The Hilltop Institute

analysis to advance the health of vulnerable populations

Maryland Department of Health and Mental Hygiene
FY 2010 Memorandum of Understanding
Annual Report of Activities and Accomplishments

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UMBC

AN HONORS UNIVERSITY IN MARYLAND

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Highlights

The Hilltop Institute at UMBC

The Hilltop Institute at the University of Maryland, Baltimore County (UMBC) is a nationally recognized research organization for health policy, with a nationally renowned expertise in Medicaid. Hilltop provides the information its clients need to form evidence-based health policy decisions. Hilltop seeks to contribute to the broad understanding of how better to serve vulnerable populations.

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) 2010 MOU. Below are the highlights.

Medicaid: *Program Development and Policy Analysis*

- Prepared the ninth annual report for the Maryland Legislature on the Reimbursement Rates Fairness Act.
- 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 visits to clinics, non-emergency room (ER) hospital outpatient facilities, physicians, and nurse practitioners by all Medicaid enrollees in FYs 2008 and 2009.
- Developed an evaluation plan, including a methodology and research questions, and determined the required data elements for conducting an evaluation of the Baltimore Medical System (BMS) Emergency Department Diversion Project.
- Assisted the Department in its efforts to enroll children into Medicaid and the Children's Health Insurance Program (CHIP) by analyzing the cost of providing one to two months of presumptive eligibility to children aged 0 through 18 years; identified children who participated in the Baltimore City School Lunch Program but who were not enrolled in Medicaid; and provided cost estimates of adopting various performance measurements Maryland could use to comply with the CHIPRA Medicaid performance bonus requirements.
- Analyzed 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); published these findings 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.

- 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 by performing an analysis and making recommendations regarding different options that could be taken to overcome these impediments, including suggesting language that could be used to make legislative changes (which were incorporated into the 2009 Kids First Express Lane Eligibility Act) and language that could be used on state income tax forms.
- Analyzed the utilization of mammograms and Pap smear tests for women in Medicaid over the age of 19 years for calendar years (CYs) 2006 through 2009; provided data to the Department on women from a non-pregnancy (P)-track eligibility group of Medicaid between the ages of 19 and 50 years who were disenrolled in FY 2009; and estimated the cost of physician services provided to pregnant women in Medicaid by four family doctors (because there are no obstetricians) in Garrett County in FY 2008.
- Surveyed the literature to clarify states' approaches to selecting content priorities for their academic detailing programs.
- 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 2009 to assist the Department in its application for the Maternal and Child Health Block Grant.
- Provided recommendations for an algorithm to identify foster care-eligible children enrolled in Medicaid in Baltimore City who are medically fragile, have frequent hospitalizations, have chronic conditions that render them medically at-risk, or who otherwise might benefit most from additional case management services to be provided by Baltimore City Department of Social Services (DSS).

HealthChoice: *Program Support, Evaluation, and Monitoring*

- Prepared the HealthChoice §1115 Waiver renewal application, which must be completed every five years to continue the program. The renewal application included the annual evaluation of the program and 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 Primary Adult Care (PAC) program.
- Analyzed data and background and developed a presentation to assist the Department's Deputy Secretary for Health Care Financing in presenting information about promising

practices in Maryland to ameliorate racial disparities at the Office of Minority Health and Health Disparities Fifth Annual Health Disparities Conference.

- Assisted the Division of HealthChoice Management and Quality Assurance (DHCMQA) to comprehensively revise and update the HealthChoice Application Packet, and developed two manuals to assist the Department in reviewing managed care organization (MCO) qualifications.
- 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: establishing a baseline measure of outpatient substance use disorder service (OSUDS) expenditures made by MCOs and creating a list of PAC enrollees who received Alcohol and Drug Abuse Administration (ADAA) services to assist providers (e.g., clinics) in the major billing transition that took effect in January 2010 and was tied to the PAC benefits expansion that newly added OSUDS.
- Analyzed the number of days it took PAC enrollees to enroll into a PAC MCO; and analyzed Medicaid Management Information System 2 (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 REM program for CY 2007 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 children 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 2010 and added three new VBP measures.
- 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.
- Calculated an estimate of the capacity of the HealthChoice primary care provider (PCP) network to serve an additional 100,000 enrollees.
- Analyzed the birth weight of newborns in the HealthChoice program during CYs 2007 and 2008.

Long-Term Services and Supports: *Program Development and Policy Analysis*

- Continued to assist the Department in the development and implementation of its statewide Medicaid Money Follows the Person (MFP) Demonstration.
- Continued development of the *MFP Tracking System*, a web-based system used statewide to manage MFP business processes.
- Produced semi-annual reports for the Centers for Medicare and Medicaid Services (CMS) on the state's progress in achieving MFP benchmarks.
- Prepared MFP reporting files for submission and devised a system to facilitate ongoing quarterly reporting to the national MFP program evaluator.
- Continued to consult with the Department on the approach for a study of Medicaid beneficiaries with traumatic brain injuries who also have severe neurobehavioral issues.
- Changed the manner of reporting on the enrollment in and utilization of long-term services and supports (LTSS), significantly reprogrammed and expanded the Decision Support System (DSS) to facilitate the change, and released a new series of chart books entitled *Medicaid Long-Term Services and Supports in Maryland*, which summarize demographic, service utilization, and expenditure data for state fiscal years (SFYs) 2001 through 2008.
- Continued to assist the Department in planning for the expansion of its home and community-based services (HCBS) waivers by calculating: FY 2009 Autism Waiver expenditures by service; the number of individuals who, at any point in FY 2009, were both enrolled in the waiver and used a waiver service; expenditures for and users of self-employed personal care aides, respite, and attendant care; and Older Adults Waiver (OAW) and Living at Home (LAH) Waiver participants by service, expenditures by service, non-waiver expenditures, and enrolled "waiver days" for FY 2009.
- Worked with the Department to develop a reporting mechanism for the "grey area" population in the Autism Waiver.
- Identified trends and emerging best practices in comprehensive assessment for HCBS by conducting an analysis of assessment instruments from 13 states across the country.
- Maintained and modified waiver tracking systems by adding the reapplication process, developing several new reports, modifying all letters and forms, updating and correcting system errors, and incorporating additional MFP processes into the LAH Waiver tracking system..
- Continued to develop programming for production of CMS 372 reports for the OAW, LAH Waiver, Traumatic Brain Injury Waiver, Community Pathways Waiver, New Directions Waiver, Autism Waiver, and Model Waiver, and produced the FY 2009 reports for these waivers.
- Supported, maintained, and provided on-going system modifications for the QCR (Quality Care Review) Tracking System.

- Continued to develop refined long-term care (LTC) Minimum Data Set (MDS) files to support a variety of administrative research and began to prepare for impending changes to both the standard MDS assessment form and the Resource Utilization Group (RUG) system.
- Reported on individuals receiving an MDS assessment from January 1, 2005, through Hilltop's latest MDS update (September 2009) whose record indicated a history of mental retardation, mental illness, or developmental disability.
- Assisted the Department in the preparation of the House Bill (HB) 946 report in analyzing the number of nursing home residents who expressed a preference to return to the community.
- Continued to develop linked Medicare and Medicaid data to assist in the analysis of the needs of dual eligibles to explore how coverage by both Medicare and Medicaid impacts the utilization, delivery, and costs of services.
- Prepared three reports to disseminate the findings of the study to examine interactive effects of providing LTSS under Medicaid on Medicare and Medicaid resource use: *Examining Rate Setting for Medicaid Managed Long-Term Care* examined overall patterns of resource use, *Examining the Medicare Resource Use of Dually Eligible Medicaid Recipients* explored the relationships between Medicare and Medicaid resource use, and *Cross-Payer Effects on Medicare Resource Use: Lessons for Medicaid Administrators* presented lessons from the study in some detail and discussed their implications.
- Produced monthly updates for Maryland's StateStats website on cumulative HCBS waiver enrollment since January 2001.
- Provided staff support for, and participated in meetings of, the LTC Reform Workgroup and the LTC Payment Advisory Committee (PAC).

Medicaid Rate Setting: *Payment Development and Financial Monitoring*

- 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 2006 and 2007; 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 providing monthly reconciliation reports of the Medicaid payments for physician fee-for-service (FFS) claims submitted by University Physicians, Inc. (UPI) with services incurred prior to July 1, 2008.

- Continued the development of a rate methodology for benefits in the PAC program, as well as reimbursement rates for nursing homes, the Program for All-Inclusive Care for the Elderly (PACE), and the Trauma and Emergency Medical Fund.

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 2009.
- Maintained MDS data from nursing homes for all residents.
- Continued the development of the PAC reporting site.
- Continued to link Medicare and Medicaid data.
- Modified the Uniform Cost Report (UCR) website to allow nursing homes to use the system.
- Continued receiving claims and encounter data with National Provider Identifier (NPI) numbers and analyzed the impact on the accuracy of these data.
- Maintained and upgraded the EPSDT and REM databases, as well as the waiver tracking systems and the immunization registry.
- Improved the (DSS) by modifying ColdFusion and SAS; upgrading the hardware and memory in the server used for DSS processing, thus reducing the overall time needed for posting monthly and quarterly updates; increasing functionality; improving site navigation; and automating reportage.
- Updated the *Eye on Medicaid* site.
- 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).
- Added a new Storage Area Network (SAN) and WebFocus servers and began to focus on migrating Hilltop's data warehouse to a new hardware and software platform.

The Hilltop Institute at UMBC

The Hilltop Institute at the University of Maryland, Baltimore County (UMBC) is a nationally recognized research organization for health policy, with a renowned expertise in Medicaid. Hilltop provides the information its clients need to form evidence-based health policy and financing decisions. Hilltop seeks to contribute to the broad understanding of how better to serve vulnerable populations.

Mission

The Hilltop Institute works to advance the health and wellbeing of vulnerable populations through research and analysis.

Hilltop accomplishes its mission by:

- Analyzing federal state, and local health care policies to optimize access to services, quality of care, provider performance, and purchaser value
- Analyzing and recommending Medicaid payment rates
- Developing, implementing, and evaluating new delivery and financing models for publicly financed health systems, including preventive health, behavioral health, oral health, and long-term services and supports (LTSS)
- Designing and hosting state-of-the-art, interactive, web-based data management systems on Medicaid and other public health insurance programs in order to inform policymaking
- Assessing the health needs, health status, and health resources of communities through primary data collection and analysis

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 healthcare 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 healthcare 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 very special 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 still provides 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 Maryland's Medical Assistance Program (Medicaid) as that program expanded. Hilltop collaborated with the Department in the development of HealthChoice, Maryland's Medicaid mandatory 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 a 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) 2010 (July 1, 2009, through June 30, 2010) MOU.

Medicaid
Program Development and Policy Analysis

During FY 2010, 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 HB 70 – *Commissions, Programs and Reports – Revision* (Ch. 656 of the Acts of 2009), Hilltop prepared the ninth 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.

Medicaid Expansion: In FY 2010, 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 enrollment data at various times during the fiscal year to: estimate the number of childless adults who were newly enrolled in the Primary Adult Care (PAC) program in FY 2009 and the number of parents who were newly enrolled in Medicaid as a result of the expansion; and determine the level of enrollee participation in the program. Hilltop analyzed: enrollment in the Medicaid Expansion program by county and local access area; substance use service utilization by parents enrolled in the program during FY 2009; and the enrollment history of six enrollees to verify whether they were enrolled in Medicaid or Medicaid Expansion. Hilltop also estimated the run-out for claims and encounters by enrollees in the program for FY 2009 and costs of services provided to enrollees in the program to enable the Maryland Health Services Cost Review Commission (HSCRC) to adjust each Maryland hospital's uncompensated care fund accordingly. Finally, Hilltop provided recommendations to DHMH to make this process more efficient.

Visits to Physicians and Nurse Practitioners: In FY 2010, Hilltop analyzed the number of visits to clinics, non-emergency department (ED) hospital outpatient facilities, physicians, and nurse practitioners by all Medicaid enrollees in FYs 2008 and 2009. The cohort included individuals with any period of Medicaid enrollment during the fiscal year, including FFS enrollees, managed

care organization (MCO) enrollees, and PAC enrollees, but excluded children aged 0 through 20 years, pregnant women, and individuals dually eligible for Medicare and Medicaid.

Electronic Health Readiness: At the request of the Department, Hilltop identified non-hospital-based Medicaid providers who provided services to 100 or more adult enrollees during FY 2008 and FY 2009 so that the Department could administer a survey on provider electronic health readiness.

Emergency Department Diversion Project (EDDP): In FY 2010, the Department requested that Hilltop perform an evaluation of the EDDP. This project awarded grants to selected EDs to: reduce unnecessary ED use for non-emergency or avoidable conditions; improve access to primary care services and a medical home; and reduce the cost of care. In FY 2010, Hilltop developed an evaluation plan, which included a methodology and research questions, and determined the required data elements for conducting an evaluation of the Baltimore Medical System's (BMS's) EDDP.

Kids First Act: House Bill 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.

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. An assistant state attorney general's (AG's) informal opinion that federal law precludes the Comptroller's disclosure of tax return data to the Department, even with the taxpayer's consent, because such disclosure is not specifically authorized by state law, 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. To assist the Department in its development of an effective strategy to eliminate

impediments to achieving the goals of the Kids First tax-based outreach initiative, Hilltop analyzed the AG's opinion and made recommendations to the Department regarding different options it could take to overcome these barriers and language that could be used to make legislative changes. Hilltop's recommendations were incorporated into the Kids First Express Lane Eligibility Act passed by the Maryland General Assembly in the 2009 session. In addition, Hilltop provided different options for language that could be used on the state income tax form to grant permission for the Comptroller to share information.

CHIPRA: In FY 2010, Hilltop performed other studies to assist the Department in its efforts to enroll children into Medicaid and CHIP. Hilltop analyzed the cost of providing one to two months of presumptive eligibility to children aged 0 through 18 years, as part of the Children's Health Insurance Program Reauthorization Act (CHIPRA) bonus program, estimating these costs for children who were newly enrolled in a CHIPRA-eligible coverage group in FY 2008 and FY 2009. In addition, Hilltop identified children who participated in the Baltimore City School Lunch Program but who were not enrolled in Medicaid. Also at the request of the Department, Hilltop developed a methodology to estimate the cost of adopting various performance measurements that Maryland could use to comply with the CHIPRA Medicaid performance bonus requirements and provided the Department with the cost estimates for each measurement. In addition, Hilltop performed the analysis and collaborated with the Department to draft the report.

Services to Women: In FY 2010, Hilltop performed a number of analyses on services to women. Hilltop analyzed the utilization of mammograms and Pap smear tests for women in Medicaid over the age of 19 years for calendar years (CYs) 2006, 2007, and 2008. The cohort included women in Medicaid and women enrolled in the Medicaid Expansion program, broken down by the following age groups: 19 to 45 years old, and 46 years and older. A subsequent analysis included women who were enrolled in CY 2009. In addition, Hilltop provided data to the Department on women from a non-pregnancy (P)-track eligibility group of Medicaid between the ages of 19 and 50 years who were disenrolled in FY 2009. Hilltop also estimated the cost of physician services provided to pregnant women in Medicaid by four family doctors (because there are no obstetricians) in Garrett County in FY 2008.

Academic Detailing: In FY 2010, to follow up on a study conducted in FY 2009, Hilltop surveyed the literature to clarify states' approaches to selecting content priorities for their academic detailing (AD) programs. AD programs are established for a variety of reasons but generally prioritize a target population based on age, gender, or geographic location; drug/drug class; disease entity; or a combination of these factors.

Rare and Expensive Case Management (REM): The REM program serves persons with multiple and severe healthcare needs. In FY 2010, 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, in FY 2010, 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 2010, 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 2009 to assist the Department in its application for the Maternal and Child Health Block Grant.

Children in Foster Care: At the request of the Department, Hilltop provided recommendations for an algorithm to identify foster care-eligible children enrolled in Medicaid in Baltimore City who are medically fragile, have frequent hospitalizations, have chronic conditions that render them medically at-risk, or who otherwise might benefit most from additional case management services to be provided by the Baltimore City Department of Social Services (DSS). The purpose of the DSS project was to reach each child in foster care through DSS case management as resources allow. Due to the structure of DSS case management services, Hilltop developed separate algorithms for identifying children based on somatic, behavioral, and psychiatric conditions. In FY 2010, Hilltop updated the report to include FY 2009 data.

HealthChoice
Program Support, Evaluation, and Monitoring

In FY 2010, 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, and carrying out special policy studies and analyses.

HealthChoice §1115 Waiver Renewal Application: As in previous years, Hilltop partnered with the Department to monitor and report on the performance of the HealthChoice program. In FY 2010, Hilltop prepared the HealthChoice §1115 Waiver renewal application, which must be completed every five years to continue the program. The renewal application included the annual evaluation of the program and 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. This year, Hilltop performed more in-depth analyses, such as looking at ambulatory service utilization by enrollees who also utilized the ED; 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 took a more substantial role in designing and drafting the report. These enhancements gave the evaluation more policy context than in previous years and allowed the Department to better demonstrate the program's achievements.

The major findings indicated that between CY 2004 and CY 2008, the HealthChoice population grew by nearly 32 percent and increased by 152,289 individuals; the greatest increase occurred after the beginning of the Medicaid expansion in July 2008; by CY 2009, nearly 80 percent of Medicaid enrollees were enrolled in managed care; and provider networks in each local access area, with a few exceptions, were more than adequate. Nearly 90 percent of enrollees who had an ED visit and 94 percent who had an inpatient admission in CY 2008 also received an ambulatory care visit, suggesting that these enrollees had access to care in an appropriate setting outside of the hospital and may explain, at least in part, why potentially avoidable ED visits and asthma- and diabetes-related acute care hospital stays decreased during the evaluation period. Child preventive HEDIS scores across all five measures improved between CY 2004 and CY 2008, 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 and exceeded the Medicaid national average. Ambulatory care visits increased from 69.8 percent in CY 2004 to 74.4 percent in CY 2008. Between CY 2004 and CY 2008, the annual average cost of Medicaid services per REM enrollee increased by 52.0 percent, and utilization of REM private duty nursing services increased by 53.6 percent. Substance abuse services were added to the PAC benefit package, and provider rates increased. CMS-required policy changes reduced enrollment in the family planning program, but the percentage of women utilizing family planning services remained at the same levels as previous years (between 25 and 28 percent). Hilltop assessed the performance of individual HealthChoice MCOs measuring dental services utilization of children aged 4 through 20 years and found that dental service utilization by children enrolled in Medicaid had improved substantially under HealthChoice, with utilization increasing 180 percent, from 19.9 percent in 1997 to 55.7 percent in 2008. Based on the CY 2008 CAHPS survey, which measures satisfaction, the majority of HealthChoice members are satisfied with their medical care services. In CY 2008, 74 percent stated that they were getting needed care—a 2 percent increase from CY 2006—and 82 percent of adult members responded that they were "usually" or "always" successful in "getting care quickly," which is higher than the CY 2008 national benchmark of 80 percent.

The evaluation of the PAC program was included in the HealthChoice renewal application. 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: overall enrollment increased 55.7 percent during the study period, from 31,028 enrollees in CY 2007 to 48,299 enrollees in CY 2009; ambulatory care service utilization increased across all racial/ethnic groups between CY 2007 and CY 2008; and the percentage of enrollees who accessed specialty mental health services increased in five of the six regions in Maryland in CY 2008. Because PAC is a new program with limited enrollment and service utilization measures, the data Hilltop analyzed during this evaluation will serve as the baseline for evaluating the PAC program going forward.

Hilltop's more global approach to this evaluation and renewal application, 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 has been successful in achieving its stated goals related to coverage and access to care, providing a medical home to enrollees, and improving quality of care.

Health Disparities: Hilltop analyzed data and background and developed a presentation to assist the Department's Deputy Secretary for Health Care Financing in presenting information about promising practices in Maryland to ameliorate racial disparities at the Office of Minority Health and Health Disparities Fifth Annual Health Disparities Conference.

MCO Reviews: In FY 2010, Hilltop assisted the Division of HealthChoice Management and Quality Assurance (DHCMQA) to comprehensively revise and update the HealthChoice Application Packet, a collection of Departmental guidances provided to health plans seeking to qualify to participate in the HealthChoice program as MCOs. Documents drafted and/or revised and delivered to the Department included: a letter explaining the MCO qualifications review process in response to a potential applicant's inquiry; a cover letter for the application packet; a HealthChoice application element locator; an overview of the HealthChoice program and introduction to the PAC program; a guidance on the MCO application process for PAC; an MCO application guidance subcontract and MCO application subcontract and benefits review; the HealthChoice MCO application guidance for special needs populations; and the MOU between an MCO and a local health department. Hilltop also performed a completeness review of an MCO application and developed two manuals to assist the Department in reviewing MCO qualifications: a guidance on HealthChoice and PAC qualification reviews and a handbook for MCO reviewers.

Behavioral Health Services: In FY 2010, 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. In order to assist the Department in establishing a baseline measure of outpatient substance use disorder service (OSUDS) expenditures made by MCOs, Hilltop prepared a list of such service encounters rendered through the HealthChoice program in FY 2009. Hilltop found discrepancies between expected and actual payments for these services and made recommendations to the Department on how to avoid these discrepancies in the future. Hilltop also calculated the aggregated and procedure-specific outpatient substance abuse service payments made by each of the MCOs in FY 2009 and the first half of FY 2010, and made recommendations about how to isolate such information on a semiannual basis moving forward. In addition, at the request of the Department, in a collaboration between Medicaid and Alcohol and Drug Abuse Administration (ADAA), Hilltop created a list of PAC enrollees who received ADAA services using ADAA records from FY 2009 and Medicaid enrollment records as of August 2009. The list was created specifically to assist providers (e.g., clinics) in the major billing transition, which took effect in January 2010 and was tied to the PAC benefits expansion that newly added OSUDS. The final list was stratified by provider and then disseminated in separated files to individual providers to help them prepare for the anticipated billing changes. Hilltop prepared the files and drafted the cover letter accompanying those transmittals.

MCO Enrollment Compliance: In FY 2010, Hilltop performed two analyses to assist the Department in monitoring enrollment compliance by the MCOs. Hilltop analyzed the number of days it took PAC enrollees to enroll into a PAC MCO. Hilltop also analyzed Medicaid Management Information System 2 (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 2010, 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, by age group, who received at least one dental service while enrolled in the REM program in CY 2008; the percentage of children aged 0 through 3 years, by age, who received at least one dental service while enrolled in the REM program in CY 2008; the percentage of children aged 0 through 20 years who received at least one dental service while enrolled in the REM program in CY 2008, by geographic region; dental expenditures by region for children aged 0 through 20 years who were enrolled in the REM program for any period in CY 2008; the percentage of children in foster care aged 0 through 20 years, by age group, who had at least one dental encounter while enrolled in HealthChoice in CY 2008; the percentage of foster care children aged 0 through 3 years, by age, who had at least one dental encounter while enrolled in HealthChoice in CY 2008; the percentage of foster care children aged 0 through 20 years who had at least one dental encounter while enrolled in HealthChoice in CY 2008, by geographic region; and dental expenditures for foster care children aged 0 through 20 years who were enrolled in HealthChoice for any period in CY 2008, by geographic region.

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.), then calculated a ratio of services per enrollee; validated impatient encounters; and identified the use or overuse of default provider numbers for physician services. Annual reports focused on 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 National Provider Identifier (NPI) numbers. 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 2010, Hilltop produced two encounter data validation reports—one on MCO encounters for CY 2008 and one on PAC encounters for CY 2008. 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 2008 for the purpose of describing the sample sizes and listing the data fields provided for validation.

Work Groups: In FY 2010, 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.

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 request of the Department, Hilltop performs this task. To meet this responsibility, Hilltop utilizes 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. 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 2010. 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: In FY 2010, Hilltop prepared the HealthChoice value-based purchasing (VBP) targets for CY 2010. The targets for the seven existing VBP measures were based on the VBP results from CY 2006, and the targets for the three new VBP measures were based on CY 2006 HEDIS scores. Hilltop used the same formulas from CY 2009 to set the CY 2010 targets. Hilltop analyzed Maryland Physicians Care's (MPC's) ambulatory care VBP measure for children with disabilities. comparing the VBP measure that MPC calculated with the CY 2008 final VBP technical specifications; completed the ambulatory care measure among

HealthChoice enrollees with disabilities; and addressed an appeal from MPC disputing the specifications for the CY 2008 ambulatory care VBP measures for children with disabilities. Hilltop addressed an inquiry from Jai—indicating that Jai's HEDIS ambulatory care score was higher than its preliminary ambulatory care VBP score by explaining how the ambulatory care VBP numerator and denominator were calculated—and described the data that it provided to Jai. Through the Department's efforts to increase quality of care and improve program performance, the HealthChoice program has included a lead screening measure in its VBP initiative since the initiative's inception in 2002. In the absence of a HEDIS lead screening measure, Maryland developed its own measure. The primary data sources for this measure are Medicaid administrative data and data from the CLR maintained by MDE, discussed in the section above. In 2008, however, HEDIS established a new measure—lead screening in children—which calculates the percentage of children who have had one or more capillary or venous blood lead tests for lead poisoning by the time they are two years old. In FY 2010, Hilltop performed a preliminary analysis of 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*. Later in the year, Hilltop performed a final analysis of the lead measure, using the same program logic as the preliminary run, with the exception of the addition of a bill date restriction (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: In FY 2010, Hilltop prepared annual asthma and diabetes Managing for Results (MFR) measures for CY 2008. 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 2008. As requested by the Department, in FY 2010, these measures were revised to include blood lead tests occurring in the CY *or the year prior to the CY* and were changed to reflect revisions made to the lead VBP measure. The measures were performed by county as well as by selected Baltimore City ZIP codes. Hilltop also prepared racial disparities MFR measures for CY 2004 through CY 2008 and found that access to care continued to increase for all racial categories during this period.

Provider Network Capacity: At the request of the Department, Hilltop calculated an estimate of the capacity of the HealthChoice primary care provider (PCP) network to serve an additional 100,000 enrollees.

Newborns: At the request of the Department, Hilltop analyzed the birth weight of newborns in the HealthChoice program during CY 2007 and CY 2008. Analyses were conducted based on race/ethnicity and county.

Long-Term Services and Supports
Program Development and Policy Analysis

Hilltop provided support to the Department on the continued development of the Money Follows the Person (MFP) Demonstration Program; updated and enhanced the various waiver tracking systems; released a new series of chart books on Medicaid LTSS in Maryland; provided analysis and support for the Long-Term Care (LTC) Payment Advisory Committee (PAC) and the LTC Reform Workgroup; produced three reports on the interactive effects of providing LTSS under Medicaid on Medicare and Medicaid resource use; and continued to build Hilltop's capacity to carry out research and policy analysis related to dual eligibles.

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 LTC systems by reducing institutional bias, while developing and enhancing home and community-based LTC options for older adults and individuals with disabilities. In Maryland, MFP Medicaid enrollees transition from LTC institutions—i.e., nursing facilities (NFs), intermediate care facilities for persons with mentally 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 2010, 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 began analysis for estimating the number of transitions and average service costs for individuals transitioning to the community from residential treatment centers (RTCs) in order to consider including such individuals in the MFP population and for the enhanced MFP Medicaid match.

MFP Tracking System: Hilltop continued development of the *MFP Tracking System*, a web-based system used statewide to manage the MFP business processes. This web-based system enables users to identify potential MFP enrollees, document person-centered pre-transition efforts, and maintain participant demographic data and other pertinent personal information. It is linked to the other waiver tracking systems (see below) so that MFP participants can more easily make the transition to other waiver programs. 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 the Centers for Medicare and Medicaid Services (CMS). Most recently, the Peer Mentoring module was implemented, Pre-Admission

Screening and Resident Review (PASRR) data were incorporated, and several new reports were developed. Eventually, the system will also include a module for housing assistance and Minimum Data Set (MDS) 3.0 data. 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 FY 2010. Hands-on training was conducted for 52 Area Agency on Aging (AAA) case managers in July 2009 and 27 in August 2009. Eleven peer mentors were trained in November and 10 peer outreach workers were trained in December. As of June 30, 2010, the tracking system had 189 users. Development of the tracking system will continue into FY 2011.

MFP Evaluation: Hilltop produced semi-annual reports for CMS on the state's progress in achieving MFP benchmarks. 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. Hilltop consulted with Mathematica and Department programmers to develop algorithms for converting the files and devised a system to facilitate ongoing quarterly reporting to Mathematica.

Persons with Traumatic Brain Injuries: In FY 2010, Hilltop continued to consult with the Department on the approach for a study of Medicaid beneficiaries with brain injuries who also have severe neurobehavioral issues. Because of this population's multiple and severe needs, they are often institutionalized because there are no other viable options for care, yet many times the institutions are not equipped to care for them. Many of these individuals linger in acute care or chronic hospitals because there are no nursing homes that can accommodate them. Hilltop analyzed claims data to identify top spenders and users with these diagnoses.

Chart Books: In FY 2010, Hilltop changed the manner in which it reported on the enrollment in and utilization of LTSS. To preparing the reports, Hilltop significantly reprogrammed and expanded the Decision Support System (DSS) to facilitate the change to reporting by state fiscal year (SFY) and to include more data than was previously analyzed. In December 2009, Hilltop released a new series of chart books, entitled Medicaid *Long-Term Services and Supports in Maryland*, that summarized demographic, service utilization, and expenditure data for SFYs 2001 through 2008 on three Maryland Medicaid waiver programs—the Older Adults Waiver, the Living at Home Waiver, and the Autism Waiver—and on nursing facility utilization among

Maryland Medicaid recipients. To help the Department better plan for and demonstrate the accomplishments of these four programs, these chart books presented the data with significantly more depth that previously provided.

Waiver Tracking Systems: In FY 2010, Hilltop supported, maintained, and provided ongoing system modifications for the *Older Adults Waiver (OAW) Tracking System*. The OAW Tracking System is used by the Department, the Department of Eligibility and Waiver Services (DEWS), KePro, all county AAAs, and Adult Evaluation and Review Services (AERS) agencies to process approximately 230 applications each month and maintain information on approximately 3,177 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, KePro, and The Coordinating Center. The LAH Tracking System processes approximately 55 applications per month and maintains information on approximately 600 individuals enrolled in the LAH Waiver. The LAH Tracking System has features similar to the OAW Tracking System, providing additional decision-support functionality for enrollment and development of the plan of service, as well as including an electronic AERS plan of care. In FY 2010, Hilltop added the reapplication process, developed several new reports, modified all letters and forms, updated and corrected system errors, and incorporated additional MFP processes into the LAH Waiver tracking system.

CMS 372 Waiver Reports: In FY 2010, after assuming the task from the Department of producing the yearly CMS 372 reports, Hilltop worked extensively with the Department to develop SAS code so that Hilltop could produce these reports. Hilltop produced reports for the OAW, the LAH Waiver, the Traumatic Brain Injury Waiver, the Community Pathways Waiver, the New Directions Waiver, the Autism Waiver, and the Model Waiver.

Waiver Reporting: In FY 2010, Hilltop produced a number of waiver reports for the Department. Hilltop calculated FY 2009 Autism Waiver expenditures by service. In order to test level-of-effort for the Autism and Model Waivers, Hilltop produced a report on the number of individuals who, at any point in FY 2009, were both enrolled in the waiver and used a waiver service. Hilltop analyzed and reported expenditures for, and users of, self-employed personal care aides, respite, and attendant care. Hilltop also prepared a special report on OAW and LAH Waiver users by service, expenditures by service, non-waiver expenditures, and enrolled "waiver days" for FY 2009.

Autism Waiver: In FY 2010, Hilltop worked with the Department to develop a reporting mechanism for 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 developed a program to produce quarterly reports to support quarterly invoicing to MDSE, developed the report, and began preparing the reports.

Quality Care Reviews (QCRs): In FY 2010, Hilltop supported, maintained, and provided ongoing system modifications for the *QCR Tracking System*. The QCR 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 2010, Hilltop began working with the Department's QCR team to devise an inter-rater reliability study using the QCR system. This will give all reviewers the chance to review the same record to ensure consistency across reviewers.

Refined Minimum Data Set (MDS) Data: In FY 2010, Hilltop continued to develop and maintain refined LTC 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 1999 through SFY 2010. 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 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 NF care. For example, county-level RUG distributions were used to support the annual assessment of Upper Payment Limit calculations required by CMS to justify Medicaid payment rates to NFs. Other specific analyses provided to the Department covered issues such as patterns of payment source, admissions, utilization, and length of stay of NF residents, including ongoing monitoring of the NF 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 LTC payments under Medicaid, such as in a simulation of changes in average facility-level relative risk associated with RUG assignments that might be used as an alternative to Maryland's current relative risk adjustment approach. This year, Hilltop also began work to prepare for impending

changes to both the standard MDS assessment form (MDS 3 will be replacing MDS 2 as of October 1, 2010) and the RUG system (RUG 3 will be replaced with the RUG 4 system along with the implementation of the new MDS form).

MDS Assessments: In FY 2010, Hilltop produced a report containing information (i.e., nursing home name, date of assessment, name of individual, and other individual identifiers) on individuals receiving an MDS assessment from January 1, 2005, through Hilltop's latest MDS update (September 2009) whose record indicated a history of mental retardation, mental illness, or developmental disability.

House Bill (HB) 946: Hilltop helped the Department prepare for the annual HB 946 report by analyzing the number of NF residents who expressed a preference to return to the community. The analysis, which covered CY 2001 through CY 2009, found that the number of those who expressed this preference increased.

Dual Eligibles: 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 "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.

HCFO Grant: In FY 2010, Hilltop continued work on the Robert Wood Johnson Foundation Changes in Health Care Financing and Organization (HCFO) grant project. The purpose of the study was to examine interactive effects of providing LTSS under Medicaid on Medicare and Medicaid resource use. In FY 2010, Hilltop prepared three reports to disseminate the findings of the study. Hilltop produced a report that examined overall patterns of resource use in further detail than did the report produced in FY 2009, including the presentation and simulation of a rate setting system to cover the Medicaid portion of costs associated with coordinated care in an integrated Medicaid and Medicare environment. The relationship between risk adjustment based on CMS Hierarchical Condition Categories that is used to establish payments to Medicare Advantage plans and Medicaid resource use was also explored. The third report reflected an exploratory analysis of the relationships between Medicare and Medicaid resource use to address the question: Does providing Medicaid LTSS influence dually eligible Medicaid recipients' use of Medicare resources and, if so, how and to what extent? The fourth and final report of the grant project presented the following lessons from the study in some detail and discussed their implications: there is considerable value and potential in examining Medicare and Medicaid

resource use together to support better managed and/or coordinated care; and the nature and pattern of Medicaid resource use and costs for dually eligible recipients is significantly different from that for primary/acute care under Medicare in that, once an individual begins to use (Medicaid) support services, he or she will tend to continue to do so as part of a broader process of disablement rather than exhibit more episodic use of services. This has important implications for how Medicaid capitation rates are implemented for LTSS. There is clear evidence that Medicaid LTSS tend to offset Medicare resource use overall in ways that should be examined and accounted for in the consideration of Medicaid program payments, particularly as states move to more fully integrated payment scenarios for acute care and LTSS.

Comprehensive Assessments: In FY 2009, Hilltop identified trends and emerging best practices in comprehensive assessment for HCBS by conducting an analysis of assessment instruments from 13 states across the country. Instruments were analyzed based on six domains considered by experts to make an instrument comprehensive—physical health, mental health, functioning, social resources, economic resources, and physical environment. Hilltop published the report in FY 2010.

StateStats: Hilltop produced monthly updates for Maryland's StateStats website on cumulative enrollment from January 1, 2001, to July 30, 2009, for the OAW, LAH Waiver, and Autism Waiver.

LTC Reform Workgroup: Pursuant to HB 113 of 2009, which requires the Department to report to the legislature on the feasibility or creating a coordinated care program to reform the provision of LTC services under Medicaid, the Department convened the LTC Reform Workgroup. In FY 2010, Hilltop provided staff support for and participated in meetings of the workgroup. Hilltop developed a fact sheet that discussed Demographic Trends, Medicaid's role in providing LTSS, Medicaid HCBS waivers, Medicaid expenditures for LTSS, Medicaid NF services, total Medicaid expenditures for LTSS, and dual eligibles.

LTC Payment Advisory Committee (PAC): SB 664 of 2009 required the Department to assess the state's reimbursement methodologies for NFs and community-based services. To accomplish this, the Department convened the LTC PAC. In FY 2010, Hilltop participated in the LTC PAC and provided support to the group by conducting analyses and making presentations to inform the committee's work. Hilltop completed and submitted data tables presenting utilization and expenditure data on personal care, attendant care, assisted living, and medical day care services in the Maryland State Plan and Maryland's HCBS waivers. Presentations were made on NF payment policy, RUGs, and Medicaid rate setting methods. Hilltop also provided the committee with clarification on these methods. In addition, Hilltop conducted an analysis and prepared

handouts for the committee regarding the current rate structure for medical day care, assisted living, and personal care, as well as considerations for changes to the rate structures.

Medicaid Rate Setting
Payment Development and Financial Monitoring

In FY 2010, Hilltop developed capitation rates and monitored the finances for HealthChoice, PAC, nursing homes, the Program for All-Inclusive Care for the Elderly (PACE), and the Trauma and Emergency Medical Fund.

HealthChoice: In FY 2010, Hilltop continued to produce detailed financial analyses to assist 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 Mercer to secure actuarial certification, which is required to obtain federal financial participation in HealthChoice. In FY 2010, the state paid $2.4 billion in capitation payments to the seven MCOs participating in HealthChoice, providing insurance for more than 789,000 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. This report also compared the performance of provider-sponsored organizations (PSOs) to non-PSOs. In FY 2010, Hilltop analyzed specific variances in membership, premium income, and cost of medical care between CY 2006 and CY 2007. Hilltop prepared quarterly reports for the Department summarizing, for all MCOs, capitation payments and enrollment by major eligibility category and comparing the variance between planned payments and associated member months to actual results. In addition, in FY 2010, Hilltop prepared a complete financial report package analyzing MCO underwriting performance.

Monthly Reconciliation Reports: At the request of the Department, Hilltop continued providing monthly reconciliation reports of the Medicaid payments for physician FFS claims submitted by University Physicians, Inc. (UPI) with services incurred prior to July 1, 2008. The final UPI report requested by the Department was for billing month June 2010.

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 2010, basing rates on actual utilization and costs during the program's first two years. Hilltop began maintaining quarterly PAC financial monitoring reports and reports to measure the variance between planned enrollment and capitation payments against results. During FY 2010, PAC benefits were expanded and rates were developed to cover hospital-billed ED services and additional substance abuse benefits. Plan-level risk scores were developed to incorporate the MCO's acuity into the payment methodology.

Nursing Facility and PACE Rate Setting: In FY 2010, Hilltop continued to develop Medicaid reimbursement rates for Maryland nursing facilities and PACE. Hilltop provided analyses of rate setting logic as needed, calculated the Medicare upper payment, evaluated alternative models, and trained Department staff. In addition, Hilltop continued to facilitate the electronic submission of cost reports by nursing home providers.

Trauma and Emergency Medical Fund: In FY 2010, Hilltop continued to calculate the reimbursement rates from the Trauma and Emergency Medical Fund on a monthly and annual basis.

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 2010, Hilltop modified the UCR website because of specification changes and to allow NFs to use the system. Hilltop also uploaded a new version of the wage survey, recreated a print version of Schedule A that can be printed and signed; and updated the nursing home list.

PAC Reporting: In FY 2010, Hilltop continued the development and refinement of the PAC reporting site in the MCO reporting system.

National Provider Identifier (NPI): 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 NPI numbers since that time.

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 processed 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 2009. These data were used for HealthChoice analyses; case counts and cost studies; analyses by diagnostic related group (DRG), and studies on nursing home discharges, emergency room admissions, and hospital admissions.

Minimum Data Set (MDS): 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 dual eligibles to support Medicaid program research, especially related to the development of managed LTC for dual eligibles, continued in FY 2010. These linked data currently cover CYs 2002 through 2007. Medicare Part D pharmacy data for 2006 and 2007 were added in SFY 2010. In FY 2010, Hilltop staff worked with CMS representatives to update the state's data use agreement to include data for CYs 2008 through 2010. Work also continued under the Department's grant from the Robert Wood Johnson Foundation to look at interactive effects of Medicare and Medicaid services use, including the release of three substantial reports.

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 2010, Hilltop continued to maintain and add new features to this database for the Maryland Healthy Kids program. Hilltop also provided consultation to the Department to allow staff to install the EPSDT application on desktop and laptop/notebook computers. 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: Hilltop installed upgrades to the REM MIS database and REM reports database and fixed faulty installations of REM software at the Department in FY 2010. Hilltop also provided REM system training, data trouble-shooting, and guidance. Modifications were also made to enable the software to run with MS SQL Server 2005 and MS Access 2003. In addition, Hilltop assisted in the upgrade of the MS SQL server from versions 2000 to 2005 to revise the reporting functions in order to facilitate provider reporting. Additionally, Hilltop provided quarterly expenditure reports to the case management organizations.

Decision Support System (DSS): This system, password-protected and maintained for the exclusive use of the Department, provides easy access to data on Medicaid program eligibility, enrollment, service utilization, and payments. Currently, 130 Department staff members are registered to use the DSS. In FY 2010, 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. 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 waivers application on the DSS was redesigned to allow for fiscal year reporting, whereas previously it had only allowed calendar year reporting. This required modifications to SAS, ColdFusion, and SQL Server components of the update stream. At the request of the Department, data related to the Medical Day Care Waiver was incorporated into the DSS. Tabular and graphical data on this new waiver program (begun in July 2008) became available in the waivers application in FY 2010. Hilltop also upgraded the hardware and memory in the server used for DSS processing, thus reducing the overall time needed for posting monthly and quarterly updates. In FY 2010, Hilltop also added new software 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. Maryland's special software Enterprise License Agreement (ELA) with IBI allowed Hilltop to purchase the software at a discount as part of the statewide contract. The improvements to the DSS will occur in two distinct areas of development: stand-alone web applications (the type of environment now used on the DSS) and the Managed Reporting Environment (MRE), an open ad hoc reporting facility that allows users to create their own reports and graphs in a graphical user interface without the need of programming skills (which is now used at Hilltop). Hilltop met with the Department to discuss the possibility of incorporating the MRE into the DSS.

Maryland Medicaid eHealth Statistics: Hilltop continued to maintain Maryland Medicaid eHealth Statistic*s* (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 2010, 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

enrollees who had an immunization procedure during the period reported. These data provided demographic and other information on persons who had an immunization procedure. Hilltop updated this database semi-annually.

Health Services Needs Information: In FY 2010, 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 began producing quarterly reports in FY 2010.

Data Requests

Throughout FY 2010, 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 2009

- Breast and Cervical Cancer Screening analyses for women aged 19 years and older who were in the Medicaid program for cervical cancer screening, breast cancer screening, hysterectomy, bilateral mastectomy, and unilateral mastectomy.
- Visit Counts for all Medicaid eligible people, minus children 0-20, under FFS, MCO, and PAC.
- Under Medicaid Expansion Reconciliation, provided each hospital with the claims and encounters for enrollees in the Medicaid expansion program that were billed/paid between August 1, 2009, and December 31, 2009.
- Pulled Substance Abuse Transactions by each MCO for FY 2009.
- Analysis on monthly Medicaid enrollment counts for pregnant women and children.
- List of all claims/encounters for lead tests for children identified in the MMIS that could not be identified in the Childhood Lead Registry.
- Analysis on providers providing services to children in foster care within 30 days of the start of the E-track span, 60 days, 90 days, and more than 90 days.
- Ambulatory care racial disparities MFR data for CY 2009.
- Medicaid expansion enrollment data by local access area and county.
- Data pertaining to the number of individuals with any period of enrollment in the X01 coverage group (State-Funded Aliens - Children and Pregnant Women).
- Identification of children in the Baltimore school lunch program who are currently enrolled in Medicaid.
- Subsidized adoption program data analyses.
- Data by payment source FFS and MCO and place of service (e.g., office, home, inpatient, and outpatient) for FYs 2008 and 2009.
- Analyses to identify the number of EPSDT recipients with childhood obesity.
- Evaluated Medicaid and uninsured enrollees who were diverted from the ER. This project required merging MMIS data with HSCRC data in order to identify uninsured enrollees who were seen at certain ER sites in Montgomery and Baltimore Counties.

Exhibit 1, continued
Selected Ad Hoc Data Requests and Reports for the Department, FY 2009

- For the Medicaid Expansion program, produced data to send to the MCOs so that MCOs can price the encounters.
- Analysis of mammogram and pap tests to present the data by fiscal year.
- Development of Medicaid to Medicare hospital crosswalk.
- Analysis of a random sample of children who disenrolled from Medicaid/CHIP in FY 2009.
- Analyses on Medicaid hospital claims that did not match with HSCRC hospital claims.
- Analysis on count of people who transitioned into F02 and had been preciously enrolled in the Medicaid Expansion program (F98 U or F05 U).
- Analysis of service utilization data for enrollees who were in the Family Planning program.
- Analysis of data required to complete the annual Title V Block Grant Report.
- Analysis of data on Medicaid beneficiaries with a Hepatitis C diagnosis as well as those who received hepatitis A or B vaccinations in FYs 2005 through 2009.
- Analysis on racial and jurisdiction breakdown newborns in the HealthChoice program who are low birth weight compared to normal birth weight.
- Data analyses on a set of Medicaid participants, meeting colorectal cancer screening eligibility, over three different time periods.
- Analysis on REM per member per month trends for FY 2008.
- Analysis of differences in counts for PAC Eligibility and PAC Enrollment.
- Generated analyses on county-based analysis of lead testing rates for children aged 12 to 23 months and 24 to 35 months.
- Analyses on dental service utilization and dental disparities of children and pregnant women enrolled in HealthChoice, and children enrolled in MCHP.

Exhibit 2
Selected External Data Requests at the Request of the Department, FY 2010

- **Maryland Legislature-Dental Action Committee:** Medicaid data provided to support a study of dental service utilization.
- **CAHPS®:** 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. Data will also be used to identify individuals who are not up to date with screening.
- **Maryland Comptroller's Office:** Report on total HealthChoice eligibility of children aged 0-20 years and MCHP eligibility.

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 employees to move data and communicate 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 Virtual Private Network (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 device 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. Hilltop's WebFocus, waiver tracking systems, and remote access will soon be completely isolated 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.

Current work for 2010 and 2011 is focused on migrating Hilltop's data warehouse to a new hardware and software platform and providing further protection to Hilltop's infrastructure. This project is a necessary one, as the current platform reaches End-Of-Life (EOL) in January 2011. Additionally, Hilltop will be implementing 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.

Selected Publications, Presentations, and Reports Produced to Fulfill the FY 2010 MOU

Available at www.hilltopinstitute.org

1. *Report on the Maryland Medical Assistance Program and Maryland Children's Health Program—Reimbursement Rates,* January 2010.
2. Idala, D., Roddy, T., Milligan, C., Sommers, A., Boddie-Willis, C., Clark, A., & Dorn, S. (2009, September). *Using Information from Income Tax Forms to Target Medicaid and CHIP Outreach: Preliminary Results of the Maryland Kids First Act,* State Health Access Reform Evaluation. Minneapolis, MN: SHADAC.
3. *Maryland's Kids First Act: Using Tax Forms to Identify Medicaid/CHIP-Eligible Children,* PowerPoint presentation by David Idala at a national SHARE webinar, February 24, 2010.
4. *Academic Detailing: A Review of the Literature,* December 18, 2009.
5. *Medicaid Long-Term Supports and Services in Maryland: The Older Adults Waiver, A Chart Book,* December 14, 2009.
6. *Medicaid Long-Term Supports and Services in Maryland: The Living at Home Waiver, A Chart Book,* December 14, 2009.
7. *Long-Term Supports and Services in Maryland: The Autism Waiver, A Chart Book,* December 14, 2009.
8. *Medicaid Long-Term Supports and Services in Maryland: Nursing Facilities, A Chart Book,* December 14, 2009.
9. Tucker, A., & Johnson, K. (2009). *Examining Rate Setting for Medicaid Managed Long-Term Care.* Baltimore, MD: The Hilltop Institute, UMBC.
10. Tucker, A., Johnson, K., Huang, Y., & Brewer, T. (2010, January). *Examining the Medicare Resource Use of Dually Eligible Medicaid Recipients*. Baltimore, MD: The Hilltop Institute, UMBC.
11. Tucker, A., & Johnson, K. (2010, May). *Cross-Payer Effects on Medicare Resource Use: Lessons for Medicaid Administrators.* Baltimore, MD: The Hilltop Institute, UMBC.
12. Shirk, C. (2009). *Comprehensive Assessment in Home and Community-Based Services.* Baltimore, MD: The Hilltop Institute, UMBC.
13. *Maryland Medicaid Long-Term Services and Supports,* fact sheet, March 11, 2010.

14. *Nursing Facility Payment Policy: Comparing Maryland to Other States,* PowerPoint presentation by Chuck Milligan to the LTC PAC, September 2, 2009.

15. *Resource Utilization Groups (RUGs),* PowerPoint presentation by Tony Tucker to the LTC PAC, September 2, 2009.

16. *Medicaid Rate Setting Methods for Community Services in Selected States,* PowerPoint presentation by Harriet Komisar and Cynthia Woodcock to the LTC PAC, November 12, 2009.

17. *Discussion of Rate Methodology for Community-Based Services: Medical Day Care and Assisted Living,* handout for the LTC PAC meeting, March 1, 2010.

18. *Discussion of Rate Methodology for Community-Based Services: Personal Care,* handout for the LTC PAC meeting April 9, 2010.

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