The Hilltop Institute

analysis to advance the health of vulnerable populations

Health Home Program Quarterly Report

May 7, 2015

UMBC

AN HONORS UNIVERSITY IN MARYLAND

Health Home Program Quarterly Report

Table of Contents

Introduction

Maryland's Health Home program builds on statewide efforts to integrate somatic and behavioral health services, with the aim of improving health outcomes and reducing avoidable hospital utilization. The Maryland Office of Health Services submitted a Medicaid state plan amendment (SPA) that was approved by the Centers for Medicare & Medicaid Services (CMS) on September 29, 2013. Health Homes target populations with behavioral health needs who are at high risk for additional chronic conditions, offering them enhanced care coordination and support services from providers from whom they regularly receive care. The program is intended to provide an integrated model of care that coordinates primary, acute, behavioral health, and long-term services and supports for Medicaid enrollees with either a serious and persistent mental illness (SPMI) or an opioid substance use disorder (SUD) and risk of additional chronic conditions due to tobacco, alcohol, or other non-opioid substance use.[1]

Purpose

The purpose of this report is to provide a description of Medicaid enrollees' current participation in Maryland's Health Home program and their interactions with the health care system during the first five quarters of program implementation. The measures presented here were selected based on the original Maryland SPA application and quality measure recommendations published by CMS.[2] The measures were calculated using information Health Home providers entered into the eMedicaid care management data system, as well as data from the Maryland Medicaid Information System (MMIS2).

Data and Methodology

This report presents the following measures to describe Maryland's Health Home program from October 2013 through December 2014. The tables are categorized as follows:

- Participant characteristics
- Health home services
- Health care utilization and quality

[1] The Centers for Medicare & Medicaid Services. (2013, September). *Maryland Health Home state plan amendment*. Retrieved from http://www.medicaid.gov/state-resource-center/medicaid-state-technical-assistance/health-homes-technical-assistance/downloads/maryland-spa-13-15.pdf

[2] The Centers for Medicare & Medicaid Services. (2014, March). *Core set of health care quality measures for Medicaid Health Home programs*. http://www.medicaid.gov/State-Resource-Center/Medicaid-State-Technical-Assistance/Health-Homes-Technical-Assistance/Downloads/Health-home-core-set-manual.pdf

eMedicaid Measures

eMedicaid is a secure web-based portal that allows healthcare practitioners to enroll as a Medicaid provider, verify recipient eligibility, obtain payment information, and serve as a care management tracking tool for providers participating in Maryland's Health Home program. Within eMedicaid, providers enroll participants and report participant diagnoses, outcomes, and services received. The measures of participant characteristics and services provided in the tables below are calculated from data reported by Health Home providers into the eMedicaid care management system.

The measures reported from eMedicaid are based on Health Home provider's self-reported entries into the database. Providers are only required to use the eMedicaid tool to report a limited set of patient information, such as height, weight, and a participant's blood pressure rate. This limited obligation may be influencing the consistency and quality of data being entered in eMedicaid, which may affect any conclusions that can be drawn.

MMIS2 Measures

The health care utilization measures were calculated using MMIS2 claims and encounter data. MMIS2 data are updated monthly and routinely used for evaluating the performance of Medicaid programs. All of the data presented in this report reflect MMIS2 as of February 28, 2015. Typically, MMIS2 data are not considered complete until twelve months have passed for all claims and encounters to be resolved. Therefore, *all utilization measures based on MMIS2 data should be considered preliminary* and will be revised and updated in future reports. This will most significantly affect measures of health care utilization for the most recently occurring period of enrollees' participation in a Health Home. Because additional claims and encounters will be received in later updates to the MMIS2, the majority of these recent measures will increase during subsequent revisions. The data presented in the tables[3] may appear to suggest that health care utilization rates decrease the longer participants are enrolled. However, conclusions about trends cannot be drawn from these interim data. The effectiveness of the program will be analyzed in the final evaluation.

Enrollment

Intervention-Quarter Enrollment

Table 1 presents enrollment across the first five quarters of the program. The measures are calculated from data reported by Health Home providers into the eMedicaid care management

[3] Tables 1 and 2 are provided in this report. Because of their large size, Tables 3 through 21 are provided in the accompanying PDF file.

system. Table 1 shows the number of participants by quarter during the first 15 months of the program. Quarterly enrollment almost doubled during the program's first five quarters—from 2,224 participants in Quarter 1 to 4,112 participants in Quarter 5.

Table 1. Enrollment in Health Homes by Intervention Quarter

Quarter	Dates	Enrolled at Any Point in the Quarter	Enrolled For the Full Quarter	Percentage Enrolled for Full Quarter
Quarter 1	10/1/13 – 12/31/13	2,224	121	5.4%
Quarter 2	1/1/14 – 3/31/14	3,086	2,105	68.2%
Quarter 3	4/1/14 – 6/30/14	3,667	2,785	75.9%
Quarter 4	7/1/14 – 9/30/14	3,954	3,242	82.0%
Quarter 5	10/1/14 – 12/31/14	4,112	3,438	83.6%
Total Ever Enrolled		**4,809**		**83.3%**

Quarterly Enrollment

Table 2 presents Health Home participants by length of enrollment during the first 15 months of the program. The intervention-quarter categories described in the previous section are based on calendar months. The enrollment-quarter categories below are based on participants' unique date of enrollment into a Health Home. Instead of having a fixed period for all participants, the health care measures are calculated using each participant's enrollment date as a point of reference. This means that the quarters are not aligned with the calendar across participants. For example, if someone started on October 17, 2013, his or her first quarter measure would be for health care services received between October 17, 2013, and January 16, 2014; if someone started on March 1, 2014, his or her first quarter would be March 1, 2014, through May 31, 2014. The visits within each category are those at a similar length of time from their respective participant's enrollment date, not those at the same point in time.

Table 2 shows quarterly enrollment during the first 15 months of the Health Home program. As of December 31, 2014, 4,341 people were enrolled in a Health Home for at least one quarter. There were 366 participants who enrolled during the first quarter of program implementation and remained a participant for all five quarters.

Table 2. Enrollment in Health Homes by Intervention Quarter

Enrollment Length	Health Home Participants
At Least 3 Months	4,341
At Least 6 Months	3,860
At Least 9 Months	3,241
At Least 12 Months	2,351
At Least 15 Months	366

Participant Characteristics

The measures reported in this "Participant Characteristics" section are based on data reported in the eMedicaid database by Health Home providers. The corresponding data described below can be found in the PDF file titled "HH Quarterly Report Q1_Q5 Chartbook_Printable_Randomized_CellSuppressed." The data are based on participant enrollment at any point in the quarter.

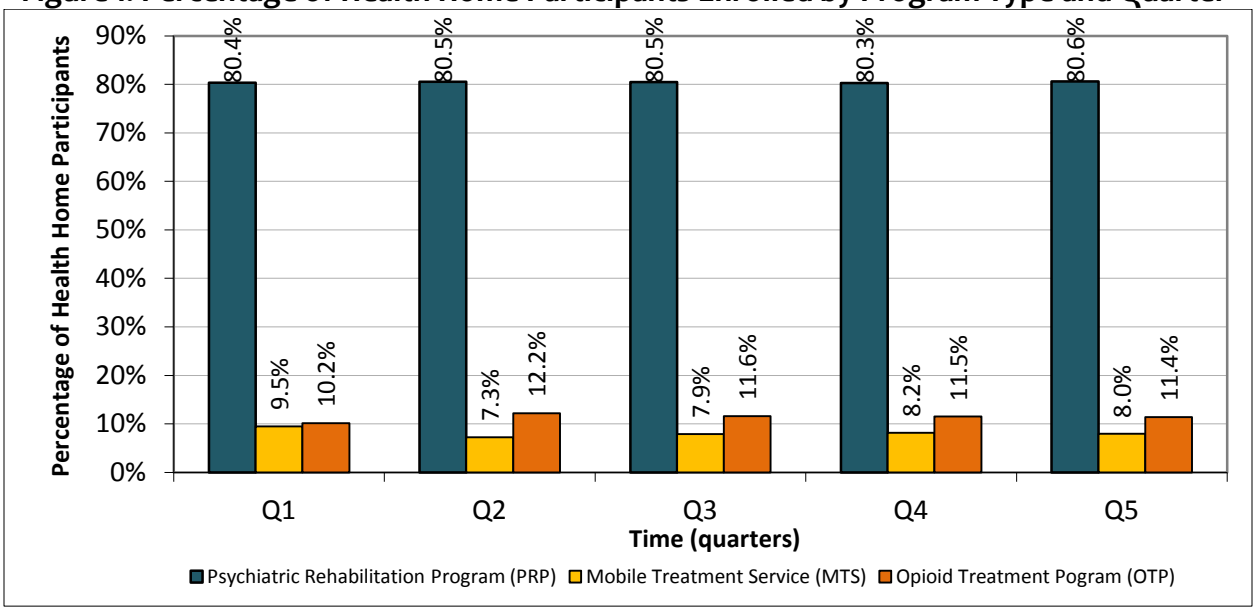
New Enrollment

Table 3 displays the percentage of Health Home participants who were newly enrolled during the quarter. As expected, the largest proportions of new enrollees per provider were during the initial quarters, and they decreased over time. However, providers were still enrolling new participants into the Health Homes program more than a year after they initially began registering participants.

Enrollees by Program

Table 4 presents the percentage of Health Home participants according to their program: either Psychiatric Rehabilitation Program (PRP), Mobile Treatment Service (MTS), or an Opioid Treatment Program (OTP). A consistent majority (80 to 81 percent) of enrollees were enrolled in PRP. There were 7 to 9 percent of enrollees in an MTS program, and 10 to 12 percent of enrollees in an OTP across all intervention quarters. Only 3 of the 31 providers offer care to enrollees across more than one program. Of the remaining providers, all of the Health Home participants are within the same program.

Figure 1. Percentage of Health Home Participants Enrolled by Program Type and Quarter



Enrollees with a Counselor

Table 5 presents the percentage of Health Home participants who have a counselor, by provider and quarter. The percentage of participants per counselor differs across providers and varies from 0 to 100 percent.

Enrollees with a Primary Care Provider

Table 6 presents the percentage of Health Home participants who have a primary care provider (PCP), by provider and quarter. A majority of participants report having a PCP, increasing from 61 percent in Quarter 1 to 68 percent in Quarter 5 across all providers. Two providers show that 100 percent of their participants have a PCP during all quarters in which they participate in the program. The majority of providers report that most of their participants have a PCP. However, a few providers show only a small percentage of their enrollees with a PCP.

Enrollees by Age Group

Table 7 presents the percentage of Health Home participants by age group, provider, and quarter. Across all quarters, 60 percent of the participants were aged 40 to 64 years, slightly more than a quarter were between the ages of 21 and 39 years, and nearly 9 percent of participants were children up to age 20 years. Only a few of the participating providers serve children under the

age of 15 years. Enrollment drops off steeply among those aged 65 years and over; this is likely because this population's medical service use is mainly covered by Medicare.[4]

Enrollees by Race

Table 8 presents the percentage of Health Home participants by race. The majority of the participants were Black (44.0 to 49.7 percent) or White (46.0 to 50.3 percent) across all intervention quarters. One particular provider reported that 99 percent of the participants enrolled were Black. Those who identified themselves as Asian, Native Hawaiian/Other Pacific Islander, or American Indian/Alaskan Native combined were a smaller proportion of the population than those who identified themselves as either "Other" or failed to note their race.

Enrollees by Gender

Table 9 shows that, across all five intervention quarters, more than half (54.7 to 55.6 percent) of Health Home participants were male. The proportion of female participants decreased slightly over time. Although a very small minority, the program does serve participants who identify as transgender.

Enrollees by Ethnicity

Table 10 shows that, across all five intervention quarters, less than 2 percent of Health Home participants identified as Hispanic. Providers with the largest proportion of Hispanics had 7 percent of their participants identify as Hispanics; between 32 and 45 percent of providers had no Hispanic participants during the quarter.

Enrollees by Primary Mental Health Condition (PRP and MTS Participants Only)

Table 11 presents Health Home participant selections for "Primary Mental Health Condition" upon intake[5] into the Health Home program. The table demonstrates that several providers entered more than one diagnosis as a participant's "primary" condition. As a result, complete and reconcilable proportions of conditions across providers cannot be calculated. The table shows that, across all five intervention quarters, approximately 30 percent of Health Home participants identified as having schizophrenia. The next two conditions with the largest proportions are

[4] For those individuals older than 65 years enrolled in both Health Homes and Medicare, we will report on their medical service utilization that are billed to Medicaid.

[5] Primary Mental Health Conditions include Attachment Disorder, Attention Deficit Disorder, Bipolar Disorder I and II, Borderline Personality Disorder, Conduct Disorder, Delusional Disorder, Communication Disorder, Major Depressive Disorder, Oppositional Defiance Disorder, Psychotic Disorder, Schizophrenia, Schizotypal Disorder, and Post Traumatic Stress Disorder.

Major Depressive Disorder (14.8 to 15.9 percent) and Bipolar I or Bipolar II Disorder (14.8 to 15.4 percent).

Body Mass Index (BMI)

Table 12 shows that, across all five intervention quarters, the average BMI reported ranged from 31.2 to 31.5. These measures of BMI were calculated at intake and do not represent participant-level trends over time. Instead, these tables present the BMI estimates at intake of people who were enrolled during the quarter.

Blood Pressure at Intake

Table 13 presents the average and median blood pressure across all five intervention quarters. The average diastolic blood pressure reported ranged from 76.7 to 77.2 mmHg, and the average systolic blood pressure reported was 122.0 to 122.6 mmHg. As mentioned earlier, these data have not been modified to exclude possible outliers. Therefore, data entry errors may potentially skew the estimated averages.

Chronic Conditions at Intake into the Health Home Program

Table 14 displays the percentage of Health Home participants by chronic condition reported at baseline. The leading diagnosis among Health Home participants was mental health disorder, ranging between 92.2 to 93.7 percent of participants. The percentage of Health Home participants who indicated an opioid SUD was 30.7 percent in Quarter 1, which rose to 39.8 percent by Quarter 5. Of the other chronic conditions, the most common diagnosis was obesity, at 75 to 76.7 percent.

Health Home Services

Health Home providers deliver a variety of services to participants in the program. The range of services include comprehensive care management, care coordination, health promotion, comprehensive transitional care, individual and family support services, and referral to community and social support services.

Table 15 shows the percentage of Health Home participants receiving the services described above and the average number of services by provider and quarter. A consistent majority (59.9 to 88.6 percent) of enrollees received at least one service per quarter. During Quarter 1 through Quarter 4 the percent of participants receiving services ranged from 0 to 100 percent per provider. The occurrence of providers with 0 percent of their participants receiving services is more likely during the earlier quarters. The average number of services received increased from 4.8 to 6.6 through the course of implementing the intervention.

Health Care Utilization and Quality

The health care utilization measures presented in this section were calculated using MMIS2 fee-for-service (FFS) claims and managed care encounter data. All of the data presented in this section reflect data submitted to MMIS2 as of February 28, 2015. Typically, MMIS2 data are not considered complete until twelve months have passed for adjudication of FFS claims and six months for submission of managed care encounters. Therefore, *all utilization measures based on MMIS2 data should be considered preliminary* and will be revised and updated in future reports. This will most significantly affect measures of health care utilization for the most recently occurring period of enrollees' participation in Health Homes. Because additional claims and encounters will be received in later updates to the MMIS2, the majority of these recent measures will increase during subsequent revisions. The data presented in the tables may appear to suggest that health care utilization rates decrease the longer participants are enrolled. However, conclusions about trends cannot be drawn from these interim data. The effectiveness of the program will be analyzed in the final evaluation.

Inpatient Hospital Admissions

Table 16 presents data on Health Home participants' inpatient hospital admission rates across their length of enrollment. For participants who were enrolled for 90 or more days, 5.5 percent experienced at least one inpatient admission during their first quarter of enrollment. For participants who were enrolled for at least 450 days, only 3.8 percent had an inpatient admission during their fifth enrollment quarter. The inpatient admissions rate across providers ranged from 0 to 13.6 percent during a participant's first quarter of enrollment. The inpatient admission rates vary widely over time due to the small number of participants with inpatient stays. This is particularly noticeable for providers with only a few Health Home enrollees.

ED Utilization

Table 17 presents data on Health Home participants' ED visits. For participants who were enrolled for 90 or more days, 29.2 percent had at least one ED visit during their first quarter of enrollment, with an average of 1.8 visits during the quarter. Of participants who were enrolled for at least 450 days, only 20.8 percent had an ED visit during their fifth quarter in the Health Homes program, with an average of 2.4 visits per quarter. During the first quarter of a participant's enrollment, the rate of ED visits across providers ranged from 13.3 to 46.8 percent.

Ambulatory Care Utilization

Table 18 presents data on Health Home participants' ambulatory care visits. An ambulatory care visit[6] is defined as contact with a doctor or nurse practitioner in a clinic, physician's office, or hospital outpatient department. For participants who were enrolled for 90 or more days, 57.2 percent had at least one ambulatory care visit during their first quarter of enrollment, with an average of 2.8 visits per quarter. For participants who were enrolled for at least 450 days, 50.3 percent had an ambulatory care visit during their fifth quarter in the Health Home program, with an average of 3.1 visits per quarter. During a participant's first quarter of enrollment, rates of ambulatory care visits across providers ranged from 23.3 to 72.6 percent.

Potentially Avoidable Hospitalizations

The Agency for Healthcare Research and Quality's (AHRQ's) Prevention Quality Indicators (PQIs) include measures of preventable or avoidable hospitalizations. These measures are intended to indicate hospitalizations that could have been prevented if effective ambulatory care had been completed in a timely manner. As part of this analysis, the participants' inpatient hospital admissions were reviewed using AHRQ's PQI criteria to determine which events may have been potentially avoidable. As specified by the AHRQ criteria, only a subset of hospital admissions experienced by Health Home participants aged 18 through 64 years within specified diagnosis related groups (DRGs) were taken into consideration for this portion of the analysis.

Table 19 presents the number and percentage of Health Home participants with a PQI admission across the five quarters of participants' enrollment. Across all Health Home participants aged 18 through 64 years, 87 participants experienced at least one potentially avoidable hospital admission. The table shows that these potentially avoidable hospital admission events are extremely rare, with rates of less than 1 percent of participants per quarter. The report does not include the data separated by provider, because the likelihood of events is so rare, analysis of these data using percentages of Health Home participants by provider is subject to misinterpretation due to varying sizes of the different Health Homes.

[6] This definition excludes ED visits, hospital inpatient services, substance abuse treatment, mental health, home health, x-ray, and laboratory services.

Table 19. Number and Percentage of Health Home Participants with at Least One Avoidable Inpatient Hospital Admission, and Maximum, Minimum, and Average Number of Visits, by Quarter

Quarter	# of Participants	# with a Potentially Avoidable Hospitalization	% with a Potentially Avoidable Hospitalization	Summary Statistics for Those with at Least One Potentially Avoidable Hospitalization		
				Average Visits per Person	Minimum Visits per Person	Maximum Visits per Person
Quarter 1	4341	19	0.4%	1.2	1	2
Quarter 2	3860	25	0.6%	1.3	1	3
Quarter 3	3241	27	0.8%	1.3	1	5
Quarter 4	2351	15	0.6%	1.5	1	5
Quarter 5	366	1	0.3%	1	1	1

Appropriateness of ED Care

One widely used methodology to evaluate the appropriateness of care in the ED setting is based on classifications developed by the New York University (NYU) Center for Health and Public Service Research. The algorithm assigns probabilities of likelihoods that the ED visit falls into one of the following categories:

1. *Non-emergent*: Immediate care was not required within 12 hours based on patient's presenting symptoms, medical history, and vital signs
2. *Emergent but primary care treatable*: Treatment was required within 12 hours, but it could have been provided effectively in a primary care setting (e.g., CAT scan or certain lab tests)
3. *Emergent but preventable/avoidable*: Emergency care was required, but the condition was potentially preventable/avoidable if timely and effective ambulatory care had been received during the episode of illness (e.g., asthma flare-up)
4. *Emergent, ED care needed, not preventable/avoidable*: Ambulatory care could not have prevented the condition (e.g., trauma or appendicitis)
5. *Injury*: Injury was the principal diagnosis
6. *Alcohol-related*: The principal diagnosis was related to alcohol
7. *Drug-related*: The principal diagnosis was related to drugs
8. *Mental-health related*: The principal diagnosis was related to mental health
9. *Unclassified*: The condition was not classified in one of the above categories

Table 20 presents the distribution of "Non-Emergent" ED visits for Health Home participants according to the NYU classification. If a visit is classified as more than 50 percent likely to fall into Categories 1 or 2 described above, then it is considered "Non-Emergent." The estimates presented in the table therefore show the number and percentage of participants who went to the ED when either immediate care was not required within 12 hours or it could have been provided in a primary care setting. During the first three quarters of enrollment, the rates of Health Home participants with non-emergent ED visits ranged from 12.6 to 13.7 percent. Of those with a non-emergent ED visit, the average number of ED visits was 1.4 to 1.5 visits per quarter. During Health Home participants' first enrollment quarter, rates of non-emergent ED visits across providers ranged from 0 to 21.3 percent.

30-Day All-Cause Readmissions

The 30-day all-cause readmission rate, based on National Committee for Quality Assurance (NCQA) definitions, was calculated as the percentage of acute inpatient stays during the measurement year that were followed by an acute inpatient readmission for any diagnosis within 30 days. The Healthcare Effectiveness Data and Information Set (HEDIS) 2013 specifications identify inclusion criteria for types of stays and hospitals. The HEDIS specifications also limit the population to people continuously enrolled in Medicaid with respect to the date of discharge.

Table 21 presents Health Home participants' 30-day all-cause readmissions across their first five quarters of enrollment. The number of Health Home Participants who experienced at least one 30-day readmission per quarter ranged from 0 to 26. Of those with at least one 30-day readmission, the average number of readmissions ranged from 1.2 to 1.5 per participant. The table shows that these 30-day readmission events are extremely rare, with rates of less than 1 percent of participants per quarter. The report does not include the data on 30-day all-cause readmissions by provider, because the likelihood of these events is so rare, analysis of these data using percentages of Health Home participants by provider is subject to misinterpretation due to varying sizes of the health homes.

Table 21. Number and Percentage of Health Home Participants with at Least One 30-Day All-Cause-Hospital Readmission and Maximum, Minimum, and Average Number of Visits, by Quarter

Quarter	# of Participants	# with a 30 day Readmission	% with a 30-day Readmission	Summary Statistics for Those with at Least One 30-Day Readmission		
				Average Visits per Person	Minimum Visits per Person	Maximum Visits per Person
Quarter 1	4341	26	0.6%	1.2	1	2
Quarter 2	3860	21	0.5%	1.5	1	4
Quarter 3	3241	24	0.7%	1.5	1	3
Quarter 4	2351	17	0.7%	1.4	1	4
Quarter 5	366	0	0.0%	-	-	-

Health Home Participants by the Number of Services Received per Month by Provider

Table 22 shows the percentage of Health Home participants by the number of services received during the month. In order to match the denominators from the other quarterly reports, the tables include participants who had at least 1 day of enrollment in a Health Home during that quarter. This means that there are some people counted that were not enrolled in the health home for the full month. The number of enrollees that receive two or more services during the month ranged from 7.5 to 72.0 percent. As of Quarter 2, a consistent majority of participants received at least two services per month. The occurrence of providers with 0 percent of their participants receiving services is more likely during the earliest months of the Health Home program.

Conclusion and Next Steps

The Maryland Health Home program will continue to serve participants through October 2015. Quarterly reports will be developed for the remainder of the program. Metrics will be updated to include the most recently available eMedicaid and MMIS2 claims data.

Additional evaluations will also be completed to address the requests of state and national stakeholders. The State of Maryland's General Assembly requested a report on patient outcomes for participants in the Health Home program. The report will include a comparison of Health Home participants to Medicaid enrollees with similar chronic conditions who are not in the Health Home program. The report will also provide a comparison of outcomes between different Health Home providers. Lastly, after the conclusion of the program, a final evaluation will be completed for submission to CMS in 2016.

The Hilltop Institute

University of Maryland, Baltimore County
Sondheim Hall, 3rd Floor
1000 Hilltop Circle
Baltimore, MD 21250
410-455-6854
www.hilltopinstitute.org