The Hilltop Institute

analysis to advance the health of vulnerable populations

Maryland Department of Health and Mental Hygiene
FY 2014 Memorandum of Understanding
Annual Report of Activities and Accomplishments

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A Nationally Recognized Partnership

The Hilltop Institute at UMBC

The Hilltop Institute at the University of Maryland, Baltimore County (UMBC), currently celebrating its 20th 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 more than 50 full-time professionals—policy and financial analysts, economists, attorneys, actuaries, health care administrators, 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. With the passage of the Affordable Care Act (ACA) in 2010, there is a new urgency for organizations such as Hilltop that can support and guide states as they take advantage of new, unprecedented opportunities to expand health insurance coverage and strengthen the health care delivery and financing system. Such efforts will move states closer to achieving what the federal Centers for Medicare & Medicaid (CMS) refers to as "the triple aim" of better care, better health, and lower costs.

Since 1994, Hilltop has maintained a collaborative and highly productive partnership with the Maryland Department of Health and Mental Hygiene (the Department) and—more specifically—the Maryland Medicaid agency. The 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 eligibles]). 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 mapping of public health and Medical Assistance information at the state and county levels.

Each year, Hilltop develops payment rates for the 209 nursing homes that serve Medicaid beneficiaries as well as risk-adjusted capitation payments for HealthChoice, Maryland's Medicaid managed care program. In FY 2014, HealthChoice had 8 participating managed care

organizations (MCOs), served over 1 million beneficiaries, and paid $3.8 billion in capitated payments. Hilltop conducts the annual evaluation of HealthChoice required by CMS, as well as a multitude of ad hoc analyses each year to support further development and administration of that 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 of ACA initiatives such as the Medicaid Expansion, the Money Follows the Person (MFP) Rebalancing Demonstration, the State Balancing Incentives Program, and Community First Choice. 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 also provides data analytics and research and policy support to other divisions and entities of the Department (e.g., Developmental Disabilities Administration, Behavioral Health Administration, Public Health Division, Maryland Health Care Commission (MHCC), Health Services Cost Review Commission, and Community Health Resources Commission) and to other state agencies (e.g., the Maryland Health Benefit Exchange [MHBE], 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, as well as 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 develops capitated payment rates for HealthChoice providers. Over the years, Hilltop's role has evolved as the priorities and needs of the Department have changed.

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. In June 2012, this type of partnership was the topic of a special session at the AcademyHealth Annual Research Meeting, titled *Building Research Collaborations with State Health Policymakers.* The Maryland collaboration was highlighted in the session. Furthermore, this session resulted in an article in the *Journal of Health Politics, Policy, and Law,* titled *Supporting the Needs of State Health Policy Makers through University Partnerships,* in which Hilltop and its partnership with the Department were prominently featured. In 2014, the Department and Hilltop joined 17 other established and developing state/university partnerships as members of the State-University Partnership Learning Network coordinated by AcademyHealth. The network was formed to support evidence-based state health policy and practice through collaborations by state government and state university research centers. Hilltop's executive director serves on the steering committee. The partnership between the Department and Hilltop is widely recognized as a model to which other states aspire.

Annual Report

This annual report presents activities and accomplishments of the fiscal year (FY) 2014 (July 1, 2013, through June 30, 2014) memorandum of understanding (MOU). All deliverables referenced in the report were transmitted by e-mail unless otherwise specified and are available upon request.

Medical Assistance (Medicaid)
Program Development and Policy and Financial Analysis

During FY 2014, Hilltop prepared the annual report on reimbursement rates; supported the Department in its efforts to expand Medicaid eligibility; continued to build Hilltop's capacity to carry out research and policy analysis related to Medicare-Medicaid enrollees; conducted a number of analyses of Medicaid rates and provider fees; and conducted other special studies and analyses of the Maryland Medicaid program at the Department's request.

Reimbursement Rates Fairness Act: Pursuant to Maryland Senate Bill 481 (Chapter 464 of the Acts of 2002) and House Bill (HB) 70: *Commissions, Programs and Reports – Revision* (Ch. 656 of the Acts of 2009), Hilltop prepared the thirteenth annual report for the Maryland legislature. The report addressed progress the state had made in adjusting fee-for-service (FFS) Medicaid reimbursement rates to promote provider participation in the Medicaid program. Specifically, the report assessed the rate-setting process; compared Maryland Medicaid's professional provider reimbursement rates with the rates of other states and Medicare; addressed the schedule for bringing Maryland's reimbursement rates to a level that would help ensure provider participation in the Medicaid program; and discussed the estimated costs of implementing the schedule and proposed changes to the FFS reimbursement rates. In addition, the report incorporated information required by §15 of HB 70 from the 2009 legislative session, which requires the Department to review the rates paid to providers under the federal Medicare fee schedule and compare those rates with the FFS rates for the same services paid to providers under the Maryland Medical Assistance program and MCOs.

Physician Fees: In addition to the analyses described above, in FY 2014, Hilltop consulted with and provided technical assistance to the Department regarding increasing and decreasing physician fees. Hilltop compared Medicaid fees to Medicare fees and estimated the percentage of Medicaid fees to Medicare fees for all procedures. Then, Hilltop estimated what the percentages would be if evaluation and management (E&M) procedures were decreased in 2015. Hilltop also calculated the amounts of funding allocated for physician fee increases since 2003 and corresponding percentages of Medicare fees; calculated the total and state cost savings in the first six months of calendar year (CY) 2015 from reducing E&M fees to different percentages of Medicare fees; estimated the cost of maintaining the CY 2014 E&M and vaccine administration fee increase for the last six months of FY 2015, then calculated the total FY 2015 savings to the state of reducing the average Medicare E&M rates; estimated percentage of Medicare fees for all procedures after decreasing fees for E&M procedures in 2015; calculated self-attesting physician costs for E&M and vaccine administration procedures, and the percentage of these costs to total costs of these procedures for all physicians; estimated the percentage that payments to physicians

for E&M services for Children's Health Insurance Program (CHIP) enrollees were to total payments; and calculated the total costs of increasing CY 2014 E&M and vaccination fees to 100 percent of Medicare fees. Hilltop compared the 2013 Medicare rates to those of 2014; calculated the total costs and the cost to the state and the federal government of the CY 2013 physician fee increase delineated by self-attested primary care physicians and specialists; and provided consultation to the Department on the methodology for calculating physician fees that are subject to 100 percent federal financial participation. Hilltop also calculated the percentage of change of relative value units (RVUs)—used by Medicare for calculating fees for physician procedures—from 2013 to 2014. Hilltop calculated the amount of Rate Stabilization Funds that were used for increasing and maintaining physician fees in FY 2006 through FY 2009 and the amount of subsequent reductions in physician fees in FY 2010 and FY 2012. Hilltop estimated the amount of the CY 2013 increase in physician payments for dual eligibles and, based on this estimate, calculated the costs of this increase. Hilltop also calculated the total cost of the Medicaid portion of payments. Hilltop estimated the fiscal impact of the 2014 Physicians' Fee Schedule and provided consultation about how the estimates were made.

Medicare Rates: Hilltop analyzed the ACA provisions for determining average Medicare rates in Maryland for 2014, provided clarification to the Department on those provisions, and assisted in reconciling the CMS-assigned 2014 Maryland rates with Hilltop's calculations based on ACA provisions. This led to CMS' revision of 2014 average Medicare rates in Maryland, which originally were higher than the corresponding 2013 rates. If this error had not been discovered by Hilltop, Maryland would have incurred substantially higher 2014 Medicaid rates for payments to providers.

FMAP Calculation: Hilltop conducted analyses and provided consultation to the Department to assist in the calculation of the federal medical assistance percentage (FMAP) for different populations.

Dental Anesthesia Rates: Hilltop analyzed dental anesthesia rates to determine their percentage of Medicare rates.

Average Reimbursement Rates: Hilltop analyzed MMIS2 (Medicaid Management Information System) encounter data and calculated average reimbursement rates per claim or encounter for FYs 2010, 2012, 2013, and 2015.

Trauma Physician Rates: In FY 2014, Hilltop continued to calculate monthly supplemental reimbursement payments based on trauma physician fees.

Basic Health Plan: In FY 2012, at the request of the Department, Hilltop conducted an analysis of the Basic Health Plan, a health coverage option found in §1331 of the ACA. The analysis addressed the policy issues and financial feasibility of implementing a Basic Health Plan in Maryland. Hilltop revised the report in FY 2013 to reflect enrollment projections consistent with the most current *Hilltop Health Care Reform Simulation Model* estimates and updated the Basic Health Plan cost projections under various scenarios to reflect the revised enrollment projections. In FY 2014, on behalf of the Department, Hilltop drafted a synopsis of the report with new cost estimates based on estimated enrollment. Hilltop provided consultation to the Department regarding Basic Health Plan federal rates for 2015 and assisted in ensuring the Department's compliance with the CMS program rule on this issue.

Medicaid Expansion: In FY 2014, Hilltop continued to support the Department in its efforts to expand Medicaid eligibility. The ACA gave states the opportunity and incentives to expand Medicaid eligibility to households with incomes up to 138 percent of the federal poverty level (FPL), and Maryland was one of the states that chose to expand Medicaid. Hilltop summarized the U.S. Department of Health and Human Services (HHS) final rule on Medicaid, CHIP, and Exchanges and provided consultation to the Department about the rule's provisions on essential health benefits (EHBs) and alternative benefit plans (ABPs). Hilltop analyzed the HHS final rule on group health plans and health insurance issuers relating to coverage of preventive services and summarized the preventive services that states are required by the ACA to cover. Hilltop revised the comparison of behavioral health benefits offered by the EHB benchmark plan to those provided by the Medicaid state plan, clarified information about the transplant benefit under the benchmark plan, and calculated the FY 2011 and 2012 personal care expenditures for adults aged 18 years and over by coverage group to assist Optumas in determining rates for services in the ABP. Hilltop also reviewed and commented on MCO survey responses regarding non-quantitative limits for services and calculated the enrollment of the new Medicaid Expansion coverage groups by ZIP codes as of February 28, 2014, and then as of March 31, 2014. In addition, Hilltop participated in weekly calls with CMS regarding the ABP that Maryland proposed, coordinated and managed Optumas' actuarial analysis for the ABP state plan amendment, and reviewed the Department's state plan amendment application for the ABP.

Kids First Act: The Kids First Act requires the Department to "study and make recommendations for improving the processes for determining eligibility for the Maryland Medical Assistance Program and the Maryland Children's Health Program (MCHP), including the feasibility of facilitating outreach or auto-enrollment through linkages with other electronic data sources." In FY 2009, the Department and Hilltop were commissioned by the Robert Wood Johnson Foundation State Health Access Reform Evaluation (SHARE) program to evaluate the outreach process for the Kids First Act to determine whether the use of tax forms is effective in

identifying and enrolling children who are uninsured but eligible for Medicaid or CHIP. In FY 2010, Hilltop analyzed the findings from this study and published them in an issue brief. The project produced a second issue brief in FY 2011 that discussed the issues the state encountered when attempting to share data between the Department and the Comptroller. This issue brief garnered attention nationally as other states struggled with similar issues and looked to Maryland as an example.

Since the passage of the Kids First Act in 2008, Hilltop has monitored the increase in enrollment of children into Medicaid and CHIP. In FY 2010, Hilltop helped the Department develop an effective strategy to eliminate some of the impediments to evaluating the goals of the Kids First Act's tax-based outreach initiative. Subsequently, the Maryland General Assembly passed a law that eliminated some of these impediments, and some of the data necessary for Hilltop to study the outreach effort were made available by the Comptroller in FY 2012. In FY 2013, Hilltop concluded its work on this project and published a third and final issue brief (co-authored by Hilltop and the Department), which highlighted some of the key findings of the study.

In FY 2014, Hilltop continued to analyze taxpayer and enrollment data to assist the Department in determining if and how many new enrollments there were subsequent to departmental outreach mailings, as well as in identifying households who had children who were eligible for but not enrolled in Medicaid or CHIP. Hilltop also matched the demographic and income data from the 2011 tax year, calculated the number of taxpayer households who opted to share their data with the Department, and identified the primary taxpayers and dependent children opting to share their data who had a history of Medicaid enrollment. At the request of the Department, Hilltop calculated the CY 2013 Medicaid or MCHP enrollment of those from birth to 18 years and those 19 years and over to assist MHCC in its annual reporting on uninsured children.

Expenditures for Medically Needy: In FY 2014, at the request of the Department, Hilltop calculated the FFS expenditures for individuals in the Aged, Blind, Disabled (ABD) Medically Needy coverage group who were under age 65 and did not have Medicare. FFS expenditures encompassed dental, home health, inpatient, long-term care, outpatient, pharmacy, physician, and other services. Hilltop delineated these calculations by age group, cost, visits, and unique individuals.

ACO Participation: Hilltop analyzed Medicaid FFS expenditures for dual eligibles identified by the Department as accountable care organization (ACO) participants in CY 2012.

CHIP Enrollment: In FY 2014, Hilltop analyzed the number of children enrolled in CHIP by month and coverage group for federal fiscal year (FFY) 2013.

Medicaid Enrollment: In FY 2014, Hilltop conducted a number of analyses for the Department on Medicaid enrollment. Hilltop identified the number of persons enrolled in Medicaid as of February 2014 delineated by coverage group and calculated the percentage each coverage group was of total Medicaid enrollment. Hilltop also compared the number of persons enrolled in Medicaid in January 2007 with those enrolled in February 2014, delineated by race/ethnicity, to determine enrollment growth. Hilltop conducted an analysis of continuous enrollment for children (aged 0-18 years) and adults (aged 19-64 years) who were enrolled in Medicaid/CHIP during CYs 2011 and 2012 and then updated the analysis of continuous Medicaid enrollment for adults (aged 19-64 years) who were enrolled in an F-track coverage group (excluding F98 – "Medically Needy; Non-Spend-Down" and F99 – "Medically Needy; Spend-Down") during CYs 2011 and 2012. Hilltop analyzed the enrollment numbers for individuals in either F98 or F99 Medicaid coverage categories from January 2014 through April 2014 to determine the percentage of increase or decrease in enrollment during this time period. In addition, Hilltop calculated Medicaid enrollment as of March 31, 2013, and as of March 31, 2014, by coverage group to assist the Department and the Health Services Cost Review Commission (HSCRC) in determining the net enrollment during this time period.

Prescriptions: Hilltop analyzed prescriptions to Medicaid beneficiaries in FY 2013 and calculated the number of prescriptions by funding type (FFS, MCO, PAC, and total); the average number of member months of those receiving prescriptions by funding type; and the Medicaid enrollment by funding type. Hilltop further delineated these results by coverage group and age group (0-20, 21-64, and 65+).

Data Security Survey: The Department's virtual data unit conducted an internal survey on cell suppression of sub-county level data. Hilltop assisted the Department's planning unit in completing this survey to assist the Department in its efforts to ensure the confidentiality and HIPAA security of its clients.

Total Cost of Care: As part of the reporting requirements for the state's new Medicare waiver for the All-Payer Hospital System Modernization, the HSCRC is required to report on and monitor the total cost of health care for all Maryland residents. In particular, the HSCRC must monitor trends in health care costs outside of its regulatory domain and any cost-shifting to unregulated settings. To meet this requirement, HSCRC requested all payers to report on expenditures and utilization among various service categories and service settings. The HSCRC developed a draft template for this purpose. At the request of the Department, Hilltop reviewed this draft template and provided comments to the Department. Then, Hilltop drafted instructions and a template for the Department's total cost of care reporting.

All-Payer Hospital System Modernization Data and Infrastructure Workgroup: In FY 2014, Hilltop provided consultation and support to the Medicaid representative of this workgroup concerning Maryland Medicaid data. Hilltop prepared a presentation describing MMIS2 and the strengths and limitations of Maryland's Medicaid data. Also, on behalf of the Department, Hilltop participated on the HSCRC's Payment Models Work Group Committee.

Maryland Medical Care Database: In FY 2014, at the request of the Department, Hilltop analyzed the proposed regulations, *COMAR 10.25.06: Maryland Medical Care Data Base and Data Collection,* and drafted comments from the Medicaid program. The comments were submitted to MHCC as part of the regulation promulgation process.

Medicaid Eligibility Test Plan: In FY 2014, Hilltop assisted the Department in reviewing a planning document drafted by the IT vendor for the MHBE titled *Eligibility Rules Validation Comprehensive Test Plan* for accuracy and to ensure that data and policy issues relating to Medicaid eligibility were addressed appropriately.

Hepatitis C: To assist the Department in applying for a Centers for Disease Control and Prevention grant, Hilltop analyzed FY 2009 through FY 2013 hepatitis C data for all Medicaid enrollees (FFS, HealthChoice, and PAC) in Baltimore City, Baltimore County, and statewide. Hilltop then provided an unduplicated count of enrollees with one or more hepatitis C diagnoses and a count of enrollees with acute, chronic, and unspecified hepatitis C diagnoses by demographic categories.

Pregnant Women: In FY 2014, to help inform policy discussions concerning pregnant women enrolled in qualified health plans offered through the MHBE who may become eligible for Medicaid, Hilltop estimated the number of pregnant women with income above 138 percent of the FPL at any point in CY 2012.

Substance Use Disorder Services: In FY 2014, to assist the Department in preparing for the carve-out of substance use disorder (SUD) services, Hilltop identified all revenue codes for SUD services in all settings (outpatient, inpatient, etc.) and analyzed CY 2011 and 2012 data to determine the costs of SUD services delineated by service type for those years. Hilltop then revised this analysis to include CY 2013 data. Hilltop continued to provide the Department with monthly data on buprenorphine utilization by county; analyzed the FY 2013 utilization levels and costs of SUD services for Medicaid enrollees (FFS, MCO, and PAC) in St. Mary's county; reported the number of claims and encounters for Methadone treatment (FFS, MCO, and PAC) in CY 2013 and then quarterly for CY 2014 (FFS and MCO); and prepared a data dictionary to explain the variables.

Neonatal Abstinence Syndrome: At the request of the Department, Hilltop conducted an analysis of Maryland Medicaid beneficiaries' prevalence, inpatient hospital utilization, and costs related to Neonatal Abstinence Syndrome (NAS) and pregnant women's narcotics usage in CY 2011. Hilltop analyzed the following requested measures for both mothers and newborns: the number of mothers and newborns, the total number of inpatient days in the hospital during the year post-delivery; and the total health care service costs during the year post-delivery.

Decision Support System: Hilltop developed and maintains the Decision Support System (DSS), a password-protected system maintained for the exclusive use of the Department, which provides easy access to data on Medicaid program eligibility, enrollment, service utilization, and payments. Currently, approximately 150 Department staff members are registered to use the DSS. In FY 2014, Hilltop continued to make improvements to the DSS and provide technical assistance to Department staff members using the system. Hilltop offered training to the Department via CDs, online tutorials, and seven classes held at Hilltop. Working with the Department, Hilltop identified new content areas to add to the DSS, increased functionality, and added new reports. New user IDs were added as needed.

In FY 2014, Hilltop continued to use WebFocus software, allowing for new features on the DSS that were not previously available. These applications were tested at Hilltop and implemented on the Department's production DSS server. Hilltop provides and maintains the Managed Reporting Environment (MRE), a user-friendly point-and-click graphical interface that accesses MMIS2 detail data and allows MMIS users to create reports, graphs, and compound reports or dashboards. The MRE can be tailored to match the skills, experience, and needs of the user. The MRE interface was improved again in FY 2014 to provide additional reporting capabilities. Calendar year service files were added for all years in the eligibility, claims, and encounter databases. The enhanced MRE environment is in production mode and may be used by the Department's Medicaid employees with the proper authorization.

The FY 2013 acquisition of Maptitude desktop and server products augmented the existing InstantAtlas map dashboards product, allowing Hilltop to add new mapping capabilities for the DSS. In FY 2014, Hilltop enhanced mapping reports to support requests from the Department, such as maps using smaller geographic areas (e.g., local access area, ZIP code, and census tracts) that can be accessed through the internal DSS but not the public site.

HealthChoice

Program Support, Evaluation, and Financial Analysis

In FY 2014, Hilltop continued to play a key role in supporting HealthChoice, Maryland's managed care program, by assisting the Department in collecting and validating encounter data, monitoring program performance, developing capitation rates and monitoring the finances for HealthChoice and PAC MCOs, and conducting special policy studies and analyses.

HealthChoice §1115 Waiver Renewal Application and Evaluation: As in previous years, Hilltop partnered with the Department to monitor and report on the performance of the HealthChoice program. In FY 2014, Hilltop collaborated on the renewal application to CMS for the §1115 waiver, which authorizes the HealthChoice program. Hilltop conducted the programmatic analyses that informed the Department's decisions about the future direction of the waiver. Hilltop also conducted the annual evaluation of the waiver, covering CY 2008 through CY 2012. The evaluation first provided a brief overview of the HealthChoice 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; the quality of care delivered to enrollees; special topics, including ambulatory care service utilization; services provided to children in foster care, reproductive health services, services to persons with HIV/AIDS, racial/ethnic disparities in utilization; and access to and quality of care under the PAC program.

In FY 2014, Hilltop followed the same format it developed for the HealthChoice evaluation in FY 2010, which addressed the Department's goals for the HealthChoice program and used state and national benchmarks, such as Healthcare Effectiveness Data and Information Set (HEDIS) national averages for various health care utilization measures. In addition, this year, Hilltop made the report §508 compliant to assist the Department in meeting CMS requirements. This evaluation once again provided the Department with data and analytics related to coverage and access to care, providing a medical home to enrollees, and improving quality of care. Hilltop also prepared the full application and all accompanying attachments for final submission. This included attending and summarizing comments from the required public hearings.

Hilltop continued to perform in-depth analyses on such topics as enrollment trends and measures (e.g., ambulatory service utilization by enrollees who also utilized the emergency department [ED] and provider network adequacy); integrated results from other studies, such as provider and Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys; included benchmarks for measures when standardized national comparisons were available, such as HEDIS measures; and continued to play a significant role in designing and drafting the report.

These activities gave the evaluation increased depth and policy context, which allowed the Department to better demonstrate the program's achievements. As in the previous year, the evaluation of the PAC program was included in the HealthChoice evaluation. Hilltop analyzed PAC enrollment and service utilization data to determine the participation levels and demographics of program participants.

HealthChoice Rate Setting and Financial Analysis: In FY 2014, Hilltop continued to produce detailed financial analyses that assisted the Department in the development of Medicaid financial policy, fiscal notes, and rate setting. Hilltop worked with the Department to develop risk-adjusted capitation payments for MCOs participating in HealthChoice. Maryland's risk-adjusted payment methodology is based on the Johns Hopkins University Adjusted Clinical Group (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 free of charge. Hilltop maintains a subcontract with Johns Hopkins for ongoing support with the ACG system and the rate setting methodology.

In FY 14 on behalf of the Department, Hilltop contracted and worked extensively with Optumas, an actuarial firm, to develop, test, and present the HealthChoice capitated payment rates to the MCOs, as well as to secure actuarial certification for the rates, which is required to obtain federal financial participation in HealthChoice. In addition, Optumas and the Hilltop rate setting team worked with the Department and the MCOs to carve out substance use disorder services (approximately $208 million) from the HealthChoice MCO rates effective January 1, 2015. In FY 2014, the state paid $3.8 billion in capitation payments to the eight MCOs participating in HealthChoice, providing health insurance for more than one million Medicaid beneficiaries. Hilltop continued to staff the Department's MCO Rate Setting Committee, provide consultation to the MCOs, and support the financial review of MCOs performed by state contracted auditors.

HealthChoice Financial Monitoring Report: To better understand the cost differences among MCOs and the impact 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 2014, Hilltop analyzed specific variances in membership, premium income, and cost of medical care during CY 2011. Hilltop prepared quarterly reports for the Department summarizing—for all MCOs—capitation payments and enrollment by major eligibility category, and examining the variance between planned payments and associated member months to actual results. In addition, Hilltop prepared a complete financial report package that analyzed MCO underwriting performance.

Primary Adult Care Program: As part of the ACA and new Medicaid Expansion effective January 1, 2014, the Primary Adult Care Program (PAC) formally ended on December 31, 2013. Those recipients formerly in PAC were incorporated into the "Childless Adult" expansion eligibility category effective January 1, 2014, and covered under the HealthChoice program. In, FY 2014, prior to the program's end, Hilltop conducted a number of analyses. For a presentation given by the Deputy Secretary for Health Care Financing, Hilltop calculated PAC enrollment by age, county, and race/ethnicity as of October 2013; produced a map showing PAC enrollment as of October 2013 by county; calculated the distribution of PAC services by prescriptions, mental health, and all other services, as well as the total PAC prescriptions by therapeutic class; and calculated enrollment by year of age. At the request of the HSCRC and the Chesapeake Regional Information System for our Patients (CRISP), and with the permission of the Department, Hilltop provided CRISP with eligibility and demographic information for PAC program participants for CY 2011 through CY 2013 for purposes of identifying hospital uncompensated care for PAC enrollees. Hilltop also assisted the Department with reviewing and commenting on the uncompensated care section of a PAC analysis conducted by the HSCRC/CRISP. Hilltop calculated the number of individuals who were continuously enrolled in PAC from CY 2011 through CY 2013, as well as the number of individuals who were enrolled in PAC for any period in CY 2012 or CY 2013 who also had a period of enrollment in another coverage group. With the Department's permission, Hilltop summarized the information on PAC enrollees with other coverage for CRISP.

Rare and Expensive Case Management: The REM program serves individuals with multiple and severe health care needs. In FY 2014, Hilltop provided support to the REM program in the form of analysis and rate setting. Hilltop prepared quarterly analytic reports for REM case management and REM providers and included other analyses of the REM population in its evaluation of the HealthChoice program. In addition, Hilltop calculated the number of potential eligible individuals and costs for extending eligibility for REM services to dual eligible and spend-down eligible individuals who also had diagnoses that would have qualified them for REM services had they been enrolled in HealthChoice.

X02 Coverage Group: In FY 2014, Hilltop updated an analysis completed in March 2013 and several requests performed in 2011 of costs and service utilization for individuals enrolled in a Medicaid X02 coverage group (undocumented or ineligible "aliens") for CY 2009 through CY 2012. Hilltop analyzed the following measures: total expenditures, number of enrollees, and number of services for ED, inpatient, outpatient, and other services; total expenditures, number of enrollees, and number of services for dialysis services; and frequency of major diagnostic categories for primary diagnosis codes.

MCO Kick Payments: In FY 2014, at the request of the Department, Hilltop examined the extent to which an alternative method of identifying pregnant women with a live birth is reflective of what is being reported by Maryland Medicaid MCOs for the purposes of receiving a kick payment. The analysis was done for CYs 2011 and 2012.

Dental Service Utilization: In FY 2014, Hilltop conducted several analyses to assist the Department in learning more about dental service utilization. In response to the Association of State and Territorial Dental Directors (ASTDD) State Synopsis Questionnaire 2014, Hilltop updated an analysis of Medicaid and MCHP enrollment and dental service utilization for children enrolled in the two programs in FY 2012 and CY 2011 to include the number of Medicaid and MCHP enrollees, as well as information on Medicaid dental providers. To assist the Department in responding to a Freedom of Information Act (FOIA) request, Hilltop provided a summary of the annual FFS amounts paid for orthodontic services received by Medicaid enrollees from July 1, 2009, through December 31, 2012.

Dental Joint Chairman's Report: In FY 2014, 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 2012 using 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; 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 year; the number and percentage of pregnant women aged 14 years and older who had a dental visit while enrolled in Medicaid for any period in the calendar year; the number and percentage of pregnant women aged 21 years and older who had a dental visit while enrolled in Medicaid for 90 days in the calendar year; and the number and percentage of non-pregnant adults aged 21 years and older who had a dental visit while enrolled in HealthChoice for 90 days in the calendar year.

Encounter Data Reporting and Validation: Through monthly, quarterly, and annual reports to the Department and 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 impatient encounters; and identified the use or overuse of default provider numbers for physician services. Annual reports 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 reports also compared encounters for specialized AIDS services with encounters in specific AIDS diagnostic categories. The process Hilltop continued to follow for continuously monitoring and validating encounter data was described in a November 2005 report. In FY 2014, Hilltop produced two encounter data validation reports for CY 2012—one on MCO encounters and one on PAC encounters. In addition, at the request of the Department, Hilltop provided the Delmarva Foundation (Delmarva) with a random sample of HealthChoice encounter records from the hospital inpatient, outpatient, and physician services that occurred in CY 2012 for validation.

Shadow Pricing: The HealthChoice MCOs are not required to report the actual payment amounts for services when submitting their encounter data to the Department. Although these data are not reported, 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. To assist the Department in this effort, Hilltop developed a process to estimate or "shadow price" these MCO payments. This included developing different methodologies for different types of services. For professional services, shadow pricing includes (1) applying the FFS fee 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 amounts hospitals can bill, Medicaid MCOs must pay the amount charged by the hospital, minus a 6 percent discount.

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). At the Department's request, 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 reports for distribution to MDE. 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 2014. Hilltop also prepared the annual county-based analysis of lead testing results for HealthChoice children aged 12 to 23 months and 24 to 35 months, which was submitted to MDE.

Value-Based Purchasing: In FY 2014, Hilltop prepared the HealthChoice value-based purchasing (VBP) targets for CY 2014. Hilltop used the same formulas from CY 2012 to set the CY 2014 targets for the 12 measures. Hilltop also calculated the CY 2012 scores by MCO for each measure. Hilltop completed the final ambulatory care VBP measure for HealthChoice enrollees with disabilities for CY 2012 and the preliminary ambulatory care measure for CY 2013; the final lead VBP measure for CY 2012, 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 preliminary lead VBP measure for CY 2013. In addition, Hilltop reviewed 40 records from the Jai MCO that were missing from the childhood lead registry against the MMIS2 records to determine why these records were missing.

Managing for Results: In FY 2014, Hilltop prepared annual asthma and diabetes managing for results (MFR) measures for CY 2015. For HealthChoice adult enrollees diagnosed with diabetes and children diagnosed with asthma (in accordance with HEDIS enrollment criteria and clinical criteria based on the Agency for Healthcare Research and Quality [AHRQ] prevention quality indicators), Hilltop analyzed the number of avoidable hospital admissions for both conditions. Hilltop also prepared the CY 2012 lead MFR measure, which included blood lead testing rates and elevated blood lead levels for children aged 12 to 23 months and 24 to 35 months who were enrolled in a HealthChoice MCO for 90 or more continuous days during CY 2012. In addition, Hilltop prepared racial disparities MFR measures for CY 2012. Hilltop analyzed the birth weight of newborns in the HealthChoice program during CYs 2009 through 2012 and provided the numbers and percentages of total births of newborns with very low birth weights in those years.

MCO Application Review Process: In FY 2014, Hilltop conducted desk reviews of MCO applications, audited credentialing procedures, and participated in the onsite evaluation of MCO operational systems. For the Division of HealthChoice Management and Quality Assurance (DHMQA), Hilltop analyzed the MCO application process and then drafted a report that noted findings and offered suggestions for improving the efficiency and effectiveness of the review process. At DHMQA's request, Hilltop subsequently submitted the report as a draft memo for consideration. In addition, to provide examples of the suggestions that Hilltop made, Hilltop developed some tools that DHMQA could use or modify to accomplish these objectives and submitted them to DHMQA for review.

Patient-Centered Medical Home Evaluation: Since early 2013, at the request of the Department, Hilltop has been assisting MHCC and the University of Maryland School of Pharmacy with an evaluation of the Patient-Centered Medical Home (PCMH) initiative. Hilltop provides institutional, medical, and pharmacy FFS claims and MCO encounters for HealthChoice enrollees participating in the study or control groups for the evaluation. Hilltop also sent enrollee demographic data to MHCC and the School of Pharmacy and worked with the

MCOs to provide priced MCO encounters. All of the data sent from Hilltop have been for CY 2010 through CY 2013. Hilltop continued this work in FY 2014.

Long-Term Services and Supports
Program Development, Policy Analysis, and Financial Analytics

Hilltop supported the Department in activities required under the State Balancing Incentive Payment (BIP) Program; assisted the Department with implementation of Community First Choice; continued its support of the MFP Rebalancing Demonstration Program; conducted several analyses to assist the Department in its move to and use of a core standardized assessment tool; continued providing consultation on *LTSSMaryland,* the state's integrated long-term services and supports (LTSS) tracking system; and conducted analyses using data from *LTSSMaryland*, including interRAI assessment data and plans of service.

Standardized Assessment Tool Study: As part of the structural changes made through BIP, the Department adopted a core standardized assessment tool, interRAI. Building on exploratory work performed in FY 2011, Hilltop provided research, consultation, and technical assistance to the Department as it adapted the interRAI tool for use in Maryland. During FY 2012, Hilltop designed a pilot study to compare interRAI's "level of care" determinations with those made by Maryland's current tool to determine how similar/different the tools' assessment outcomes were. Hilltop staff provided extensive support during a series of requirements-gathering meetings held throughout the spring and summer of 2012 to plan the assessment tool implementation. In FY 2013, Hilltop conducted several analyses to assist the Department in the transition to this new functional assessment structure and continued to conduct analyses in FY 2014.

Hilltop analyzed interRAI assessments from the *LTSSMaryland* database for individuals currently enrolled in Medical Assistance Personal Care (MAPC) to determine the number and percentage of respondents who met the new criteria for MAPC level of care (LOC). Hilltop revised this analysis to include more respondents. Each respondent was assessed for MAPC LOC based on the criteria set forth by the Department on May 6, 2013, as well as a less restrictive version of the same criteria, which used a modified scoring algorithm that decreased the level of need for an activity of daily living (ADL) from the original "limited assistance or greater" to "independent, setup help only or greater." After testing the existing nursing facility (NF) LOC assignments created through *LTSSMaryland*, Hilltop found an approximate 10 percent mismatch between the *LTSSMaryland* assignments and Hilltop's coding algorithm, prompting a review of the *LTSSMaryland* logic, which was then revised. Subsequently, Hilltop tested assessments submitted and found no discrepancies between the two sets of logic. The analysis presented the waiver and MAPC experience post-assessment for individuals given a NF LOC by *LTSSMaryland* but not Hilltop. Hilltop also helped develop a new algorithm used to determine individuals with extensive medical and personal care needs who may need daily services and supports using the telephone screening tool developed by the Department and tested the

algorithm's accuracy to identify individuals who would meet the NF LOC on a full interRAI assessment. Hilltop analyzed interRAI assessments from *LTSSMaryland* to test how including "activity did not occur" responses for ADL questions would affect NF LOC and compared NF LOC determinations using the current algorithm to this revised algorithm.

Nursing Facility Level of Care: In FY 2014, to assist the Department in the move to utilizing Minimum Data Set (MDS) assessments to calculate the NF LOC for individuals in nursing facilities, Hilltop created an algorithm similar to that currently utilized to determine NF LOC for interRAI assessments. Hilltop analyzed interRAI assessments from *LTSSMaryland* for individuals who also had a corresponding MDS assessment and then analyzed their corresponding MDS assessments alongside these interRAI assessments to determine differences in answering patterns between the two assessments for each person. Hilltop then conducted the same analysis for Baltimore City only. In addition, Hilltop conducted an analysis to determine whether responses would differ if one term (toileting) were exchanged for another (continence) and analyzed the impact of the current NF LOC algorithm when applied to MDS assessments for people who also have an interRAI assessment. Using the most recent MDS assessment and the new NF LOC algorithm, Hilltop determined the NF LOC for individuals with a Medicaid-paid nursing facility stay. As a follow-up to prior work regarding the application of the current NF LOC criteria to MDS assessments, Hilltop conducted an analysis of the instructional materials used for the interRAI and MDS instruments and summarized each indicator, differences between the two instruments' instructions, and whether or not those differences were reflected in the data.

Home Care Quality Indicators: At the request of the Department, Hilltop prepared a set of home care quality indicators (HCQIs) for assessing the health status of Medicaid waiver participants and personal care recipients. Hilltop applied the 2001 point-in-time HCQIs to the interRAI assessment data collected in *LTSSMaryland* to examine 13 indicators and determine the prevalence of each in the total assessed population, as well as the assessed population in the Older Adults Waiver (OAW), Living at Home (LAH) Waiver, and MAPC. Building on this analysis, Hilltop applied the same logic to an updated version of the interRAI assessment database as well as MDS assessment data to determine the prevalence of the same 13 indicators in this expanded population and to compare the prevalence of the indicators between the community and the NF (MDS) populations. In addition, Hilltop created a crosswalk for the interRAI HCQIs, which presented the old definitions using MDS-HC v.2, as well as Hilltop's proposed updated definitions using the latest version of the interRAI HC assessment.

Money Follows the Person: In FY 2014, Hilltop continued to track transitions from institutions, service utilization, expenditures, and participant characteristics over the course of the MFP program using the metrics it developed in FY 2011. Hilltop provided consultation to the

Medicaid Enterprise Restructuring Project (MERP) workgroup in explaining the data fields used for the metrics.

Money Follows the Person Benchmarks: In FY 2014, Hilltop expanded the semiannual reports it produced for CMS on the state's progress in achieving MFP benchmarks to include information on all home and community-based services (HCBS) expenditures for all Medicaid (not just MFP) recipients. 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 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.

Personal Care Services: In FY 2014, at the request of the Department, Hilltop conducted a study of personal care services received by individuals through 1915(c) HCBS waivers and Medicaid state plan services throughout the United States. Using information it found through a literature review on personal care services expenditures and hourly provider reimbursement rates for the states that reported this information, Hilltop performed a series of calculations to determine the average number and range of personal care services individuals receive each day. Hilltop estimated the 1915(c) HCBS personal care waiver services costs and utilization for the 30 reporting states and the personal care state plan services costs and utilization for the 29 reporting states. Hilltop then compared the estimated hours of personal care services per person per day for 1915(c) HCBS personal care waivers services and state plan services for the 29 states that reported both. Next, Hilltop updated the study to include information for Maryland. In addition, Hilltop estimated the percentage of the Medicaid Expansion population that might utilize personal care services in the upcoming Community First Choice (CFC) program. Hilltop used its *Hilltop Health Care Reform Simulation Model* as the basis for this estimate and compared the current level of utilization of personal care services in Medicaid (in both state plan and waiver programs) with the potential disability status of the Expansion population, estimated using Current Population Survey (CPS) data. Hilltop also analyzed the utilization and costs of personal care services from FY 2013 by month and by program (OAW, LAH, MAPC, and CFC) to determine the trends, and then analyzed these trends by program and added calculations of the monthly hours per person per day for FY 2014. Hilltop analyzed personal care service claims to assist the Department in determining the impact of a new United States Department of Labor regulation requiring independent service providers to be compensated for travel when seeing more than one client in a day. Finally, Hilltop updated the analysis to include geocoding the addresses of clients to determine the approximate amount of travel that providers would have.

Chart Books: In FY 2014, Hilltop released Volume 2 of its chart book series, titled *Medicaid Long-Term Services and Supports in Maryland*, which summarizes demographic, service utilization, and expenditure data for Maryland Medicaid recipients of LTSS during FY 2009 through FY 2012. Volume 2 reported on the Autism Waiver. In addition, Hilltop drafted a new chart book that provided an overview of the number of Marylanders with developmental disabilities accessing services and supports through the Community Pathways and New Directions waivers in FY 2013 and the cost to Medicaid to finance these services.

Fair Labor Standards Act: In the October 1, 2013 Federal Register, the United States Department of Labor (DOL) published the Application of the Fair Labor Standards Act to Domestic Service Final Rule, impacting 29 CFR Part 552. These regulations concern domestic workers under the Fair Labor Standards Act (FLSA). At the request of and in consultation with the Department, Hilltop reviewed the Final Rule and summarized it for a presentation that it delivered to the Community Options Advisory Council. In addition, Hilltop drafted a more detailed, policy-focused summary for the Deputy Secretary of Health Care Finance, Departmental attorneys, and Departmental officials.

Dual Eligibles Using LTSS: In FY 2014, Hilltop calculated the percentage of dual eligibles using LTSS, delineated by all LTSS, state plan LTSS, and county.

Nursing Home and Program for All-Inclusive Care for the Elderly Rate Setting: In FY 2014, Hilltop continued to develop Medicaid reimbursement rates for Maryland nursing homes and the Program for All-Inclusive Care for the Elderly (PACE). For nursing homes, Hilltop provided analyses of rate-setting logic as needed, calculated the Medicare upper payment limit, evaluated alternative models, and provided technical assistance to Departmental staff. In addition, Hilltop continued to facilitate the electronic submission of cost reports by nursing home providers and developed the annual calendar year rates for Hopkins Elder Plus, a PACE program in Baltimore City.

Autism Waiver: In FY 2014, using the reporting mechanism it developed for the Department, Hilltop continued to analyze the “grey 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 grey area population; Hilltop produced quarterly reports to support the Department’s invoicing to MDSE.

Model Waiver: To assist the Department in its renewal application to CMS for the Model Waiver for Disabled Children, Hilltop calculated the average waiver expenditures per person (factor D), the average non-waiver expenditures per person (factor D’), and the cumulative

waiver plus non-waiver expenditures per person for FY 2008 through FY 2013. Hilltop estimated those expenditures for FY 2014 through FY 2017.

StateStats: Hilltop produced monthly updates for Maryland's StateStats website on cumulative enrollment from January 1, 2001, to July 31, 2014, for the OAW, LAH Waiver, and Autism Waiver.

CMS 372 Reports: In FY 2014, Hilltop produced the CMS 372 waiver reports for FY 2012. Hilltop produced reports for the OAW, LAH Waiver, TBI Waiver, Community Pathways Waiver, Medical Day Care Services Waiver, New Directions Waiver, Autism Waiver, and Residential Treatment Center Waiver.

***LTSSMaryland*:** In FY 2014, Hilltop continued to support the Department's development of *LTSSMaryland*, an integrated web-based information system used to manage and support several HCBS waivers and programs. In FY 2014, *LTSSMaryland* was redesigned to meet program changes for the newly implemented Community Options Waiver (CO), Community First Choice (CFC) program, and MAPC. The redesigned *LTSSMaryland* was launched on January 6, 2014. In addition to including functionality for CO, CFC, and MAPC, *LTSSMaryland* also supports the Brain Injury Waiver, MFP, the CFC Quality Survey, nurse monitoring, independent provider qualifications tracking, and self-direction initiatives. It includes a nightly update of MMIS eligibility and enrollment data. Hilltop has worked with the Department to develop business processes, define system requirements, review use cases and report requirements, and conduct system trainings. In addition, Hilltop participates in the change control workgroup to review system modification requests and to test system modifications. Hilltop receives and maintains a regularly updated copy of the complete *LTSSMaryland* data set to use for its analyses for the Department.

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 eligibility, special program eligibility claims and encounters (hospital/physician/lab/nursing facility, etc.), 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, encounters, and PAC data. Hilltop receives and updates provider data quarterly. Hilltop processes more than 12 million Medicaid records each month, creating yearly databases in excess of 150 million records. The encounter database is the largest—with more than 100 million records—followed by the FFS database, which includes more than 40 million records and 500 variables processed annually. The national provider identifier (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.

Maryland Medicaid Waiver Tracking Systems: Data for legacy tracking systems developed by Hilltop are maintained on designated servers with password and SSL (Secure Sockets Layer) security. This includes legacy tracking systems for the OAW, LAH Waiver, MFP, and Quality Care Review Systems. Use of these systems was discontinued when *LTSSMaryland* became functional.

***LTSSMaryland*:** Built to replace the separate waiver tracking systems discussed above, *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 a uniform core standardized 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. Hilltop receives a monthly SQL database from FEi,

Inc. containing a full backup of the *LTSSMaryland* Reporting Server back-end. This database contains information on program eligibility and participation, health assessments, and plans of care for recipients of Maryland Medicaid long-term services and supports.

Minimum Data Set (MDS): 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 will be used to adjust Medicaid nursing home payments under revisions to the state's current nursing home payment system. 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.

Medicare Data: Hilltop maintains Medicare claims files for dual eligibles. 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 data use agreement (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, skilled nursing facility, outpatient, carrier, durable medical equipment, home health, and hospice data) for roughly 260,000 Medicaid recipients with dual Medicare coverage during CY 2002 through CY 2012. Medicare Part D data, covering all Medicare-covered pharmacy transactions, are also included for CYs 2006 and 2007.

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 Chronic Health Homes, implemented under an optional state plan amendment authorized by §2703 of the ACA.

Databases Developed and Maintained for the Department

Hilltop has developed several databases that it continued to maintain and update monthly for the Department, including but not limited to MCO and PAC encounters, MCO capitation, and FFS claims; provider; Medicaid eligibility; health risk assessment (HRA); and end-stage renal disease (ESRD). In addition, Hilltop continued to maintain and support previously developed database applications, including Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) and REM.

DSS: 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. For a full description of FY 2014 activities regarding the DSS, see *Decision Support System* in the *Medical Assistance* section of this report.

Maryland Medicaid eHealth Statistics: Hilltop continued to maintain Maryland Medicaid eHealth Statistics (http://www.md-medicaid.org/), a public website that provides a subset of the data available on the DSS. This site allows researchers, community leaders, practitioners, and the public at large to access Maryland Medicaid health statistics.

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 annually.

Health Services Needs Information: In FY 2014, Hilltop continued working with the Department to clarify issues pertaining to health risk assessment (HRA) data received from the HealthChoice Enrollment Broker, as well as the logic used to review overall compliance and compliance with specific regulations and enrollment. In addition, Hilltop continued to produce quarterly reports.

Ongoing Reporting

Managed Care Organization Reporting: In FY 2014, Hilltop continued the refinement of MCO reporting on the DSS site, which includes counts of enrollees and received encounters, as well as

analysis of service counts. Hilltop calculated MCO inpatient kick payments and provided reference materials on procedure codes, fatal error codes, and MCO date-of-service charts.

HealthChoice Management and Quality Assurance: In FY 2014, Hilltop continued working with the Division of HealthChoice Management and Quality Assurance to clarify issues pertaining to health risk assessment (HRA) data received from the HealthChoice Enrollment Broker. Hilltop continued to produce quarterly reports and also produced an annual report called *Health Risk Assessment Compliance Report for CY 2013*.

Primary Adult Care Program Reporting: In FY 2014, Hilltop continued PAC reporting on the DSS site, providing information on enrollment and capitation payments. Although the PAC program ended December 31, 2013, Hilltop continued reporting on PAC throughout FY 2014. Hilltop completed the development of both usage and service reports by calendar and fiscal year. PAC reporting was also updated to reflect outpatient and dental service count analyses.

Data Requests

Throughout FY 2014, Hilltop's extensive data warehouse enabled it to fulfill hundreds of ad hoc data requests. These data requests supported policy and financial analyses conducted by the Department, Medicaid research and policy analysis conducted by external entities (with approval from the Department), and the numerous analyses and reports that Hilltop prepared during FY 2014 for the Department (see previous sections of this report). Exhibit 1 lists examples of data requests fulfilled for the Department and to support Hilltop analyses. Exhibit 2 lists examples of data requests from external entities.

Exhibit 1
Selected Ad Hoc Data Requests for Analyses Conducted by the Department and Hilltop
FY 2014

- Provided the data for the annual HealthChoice evaluation
- Provided data for the analysis of service utilization by beneficiaries who were enrolled in the Family Planning program
- Provided data required to complete the annual Title V Block Grant Application
- Provided the REM annual trend data, including cost, enrollment, and utilization data from FY 2008 to FY 2012
- Performed the preliminary and final ambulatory care VBP measures for enrollees with disabilities enrolled in HealthChoice for CY 2012
- Performed the preliminary and final lead screening VBP measure for children enrolled in HealthChoice in CY 2012
- Provided FY 2013 monthly buprenorphine prescription data for *StateStat*
- Provided monthly reports on buprenorphine utilization data by Medicaid enrollees for the months spanning January 2010 through each month of FY 2014, as well as buprenorphine utilization data by county for Medicaid enrollees in specific months of FY 2014
- Provided the following MFR data for CY 2012: lead testing, asthma and diabetes avoidable admissions, and ambulatory care racial disparities
- Provided SUD data for FYs 2012 and 2013. These data were sent to each MCO for the SUD pricing project.
- Performed a data analysis of provider types, procedure codes, and costs of providing Medicaid services to individuals enrolled in the Medicaid X02 coverage group (i.e., undocumented "aliens") in CY 2010 through CY 2012
- Performed a data analysis on dental service utilization and dental disparities for children and pregnant women enrolled in HealthChoice and MCHP
- Provided data on setting, type of service, and prior coverage group for newly enrolled waiver participants prior to enrolling in the OAW, LAH, Autism, and Medical Day Care Services Waivers

Exhibit 1, continued
Selected Ad Hoc Data Requests for Analyses Conducted by the Department and Hilltop
FY 2014

- Provided reports on the number of unduplicated users and Medicaid expenditures for individuals receiving Maryland Medicaid State Plan personal care services who were not enrolled in a waiver during the same fiscal year
- Provided information on length of stay for current OAW, LAH, Autism, and Medical Day Care Services Waiver participants
- Provided reports on the types of attendant care provided for LAH Waiver participants from FY 2008 to FY 2011
- Provided data pertaining to level of care, monthly resident counts by age group, and both nursing facility and non-nursing facility monthly Medicaid costs for the 65 and over and the under 65 nursing facility populations
- Provided Medicaid dental billing data for CY 2012
- Provided data to use in administering the 2012 CAHPS® satisfaction surveys to eligible HealthChoice enrollees
- Provided data to use in administering the 2012 PAC satisfaction surveys to eligible PAC enrollees
- Provided a random sample of primary care providers (PCPs) participating in HealthChoice, as part of the provider directory initiative
- Performed ongoing analyses of behavioral health service utilization by Medicaid enrollees for the behavioral health integration workgroups
- Performed an analysis of HSCRC data to estimate the number of Medicaid and non-Medicaid hospital discharges for the electronic health record incentive payment initiative
- Merged taxpayer data provided by the Comptroller with MMIS2 and conducted ongoing analyses of Medicaid enrollment as a result of the Kids First tax mailing
- Performed an analysis of dental service utilization and provider data to respond to the ASTDD survey
- Provided Medicaid enrollment information for individuals potentially eligible for the Women, Infants, and Children (WIC) Program

Exhibit 1, continued
Selected Ad Hoc Data Requests for Analyses Conducted by the Department and Hilltop
FY 2014

- Performed the lead quarterly match, prepared the lead quarterly and annual reports for the MDE Lead Poisoning grant, and generated county-based analysis of lead testing rates for children aged 12 to 23 months and 24 to 35 months
- Performed an analysis of the most frequently used diagnoses codes for inpatient admissions for the behavioral health integration project
- Performed a cost analysis of hospital/federally qualified health center physician charges using office visit, surgery, laboratory, radiology, and colonoscopy procedure codes provided by CareFirst and rates provided by Amerigroup
- Analyzed the number of visits and associated costs to achieve $40 million in Medicaid savings for outpatient non-emergency services by enrollees in HealthChoice MCO, PAC, and FFS
- Provided eligibility data for enrollees in the Breast, Cervical & Colon Health Program
- Provided utilization data for CY 2011 on ED, inpatient, and nursing home stays for enrollees with heart disease or stroke as their primary diagnosis, and identified the FFS costs for claims, days, and stays for heart disease and stroke-related visits
- Provided data on the utilization of anesthesia services by provider for FY 2008 through FY 2010
- Provided data on the frequency and enrollment spans of REM participants who disenrolled from REM but remained in Medicaid from FY 2003 through FY 2012
- Provided data to facilitate the calculation of colorectal cancer screening rates in the Maryland Medicaid population and assist in the identification of individuals who are not up to date with screening

Exhibit 2
Selected Data Requests from External Entities
Approved by the Department and Fulfilled by Hilltop
FY 2014

- **Mathematica Policy Research:** Provided enrollment data to Mathematica Policy Research as part of the national express lane eligibility evaluation. Also prepared MFP reporting files for submission to Mathematica for the national program evaluation of MFP.
- **Delmarva:** Provided the Department and Delmarva with data used to identify the number of EPSDT recipients with childhood obesity and assisted in resolving problems with the obesity and Healthy Kids data sets for CY 2012. Also provided a data set to Delmarva with a random sample of enrollees for Delmarva's annual HealthChoice managed care encounter validation report.
- **Structured Employment Economic Development Corporation (SEEDCO):** Performed analyses identifying the number of children and adults enrolling into Medicaid and MCHP as a result of the SEEDCO referral program.
- **WBA Research/HealthcareData Company:** Prepared adult and child survey sample frames based on National Committee for Quality Assurance's 2014 specifications of HealthChoice eligible recipients for the (CAHPS®) health plan survey. HealthcareData Company (HDC) audited source code and final sample frames. After receiving HDC approval, transmitted final adult and child sample frames to WBA Research, HDC, and the Department.
- **Institute for Innovation and Implementation:** On behalf of the Department, provided multi-year claim and encounter data for Care Management Entity youth and control groups to the Institute for Innovation and Implementation at the University of Maryland School of Social Work to support the CHIPRA Quality Demonstration Grant.
- **Maryland Health Care Commission:** With approval from the Department, developed and tested CY 2011 and 2012 Medicaid data files for inclusion in the Medical Care Database (MCDB), and constructed and tested summary cost and utilization measures. Also began reporting Medicaid data to the MCDB on behalf of the Department. Delivered two reports containing CY 2011 and 2012 Medicaid data to MHCC.
- **Benefit Data Trust:** In cooperation with the Benefit Data Trust (BDT), matched Supplemental Nutrition Assistance Program (SNAP) and Maryland Energy Assistance Program (MEAP) data with Medicaid data for BDT's outreach to vulnerable Medicaid beneficiaries.

Exhibit 2
Selected Data Requests from External Entities
Approved by the Department and Fulfilled by Hilltop
FY 2014

- **Care Management Technologies/Way Station:** Provided data, including monthly FFS claims, MCO encounters, and eligibility claims in 35 distinct files to Way Station on the number of Medicaid enrollees who received specified mental health services from 14 specific providers, including Way Station. Since June 2013, Hilltop has shadow priced the encounters for the 14 providers.
- **Maryland Health Care Commission/University of Maryland School of Pharmacy:** Provided data for the PCMH project, including CYs 2010 and 2011 claims and encounters for Medicaid enrollees with a PCP in the study or control group for the PCMH evaluation. Hilltop asked HealthChoice MCOs to identify Medicaid enrollees assigned to specified PCP practices and to price encounters.
- **Optumas:** Transferred MMIS and dual-eligible Medicare data sets to Optumas for development of savings projections for Maryland's proposed Community Integrated Medical Home. This actuarial analysis was required for the state's application to the federal government for a State Innovation Model award.

IT Architecture and Platform

As a business associate of the Department, Hilltop must follow HIPAA regulations regarding electronic security. To this end, Hilltop has implemented several initiatives designed to protect the data warehouse and provided tools that allow Hilltop staff to move data and share protected health information (PHI) with other clients of the Department in a secure fashion. A three-tiered electronic defense and surveillance system that protects against all known types of malware (i.e., viruses and other electronic attacks) has been implemented. Tier One is a firewall/intrusion prevention system (IPS) that protects the system against attacks from the Internet and is located on the UMBC campus. Tier Two is a firewall/IPS designed to protect Hilltop from threats emanating from outside Hilltop's network. Tier Three is a software-based firewall/IPS designed to monitor and protect Hilltop's own network. Additionally, all servers and workstations receive updates on virus definitions and operating system security patches from a local server.

Hilltop's virtual private network (VPN) allows for remote access for off-site work and disaster recovery operations and increases the protection of web-based applications that collect PHI. In FY 2011, Hilltop isolated WebFocus, the waiver tracking system, and remote access from the Internet via the VPN. Other additions to the Windows infrastructure included a new Storage Area Network (SAN) and high-speed tape backup unit. Hilltop's virtual infrastructure (VMWare) resides on the SAN; it is a solid production environment with several development and production servers, including the SharePoint server. In the web development area, Hilltop added WebFocus servers to improve efficiency in building new websites in the DSS.

In FY 2010, Hilltop provided further protection to its infrastructure by migrating its data warehouse to a new hardware and software platform. In FY 2011, Hilltop implemented a "DMZ" on the UMBC campus to isolate its mail and public web servers and reduce the probability of network intrusions. That same year, Hilltop further strengthened data security with the addition of a new security information and event management (SIEM) system, which collects and monitors 1.4 million system activity records each day. The addition of the SIEM system greatly increased awareness of network security. In FY 2012, Hilltop added the *LTSSMaryland* website (https://ltssmaryland.org), which is used for tracking applications to Maryland's Medicaid waiver programs. Security on all of these sites remains a top priority; the sites have been implemented in a separate Windows domain and are only accessible through the Hilltop VPN. In FY 2013, as discussed in the Long-Term Services and Supports section above, Hilltop participated in outsourcing the *LTSSMaryland* website to an external vendor and closed previous access through Hilltop. Additionally, Hilltop added a high-speed connection to Network Maryland for its monthly data feed from the Annapolis Data Center, installing new hardware and software and

adding encryption to support the connection to this crucial data resource. In FY 2014, Hilltop continued to maintain its complex IT infrastructure to protect the data warehouse.

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