

The Hilltop Institute



analysis to advance the health of vulnerable populations

**Maryland Department of Health and Mental Hygiene
FY 2011 Memorandum of Understanding
Annual Report of Activities and Accomplishments**

September 2011

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Executive Summary: Highlights

A Nationally Recognized Partnership

Hilltop was founded on July 1, 1994, in partnership with the Maryland Department of Health and Mental Hygiene (the Department), which administers the Medicaid program in Maryland. Since its inception, Hilltop's work with Maryland Medicaid has been supported through an annual Memorandum of Understanding (MOU) with the Department. This report discusses activities and accomplishments under the fiscal year (FY) 2011 MOU. Below are the highlights.

Medicaid: Program Development and Policy Analysis

- Prepared the tenth annual report for the Maryland Legislature on the Reimbursement Rates Fairness Act.
- Conducted a number of analyses on physician fees.
- Continued to support the Department in its efforts to expand eligibility for Medicaid to uninsured children and their families and to expand the benefits in the Primary Adult Care (PAC) program by analyzing various characteristics of those enrolled in the programs.
- Analyzed the number of fee-for-service (FFS) claims and managed care organization (MCO) encounters by hospital, and as a percentage of all hospital visits occurring in calendar year (CY) 2009.
- Analyzed the number of individuals who were enrolled in FFS Medicaid each month by coverage group in FYs 2007 through 2011, and analyzed the cost and service utilization for FYs 2008 and 2009 of these enrollees who were diagnosed with certain conditions.
- Analyzed all Medicaid enrollees in FY 2005 through FY 2009 with hepatitis by sex/gender, age group, race/ethnicity, and county of residence, as well as by type of hepatitis and whether they had received a hepatitis A and/or B vaccination.
- Continued to disseminate the findings from a study to evaluate the outreach process of 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 the Maryland Children's Health Program (MCHP) and published a second issue brief entitled *Overcoming Interagency Data-Sharing Barriers: Lessons from the Maryland Kids First Act*. Presented these findings before a national audience at the AcademyHealth Annual Research Meeting.



- Prepared quarterly analytic reports and an annual trends report for the Rare and Expensive Case Management (REM) program.
- Reported on Medicaid and MCHP enrollment and service utilization by pregnant women, infants, and children in CY 2010 to assist the Department in its application for the Maternal and Child Health Block Grant.
- Analyzed services provided to children enrolled in residential treatment centers (RTCs) during CY 2009 to determine the volume of non-mental health, non-RTC services provided to these children by service type, and the costs associated with the FFS claims for these enrollees; and analyzed RTC providers that served children enrolled in Medicaid in CY 2009, the number of services provided by each RTC, the unique number of children served by each RTC, and whether the RTC was located in the state of Maryland.
- Analyzed child Medicaid enrollees aged 0 through 18 years residing in Baltimore City—and then for all Maryland enrollees—who received treatment for asthma during CY 2007 through CY 2010, delineated the data by demographic information, summarized various types of utilization, and provided detailed claims-level information from the institutional, professional, and drug claims files.
- Performed a number of analyses to assist the Department in assessing whether the FY 2010 effort to identify and enroll eligible Baltimore City children in Medicaid had an effect on enrollment.
- Assisted the Department in its response to the 2010 Joint Chairmen’s Report (JCR), which requires the Department to study and estimate the impact of various program changes to Medical Assistance and Children’s Health Insurance Program (CHIP) and submit a report, by conducting the study and producing the report.
- Assisted the Department in its application to the Centers for Medicare and Medicaid Services (CMS) for the CHIP performance bonus by analyzing enrollment data of children aged 0 through 20 years who were enrolled in either Medicaid or MCHP, as well as the number of children aged 0 through 20 years who were enrolled in Medicaid only, for state fiscal year (SFY) 2010 and federal fiscal year (FFY) 2010, and SFYs 2007 and 2010 and FFYs 2007 and 2010.
- Conducted an analysis of the cost of habilitative services for individuals aged 19 to 64 years and 19 to 24 years with specific conditions for CY 2006 through CY 2009.
- Performed an analysis of the Medicaid X02 coverage group, which consists of undocumented or ineligible aliens, and their use of health care services in CY 2009.
- Improved the Decision Support System (DSS) by identifying new content areas to add, increasing functionality, adding new reports, and using WebFocus to develop new DSS



applications, such as the Managed Reporting Environment (MRE), which is a user-friendly point and click graphical interface that has access to MMIS2 detail data.

HealthChoice: Program Support, Evaluation, and Financial Analysis

- Prepared the HealthChoice §1115 Waiver annual evaluation, which was structured based on the HealthChoice program goals set forth by the Department in the following areas: coverage and access to care under HealthChoice; the extent to which HealthChoice provides a medical home and continuity of care; the quality of care delivered to enrollees; program financing and budget neutrality; special topics, including dental services, reproductive health services, mental health care, substance abuse treatment services, and racial/ethnic disparities in utilization; and access and quality of care under Maryland's signature PAC program.
- Continued to produce detailed financial analyses, which assisted the Department in the development of Medicaid financial policy, fiscal notes, and rate setting.
- Developed risk-adjusted capitation payments for MCOs participating in HealthChoice; staffed the Department's MCO Rate Setting Committee; provided consultation to the MCOs; and supported the Health Services Cost Review Commission (HSCRC) in its review of providers.
- Analyzed MCO performance and prepared the HealthChoice Financial Monitoring Report; compared the performance of provider-sponsored organizations (PSOs) to non-PSOs; analyzed specific variances in membership, premium income, and cost of medical care between CYs 2007 and 2008; and prepared a complete financial report package analyzing MCO underwriting.
- Prepared a report on the status of encounter data for analysis and rate setting activities.
- Continued the development of a rate methodology for benefits in the PAC program.
- Performed a number of special analyses as background to better understanding Medicaid beneficiaries' need for and utilization of mental health and substance abuse services by: summarizing acute inpatient psychiatric lengths of stay for persons enrolled one or more months in a HealthChoice MCO and comparing them with the Uniformed Reporting System information collected and summarized by the Substance Abuse and Mental Health Services Administration (SAMHSA) for CY 2008; providing data on Buprenorphine utilization for StateStats; and conducting a number of analyses on MCO substance abuse treatment expenditures.
- Performed an analysis of MMIS2 data to find evidence that MCOs had initiated care delivery to newly assigned HealthChoice enrollees, within the timeframe and according to health indicators designated by the Code of Maryland Regulations (COMAR), including performing health risk assessments.



- Conducted a number of analyses of child HealthChoice beneficiaries, children in foster care, and children in the rare and expensive case management (REM) program for CY 2008 to support the Department in preparation of its 2009 *Annual Report to the General Assembly on Dental Care Access in HealthChoice*.
- Verified the completeness, correctness, reliability, and validity of encounter data through monthly, quarterly, and annual reports to the Department and MCOs.
- Prepared quarterly childhood lead level reports to assist the Department in reporting results of lead tests to the Maryland Department of the Environment (MDE) and the MCOs. Also prepared the annual county-based analysis of lead testing results for HealthChoice enrollees aged 12 to 23 months and 24 to 35 months, which was sent to MDE.
- Prepared the HealthChoice value-based purchasing (VBP) targets for CY 2011.
- Analyzed the number of avoidable asthma and diabetes inpatient claims and avoidable hospital admissions, and prepared lead testing and racial disparities measures for the Managing for Results (MFR) initiative.

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

- Continued to assist the Department in the development and implementation of its statewide Medicaid Money Follows the Person (MFP) Demonstration.
- Worked with the Department to develop a set of performance metrics for the MFP program to measure the status and changes of Maryland's Medicaid long-term services and supports (LTSS) over the course of the MFP program.
- Continued development of the *MFP Tracking System*, a web-based system used statewide to manage MFP business processes.
- Planned for and began developing the integration of the nursing facility minimum data set (MDS) data submission process with the MFP tracking system.
- Produced semi-annual reports for CMS on the state's progress in achieving MFP benchmarks.
- Designed and developed new long-term care (LTC) financial eligibility application and redetermination forms.
- Released a second series of chart books entitled *Medicaid Long-Term Services and Supports in Maryland*, which summarize demographic, service utilization, and expenditure data for SFYs 2006 through 2009.



- Provided research, consultation, and technical assistance to the Department in the planning for adopting a different tool to assess individuals' needs for LTSS (the interRAI assessment tool).
- Maintained and modified waiver tracking systems by changing the utilization control agency from KePro to Delmarva, developing several new reports, and improving the system's security.
- Supported, maintained, and provided on-going system modifications for the QCR (Quality Care Review) Tracking System, and finalized the development of and implemented the inter-rater reliability (IRR) tool.
- Provided consultation to the Department on developing an integrated LTSS system that would include existing MFP, waiver, and QCR tracking systems and accommodate additional functionality in the future.
- Continued to conduct analyses and produce reports on the Medicaid home and community-based (HCBS) waivers on service utilization, enrollment, and demographics of waiver populations.
- Produced the FY 2010 CMS 372 reports for the Older Adults Waiver (OAW), Living at Home (LAH) Waiver, Traumatic Brain Injury Waiver, Community Pathways Waiver, New Directions Waiver, Autism Waiver, and Model Waiver.
- Produced monthly updates for Maryland's StateStats website on cumulative enrollment.
- Continued to develop refined LTC Minimum Data Set (MDS) files to support a variety of administrative research and began implementing the initial steps of the refinement process monthly.
- Utilized MDS data to analyze patterns of payment source, admissions, utilization, and length of stay of nursing facility residents, including ongoing monitoring of the nursing facility resident population related to the MFP program and reviewing LTSS payments under Medicaid.
- Continued to develop linked Medicare and Medicaid data to assist in the analysis of the needs of Medicare-Medicaid enrollees to explore how coverage by both Medicare and Medicaid impacts the utilization, delivery, and costs of services.
- Continued the development of reimbursement rates for nursing homes, the Program for All-Inclusive Care for the Elderly (PACE), and the Trauma and Emergency Medical Fund.
- Provided staff support for, and participated in meetings of, the LTC Reform Workgroup and the LTC Payment Advisory Committee (PAC).



- Provided consultation to the Department on design and content of a presentation on an LTSS rebalancing strategy.
- Conducted an analysis of persons transitioning from nursing facilities to State Plan personal care and their utilization of transition services to assist the Department's planning activities related to Community First Choice, a new state plan option under the Affordable Care Act.

Data Management and Web-Accessible Databases

- Maintained and managed all of Maryland's Medicaid data, processing 10 million records monthly and creating yearly databases in excess of 100 million records.
- Maintained HSCRC hospital data from 1996 through 2010.
- Maintained MDS data from nursing homes for all residents.
- Continued to link Medicare and Medicaid data.
- Continued receiving claims and encounter data with National Provider Identifiers (NPIs) and analyzed the impact on the accuracy of these data.
- Designed and implemented an online system called *MyMedicaid* for REM enrollees with Spina Bifida.
- Maintained and upgraded the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) and REM databases, as well as the waiver tracking systems and the immunization registry.
- Updated and expanded the *Eye on Medicaid* site.
- Continued to maintain Maryland Medicaid eHealth Statistics, a public website providing a subset of the data available on the DSS, which allows researchers, community leaders, practitioners, and the public at large to access Maryland Medicaid health statistics.
- Prepared hundreds of ad hoc data reports to support the work of the MOU.

IT Architecture and Platform

- Provided a protected information technology (IT) architecture and platform to insure adherence to the Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations regarding electronic security.



- Utilized a three-tiered electronic defense and surveillance system that protects the information and data from outside UMBC, outside the Hilltop network, and within the Hilltop network.
- Utilized a Virtual Private Network (VPN) device to allow for remote access for both work-at-home scenarios and disaster recovery operations, as well as for increasing the protection of web-based applications that collect protected health information (PHI).
- Improved security by isolating WebFocus, the waiver tracking systems, and remote access from the Internet via the VPN.
- Migrated Hilltop's data warehouse to the new Storage Area Network (SAN).
- Further strengthened data security with the addition of a new security information and event management (SIEM) system.



A Nationally Recognized Partnership

History

UMBC established The Hilltop Institute in 1994 as the Center for Health Program Development and Management (the Center) in partnership with the Maryland Department of Health and Mental Hygiene (the Department). Initially chartered to design and manage Maryland's High-Risk Patient Management Initiative, Hilltop (as the Center) was staffed by nurses and case managers in addition to 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 this population have multiple, complex health care needs, but also 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 were utilized in the most cost-effective manner. Together, the Department and UMBC worked to design a university-based center that would not only develop and manage this unique program, but would also provide research and analytics to determine if the program was accomplishing its goals. Hilltop provided case management for this program—now called the Rare and Expensive Case Management (REM) program—until 2004, when this task was taken over by the Department. Hilltop continues to provide analysis and monitoring for the 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 that program expanded. Hilltop collaborated with the Department in the development of HealthChoice, Maryland's mandatory Medicaid managed care program. Today, Hilltop continues to conduct research and policy analysis for HealthChoice and develops capitated payment rates for HealthChoice providers.

Hilltop develops other initiatives with the Department, such as the Primary Adult Care (PAC) program and the Money Follows the Person (MFP) program; provides monthly, quarterly, and annual reports on such topics as reimbursement rates, REM, and home and community-based services (HCBS) waivers; and provides analysis to assist the Department in its planning for initiatives like Medicaid Expansion.

Hilltop warehouses all of the state's Medicaid claims, eligibility, provider, and other data, and answers hundreds of data requests each year.



Hilltop continues to provide consultation on major and salient health issues, such as federal health reform, to assist the Department in meeting its goal of ensuring that all Marylanders have access to affordable and appropriate health care.

Continuing the Collaboration

Hilltop's successful state-university partnership with the Department, its founding partner, remains the mainstay of Hilltop's work. Hilltop looks forward to this continuing collaboration.

Memorandum of Understanding

Hilltop's work with Maryland Medicaid is supported through an annual memorandum of understanding (MOU) with the Department. This report presents activities and accomplishments of the fiscal year (FY) 2011 (July 1, 2010, through June 30, 2011) MOU. All deliverables referenced below were transmitted by e-mail unless otherwise specified and are available upon request.



Medicaid

Program Development and Policy Analysis

During FY 2011, Hilltop prepared annual and quarterly reports; supported the Department in its efforts to expand Medicaid eligibility to uninsured children and their families, as well as childless adults; and conducted other special studies and analyses of the Maryland Medicaid program at the Department's request.

Reimbursement Rates Fairness Act: Pursuant to SB 481 (Chapter 464 of the Acts of 2002) and HB 70 – *Commissions, Programs and Reports – Revision* (Ch. 656 of the Acts of 2009), Hilltop prepared the tenth annual report for the Maryland legislature. The report addressed progress the state has made in updating fee-for-service (FFS) Medicaid reimbursement rates to promote provider participation in the Medicaid program. Specifically, the report assessed the progress of establishing the rate setting process; provided a comparison of Maryland Medicaid's reimbursement rates with the rates of other states and Medicare; addressed the schedule for bringing Maryland's reimbursement rates to a level that assures provider participation in the Medicaid program; and discussed the estimated costs of implementing the schedule and proposed changes to the FFS reimbursement rates. As part of the preparation for this report, Hilltop projected the costs of increasing physician fees under Medicaid to 100 percent of those under Medicare.

Physician Fees: In addition to the analyses described above, in FY 2011, Hilltop consulted with and provided technical assistance to Deputy Secretary Folkemer in regard to increasing physician fees. Hilltop used average monthly Medicaid enrollment for FY 2004–FY 2006 (pre-Deficit Reduction Act implementation) as a guide for projecting Medicaid enrollment during the non-recessionary periods in FY 2013–FY 2015. This was the basis for a study Hilltop conducted to compare Medicaid primary care physician (PCP) rates for evaluation and management (E&M) procedures with Medicare and private insurer rates, as well as to estimate the costs of increasing Medicaid fees to 100 percent of Medicare fees and 100 percent of median private insurer rates. Hilltop developed a physician payment model, conducted the study, and drafted the memo that the Department sent to the Maryland Health and Government Operations Committee. In addition, Hilltop analyzed the reduction in FY 2012 physician fees to delineate the decreases in FFS from managed care organization (MCO) capitation payments, as well as to determine the reduction in the percentage of Medicare fees; composed an explanatory memo that the Department sent to this committee; and prepared the FY 2012 fee schedules.

Medicaid Expansion: In FY 2011, Hilltop continued to support the Department in its efforts to expand Medicaid eligibility to childless adults and uninsured children and their families, and to



expand the benefits in the PAC program. Hilltop analyzed a sample (provided by the Department) of 100 Medicaid enrollees to determine the eligibility (coverage) group and eligibility type that corresponded with the enrollees' dates of service, and any other coverage groups and coverage types these enrollees may have had before or after they enrolled in the Medicaid Expansion program. Hilltop analyzed enrollment in the Medicaid Expansion program by county and local access area for the months of October 2009 through July 2010 to determine the level of enrollee participation in the program. Hilltop also analyzed emergency department (ED) FFS claims and MCO encounters by hospital submitted to Medicaid between July 1, 2010, and May 31, 2011, to enable the Maryland Health Services Cost Review Commission (HSCRC) to adjust each Maryland hospital's uncompensated care fund accordingly. Each hospital was provided its data to allow it to reconcile the Medicaid income with the decrease in uncompensated care. In addition, Hilltop reviewed the HSCRC memo sent to hospitals for accuracy.

Visits to Hospitals: In FY 2011, Hilltop performed a number of analyses on hospital utilization. Hilltop analyzed the number of FFS claims and MCO encounters by hospital as identified by National Provider Identifiers (NPIs) during FY 2009. Hilltop analyzed the number of Medicaid hospital FFS and MCO encounters as a percentage of all hospital visits occurring in calendar year (CY) 2009. In addition, In FY 2011, Hilltop provided further explanation of the results of an FY 2010 analysis of hospital readmissions for the HSCRC in order to explain certain anomalies and suggest methods to resolve them.

Physician Specialty Analysis: In FY 2011, at the Department's request, Hilltop analyzed the specialty codes in FFS claims data where the provider type was classified as "physician" for FY 2010.

Studies on Medicaid Enrollees: In FY 2011, Hilltop performed a number of analyses on Medicaid enrollees. Hilltop analyzed the number of individuals who were enrolled in FFS Medicaid each month by coverage group in FYs 2007 through 2011 for the Department's project with MedSolutions. Hilltop also analyzed the cost and service utilization for FYs 2008 and 2009 of Medicaid FFS enrollees who were diagnosed with at least one of the following four conditions: 1) congestive heart failure (CHF), 2) chronic obstructive pulmonary disease (COPD), 3) sickle cell disease, and 4) symptomatic hypertensive atherosclerotic peripheral vascular disease (ASPVD). This analysis supported a cost-reduction project with GenoMed.

Enrollees with Hepatitis: At the request of the Department, Hilltop analyzed all Medicaid enrollees in FY 2005 through FY 2009 with hepatitis to delineate the number of enrollees with a diagnosis of hepatitis C; the number of enrollees with acute, chronic, and unspecified hepatitis C diagnoses; the number of enrollees aged 20 years and older as of the beginning of each fiscal



year who received a hepatitis A and/or B vaccination; the number of hepatitis A and B vaccinations given to enrollees aged 20 years and older; and the number of enrollees with a hepatitis C and an HIV or AIDS diagnosis. Hilltop stratified these data by sex/gender, age group, race/ethnicity, and county of residence.

Kids First Act: House Bill (HB) 1391, The Kids First Act (the Act), added §10-211.1 of the Tax-General Article (the statute) to the Annotated Code of Maryland effective July 1, 2008. The 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, 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 the Children’s Health Insurance Program (CHIP). In FY 2010, Hilltop analyzed the findings from this study, published them in an issue brief entitled *Using Information from Income Tax Forms to Target Medicaid and CHIP Outreach: Preliminary Results of the Maryland Kids First Act*, and disseminated findings nationwide.

Hilltop continued to disseminate the findings from the study in FY 2011. The project produced a second issue brief—this time published by Hilltop (co-authored by Hilltop and the Department)—entitled *Overcoming Interagency Data-Sharing Barriers: Lessons from the Maryland Kids First Act*, which discussed the issues the state encountered when trying to share data between the Department and the Comptroller. This brief garnered much attention nationally as other states struggled with similar issues and looked to Maryland as an example. Hilltop also presented the study findings at the AcademyHealth Annual Research Meeting.

Since the Act’s passage, Hilltop has monitored the Department’s outreach efforts. Although there has been an increase in enrollment of children into Medicaid and CHIP, it has been difficult to determine the cause of the increase—whether it was associated with the outreach effort, the economic crisis, and/or other factors. The state’s data-sharing issues hampered Hilltop’s efforts to evaluate the outreach strategy and effectively hampered the state’s efforts to evaluate whether the Act was achieving its desired goals. In FY 2010, Hilltop assisted the Department in its development of an effective strategy to eliminate impediments to achieving the goals of the Kids First tax-based outreach initiative. Since that time, the Maryland General Assembly has passed two laws that eliminate these impediments. As a result, the data necessary for Hilltop to study the outreach effort are expected to be made available in FY 2012. Hilltop secured an extension of the SHARE grant to enable the completion of the evaluation in FY 2012.



Rare and Expensive Case Management: The REM program serves persons with multiple and severe health care needs. In FY 2011, 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. In addition, Hilltop included other analyses of the REM population in its evaluation of the HealthChoice program, discussed in the next section.

Maternal and Child Health Block Grant: In FY 2011, Hilltop produced a report on Medicaid and the Maryland Children's Health Program (MCHP) enrollment and service utilization by pregnant women, infants, and children in CY 2010 to assist the Department in its application for the Maternal and Child Health Block Grant.

Residential Treatment Centers: In FY 2011, Hilltop performed a number of analyses on child Medicaid enrollees residing in residential treatment centers (RTCs). Hilltop analyzed services provided to children enrolled in RTCs during CY 2009 to determine the volume of non-mental health, non-RTC services provided to these children by service type, as well as the costs associated with the FFS claims for these enrollees. At the request of the Department, Hilltop later revised this analysis to include a list of the most frequently used laboratory procedure codes and to restrict the analysis to only include those services that occurred within the child's RTC eligibility span. Hilltop also performed an analysis of RTC providers that served children enrolled in Medicaid in CY 2009, the number of services provided by each RTC, the unique number of children served by each RTC, and whether the RTC was located in the state of Maryland.

Asthma Project: At the Department's request, Hilltop performed several analyses of child Medicaid enrollees residing in Baltimore City who received treatment for Asthma. Hilltop provided a dataset on all Medicaid children aged 0 through 18 years residing in Baltimore City who received treatment for asthma during CY 2007 through CY 2010. Hilltop then delineated these data by demographic information and summarized various types of utilization, as well as provided detailed claims-level information from the institutional, professional, and drug claims files. Hilltop also provided a subset of these data on 81 children in Baltimore City between January 1, 2007, and March 31, 2011 (person-level data containing demographic and enrollment information, as well as detailed claims-level information from the institutional, professional, and drug claims files). In addition, Hilltop conducted this same analysis for all Medicaid enrollees in Maryland for CY 2006 through CY 2010.

Baltimore City Enrollees: In FY 2011, Hilltop analyzed the number of children enrolled in MCHP, the number of individuals dually eligible for Medicare and Medicaid, and the number of all other non-dual enrollees by MCO and FFS enrollment status, as well as the total number of



Medicaid enrollees for certain Baltimore City zip codes for July 2009 through December 2010. The Department requested these data to share with the Berkeley Research Group.

Baltimore City School Lunch Program: In FY 2010, Hilltop began assisting the Department in its efforts to identify and enroll eligible Baltimore City children in Medicaid. Hilltop identified all children participating in the Baltimore City School Lunch Program who were not enrolled in Medicaid as of January 31, 2010. The Department then mailed letters to families whose children were enrolled in the school lunch program, notifying the families that their children might be eligible for Medicaid and encouraging them to apply.

In FY 2011, Hilltop performed a number of analyses to assist the Department in assessing whether the FY 2010 effort to identify and enroll eligible Baltimore City children in Medicaid had an effect on enrollment. Hilltop provided updates on the number of children who were eligible but still not enrolled; ascertained how many children who were not enrolled as of January 31, 2010, were enrolled as of June 30, 2010, November 30, 2010, and December 31, 2010; and analyzed the effectiveness of the mailing in increasing enrollment. In addition, for the children who received the mailing, Hilltop provided their monthly enrollment, previous enrollment, and coverage groups.

Medicaid Savings Joint Chairmen's Report (JCR): In FY 2011, Hilltop assisted the Department in its response to the 2010 JCR, which requires the Department to study and estimate the impact of various program changes—limitations on services, co-payments, and premiums—to Medical Assistance and CHIP and submit a report. Hilltop conducted the study collaboratively with the Department and produced the report. In addition, Hilltop produced an attachment to the report that described the methodology of the study in detail.

Children's Health Insurance Program Performance Bonus: In FY 2011, Hilltop performed two analyses to assist the Department in its application to the Centers for Medicare and Medicaid Services (CMS) for the CHIP performance bonus. Hilltop analyzed enrollment data to provide the number of children aged 0 through 20 years who were enrolled in either Medicaid or MCHP, as well as the number of children aged 0 through 20 years who were enrolled in Medicaid only, for state fiscal year (SFY) 2010 and federal fiscal year (FFY) 2010, and SFYs 2007 and 2010 and FFYs 2007 and 2010.

Habilitative Services: In FY 2011, the Department requested that Hilltop assist the Maryland Health Care Commission (MHCC) and Oliver Wyman Actuarial Consulting, Inc. in their response to a requirement from the Senate Finance Committee of the state of Maryland to examine the financial impact of Senate Bill 445 of the 2010 legislative session. Hilltop conducted an analysis of the cost of habilitative services for individuals aged 19 to 64 years and



19 to 24 years with specific conditions for CY 2006 through CY 2009. In addition, Hilltop provided a dataset for ages 19, 20, 21, 22, 23, and 24 for CY 2009 to examine the potential cost of a six-year phase-in of coverage for these individuals.

Undocumented Aliens: In FY 2011, Hilltop performed an analysis of the Medicaid X02 coverage group, which consists of undocumented or ineligible aliens, and their use of health care services in CY 2009. Hilltop analyzed the X02 coverage group by age group; most frequent diagnoses codes; average eligibility days; total expenditures for ED, inpatient, outpatient, professional, and other services; and average cost per enrollee. In addition, Hilltop conducted a cost analysis of the service utilization of this coverage group that analyzed: the number of enrollees by age group; total expenditures, number of enrollees, and number of visits for ED, inpatient, outpatient, and other services; total expenditures, number of enrollees, and number of visits for dialysis services; frequency of major diagnostic categories for *primary* diagnosis codes; and frequency of major diagnostic categories for *secondary* diagnosis codes. Hilltop also identified those Medicaid enrollees in the X02 coverage group who also appeared to be eligible for Medicare (Medicare-Medicaid enrollees) in CYs 2009 and 2010.

Trauma and Emergency Medical Fund: In FY 2011, Hilltop continued to calculate the reimbursement rates from the Trauma and Emergency Medical Fund on a monthly and annual basis.

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, about 130 Department staff members are registered to use the DSS. In FY 2011, Hilltop continued to make improvements to the DSS and provide technical assistance to Department staff using the system. Hilltop continued to offer training to the Department through CDs and online tutorials in addition to classes here at Hilltop. New user IDs were added as needed. Working with the Department, Hilltop identified new content areas to add to the DSS, increased functionality, and added new reports. The majority of new development was related to Medicaid waiver programs. The RTC Waiver was added to the Waivers application; the *Eye-on-Medicaid* application Waiver section was expanded to include the RTC, Medical Day Care, Community Pathways, and New Directions Waivers and to make FFS payments and the total number of waiver participants available for each waiver; and the local access area (LAA) was added as a “group by field” to the eligibility custom reports application.

In FY 2011, Hilltop used new software acquired in 2010 to plan for additional upgrades and enhancements to the DSS. The software, WebFocus by Information Builders, Inc. (IBI), is business intelligence software that allows for new features on the DSS that were not previously available. These applications were tested at Hilltop and are ready to be implemented on the Department’s production DSS server once approval is received. The most robust and flexible



application completed in FY 2011 is the Managed Reporting Environment (MRE) a user-friendly point and click graphical interface that has access to MMISII detail data; allows MMIS users without programming skills to create reports, graphs, and compound reports or dashboards; and can be modified to restrict the capabilities available to match the skills and experience of the user.

In FY 2011, Hilltop began converting the existing DSS applications to add new capabilities to give more depth and more options to custom reports. In addition, a new option from Webfocus became available that allows interactive standard reports and graphs to be output into a portable format to download from the DSS, or be distributed in another secure format, and run independently of the DSS data warehouse. This work will carry forward into FY 2012.



HealthChoice

Program Support, Evaluation, and Financial Analysis

In FY 2011, Hilltop continued its 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, and carrying out 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. In FY 2011, Hilltop conducted the annual HealthChoice §1115 Waiver evaluation, which was structured based on the HealthChoice program goals set forth by the Department in the following areas: coverage and access to care under HealthChoice; the extent to which HealthChoice provides a medical home and continuity of care; the quality of care delivered to enrollees; special topics, including dental services, mental health care, services provided to children in foster care, reproductive health services, the REM program, racial/ethnic disparities in utilization, and substance use services; and access and quality of care under the PAC program. Hilltop continued to perform in-depth analyses on such things as ambulatory service utilization by enrollees who also utilized the ED and provider network adequacy; integrated results from other standard HealthChoice reports, such as provider and Consumer Assessment of Healthcare Providers and Services (CAHPS) survey results; included benchmarks for measures where standardized national comparisons were available, such as Healthcare Effectiveness Data and Information Set (HEDIS) measures; and continued to take a substantial role in designing and drafting the report. The evaluation's increased depth and policy context allowed the Department to better demonstrate the program's achievements.

The major findings indicated that between CY 2005 and CY 2010, the HealthChoice population grew by 46 percent and increased by 73,306 individuals between July 2008 and March 2011; by CY 2010, approximately 14 percent of the state population was enrolled in HealthChoice. The percentage of enrollees receiving an ambulatory care visit steadily increased during the measurement period, with nearly 80 percent of enrollees receiving a visit in CY 2010. Child preventive HEDIS scores improved slightly in CY 2009, and Maryland performed above the HEDIS Medicaid national average across all five measures. Adult scores for both preventive care and chronic conditions also improved during the evaluation period. Dental service utilization by children enrolled in Medicaid improved substantially under HealthChoice, with an increase of 196 percent between CY 1997 and CY 2009. Access to prenatal care services improved during the study period, and Maryland outperformed the HEDIS Medicaid National Average. Results of



the CAHPS survey, which measures enrollee satisfaction, indicated that most enrollees report that they “usually” or “always” “receive needed care” and “receive needed care quickly.”

The evaluation of the PAC program was included in the HealthChoice evaluation. Hilltop analyzed enrollment and utilization data to determine participation levels and demographics of program participants, as well as to assess the program. Hilltop found that: PAC enrollment increased by 108 percent during the study period; ambulatory care and prescription utilization increased during the study period; and the percentage of enrollees accessing mental health services increased by 3.5 percentage points.

Hilltop’s more global approach to this evaluation, which began with the renewal application in FY 2010 and was framed around the Department’s goals for HealthChoice and using not only state but also national benchmarks, such as HEDIS data, provided the Department strong evidence that HealthChoice continues to be successful in achieving its stated goals related to coverage and access to care, providing a medical home to enrollees, and improving quality of care.

HealthChoice Financial Analysis: In FY 2011, Hilltop continued to produce detailed financial analyses, which 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. The methodology is continuously refined to accommodate program and policy changes. Hilltop subcontracted with Johns Hopkins for ongoing support in the development of the rate methodology and with Optumas to secure actuarial certification, which is required to obtain federal financial participation in HealthChoice. In FY 2011, the state paid \$2.9 billion in capitation payments to the seven MCOs participating in HealthChoice, providing insurance for more than 865,000 Medicaid beneficiaries. Hilltop continued to staff the Department’s MCO Rate Setting Committee, provide consultation to the MCOs, and support the HSCRC’s review of providers.

HealthChoice Financial Monitoring Report: Hilltop examined MCO performance on selected measures to better understand cost differences among MCOs and the impact of capitation rates on plan performance, and reported the findings to the Department. The report also compared the performance of provider-sponsored organizations (PSOs) to non-PSOs. In FY 2011, Hilltop analyzed specific variances in membership, premium income, and cost of medical care between CY 2007 and CY 2008. 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,



in FY 2011, Hilltop prepared a complete financial report package analyzing MCO underwriting performance.

Encounter Data Analysis: Hilltop prepared a report on the status of encounter data for analysis and rate setting activities, which described the history of the development of the methods used to analyze and set rates; examined various issues pertinent to the use of encounter data; and made recommendations to the Department on the use of encounter data in its rate setting activities.

PAC Program: Hilltop continued the development of a rate methodology for PAC benefits in FY 2011, basing rates solely on actual utilization and costs in the development of CY 2011 rates. Hilltop began maintaining quarterly PAC financial monitoring reports and reports to measure the variance between planned enrollment and capitation payments to results. During FY 2010, PAC benefits were expanded and rates were developed to cover hospital billed ED services, as well as additional substance abuse benefits. Plan-level risk scores were developed to incorporate the MCOs' acuity into the payment methodology. In FY 2011, CY 2012 PAC rates were under development to reflect regional resource difference between Baltimore City and the rest of the state.

MCO Review: In FY 2011, Hilltop performed a completeness review of an MCO application and assisted the Department in drafting its response to the MCO.

Behavioral Health Services: In FY 2011, Hilltop performed a number of special analyses as background to better understanding Medicaid beneficiaries' need for and utilization of mental health and substance abuse services. Hilltop summarized acute inpatient psychiatric lengths of stay that occurred for all persons enrolled one or more months in a HealthChoice MCO and compared them with the Uniformed Reporting System information collected and summarized by the Substance Abuse and Mental Health Services Administration (SAMHSA) for CY 2008. In FY 2011, Hilltop began providing the Department data on Buprenorphine utilization by Medicaid enrollees for StateStat meetings. To conduct the analysis, Hilltop identified all FFS, PAC, and HealthChoice managed care prescriptions with a generic name containing the word "Buprenorphine" or a Buprenorphine national drug code (NDC) number and a date of service occurring within each month spanning January 2010 through June 2011. Hilltop also identified the number of unique enrollees who filled these prescriptions within each month. Hilltop initially provided these data for the months spanning January 2010 through February 2011, and then provided updated monthly data at the end of each subsequent quarter (March 2011 and June 2011).

MCO Substance Abuse Treatment Costs: In 2009, the Maryland General Assembly enacted legislation effective January 1, 2010, that required HealthChoice and PAC MCOs to report to the



Department the number of enrollees provided substance abuse treatment services and the amount of money spent on substance abuse treatment. In FY 2011, the Department had collected two full years of data, and Hilltop conducted a number of analyses on MCO substance use disorder (SUD) expenditures. To assist the Department in better interpreting the analyses, Hilltop provided information on how it identifies outpatient SUD encounters submitted by MCOs for the Medicaid substance abuse cost reporting requirement. Hilltop conducted an analysis of outpatient SUD service expenditures made by MCOs for the period of July 1–December 31, 2009, expanding on the work it performed in FY 2010 that established a baseline for such expenditures. Hilltop analyzed the discrepancies between “provider charge” amounts (i.e., the amount the MCOs reported that their service provider charged them for each transaction), the MCO-reported pay amounts, and the Hilltop-calculated pay amounts and made recommendations on how to reduce those discrepancies. As follow-up to this analysis and questions from the Department about the “between year” expenditure trends evident from it, Hilltop conducted a brief review of enrollment and service counts by MCO in order to determine the extent to which they appeared to be correlated with the expenditure increases observed. Hilltop provided estimated projections of MCO SUD costs for the HealthChoice PAC program populations for FYs 2011 and 2012. In addition, Hilltop assisted the Department in responding to a request from the General Assembly and provided data on unpaid outpatient SUD MCO encounters for FYs 2009 and 2010 (July 1, 2008–June 30, 2010).

SUD Workgroup: In FY 2011, Hilltop continued to provide analytical assistance to the SUD Workgroup. Hilltop analyzed the following MCO payment reports to address the workgroup’s questions: full procedure code reporting (including combination codes) for all *outpatient* SUD transactions; age cluster (i.e., 12-18, 18-21, 22-64) reporting; regional cluster (Baltimore City, Eastern Shore, etc.) reporting; a “cross-walk” of old and new procedure codes relevant to this work; and two code notations—one on H0037 (community psychiatric supportive treatment program) and the other on H0015 (intensive outpatient).

Children in Foster Care: At the request of the Department, Hilltop compiled and provided a list of names and contact information of anyone who provided at least one of a specified list of services to foster care children between FY 2008 and FY 2010. In doing so, Hilltop helped the Department notify these providers that it would be changing the MCO billing procedures to require the MCOs to use a special modifier code so that non-participating providers could be reimbursed for services provided during initial foster care visits. In addition, Hilltop provided the MCO name and number associated with 66 providers who were not listed in Maryland’s Medicaid Management Information System (MMIS2) provider directory.



MCO Enrollment Compliance: In FY 2011, Hilltop performed an analysis to assist the Department in monitoring enrollment compliance of the MCOs. Hilltop analyzed MMIS2 data to find evidence that MCOs had initiated care delivery to newly assigned HealthChoice enrollees, within the timeframe and according to health indicators designated by the Code of Maryland Regulations (COMAR), including performing health risk assessments.

Dental Service Utilization: In FY 2011, to assist the Department in preparing its *Annual Report to the General Assembly on Dental Care Access in HealthChoice*, Hilltop analyzed dental service utilization by children aged 0 through 20 years in the REM program and in foster care for CY 2008. The analysis delineated: the percentage of children aged 0 through 20 years who were enrolled in HealthChoice for any period in CY 2009 who had at least one dental encounter or claim by age group; the percentage of children aged 0 through 20 years who were enrolled in HealthChoice for any period in CY 2009 who received a preventive/diagnostic dental visit followed by a restorative dental visit; the number of ED visits with any dental diagnosis or procedure made by children aged 0 through 20 years who were enrolled in HealthChoice for any period in CY 2009; the percentage of pregnant women aged 21 years and older enrolled in HealthChoice for any period in CY 2009 who received at least one dental encounter or claim; the percentage of pregnant women aged 14 years and older enrolled in HealthChoice for any period in CY 2009 who received at least one dental encounter or claim; the number of dentists billing one or more services to HealthChoice in CY 2009; and the number of dentists billing \$10,000 or more to HealthChoice in CY 2009. In addition, Hilltop analyzed the same factors for CY 2005 through CY 2009. Hilltop also analyzed these factors for children in the REM program and in foster care for CY 2005 through CY 2009. Hilltop followed up with an analysis of dentists billing \$10,000 or more to HealthChoice, broken out by county rather than by region as in the original study. At the Department's request, Hilltop conducted an analysis of enrollment and dental service utilization for children enrolled in Medicaid and MCHP in FY 2010, including the number of enrollees and information on Medicaid dental providers to assist the Department in providing this information for the Association of State and Territorial Dental Directors (ASTDD) State Synopsis Questionnaire 2010. Hilltop also analyzed the number of Maryland Eastern Shore Medicaid enrollees eligible for dental services, as well as the number of users of dental services, by age group and county of residence, in CY 2010.

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 its validity. Encounter data were used not only to evaluate access to care and network adequacy, but also 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. Annual reports focused on the identification of 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; cohorts by risk-adjusted category assignments; and comparison of 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. A major accomplishment in this validation process that occurred in CY 2006 was that default provider IDs would no longer be accepted in the institutional data, dental data, or professional data, thus increasing the amount of useful information on each encounter. In 2007, the Department began to receive encounters with NPIs. In addition, Hilltop began to analyze PAC encounter data. The reports concluded that the completeness and accuracy of encounter data continue to improve. Maryland continues to be recognized nationally for the completeness and quality of its encounter data. In FY 2011, Hilltop produced two encounter data validation reports—one on MCO encounters for CY 2009 and one on PAC encounters for CY 2009. At the request of the Department, Hilltop also provided the Delmarva Foundation with a random sample of HealthChoice encounter records from the hospital inpatient, outpatient, and physician services that occurred in CY 2009 for the purpose of describing the sample sizes and listing the data fields provided for validation.

Work Groups: In FY 2011, Hilltop staff participated with Department staff in monthly MCO Internal Work Group meetings, monthly MCO Liaison meetings, and semi-annual MCO Encounter Data Work Group meetings. In addition, Hilltop attended the Quality Assurance Liaison Committee meetings to keep abreast of Departmental activities and information pertinent to Hilltop's work.

Childhood Lead Reporting: Maryland law requires all lead tests performed on children aged 0 through 18 years to be reported to the Maryland Department of the Environment (MDE) Childhood Lead Registry (CLR). At the Department's request, Hilltop performs this task by utilizing 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 number and percentage of blood lead testing rates and elevated blood lead levels among them, and allows for the Department to report these rates to MDE quarterly. The results of the lead tests are then reported to the MCOs in order to facilitate their follow-up for children with high lead levels. Hilltop began this analysis and quarterly reporting process in the first quarter of FY 2009 and continued to produce these quarterly reports for the Department in FY 2011. In addition, Hilltop 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



sent to MDE, in addition to an annual list of lead tests identified in the Medicaid claims and encounter data that are not identified in the CLR in order to help MDE improve reporting performance and identify laboratories that fail to report lead tests.

Value-Based Purchasing (VBP): In FY 2011, Hilltop prepared the HealthChoice VBP targets for CY 2011. The targets for the seven existing VBP measures were based on the VBP results from CY 2009. Hilltop used the same formulas from CY 2010 to set the CY 2011 targets. Hilltop completed the ambulatory care measure among HealthChoice enrollees with disabilities; and compiled the data used to calculate the denominator and numerator for Amerigroup's preliminary run of the ambulatory care VBP measure for enrollees with disabilities. Hilltop also completed the lead VBP measure for CY 2009, which calculated the percentage of children aged 12 to 23 months who received a lead test during the calendar year *or the year prior to the calendar year*. (The bill date for the lead test must have occurred on or before June 18, 2010, in accordance with the Department's provisions for claims and encounter submissions).

Managing for Results (MFR): In FY 2011, Hilltop prepared annual asthma and diabetes MFR measures for CY 2009. For HealthChoice enrollees diagnosed with diabetes or asthma (in accordance with HEDIS enrollment and clinical criteria), Hilltop analyzed the number of avoidable hospital admissions for both conditions. Hilltop also prepared the CY 2008 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 2009. The measures were performed by county as well as by selected (high-risk) Baltimore City ZIP codes. Hilltop also prepared racial disparities MFR measures for CY 2005 through CY 2009 and found that access to care continued to increase for all racial categories during this period. Hilltop analyzed the birth weight of newborns in the HealthChoice program during CY 2008 and CY 2009. Analyses were conducted based on race/ethnicity and county. This analysis found that very low birth weight decreased during this period.



Long-Term Services and Supports

Program Development, Policy Analysis, and Financial Analytics

Hilltop supported the Department in the continued development of the MFP Demonstration Program; updated and enhanced the various waiver tracking systems; released a second series of chart books on Medicaid long-term services and supports (LTSS) in Maryland; provided consultation and support for the Long-Term Care (LTC) Payment Advisory Committee (PAC) and the LTC Reform Workgroup; and continued to build Hilltop's capacity to carry out research and policy analysis related to Medicare-Medicaid enrollees.

Money Follows the Person Program Development: Hilltop continued to assist the Department in the development and implementation of its statewide Medicaid MFP Demonstration. Enacted by the Deficit Reduction Act of 2005, the purpose of the MFP Demonstration is to assist states with rebalancing their LTSS systems by reducing institutional bias, while developing and enhancing home and community-based LTSS options for older adults and individuals with disabilities. In Maryland, MFP Medicaid enrollees transition from institutions—i.e., nursing facilities, intermediate care facilities for persons with mental retardation (ICFs/MR), also known as State Residential Centers (SRCs), institutions for mental disease (IMDs), and chronic hospitals—to the community as Medicaid waiver enrollees or state plan service recipients. In FY 2011, Hilltop participated in Stakeholders Advisory Group meetings that provided a forum for the Department's MFP staff to inform stakeholders of updates and programmatic changes and allowed stakeholders to give feedback on the Demonstration's progress. In addition, Hilltop estimated the number of transitions and average service costs for individuals transitioning to the community from RTCs so the Department could decide whether to include such individuals in the MFP population and for the enhanced MFP Medicaid match. During CMS's three-day site visit to Maryland to examine the state's progress with the MFP Demonstration, Hilltop hosted a meeting at UMBC that was attended by representatives from CMS, Mathematical Policy Research (the national MFP evaluator), and the Department to present the MFP tracking system, discuss the work being done to manage Minimum Data Set (MDS) Section Q referrals, and present MFP metrics.

MFP Metrics: In FY 2011, in order to measure the status and changes of Maryland's Medicaid LTSS over the course of the MFP program, Hilltop worked with the Department to develop a set of performance metrics for the program. Hilltop presented these metrics at four Stakeholders Advisory Group meetings. The set consisted of performance metrics for: institutional utilization and transitions, the institutional characteristics of transitioned individuals, the service use and cost of transitioned individuals, the Quality of Life survey responses, and a summary.



MFP Tracking System: Hilltop continued with the development of the *MFP Tracking System*, a web-based system used statewide to manage the MFP business processes. This system enables users to identify potential MFP enrollees, document person-centered pre-transition outreach and education, and maintain data on participant demographics and program participation. It is linked to the other waiver tracking systems (see below) so that MFP participant information only needs to be entered once. Operational tracking system modules include peer outreach, program education, application assistance, and transition case management, as well as a program management module developed for the Developmental Disabilities Administration (DDA) and a module to facilitate administration of the Quality of Life Survey (Baseline, Year One, and Year Two) required of all MFP participants by CMS. In FY 2011, Hilltop developed and implemented the housing assistance module, began developing an automatic import process for MDS referrals, developed a process to display MDS 3.0 data, added the ability to document and report on incompetency certifications, and developed several other reports as requested by the Department. In addition, Hilltop made several system security modifications, including moving the MFP system behind Hilltop's virtual private network (VPN), adding a HIPAA notification to be displayed every 90 days, updating the user management tool to give agency administrators the ability to better manage user accounts, and developing a process to require user passwords to be changed every 90 days. The tracking system imports monthly data updates of MFP-eligible individuals from Maryland's MMIS database. It also produces summary statistical and management reports for tracking system users, the Department, and CMS. Hilltop's tracking system development team convened twice-monthly development meetings with MFP staff throughout most of FY 2011. Development and refinement of the tracking system will continue into FY 2012. The most extensive modification in FY 2012 will be a modification to the peer outreach module to incorporate the new options counseling procedures.

MDS Assessment/MFP Tracking Integration: All U.S. nursing home residents are assessed using the MDS instrument at admission, discharge, quarterly evaluation, and with a significant change in health status. In *Section Q: Participation in Assessment and Goal Setting*, nursing home residents can indicate their desire to return to a community-based setting, and the nursing home is required by law to refer this individual to the state's designated "local contact agency" for community options counseling within "a reasonable amount of time." In FY 2011, Hilltop participated in a series of planning meetings with the Office of Health Care Quality and the Department to plan for the next iteration of MDS (3.0) implementation and data transfer, as well as to discuss options for complying with the Section Q requirement. A plan was formulated and Hilltop began the development of the integration of the nursing facility MDS data submission process with the MFP tracking system. The integration will be completed in FY 2012.



MFP Evaluation: Hilltop continued to produce semi-annual reports for CMS on the state's progress in achieving MFP benchmarks. 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. Files required by Mathematica for each MFP participant are: a finders file containing demographic and eligibility information; a participation data file, which holds more specific information on the participant than the finders file holds; and a service file with claims data.

Chart Books: In FY 2011, Hilltop released the 2009 series of chart books, entitled *Medicaid Long-Term Services and Supports in Maryland*, that summarize demographic, service utilization, and expenditure data for SFYs 2006 through 2009 for four Maryland Medicaid waiver programs—the Older Adults Waiver, the Living at Home Waiver, the Autism Waiver, and the Medical Day Care Services Waiver—and on NF utilization among Maryland Medicaid recipients. The chart books were modified from the previous year to better meet the needs of the Department. Hilltop continued to discuss content modifications with the Department based on its evolving needs and began planning the next series of chart books.

interRAI Assessment Tool: In FY 2011, the Department sought a tool to assess individuals' needs for LTSS that was more efficient to administer, had been validated, and could be used for all populations and for prioritizing the state's waiver interest list; that drove plan of care development; and that facilitated monitoring and analysis across populations, programs, and data sets. Hilltop provided research, consultation, and technical assistance to the Department throughout this process. Hilltop researched other states' experience with the interRAI assessment tool, discussing how the assessment tool might be used in Maryland, advantages to such a tool, considerations for the state, and next steps. Hilltop also participated in meetings with Brant E. Fries, Ph.D., to discuss the tool and its suitability as an assessment instrument for Maryland and drafted a report on lessons learned.

LTC Eligibility Application: In FY 2011, the Department requested that Hilltop assist with the development of an LTC eligibility application. Hilltop consulted with Department staff on the design and content and designed the application and redetermination forms.

Waiver Tracking Systems: In FY 2011, Hilltop supported, maintained, and provided ongoing system modifications to the *Older Adults Waiver (OAW) Tracking System*. The OAW Tracking System is used by the Department, the Department of Eligibility and Waiver Services (DEWS), Delmarva, all county Area Agencies on Aging, and Adult Evaluation and Review Services (AERS) agencies to process approximately 200 applications each month and maintain information on approximately 3,170 individuals enrolled in the OAW. This web-based system,



developed by Hilltop, tracks the flow of OAW applications, increasing agency efficiency, reducing application processing time, and providing real-time access to information on waiver applicants, as well as providing increased state oversight. Hilltop also continued to support, maintain, and provide ongoing system modifications for the *Living at Home (LAH) Waiver Tracking System* that is used by the Department, DEWS, AERS, Delmarva, and The Coordinating Center. The LAH Waiver Tracking System processes approximately 55 applications per month and maintains information on approximately 600 individuals enrolled in the LAH Waiver. The LAH Waiver Tracking System has features similar to the OAW Tracking System but provides additional decision support functionality for enrollment and development of the plan of service and includes an electronic AERS plan of care. In FY 2011, several system modifications were developed, including modifying both tracking systems to change the utilization control agency from KePro to Delmarva. The LAH Waiver system was modified to include: the increased community service (ICS) program; a process to include direct REM referrals; updated DEWS processes that no longer require financial determination for specific eligibility codes; and several new DEWS reports. In addition, several system security modifications were made, including: moving the OAW and LAH Waiver systems behind Hilltop's VPN; adding a HIPAA notification to be displayed every 90 days; updating the user management tool to give agency administrators the ability to better manage user accounts; and developing a process to require user passwords to be changed every 90 days.

Quality Care Review (QCR) Tracking System: In FY 2011, Hilltop supported, maintained, and provided ongoing system modifications for the *QCR Tracking System*. This system generates a list of potential OAW or LAH Waiver participant quality reviews, imports data from either the OAW or LAH Waiver Tracking System, and allows the Quality Review Team to evaluate and document the quality of services received by waiver participants. When applicable, the system generates reports that are distributed to the Maryland Department of Aging, the case manager, and the participant's assisted living facility. In FY 2011, Hilltop and implemented the tool on the QCR test site. The IRR tool gives all reviewers the chance to review the same record, which ensures consistency across reviewers. It is available via the QCR test site to allow the Department to keep separate the standard QCR reviews from the reviews selected specifically for the IRR study. In addition, in FY 2011, Hilltop worked extensively with the QCR team to finalize the Autism Waiver worksheet and instruction manual. Hilltop made several system security modifications in FY 2011, including: moving the QCR system behind Hilltop's VPN; adding a HIPAA notification to be displayed every 90 days; updating the user management tool to give agency administrators the ability to better manage user accounts; and developing a process to require user passwords to be changed every 90 days. Hilltop will continue to support the QCR and QCR/IRR system in FY 2012. Proposed modifications for FY 2012 include



expanding the QCR tracking system to include the Autism worksheet and other Autism review specific forms, letters, and documentation.

Integration of the LTSS Tracking Systems: In FY 2011, Hilltop provided consultation to the Department on developing an integrated LTSS system that would include existing MFP, waiver, and QCR tracking systems and accommodate additional functionality in the future. This entailed: conducting a business process analysis of these systems to determine infrastructure sufficiency and address efficiency concerns related to the systems' continued development and expansion; visiting New Jersey to research their Harmony SAMS and Telesys applications; contacting other states to learn about other applications; exploring partnership options with software development experts; and forming a partnership agreement (a sub-contract) with FEI.

Waiver Reporting: In FY 2011, Hilltop produced a number of waiver reports for the Department. Hilltop analyzed the OAW and LAH Waiver Interest List data to determine the number of individuals currently receiving Medicaid services who had a Medicaid-paid nursing facility stay, were enrolled in a Medicaid HCBS waiver, were receiving Medicaid State Plan personal care services, and were receiving community Medicaid. Hilltop analyzed ambulatory care service utilization for enrollees receiving services through the two waiver programs (New Directions and Community Pathways) offered by the DDA for CYs 2008 and 2009.

OAW: In FY 2011, Hilltop conducted a number of analyses on OAW enrollees and applicants. Hilltop identified individuals who were participating in the OAW program but who were not enrolled in the Maryland Medicaid program. For individuals who were sent applications to participate in the OAW program, Hilltop analyzed the number of application recipients who were enrolled in Medicaid as of February 28, 2011; the number of application recipients with nursing home claims between July 1, 2010, and February 28, 2011; and the number of application recipients who were enrolled in a waiver program as of February 28, 2011.

Autism Waiver: In FY 2011, using the reporting mechanism it developed for the Department, Hilltop analyzed 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 all Autism Waiver services and for state plan services for the grey area population. Hilltop performed adjustments and updates to the reporting mechanism and produced the quarterly reports to support the Department's invoicing to MDSE. In addition, in order to assist the Department with a legislator's request, Hilltop identified the number of children enrolled in the Autism Waiver who were receiving Intensive Individual Support Services, as well as the number of grey area participants at one point in time (February 1, 2010).



StateStats: Hilltop produced monthly updates for Maryland’s StateStats website on cumulative enrollment from January 1, 2001, to July 31, 2010, for the OAW, LAH Waiver, and Autism Waiver.

CMS 372 Waiver Reports: In FY 2011, Hilltop produced the CMS 372 waiver reports for FY 2010. Hilltop produced reports for the OAW, the LAH Waiver, the Traumatic Brain Injury Waiver, the Community Pathways Waiver, the Medical Day Care Waiver, the New Directions Waiver, the Autism Waiver, and the Model Waiver.

Refined Minimum Data Set Data: In FY 2011, Hilltop continued to develop and maintain refined MDS files to support a variety of administrative and research purposes. Hilltop refined MDS data now cover all nursing facility activity in the state from CY 1999 through SFY 2011. The Hilltop MDS refinement process involves extensive review of MDS resident identification information over time, including matching to associate Medicaid ID numbers, which are not dependably reported in the data; refining the data to account for factors that complicate making associations across records, such as begin and end dates and duplicate records; and then “rolling-up” refined assessment data into length-of-stay records that reflect discrete periods of care. The refinement process also involves assigning resource utilization group (RUG) categories based on MDS data that are used to examine patterns of relative resource risk associated with nursing facility care. For example, county-level RUG distributions are used to support the annual assessment of Upper Payment Limit calculations required by CMS to justify Medicaid payment rates to nursing facilities. The initial steps involved in the refinement process are now implemented on a monthly basis.

Other specific analyses provided to the Department covered issues such as patterns of payment source, admissions, utilization, and length of stay of nursing facility residents, including ongoing monitoring of the nursing facility resident population related to the MFP program. The data also continue to be used to support the Department’s wider efforts to examine and review LTSS payments under Medicaid, such as analyses that supported the now on-going consideration of how RUG assignments and associated relative risk might be used as an alternative to Maryland’s current relative risk adjustment approach. Considerable efforts has been devoted this year to updating the MDS refinement process to reflect changes to both the standard MDS assessment form (MDS 3 replaced MDS 2 as of October 1, 2010) and the RUG system (RUG 4 replaced RUG 3 at the same time the new MDS format was introduced).

Medicare-Medicaid Enrollees: Hilltop continued to develop linked Medicare and Medicaid claims data as a resource for analytical purposes designed to better understand the characteristics and needs of Maryland’s Medicare-Medicaid enrollees, formerly called “dual eligibles”—individuals eligible for both Medicare and Medicaid. These linked data, along with other state



and federal data sources, were used, for example, to explore how coverage by both Medicare and Medicaid impacts the utilization, delivery, and costs of services. Together, these files provided a vast resource for program and policy research, enabling Hilltop to track demographic, diagnostic, and utilization patterns over time and across settings and payers. Among other activities, two additional years of data have been assimilated into the analysis files, which now reflect linked data through CY 2009.

Nursing Home and PACE Rate Setting: In FY 2011, Hilltop continued to develop Medicaid reimbursement rates for Maryland nursing homes and PACE. Hilltop provided analyses of rate setting logic as needed, calculated the Medicare upper payment, evaluated alternative models, and trained departmental staff. In addition, Hilltop continued to facilitate the electronic submission of cost reports by nursing home providers.

LTC Reform Workgroup: Pursuant to HB 113 of 2009, which requires the Department to report to the legislature on the feasibility of creating a coordinated care program to reform the provision of Medicaid LTSS, the Department convened the LTC Reform Workgroup. In FY 2011, Hilltop continued to provide staff support and technical assistance for and participated in meetings of the workgroup.

LTC Payment Advisory Committee (PAC): SB 664 of 2009 required the Department to assess the state's reimbursement methodologies for nursing facilities and community-based services. To accomplish this, the Department convened the LTC PAC. In FY 2011, Hilltop participated in the LTC PAC and reviewed the draft of the report that was presented to the legislature.

SAMHSA Request: In FY 2011, Hilltop assisted the Department in responding to a request from SAMHSA regarding the number of children in Maryland residential treatment facilities who were enrolled in Medicaid.

FFS Population Breakdown: In FY 2011, Hilltop analyzed the Medicaid FFS population to determine the percentage of individuals who were receiving Medicare, were on Medicaid spend-down, were undocumented aliens, and were in nursing facilities.

LTSS Rebalancing Strategy: Per the Department's request, Hilltop provided consultation on the design and content of a presentation for the Deputy Secretary of Health Care Financing on an LTSS rebalancing strategy.

Community First Choice: In FY 2011, Hilltop conducted an analysis of persons transitioning from nursing facilities to State Plan personal care and their utilization of transition services to



assist the Department's planning activities related to Community First Choice, a new state plan option under the Affordable Care Act.



Data Management and Web-Accessible Databases

For research and data analysis, Hilltop uses MMIS2 and other data acquired under data use agreements with CMS and other state and federal agencies. Hilltop has considerable expertise in website development and information architecture; web reporting, query, and tracking systems; and web-based surveys.

Uniform Cost Report (UCR) Website: In FY 2011, Hilltop deactivated the UCR website per the Department's request. Prior to deactivating the website, Hilltop updated selected schedules by adding new columns and updated the import process to handle these changes.

MCO Reporting: In FY 2011, Hilltop continued the refinement of the MCO reporting site with reporting on both MCO and PAC usage, which included counts of enrollees and received encounters, as well as analysis of service counts. Hilltop calculated MCO inpatient kick payments. Hilltop also provided reference materials on procedure codes, fatal error codes, the HIPAA journal, the FQHC site, and MCO date-of-service charts.

PAC Reporting: In FY 2011, Hilltop continued the development and refinement of the PAC reporting site provided under the MCO reporting system. Development continued for both usage and service reports by calendar year as well as by fiscal year.

National Provider Identifier: The NPI is a standard, unique identifier for covered health care providers, health plans, and health care clearinghouses. NPI use was adopted under HIPAA for all electronic administrative and financial transactions. The Department required the inclusion of NPIs on Maryland Medicaid claims and HealthChoice encounters by July 1, 2008. Hilltop has been receiving claims and encounter data with NPIs since that time.

MyMedicaid: In FY 2011, Hilltop designed and implemented an online system called *MyMedicaid* for REM enrollees with Spina Bifida. With this system, enrollees or family members can access their MMIS2 claims data through a secure, password-protected web portal maintained by Hilltop. These data can be viewed and/or saved to the user's computer as a PDF document or a spreadsheet, uploaded as an attachment, or entered into a personal health record (PHR) maintained by the REM enrollee.

Maryland Databases Maintained by Hilltop

Maryland Medicaid Data: Hilltop continued to maintain Maryland Medicaid data from as far back as 1991 and receive data electronically from the Department on a monthly basis. Included in the data transmissions were FFS claims (medical, institutional, and pharmacy), MMIS eligibility, encounters (HCFA, Pharmacy, and UB92), and PAC data. Hilltop continued to



receive and update provider data quarterly. Hilltop processes 10 million Medicaid records each month, creating yearly databases in excess of 100 million records. The FFS database is the largest, with over 500 variables and more than 30 million records processed annually.

HSCRC Data: Hilltop continued to maintain hospital inpatient and outpatient HSCRC data from 1996 through 2010. These data were used for HealthChoice analyses; case counts and cost studies; analyses by diagnosis related group (DRG), and studies on nursing home discharges, emergency room admissions, and hospital admissions.

Minimum Data Set: MDS assessments are federally mandated and completed for all residents of certified nursing homes, regardless of payment source. Hilltop continued to maintain MDS data from nursing homes in Maryland for all residents, regardless of payer. The MDS assessments contain resident identification, demographic data, information on the patient's physical and mental state, and activities of daily living (ADLs). Hilltop updates MDS data files on a monthly basis (see MDS Refinement in the Long-Term Services and Supports section of this report).

Linked Medicare and Medicaid Data: Hilltop's use of linked Medicare and Medicaid data on Maryland's Medicare-Medicaid enrollees to support Medicaid program research, especially related to the development of managed LTC for these enrollees, continued in FY 2011. These linked data currently cover CYs 2002 through 2009. Medicare Part D pharmacy data are included for 2006 and 2007.

Databases Developed and Maintained for the Department

Hilltop has developed a number of databases that it continued to maintain and update monthly for the Department, including, but not limited to: MCO Encounters, Capitation, and Claims; PAC Eligibility, Enrollment, and Encounters; 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), REM, and Waiver Tracking Systems.

EPSDT: In FY 2011, Hilltop rebuilt the EPSDT Healthy Kids Performance Improvement database, incorporated 13 new user requests, documented the modifications, and updated the user manual. Hilltop continued to resolve any system problems and provide guidance to the Department as needed. The database enables the program to determine whether providers are complying with program requirements and facilitates studies of inter-rater reliability. Throughout the year, Hilltop performed various extractions and reformatting of these data to assist both the Department and providers in assessing compliance.



REM: In FY 2011, Hilltop delivered a new REM system; added the Spanish language forms and letters; developed and delivered a final version of the updated user manual, updated the REM CMS import tool, and provided assistance and guidance to the Department when agencies submitted data in improper formats. Hilltop developed a detailed process to convert the data into a usable format. In addition, in FY 2011, Hilltop developed a process to transfer the REM system from Hilltop to the Department using Hilltop's secure FTP server. Several reports were developed during FY 2011 and ongoing guidance and assistance was provided to users.

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

Waiver Tracking Systems: In FY 2011, Hilltop continued to develop and maintain tracking systems for the Medicaid HCBS waivers. For a complete description of activities, see Waiver Tracking Systems in the Long-Term Services and Supports section of this report.

Immunization Registry: Hilltop continued to prepare and import immunization data for Medicaid beneficiaries to the Maryland Immunization Registry. Hilltop pulled 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 persons who had an immunization procedure. Hilltop updates this database annually.

Health Services Needs Information: In FY 2011, Hilltop continued working with the Department to clarify issues pertaining to HRA data and logic used to review overall compliance, as well as compliance with specific regulations and enrollment. In addition, Hilltop continued to produce quarterly reports.

Data Requests

Throughout FY 2011, Hilltop prepared hundreds of ad hoc data analyses and reports for the Department to support policy and financial analyses conducted not only by Hilltop, but also by the Department. Exhibit 1, below, lists just a few examples. Hilltop also responded to many external requests for Medicaid data (examples of which are listed in Exhibit 2 below).



Exhibit 1

Selected Ad Hoc Data Requests and Reports for the Department, FY 2011

- Provided the data for the annual HealthChoice evaluation.
- Provided data for the analysis of service utilization data for 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, which included cost, enrollment, and utilization data from FY 2008 – FY 2010.
- Performed the preliminary and final ambulatory care value-based purchasing (VBP) measures for enrollees with disabilities enrolled in HealthChoice for CY 2010.
- Performed the preliminary and final lead screening VBP measure for children enrolled in HealthChoice in CY 2010. Prepared the quarterly reports and data files on childhood lead testing and elevated blood lead for MDE's Lead Poisoning Grant.
- Provided FY 2011 monthly Buprenorphine prescription data for State Stat.
- Provided the following managing for results (MFR) data for CY 2010: lead testing, asthma and diabetes avoidable admissions, and ambulatory care racial disparities.
- Performed the quarterly Medicaid Expansion hospital reports for FY 2010 and FY 2011. Files were created for each Maryland hospital and were uploaded to their corresponding file transfer protocol (FTP) servers.
- Provided SUD data for FY 2009 and FY 2010. These data were sent to each MCO for the substance use disorder 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 (undocumented aliens) in CY 2009 and CY 2010.
- Provided data used in the analysis of children enrolled in the Baltimore City School Lunch Program who were not enrolled in Medicaid.
- Performed a data analysis on dental service utilization and dental disparities for children and pregnant women enrolled in HealthChoice and the Maryland Children's Health Program (MCHP).
- Provided DHMH and Delmarva with data used to identify the number of EPSDT recipients with childhood obesity. Assisted in resolving problems with the obesity and Healthy Kids datasets for CY 2007 and CY 2008.



Exhibit 1, continued
Selected Ad Hoc Data Requests and Reports for the Department, FY 2011

- Created a dataset on Medicaid enrollees who were diagnosed or treated for various respiratory conditions during CY 2006 through CY 2010.
- Provided a dataset with a random sample of enrollees for Delmarva's annual HealthChoice managed care encounter validation report.
- Performed an analysis of primary care providers in Baltimore City who serve Medicaid enrollees for the Maryland Community Health Resources Commission.
- Provided DHMH with Medicaid cost and service utilization data for beneficiaries with HIV/AIDS in CY 2010.
- Provided dental service utilization data for children aged one through six years for CYs 2009 and 2010 for the Advocates for Children and Youth, Inc.
- Performed data analysis of FY 2010 hospital visits for in-state and out-of-state hospitals by provider type.
- Performed the ongoing FY 2011 PAC ED services reports for DHMH and HSCRC. Files were created for each Maryland hospital and were delivered to them for analysis.
- Performed an analysis of the physician specialty field in the Medicaid FFS data.
- Provided datasets and a data dictionary for the Baltimore City Health Department on children enrolled in Medicaid residing in Baltimore City who received treatment for asthma during CY 2007 – CY 2010. Provided technical assistance to the Baltimore City Health Department in analyzing the data.
- Performed an analysis of the number of providers who served at least 200 children each year between FY 2005 and FY 2010.
- Conducted an analysis of individuals participating in the Older Adults Waiver (OAW) program who were not enrolled in Medicaid.
- Performed an analysis of ambulatory care service utilization by enrollees with HIV/AIDS during FY 2009 – 2010.
- Performed an analysis of Medicaid enrollment for Baltimore City and other specified zip codes for the Berkeley Research Group, as requested by DHMH.
- Produced data files on Medicaid children with asthma during CY 2006 to CY 2010, in response to a request from the Baltimore City Health Department.



Exhibit 1, continued
Selected Ad Hoc Data Requests and Reports for the Department, FY 2011

- Performed an analysis of dental service utilization and provider data to respond to the ASTDD survey.
- Assessed the quality of data received from ED Diversion Grant partners.
- Analyzed ambulatory care service utilization data for individuals enrolled in the Developmental Disability Administration waiver program.
- Performed the lead quarterly match and prepared the lead quarterly reports for the MDE Lead Poisoning grant. Generated county-based analysis of lead testing rates for children aged 12 to 23 months and 24 to 35 months.
- Provided Medicaid Expansion enrollment data by local access area and county for FY 2011.
- Provided data on setting, type of service, and prior coverage group for newly enrolled waiver participants prior to enrolling in the LAH, OAW, Autism, and MDC Waivers.
- Provided reports on number of unduplicated users and Medicaid expenditures for persons receiving Maryland Medicaid State Plan MDC services not enrolled in a waiver during the same fiscal year.
- Provided information on LOS for current Autism, LAH, OAW, and MDC participants.
- Provided reports on the types of Attendant Care provided for LAH waiver participants from FY 2006 to FY 2009.



Exhibit 2
Selected External Data Requests at the Request of the Department, FY 2011

- **Maryland WIC Program:** Provided Medicaid enrollment information for potentially WIC-eligible population which includes: pregnant women, post partum women up to six months after birth of child, breastfeeding women up to one year after birth of child, and children up to five years of age to Maryland WIC program to assist them in planning future locations of WIC clinics.
- **CAHPS®:** Provided data on adult and child Maryland Medical Assistance enrollees and primary care providers in the seven HealthChoice MCO networks for an annual study of consumer health plans.
- **Cancer Screening Rates:** Provided data to facilitate the calculation of colorectal cancer screening rates in the Maryland Medicaid population, and to assist in the identification of individuals who are not up to date with screening.
- **Buprenorphine Study:** Performed matching of Maryland state Medicaid data to the bSAS and SMART databases provided by Health Analytics in a study to determine if Buprenorphine is a cost-effective treatment for opioid dependence in Baltimore City.



IT Architecture and Platform

Hilltop is a business associate of the Department and therefore is required to follow the Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations regarding electronic security. To this end, Hilltop has implemented several initiatives designed to protect the data warehouse and provided tools that will allow Hilltop staff to move data and share protected health information (PHI) with their clients and peers in a secure fashion. A three-tiered electronic defense and surveillance system that protects against all known types of malware (viruses and other electronic attacks) has been implemented. Tier One is a firewall/IPS (intrusion prevention system) to protect 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 from a local server that distributes updates on virus definitions and operating system security patches.

Beginning in FY 2008, several additions to the infrastructure were added, most notably the SharePoint server and the VPN. SharePoint enabled Hilltop's business units to add external users to collaborative workgroup websites that offer discussion lists, document drop-boxes, task lists, calendars, and other features. The VPN allows for remote access for both work-at-home scenarios and disaster recovery operations, as well as for increasing protection of web-based applications that collect PHI. In FY 2011, Hilltop isolated WebFocus, the waiver tracking systems, and remote access from the Internet via the VPN.

Other additions to the Windows infrastructure included a new Storage Area Network (SAN), along with a high-speed tape backup unit. Hilltop's virtual infrastructure (VMWare) resides on the SAN and has become a solid production environment with several development and production servers located there, including the SharePoint server. In the web development area, Hilltop also added WebFocus servers intended 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 in order to isolate its mail and public web servers and reduce the probability of intrusions into the network.

In FY 2011, 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.



Selected Publications, Presentations, and Reports Produced to Fulfill the FY 2011 MOU

Note: the publications and presentations listed below are available on Hilltop's website at <http://www.hilltopinstitute.org/publications.cfm>.

1. *Report on the Maryland Medical Assistance Program and Maryland Children's Health Program—Reimbursement Rates*, January 2011.
2. Idala, D., Somerville, M., Spicer, L., Boddie-Willis, C., John, J., & Roddy, T. (2011, January). *Overcoming interagency data-sharing barriers: Lessons from the Maryland Kids First Act*. Baltimore, MD: The Hilltop Institute, UMBC.
3. *Maryland's Kids First Act: The Use of Tax Forms to Identify Medicaid/CHIP-Eligible Children*, presentation by David Idala at the AcademyHealth Annual Research Meeting, June 14, 2011 *Kids First Initiative – Interagency Data Sharing*, memo with Appendix A (draft legislative language), December 2, 2009.
4. *Medicaid Long-Term Services and Supports in Maryland: Money Follows the Person Metrics (institutional utilization and transitions)*, presentation to the MFP Stakeholders Advisory Group by Ian Stockwell, August 23, 2010.
5. *Medicaid Long-Term Services and Supports in Maryland: Money Follows the Person Metrics (institutional characteristics of transitioned individuals)*, presentation to the MFP Stakeholders Advisory Group by Ian Stockwell, August 23, 2010.
6. *Medicaid Long-Term Services and Supports in Maryland: Money Follows the Person Metrics (the service use and cost of transitioned individuals)*, presentation to the MFP Stakeholders Advisory Group by Ian Stockwell, August 23, 2010.
7. *Medicaid Long-Term Services and Supports in Maryland: Money Follows the Person Metrics (Quality of Life survey responses)*, presentation to the MFP Stakeholders Advisory Group by Ian Stockwell and Erica Reaves, January 4, 2011.
8. *Medicaid Long-Term Services and Supports in Maryland: Money Follows the Person Metrics (Summary)*, presentation to the MFP Stakeholders Advisory Group by Ian Stockwell and Erica Reaves, January 26, 2011.
9. *Medicaid Long-Term Supports and Services in Maryland: The Older Adults Waiver, A Chart Book*, December 3, 2010.
10. *Medicaid Long-Term Supports and Services in Maryland: The Living at Home Waiver, A Chart Book*, December 3, 2010.
11. *Medicaid Long-Term Supports and Services in Maryland: The Autism Waiver, A Chart Book*, December 3, 2010.
12. *Medicaid Long-Term Supports and Services in Maryland: Nursing Facilities, A Chart Book*, December 3, 2010.



13. *Medicaid Long-Term Supports and Services in Maryland: The Medical Day Care Services Waiver, A Chart Book*, December 3, 2010.
14. *Long-Term Care/Waiver Medical Assistance Application and Long-Term Care/Waiver Medical Assistance Redetermination Application*, May 20, 2011.





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