analyses to evaluate and support the Maryland Health Home program. Hilltop produced a quarterly report for the program—encompassing quarters 1 through 10—that measured participant characteristics, health home services, and health care utilization and quality. Hilltop also produced 38 provider-specific reports for quarters 1 through 10, with each provider's data presented to them individually. Hilltop produced an annual report that was an update of the 2015 Joint Chairmen's Report on Patient Outcomes for Participants in Health Homes and described the outcomes of participants in the Maryland Health Home program in 2016. The report included participant characteristics and health home service rates, health care utilization patterns, and clinical outcomes as reported in *eMedicaid*. In addition, Hilltop conducted a difference-in-differences regression analysis on the effect of Health Home participation on utilization, care quality, and cost outcomes for Health Home enrollees, comparing participants' experience to a propensity score matched comparison group. Hilltop compared the outcomes between CY 2013 (prior to Health Home enrollment) and CY 2015 to investigate whether changes in the dependent



variables for those who participated were statistically different from the changes over that same time period for those who did not participate.

Community Health Home Monitoring: At the request of the Department, Hilltop executed an appropriate data-sharing agreement and provided Medicaid claims, MCO encounter, and MMIS eligibility data (on a monthly basis) and shadow-priced encounters (on a quarterly basis) to Relias Learning (formerly Care Management Technologies) for Health Home participants enrolled in programs administered by the 14 affiliated providers of Way Station, a private, non-profit behavioral health organization. Relias uses the Medicaid data to populate ProAct, a tool that supports clinical and financial decision making by behavioral health providers.

Community First Choice

Section 2401 of the ACA authorized Community First Choice (CFC), which gives states the option to offer certain community-based services as a state plan benefit to individuals who require an institutional level of care. Maryland implemented CFC in January 2014 after an extensive planning effort in collaboration with Hilltop.

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) were consolidated under the Medicaid State Plan CFC program. CFC offers self-directed personal assistance services using an agency-provider model. In FY 2017, Hilltop conducted the following analyses to support CFC operation and monitoring by the Department.

Utilization and Cost Analyses: Hilltop calculated the total number of individuals who used case management services under the CFC program, as well as the per capita and total expenditures for those services for each month from October 2015 to August 2016, delineated by provider. Hilltop calculated the number of MCO participants who were also in a nursing facility and the number concurrently receiving CFC services in September 2016. In addition, Hilltop calculated the frequency of daily CFC personal assistance services (PAS) claims totaling more than 12 hours, from December 31, 2015, to June 29, 2016. Hilltop estimated the effect of switching the CFC PAS rate to match the Developmental Disabilities Administration (DDA) Community Supported Living Arrangement rates (which are county- and hour-specific) to determine what the difference in spending would be. Hilltop also calculated the home and community-based services (HCBS) costs of people who used at least one CFC PAS service in FY 2016. Finally, Hilltop calculated the number of individuals on the DDA Community Pathways Waiver waiting list who were not in the waiver and who had current Medicaid eligibility, as well as those who used a CFC PAS in FY 2017.



MCO Outreach to Nursing Facility (NF) Residents: In January of 2017, the Department began requiring MCOs to cover the first 90 days of an NF stay under their capitated payments; previously, MCOs were only required to cover the first 30 days of an NF stay. Hilltop helped the Department determine whether it should encourage MCOs to increase their outreach to these participants about CFC services by calculating the number of MCO participants in 2016 who were also in an NF, as well as the number who were receiving CFC services concurrently. Findings showed that the use of CFC by HealthChoice enrollees was as expected.

Flexible Budgeting Methodology: Hilltop continued to assist the Department in expanding its flexible budgeting methodology for CFC in FY 2017. This involved developing a potential methodology for creating and implementing CFC flexible budget groups for the pediatric (aged 0 to 17) age cohort to be used with the interRAI PEDS assessment instrument and consulting on the development of a budget algorithm.

Home and Community-Based Services

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 in 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 to ensure that settings comport with the HCBS settings 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, 2022.

In FY 2017, Hilltop performed ongoing tasks to assist the Department in its efforts to comply with the HCBS Community Settings Final Rule. Hilltop continued work on the provider self assessments started in FY 2016 by providing a codebook and coding scheme for specific regulations in the Community Settings rule, analyzing the data collected, and presenting the findings in a report. The report identified compliant providers by setting and regulation. Provider results were also sent by the provider's Medical Assistance number. Hilltop then developed a shortened version of the provider self-assessment instrument for the Department to use for assessing new provider compliance with the Community Settings rule. Hilltop also provided up-to-date information to the Department on the number of waiver participants and providers, delineated by service and waiver using MMIS data. Additionally, Hilltop provided a map locating the assisted living providers in Maryland to help the Department in planning future site visits. Finally, Hilltop reviewed available information regarding how states with initial approval of their STPs will determine compliance with the Community Settings rule for new providers



and ongoing compliance for established providers. Hilltop reviewed Delaware and Ohio's STPs, which received initial approval from CMS, and discussed next steps with the Department.

Other Support

Continuity of Care: Hilltop prepared a data dictionary with descriptions of how individual MHBE data elements would be used to analyze continuity of care issues for the legislatively mandated study that Hilltop will conduct for the Department and the MHBE in 2018. Hilltop also calculated the average number of enrollees for October 2015 through September 2016 and October 2016 through February 2017 for the Children's Health Insurance Program (CHIP), elderly, blind and disabled, children, non-expansion adult, and expansion adult coverage groups and calculated the monthly churn rate for June 2015 through February 2016.

Enrollee Redeterminations: In FY 2015, the Department established a new process to determine eligibility for individuals enrolled in Modified Adjusted Gross Income (MAGI) coverage groups, which require the use of a new eligibility system, MHBE's Maryland Health Connection. Eligibility must be re-determined every 12 months. In FY 2017, Hilltop continued its role in this process, which included sending lists of these individuals to their respective MCOs for outreach and tracking the redeterminations during the first quarter of the fiscal year. In FY 2017, Hilltop provided monthly reports on renewals, identifying enrollees who renewed delineated by those who auto-renewed and those who manually renewed; compiled monthly lists of those who renewed for each MCO; and identified those enrollees who had no MCO. In addition, Hilltop continued to track the monthly enrollment status of individuals who auto-renewed or required manual renewal of Medicaid eligibility. The monthly Medicaid renewal analysis involves two sets of data files provided by the Department: monthly files for individuals who auto-renewed or required manual renewal of Medicaid eligibility, delineated by the month of their closure date, and monthly qualified health plan (QHP) enrollment files that are used to determine who has enrolled in a QHP. Hilltop revised its analysis covering October 2015 through April 2016 that determined whether individuals either had an active Medicaid eligibility span or were enrolled into a QHP. Hilltop also articulated the methodology for the monthly renewal analysis.

1095-B Tax Forms: Hilltop added a MAGI indicator variable to the CY 2016 data for the 1095-B tax forms.

Repeal and Replace: To support the Department in planning for the effects on Maryland Medicaid if the ACA were to be repealed and replaced, Hilltop estimated the Medicaid expansion enrollment and retention rates and costs at future eligibility redeterminations for FY 2020 through FY 2027 based on various scenarios.



Financial Analysis

In FY 2017, Hilltop continued to provide the Department with financial analysis related to Medicaid reimbursement rates and physician fees.

Reimbursement Rates Fairness Act: Pursuant to SB 481 (Chapter 464 of the Acts of 2002), the Department created an annual process to set the FFS reimbursement rates for Medical Assistance and CHIP in a manner that ensures provider participation. The law also directed the Department to submit an annual report to the Governor and various state House and Senate committees. The report includes a review of the reimbursement rates paid to providers under the federal Medicare fee schedule, and a comparison of those rates to the FFS rates paid to similar providers for the same services under the Medical Assistance program, as well as the rates paid to MCO providers for the same services. The report also includes a discussion of whether the FFS rates and MCO provider rates will exceed the rates paid under the Medicare fee schedule, an analysis of other states' rates compared to Maryland, the schedule for raising rates, and an analysis of the estimated cost of implementing these changes. In September 2001, in response to HB 1071 (Chapter 702 of the Acts of 2001), the Department prepared the first annual report analyzing the physician fees that are paid by Medical Assistance and CHIP. In December 2016, on behalf of the Department, Hilltop prepared and submitted the sixteenth annual report.

Physician Fees: In addition to the analyses described above, in FY 2017, Hilltop consulted with and provided technical assistance to the Department regarding increasing physician fees. Hilltop compared Medicaid fees to Medicare fees and estimated the percentage of Medicaid fees to Medicare fees for all procedures. Hilltop identified and calculated the cost of those procedures that had higher Medicaid fees than Medicare fees and worked with the Department to balance the fees for those procedures. Hilltop compared Maryland's Medicaid fees versus Medicare fees in FY 2015 with those of neighboring states (Delaware, Pennsylvania, West Virginia, Virginia, and the District of Columbia). Hilltop estimated the cost if fees for evaluation and management (E&M) procedures were increased to 94 percent of Medicare fees and then broke down the costs between Medical Assistance and a behavioral health carve-out, first calculated for all of FY 2017 (annual basis), and then calculated for only three quarters of FY 2017. In consultation with the Department, Hilltop continued to re-estimate the costs throughout the year, adding and subtracting various factors. Such factors included calculating the savings if there were a reduction of fees that exceed Medicare fees or if there were a reduction of all fees that exceed 90 percent of Medicare fees; calculating payments, percentages, and amounts of changes by physician specialty if reimbursement rates for procedures that exceed Medicare fees were reduced and the released funds were allocated to the procedures with the lowest fees; calculating costs of vision care procedures broken out by provider type; and calculating mental health fees.



Finally, Hilltop compared the Medicare final and proposed 2017 physician fees for E&M procedures in order to be able to recommend a method by which the Department should set the 2017 MCO Medicaid fee schedule. Hilltop also calculated the 2017 Medicaid fee schedule to be uploaded into MMIS, as well as the fee schedule to be sent to the MCOs. In addition, Hilltop provided consultation to the executive director of the Office of Health Services regarding a presentation to be given to the MCOs on the 2017 physician fee rate changes emphasizing budget neutrality.

Income Levels: Hilltop utilized data from the U.S. Census Bureau’s Current Population Survey (CPS) to calculate—for CYs 2014 and 2015—the income-to-poverty ratios for the general Maryland population, those who had health insurance, and those who were uninsured.



Other Analyses and Technical Support

In FY 2017, Hilltop conducted extensive 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, and long-term services and supports (LTSS). Hilltop also provided data analytics for grant applications being submitted by the Department to federal agencies.

Coverage and Health Services Utilization

Independent Review on Eligibility Determination Entry Points: As solicited by the Maryland Department of Budget and Management (DBM) and at the request of the Maryland Department of Health, Hilltop competitively procured a contractor to conduct an independent review of the organization regarding eligibility determination entry points for publicly funded health and social services in Maryland and other states pursuant to a requirement in the 2016 Joint Chairmen's Report. The independent review was intended to inform deliberations in Maryland on the development of improved systems and processes to 1) maximize access to publicly funded health and social services in Maryland; 2) reduce duplication, inefficiency, and costs; and 3) maximize federal fund participation. Hilltop managed the procurement through UMBC, including drafting the request for proposals and answering the questions of prospective subcontractors; reviewing the proposals and selecting the subcontractor; managing the subcontractor's work; coordinating with the Department to incorporate the state agencies' input on the work; and submitting the 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 FFYs 2014 and 2015.

Family Planning: The Family Planning Program provides family planning-related services to women with income at or below 200 percent of the FPL who are not otherwise eligible for Medicaid or CHIP. Hilltop performed an analysis to identify participants who were enrolled in both the Medicaid Family Planning Program and a QHP offered through the MHBE during CY 2016. Hilltop submitted the list of these recipients to the Department.

Planned Parenthood Services: To assist the Department in responding to a request from the Legislature, Hilltop summarized the total number of Medicaid participants who received services from Planned Parenthood providers during FY 2015 and FY 2016. In addition, Hilltop analyzed FFS claims and MCO encounters to estimate the cost of these services. For the Department,



Hilltop calculated the total number of Medicaid participants who received services from Planned Parenthood providers during FYs 2015 and 2016; identified pharmacy FFS claims and MCO encounters from the cohort of individuals who had at least one service with a Planned Parenthood provider ID during the FYs; calculated the number of participants who received services from Planned Parenthood who also had at least one prescription for a contraceptive, delineated by payer types; and calculated the total reimbursement for pharmacy claims and estimated the cost of encounters for contraceptive prescriptions by this population. In addition, Hilltop calculated the total reimbursement for FFS Planned Parenthood visits completed by Medicaid participants, by service type for FY 2015 and 2016.

Data Linking for the Strong Start Program Evaluation: CMS contracted with the Urban Institute to evaluate the Strong Start for Mothers and Newborns national initiative. The Johns Hopkins University School of Medicine was awarded a federal grant to implement Strong Start in Maryland. The Urban Institute’s evaluation includes an impact analysis that compares outcomes for Strong Start participants to outcomes for non-participating eligible women and infants with similar risk profiles. This entails linking vital statistics birth data with Medicaid eligibility and claims data for women enrolled in Strong Start and their newborns, as well as for a comparison group of pregnant women enrolled in Medicaid in the local area of each Strong Start site. The Department asked Hilltop to give Urban the linked Medicaid/birth certificate data for the Maryland study group, as well as the data for the comparison group for live births in 2014, 2015, and 2016. In FY 2017, Hilltop began the process of developing a scope of work and a DUA for the data linking and transfer.

Annual Abortion Report: To assist the Department in providing information for the Legislative Services annual abortion report, Hilltop conducted an analysis of abortions provided to Medicaid participants in FY 2014 through FY 2016 and calculated the number and total costs of these services. This analysis was transitioned from the Department to Hilltop beginning in FY 2016. Hilltop first performed an analysis to replicate the results of the FY 2014 report to ensure comparability and accuracy. Hilltop also performed a number of subsequent analyses to provide clarification and expand upon the results from FY 2016.

Access Monitoring Review Plan: The Social Security Act requires state Medicaid programs to assure that payments to providers are “sufficient to enlist enough providers so that care and services are available under the plan at least to the same extent that such care and services are available to the general population in the general area.” CMS refers to this standard as the “access requirement.” In November 2015, CMS issued a Final Rule on the *Medicaid Program: Methods for Assuring Access to Covered Medicaid Services*. The Final Rule requires states to develop an access monitoring review plan for services provided through Medicaid FFS delivery systems. In FY 2017, Hilltop continued to work with the Department to develop the state’s plan.



Hilltop conducted the analyses and drafted the report required for the state's first access monitoring review plan submission. On behalf of the Department, Hilltop also discussed Maryland's methodology with the national evaluator. Hilltop calculated the number of full-benefit FFS Medicaid participants for CYs 2010 through 2015, delineated by the following categories: type of participant (full-benefit dual eligible, REM enrollee, and all other FFS participants), gender and race/ethnicity, geographic region, and age group. Hilltop also calculated the number of FFS providers with at least one claim during CY 2012 through CY 2015, delineated by specialty code, and compared Medicaid reimbursement rates with those of other payers. To do this, Hilltop used the findings from the analyses for the *Report on the Maryland Medical Assistance Program and Maryland Children's Health Program—Reimbursement Rates* (described above). Hilltop also compared reimbursement rates between Maryland Medicaid and Maryland commercial payers and conducted an analysis of the availability of primary care, behavioral health, physician specialist, pre-and post-natal obstetrics, and home health services. Hilltop used the findings from the analyses it conducted as well as information provided by the Department to draft the report. CMS noted that this report was a best practice among states.

Colorectal Cancer Screening: Hilltop provided cancer screening data to the Maryland Colorectal Cancer Control Program (CRCCP) at the Center for Cancer Prevention and Control. The purpose of providing these data was to facilitate the calculation of colorectal cancer (CRC) screening rates in the Medicaid population in FY 2016, as well as to indicate whether three different CRC screening measures (fecal occult blood test, flexible sigmoidoscopy, and colonoscopy) are current and whether the overall CRC screening measure is current. Hilltop also provided demographic, eligibility, and MCO information for each individual in the cohort.

Provider Participation

Electronic Health Record Incentive Program: Hilltop calculated the percentage of Medicaid outpatient ED encounters for hospitals in Maryland and verified the eligibility of all hospitals to receive payment (Medicaid patients must compose at least 10 percent of utilization [the total sum of inpatient days and ED visits]). Hilltop also calculated the EHR estimate for 2014 for one hospital using updated 2015 and 2016 discharge data; calculated the inpatient discharge and day ratios for 19 hospitals; and calculated the number of inpatient days breaking out the total Medicaid days, days for dual eligibles, and Medicaid days excluding CHIP and dual eligible days. This work helped the Department determine whether hospitals were qualified to receive electronic health record (EHR) incentive payments.

Provider Capacity Quarterly Reports: Hilltop provides the Department with quarterly reports on provider capacity, provider specialty, and PCPs, delineated by region and local access area.



Long-Term Services and Supports

Hilltop supported the Department in activities required under the State Balancing Incentive Payment (BIP) Program; continued to track HCBS expenditures; conducted analyses to assist the Department in its use of the interRAI core standardized assessment tool; and conducted analyses using data from *LTSSMaryland*—the state’s integrated LTSS tracking system—including interRAI assessment data and plans of service.

Nursing Facility Admission Predictors: In FY 2016, Hilltop determined the predictive value of the questions on the Level 1 screening tool for subsequent NF admission. Hilltop analyzed the most recent screen for 2,196 individuals—submitted between October 20, 2014, and December 31, 2015—and then calculated the amount of time between the screening date and the NF admission for the 229 individuals who had a subsequent NF admission reported in the Minimum Data Set (MDS). Finally, Hilltop loaded the resulting data set into a proportional hazard regression model in order to calculate the effect of each screening response on any subsequent NF admission. In FY 2017, Hilltop updated this report to reflect the time period of October 20, 2014, and March 31, 2017, and changed the report as follows: Hilltop included an additional two years of screening assessments and nursing home MDS admissions, added basic demographic indicators (age, gender, binary race), and removed the financial questions from the model due to the over-prevalence of incomplete information for that section. Hilltop found that individuals with an intellectual or developmental disability (IDD) were half as likely as those without to have a subsequent NF admission, individuals undergoing physical therapy were 46 percent more likely to have a subsequent admission, and individuals who thought they would be better off elsewhere were 77 percent more likely to have a subsequent admission. These results showed that multiple questions from the screening tool were predictive of subsequent NF admission, especially questions about the presence of an IDD, an active physical therapy regimen, and the individual or their caregiver’s belief that the individual would be better off elsewhere.

People with Developmental Disabilities: To assist the Department in responding to a request from the Developmental Disabilities Council, Hilltop calculated the number of people with a developmental disability who received services in any of its LTSS programs, sorted by program.

Autism Waiver Rate Methodology Study: In FY 2016, Hilltop conducted a rate methodology study for the Waiver for Children with Autism Spectrum Disorders (Autism Waiver), and the Department submitted the report of the study findings to CMS. In FY 2017, to assist the Department in responding to CMS’s request for clarification, Hilltop provided clarification regarding the calculation of transportation costs for residential habilitation and therapeutic integration, and added the clarifying text to the report previously submitted in FY 2016.



Autism Waiver Reporting: In FY 2017, 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. In addition, Hilltop sends a monthly census report of the individuals on the Autism Waiver, delineated by age, county, coverage group, and, as applicable, disenrollment reason.

Community Options (CO) Waiver Reporting: The Department reports on the implementation of the CO Waiver to CMS. Thus, Hilltop gave the Department a detailed status of Hilltop’s reporting on each waiver assurance measure. Hilltop also produced quarterly reports for the Department describing the CO Waiver assurance measures (percentage of waiver claims within a waiver span, percentage of waiver claims outside of a waiver span, percentage of quarterly participants with a level of care determination in the prior year, and amount of Plan of Service dollars claimed).

Community Options Advisory Council: Hilltop developed and gave a slide presentation on Plans of Service to the Community Options Advisory Council; presented an update on Plans of Service to the Council at a subsequent meeting; and gave presentations on Plans of Service, Budget, and Trends and HCBS Quality Metrics at later Council meetings.

CMS Benchmarks: In FY 2017, 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. They 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). Each quarter, Hilltop also prepared MFP reporting files for submission to Mathematica Policy Research, the national MFP program evaluator. This work involved converting MMIS2 files for each MFP participant to Medicaid Statistical Information System (MSIS) files. The files required by Mathematica for each MFP participant include a finders file containing demographic and eligibility information; a participation data file, which holds more specific information on the participant than the finders file; and a service file with claims data.

Chart Books: In FY 2017, Hilltop produced three chart books in its *Medicaid Long-Term Services and Supports in Maryland* series, which summarizes demographic, service utilization, and expenditure data for participants in the state’s 1915(c) waivers. The chart books



encompassed FYs 2011 through 2014 and included *Volume 1: The Autism Waiver*, *Volume 2: The Brain Injury Waiver*, and *Volume 3: The Model Waiver*.

StateStats: Hilltop produced monthly updates for Maryland's StateStats report on the cumulative number of unduplicated waiver participants in Maryland from January 1, 2001, to April 30, 2017, for MFP and the CO and Autism Waivers.

National Association of States United for Aging and Disabilities (NASUAD) Survey: Hilltop assisted the Department in responding to a request by the Maryland Department on Aging to complete LTSS questions for a survey from NASUAD. Hilltop analyzed MMIS data to perform this task.

CMS 372 Reports: To help the Department determine cost neutrality for the state's 1915(c) waivers—the CO Waiver, Autism Waiver, Community Pathways Waiver, Brain Injury (BI) Waiver, Medical Day Care (MDC) Waiver, New Directions Waiver, Model Waiver, and Residential Treatment Center Waiver—Hilltop calculated the number of waiver recipients, the annual waiver expenditures, the average per capita annual expenditure for all other Medicaid services expenditures, the average length of stay of waiver coverage by level of care, and the total days of waiver coverage in FY 2015. In addition, Hilltop utilized the data from these reports to assist the Department in responding to the NASUAD survey mentioned above.

Standardized Assessment Tool Studies: In FY 2017, Hilltop continued to conduct analyses using data from the interRAI assessment tool to help the Department monitor agency operations. Hilltop compared the interRAI assessment tool with the PEDS interRAI assessment tool and described the differences between the two tools. Hilltop also calculated the number of Adult Evaluation and Review Services (AERS) assessment requests with a corresponding interRAI assessment within 45 days, delineated by county and month, for December 2014 through November 2016 to assist the Department in determining the interRAI response rate to such requests. AERS is the state-mandated program providing assistance to functionally and chronically disabled adults at risk of institutionalization.

Plans of Service: Hilltop produced quarterly reports calculating the amount of time from the first plan or service submission to the Department made by sources outside the Department until the final decision on the plan of service is made.

LTSS Enrollment Reports: In FY 2017, Hilltop prepared reports on individuals' last steps in the enrollment process for LTSS. Monthly reports tracked enrollment progress for those who 1) had completed an MFP questionnaire in the previous month, 2) had a Community Personal Assistance Services (CPAS) claim in the past six months but were not yet enrolled in MFP, and



3) had been assigned a supports planning agency (SPA) but were not enrolled in a waiver or who had an MAPC claim but had not been assigned an SPA.

Nursing Facility Plan of Correction Monitoring: To help monitor a nursing facility company's plan of correction aimed at their practices and policies, Hilltop provided consultation to the Department and the Maryland Attorney General's Office on whether analyzing Medicare data could be useful.

Conflict-Free Case Management: Hilltop reviewed four states' (New Jersey, Texas, Nevada, and Iowa) LTSS managed care programs and produced an overview of their conflict-free case management activities.

Public Information Act Request: To assist the Department in responding to a request from the Public Justice Center, Hilltop analyzed Medicaid personal care claims from independent providers that were rendered under the WOA, LAH Waiver, or the MAPC program with service dates, to calculate the number of and related hour and wage information for independent providers who rendered services from July 1, 2013, through January 5, 2014 under the WOA. Hilltop subsequently responded to related questions from a further request on the topic.

Dual-Eligible Beneficiaries

Medicare Part B Premium Increase: For dual-eligible beneficiaries, Hilltop estimated total CY 2017 Medicaid payment amounts and increased payments for Medicare Part B premiums caused by the "hold harmless" rule. This rule states that Social Security benefit payments cannot decrease due to rising Medicare Part B premiums, and that Medicare premium increases must be capped at the dollar amount of the Social Security cost of living adjustment.

Dual-Eligible Beneficiaries' Use of Waiver or Home and Community-Based Services: Hilltop calculated the number of dual-eligible beneficiaries who received waiver services (excluding the Developmental Disabilities Waiver) or State Plan HCBS in CY 2015.

Behavioral Health Services

Substance Use Disorder Services Carve-Out Joint Chairmen's Report: In FY 2017, the Legislature required the Department to conduct a study and submit a report addressing the carve-out of Medicaid-eligible SUD services from the HealthChoice program. Specifically, the JCR requested an assessment after the first full year detailing 1) the impact of the carve-out on access, quality, and efficiency of care in the HealthChoice program and in the public behavioral health system; 2) if the carve-out resulted in specific issues in any particular jurisdiction or in any level of care; 3) the specific impact on enrollees who require treatment for chronic conditions and



SUDs and/or mental health disorders; and 4) the duties of the state's administrative services organization (ASO) and the costs associated with the carve-out. Hilltop conducted all the data analytics for this study and wrote the corresponding narrative sections of the report. In addition to presenting the demographics of the population, Hilltop generated several measures, including ED use, ambulatory care visits, inpatient admissions, 30-day all-cause-hospital readmission, children diagnosed with attention deficit/hyperactivity disorder (ADHD) who were newly prescribed with medication for the condition and received follow-up care, and medication-assisted treatment (MAT) for individuals diagnosed with SUD. Additionally, Hilltop conducted an analysis of participants who had a behavioral health condition and another co-occurring condition, such as HIV/AIDS, diabetes, and hepatitis C. Finally, Hilltop conducted a cost analysis for all Medicaid and HealthChoice participants with a behavioral health diagnosis, delineated by diagnosis category (mental health or SUD) for CYs 2013 to 2015.

Behavioral Health Collaborative Care Model Joint Chairmen's Report: In FY 2017, the Legislature required the Department to conduct a study and submit a report addressing primary behavioral health services delivered by MCOs and the projected benefits and cost savings from implementing a collaborative care model. Hilltop conducted a number of analyses and drafted sections of the report. Hilltop identified HealthChoice participants who had a behavioral health condition and categorized them as having a diagnosis of a mental health condition, SUD, or both. Hilltop also provided data showing whether participants with an SUD received screening, brief intervention, and referral to treatment (SBIRT) services. Additionally, Hilltop provided data on the number of participants diagnosed with depression broken down by MCO. The findings of the study enabled the Department to seek authority for a collaborative care model through an 1115 waiver in order to permit a pilot of the model targeting a specific subset of the HealthChoice population.

Psychiatric Rehabilitation Programs: Hilltop estimated the utilization and cost of Psychiatric Rehabilitation Programs (PRP), SUD services, and mobile treatment services among the SSI population and among those eligible for Medicare in CY 2015.

Behavioral Health Diagnoses: Hilltop calculated the number of individuals who had MCO encounters with a primary behavioral health diagnosis based on ICD9 or ICD10 codes, delineated by MCO.

SUD Rate Review: In its final report, the Governor's Heroin and Opioid Emergency Task Force recommended that the Department review Maryland Medicaid rates for SUD services every three years. Hilltop analyzed the rates and compared Maryland's rates with corresponding rates of neighboring states (Delaware, Pennsylvania, Virginia, West Virginia, and the District of Columbia). Because Virginia does not pay for behavioral health services using the same codes as



the other states, it did not fit into the format that had been developed for the analysis. Therefore, Hilltop presented Virginia's information separately. Hilltop also conducted a study of the amounts state Medicaid agencies reimbursed providers for methadone administration and reported the findings in an appendix for the Department's report.

Medication-Assisted Treatment: Hilltop provided monthly reports on MAT utilization for SUDs, focusing on three medications: Buprenorphine, Methadone, and Naltrexone (Vivitrol). Hilltop provided utilization data for Medicaid enrollees for the months spanning January 2010 through November 2016. In addition, Hilltop provided utilization data by county for Medicaid enrollees in October and November 2016. Hilltop updated the report to span January 2010 to January 2017, with county level data for December 2016 and January 2017.

Behavioral Health Adolescent and Youth Financial Mapping: The Behavioral Health Adolescent and Youth Financial Mapping Project is a partnership between the Department's Behavioral Health Administration and the Department of Psychiatry at the University of Maryland Medical Center. This project, funded by a grant from the Substance Abuse and Mental Health Services Administration (SAMHSA), aims to characterize and analyze SUD spending for adolescents (13 to 17 years) and young adults (18 to 24 years). In FY 2017, Hilltop updated its FY 2016 report (delineated by age and cost center) by adding two new fiscal years (2015 and 2016). Hilltop will complete the report in FY 2018.

Behavioral Health Administrative Service Organization Evaluation: Hilltop is helping the Department evaluate the performance of the behavioral health ASO, Beacon Health Options, Inc. Specifically, Hilltop examined whether Beacon could fulfill its obligation to have its performance evaluated by six Healthcare Effectiveness Data and Information Set (HEDIS) measures—Follow-up Care for Children Prescribed ADHD Medication (ADD), Antidepressant Medication Management (AMM), Initiation and Engagement of Alcohol and Other Drug Dependence Treatment (IET), Mental Health Utilization (MHT), Plan All-Cause Readmissions (PCR), and Adherence to Antipsychotic Medications for Individuals with Schizophrenia (SAA). These measures would need to be calculated using only the data available to Beacon without access to encounter data from Medicaid MCOs. Hilltop presented a number of options for the Department to consider.

Screening, Brief Intervention, and Referral to Treatment: Per the Department's request, Hilltop examined the use of SBIRT services among Maryland Medicaid enrollees. Hilltop identified all enrollees who used one or more alcohol-related SBIRT service in the period between September 1, 2015, and August 31, 2016. Hilltop then described their demographics, eligibility categories, the relative frequency of SBIRT service codes, and the frequency with



which SBIRT services result in follow-up SUD treatment. Hilltop updated this analysis to include six more months of data: from September 1, 2016, to February 28, 2017.

Corrective Managed Care Program: The Corrective Managed Care (CMC) Program identifies patients who may be utilizing excessive quantities of controlled substances, especially when multiple prescribers and pharmacy providers 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 member, then the member can be “locked in.” Under a lock-in pharmacy agreement, the member 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 enrollees. In addition, Hilltop continued to answer questions for the MCOs related to pharmacy national provider identifier (NPI) records and lock-in start and end dates, and to ensure that all HIPAA requirements for confidentiality and protection of information are followed.

Federally Qualified Health Centers: For the Behavioral Health Administration, Hilltop calculated the average number of medical, mental health, substance use, and dental services rendered per patient within a single day at each federally qualified health center (FQHC) in CY 2016. Hilltop also calculated the total number of unique patients and the average number of behavioral health visits per patient within a single week for each FQHC in CY 2016.

Poisoning for Self-Harm: Using diagnosis codes selected by the Behavioral Health Administration, Hilltop conducted an analysis of the number of Medicaid FFS claims and MCO encounters with a primary diagnosis of “poisoning with intent for self-harm” that occurred from October 1, 2015, through May 30, 2016.

Tobacco Cessation: Hilltop helped the Department prepare a presentation on Medicaid and tobacco cessation for local health department staff by analyzing claims and encounters with procedures related to tobacco cessation. Hilltop summarized the data by the number of services provided and number of people receiving those services during CYs 2014 to 2016, delineated by provider type and physician specialty.

Other Data Analytics and Support

Federal Shortage Area Designation: The Department’s Office of Population Health Improvement needed to estimate the ratio of Medicaid providers to the Medicaid-eligible population for federal shortage area designation by the Health Resources and Services Administration (HRSA). Thus, Hilltop provided Medicaid enrollees’ demographic information, lists of Medicaid providers, and summaries of provider patient loads during CY 2015.



Data Sharing with Comptroller's Office: To support the Department's data-sharing activities with the Comptroller's office, Hilltop prepared a number of table shells that categorized the data that the Comptroller would be providing to the Department. Hilltop gave a list of all participants who were eligible for Medicaid in CY 2014 and CY 2015 with a valid social security number to the Comptroller's office. These data were used to determine the percentage of participants who filed a tax return during these two years. Hilltop further provided the participant's region, age, and coverage group type to complete subgroup analyses by participant characteristics.

Maryland Children's Health Program Population: Hilltop calculated the number of individuals in the Maryland Children's Health Program (MCHP) with family incomes between 212 and 264 percent and between 265 and 322 percent of the FPL in order to assist the Department in responding to a request from the Maryland Legislative Information Service.

Eastern Shore Rural Health Study: The University of Maryland School of Public Health received a grant from MHCC to assess the health care of all residents of a five-county area on the Eastern Shore. The grant also sought to assess the capacities of the health system in that region and propose options for enhancing health and health care delivery. At the Department's request, Hilltop provided demographics and health care utilization information for condition-specific measures for Medicaid enrollees in the five-county region, delineated by coverage group type and county. The measures were ambulatory care visits, ED visits, inpatient admissions, telehealth visits, chronic conditions (arthritis, cancer, cardiovascular disease, diabetes, and respiratory illness), maternity, behavioral health, mental health condition, and SUD.

Health Services Initiative State Plan Amendment: In FY 2017, Medicaid applied for a Health Services Initiative State Plan Amendment to enable the state to be reimbursed by CMS for lead abatement and lead abatement-related activities through the Healthy Homes for Healthy Kids Program. This will necessitate data sharing among Hilltop, the Environmental Health Bureau, and the Department of Housing and Community Development. Hilltop provided consultation and assistance to the Department in developing the DUA necessary for the data sharing.

Vaccination Preparedness: Hilltop calculated the number of children aged 0 to 18 years who were enrolled in Medicaid and CHIP in CY 2016 to assist the Department in responding to an annual request from the CDC to help determine how much vaccine will be needed each year.

Hepatitis C Testing and Treatment: Hilltop analyzed Baltimore City and County Hepatitis C treatment and testing data for the period of September 30, 2013, to September 29, 2015. Hilltop also calculated the number of Medicaid enrollees aged 19 to 64 years with a Hepatitis C diagnosis, delineated by the number tested and type of test used; the number assessed for treatment and type of assessment used; and the number treated and the type of treatment



performed. Hilltop then updated this analysis, adding a third year of data (September 30, 2015, to September 29, 2016).

Inpatient Visits: To help the Department determine the changes in the ratio of FFS to managed care expenditures, Hilltop calculated the average number of inpatient visits for FFS enrollees, including dual eligibles, for CYs 2013 to 2015. To assist the Department in responding to a legislative request, Hilltop summarized the total FFS inpatient hospital costs for claims paid during FYs 2016 or 2017, which included claims submitted for FY 2012 through FY 2017.

Remote Patient Monitoring: For a remote patient monitoring policy the Department is developing, Hilltop calculated the number of patients who had two or more inpatient admissions in CY 2015 for chronic obstructive pulmonary disease (COPD), congestive heart failure, or diabetes. Hilltop delineated the number of patients who were enrolled in an MCO by MCO and by condition. In addition, to help the Department determine how many people would be eligible if this service were to be extended to those patients with related ED visits, Hilltop identified individuals in both the MCO and FFS populations who had one ED visit due to any of the three conditions or who had two or more ED visits in the calendar year. For those who had ED visits, Hilltop calculated the number who also had two or more hospital admissions related to the conditions. Finally, Hilltop calculated the number of patients who had been hospitalized or had an ED visit with any of the three conditions as either a primary or secondary diagnosis.

Maryland HIV Medicaid Affinity Group: In FY 2017, the Department convened the Maryland HIV Medicaid Affinity Group, involving the Department's Health Care Financing Administration (Medicaid) and the Prevention and Health Promotion Administration (PHPA). The purpose of this group is to establish consistent and frequent (at least monthly) data exchange to better inform both administrations about Medicaid enrollee 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'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. To begin the process, Hilltop worked with Medicaid and PHPA to develop a project plan, allocate responsibilities, and resolve data issues.

Truvada: Hilltop calculated the number of enrollees who were prescribed Truvada alone and in combination with other HIV drugs, as well as the number of prescriptions written for Truvada during each month of 2015. Truvada used to treat or reduce the risk of HIV infections.

FQHC Medicaid Payments: To assist the Department in responding to a media request, Hilltop calculated for a Maryland FQHC the number of recipients, visits, and FFS payments (using



unique recipient counts across FFS, MCO, medical, and pharmacy categories) by month for CY 2015.

Diabetes and Obesity Joint Chairmen’s Report: In FY 2017, the PHPA was charged with submitting a JCR on diabetes and obesity. The report referenced a number of Medical Assistance statistics, and PHPA requested a review of these statistics by the Health Care Financing Administration. Hilltop conducted this review. In addition, Hilltop calculated, for CYs 2013 to 2015, the number and percentage of FFS and HealthChoice enrollees with a diagnosis of diabetes who had an HbA1c test, delineated by behavioral health status. Hilltop then drafted that section of the report.

Vision Services: Hilltop identified all Medicaid participants who received a vision test or prescription glasses during FY 2016 and delineated them by county and age. Hilltop also calculated the frequency of billing for vision services in FY 2015, delineated by type of vision service and type of provider, and the number of children and youth aged 0 to 20 years who received these services through an individual education plan (IEP).

Specialty Surgeries: Hilltop conducted an analysis of Medicaid participants’ access to post-mastectomy reconstruction and bariatric surgery in CYs 2011 through 2015. Hilltop identified all Maryland Medicaid participants who underwent a mastectomy in each year of the study and, from that cohort, identified any breast reconstruction surgery that occurred after the mastectomy. Hilltop also identified all Maryland Medicaid participants aged 19 to 64 who were diagnosed with morbid obesity in each year of the study and then identified members of the study cohort who had bariatric surgery subsequent to their diagnosis of morbid obesity.

Telehealth: In FY 2017, Hilltop analyzed telehealth claims and identified those with a behavioral health or somatic diagnosis. Because telehealth may be used in conjunction with a behavioral health service to assist with a co-occurring somatic problem, Hilltop identified telehealth episodes with both types of diagnoses and used the initiating and telehealth provider types to distinguish whether behavioral or somatic services were being delivered via telehealth. Hilltop analyzed identified providers who were billing for telehealth services each year, regardless of whether or not they were registered as telehealth providers, and delineated these billings by somatic or behavioral services. Additionally, Hilltop identified registered telehealth providers who had not billed for any telehealth service and identified non-registered providers who were billing for these services.

Third-Party Liability: Hilltop identified Medicaid beneficiaries who had third-party liability (other health insurance besides Medicaid), delineated by whether they were enrolled in HealthChoice or used FFS, and also delineated by MCO, coverage group, and age.



Asthma Expenditures: Hilltop identified HealthChoice enrollees with either a primary or secondary asthma diagnosis and calculated the TCOC for those individuals in FY 2016.

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 22 questions pertaining to Medicaid and MCHP enrollment and service utilization by pregnant women, infants, and children in CYs 2010, 2014, 2015, and 2016. As in past years, Hilltop analyzed enrollment and utilization data and provided responses to the first 12 questions of the 2017 application.



Data Management and Web-Accessible Databases

In its role as a business associate of the Department pursuant to the HIPAA Privacy Rule, Hilltop warehouses 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.

Data Sets

Maryland Medicaid Data: MMIS data include FFS claims (inpatient, outpatient, physician, MCO, capitation, and special services), MCO encounters (hospital, physician, lab, NF, etc.), eligibility, special program eligibility, and provider information for the Maryland Medicaid program. Hilltop maintains Maryland Medicaid data back to 1991, receives updated data electronically from the Department on a monthly basis, and loads these data into analytic formats for policy, financial, and evaluation studies. Included in the data transmissions are FFS claims (medical, institutional, and pharmacy), MMIS eligibility, and encounter data. Hilltop receives and updates provider data quarterly. Hilltop processes more than 15 million Medicaid records each month. The encounter database is the largest—with more than 150 million records—followed by the FFS database, which includes more than 50 million records. Over 180 million records and 500 variables are processed annually. The NPI—a standard, unique identifier for covered health care providers, health plans, and health care clearinghouses that was adopted under HIPAA for all electronic administrative and financial transactions—has been included in Maryland Medicaid claims and HealthChoice encounters since 2008.

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. In FY 2017, Hilltop received a weekly SQL database containing a full backup of the *LTSSMaryland* database back-end. This database contains information on program eligibility and participation, health assessments, and plans of care for Maryland Medicaid LTSS recipients.

In FY 2017, Hilltop continued to support the Department's ongoing effort to develop and modify *LTSSMaryland*. The *LTSSMaryland* system supports several waivers and programs, including the CO, MDC, and BI Waivers; CFC, CPAS, Increased Community Service (ICS), and MFP



programs; and reportable events (RE), quality survey, nurse monitoring, and In-Home Supports Assurance System (ISAS) claims processing. In FY 2017, requirements gathering continued for several new modules and enhancements to existing modules, including Phase II of the MDC Waiver, contracted assessor module (to allow assessor agencies to conduct the interRAI assessment), electronic interRAI billing for the local health departments, importing client and provider files from MMIS, nurse monitoring, community settings, program concurrent enrollment, electronic pediatric assessment, developing urgent plans of service, and adding a daily attendant care service. 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. In addition, Hilltop participates in the Change Control Workgroup to review system modification requests and to test modifications. Hilltop uses the regularly updated copy of the complete *LTSSMaryland* data set it receives and maintains for its analyses for the Department.

Minimum Data Set: Hilltop receives MDS data monthly and maintains the data for routine and incidental analyses to better understand the health status, health care usage, and health care costs of nursing home residents in Maryland. These data are routinely linked to Maryland Medicaid recipients 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, or RUGs) that are used to calculate Medicaid nursing home payments. The data, stored in raw and refined formats, include all MDS assessments for nursing home residents in Maryland 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. Currently, Hilltop warehouses inpatient and outpatient HSCRC data from CY 2012 to CY 2016 and the first six months of CY 2017.

Medicare Data: Hilltop maintains Medicare claims files for dual-eligible beneficiaries. These data are linked to Medicaid data at the individual level to facilitate analysis of this population. Hilltop hosts the Medicare data on behalf of the Department, which maintains a DUA with CMS. Additional files are requested annually. The data, stored in raw and refined formats, include all CMS Medicare Common Working File data files (i.e., inpatient, SNF, outpatient, carrier, durable medical equipment, home health, and hospice data) for roughly 140,000 Medicaid recipients with dual Medicare coverage during CY 2007 through CY 2014.

Medical Care Database: In FY 2017, the Department and MHCC executed a DUA that requires Hilltop to process and transmit to MHCC Medicaid data for the Medical Care Data Base



(MCDB) and for Hilltop to receive a copy of the commercial and Medicare data from the MCDB for use in carrying out Medicaid analyses for the Department. As required under the DUA, in FY 2017 Hilltop prepared quarterly reports to MHCC describing the Department's use of MCDB data. Hilltop assessed the data and provided consultation to the Department about challenges regarding to the unique payer ID. Hilltop consulted with MHCC and its vendor regarding how data were to be coded and transferred. Hilltop also transferred Medicaid CY 2015 eligibility, professional, pharmacy, and provider files, as well as institutional files, to MHCC by SFTP. In addition, Hilltop provided MHCC consultation on analyzing the level of ambulatory surgery center usage by Medicaid beneficiaries and MCOs.

eMedicaid: The Department has provided Hilltop with data from eMedicaid, a database developed and maintained by the Department that is accessible through a web-based portal and allows healthcare 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.

Databases Developed and Maintained for the Department

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

Decision Support System: Hilltop continued to maintain the DSS for the Department. The DSS provides password-protected web-based access to Maryland Medicaid data, including payment, eligibility, and service data by recipient and provider. Users can query the DSS using both custom and standard reporting functionality that includes maps, charts, and multiple year trends. Currently, approximately 70 Department staff are registered to use the DSS. In FY 2017, Hilltop continued to make improvements to the DSS and provide technical assistance to Department staff that use the system, and offered training via classes held at Hilltop. Working with the Department, Hilltop made modifications to the MCO capitation application to include new procedure codes, added Hep-C procedure codes to format the library, updated coverage categories, and updated the application to handle the new payment distribution associated with Hep-C "kick" payments. In addition, Hilltop added new user IDs as needed.

Maryland Medicaid eHealth Statistics: Hilltop continued to maintain Maryland Medicaid eHealth Statistics (<http://www.md-medicaid.org/>), a public website that provides primarily data on Medicaid eligibility by age, coverage group, 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. Hilltop collected data from various databases—including eligibility, claims, and provider files—to compile data on each Medicaid enrollee who had an immunization procedure during the period reported. These 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 their Medicaid enrollees.





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