



# HEALTH HOMES PERFORMANCE MEASURES

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## COMPREHENSIVE EVALUATION REPORT

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## 1. Executive Summary

### Overview

The Patient Protection and Affordable Care Act of 2010 created an optional Medicaid State Plan benefit for states to establish Health Homes to coordinate care for people with Medicaid who have chronic conditions, through a “whole-person” philosophy by integrating and coordinating care.

In October 2012, the Ohio Department of Medicaid (ODM), in conjunction with the Ohio Department of Mental Health and Addiction Services (ODMHAS), announced the launch of the Phase I Health Homes initiative for Medicaid consumers with severe persistent mental illness (SPMI), which includes adults with serious mental illness (SMI) and children with serious emotional disturbance (SED).

The goals of the Health Homes include the following:

- ◆ Improve the integration of physical and behavioral health care.
- ◆ Lower the rate of hospital emergency department (ED) use.
- ◆ Reduce hospital admissions and readmissions.
- ◆ Reduce health care costs.
- ◆ Decrease reliance on long-term care facilities.
- ◆ Improve the experience of care, quality of life, and consumer satisfaction.
- ◆ Improve health outcomes.

In addition, ODM and ODMHAS anticipated achieving better care coordination and management of health conditions as well as increasing the use of preventive and wellness management services.

Health Services Advisory Group, Inc., (HSAG), an external quality review organization (EQRO), was contracted by ODM to comprehensively evaluate the impact of the Health Homes initiative. HSAG used multiple data sources to collect and analyze information in order to report on the successes and challenges of the Phase I Health Homes in fostering person-centered care to promote individualized care planning and increase individual health and social support outcomes for Medicaid consumers.

This Comprehensive Evaluation Report includes eight sections: (1) Executive Summary, (2) Initial Implementation, (3) Technical Assistance, (4) Consumer Perception of Care Survey, (5) Post Implementation, (6) Performance Measures Results, (7) Cost Savings and Utilization Analysis Results, and (8) Conclusions and Future Considerations. Appendices include findings from the Survey on Consumer Perception of Care, Outcomes, and Health Home Services; 2014 Health Homes clinical performance measure specifications; the Health Homes cost savings and utilization methodology; and the results of the Health Homes State Psychiatric Hospital inpatient summary reports.

## Background

Community Behavioral Health Centers (CBHCs) were eligible to apply to become Medicaid Health Homes for Medicaid consumers with SPMI. In determining the regions and implementation schedule, ODMHAS considered key elements of the submissions as well as Medicaid enrollment and annual Medicaid spending on the population to be served in a Health Home region.<sup>1-1</sup> ODMHAS focused on regions where providers expressed an interest in becoming a Health Home provider and indicated an ability to meet eligibility requirements, such as demonstrating physical and behavioral health integration. In addition to provider readiness, the providers’ anticipated caseloads (adults and children) and the overall SPMI population in each region were considered to ensure that adequate capacity existed to serve eligible consumers within each region.<sup>1-1</sup>

The philosophy of Health Homes is to treat the “whole person” using an integrated, coordinated service delivery system. This system, together with a multidisciplinary team approach, is designed to address an individual’s multiple chronic, complex conditions and also links him or her to nonclinical community supports. Health Home services include comprehensive care management, care coordination, health promotion, comprehensive transitional care, individual and family support, and referral to community and social support services.

A phased-in approach was used, based on the provider’s county (or counties) service areas. Five Health Homes were chosen as part of the Phase I launch of this initiative. A sixth Health Home, Family Services of Northwest Ohio, was added in May 2013. While Family Services of Northwest Ohio is considered part of the Phase I Health Homes, it was excluded from many aspects of this report because a full year’s worth of data was not available. All of the Health Homes are located in rural, urban, and suburban areas across the State of Ohio. Table 1-1 lists the Phase I Health Homes.

<b>Health Home</b>	<b>County</b>	<b>Urban-Rural Classification</b>
Harbor	Lucas	Urban
Unison Behavioral Health Group (Unison)	Lucas	Urban
Zepf Center (Zepf)	Lucas	Urban
Shawnee Mental Health Center (Shawnee)	Adams, Lawrence, and Scioto	Rural
Butler Behavioral Health Services (Butler)	Butler	Urban
Family Services of Northwest Ohio *	Lucas	Urban

\*Family Services of Northwest Ohio was designated as a Health Home in May 2013.

<sup>1-1</sup> John B. McCarthy and Tracy J. Plouck, “Ohio Medicaid Health Homes for Persons with Serious and Persistent Mental Illness—Initial Regions & Tentative Regional Roll-Out,” memo, July 12, 2012.



## Key Findings

- ◆ The Survey on Consumer Perception of Care, Outcomes, and Health Home Services administered by ODMHAS in October 2013 showed that positive scores for the Health Home sample were higher than the statewide sample for all domains. The lowest rated domains were Outcomes and Functioning.
- ◆ Thirty-five clinical performance measures resulting in 37 indicator rates were utilized to measure the performance of the five Phase I Health Homes individually and in aggregate. Performance results on the 35 measures were mixed. The Health Homes performed well on some measures but significant opportunities for improvement were identified for other measures.
- ◆ The performance measure rates were compared to national Medicaid 2013 Healthcare Effectiveness Data and Information Set (HEDIS<sup>®</sup>) benchmarks, where applicable.<sup>1-2,1-3</sup> Overall, seven measures fell below the HEDIS 10th percentiles, and three measures fell at or above the HEDIS 75th percentiles.
- ◆ Health Homes incurred statistically significant negative cost savings. Forty-two different stratifications were evaluated (e.g., by age, managed care plan [MCP], Health Home) and none of these subgroups showed an overall cost savings. The primary driver of the cost increases, ignoring average monthly Health Home case rates, was found in pharmacy costs. However, two Health Homes (Zepf and Shawnee) showed significant cost savings in the Medical—Mental Health category of service. Even though Zepf and Shawnee showed cost savings in one category of service, this was not enough to offset the negative cost savings in other categories of service resulting in a net loss.
- ◆ In an effort to gather feedback on the growth and progression of the Phase I Health Homes and considerations going forward into Phase II, HSAG conducted interviews with internal and external Health Home stakeholders. Consistent themes were identified from participant responses gathered during two rounds of interviews. Internal and external stakeholders, along with Health Home providers, consistently communicated a high level of commitment to the Health Home initiative and promoted integrative care as essential for improving outcomes in the consumer population with chronic and complex physical and behavioral health conditions. External and internal stakeholders and Health Home providers identified several challenges, including: data management and translation to improve consumer outcomes; establishing relationships with the medical community for coordination and continuity of care; and sustainability of the Health Homes under the new, lower reimbursement case rate. Health Homes specifically pointed to the new State proposed reimbursement rate as having the biggest impact on their continued participation in the Health Home initiative. Health Home stakeholders reported the proposed monthly rate of reimbursement of \$188 for an adult and \$169 for a child will not cover the costs that the Health Home providers will incur during their participation in the Health Home initiative.

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<sup>1-2</sup> HEDIS<sup>®</sup> is a registered trademark of the National Committee for Quality Assurance (NCQA).

<sup>1-3</sup> National Committee for Quality Assurance. HEDIS<sup>®</sup> 2013 Audit Means, Percentiles, and Ratios. Washington, DC: NCQA. February 2014.

## 2. Initial Implementation

### Overview

In January 2013, ODM and ODMHAS announced the launch of Ohio's Health Home Learning Communities for Phase I Health Homes. The Health Home Learning Communities were a combination of in-person and live Web-based group learning sessions. The Learning Community objectives were to address specific issues and challenges identified by participants to ensure that they had the knowledge, resources, and strategies to implement the requirements, standards, and components of the Health Home.

HSAG was contracted to establish Learning Communities for Ohio's Health Homes Phase I providers. ODMHAS also contracted with The Center for Evidence-Based Practice at Case Western Reserve University and The National Council for Behavioral Healthcare to provide additional technical assistance to the Health Homes.

### Interviews

As a first step in establishing the Health Home Learning Communities, HSAG developed an interview guide that was used to survey each of the five initial Phase I Health Homes. The guide contained specific questions that covered various aspects of implementation such as consumer enrollment, composition of the Health Home team, data and health outcomes, coordination with stakeholders and partners, and behavioral and physical health integration. HSAG contacted each of the five Phase I community mental health centers and conducted an in-person meeting to help identify early implementation successes, challenges, and learning needs.

### General Observations

#### Health Home Enrollment

Consumers were enrolled in the Health Home based on their SPMI and SED diagnoses. Total self-reported Health Home enrollment in all five of the initial Phase I Health Homes was 15,388. Individual Health Home initial enrollment was 1,160 consumers for Butler, 2,188 consumers for Shawnee, 2,500 consumers for Unison, 3,300 consumers for Zepf, and 6,240 consumers enrolled with Harbor.

#### Health Home Consumer Composition

For the SPMI population, all Health Homes identified similar behavioral health diagnoses, including psychoses, bipolar disorder, mood disorders, post-traumatic stress disorder, and anxiety disorders. All Health Homes also identified similar physical health issues among their adult SPMI population, including diabetes and other metabolic disorders, high blood pressure, obesity, and smoking. The majority of the Health Home SPMI population ranged from 20-55 years of age.

For the SED population, all Health Homes identified similar behavioral health diagnoses, including attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder, and trauma. All Health Homes also had similar physical health issues among their child and adolescent SED populations including asthma, obesity, inactivity, and poor nutrition. The majority of the Health Home SED population ranged from 5 to 17 years of age.

Poverty, lack of community resources, health literacy, housing, unemployment, crime/legal issues, and poor quality health care were identified as top environmental factors for the Health Homes.

### **Health Home Team Composition**

All five Health Homes met team composition requirements as outlined by ODMHAS; each included a team leader, care manager, care management assistant, embedded primary care provider (PCP), and qualified Health Home specialist (QHHS). One Health Home implemented the use of a patient navigator and another used a peer support person as part of its extended Health Home team. The Health Homes had varying models for implementation of the embedded PCP, which included a mixture of off-site consultation, part-time on-site physician, and/or nurse practitioner. All Health Homes were still working through the role of the embedded PCP.

All Health Homes had estimated care management staffing ratios that exceeded their projected staffing ratios.

In general, the Health Homes expressed confusion around the multidisciplinary team roles and ODMHAS expectations, such as psychiatrists' concerns with being peripheral to the care management team. Because of the need for integrated physical and behavioral health and inclusion of an embedded PCP, many psychiatrists questioned who has overall accountability or ownership of the consumer's health and wellness.

All Health Homes had an identified person responsible for oversight of the quality improvement process and were working toward implementation of this component for the Health Home. All the Health Homes expressed an understanding of the importance of quality improvement and the need to drive best practices. Several of the Health Homes indicated they were including quality metrics in their integrated care planning process.

### **Process for Collecting Data and Reporting Outcomes**

Health Home providers were required to collect data and report health outcomes. All Health Homes identified the need for technical assistance related to data management and health outcomes. There was limited knowledge and understanding of the outcome measures and the measure specifications. All Health Homes expressed a need for guidance on how to best use health outcome data once the data become available.

Initially, the Health Homes reported they all had electronic health records (EHRs) that had been in operation for one to 10 years; however, the Health Homes experienced challenges and could not query data from their EHR or other data systems to derive health outcome information. During stakeholder interviews, the Health Homes reported the EHRs in place during the roll out were not advanced or adequate enough and had to be updated to ensure the Health Home staff could

complete data collection and report health outcomes. Due to time limitations, HSAG did not review any EHRs or data systems.

During the initial Health Home learning communities, three of the five Health Homes confirmed receipt of utilization data provided by the State, but none were able to determine how to use the data in a way that added perceived value. Additionally, while the Health Homes described receiving helpful information from the MCPs, they expressed challenges with receiving data in different formats from the MCPs. Furthermore, none of the Health Homes were receiving acute inpatient discharge data regularly from the MCPs.

### **Coordination With Stakeholders and Partners**

All Health Homes indicated strong relationships with consumers and good engagement rates. Very few consumers refused participation in the Health Home. All five Health Homes shared that, because of existing relationships with consumers, many consumers were willing to participate in the Health Home because it offered them additional services while continuing existing services. All Health Homes indicated a standard practice of involving consumers' support systems in the current treatment process.

All Health Homes were confident in their ability to link consumers to community-based resources. However, the Health Homes indicated housing resource gaps as a major issue. Many of their consumers struggle with obtaining housing.

HSAG noted that the Health Homes' efforts to link consumers to physical health services were limited at the time of the interviews. While some Health Home teams were attending various appointments with consumers, most indicated that this was their practice prior to Health Home implementation. The Health Homes wanted to expand this service, but cited limitations due to the rapid implementation timeline and limited staffing resources. Additionally, one Health Home created two nurse positions and one therapist position to work with local hospitals and the partner federally qualified health center (FQHC) to enhance care coordination.

The issue of after-hours access was discussed with the Health Homes. All Health Homes except one had after-hours access at the time of the interviews. The Health Home that did not have after-hours access had plans in place to begin offering on-call services using a single cellular telephone number for easier access. All Health Homes had access for same-day appointments for consumers in behavioral health crisis, but the Health Homes were less accessible for physical health needs.

All Health Homes expressed a need to increase education of external partners about Health Homes. Many shared that most providers, including physicians and hospitals, had no knowledge that Health Homes were operating in the State. Additionally, other community groups lacked knowledge of the Health Home implementation. The current providers shared that when they explained their role as a Health Home provider, there was a gradual acceptance of the concept. Many shared that there is an opportunity to improve communication on this new initiative with the community as a whole.

## Behavioral Health and Physical Health Integration

At the time of the initial interviews, none of the Health Homes were fully integrated with physical and behavioral health. Each provider reported different stages of this implementation, and most had questions about how to operationalize the Health Home model (e.g., roles of the team members). The Health Homes noted that assistance with defining staff roles, scope of practice limitations, and accountability associated with the care plan goals and interventions would be helpful. The Health Homes additionally indicated they were not clear on the role of the Health Home versus the role of the managed care plan as it relates to transitions of care.

The Health Homes indicated that staff members were not yet knowledgeable, comfortable, or confident enough to adequately discuss physical health issues or identify physical health goals. The Health Homes were not able to establish goals in the commonly identified physical health areas (e.g., high blood pressure management, blood sugar monitoring, or targeted hemoglobin A1c [HbA1c] levels for diabetes management).

The majority of the Health Homes had not yet implemented health promotion or wellness programs. All identified this implementation as a need and goal.

## Challenges and Identified Learning Needs

During interviews with the initial Phase I Health Home representatives, several common themes were identified.

- ◆ The integration of physical and behavioral health posed challenges to the current model of care and required re-design and re-focusing on consumer care needs and care planning.
- ◆ An identified need for further guidance and clear direction on Health Home requirements and consistency of operationalizing these requirements across providers.
- ◆ The opportunity for additional dialogue and direction about performance expectations and the Health Homes' perception that some measures were not useful performance indicators.
- ◆ The need to identify resources for technical assistance to manage and effectively use data received from multiple sources and varying formats.
- ◆ There was limited knowledge or recognition of the Health Home initiative in the community with few educational or marketing resources.
- ◆ Interested Phase II applicants were frequently requesting feedback and direction from the current sites as to the implementation process and identified barriers. Health Home representatives recommended a formalized Learning Collaborative to collectively address lessons learned.

## Early Implementation Successes

The Health Homes identified early successes with linkage of consumers to the embedded PCP. Many of these consumers had not been accessing physical health services for many years. These same consumers also demonstrated better engagement with both the integrated behavioral and physical health providers.

During the transition to integrated care, the Health Homes became more aware of the need for better lines of internal communication and saw increased team building and cooperation. Staff training needed quick implementation; the focus on targeted best practices was cited as beneficial. Staff members at the Health Homes were excited about the new model of serving both the behavioral and physical health needs of its consumers and noted increased focus on consumer-centered approaches since implementing the Health Home. Management reported improved staff satisfaction with job duties.

Implementation of the Health Homes necessitated an increased need for data sharing. Due to the increased need for data sharing, the Health Homes developed a realization of the current limitations associated with data exchange, management, and reporting. The Health Homes all implemented individualized approaches and strategies to address data exchange challenges.

### **Implementation Recommendations**

HSAG proposed the following implementation recommendations:

- ◆ Use the learning community series to focus on data requirements, collection, and reporting. Include specific information on the Health Home outcome measure specifications, steps, and resources to help achieve meaningful use, and integrate outcome data into the quality improvement process with a population-health management approach.
- ◆ Develop a strategic technical assistance plan among the technical assistance partners to prioritize the identified Phase I Health Home needs, determine which partner is best suited/equipped to respond to the need to ensure support to the Health Homes, maximize resources, and reduce duplication of effort.
- ◆ Establish and/or re-communicate clear guidance on Health Home requirements and expectations, the time frame for complying with the requirements, and the mechanism to monitor the Health Homes. Consider establishing and disseminating a Health Home frequently asked questions document or some other mechanism to address this need.
- ◆ Consider compiling a list of lessons learned to enhance Phase II implementation and avoid potential pitfalls.
- ◆ Develop standard marketing/communication materials to assist the Health Homes in educating their communities about Health Homes in a consistent way.

## 3. Technical Assistance

### Learning Community Meetings and Presentations

The Learning Communities linked the initial five Phase I providers with resources and training to aid in implementing key Health Home requirements and components. The Health Home Learning Communities consisted of four in-person sessions and three Webinars beginning March 2013. Each Learning Community topic was chosen based on the results of the Learning Community interviews; subject matter content experts were invited to present at either the in-person or the Webinar sessions. Table 3-1 describes the dates and topics of each of the Learning Community sessions.

Table 3-1—Date and Topic of Each Learning Community Session		
Date	Type	Topic
March 5, 2013	In-person	Health Home Performance Measures and Data Integration
March 28, 2013	Webinar	Health Information Exchange
April 22, 2013	In-person	Integrated Care Planning
May 1, 2013	Webinar	Community Wellness/SPARK Program
May 30, 2013	In-person	Team Roles and Responsibilities
June 18, 2013	Webinar	Medication Reconciliation
June 20, 2013	In-person	Transitional Care Coordination

### Partner Technical Assistance

As a part of the Phase I Health Home roll-out, ODM, along with ODMHAS, contracted with several partners to help the Health Homes with the initial implementation. The contracted partners included The Center for Evidence-Based Practice at Case Western Reserve University, The National Council for Community Behavioral Healthcare, and HSAG. Each contracted entity had specific roles in working with each Health Home.

#### *Case Western*

The Center for Evidence-Based Practice at Case Western Reserve University worked with the Health Homes on training of select evidence-based practices. The training supported skills and core competencies of Health Home teams in the areas of Stages of Change, Tobacco Cessation, and Motivational Interviewing to activate behavioral change and provide effective health promotion services to individuals with SPMI. Additionally, they also worked on Health Home Readiness Assessment tools. The tools were designed to help determine the needs, assess the readiness, and monitor the adherence of CBHCs to the Health Home models.

### ***National Council***

The National Council for Community Behavioral Healthcare provided individual technical assistance and training, with a focus on the following:

- ◆ Program planning, development, implementation, and sustainability.
- ◆ Health integration.
- ◆ Health Home health navigator training.
- ◆ Standardized Health Home training curriculum for CBHCs to educate clinical staff, support staff, and leadership on key Health Home operational concepts.

### ***HSAG***

Health Homes were advised to contact HSAG with any technical assistance requests regarding the performance measure results. The technical assistance calls included the ODM staff, the HSAG analytic and project staff, and the appropriate staff from the Health Homes. Several Health Homes requested technical assistance from HSAG to answer their questions regarding the measures, specifications, data collection, and data submission.

Following the dissemination of the quarterly performance measures rates, Webinar conference calls were scheduled with all Health Homes to provide guidance on how to interpret the results, review the performance measures results for each Health Home, and answer any questions. Health Homes were able to compare their performance measures results to the other Health Homes, as well as compare their results to National Committee for Quality Assurance (NCQA) benchmarks for specific HEDIS measures. More importantly, the Health Homes were able to determine if the rates calculated by HSAG accurately depicted what was occurring at the Health Home and determine why perceived discrepancies existed (e.g., data submission problems).

## 4. Consumer Perception of Care Survey

The Survey on Consumer Perception of Care, Outcomes, and Health Home Services was administered by ODMHAS in October 2013 to Health Home consumers receiving care at the initial five Health Home agencies.<sup>4-1</sup> The goal of the survey was to better understand the consumers' perception of care, treatment outcomes (self-reported), and services offered through the Health Home model.

The Mental Health Statistics Improvement Program (MHSIP) survey instrument was used with the addition of several Health Home-specific questions. The MHSIP survey includes 32 items in the following six domains, with responses provided on a standard Likert scale:

- ◆ General Satisfaction
- ◆ Access
- ◆ Quality and Appropriateness of Care
- ◆ Participation in Treatment
- ◆ Outcomes
- ◆ Functioning

Additional questions specific to Health Home activities were related to the following subjects:

- ◆ Were consumers currently receiving smoking cessation, diet counseling, or wellness/illness management services?
- ◆ Were consumers receiving care from a provider outside the Health Home?
- ◆ If so, what was the extent of the coordination of care between the behavioral and medical health care providers?
- ◆ What was the frequency of Health Home services, including referrals, support service access, treatment planning, and team communication?
- ◆ If the consumer was hospitalized in the prior six months, was medication reconciliation conducted at discharge?

### Sampling Procedures

A simple random sample was drawn from the Medicaid data warehouse, stratified by race and agency. A total of 5,004 consumers were selected from a universe of 13,800 consumers meeting the SPMI criteria from the five agencies. The sample also distinguished between consumers who had a hospitalization in the six months prior to the survey and those who had not been hospitalized.

Survey packets were mailed to the consumers including a cover letter explaining the purpose of the survey and its confidential nature. Participants were offered three ways to respond: by mail, through an Internet survey Web site, or by telephone (toll-free number).

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<sup>4-1</sup> ODMHAS. "Findings from the Survey on Consumer Perception of Care, Outcomes, and Health Home Services." April 2014.

A total of 4,647 contacts were included in the mail survey. About 10 percent were returned as undeliverable. Sixty-three percent did not respond, and 1.4 percent declined participation. About 10 percent (508) returned a completed survey, with 350 of the contacts meeting Health Home enrollment criteria. These 350 contacts were the basis for the results analysis.

## Results

Each possible response to the items was assigned a numerical value: “Strongly Disagree”—1, “Disagree”—2, “Neutral”—3, “Agree”—4, and “Strongly Agree”—5. To arrive at the mean score, the items in each subscale were summed, and then divided by the total number of items in the scale. Mean scores of 3.5 or greater were considered to reflect a positive perception of items within the domain.

Of the total responses (N = 350) for the five Health Homes, 7.7 percent of the responses were from Butler’s members, 13.7 percent were from Shawnee, 15.4 percent were from Harbor, 29.1 percent were from Unison, and at the largest percentage, 34 percent, were from Zepf.<sup>4-2</sup> The composition of the respondents was broken out by inpatient (IP) and outpatient (OP) consumers; this distribution can be found in Table A-1 in Appendix A.

Positive scores for the Health Home sample were higher than the 2013 statewide sample for all domains. General Satisfaction was the highest-rated subscale at 90 percent. Quality/Appropriateness and Participation in Treatment were next highest at 86 percent. Access was rated at 85 percent, and Outcomes and Functioning were the lowest rated, at 62 percent and 59 percent, respectively.<sup>4-3</sup>

Receipt of Wellness/Illness Management services was significantly higher than Diet Counseling and Smoking Cessation services for both the inpatient and outpatient groups. The majority of both the IP and OP groups did not use an outside provider. The majority of the respondents rated the coordination of their care as “Great” or “Good,” and 68 percent of respondents in the inpatient group reported that they received medication reconciliation upon discharge. The majority of the respondents acknowledged receipt of services in various categories at the Health Home agency.<sup>4-4</sup>

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<sup>4-2</sup> Results can be found in Figure A-1 in Appendix A.

<sup>4-3</sup> Results can be found in Figure A-2 and Figure A-3 in Appendix A.

<sup>4-4</sup> Results can be found in Tables A-2–A-6 in Appendix A.

## 5. Post Implementation

### Stakeholders—Calendar Year (CY) 2014 Interview Findings

HSAG completed the stakeholder interviews either telephonically or in person with internal, external, and health home providers. Stakeholders were representatives of the following organizations: ODM, ODMHAS, the six Phase I Health Home Providers, Case Western Reserve, The National Council, Ohio Hospital Association, National Alliance on Mental Illness (NAMI) of Ohio, The Ohio Council of Behavioral Health & Family Services Providers, and all Ohio Medicaid MCPs. The goal of the interviews was to gain insight into the organizations' perspectives regarding the Health Home initiative. Interviewees were asked questions related to the following service components outlined in the State Plan Amendment (SPA):

- ◆ Health Home Infrastructure.
- ◆ Comprehensive Care Management.
- ◆ Care Coordination.
- ◆ Health Promotion.
- ◆ Comprehensive Transitional Care.
- ◆ Individual and Family Support Services.
- ◆ Community and Social Support Service Referrals.
- ◆ Health Home Technical Assistance.

During interviews with the internal, external, and health home representatives, several common themes were identified.

#### *Health Home Infrastructure*

- ◆ Overall, stakeholders indicated additional consumer and community outreach and education regarding the initiative would have been beneficial. Consumers had misconceptions as to what a Health Home was and how they could benefit. External providers were not aware of the new Health Home model.
- ◆ Health Homes reported receiving few if any referrals from specialty providers, PCPs, MCPs, or other sources in the community. Others reported the Health Homes were initially overwhelmed, referrals were not encouraged, and there were ongoing changes in how a referral was to be communicated.
- ◆ The team re-design was challenging for staff (e.g., case workers) as they previously managed their own caseloads. Under the new model, case workers lost much of the interaction/interventions with the consumer and were focused on the assessments.
- ◆ There was strong recognition and support for integrated care for the provision of services for the SPMI/SED population.
- ◆ Staff turnover and finding qualified staff to fill positions was cited as an ongoing challenge, particularly where there are multiple Health Homes in close proximity.

- ◆ Four of the five health homes reported having only a few consumers opt-out of the Health Home, but one Health Home reported large turnover in their Health Home consumers. Consumers opted out for reasons such as preferring to continue with community psychiatric supportive treatment (CPST) services, other behavioral health services, or with their current MCP care manager; feeling discomfort with the perceived scrutiny of their medical/physical needs provided through the Health Home; and lacking knowledge and feeling uncertainty about the Health Home.

### ***Comprehensive Care Management***

- ◆ The Health Homes reported several strategies for the identification of eligible consumers, such as inclusion of all current Medicaid consumers receiving CPST services and identified with SPMI, using State-generated lists based on diagnosis codes, and referrals to their CBHC. Current identification strategies have been updated based on changes in eligibility criteria to include the provision of informed consent for consumers who need and can benefit from Health Home services.
- ◆ Consumer education was identified as a key strategy in engaging consumers in the care management and care planning processes. Additional engagement strategies included providing opportunities to improve wellness, providing incentives, and building relationships with the consumer by first meeting basic needs such as food and shelter.
- ◆ Health Homes reported providing care management services primarily through face-to-face contact, with supplemental telephone calls. Staff would meet the consumer in the community as needed. This practice was not unfamiliar to staff as this outreach was in place prior to the Health Home initiative.
- ◆ The comprehensive assessment was reportedly completed by appropriate staff and shared with the team.
- ◆ Each MCP had a unique system for sharing consumer information that must be learned by the Health Home Team. The volume of data was considerable, and translating the data into meaningful information that could be used at the point-of-care to improve outcomes had been a challenge due to varying technology capabilities within the Health Home. In addition, not all staff members could access the data; in some cases, only the identified “administrator” had access.

### ***Care Coordination***

- ◆ The integrated care planning was reportedly based on the assessment and included consumer-centered goals and interventions, although the care plan many times was considered very high level and generic, specifically related to medical/physical health.
- ◆ The care manager developed and completed ongoing updates based on feedback from the team members. If the PCP was external to the Health Home, it was noted that there was limited, if any, input from the PCP into the care plan.

- ◆ Improved interactions with the MCPs were fostered throughout implementation and were supported by networking at the Learning Communities. It was noted that points of contact at the Health Home and MCPs changed rather frequently.
- ◆ It was identified that both individualized coaching with The National Council and having an embedded PCP within the Health Home supported improved integrated care management.

### ***Health Promotion***

- ◆ Health Homes were directly providing a variety of wellness programs and/or are linking consumers to wellness programs provided in the community. Survey participants reported providing education and/or establishing wellness groups on topics such as physical exercise/movement, weight reduction/control, smoking cessation, and nutrition.
- ◆ Opportunities were noted to improve efforts around consumer engagement in chronic disease management and smoking cessation, as well as a need for more transportation to improve access to wellness activities. The MCPs' smoking cessation programs and transportation services were recognized referral sources as well.

### ***Comprehensive Transitional Care***

- ◆ Significant opportunities were identified in regard to transitional care. Specifically, the need to establish relationships with external PCPs and hospitals so that meaningful information regarding the consumer's health care is shared. It was indicated that there were varying degrees of willingness to engage with the Health Homes.
- ◆ Most Health Homes found it difficult to articulate medication reconciliation processes, specifically with medical hospitalizations, as the Health Homes did not routinely receive the discharge plan from the facility. Medication reconciliation in general was varied across the Health Homes.
- ◆ To date, Health Home staff members were not being included in hospital discharge planning for inpatient stays for treatment of physical health conditions and frequently were not aware of the admission until post-discharge.
- ◆ Health Homes all reported efforts directed at preventing unnecessary ED visits and hospital admissions, such as increasing the frequency of on-site visits to consumers with high rates of utilization.

### ***Individual and Family Support Services***

- ◆ Overall, the Health Homes indicated that family or support persons were engaged in the care management process if the consumer signed a release form to allow inclusion.
- ◆ The Health Homes cited increased flexibility to provide advocacy to the consumer at various appointments and at places of referral. However, staffing constraints did limit the overall ability to provide this level of service.

### ***Community and Social Support Service Referrals***

- ◆ Health Homes used many community resources and support services as referral agencies. It was not always clear if there was follow-up to ensure consumer/family receipt of services.
- ◆ The MCP resources served as an extension of the already-used community and social support agencies.

### ***Health Home Technical Assistance***

- ◆ The National Council provided both group and individualized technical assistance to each Health Home. The technical assistance was provided in various formats, including on-site visits to the Health Homes, telephonic communications, and group Learning Communities.
- ◆ HSAG provided training and support related to performance measures reporting.
- ◆ Continued assistance with data management was cited as a need. Many of the Health Homes started with very limited knowledge of health information technology, including use of spreadsheets, logging into file transfer protocol (FTP) sites, and overall data analysis.
- ◆ Currently, there is no quality monitoring of the services delivered by the Health Homes once certified, which could provide additional opportunity for supportive feedback.

## 6. Performance Measures Results

### Overview

Performance measures provide feedback to the Health Homes on quality of care and service utilization. For most measures, the analysis was limited to consumers who had 11 or more months of enrollment in a Health Home during CY 2013.

### Methodology

Health Homes were evaluated using CMS core, HEDIS, and state-specific measures for a total of 35 clinical performance measures that yielded 37 indicator rates. Twenty-seven of the measures were calculated using HEDIS methods. In addition, ODM identified supplemental methods for some of the measures. With these supplemental methods, the Health Homes reported information using Current Procedural Terminology (CPT) II codes to supplement the information provided through the codes used in the HEDIS methods. Medicaid claims, encounter, demographic, and eligibility data, along with Health Home enrollment data, were used as the data sources for all measures, except for the *Client Perception of Care* measure. Claims and encounter data came from both the Health Home and other providers. The *Percent of Live Births Weighing Less than 2,500 Grams* measure was calculated using vital statistics data, which ODM obtains from the Ohio Department of Health (ODH), in addition to the Medicaid data. ODMHAS calculated the *Client Perception of Care* measure via an annual survey. Please refer to Appendix A for the results of this survey.

The methods are, for the most part, consistent with the HEDIS performance measurement methods, as outlined in the *NCQA HEDIS 2014 Technical Specifications* manual. When necessary, ODM adapted the HEDIS or CMS Health Home specifications to better fit the Ohio Health Homes program. Traditional continuous enrollment criteria at the Health Home level were applied to the measures (i.e., the consumer must be enrolled in a Health Home for a certain period of time in order to be eligible for the measure). Health Home enrollment spans (with or without a corresponding payment for the monthly Health Home case management code [i.e., S0281]) was used to identify enrollment for annual reporting. Please see Appendix B for a copy of measurement year 2013 Health Homes clinical performance measures specifications; refer to the specifications for detailed information on how the rates were calculated.

## Results

HSAG calculated annual performance measure results at the following levels of analysis:

- ◆ Statewide Aggregate (i.e., Health Home Average).<sup>6-1</sup>
- ◆ Health Homes—Butler, Harbor, Shawnee, Unison, and Zepf.
- ◆ Health Home Design—Access to On-site Pharmacist.
- ◆ MCP—Buckeye, CareSource, Molina, Paramount, and UnitedHealthcare.
- ◆ County/Region—Butler County; Lucas County; and Adams, Lawrence, & Scioto Region.

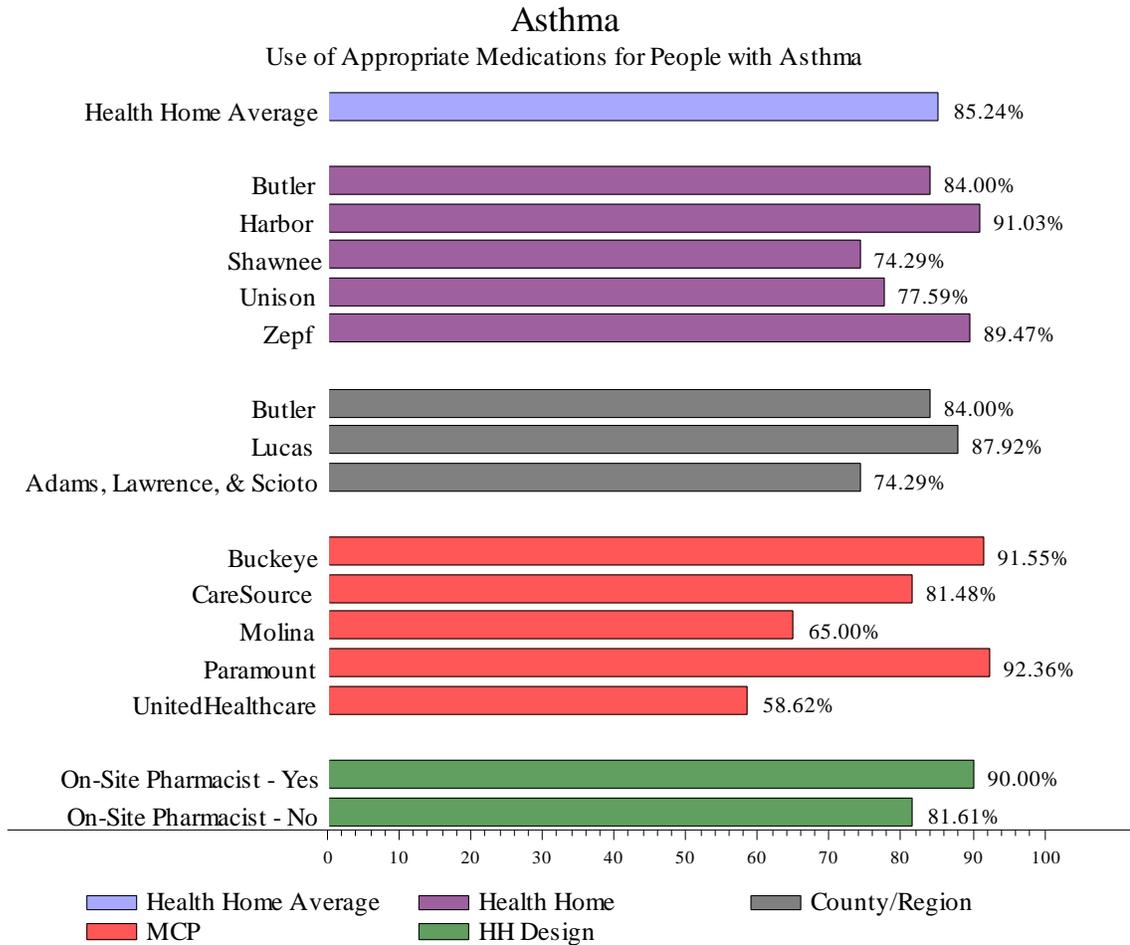
One graph with each level of analysis described above was created for each performance measure. The Health Home Average rate represents the overall rate for all Health Home consumers included in the measure. Table 6-1 displays the CMS core measures. In addition, the CMS core measures are denoted with an asterisk (\*) in the graphs.

Table 6-1—CMS Core Measures
<i>Controlling High Blood Pressure</i>
<i>Screening for Clinical Depression and Follow-up Plan</i>
<i>Initiation and Engagement of Alcohol and Other Drug Dependence Treatment</i>
<i>Adult Body Mass Index (BMI) Assessment</i>
<i>Ambulatory Care—Sensitive Condition Admission</i>
<i>All-Cause Readmissions</i>
<i>Timely Transmission of Transition Record</i>

<sup>6-1</sup> The Health Home Average rate does not include Family Services; therefore, the rate may differ slightly from the Health Home Average rate in the Health Homes’ annual report rate spreadsheet.

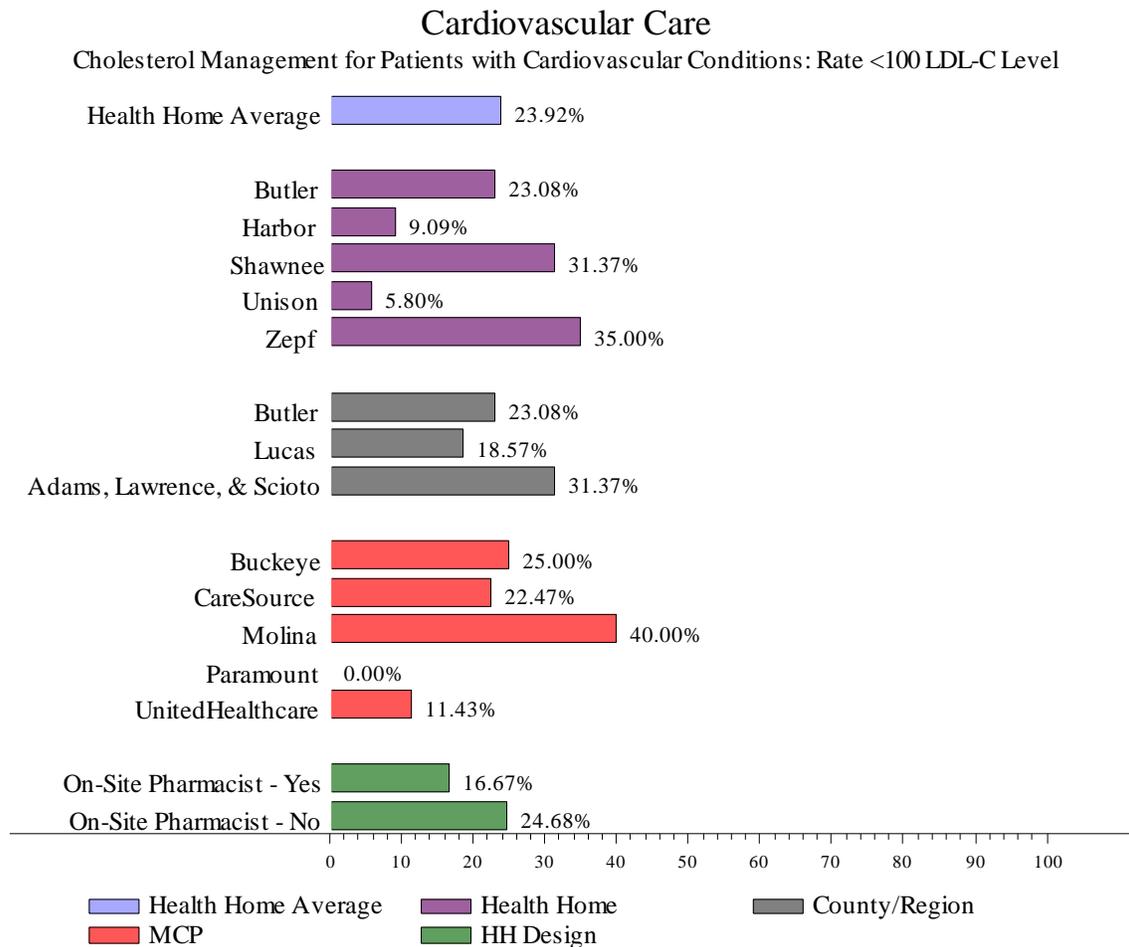
**Asthma**

The *Use of Appropriate Medications for People with Asthma* measure evaluates the percentage of consumers 5–64 years of age with persistent asthma who received prescribed medications acceptable as primary therapy for long-term control of asthma. The figure below displays the results for the *Use of Appropriate Medications for People with Asthma* measure.

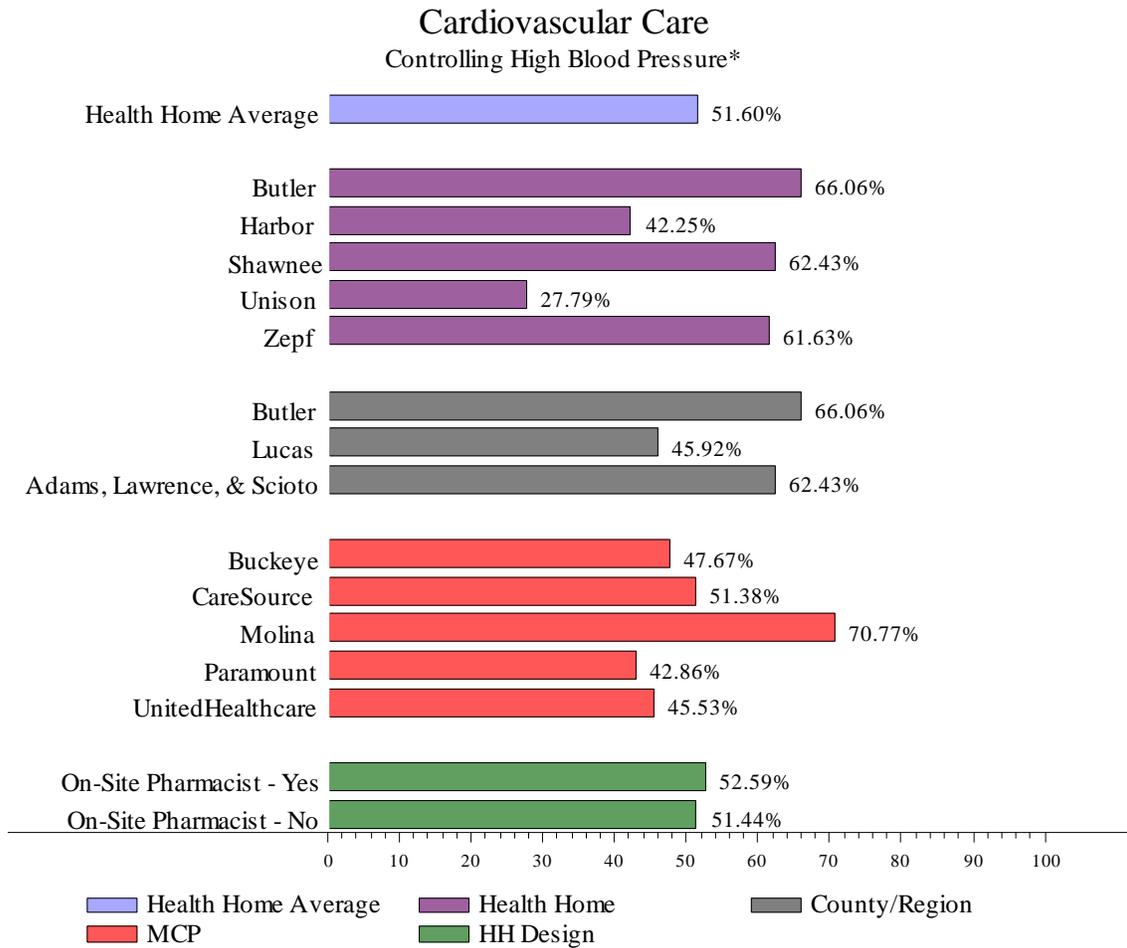


**Cardiovascular Care**

The *Cholesterol Management for Patients with Cardiovascular Conditions* measure evaluates the percentage of consumers 18–75 years of age who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG), or percutaneous coronary interventions (PCI) in the year prior to the report period, or who had a diagnosis of ischemic vascular disease (IVD) during the report period and the year prior to the report period, and who had an LDL-C control level of less than 100 mg/dL during the report period. The figure below displays the results for the *Cholesterol Management for Patients with Cardiovascular Conditions* measure.



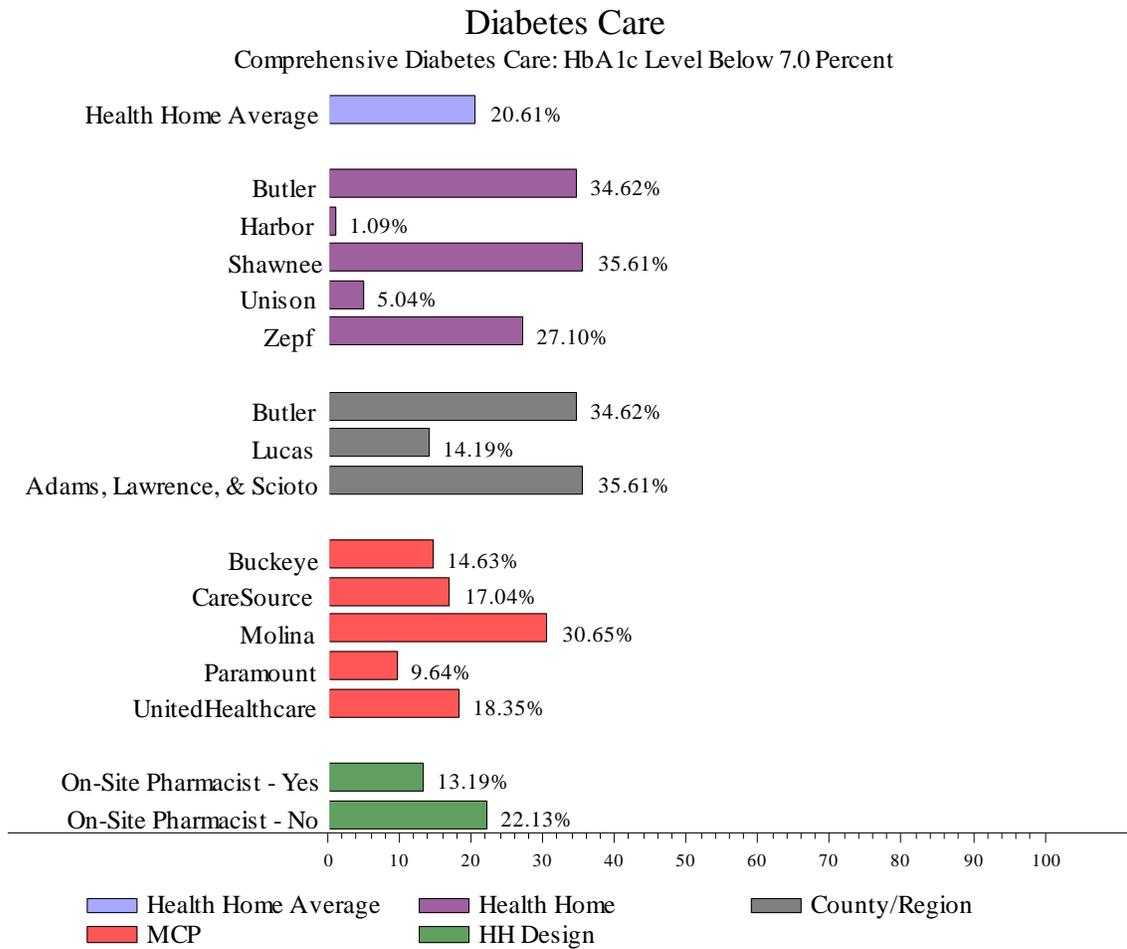
The *Controlling High Blood Pressure* measure evaluates the percentage of consumers 18–85 years of age who had a diagnosis of hypertension (HTN) and whose blood pressure (BP) was adequately controlled (<140/90) during the report period.<sup>6-2</sup> The figure below displays the results for the *Controlling High Blood Pressure* measure.



<sup>6-2</sup> This measure is dependent on CPT II codes.

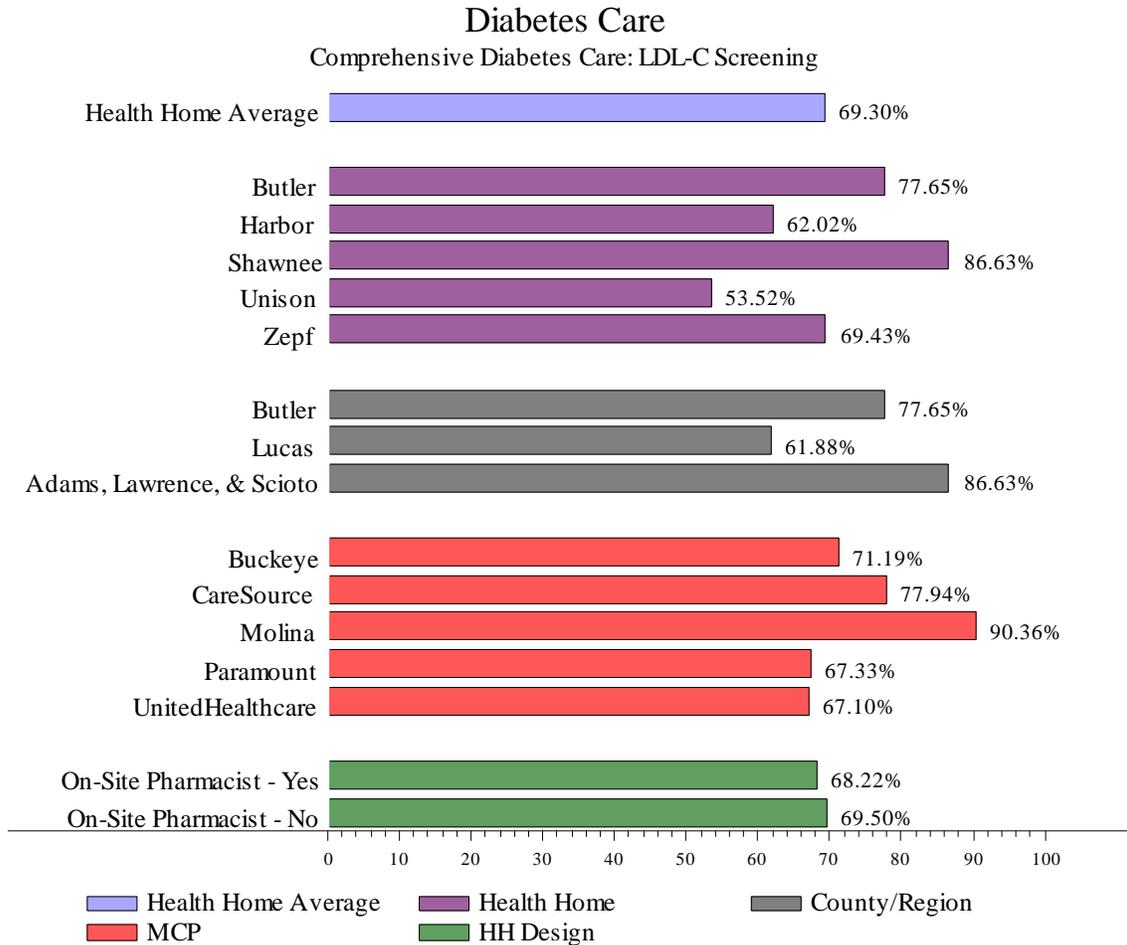
**Diabetes Care**

The *Comprehensive Diabetes Care (CDC): HbA1c Level Below 7.0 Percent* measure evaluates the percentage of consumers 18–65 years of age with diabetes (Type 1 and 2) who had an HbA1c less than 7.0 percent.<sup>6-3</sup> The figure below displays the results for the *CDC: HbA1c Level Below 7.0 Percent* measure.



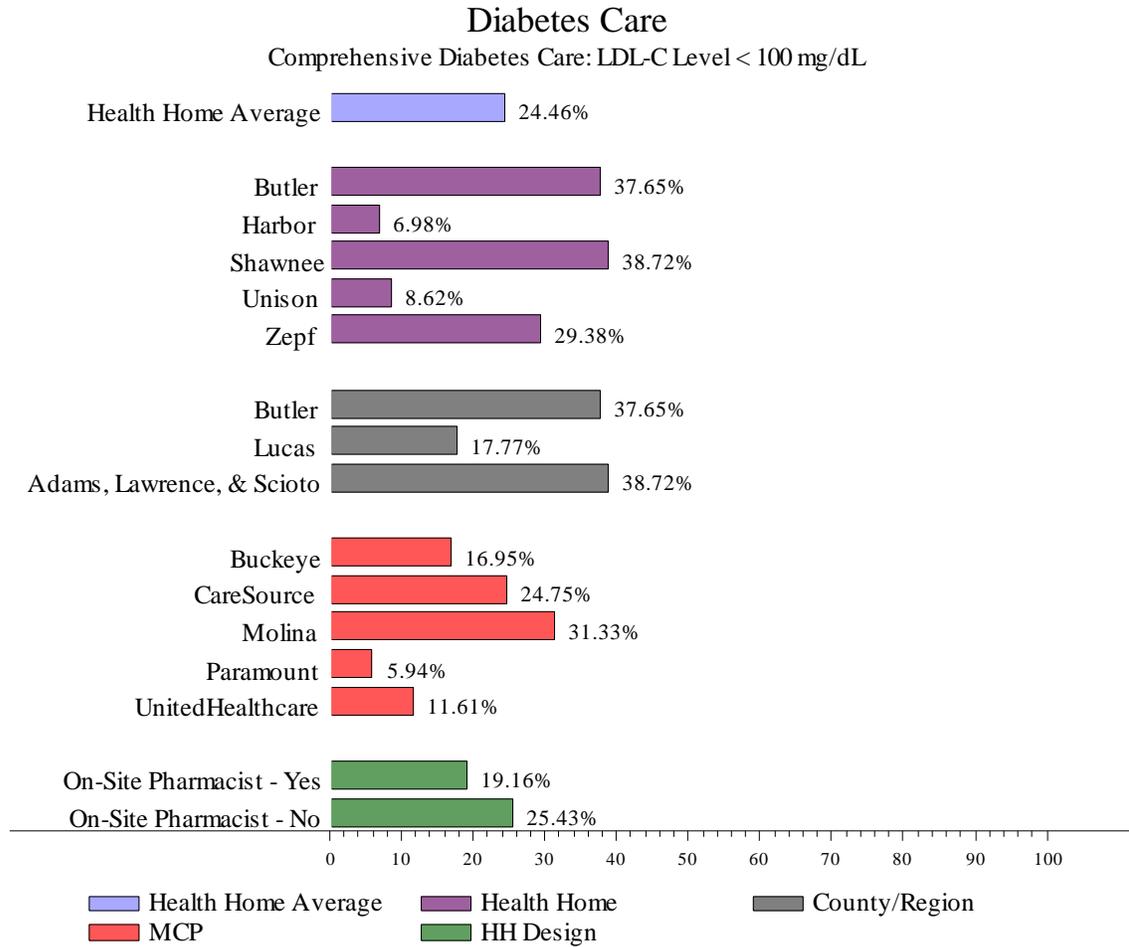
<sup>6-3</sup> This measure is dependent on CPT II codes.

The *CDC: LDL-C Screening* measure evaluates the percentage of consumers 18–75 years of age with diabetes (Types 1 and 2) who had an LDL-C screening.<sup>6-4</sup> The figure below displays the results for the *CDC: LDL-C Screening* measure.



<sup>6-4</sup> This measure is dependent on CPT II codes.

The *CDC: LDL-C Level Less than 100 mg/dL* measure evaluates the percentage of consumers 18–75 years of age with diabetes (Types 1 and 2) who had an LDL-C level less than 100 mg/dL.<sup>6-5</sup> The figure below displays the results for the *CDC: LDL-C Level Less than 100 mg/dL* measure.

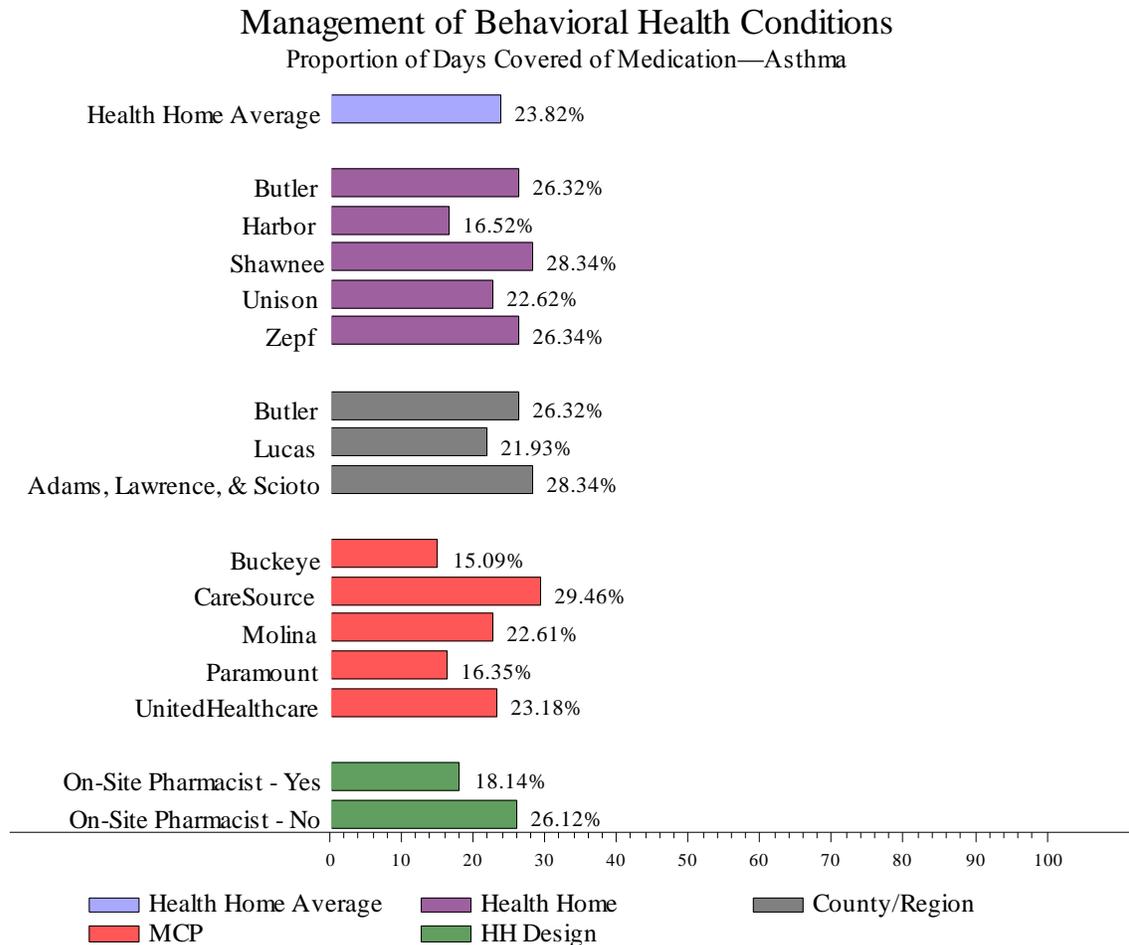


<sup>6-5</sup> This measure is dependent on CPT II codes.

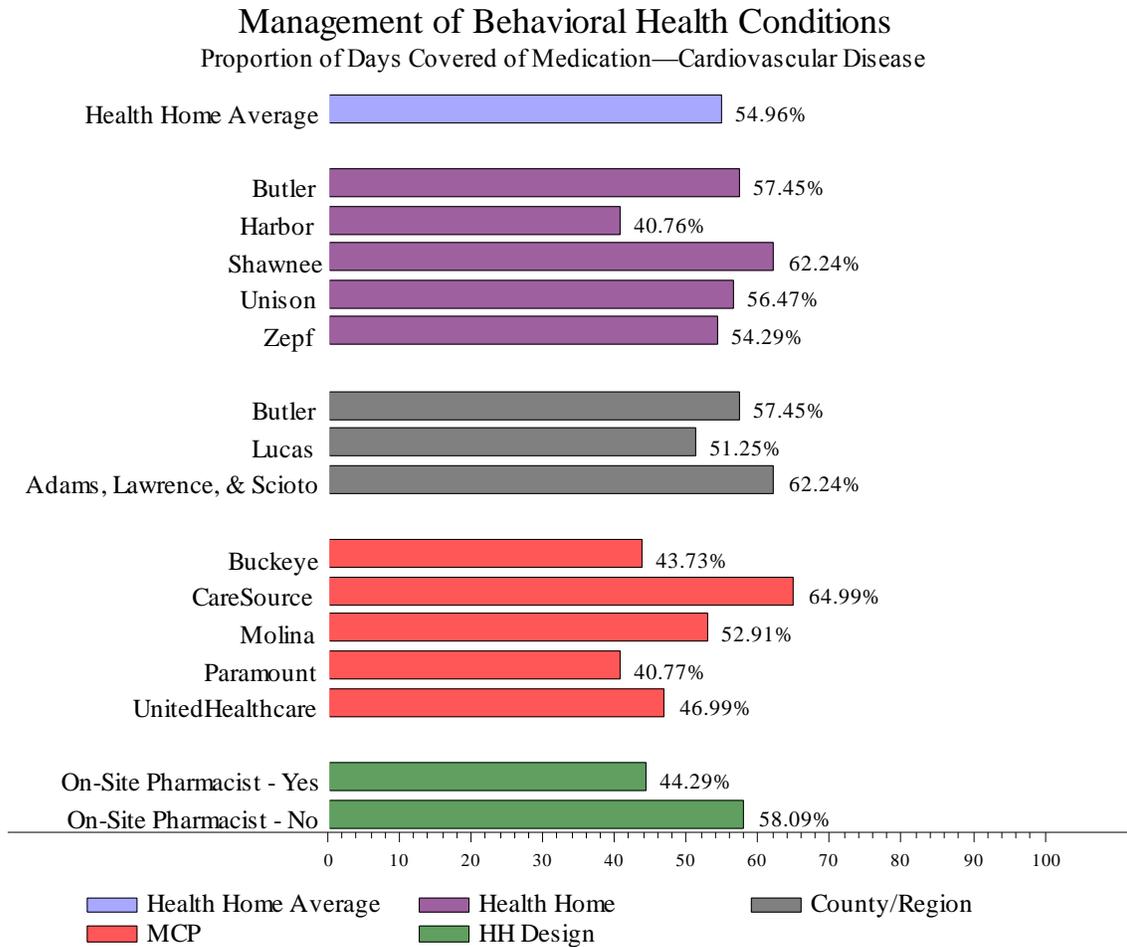
**Management of Behavioral Health Conditions**

The *Proportion of Days Covered of Medication* measure evaluates the percentage of consumers who met the proportion of days covered threshold of 80 percent during the report period for asthma prescriptions, cardiovascular disease, diabetes, and mental illness.

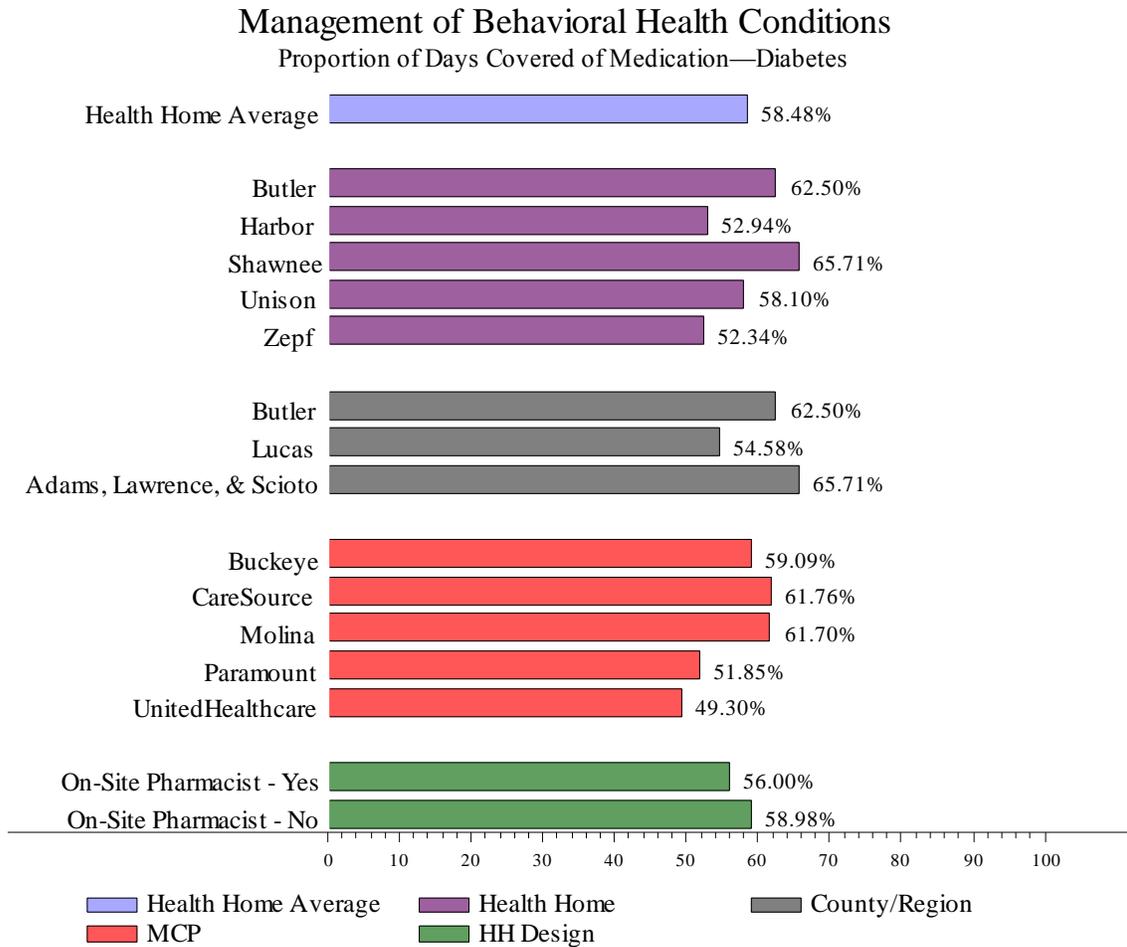
The figure below displays the results for the *Proportion of Days Covered of Medication—Asthma* measure.



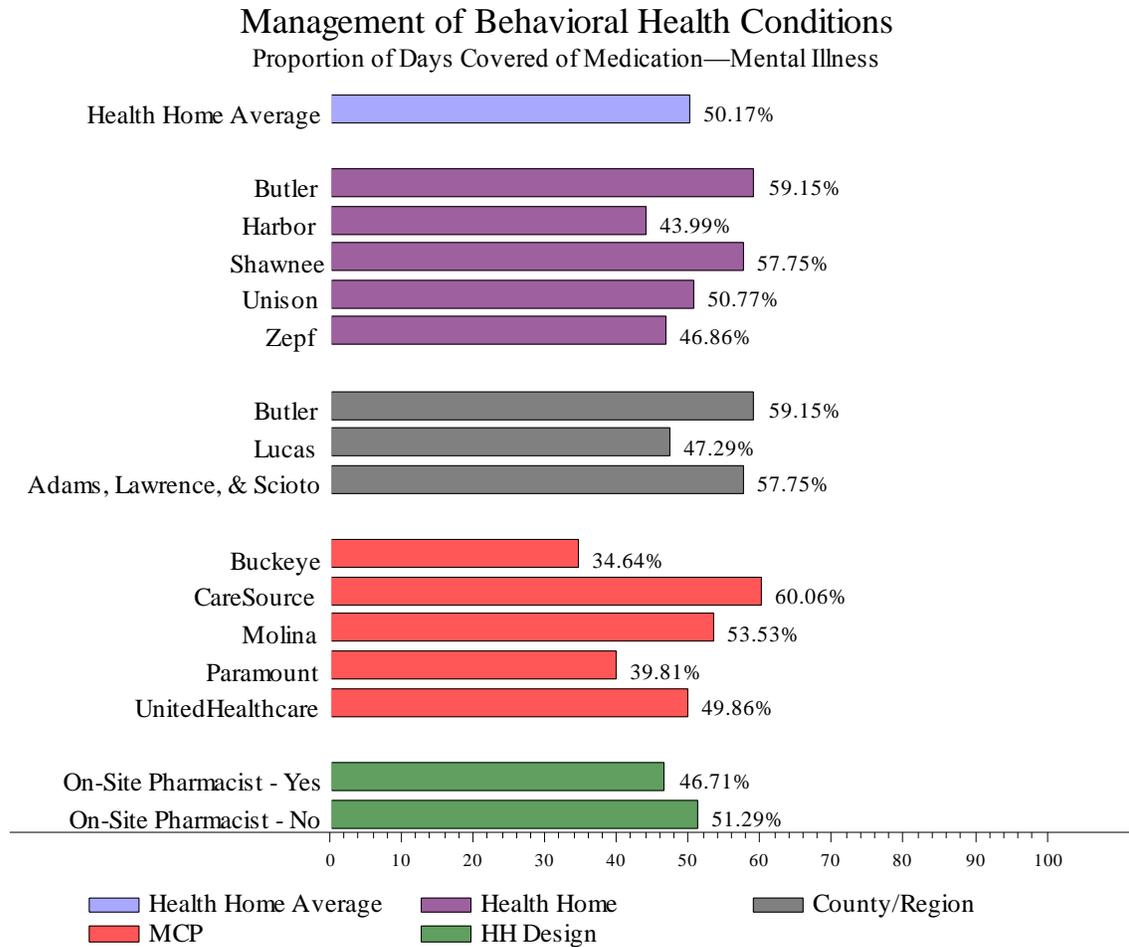
The figure below displays the results for the *Proportion of Days Covered of Medication—Cardiovascular* measure.



The figure below displays the results for the *Proportion of Days Covered of Medication—Diabetes* measure.

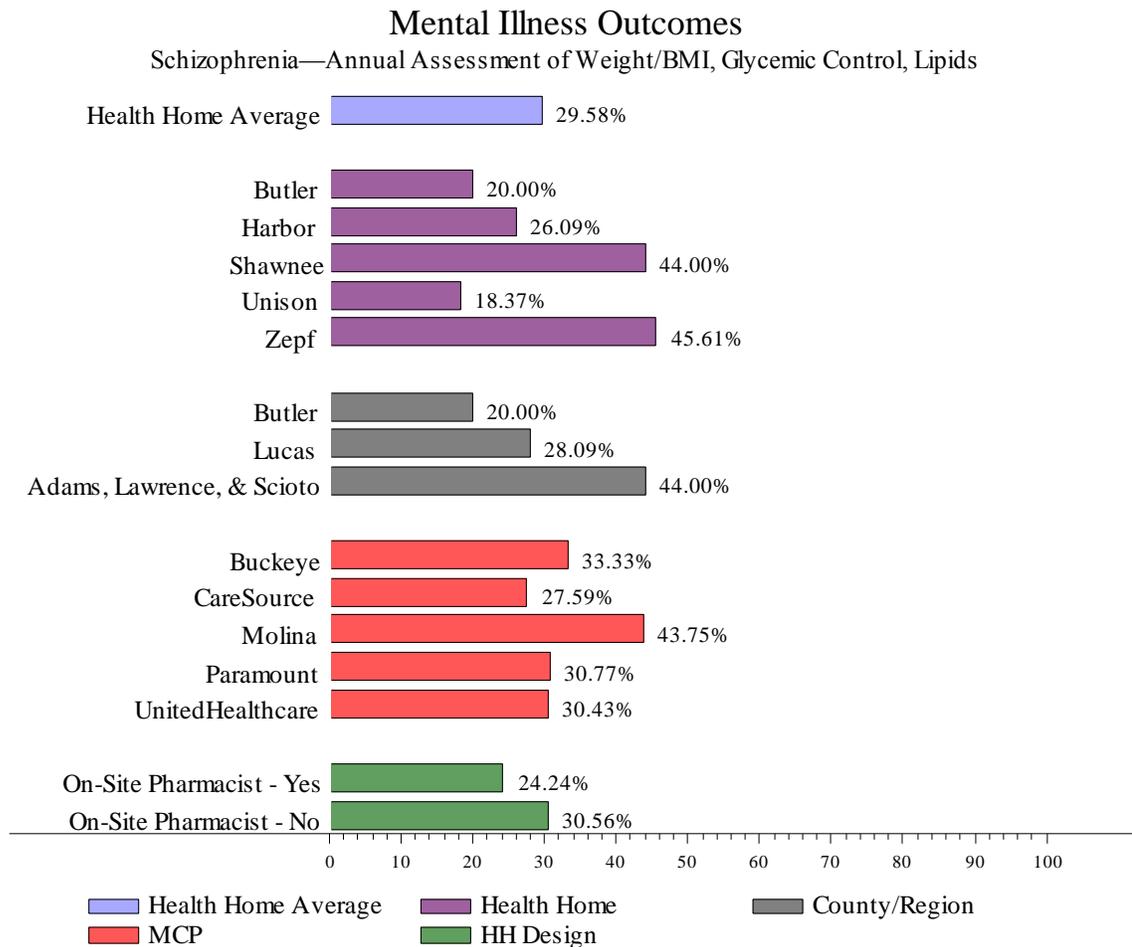


The figure below displays the results for the *Proportion of Days Covered of Medication—Mental Illness* measure.



**Mental Illness Outcomes**

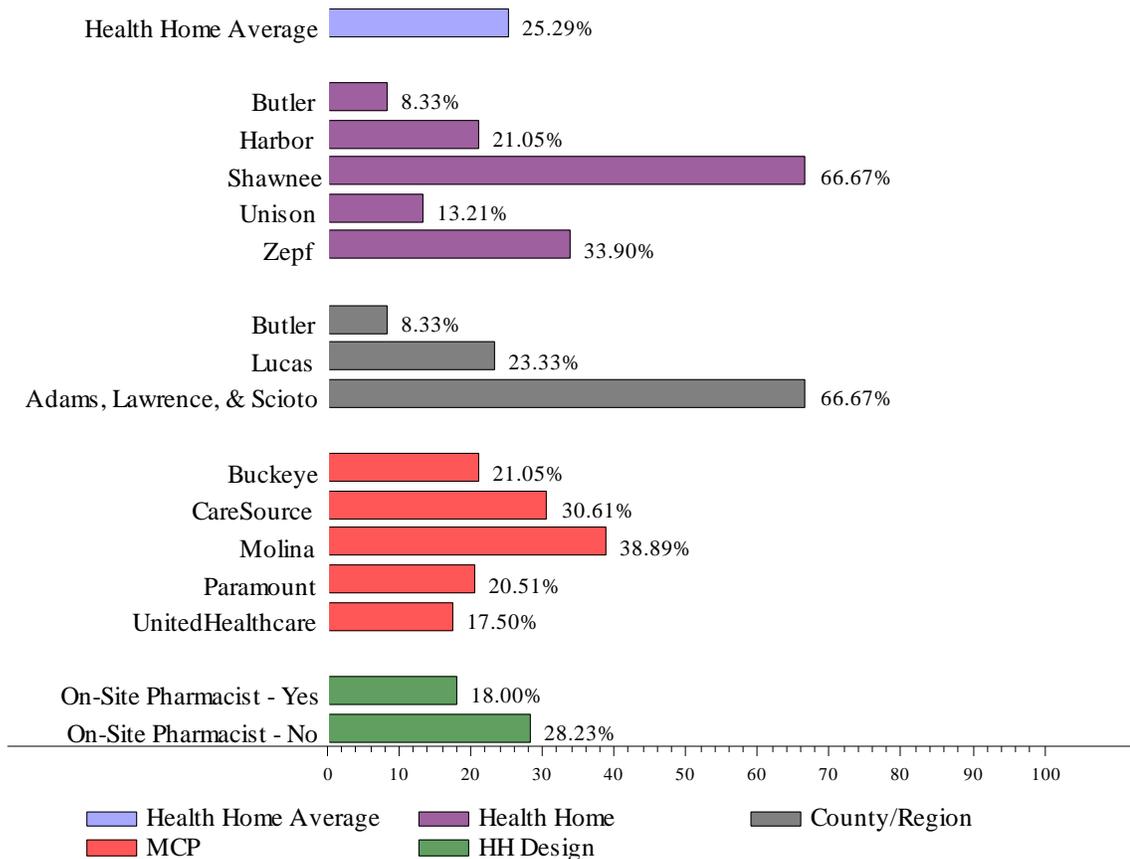
The *Annual Assessment of Weight/BMI, Glycemic Control, and Lipids for People with Schizophrenia Who Were Prescribed Antipsychotic Medications* measure evaluates the percentage of consumers 18–64 years of age diagnosed with schizophrenia, who were dispensed an antipsychotic medication, and received a BMI assessment, a glycemic control assessment, and a lipid screening during the report period. The figure below displays the results for the *Annual Assessment of Weight/BMI, Glycemic Control, and Lipids for People with Schizophrenia Who Were Prescribed Antipsychotic Medications* measure.



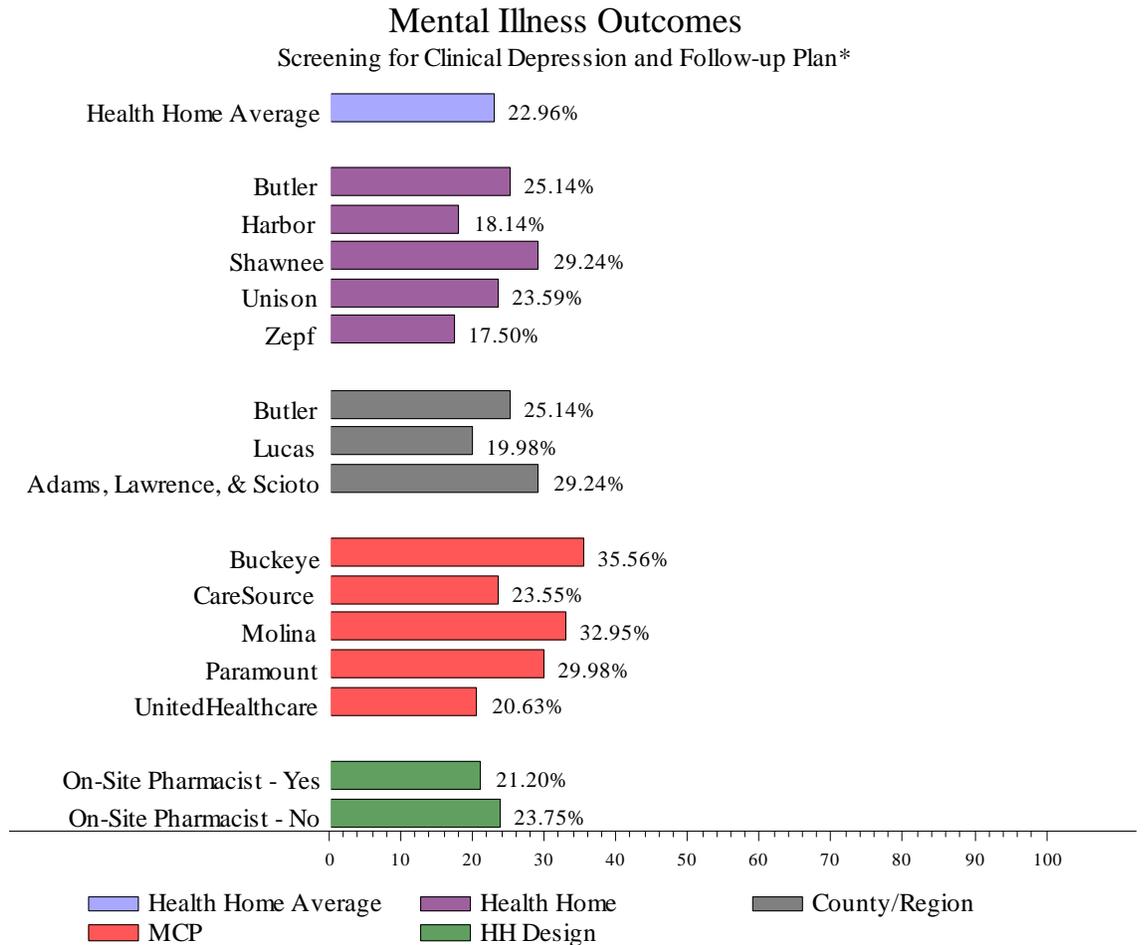
The *Annual Assessment of Weight/BMI, Glycemic Control, and Lipids for People with Bipolar Disorder Who Were Prescribed Antipsychotic Medications* measure evaluates the percentage of consumers 18–64 years of age diagnosed with bipolar disorder, who were dispensed an antipsychotic medication, and received a BMI assessment, a glycemic control assessment, and a lipid screening during the report period. The figure below displays the results for the *Annual Assessment of Weight/BMI, Glycemic Control, and Lipids for People with Bipolar Disorder Who Were Prescribed Antipsychotic Medications* measure.

### Mental Illness Outcomes

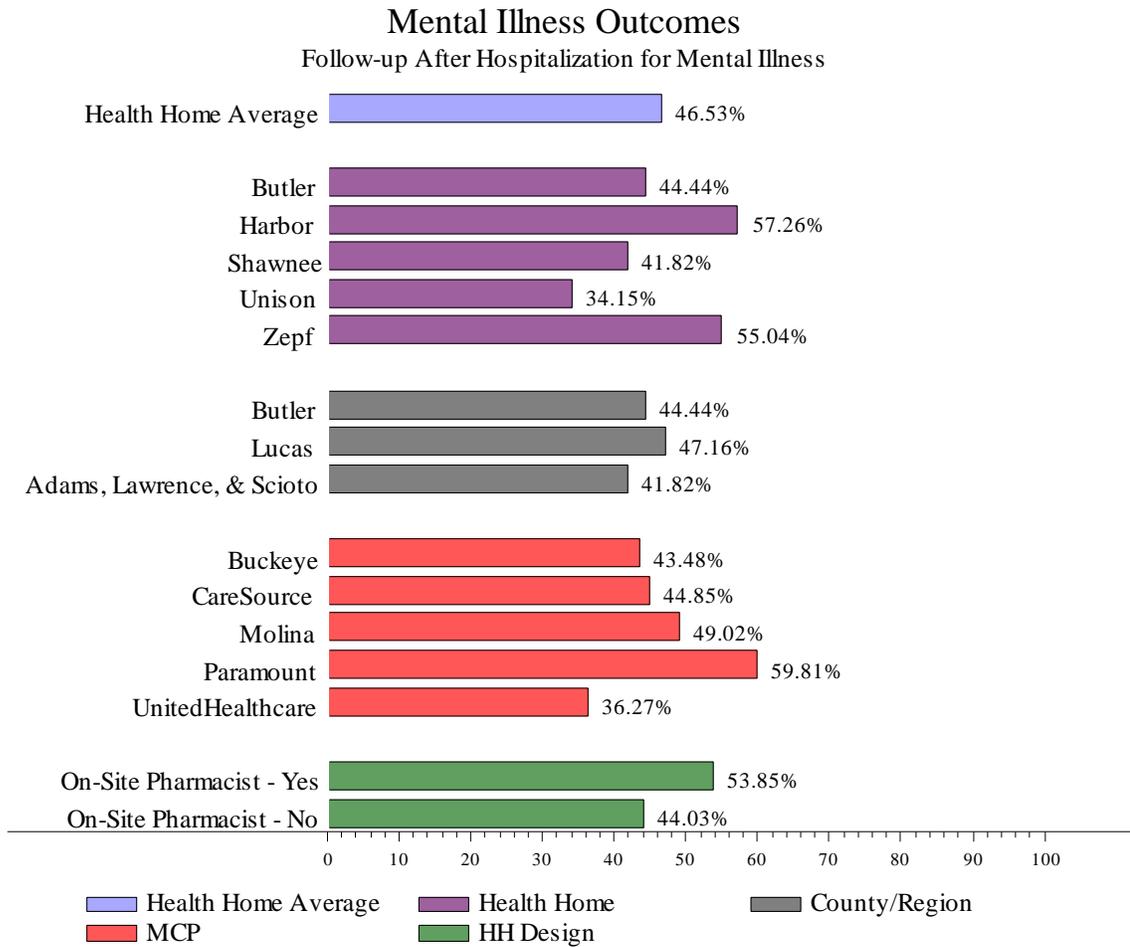
Bipolar Disorder—Annual Assessment of Weight/BMI, Glycemic Control, Lipids



The *Screening for Clinical Depression and Follow-up Plan* measure evaluates the percentage of consumers 18 years of age and older screened for clinical depression using a standardized depression screening tool, and if positive, a follow-up plan is documented on the date of the positive screen. The figure below displays the results for the *Screening for Clinical Depression and Follow-up Plan* measure.



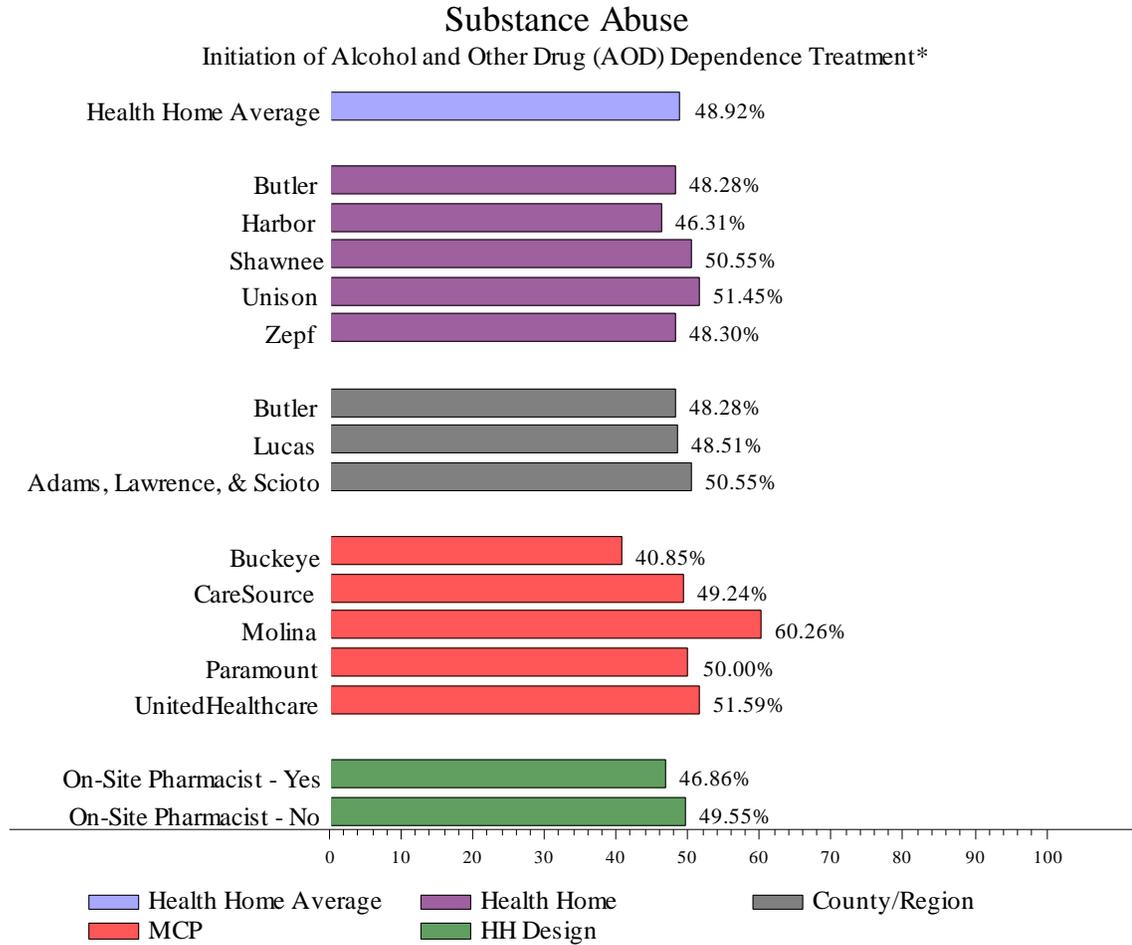
The *Follow-up After Hospitalization for Mental Illness* measure evaluates the percentage of discharges for consumers 6 years of age and older who were hospitalized for treatment of selected mental illness diagnoses and who had an outpatient visit, an intensive outpatient encounter, or partial hospitalization with a mental health practitioner, and who received follow-up within seven days of discharge.<sup>6-6</sup> The figure below displays the results for the *Follow-up After Hospitalization for Mental Illness* measure.



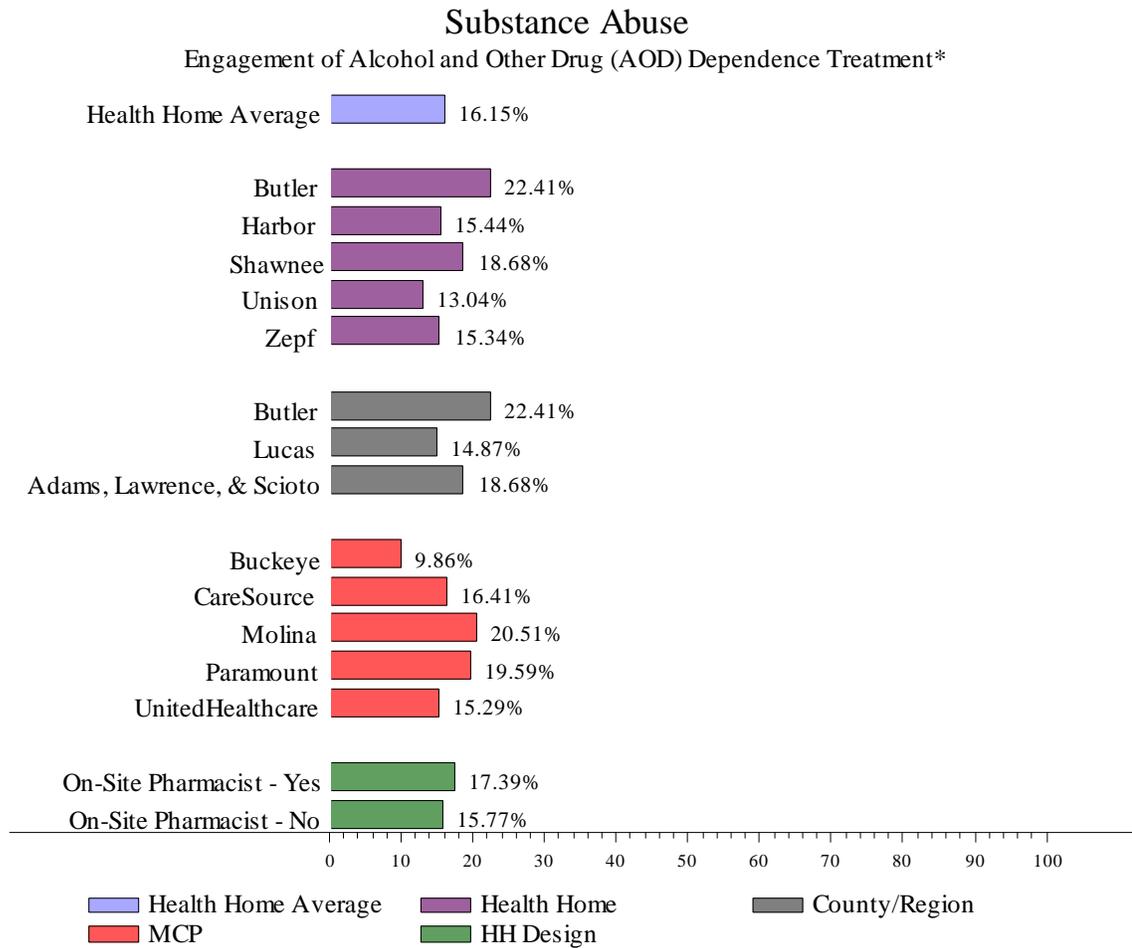
<sup>6-6</sup> This measure allows for the use of a CPT II code (1110F with a modifier of U4).

**Substance Abuse**

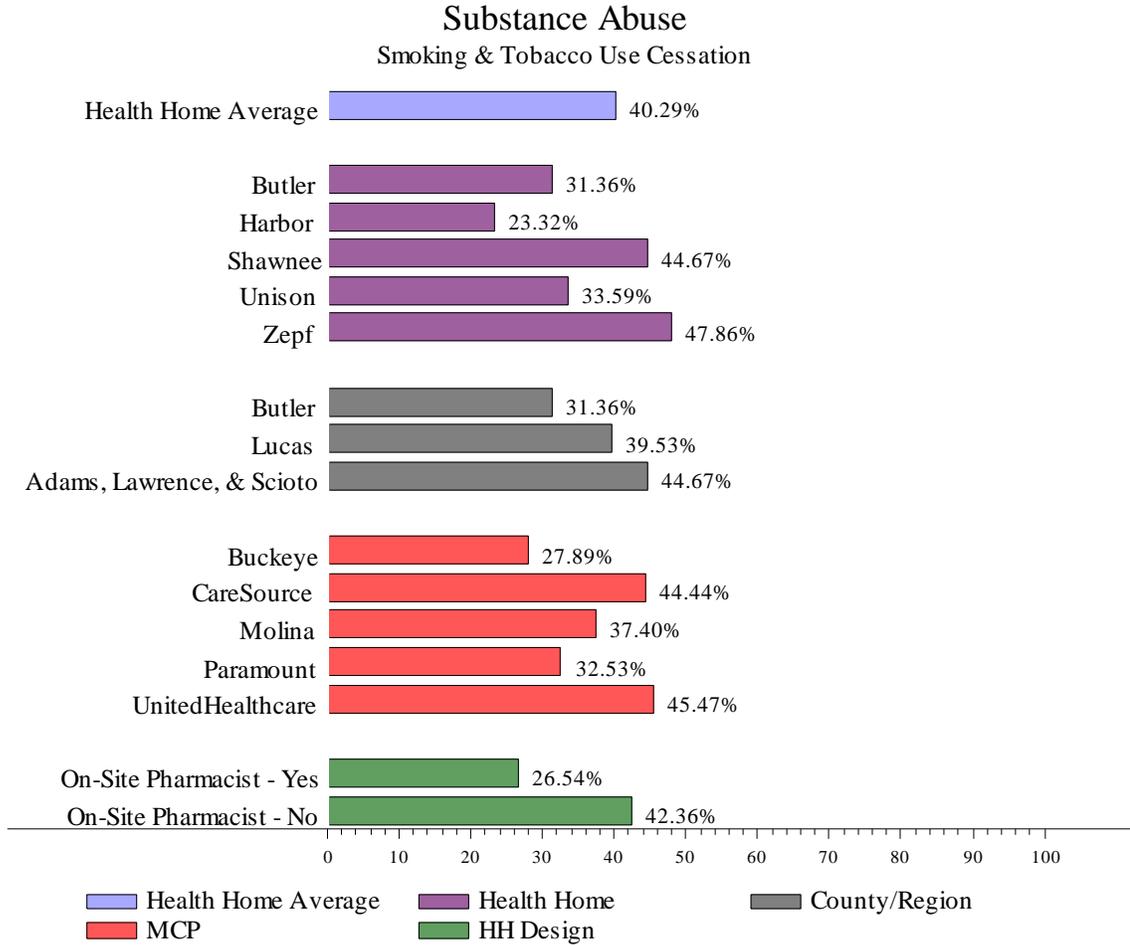
The *Initiation of Alcohol and Other Drug (AOD) Dependence Treatment* measure evaluates the percentage of consumers diagnosed with AOD dependence who initiate treatment through an inpatient AOD admission or an outpatient service with an AOD service within 14 days of diagnosis. The figure below displays the results for the *Initiation of AOD Dependence Treatment* measure.



The *Engagement of AOD Dependence Treatment* measure evaluates the percentage of consumers who initiated treatment and who have two or more additional AOD services within 30 days after the date of the initiation visit. The figure below displays the results for the *Engagement of AOD Dependence Treatment* measure.



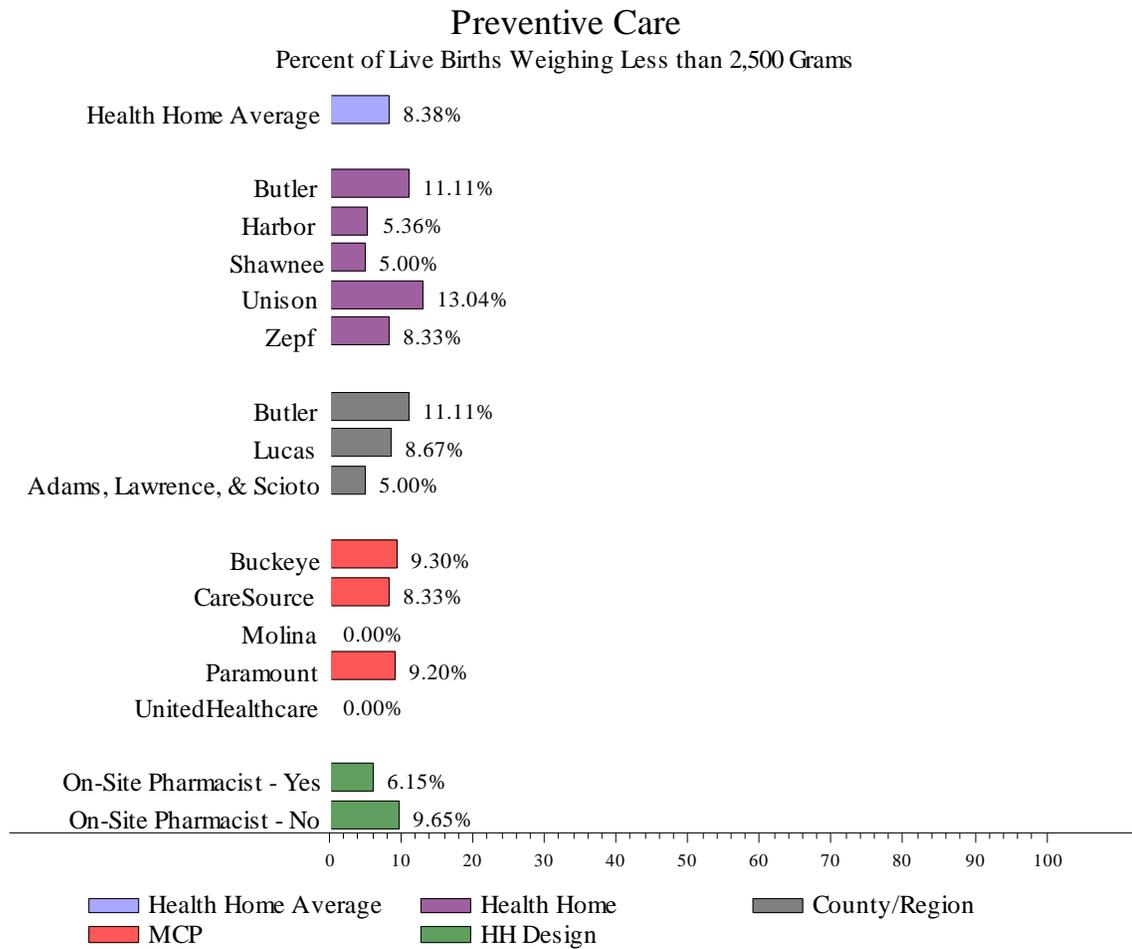
The *Smoking & Tobacco Use Cessation* measure evaluates the percentage of tobacco-using consumers who received a tobacco cessation intervention.<sup>6-7</sup> The figure below displays the results for the *Smoking & Tobacco Use Cessation* measure.



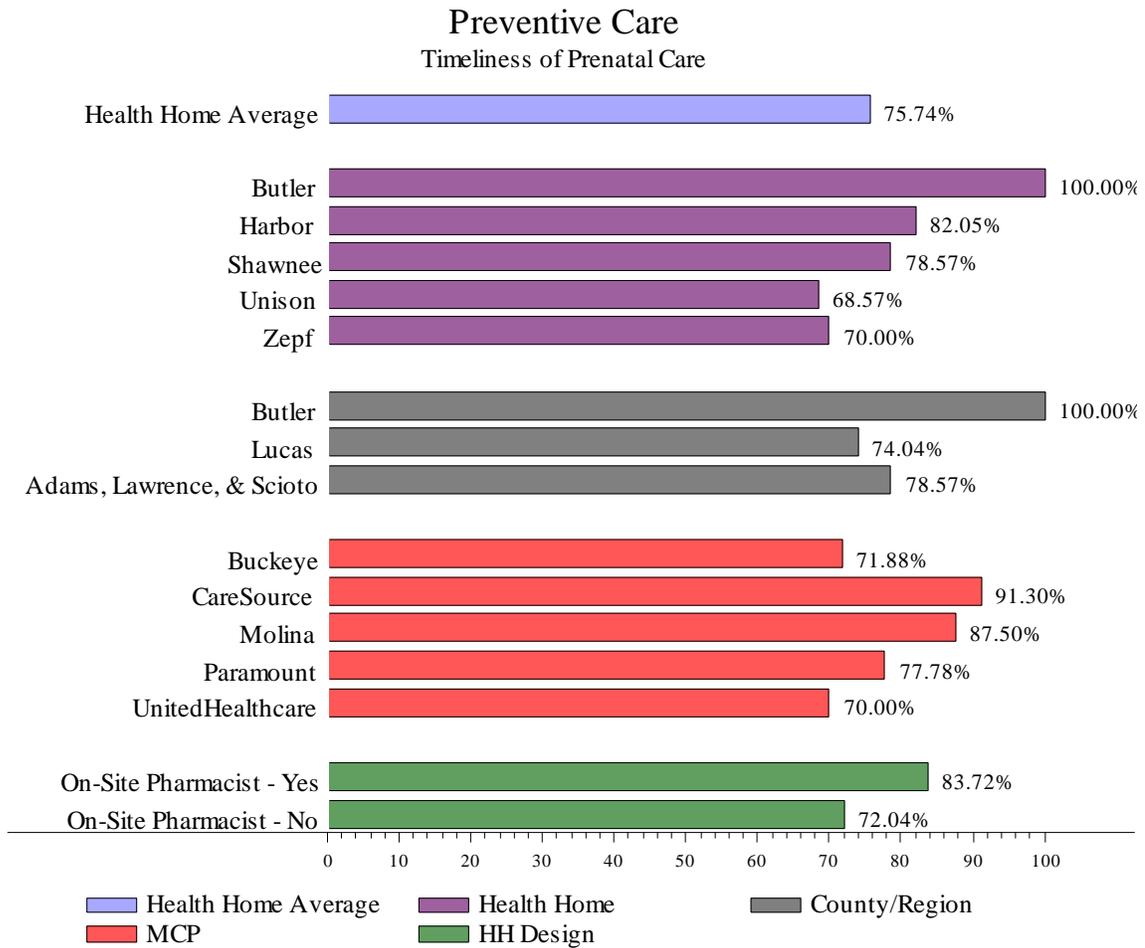
<sup>6-7</sup> This measure is dependent on CPT II codes.

**Preventive Care**

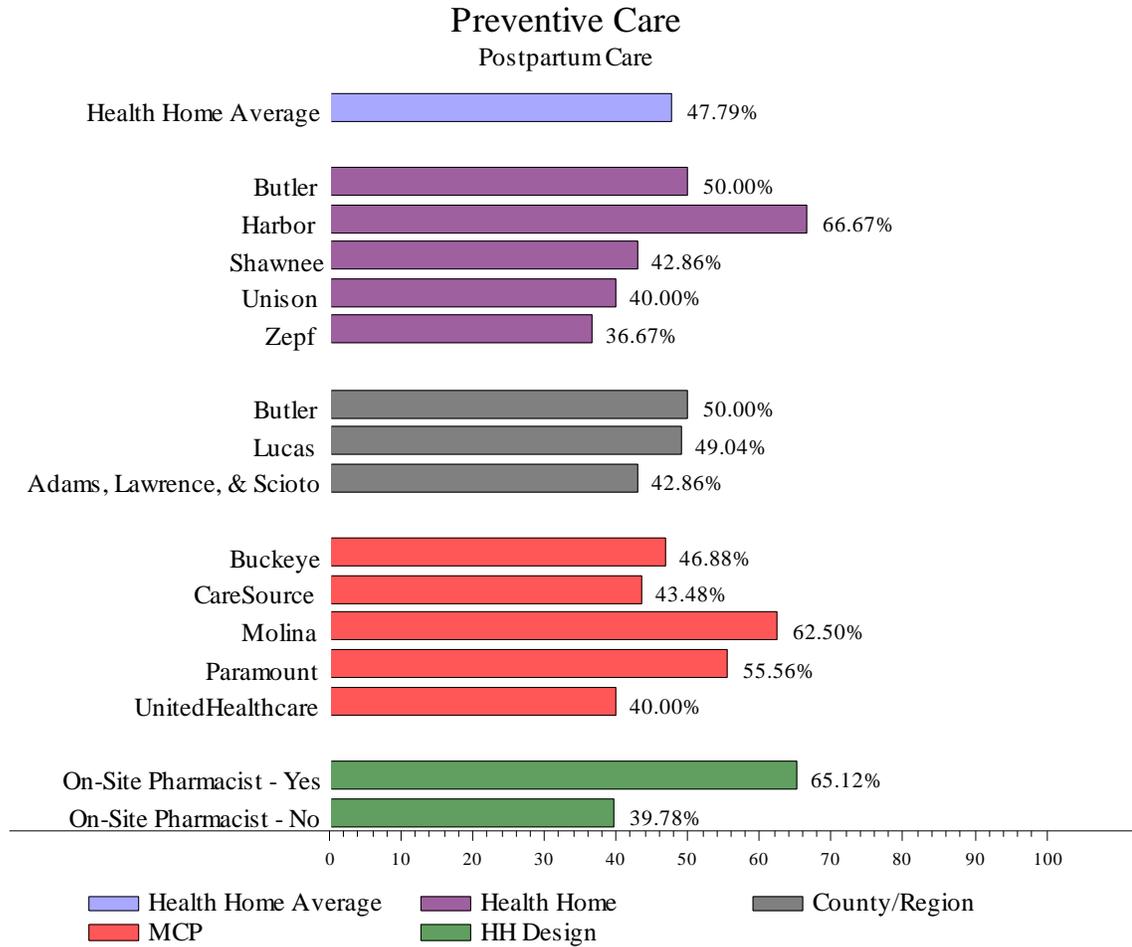
The *Percent of Live Births Weighing Less than 2,500 Grams* measure evaluates the percentage of women who delivered live births less than 2,500 grams. The figure below displays the results for the *Percent of Live Births Weighing Less than 2,500 Grams* measure. Typically, a lower rate indicates better performance.



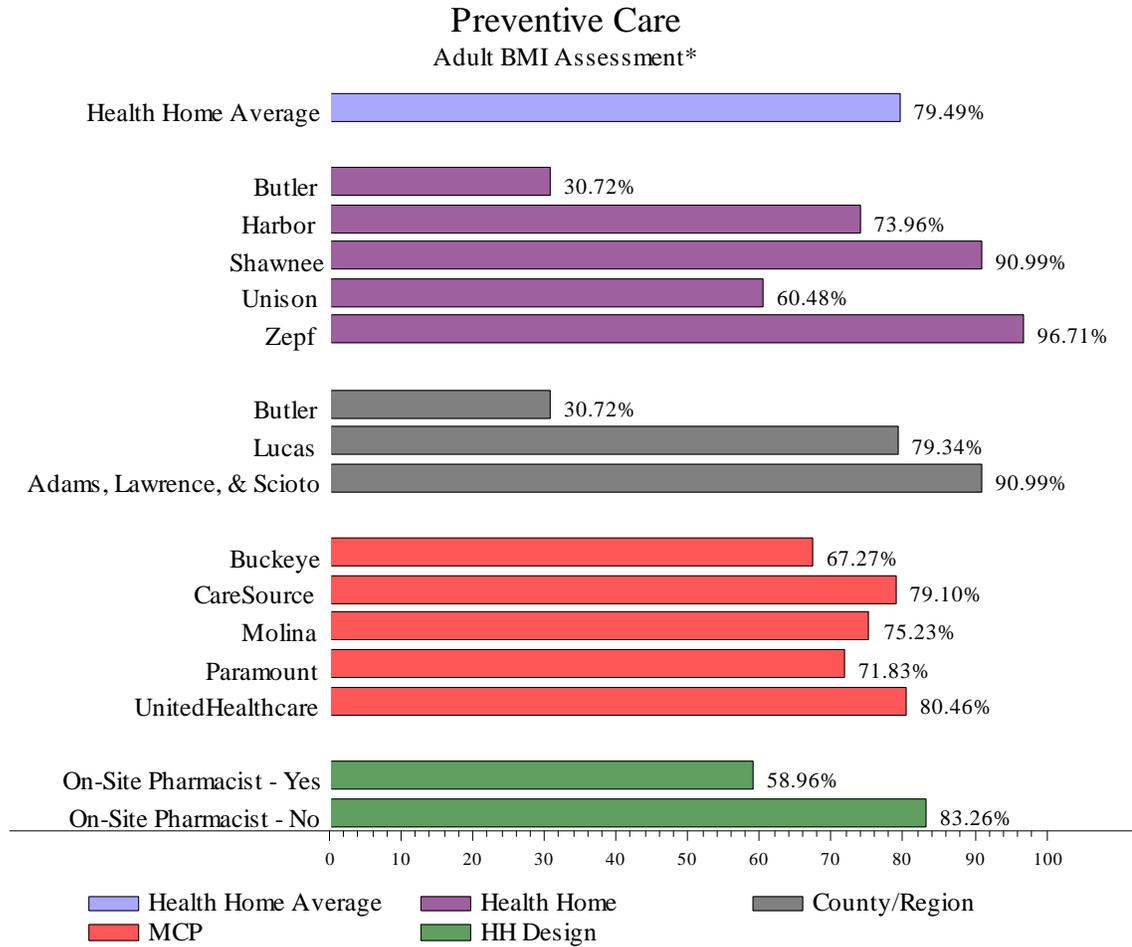
The *Timeliness of Prenatal Care* measure evaluates the percentage of deliveries who had their first prenatal visit within 42 days of Health Home enrollment or by the end of the first trimester for those women who were enrolled in the Health Home during the early stage of pregnancy. The figure below displays the results for the *Timeliness of Prenatal Care* measure.



The *Postpartum Care* measure evaluates the percentage of deliveries that had a postpartum visit on or between 21 days and 56 days after delivery. The figure below displays the results for the *Postpartum Care* measure.

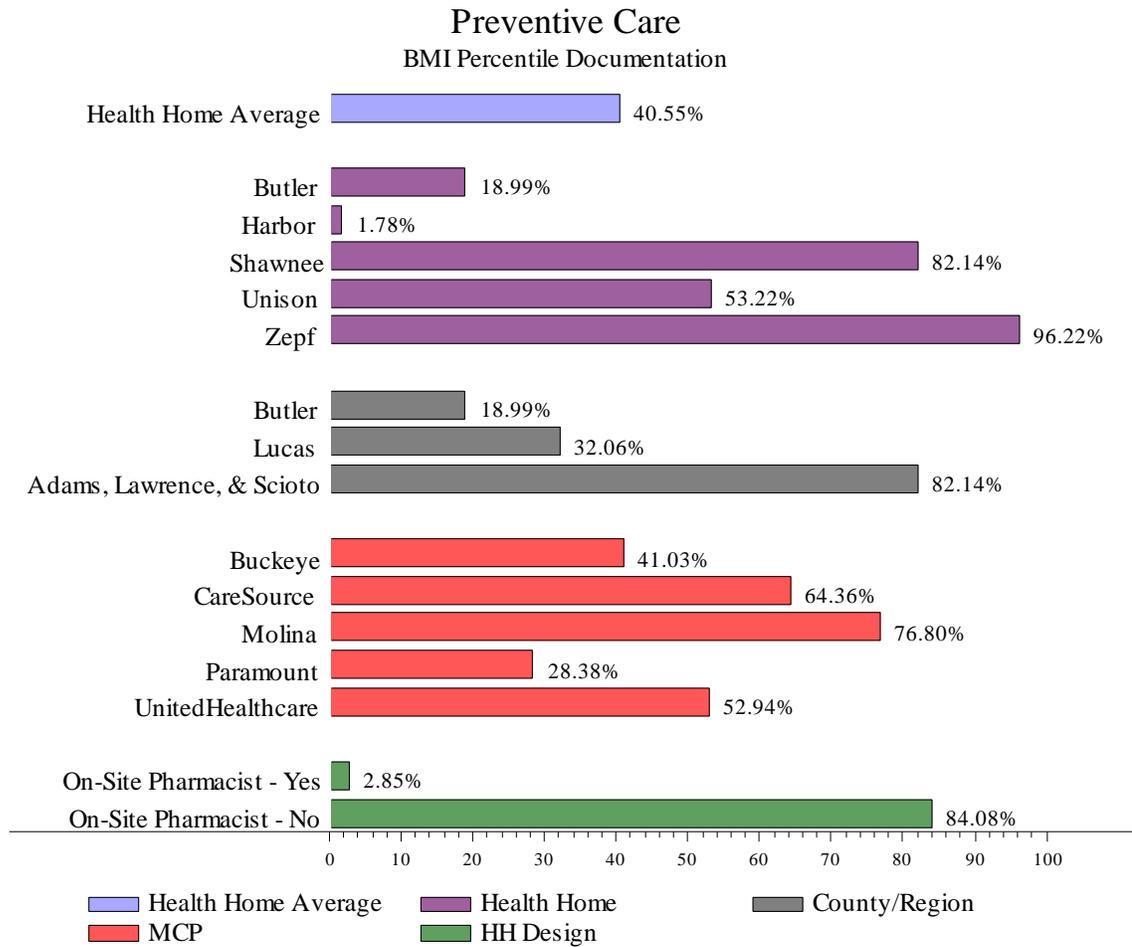


The *Adult BMI Assessment* measure evaluates the percentage of consumers 18–74 years of age who had an outpatient visit and whose BMI was documented during the report period or the year prior to the report period.<sup>6-8</sup> The figure below displays the results for the *Adult BMI Assessment* measure.



<sup>6-8</sup> This measure uses CPT II codes for identifying that BMI/weight assessment was performed.

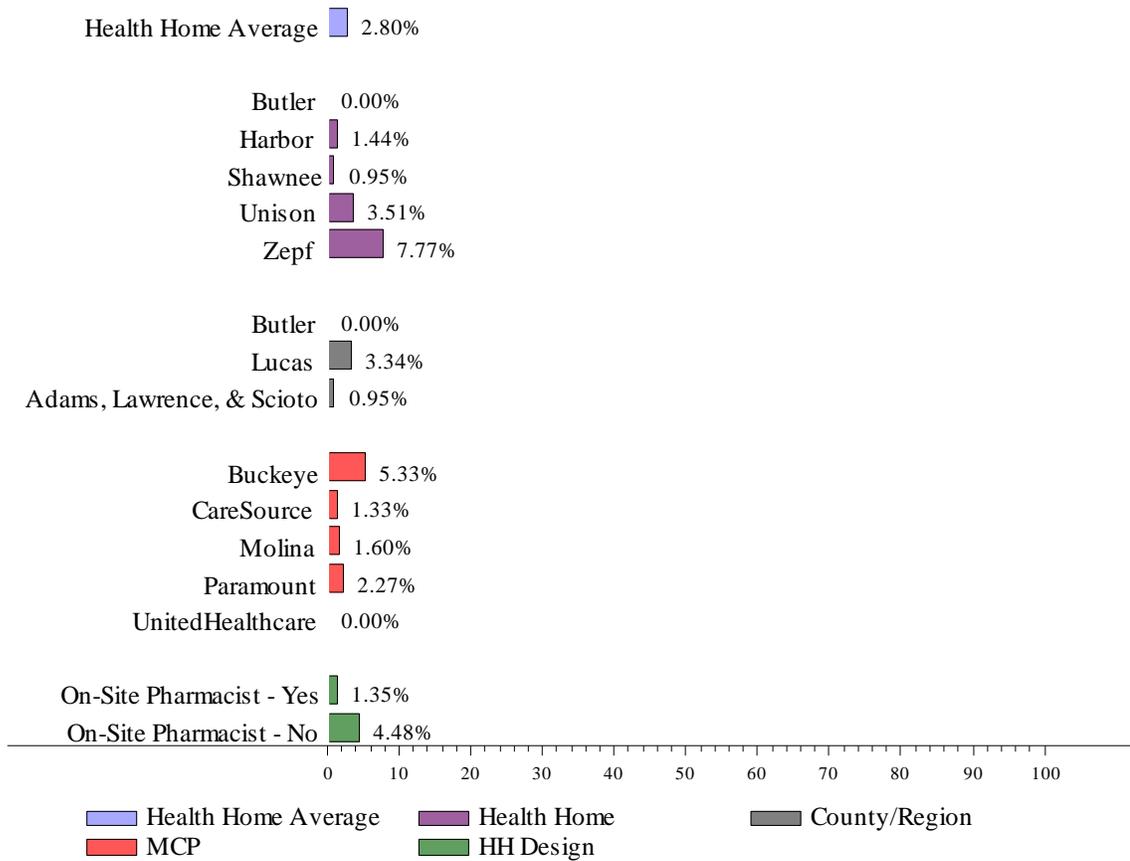
The *Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents—BMI Percentile Documentation* measure evaluates the percentage of consumers 3–17 years of age who had an outpatient visit with a PCP or obstetrician/gynecologist (OB/GYN) and who had evidence of BMI percentile documentation during the report period.<sup>6-9</sup> The figure below displays the results for the *Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents—BMI Percentile Documentation* measure.



<sup>6-9</sup> This measure uses CPT II codes for identifying that BMI/weight assessment was performed.

The *Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents—Counseling for Nutrition* measure evaluates the percentage of consumers 3–17 years of age who had an outpatient visit with a PCP or OB/GYN and who had evidence of counseling for nutrition during the report period. The figure below displays the results for the *Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents—Counseling for Nutrition* measure.

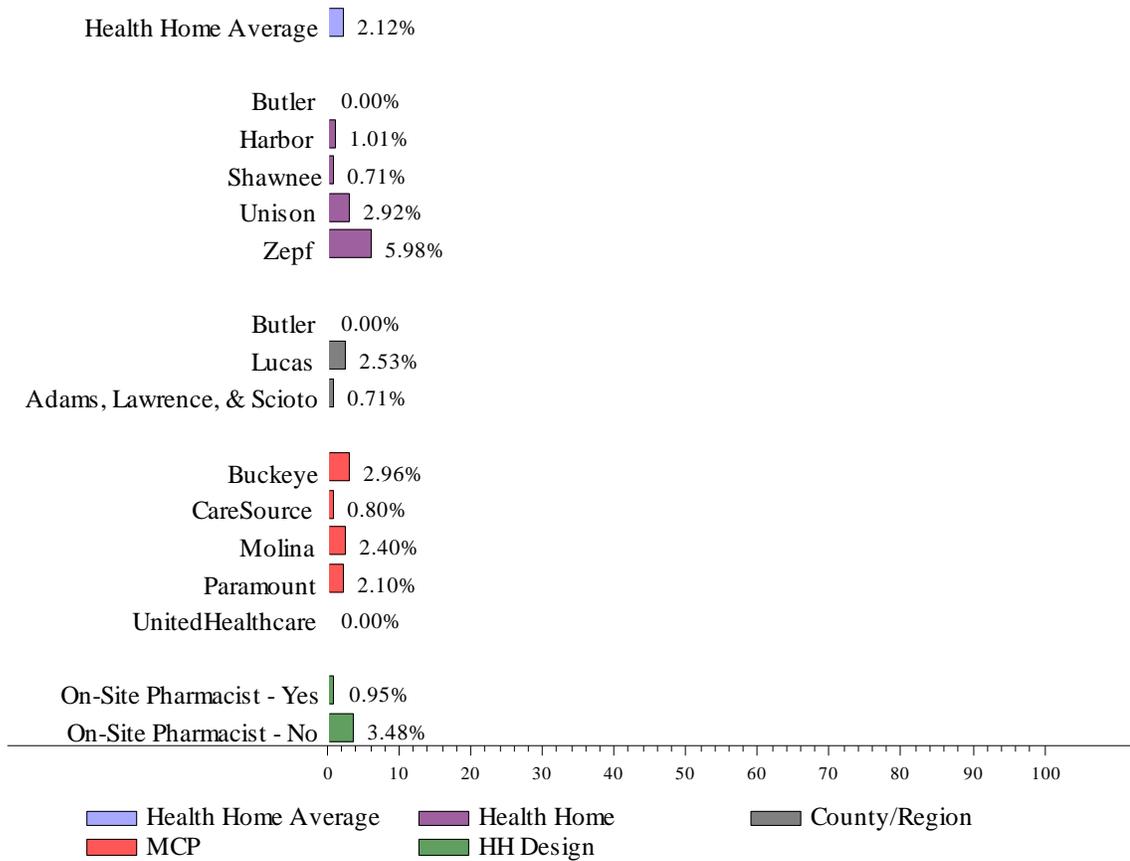
**Preventive Care**  
Counseling for Nutrition



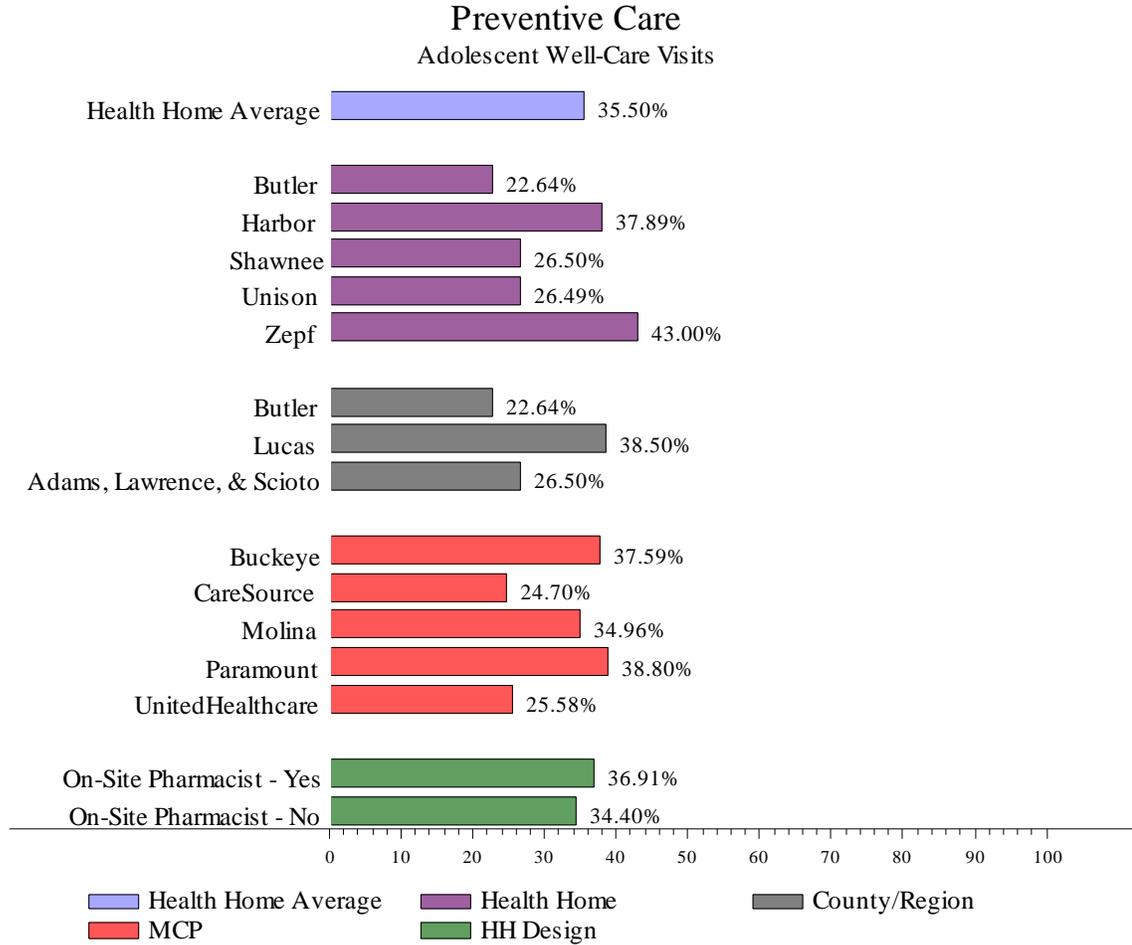
The *Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents—Counseling for Physical Activity* measure evaluates the percentage of consumers 3–17 years of age who had an outpatient visit with a PCP or OB/GYN and who had evidence of counseling for physical activity during the report period. The figure below displays the results for the *Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents—Counseling for Physical Activity* measure.

### Preventive Care

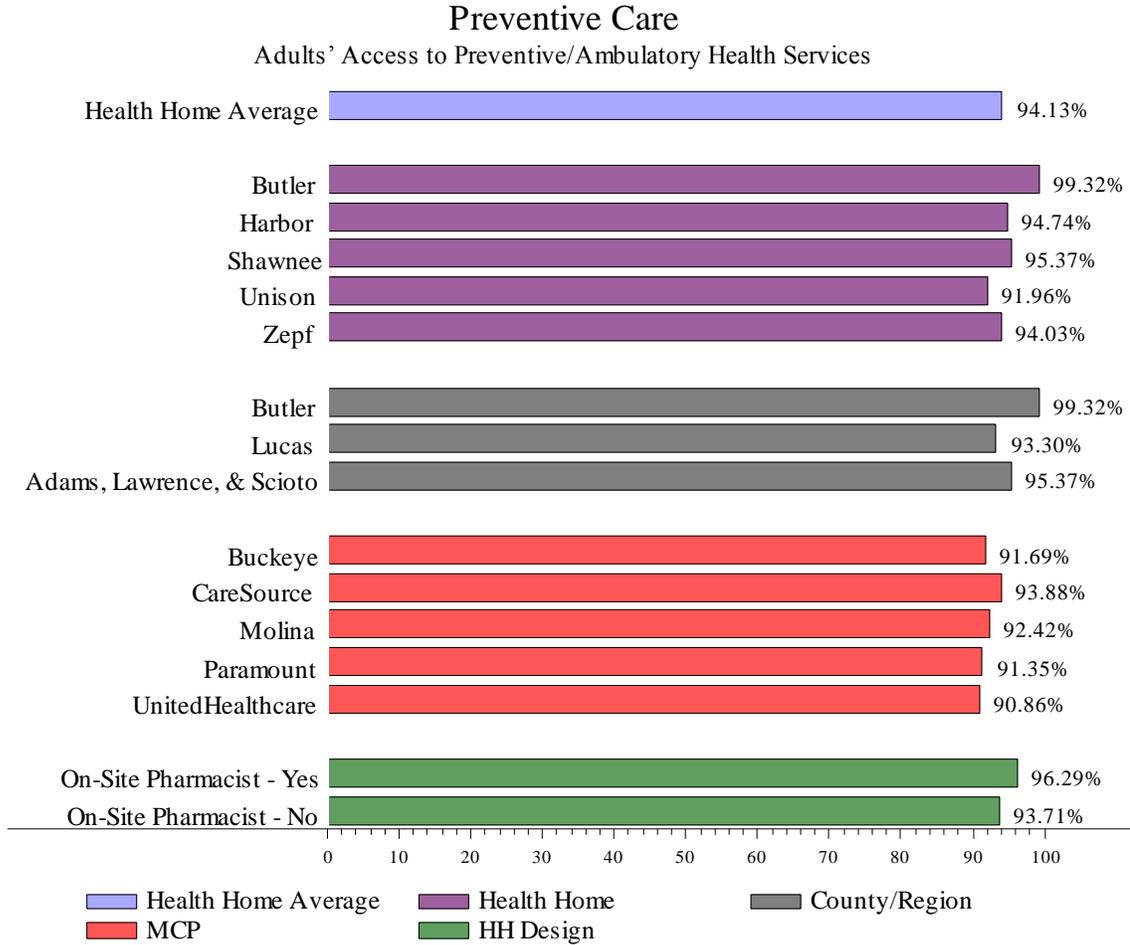
#### Counseling for Physical Activity



The *Adolescent Well-Care Visits* measure evaluates the percentage of consumers 12–21 years of age who received at least one comprehensive well-care visit with a PCP or OB/GYN during the report year. The figure below displays the results for the *Adolescent Well-Care Visits* measure.



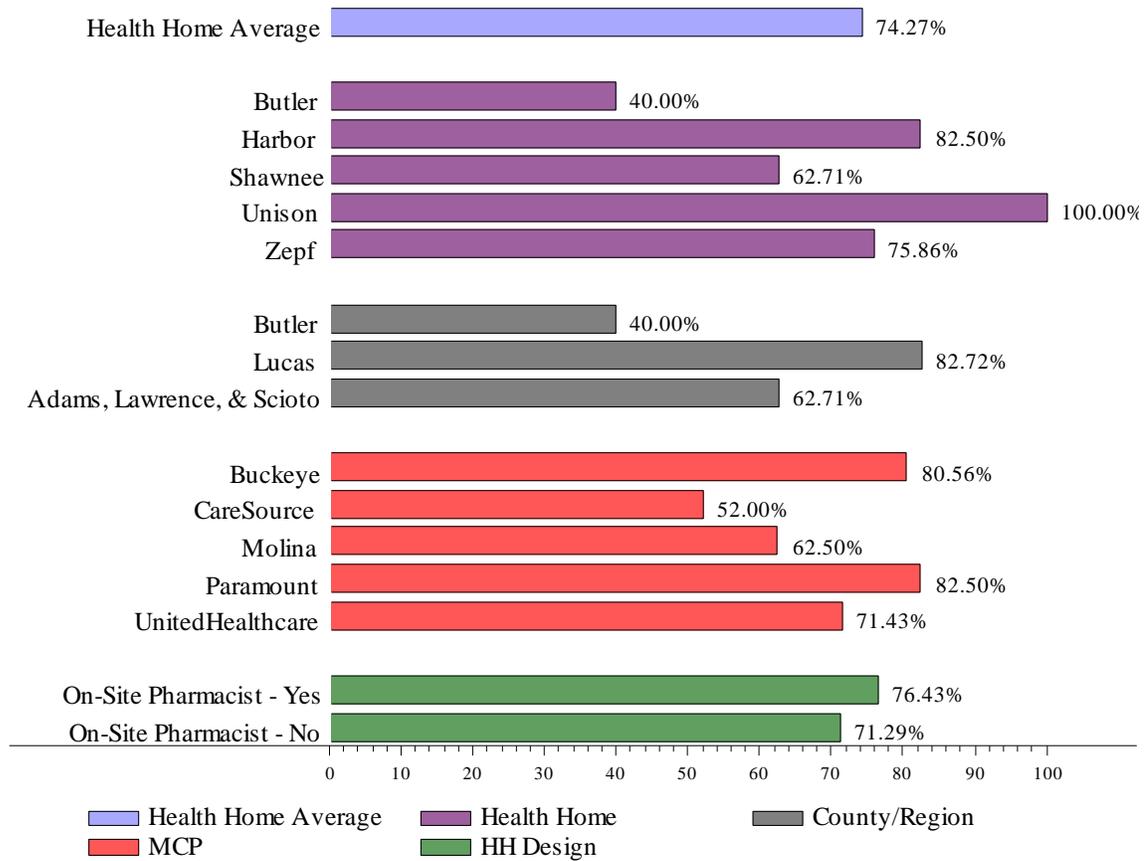
The *Adults' Access to Preventive/Ambulatory Health Services* measure evaluates the percentage of consumers 20 years and older who had an ambulatory or preventive care visit. The figure below displays the results for the *Adults' Access to Preventive/Ambulatory Health Services* measure.



The *Appropriate Treatment for Children with Upper Respiratory Infections* measure evaluates the percentage of children 3 months–18 years of age given a diagnosis of upper respiratory infection and were not dispensed an antibiotic prescription. The figure below displays the results for the *Appropriate Treatment for Children with Upper Respiratory Infections* measure. This measure is reported as an inverse rate [1– (numerator/denominator)]. A higher rate indicates appropriate treatment of children with URI (i.e., the proportion for whom antibiotics were not prescribed).

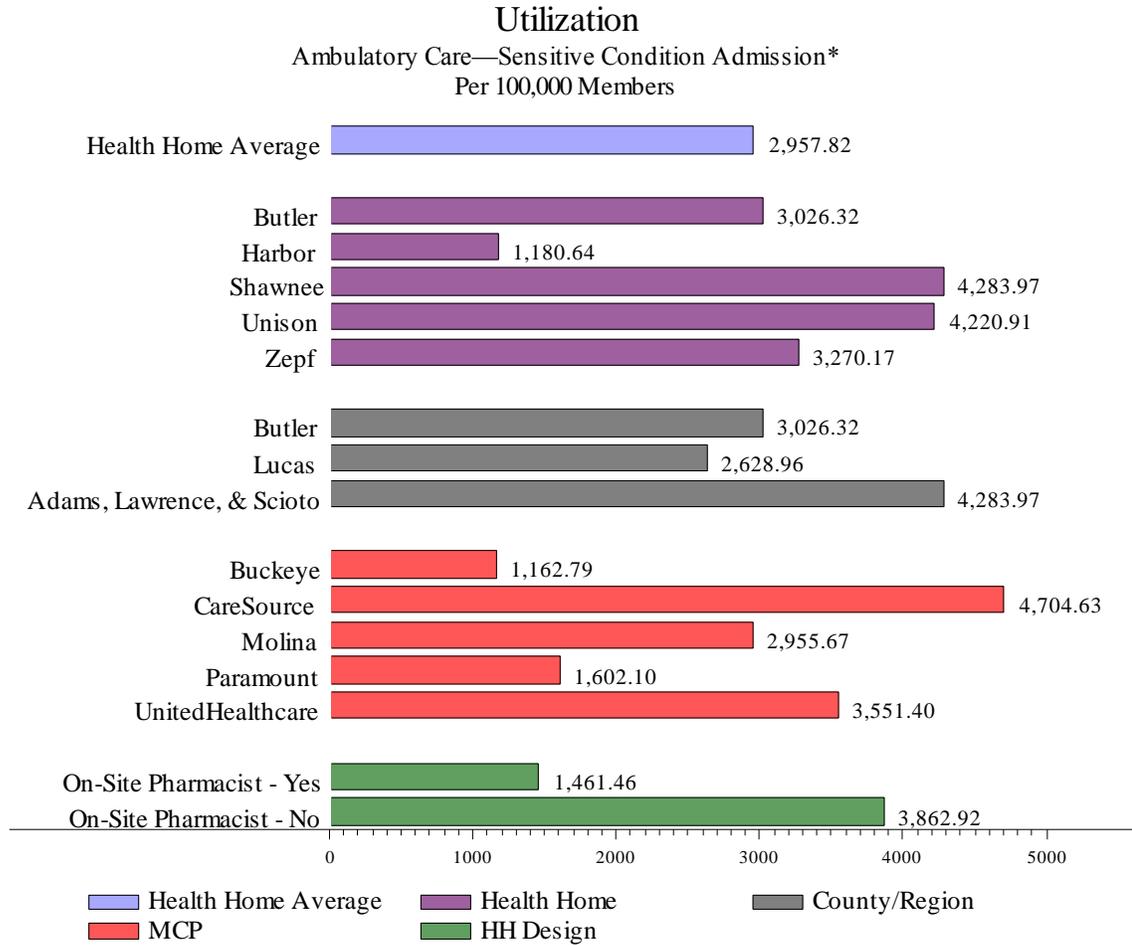
### Preventive Care

#### Appropriate Treatment for Children with Upper Respiratory Infections

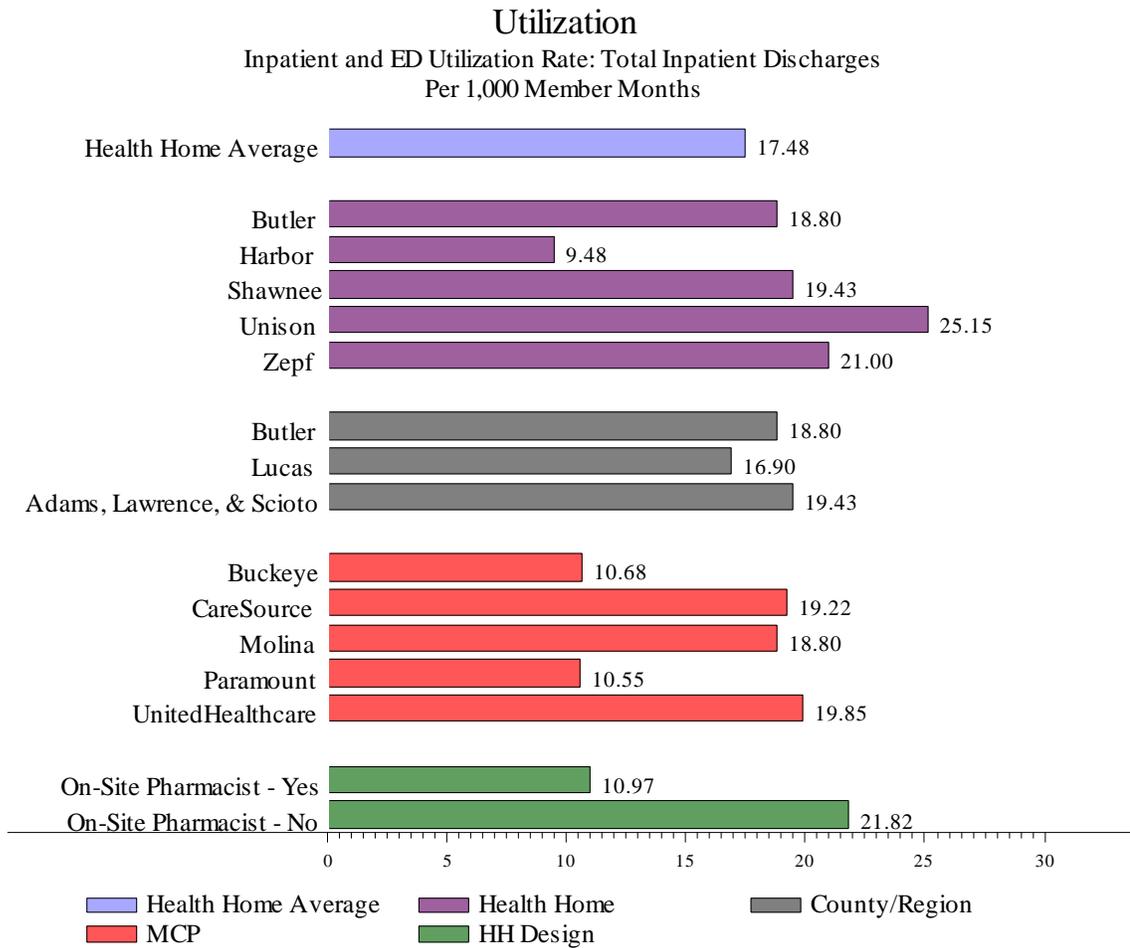


**Utilization**

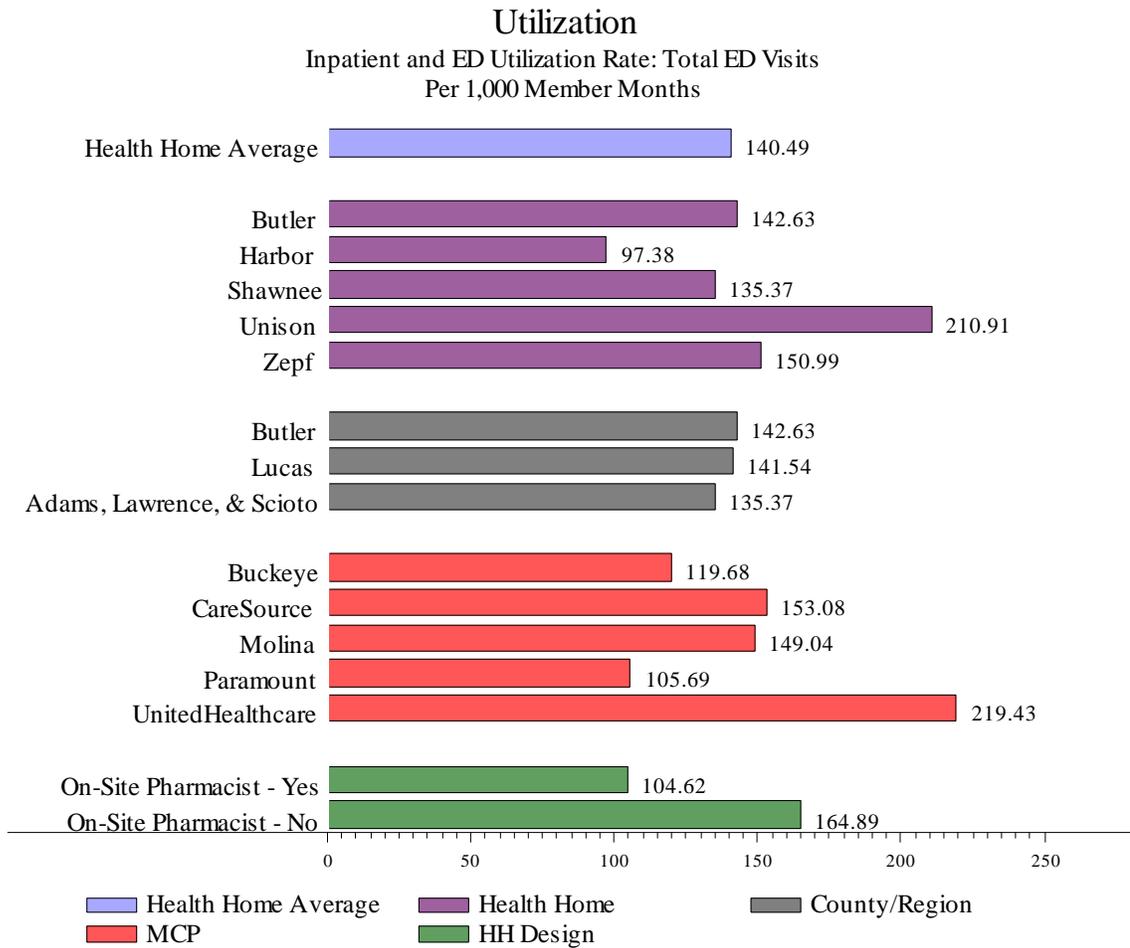
The *Ambulatory Care—Sensitive Condition Admission* measure evaluates the acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to a hospital. The figure below displays the results for the *Ambulatory Care—Sensitive Condition Admission* measure. This measure is calculated per 100,000 consumers for those 75 years of age and younger. Typically, a lower rate indicates better performance.



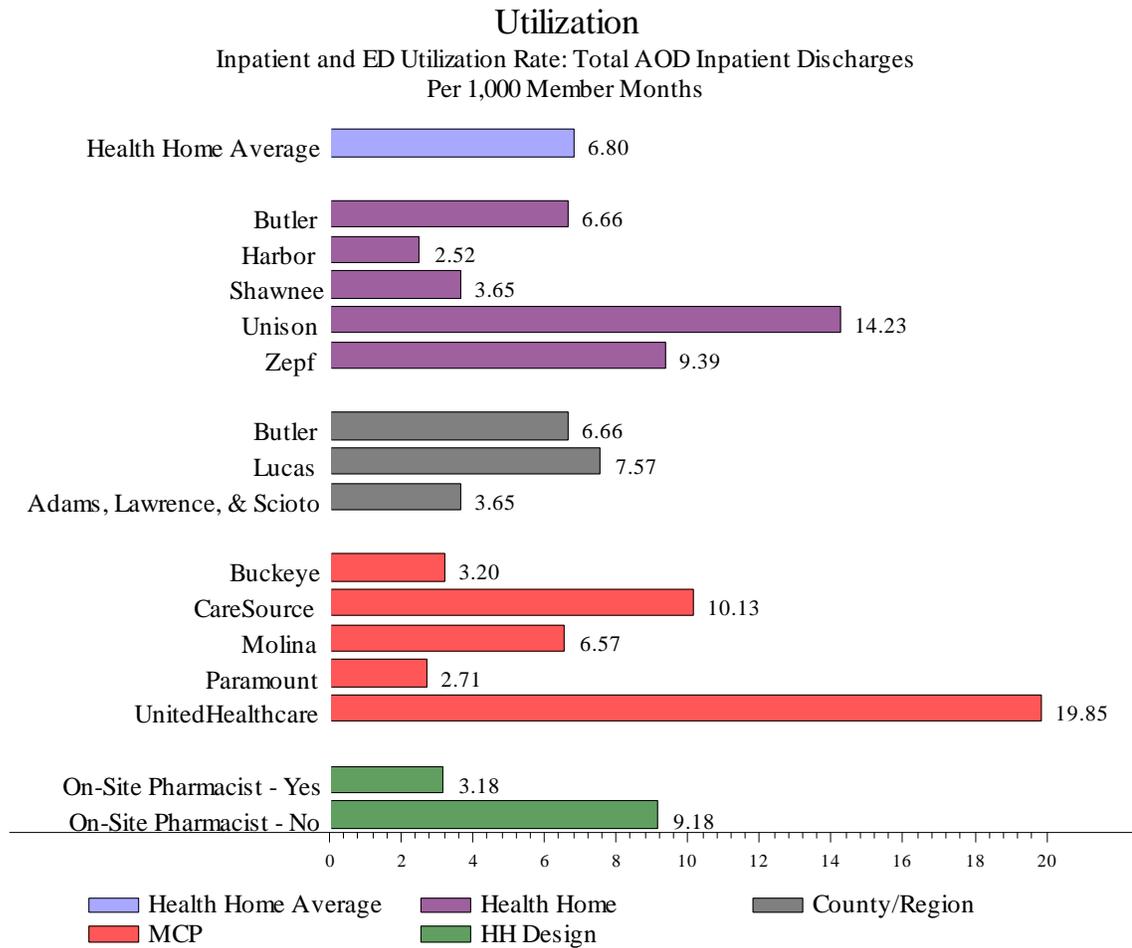
The *Inpatient and ED Utilization Rate—Total Inpatient Discharges* measure evaluates the number of inpatient discharges per 1,000 member months. The figure below displays the results for the *Inpatient and ED Utilization Rate—Total Inpatient Discharges* measures. These measures are calculated per 1,000 member months. A lower rate generally indicates better performance.



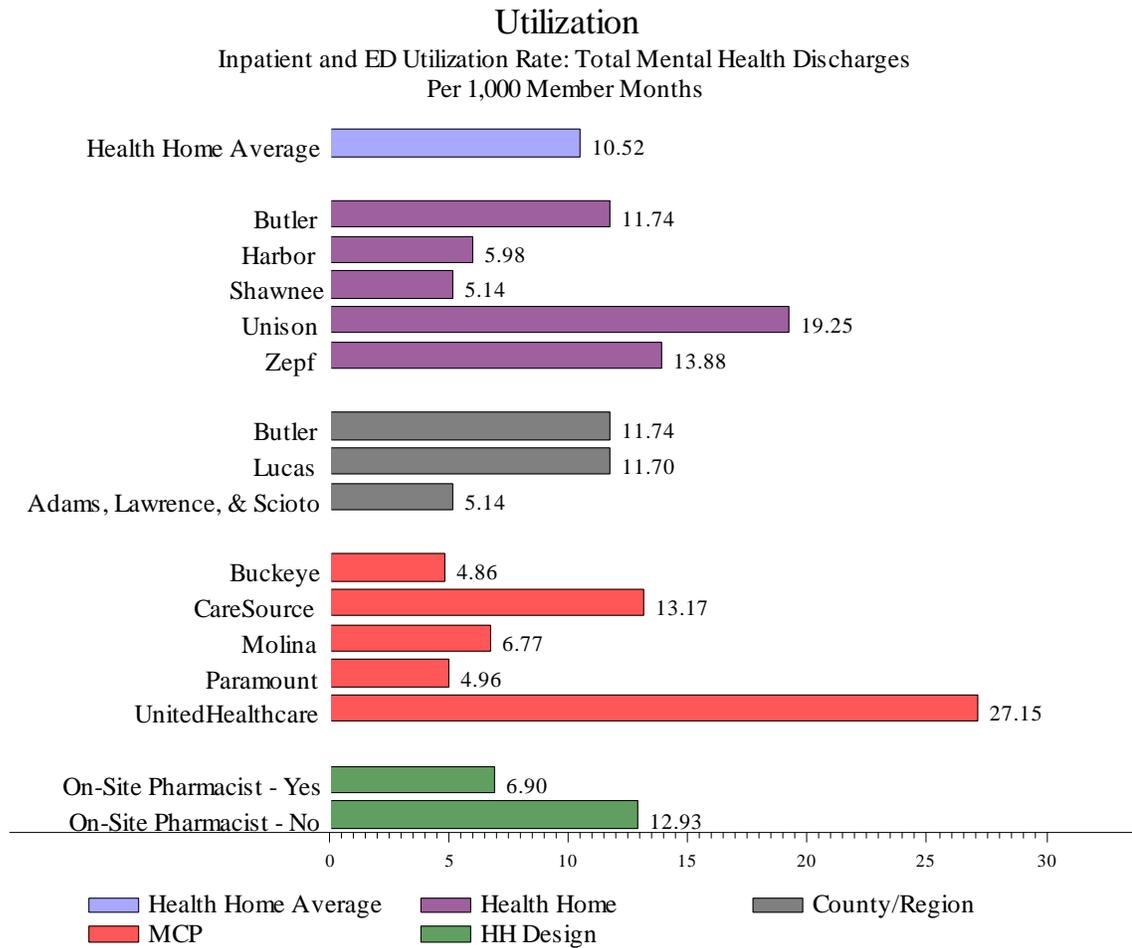
The *Inpatient and ED Utilization Rate—Total ED Visits* measure evaluates the number of ED visit discharges per 1,000 member months. The figure below displays the results for the *Inpatient and ED Utilization Rate—Total ED Visits* measure. These measures are calculated per 1,000 member months. A lower rate generally indicates better performance.



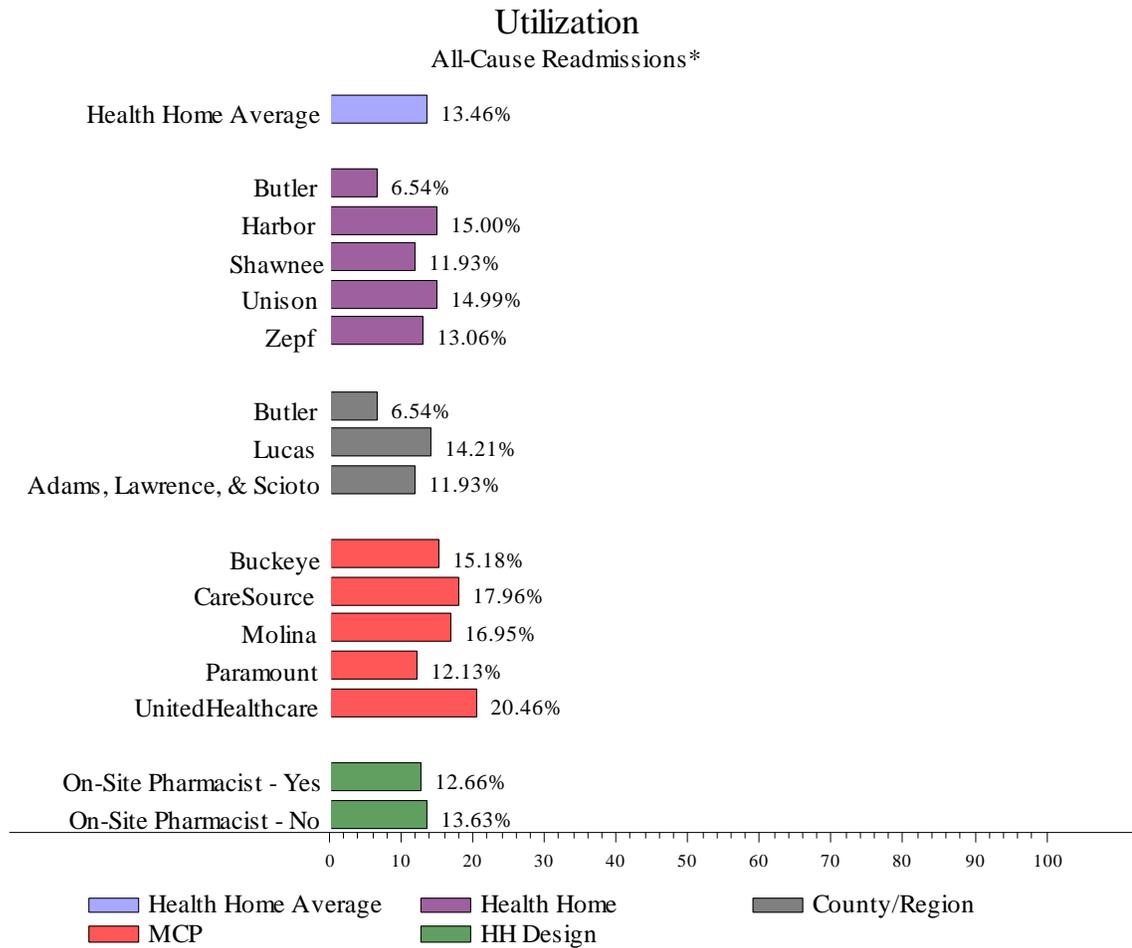
The *Inpatient and ED Utilization Rate—Total AOD Inpatient Discharges* measure evaluates the number of AOD inpatient discharges per 1,000 member months. The figure below displays the results for the *Inpatient and ED Utilization Rate—Total AOD Inpatient Discharges* measure. These measures are calculated per 1,000 member months.



The *Inpatient and ED Utilization Rate—Total Mental Health Discharges* measure evaluates the number of mental health inpatient discharges per 1,000 member months. The figure below displays the results for the *Inpatient and ED Utilization Rate—Total Mental Health Discharges* measure. These measures are calculated per 1,000 member months.

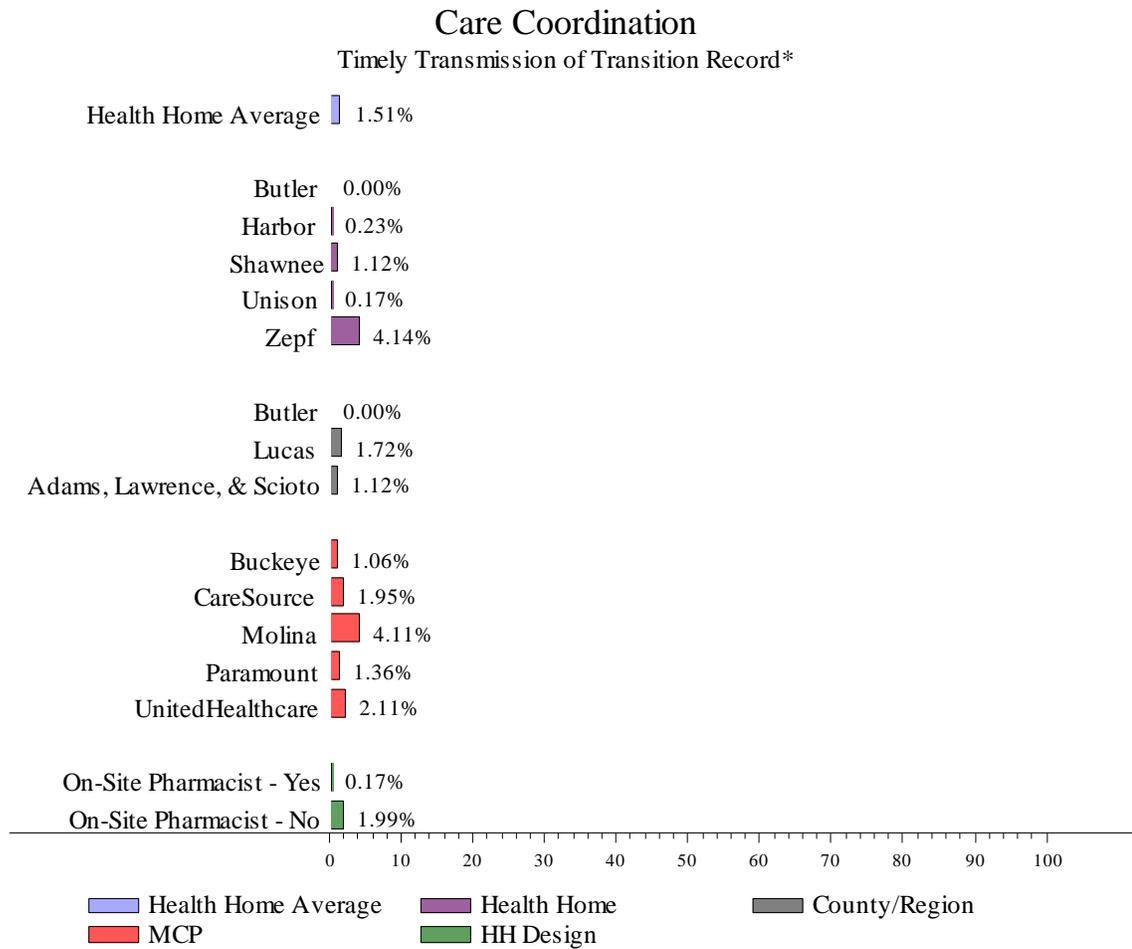


The *All-Cause Readmissions* measure evaluates the number of acute inpatient stays during the report period that were followed by an acute readmission for any diagnosis within 30 days for consumers 18 years of age and older. The figure below displays the results for the *All-Cause Readmissions* measure. A lower rate is better for the readmission rates.



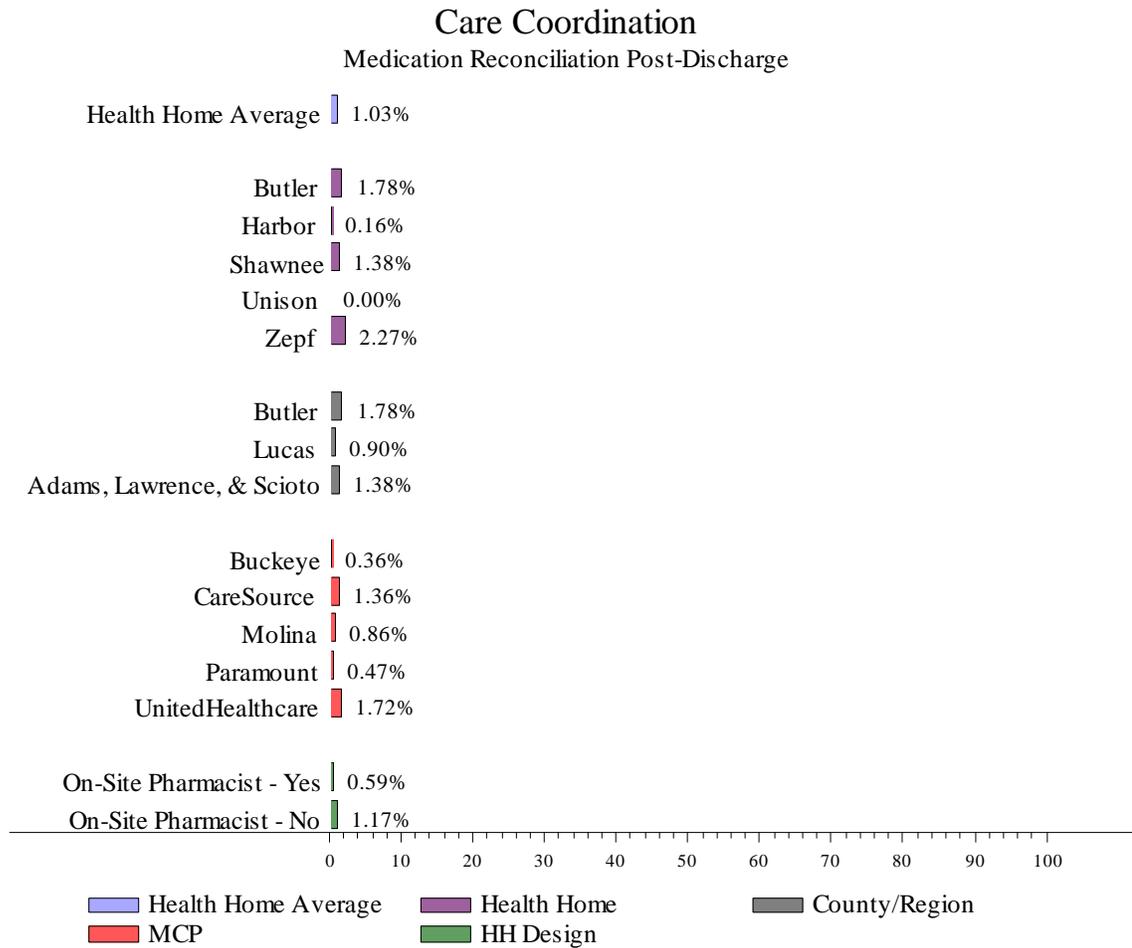
**Care Coordination**

The *Timely Transmission of Transition Record* measure evaluates the percentage of consumers, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a transition record was transmitted to the Health Home within 24 hours of discharge.<sup>6-10</sup> The figure below displays the results for the *Timely Transmission of Transition Record* measure.



<sup>6-10</sup> This measure is dependent on CPT II codes.

The *Medication Reconciliation Post-Discharge* measure evaluates the percentage of consumers, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a reconciled medication list was transmitted to the Health Home within 24 hours.<sup>6-11</sup> The figure below displays the results for the *Medication Reconciliation Post-Discharge* measure.



<sup>6-11</sup> This measure is dependent on CPT II codes.

**Star Ratings**

The Health Homes’ annual performance measure rates were compared to national 2013 HEDIS Medicaid percentiles.<sup>6-12</sup> Table 6-2 depicts the legend for the star ratings compared to national percentiles.

Table 6-2—Star Rating Legend	
Met or exceeded the HEDIS 75th percentile	★★★★★
Between HEDIS 50th and 74th percentiles	★★★★
Between HEDIS 25th and 49th percentiles	★★★
Between HEDIS 10th and 24th percentiles	★★
Below HEDIS 10th percentile	★

Table 6-3 presents the star rating comparisons for all applicable measures (i.e., for HEDIS-based measures where a national comparison percentile was available).

Table 6-3—Star Rating Comparisons						
Measure	Butler	Harbor	Shawnee	Unison	Zepf	Overall Health Home
<i>Use of Appropriate Medications for People with Asthma</i>	★★★	★★★★★	★	★★	★★★★★	★★★★
<i>Cholesterol Management for Patients with Cardiovascular Conditions</i>	★	★	★★	★	★★★	★
<i>CDC: HbA1c Level Below 7.0 Percent</i>	★★★	★	★★★★	★	★★	★
<i>CDC: LDL-C Screening</i>	★★★★	★	★★★★★	★	★★	★★
<i>CDC: LDL-C Less than 100 mg/dL</i>	★★★★	★	★★★★	★	★★★	★★
<i>Follow-up After Hospitalization for Mental Illness</i>	★★★	★★★★★	★★★	★★★	★★★★★	★★★★
<i>Initiation of Alcohol and Other Drug Dependence Treatment</i>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
<i>Engagement of Alcohol and Other Drug Dependence Treatment</i>	★★★★★	★★★★	★★★★★	★★★★	★★★★	★★★★
<i>Timeliness of Prenatal Care</i>	★★★★★	★★★	★★	★	★	★★
<i>Postpartum Care</i>	★	★★★★	★	★	★	★
<i>Adult BMI Assessment</i>	★	★★★★	★★★★★	★★	★★★★★	★★★★★

<sup>6-12</sup> National Committee for Quality Assurance. HEDIS® 2013 Audit Means, Percentiles, and Ratios. Washington, DC: NCQA. February 2014.

Table 6-3—Star Rating Comparisons						
Measure	Butler	Harbor	Shawnee	Unison	Zepf	Overall Health Home
<i>Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents: BMI Percentile Documentation</i>	★	★	★★★★★	★★★★	★★★★★	★★★
<i>Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents: Counseling for Nutrition</i>	★	★	★	★	★	★
<i>Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents: Counseling for Physical Activity</i>	★	★	★	★	★	★
<i>Adolescent Well-Care Visits</i>	★	★★	★	★	★★★	★
<i>Adults' Access to Preventive/Ambulatory Health Services</i>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
<i>Appropriate Treatment for Children with Upper Respiratory Infections</i>	★	★★★	★	★★★★★	★	★

A separate star rating system was created for two of the utilization measures: total inpatient discharges and total ED visits. This was necessary because, for utilization measures, a lower rate indicates better performance. Thus, the star ratings for these measures had to be reversed.

Table 6-4 depicts the legend for the utilization measures star ratings compared to national percentiles.

Table 6-4—Utilization Measures Star Rating Legend	
Below HEDIS 10th percentile	★★★★★
Between HEDIS 10th and 24th percentiles	★★★★
Between HEDIS 25th and 49th percentiles	★★★
Between HEDIS 50th and 74th percentiles	★★
At or above HEDIS 75th percentile	★

Table 6-5 presents the star rating comparisons for the two utilization measures.

Table 6-5—Star Rating Comparisons						
Measure	Butler	Harbor	Shawnee	Unison	Zepf	Overall Health Home
Inpatient & ED Utilization Rate: Total Inpatient Discharges	★★★★★	★★★★★	★★★★★	★★★	★★★★	★★★★★
Inpatient & ED Utilization Rate: Total ED Visits	★	★	★	★	★	★

## 7. Cost Savings and Utilization Analysis Results

### Cost Savings Methodology Overview

#### *Time Periods for Evaluation*

The cost savings analysis compares costs over two time periods, a baseline period and a remeasurement period. The baseline period was the period prior to Health Home program implementation. The remeasurement period was used to reassess the treatment and control groups after program implementation to determine if the Health Home program has successfully reduced costs for treating its consumers.

The baseline and remeasurement report periods were developed given the following constraints:

1. The transition to the Medicaid Information Technology System (MITS) began in August 2011, which affected dates of service beginning in July 2011. Managed care encounters prior to the implementation of MITS contain incomplete managed care payment data.
2. The Health Home program was implemented in October 2012.

The baseline period was July 1, 2011, through June 30, 2012. The remeasurement period was January 1, 2013, through December 31, 2013. The report periods were structured to allow a 3-month ramp-up period between the start of the Health Home initiative and the beginning of the remeasurement period. For the treatment group during the remeasurement period, costs were measured only during the consumer's longest Health Home enrollment span. For example, if a consumer enrolled in a Health Home on April 1, 2013, and remained enrolled through November 30, 2013, the consumer's costs were assessed from April 1, 2013, through November 30, 2013.

#### *Treatment and Control Groups*

The treatment group consisted of consumers who met the following criteria:

- ◆ Continuously enrolled for 6 months during the remeasurement period in one of the following Health Homes: Butler, Harbor, Shawnee, Unison, or Zepf. Continuous enrollment was defined as 6 consecutive months for which a Health Homes services CPT code (S0281) was present. A 1-month gap in the middle of the 6-month span was permitted.
- ◆ Born prior to the first day of the baseline period.
- ◆ Reside in a Health Home county.<sup>7-1</sup>

The control group consisted of consumers who met the following criteria:

- ◆ Continuously enrolled for 6 months in Medicaid during the remeasurement period.
- ◆ Born prior to the first day of the baseline period.

<sup>7-1</sup> Health Home counties are Lucas, Butler, Adams, Scioto, and Lawrence.

- ◆ Reside in a Health Home county.
- ◆ Never enrolled in a Health Home.

### ***Data Sources***

HSAG used the following data sources to calculate expected cost savings:

- ◆ MCP-submitted encounter data.
- ◆ Fee-for-service (FFS) claims data.
- ◆ Medicaid eligibility and managed care enrollment data.
- ◆ Demographic data.
- ◆ Health Home enrollment data.

The January vendor files supplied the encounter, claims, eligibility, managed care enrollment, and demographic data, while the Health Home enrollment data came from the monthly Health Home enrollment files from ODM.

Data were prepared in accordance with ODM specifications. Final claims were identified using the adjusted internal control number (ICN) field, and only final claims were included in the analysis. Pharmacy data were de-duplicated to remove duplicate pharmacy claims. The amount reimbursed field was used to identify costs for the FFS claims.

### ***Levels of Analysis***

Costs savings were calculated for each category of service and overall (i.e., total) for each of the levels of analysis described below.

- ◆ Statewide Overall—All consumers meeting the criteria outlined in the Treatment and Control Groups section were included in this analysis, and stratified by:
  - Age group.
  - CMHC experience.
- ◆ Health Homes—Health Home consumers were assigned to a Health Home based on their longest continuous enrollment span. Any ties were assigned to the most recent Health Home in which the consumer was enrolled. Analyses were stratified by:
  - Age group within each Health Home.
  - CMHC experience within each Health Home.
- ◆ Health Home Design—Health Home design was evaluated as follows:
  - Access to pharmacist on-site.

- ◆ County—Lucas County was evaluated, and separately stratified by:<sup>7-2</sup>
  - Age group.
  - CMHC experience.
- ◆ MCP— Consumers with at least 6 months of continuous enrollment in an MCP during the remeasurement period were included in this analysis. The treatment group was limited to consumers with at least 6 months of continuous MCP enrollment occurring simultaneously with 6 months of continuous Health Home enrollment. This analysis was limited to the following MCPs: Buckeye, CareSource, Molina, Paramount, and UnitedHealthcare.

The Age Group stratification consisted of two analyses. One analysis limited consumers to only those under 18 years of age as of the first day of the remeasurement period, and the second analysis limited consumers to those who were 18 years of age or older as of the first day of the remeasurement period.

The CMHC Experience stratification consisted of two analyses. One analysis limited consumers to only those having a CMHC experience (i.e., if they had a claim with a provider type of 84 or a provider ID of 000000002034042—OHIO DEPT OF MENTAL HLTH-MACSYS) during the baseline period, and the second analysis limited consumers to those without a CMHC experience (i.e., if they had no CMHC claims during the baseline period).

### ***Propensity Score-Based Matching Statistical Analysis***

For purposes of determining the expected cost savings, a non-Health Home population with characteristics similar to the Health Home population was identified. Propensity score-based matching is a common methodology used to select a control group that is statistically similar to a treatment group.<sup>7-3</sup> This is done through constructing a statistical model that predicts the probability of an individual being enrolled in the program. The statistical model uses covariates (or factors) that are intended to predict the likelihood of an individual being enrolled in the Health Home program.

Additionally, the eligible control group population was subset accordingly for the MCP, age group, and CMHC experience levels of analysis prior to propensity score matching. For example, the eligible control group was limited to only Medicaid consumers younger than 18 years old for the “Under 18” level of analysis. The following sections describe the methodology for generating propensity scores, and using those scores in subsequent analyses.

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<sup>7-2</sup> A separate analysis was only performed for Lucas County. Additional analyses are not required for Butler County and for Adams, Lawrence, and Scioto Region, since this county and region contain only one Health Home (Butler Health Home and Shawnee Health Home, respectively).

<sup>7-3</sup> See, e.g., Rosenbaum, P.R. and Rubin, D.B. Constructing a Control Group Using Multivariate Matched Sampling Methods that Incorporate the Propensity Score. *The American Statistician*. 1985; 39:33–38; Rosenbaum, Paul R., and Donald B. Rubin. The central role of the propensity score in observational studies for causal effects. *Biometrika*. 1983; 70(1):41-55.

### Covariate Identification

In order to help predict enrollment into the Health Home program, demographic and disease covariates were identified for each consumer. All covariates were identified during the baseline period, and were expected to be related to the likelihood of a consumer being part of the Health Home population. Table 7-1 provides a list of the demographic and utilization covariates, and the method used to identify each covariate. These covariates provided a starting place for subsequent analysis. Some covariates were dropped because a given level of analysis failed to provide sufficient data for a particular covariate.<sup>7-4</sup> For instance, no one in the treatment group under the age of 18 had congestive heart failure or a human immunodeficiency virus (HIV) infection. As a result, those covariates were excluded from the model for the “Under 18” levels of analysis.

Table 7-1—Demographic and Utilization Covariates	
Covariates	Identification Method
<b>Age</b>	
Age	Consumer’s date of birth was used to identify the consumer’s age at the end of the remeasurement period.
<b>Gender</b>	
Male Female	Consumer’s gender in the demographic file.
<b>Race/Ethnicity</b>	
White Black Other	Consumers flagged as “D” or “C” were classified as White. Consumers flagged as “N” or “B” were classified as Black. All others were classified as Other.
<b>County (County Code)</b>	
Butler (09) Lucas (48) Adams (01) Lawrence (44) Scioto (73)	Consumer’s county of residence as determined by county code.
<b>Member Months</b>	
Number of months a consumer was enrolled in Medicaid.	Eligibility file was used to determine number of months enrolled in Medicaid.
<b>Enrollment</b>	
Number of months enrolled in managed care	Medicaid enrollment.
Number of months on a waiver	Waiver eligibility.
Number of months part of Covered Families and Children (CFC) population	Consumer was enrolled in CFC as defined by Aid Categories 4001, 4011, 4012, 4013, 4014, 4015, 4016, 4017, 4018, 4019, 4020, 4021, 4022, 4023, 4024, 4026, 4027.
Number of months part of Aged, Blind, or Disabled (ABD) population	Consumer was enrolled in ABD as defined by Aid Categories 4002, 4007, 4008, 4009.
<b>Eligibility</b>	

<sup>7-4</sup> Specifically, binary covariates (e.g., disease covariates or county dummies) were dropped if there were 10 or fewer Health Home consumers in the category.

Table 7-1—Demographic and Utilization Covariates	
Covariates	Identification Method
Number of months as a dual eligible	Consumer was dual eligible as defined by aid categories 3xxx.
<b>Mental Health</b>	
Number of Visits to a Community Mental Health Center	Claims with provider type 84 or provider ID 000000002034042.
<b>Serious and Persistent Mental Illness (SPMI) or Serious Emotional Disturbance (SED) Characteristics</b>	
Number of Mental Health Inpatient Admissions	Inpatient admissions (i.e., Claim Type I) with a primary diagnosis of mental health (i.e., anxiety disorders, conduct disorders, depression, mental disorder not otherwise specified as defined in Table 7-2).
Number of Mental Health Emergency Department Visits	Emergency department visit (i.e., defined in Table 7-4) with a primary diagnosis of mental health (i.e., anxiety disorders, conduct disorders, depression, mental disorder not otherwise specified as defined in Table 7-2).
Mental Health Prescriptions	Thirteen or more prescriptions from the following combined drug classes: (1) Psychother, Antidepressants; (2) Psychother, Tranq/Antipsychotic; (3) Antimanic Agents; (4) Anticonvulsant, Benzodiazepine; or (5) Anticonvulsant, Misc.
<p><i>Note: Demographic covariates were selected for inclusion to capture any systematic correlation with Health Home enrollment status that is not explicitly captured by the disease covariates and eligibility/enrollment indicators included in the model. To the extent that unobserved factors are systematically related to age, race, gender, and geographic location, and also related to the likelihood of enrollment in a Health Home, the inclusion of such demographic factors will help account for these differences. Eligibility/Enrollment and mental health data were included in order to match Health Home consumers with non-Health Home consumers on these metrics.</i></p>	

Table 7-2 lists the disease covariates that were incorporated into the propensity scoring methodology. Encounter data were used to identify consumers who had a primary diagnosis for any of the diseases listed in Table 7-2. Each disease was evaluated separately. For example, a consumer diagnosed with both asthma and hypertension was flagged as having two disease covariates.

Table 7-2—Disease Covariates			
Asthma	Acute bronchitis	Autism	ADHD
Bipolar disorder	Pregnancy	Psychotic disorder	Hypertension
Coronary atherosclerosis and other heart disease	Diabetes mellitus	Other developmental disorder	Substance-related disorders
Developmental disorders	Post-traumatic stress disorder	Cardiac dysrhythmias	Spondylitis
Blindness and vision defect	Thyroid disorders	Chronic obstructive pulmonary disease (COPD) and bronchiectasis	Alcohol-related disorders
Obsessive-compulsive disorder	Cystic fibrosis	Osteoarthritis	Epilepsy
Anxiety disorders	Conduct disorders	Depression	Mental disorder not otherwise specified
Esophageal disorders	Congestive heart failure	Cancer	Other nervous system disorders

**Table 7-2—Disease Covariates**

Neoplasms of unspecified nature	Intracranial injury	Delirium, dementia, and amnesic and other cognitive disorders	HIV infection
<i>Note: This list of disease covariates was developed based on an analysis of the common disease categories found for Health Home consumers. Primary diagnosis codes for Health Home consumers were grouped using the Clinical Classifications Software (CCS) developed by the Agency for Healthcare Research and Quality (AHRQ). Certain CCS categories were subdivided to capture additional specificity for mental illness diagnoses.</i>			

### Propensity Score Matching

Propensity scores were derived in order to compare the Health Home and non-Health Home populations, and reflect the probability that an individual was enrolled in a Health Home. The propensity scores were then used to match consumers in the eligible control group with consumers in the eligible treatment group.

The covariates previously discussed were used to estimate a propensity score for each consumer. Logistic regression was used to calculate the propensity score, which is represented by:

$$\Pr(Y_i = 1) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik})]}$$

where  $\Pr(Y_i = 1)$  is the propensity score, the  $\beta$ s are parameters to be estimated, and the  $X$ s are the covariates.<sup>7-5</sup>

Propensity scores for the two groups were used to match the populations. A Greedy 5→1 digit match was used for purposes of matching the populations.<sup>7-6</sup> The Greedy 5→1 digit match means that the populations were first matched on the propensity score out to the fifth decimal place. For those that did not match, the populations were then matched on the propensity score out to the fourth decimal place. This process continued down to a 1-digit match. The result of this methodology creates “best” matches first (i.e., matches with the greatest precision in propensity score) and then matches on successive “next-best” matches. Once a case and control were matched, the matches were not reconsidered. Therefore, subsequent matches were determined on what was currently available.

For the statewide level of analysis, 84.6 percent of the eligible treatment group consumers were matched with a control case.

Due to small sample sizes in certain subgroups, and the concomitant lack of variation in some of the covariates, some propensity score matching models failed to converge when all of the initial covariates were included in the model. To reduce the number of covariates in the propensity score

<sup>7-5</sup> Linden, A., Adams, J.L., and Roberts, N. “Using propensity scores to construct comparable control groups for disease management program evaluation.” *Disease Management Health Outcomes*. 2005 13(2): 107-115.

<sup>7-6</sup> Parsons, L.S. “Reducing Bias in Propensity Score Matched-Pair Sample Using Greedy Matching Techniques.” Paper 214-26. *Proceedings of the Twenty-Sixth Annual SAS Users Group International Conference*. 2001. Cary (NC): SAS Institute Inc.

matching model, while simultaneously keeping those that were more empirically relevant, backwards stepwise logistic regression was used to identify the maximum number of relevant covariates that could be retained in the model.

### Covariate Balance and Bias Reduction

Selecting a control group that most closely resembles the treatment group by using propensity scores has been shown to create a “covariate balance” between the two groups.<sup>7-7</sup> After the matching algorithm was applied, the covariates were evaluated to determine that the populations were matched appropriately, meaning that the propensity scoring and matching process improved covariate balance and reduced bias as anticipated. The results of the propensity score-based matching were assessed by calculating standardized bias coefficients and computing the percentage reduction in bias achieved through the matching process, as outlined below. This bias reduction represents how much closer the control group is to reflecting the characteristics of the people in the treatment group as a result of matching. The formula can be used to conclude that matching reduced bias in the control group by a certain percentage:<sup>7-8</sup>

$$BR = 100 \left( 1 - \frac{B_1}{B_0} \right)$$

Subscript 1 denotes after matching, and subscript 0 denotes before matching.

Where:

$$B_1 = \frac{100(\bar{x}_{1C} - \bar{x}_{1P})}{\sqrt{\frac{(s_{1C}^2 + s_{1P}^2)}{2}}} \equiv \text{standardized bias after matching}$$

$$B_0 = \frac{100(\bar{x}_{0C} - \bar{x}_{0P})}{\sqrt{\frac{(s_{0C}^2 + s_{0P}^2)}{2}}} \equiv \text{standardized bias before matching}$$

The standardized bias for binary data (e.g., gender, each disease covariate) is computed as:

$$B = \frac{100(p_C - p_P)}{\sqrt{\frac{p_P(1 - p_P) + p_C(1 - p_C)}{2}}}$$

$\bar{x}_C$  = mean of the control group

$\bar{x}_P$  = mean of the program (treatment) group

$s_C^2$  = variance of the control group

<sup>7-7</sup> Parsons, L.S. “Reducing Bias in Propensity Score Matched-Pair Sample Using Greedy Matching Techniques.” Paper 214-26. Proceedings of the Twenty-Sixth Annual SAS Users Group International Conference. 2001. Cary (NC): SAS Institute Inc.

<sup>7-8</sup> Rosenbaum, P.R. and Rubin, D.B. Constructing a Control Group Using Multivariate Matched Sampling Methods that Incorporate the Propensity Score. *The American Statistician*. 1985. 39:33–38.

$s_p^2$  = variance of the program (treatment) group  
 $p_c$  = proportion of the covariate in the control group  
 $p_p$  = proportion of the covariate in the program (treatment) group

Balance for each covariate was evaluated by comparing the distributions between the control group and treatment group using a two-sample *t*-test or two-proportion *z*-test. If the resulting *p*-value was less than 0.05, then the covariate remained unbalanced.

For the statewide level of analysis, 87.0 percent of the covariates showed a reduction in bias after matching, and 27.8 percent were balanced after matching.

If a covariate remained unbalanced after the matching process, that covariate was included in the difference-in-differences regression model as a control variable. Including the covariate in the regression explicitly accounts for the differences between treatment and control groups, while simultaneously controlling for the joint differences captured by the propensity score matching.

### Population and Characteristics

Table 7-3 presents characteristics of the population and matched statewide sample.

Covariate	All Matched Members		Health Home Group		Comparison Group	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Age	31.304	19.537	29.714	19.084	32.894	19.854
Female	0.535	0.499	0.532	0.499	0.538	0.499
White	0.675	0.469	0.658	0.474	0.691	0.462
Black	0.306	0.461	0.324	0.468	0.288	0.453
County: Adams	0.037	0.189	0.037	0.188	0.037	0.190
County: Butler	0.096	0.295	0.073	0.260	0.120	0.325
County: Lawrence	0.078	0.269	0.070	0.255	0.087	0.281
County: Lucas	0.664	0.472	0.701	0.458	0.628	0.483
Medicaid Member Months	11.079	2.631	10.943	2.937	11.215	2.277
MCP Member Months	7.427	5.393	7.607	5.391	7.247	5.389
Dual Eligibility Member Months	0.399	1.931	0.346	1.783	0.453	2.066
Waiver Member Months	0.544	2.449	0.467	2.284	0.622	2.601
ABD Member Months	3.468	5.270	3.287	5.171	3.648	5.361
CFC Member Months	5.688	5.748	5.957	5.781	5.419	5.702
# Mental Health Center Visits	14.483	25.336	15.500	21.736	13.467	28.449

# ED Mental Health Visits	0.074	0.452	0.070	0.474	0.078	0.428
# IP Mental Health Visits	0.026	0.202	0.026	0.223	0.026	0.179
13 or More Mental Health Rx	0.212	0.409	0.204	0.403	0.221	0.415
ADHD	0.173	0.379	0.162	0.368	0.185	0.388
Acute bronchitis	0.082	0.275	0.078	0.268	0.087	0.282
Alcohol-related disorders	0.022	0.146	0.019	0.138	0.024	0.153
Anxiety Disorders	0.099	0.299	0.083	0.275	0.116	0.320
Asthma	0.124	0.329	0.116	0.321	0.131	0.337
Autism	0.008	0.091	0.007	0.085	0.010	0.098
Bipolar Disorder	0.113	0.317	0.107	0.309	0.119	0.324
Blindness and vision defects	0.273	0.446	0.253	0.435	0.293	0.455
Cancer	0.020	0.140	0.017	0.130	0.023	0.149
Cardiac dysrhythmias	0.054	0.226	0.048	0.214	0.059	0.236
Chronic obstructive pulmonary disease and bronchiectasis	0.118	0.323	0.107	0.309	0.130	0.336
Conduct Disorder	0.102	0.303	0.095	0.293	0.110	0.313
Congestive heart failure; nonhypertensive	0.018	0.134	0.016	0.125	0.021	0.143
Coronary atherosclerosis and other heart disease	0.036	0.187	0.033	0.178	0.040	0.195
Cystic fibrosis	0.000	0.013	0.000	0.011	0.000	0.015
Delirium, dementia, and amnesic and other cognitive diseases	0.011	0.104	0.009	0.097	0.012	0.111
Depression	0.313	0.464	0.277	0.447	0.350	0.477
Developmental disorders	0.082	0.274	0.078	0.269	0.085	0.279
Diabetes	0.124	0.330	0.111	0.314	0.138	0.345
Epilepsy; convulsions	0.042	0.201	0.037	0.189	0.047	0.212
Esophageal disorders	0.059	0.236	0.054	0.227	0.065	0.246
Essential hypertension	0.170	0.375	0.152	0.360	0.187	0.390
HIV infection	0.003	0.056	0.003	0.054	0.003	0.059
Intracranial injury	0.012	0.110	0.012	0.107	0.013	0.113
Mental Disorder Not Otherwise Specified (NOS)	0.024	0.152	0.022	0.148	0.025	0.156
Neoplasms of unspecified nature or uncertain behavior	0.083	0.276	0.074	0.262	0.092	0.289
Obsessive-Compulsive Disorders	0.007	0.082	0.006	0.077	0.008	0.087
Osteoarthritis	0.066	0.249	0.060	0.237	0.072	0.259
Other Developmental Disorder	0.028	0.166	0.027	0.163	0.030	0.170

Other nervous system disorders	0.133	0.339	0.117	0.322	0.148	0.355
PTSD	0.031	0.173	0.028	0.166	0.034	0.181
Pregnancy	0.027	0.163	0.025	0.156	0.030	0.170
Psychotic Disorder	0.171	0.377	0.166	0.372	0.176	0.381
Spondylosis; intervertebral disc disorders; other back	0.220	0.414	0.196	0.397	0.244	0.429
Substance-related disorders	0.054	0.225	0.047	0.212	0.060	0.238
Thyroid disorders	0.047	0.211	0.042	0.201	0.051	0.220

### Difference-in-Differences Analysis and Cost Savings Calculation

Once the populations were matched, a difference-in-differences analysis was performed to compare the PMPM costs for the two populations during the baseline period and the remeasurement period. The difference-in-differences analysis allows for an expected cost for the treatment group to be calculated by taking into account expected changes in costs without the Health Home intervention. This is done by subtracting the average change in the control group from the average change in the treatment group.<sup>7-9</sup> This removes biases from the remeasurement period comparisons due to permanent differences between the two groups. The generic difference-in-differences model is:

$$Y_{it} = \beta_0 + \beta_1 T_{it} + \beta_2 R_t + \delta_1 (R_t * T_{it}) + \gamma \mathbf{D}'_{it} + u_{it}$$

where  $Y_{it}$  is the outcome of interest for individual  $i$  in time period  $t$ .  $R_t$  is a dummy variable for the remeasurement time period. The dummy variable  $T_{it}$  identifies the treatment group with a 1 and the control group with a 0. The vector  $\mathbf{D}'$  represents mean-centered observed covariates that remained unbalanced after the propensity score matching process, and  $\gamma$  is a coefficient vector. The coefficient,  $\beta_1$ , identifies the average difference between the groups prior to the Health Home intervention. The time period dummy,  $R$ , captures factors that would have changed in the absence of the intervention. The coefficient of interest,  $\delta_1$ , multiplies the interaction term,  $R_t * T_{it}$ , which is the same as the dummy variable equal to one for those observations in the treatment group in the remeasurement period. The final difference-in-differences estimate is:

$$\hat{\delta}_1 = (\bar{y}_{T,R} - \bar{y}_{T,B}) - (\bar{y}_{C,R} - \bar{y}_{C,B}) \mid \mathbf{D}'$$

The estimate provides the expected cost without the intervention (i.e., expected adjustment factor) while holding constant all observed covariates in  $\mathbf{D}'$ . Adding these covariates allowed for a more precise estimation of the true Health Home program effect by controlling for observed differences between the comparison and treatment groups. Thus, the cost savings estimates provided in this report are similar, but not equal to, a simple subtraction on the differences. The overall estimates take into account the average monthly Health Home case rate program costs; however, the cost savings estimates for individual categories of service do not account for average monthly Health

<sup>7-9</sup> Imbens/Woodridge. Difference-in-Differences Estimation. Lecture Notes 10, Summer 2007. Available at: [http://www.nber.org/WNE/lect\\_10\\_diffindiffs.pdf](http://www.nber.org/WNE/lect_10_diffindiffs.pdf). Accessed on: January 21, 2014.

Home case rate costs, since average monthly Health Home case rate costs are made at the consumer level and not the category of service level.

### Categories of Service

The difference-in-differences analysis was performed at the category-of-service level. The following categories of service were evaluated:

- ◆ Medical (i.e., Professional)—Mental Health
- ◆ Medical (i.e., Professional)—Non-mental Health
- ◆ ED
- ◆ Inpatient
- ◆ Outpatient
- ◆ Pharmacy
- ◆ Other

The ED category of service was identified as outlined in Table 7-4. For the remaining non-ED claims, category of service was identified by the CDE\_CLM\_TYPE field in the vendor files, as depicted in Table 7-5.

Table 7-4—Codes to Identify ED Visits		
<b>UB Revenue Codes</b>	<b>AND</b>	<b>UB Type of Bill Codes</b>
045x, 0981		013x
<b>OR</b>		
<b>CPT Codes</b>	<b>AND</b>	<b>Place of Service Codes</b>
10040 – 69979		23
<b>OR</b>		
	<b>CPT Codes</b>	
	99281–99285	

Category of Service	CDE_CLM_TYPE Value	Additional Codes
Medical—Non-Mental Health	M (Professional Claim Type)	All codes occurring on this claim type counted as medical claims, with the exceptions of: <ul style="list-style-type: none"> <li>◆ Claim lines containing the Health Home case management CPT code (S0281), which were evaluated separately.</li> <li>◆ Claims containing codes defined in Table 7-6.</li> </ul>
Medical—Mental Health	M (Professional Claim Type)	This category was limited to claims containing the codes in Table 7-6. Claim lines containing the Health Home case management CPT code (S0281) were excluded.
Inpatient	I (Inpatient Claim Type)	
Outpatient	O (Outpatient Claim Type)	
Pharmacy	P and Q (Pharmacy and Compound Pharmacy Claim Types)	
Other <sup>7-10</sup>	Not identified in any of the above CDE_CLM_TYPE, and also not identified as CDE_CLM_TYPE = “D”	

Table 7-6 provides the codes to identify the outpatient mental health services.

Mental Health Service	Local Codes (Prior to June 30, 2012)	CPT Code (July 1, 2012–December 31, 2012)	CPT Code (January 1, 2013 to Current)
Pharmacologic Management	Z1831	90862	90863
Mental Health Assessment (non-physician)	Z1832	H0031	H0031
Psychiatric Diagnostic Interview (physician)	Z1839	90801	90792
Counseling & Therapy (Ind)	Z1833	H0004	H0004
Counseling & Therapy (Grp)	Z1834	H0004	H0004
Crisis Intervention	Z1837	S9484	S9484
Partial Hospitalization	Z1838	S0201	S0201
Community Psychiatric Support Tx (Ind)	Z1840	H0036	H0036
Community Psychiatric Support Tx (Grp)	Z1841	H0036	H0036

<sup>7-10</sup> The other category includes crossover claims and long-term care claims. Dental claims were excluded from the analysis due to incomplete dental claim data at the time of analysis.

## Exclusions

HSAG evaluated medical costs associated with deliveries and women who had a delivery during the baseline and remeasurement periods. HSAG, in conjunction with ODM, determined that these consumers and/or costs did not need to be excluded from the analysis because there were no substantial differences between the control/treatment groups or between the treatment/remeasurement periods.

Costs associated with traumatic or related events (i.e., accidents) were removed from the analysis. Traumatic or related events were identified as outlined in Table 7-7 below. In order to further reduce undue influence from anomalous data, costs for individual claims were capped at \$100,000. Additionally, prior to construction of the final difference-in-differences regression model, the data were reviewed for outliers. The data contained outliers exhibiting considerable deviation from the average, particularly for the levels of analysis that had a relatively small number of eligible consumers. For each matched sample, outliers were identified using the studentized residual of a preliminary regression, and any observation having a studentized residual greater than five in absolute value was removed from the final estimation.

**Table 7-7—Codes Used To Identify Traumatic or Related Events  
ICD-9-CM Diagnosis Codes**

800–854, 860–871, 874.0–874.59, 885–887, 895–897, 900–915, 918, 920–959,  
990–996, E80–E84, E88–E92, E96–E98

## Cost Savings Analysis Results

This section presents the results of the overall cost savings analysis. An evaluation was performed to compare PMPM costs during the baseline period (July 1, 2011–June 30, 2012) and the remeasurement period (January 1, 2013–December 31, 2013).

The tables below show the statistical significance of results, indicating if the program demonstrated significant cost savings. Significance thresholds are reported at the 95 percent confidence level. Some results presented in the tables below may not be statistically significant (i.e., noted with “N/S”). The lack of significance may be the result of large variance in comparison to the average cost savings, a small sample size, or both.<sup>7-11</sup>

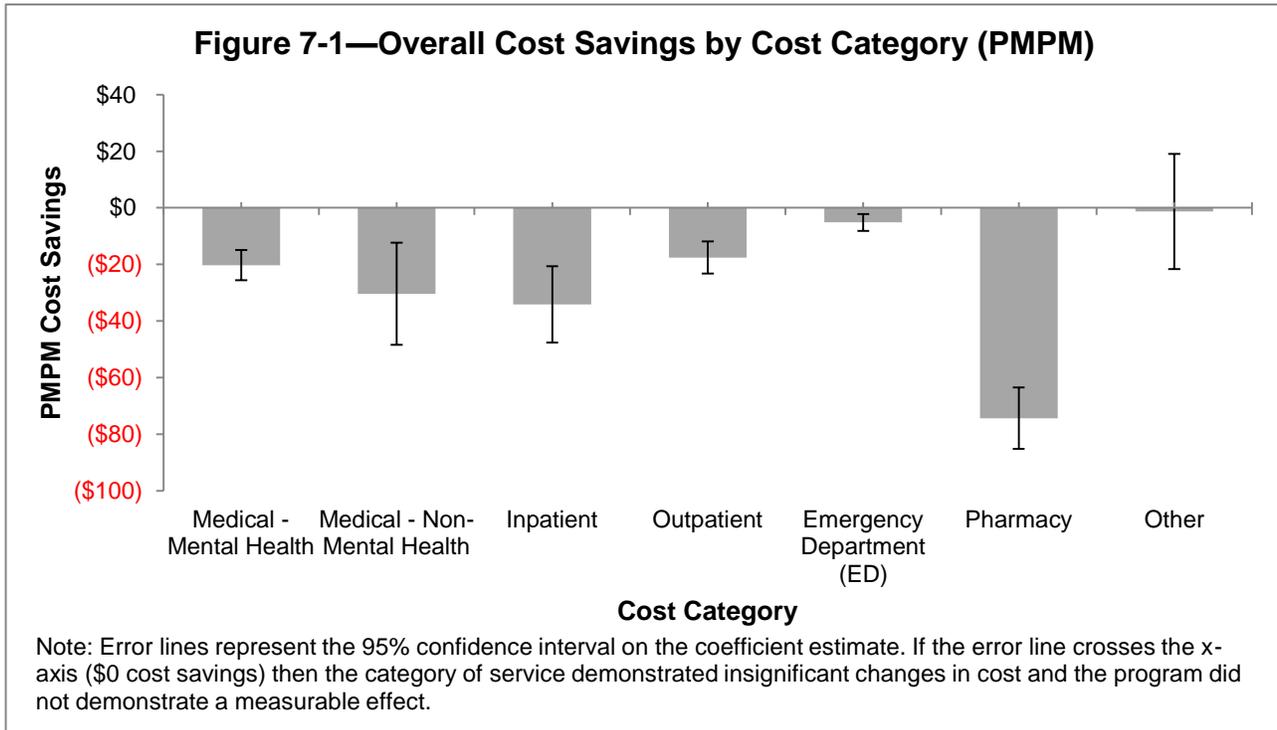
<sup>7-11</sup> The sample treatment group size is included in the tables as a reference.

**Statewide Cost Savings**

Table 7-8 and Figure 7-1 display the positive or negative program effect of each cost category. Overall, the statewide negative cost savings were \$516 PMPM.

Table 7-8—Overall Cost Savings by Cost Category (PMPM)			
Cost Category	Program Effect (Cost Savings)		Sample Treatment Group Size
Medical—Mental Health	(\$20)	*	
Medical—Non-Mental Health	(\$30)	*	
Inpatient	(\$34)	*	
Outpatient	(\$18)	*	
Emergency Department (ED)	(\$5)	*	
Pharmacy	(\$74)	*	
Average Monthly Health Home Case Rate	(\$333)	*	
Other	(\$1)	N/S	
<b>Total<sup>†</sup></b>	<b>(\$516)</b>	<b>*</b>	

*A negative cost savings (shown in red) indicates an increase in cost.  
 N/S indicates the results were not statistically significant.  
 \*Indicates statistical significance at the 95% confidence level or greater.  
<sup>†</sup>Total cost savings may not equal the sum of all cost categories because each cost category and total cost savings are modeled independently.*



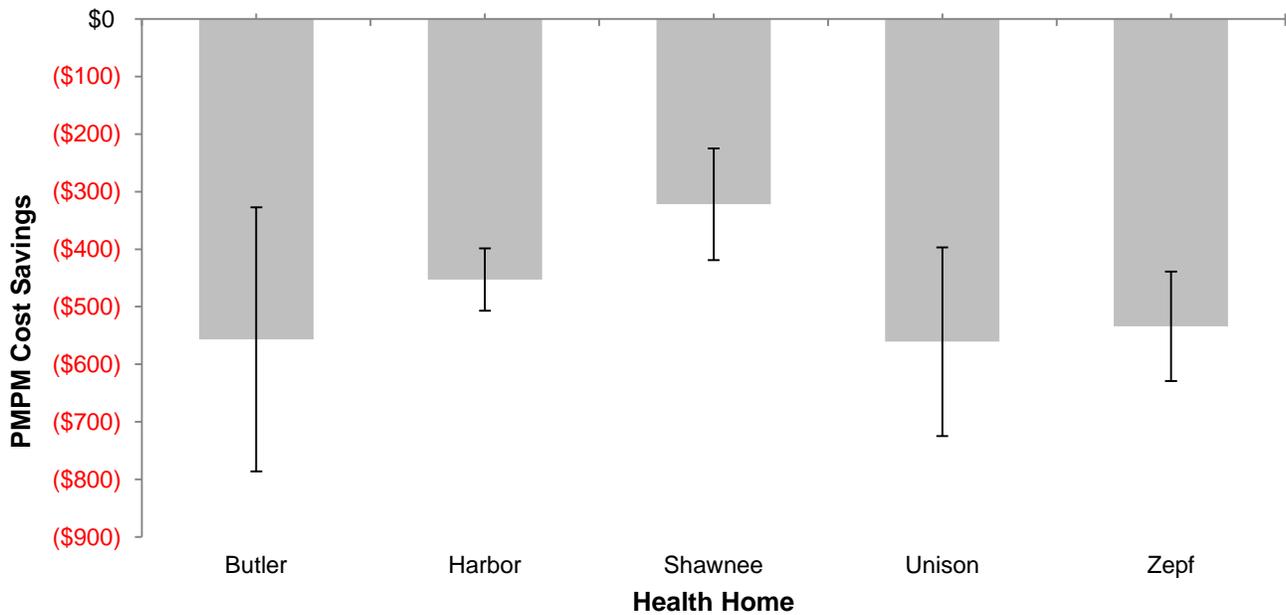
### Health Home Cost Savings

Table 7-9 and Figure 7-2 display the positive or negative program effect of the Health Homes on cost savings. The results indicate that all Health Homes produced significant negative cost savings, ranging in magnitude from \$322 to \$561 PMPM.

Health Home	Program Effect (Cost Savings)	Sample Treatment Group Size
Butler	(\$557) *	613
Harbor	(\$453) *	2,522
Shawnee	(\$322) *	2,049
Unison	(\$561) *	1,652
Zepf	(\$534) *	2,997
Statewide	(\$516) *	8,335 <sup>†</sup>

*A negative cost savings (shown in red) indicates an increase in cost.  
 \*Indicates statistical significance at the 95% confidence level or greater.  
 † Statewide Sample Treatment Group size may not equal the sum of Sample Treatment Group Sizes for each Health Home because members for each Health Home and statewide are modeled independently.*

**Figure 7-2—Overall Cost Savings by Health Home (PMPM)**



Note: A positive dollar amount indicates the Health Home contributed an overall cost savings to the program. A negative dollar amount indicates the Health Home contributed an overall increase in costs to the program. Error lines represent the 95% confidence interval on the coefficient estimate. If the error line crosses the x-axis (\$0 cost savings) then the category of service demonstrated insignificant changes in cost and the program did not demonstrate a measurable effect.

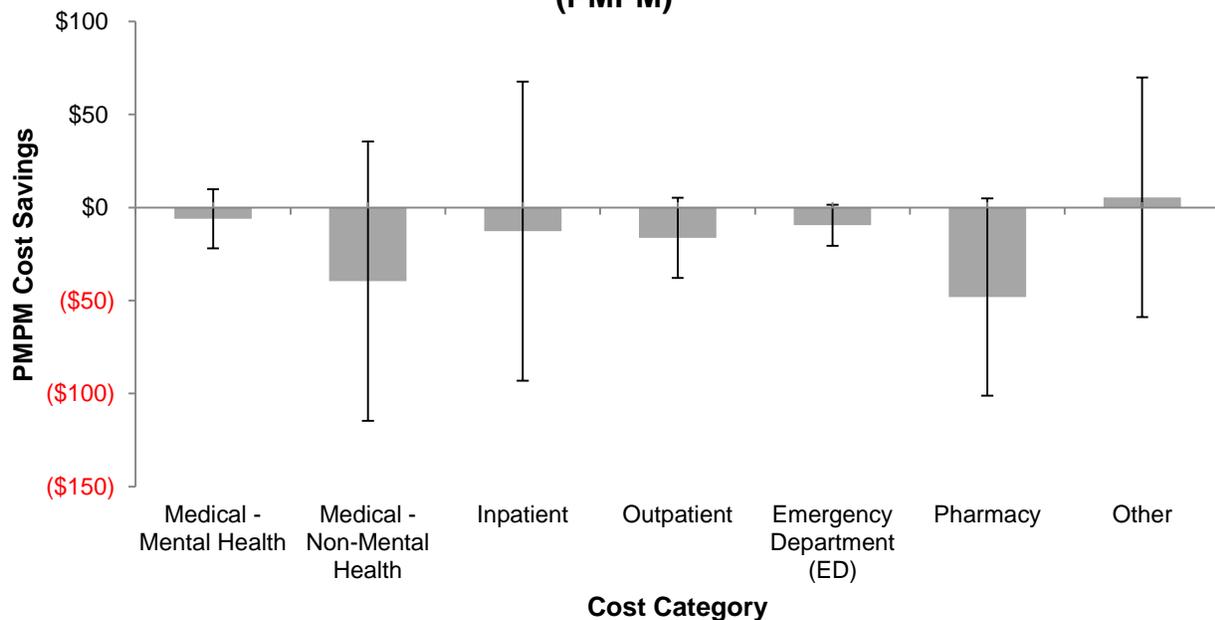
**Butler**

Table 7-10 and Figure 7-3 present the cost savings for Butler. Overall, Butler produced a negative cost savings of \$557 PMPM.

Table 7-10—Butler Overall Cost Savings by Cost Category (PMPM)			
Cost Category	Program Effect (Cost Savings)		Sample Treatment Group Size
Medical—Mental Health	(\$6)	N/S	
Medical—Non-Mental Health	(\$40)	N/S	
Inpatient	(\$13)	N/S	
Outpatient	(\$16)	N/S	
Emergency Department (ED)	(\$10)	N/S	
Pharmacy	(\$48)	N/S	
Average Monthly Health Home Case Rate	(\$369)	*	
Other	\$5	N/S	
<b>Total†</b>	<b>(\$557)</b>	<b>*</b>	<b>613</b>

A negative cost savings (shown in red) indicates an increase in cost.  
 N/S indicates the results were not statistically significant.  
 \*Indicates statistical significance at the 95% confidence level or greater.  
 †Total cost savings may not equal the sum of all cost categories because each cost category and total cost savings are modeled independently.

**Figure 7-3—Butler Overall Cost Savings by Cost Category (PMPM)**



Note: Error lines represent the 95% confidence interval on the coefficient estimate. If the error line crosses the x-axis (\$0 cost savings) then the category of service demonstrated insignificant changes in cost and the program did not demonstrate a measurable effect.

**Harbor**

Table 7-11 and Figure 7-4 present the cost savings for Harbor. Overall, Harbor produced a negative cost savings of \$453 PMPM.

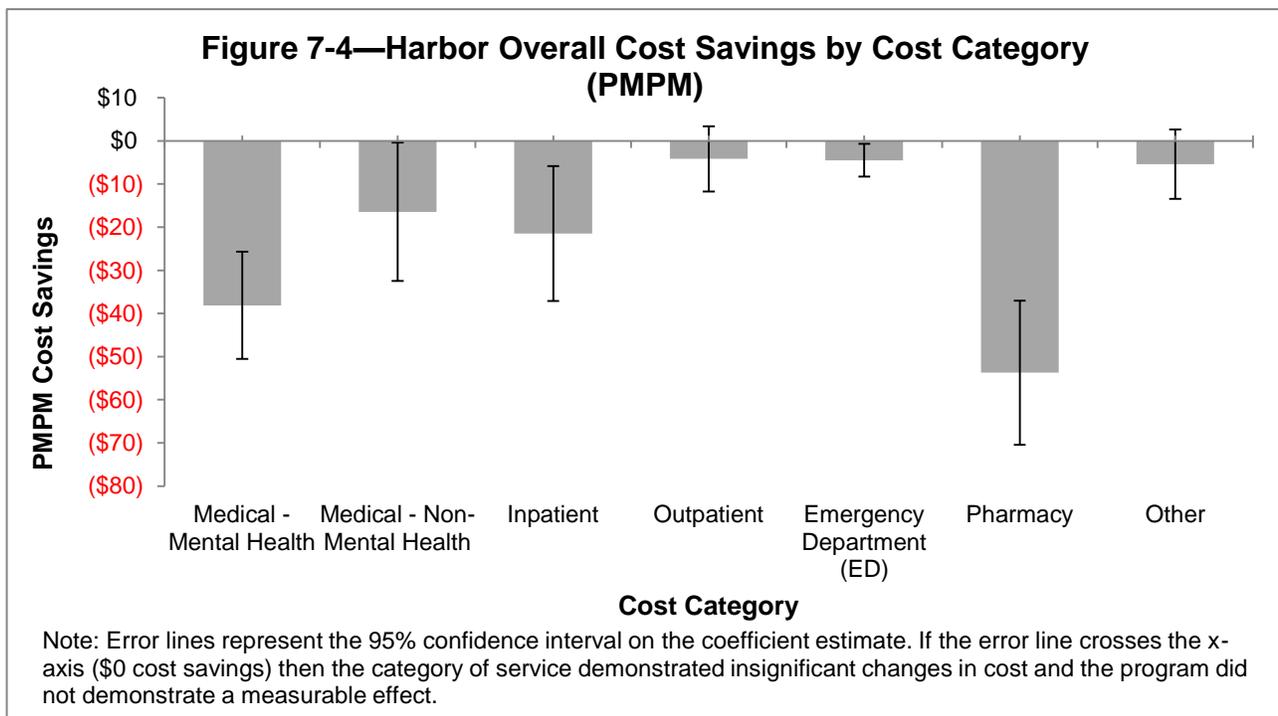
Table 7-11—Harbor Overall Cost Savings by Cost Category (PMPM)			
Cost Category	Program Effect (Cost Savings)		Sample Treatment Group Size
Medical—Mental Health	(\$38)	*	
Medical—Non-Mental Health	(\$16)	*	
Inpatient	(\$21)	*	
Outpatient	(\$4)	N/S	
Emergency Department (ED)	(\$4)	*	
Pharmacy	(\$54)	*	
Average Monthly Health Home Case Rate	(\$283)	*	
Other	(\$5)	N/S	
<b>Total†</b>	<b>(\$453)</b>	<b>*</b>	

A negative cost savings (shown in red) indicates an increase in cost.

N/S indicates the results were not statistically significant.

\*Indicates statistical significance at the 95% confidence level or greater.

†Total cost savings may not equal the sum of all cost categories because each cost category and total cost savings are modeled independently.



**Shawnee**

Table 7-12 and Figure 7-5 present the cost savings for Shawnee. Overall, Shawnee produced a negative cost savings of \$322 PMPM, but showed significant cost savings in the Medical—Mental Health category of service.

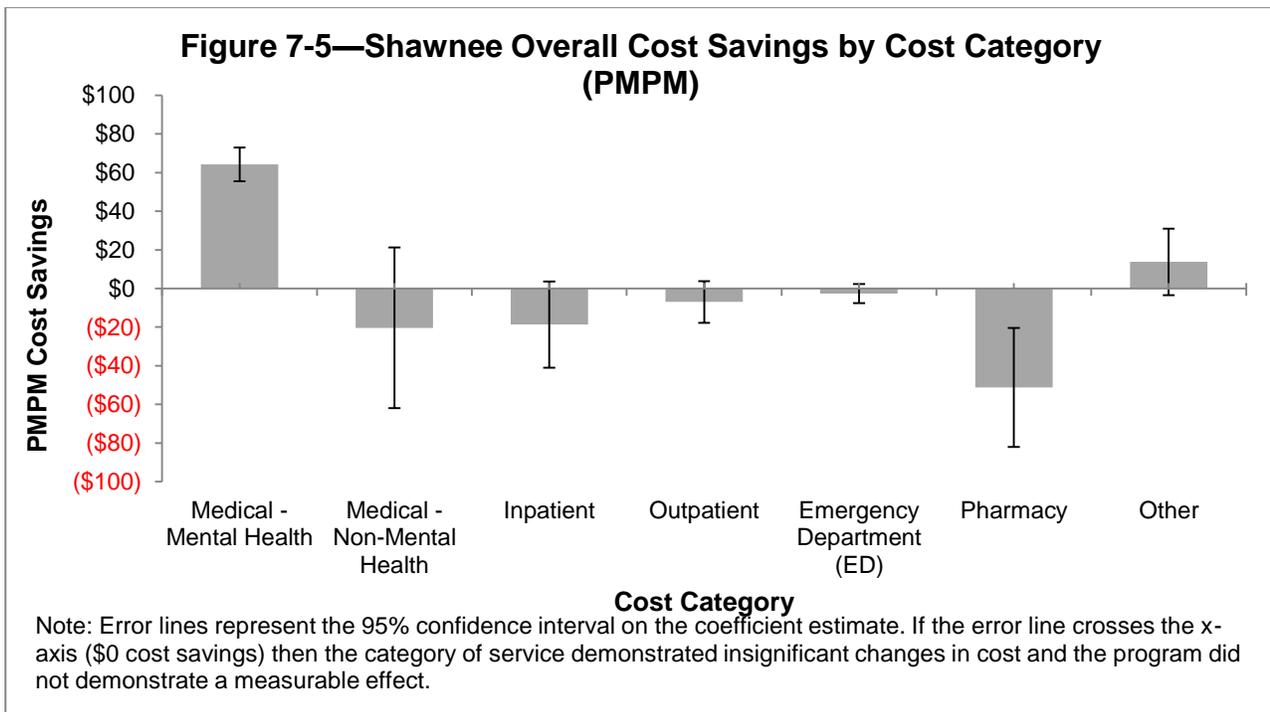
Cost Category	Program Effect (Cost Savings)		Sample Treatment Group Size
Medical—Mental Health	\$64	*	
Medical—Non-Mental Health	(\$20)	N/S	
Inpatient	(\$19)	N/S	
Outpatient	(\$7)	N/S	
Emergency Department (ED)	(\$3)	N/S	
Pharmacy	(\$51)	*	
Average Monthly Health Home Case Rate	(\$326)	*	
Other	\$14	N/S	
<b>Total†</b>	<b>(\$322)</b>	<b>*</b>	

A negative cost savings (shown in red) indicates an increase in cost.

N/S indicates the results were not statistically significant.

\*Indicates statistical significance at the 95% confidence level or greater.

†Total cost savings may not equal the sum of all cost categories because each cost category and total cost savings are modeled independently.



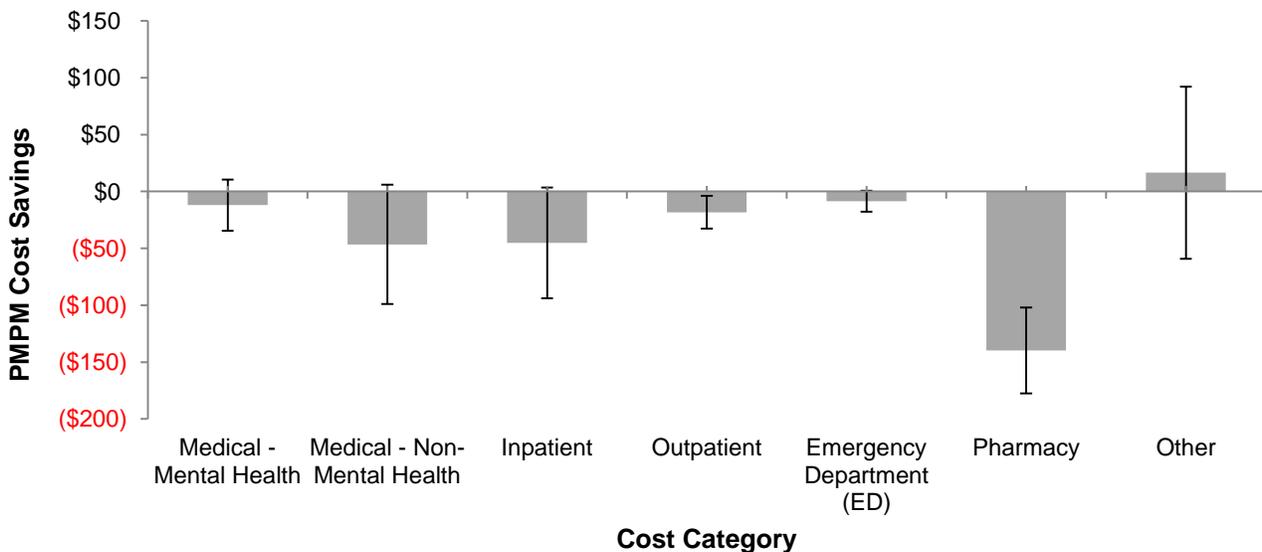
**Unison**

Table 7-13 and Figure 7-6 present the cost savings for Unison. Overall, Unison produced a negative cost savings of \$561 PMPM.

Cost Category	Program Effect (Cost Savings)		Sample Treatment Group Size
	Effect	Significance	
Medical—Mental Health	(\$12)	N/S	1,652
Medical—Non-Mental Health	(\$47)	N/S	
Inpatient	(\$45)	N/S	
Outpatient	(\$18)	*	
Emergency Department (ED)	(\$9)	N/S	
Pharmacy	(\$140)	*	
Average Monthly Health Home Case Rate	(\$296)	*	
Other	\$16	N/S	
<b>Total<sup>†</sup></b>	<b>(\$561)</b>	<b>*</b>	

*A negative cost savings (shown in red) indicates an increase in cost.  
 N/S indicates the results were not statistically significant.  
 \*Indicates statistical significance at the 95% confidence level or greater.  
 †Total cost savings may not equal the sum of all cost categories because each cost category and total cost savings are modeled independently.*

**Figure 7-6—Unison Overall Cost Savings by Cost Category (PMPM)**



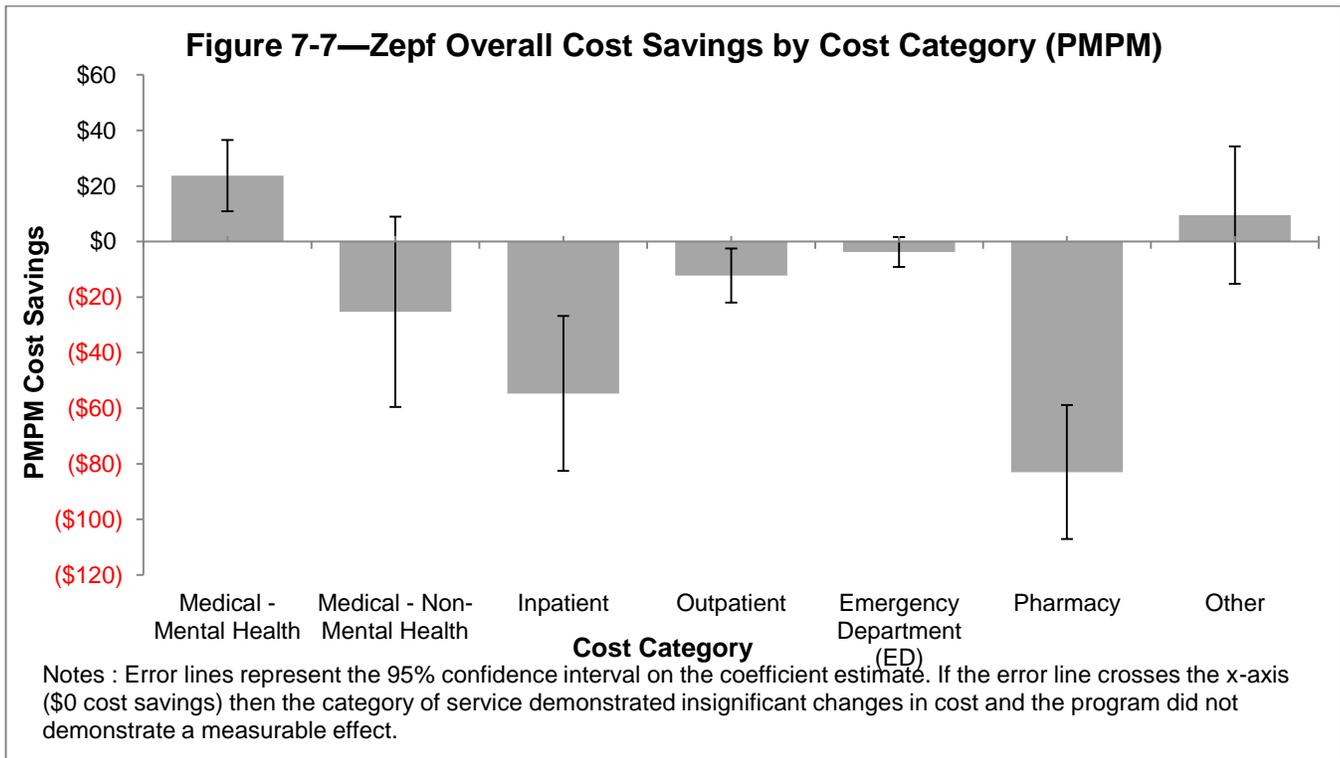
Note: Error lines represent the 95% confidence interval on the coefficient estimate. If the error line crosses the x-axis (\$0 cost savings) then the category of service demonstrated insignificant changes in cost and the program did not demonstrate a measurable effect.

Zepf

Table 7-14 and Figure 7-7 present the cost savings for Zepf. Overall, Zepf produced a negative cost savings of \$534 PMPM, but showed significant cost savings in the Medical—Mental Health category of service.

Cost Category	Program Effect (Cost Savings)		Sample Treatment Group Size
	Effect	Significance	
Medical—Mental Health	\$24	*	2,997
Medical—Non-Mental Health	(\$25)	N/S	
Inpatient	(\$55)	*	
Outpatient	(\$12)	*	
Emergency Department (ED)	(\$4)	N/S	
Pharmacy	(\$83)	*	
Average Monthly Health Home Case Rate	(\$397)	*	
Other	\$10	N/S	
<b>Total†</b>	<b>(\$534)</b>	<b>*</b>	

*A negative cost savings (shown in red) indicates an increase in cost.  
 N/S indicates the results were not statistically significant.  
 \*Indicates statistical significance at the 95% confidence level or greater.  
 †Total cost savings may not equal the sum of all cost categories because each cost category and total cost savings are modeled independently.*



## Expected Versus Actual Utilization Analysis

An additional analysis was performed on the following utilization measures:

- ◆ ED
- ◆ Inpatient (IP)
- ◆ Alcohol and other drug (AOD)
- ◆ Mental Health Inpatient (MH-IP)

The actual versus expected rates for the utilization performance measures were evaluated at the following levels of analysis:

- ◆ Statewide Overall
- ◆ Health Homes
- ◆ Health Home Design
- ◆ County/Region
- ◆ MCP

The methodology used to identify a comparison group and calculate the program effect for the utilization metrics is similar to the cost savings analysis methodology, which is described starting on page 7-1; however, please refer to Appendix C for the detailed utilization analysis methodology, including a description of the specifications for the per member per month utilization rates.

Table 7-15 below presents the results from the difference-in-differences analysis conducted on the utilization outcomes. Each number in Table 7-15 represents the average change in Health Home consumer utilization between the remeasurement and baseline periods, net of the average change in the comparison group utilization. For example, Health Home consumers during the remeasurement period had 5.44 ED visits per 1,000 member months more than what would be expected based on the changes in the comparison group over the same period of time. The key findings are described below:

- ◆ Changes in ED utilization were insignificant statewide and for all levels of analysis, with the exception of Lucas County (served by Harbor, Unison, and Zepf Health Homes), which saw a significant increase in all utilization outcomes evaluated for its consumers over the comparison group.
- ◆ Changes in IP utilization were largely not significant, with Zepf demonstrating a significant increase in utilization for its Health Home consumers over the comparison group.
- ◆ Changes in AOD utilization were significant at the overall level, but not at the individual Health Home level with the exception of Zepf, which showed a significant increase in utilization for its Health Home consumers over the comparison group.
- ◆ Changes in MH-IP utilization saw significant increases at the statewide level and for the following Health Homes: Butler, Harbor, Shawnee, and Zepf.
- ◆ CareSource consumers had a significant increase in MH-IP utilization as well. Health Homes with no pharmacist on-site showed significant increases for IP utilization, AOD utilization, and MH-IP utilization.

**Table 7-15—Change In Utilization for Health Home Consumers Over Comparison Group During Remeasurement Period (Per 1,000 Member Months)**

Level of Analysis	ED Utilization		IP Utilization		AOD Utilization		MH-IP Utilization	
<b>Health Home</b>								
Butler	1.75	N/S	7.45	N/S	0.38	N/S	7.36	*
Harbor	2.58	N/S.	0.21	N/S	0.25	N/S	2.49	*
Shawnee	8.20	N/S	-2.10	N/S	0.89	N/S	2.26	*
Unison	0.69	N/S	0.57	N/S	1.19	N/S	4.18	N/S
Zepf	1.33	N/S	4.88	*	2.42	*	3.43	*
<b>Health Home Design</b>								
Pharmacist On-site	5.99	N/S	0.34	N/S	0.58	N/S	3.63	*
No Pharmacist On-site	5.83	N/S	3.44	*	2.10	*	3.33	*
<b>County/Region</b>								
Lucas County	11.64	*	3.09	*	1.56	*	3.54	*
<b>Managed Care Plan</b>								
Buckeye	-1.41	N/S	1.34	N/S	0.00	*	0.39	N/S
CareSource	12.43	N/S	2.15	N/S	2.00	N/S	4.22	*
Molina	-6.49	N/S	-1.31	N/S	3.46	N/S	2.40	N/S
Paramount	7.02	N/S	-0.30	N/S	0.15	N/S	0.66	N/S
UnitedHealthcare	14.71	N/S	-1.63	N/S	-0.90	N/S	5.38	N/S
<b>Statewide</b>	<b>5.44</b>	<b>N/S</b>	<b>1.79</b>	<b>N/S</b>	<b>1.48</b>	<b>*</b>	<b>3.25</b>	<b>*</b>

A positive rate indicates an increase in utilization for Health Home consumers over the comparison group.

N/S indicates the results were not statistically significant.

\*Indicates statistical significance at the 95% confidence level or greater.

Tables 7-16 through 7-19 present the same results displayed in Table 7-15, and also display the average utilization rates (per 1,000 member months) for the treatment and control groups during both the baseline and remeasurement period. The Change in Utilization column may not equal the raw difference-in-difference calculation because of the inclusion of unbalanced covariates in the difference-in-differences regression model.

**Table 7-16—Change In Emergency Department Utilization for Health Home Consumers Over Comparison Group During Remeasurement Period Per 1,000 Member Months**

Health Home	Comparison Group		Health Home Consumers		Change in Utilization	
	Baseline	Remeasurement	Baseline	Remeasurement		
<b>Health Home</b>						
Butler	127.67	112.21	139.87	126.35	1.75	N/S.
Harbor	88.93	83.34	84.57	81.57	2.58	N/S
Shawnee	123.94	116.21	113.97	114.82	8.20	N/S
Unison	161.39	143.02	210.31	193.15	0.69	N/S
Zepf	126.38	116.97	141.44	133.60	1.33	N/S
<b>Health Home Design</b>						
Pharmacist On-site	109.82	99.04	95.32	91.16	5.99	N/S
No Pharmacist On-site	139.99	125.99	149.87	141.62	5.83	N/S
<b>County/Region</b>						
Lucas County	121.18	104.75	128.93	124.01	11.64	*
<b>Managed Care Plan</b>						
Buckeye	105.13	99.12	106.79	100.77	-1.41	N/S
CareSource	135.74	118.54	129.97	125.49	12.43	N/S
Molina	112.58	122.65	108.72	112.30	-6.49	N/S
Paramount	82.08	78.66	85.99	91.04	7.02	N/S
UnitedHealthcare	225.62	181.22	231.61	201.72	14.71	N/S
<b>Statewide</b>	<b>120.85</b>	<b>109.79</b>	<b>127.77</b>	<b>122.33</b>	<b>5.44</b>	<b>N/S</b>

A positive rate indicates an increase in utilization for Health Home consumers over the comparison group. The Change in Utilization column may not equal the raw difference-in-difference calculation because of the inclusion of unbalanced covariates in the difference-in-differences regression model.

N/S indicates the results were not statistically significant.

\*Indicates statistical significance at the 95% confidence level or greater.

**Table 7-17—Change In Inpatient Utilization for Health Home Consumers Over Comparison Group During Remeasurement Period Per 1,000 Member Months**

Health Home	Comparison Group		Health Home Consumers		Change in Utilization	
	Baseline	Remeasurement	Baseline	Remeasurement		
<b>Health Home</b>						
Butler	28.11	23.18	14.61	17.33	7.45	N/S
Harbor	7.36	6.98	4.44	4.25	0.21	N/S
Shawnee	20.92	21.42	16.44	14.90	-2.10	N/S
Unison	31.95	30.36	23.76	22.90	0.57	N/S
Zepf	22.82	20.36	13.42	15.76	4.88	*
<b>Health Home Design</b>						
Pharmacist On-site	14.75	14.51	8.28	8.47	0.34	N/S
No Pharmacist On-site	24.13	21.13	16.33	16.76	3.44	*
<b>County/Region</b>						
Lucas County	17.18	15.00	12.37	13.23	3.09	*
<b>Managed Care Plan</b>						
Buckeye	6.88	7.21	4.60	6.53	1.34	N/S
CareSource	15.14	13.48	12.01	12.53	2.15	N/S
Molina	13.15	13.43	13.42	12.40	-1.31	N/S
Paramount	7.21	6.13	7.05	6.03	-0.30	N/S
UnitedHealthcare	17.27	19.94	13.02	14.04	-1.63	N/S
<b>Statewide</b>	<b>19.31</b>	<b>17.70</b>	<b>13.65</b>	<b>13.84</b>	<b>1.79</b>	<b>N/S</b>

A positive rate indicates an increase in utilization for Health Home consumers over the comparison group. The Change in Utilization column may not equal the raw difference-in-difference calculation because of the inclusion of unbalanced covariates in the difference-in-differences regression model.

N/S indicates the results were not statistically significant.

\*Indicates statistical significance at the 95% confidence level or greater.

**Table 7-18—Change In Alcohol and Other Drug Dependence Inpatient Utilization for Health Home Consumers Over Comparison Group During Remeasurement Period Per 1,000 Member Months**

Health Home	Comparison Group		Health Home Consumers		Change in Utilization	
	Baseline	Remeasurement	Baseline	Remeasurement		
<b>Health Home</b>						
Butler	2.61	1.81	2.09	1.68	0.38	N/S
Harbor	1.24	0.84	0.73	0.55	0.25	N/S
Shawnee	2.66	1.91	1.73	1.91	0.89	N/S
Unison	10.26	6.33	11.71	9.11	1.19	N/S
Zepf	5.40	3.47	4.91	5.50	2.42	*
<b>Health Home Design</b>						
Pharmacist On-site	1.66	1.04	1.03	0.97	0.58	N/S
No Pharmacist On-site	5.76	3.65	4.82	4.88	2.10	*
<b>County/Region</b>						
Lucas County	4.20	2.77	3.72	3.89	1.56	*
<b>Managed Care Plan</b>						
Buckeye	0.00	0.00	0.00	0.00	0.00	*
CareSource	3.89	3.69	2.73	4.54	2.00	N/S
Molina	4.96	2.99	3.51	5.00	3.46	N/S
Paramount	0.08	0.00	0.00	0.07	0.15	N/S
UnitedHealthcare	7.79	8.83	8.10	8.23	-0.90	N/S
<b>Statewide</b>	<b>4.22</b>	<b>2.76</b>	<b>3.47</b>	<b>3.53</b>	<b>1.48</b>	<b>*</b>

A positive rate indicates an increase in utilization for Health Home consumers over the comparison group. The Change in Utilization column may not equal the raw difference-in-difference calculation because of the inclusion of unbalanced covariates in the difference-in-differences regression model.

N/S indicates the results were not statistically significant.

\*Indicates statistical significance at the 95% confidence level or greater.

**Table 7-19—Change In Mental Health Inpatient Utilization for Health Home Consumers Over Comparison Group During Remeasurement Period Per 1,000 Member Months**

Health Home	Comparison Group		Health Home Consumers		Change in Utilization	
	Baseline	Remeasurement	Baseline	Remeasurement		
<b>Health Home</b>						
Butler	6.70	2.42	4.01	7.09	7.36	*
Harbor	4.35	2.13	3.83	4.11	2.49	*
Shawnee	6.29	4.20	3.80	4.02	2.26	*
Unison	15.37	10.39	17.35	16.44	4.18	N/S
Zepf	12.27	7.47	10.61	9.27	3.43	*
<b>Health Home Design</b>						
Pharmacist On-site	5.47	2.76	3.86	4.75	3.63	*
No Pharmacist On-site	11.55	7.79	9.22	8.68	3.33	*
<b>County/Region</b>						
Lucas County	7.93	5.48	6.71	7.70	3.54	*
<b>Managed Care Plan</b>						
Buckeye	1.59	1.15	1.11	1.09	0.39	N/S
CareSource	5.17	3.04	3.71	5.82	4.22	N/S
Molina	4.81	1.89	4.07	3.55	2.40	N/S
Paramount	1.59	0.72	1.86	1.66	0.66	N/S
UnitedHealthcare	7.25	3.88	8.09	10.07	5.38	N/S
<b>Statewide</b>	<b>8.29</b>	<b>5.34</b>	<b>6.61</b>	<b>6.85</b>	<b>3.25</b>	<b>*</b>

A positive rate indicates an increase in utilization for Health Home consumers over the comparison group. The Change in Utilization column may not equal the raw difference-in-difference calculation because of the inclusion of unbalanced covariates in the difference-in-differences regression model.

N/S indicates the results were not statistically significant.

\*Indicates statistical significance at the 95% confidence level or greater.

## 8. Conclusions and Summary of Findings

Based on input from internal and external stakeholders and Health Home providers, along with satisfaction, performance measure and cost data, the Phase I Health Homes initiative has experienced both success and challenges.

While the Health Homes are at various levels of physical health integration, all have demonstrated increased proficiency and progress towards the integration of physical and behavioral health care. The Health Homes reported innovative partnerships with community support services and an expanded array of community sources to address service needs in the areas of transportation, housing, nutrition, exercise, smoking cessation, disease prevention, and wellness. Stakeholder input suggests that Health Homes with a co-located provider had greater success with the integration of physical and behavioral health. Since many of the Health Homes modified their strategies over time on their use of an embedded PCP, HSAG was not able to conduct data analysis to explore the potential impact of a co-located provider on cost, utilization, and performance measure outcomes. Stakeholder and provider input also suggest opportunities to further improve the integration of care primarily with relationship building with the medical community for coordination and continuity of care.

Overall, Health Homes' utilization data did not show a reduction in ED or inpatient utilization for the period reviewed. The Health Homes had high ED utilization rates; however, the Health Homes inpatient admission rates were generally low. The utilization analysis did not show a significant effect of the Health Homes on ED or inpatient (non-mental health) utilization for most Health Homes or at the statewide level. There was a small significant increase in mental health inpatient utilization rates among Health Home members relative to the comparison group.

Overall, Health Homes did not now show an overall cost savings. All five of the evaluated Health Homes incurred statistically significant negative cost savings. The magnitude of the negative cost savings ranged from \$322 to \$561 PMPM, with an overall statewide negative cost savings of \$516 PMPM. Forty-two different stratifications were evaluated (e.g., by age, MCP, Health Home) and none of these subgroups showed an overall cost savings. However, two Health Homes (Zepf and Shawnee) showed a significant cost savings in the Medical – Mental Health category of service. The primary driver of the cost increases, ignoring average monthly Health Home case rates, was found in pharmacy costs. Members in all five Health Homes had significantly higher pharmaceutical costs than the comparison group, ranging in effect size from \$48 PMPM for Butler to \$140 PMPM for Unison.

The Survey on Consumer Perception of Care, Outcomes and Health Home Services results from October showed positive scores for the Health Home sample were higher than the statewide sample for all domains. General Satisfaction was the highest rated subscale at 90 percent followed by Quality/Appropriateness and Participation in Treatment at 86 percent. Access was rated at 85 percent, and Outcomes and Functioning were the lowest rated, at 62 percent and 59 percent, respectively. These results support stakeholder and Health Home provider feedback that Health Homes have been able to develop supportive relationships with their consumers. The high rate of general satisfaction is congruent with the input from Health Homes regarding their low rate of consumers who have opted-out of the Health Homes.

Performance measure rates showed mixed results overall and at the individual Health Home level. Performance measure rates were compared to national Medicaid 2013 HEDIS benchmarks, when available. The Health Homes' average rate fell below the national Medicaid 2013 HEDIS 10th percentiles for the: Cholesterol Management for Patients with Cardiovascular Conditions, CDC: HbA1c Level Below 7.0 Percent, Postpartum Care, Weight Assessment and Counseling for Children/Adolescents – Counseling for Nutrition and Physical Activity, Adolescent Well-Care Visits, and Appropriate Treatment for Children with Upper Respiratory Infections measures.

The Health Homes average was at or above the national Medicaid 2013 HEDIS 75th percentiles for Initiation of Alcohol and Other Drug Dependence Treatment, Adult BMI Assessment, and Adults' Access to Preventive/Ambulatory Health Services measures.

## Summary of Findings

Six Health Homes were initially chosen as part of the Phase I initiative, five of the Health Homes participated in the initiative since roll out, and one Health Home was added to Phase I in May of 2013. All the Health Homes were located in rural, urban, or suburban areas across Ohio. Consumers were enrolled in the Health Home based on their SPMI or SED diagnoses.

HSAG conducted stakeholder interviews to gather feedback on the growth and progression of the Phase I Health Homes and considerations going forward into Phase II. Internal and external stakeholders, along with Health Home providers, consistently communicated a high level of commitment to the Health Home initiative and promoted integrative care as essential for improving outcomes in the consumer population with chronic and complex physical and behavioral health conditions.

Consistent themes were identified from participant responses gathered during two rounds of interviews. Health Homes specifically pointed to the new State proposed reimbursement rate as having the biggest impact on their continued participation in the Health Home initiative. Health Home stakeholders reported the proposed monthly rate of reimbursement of \$188 for an adult and \$169 for a child will not cover the costs that the Health Home providers will incur during their participation in the Health Home initiative. Additionally, establishing relationships with the medical community for coordination and continuity of care, as well as data management, were reported to be continued challenges for the Health Homes.

To ensure continued quality performance the Health Homes were evaluated using 35 clinical performance measures based on CMS, HEDIS, and state-specific specifications. The Health Homes performed well on some measures but significant opportunities for improvement were identified for other measures. The performance measure rates were compared to national Medicaid 2013 HEDIS benchmarks, where applicable.<sup>8-1</sup> Of the measures that were comparable to benchmarks, seven measures fell below the HEDIS 10th percentiles, and three measures fell at or above the HEDIS 75th percentiles.

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<sup>8-1</sup> National Committee for Quality Assurance. HEDIS<sup>®</sup> 2013 Audit Means, Percentiles, and Ratios. Washington, DC: NCQA. February 2014.

HSAG also completed a Health Home cost savings analysis comparing costs over two time periods. The overall results of the cost saving analysis indicated the Health Homes incurred statistically significant negative cost savings. Forty-two different stratifications were evaluated (e.g., by age, managed care plan [MCP], Health Home) and none of these subgroups showed an overall cost savings. All Health Homes produced significant negative cost savings ranging in magnitude from \$322 to \$561 PMPM. Two Health Homes (Zepf and Shawnee) showed significant cost savings in the Medical—Mental Health category of service, but these cost savings were not sufficient to offset the overall negative cost savings.

*Appendix A:* **Findings From the Survey on Consumer Perception of Care, Outcomes, and Health Home Services**

The following figures and tables were used in the ODMHAS April 2014 “Findings From the Survey on Consumer Perception of Care, Outcomes, and Health Home Services.”

**Figures**

Figure A-1—Percentage of responses received by the five Health Home agencies.

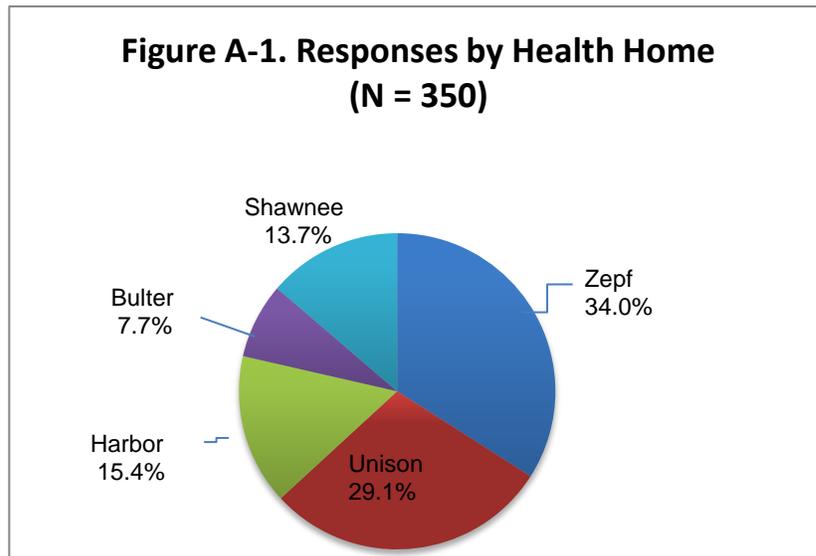


Figure A-2—Percentage of positive scores for the Health Home survey compared to the 2013 statewide MHSIP survey.

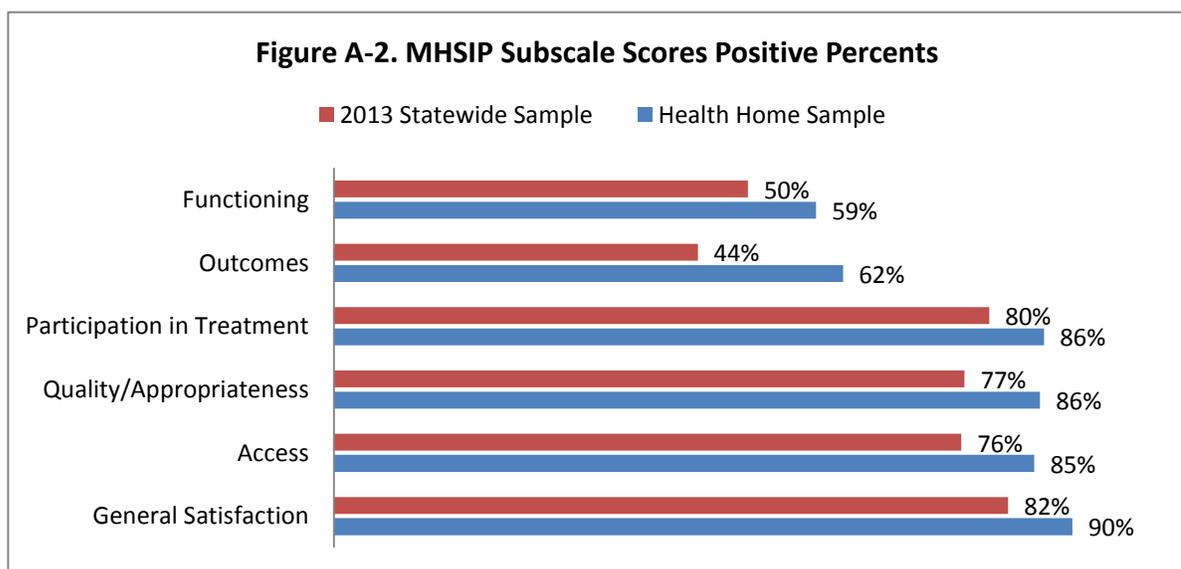
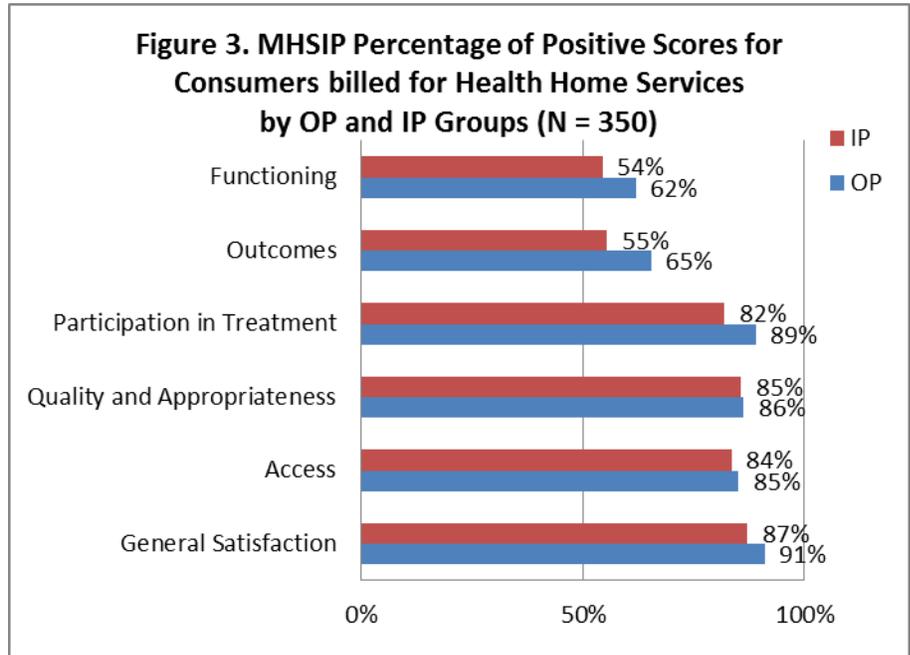


Figure A-3—Positive scores for Health Home consumers by IP or OP groups.



## Tables

Table A-1—Distribution of responses by consumer characteristic.

Table A-1—Distribution of Sample Characteristics		
	IP (N = 126)	OP (N = 224)
<b>Gender</b>	M = 39	M = 89
	F = 87	F = 135
<b>Race</b>	W = 86	W = 125
	B = 33	B = 89
	O = 7	O = 10
<b>Mean Age</b>	50.5	48.8
<b>Provider</b>	Zepf = 37	Zepf = 82
	Unison = 34	Unison = 68
	Harbor = 23	Harbor = 31
	Butler = 6	Butler = 21
	Shawnee = 26	Shawnee = 22

Table A-2—Percentage of respondents receiving specific Health Home services by IP and OP group.

Table A-2—Percentage of Responses Related to Receiving Specific Health Home Services for Individuals With a Health Home Service Claim (N = 350)					
		Yes	No	Don't Know	Blank
Smoking Cessation	OP	10%	82%	1%	7%
	IP	7%	84%	4%	5%
Diet Counseling	OP	11%	73%	3%	13%
	IP	15%	81%	2%	2%
Wellness/Illness Management	OP	38%	43%	8%	11%
	IP	44%	44%	8%	4%

Table A-3—Percent of respondents who had a health care provider outside the Health Home agency.

Table A-3—Percentage of Cases Having a Health Care Provider Outside the Agency (N = 350)					
		Yes	No	Don't Know	Blank
Outside Health Care Provider	OP	68%	22%	6%	4%
	IP	65%	27%	5%	3%

Table A-4—Consumers in the IP and OP groups rated the coordination between the Health Home agency and the outside provider.

Table A-4—Percentage of Cases Rating Coordination Between Health Care Provider and Agency (N = 235)							
		Poor	Fair	Good	Great	Don't Know	Blank
Coordination	OP	8%	9%	32%	29%	10%	12%
	IP	7%	15%	22%	39%	17%	0

Table A-5—Majority of the respondents in the inpatient group received medication reconciliation upon discharge.

Table A-5—Percentage of IP Responses to Question About Medication Reconciliation (N = 126)				
	Yes	No	Don't Know	Blank
IP Respondent	68%	19%	9%	5%

Table A-6—Percent of respondents who received services in various categories at the Health Home agency.

Table A-6—Percentage of Ranked Responses Related to Health Home Service Activities (N = 350)							
		Never	Sometimes	Often	Always	Don't Know	Blank
<b>Referrals &amp; Appointments</b>	OP	18%	25%	13%	37%	6%	1%
	IP	21%	22%	10%	37%	7%	3%
<b>Ancillary Services</b>	OP	20%	23%	17%	34%	5%	1%
	IP	20%	23%	10%	35%	8%	4%
<b>Planning Meets Needs</b>	OP	10%	19%	21%	45%	5%	<1%
	IP	14%	16%	14%	45%	8%	3%
<b>Communication</b>	OP	14%	15%	17%	39%	14%	1%
	IP	17%	10%	20%	33%	17%	3%

## *Appendix B:* Performance Measures Specifications

The 2014 Health Homes clinical performance measures specifications were developed by HSAG in collaboration with ODM. This section provides a copy of the specifications.

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# **ODM Methods for Clinical Performance Measures**

**For  
Medicaid Health Homes**

**FINAL**

**Contact:** Andrea Spitnale  
**Issued:** October 2014  
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# OVERVIEW

## Methodology

These methods are, for the most part, consistent with the HEDIS performance measurement methods, as outlined in the NCQA HEDIS 2014 Technical Specifications manual. They were modified according to ODM’s preferences. All HEDIS requirements for continuous enrollment were removed for quarterly report periods; in general, the primary enrollment requirement for the Health Homes measures is that members must be enrolled in a Health Home during the last month of the report period. For purposes of the quarterly reporting, both the monthly enrollment span and a claim for payment of monthly Health Home case management code (i.e., S0281) will be used to identify enrollment. For annual reporting, traditional continuous enrollment criteria at the Health Home level have been applied to the measures. Health Home enrollment spans (with or without a corresponding payment for the monthly Health Home case management code) will be used to identify enrollment for annual reporting.

Unless otherwise noted, codes are stated to the minimum specificity required. For example, if a code is presented to the third digit, any valid fourth or fifth digits may be used for reporting. When necessary, a code may be specified with an “x,” representing a required digit.

## Data Sources

All appropriate managed care plan (MCP) encounter data, fee-for-service (FFS) claims data, and Health Home data will be used for the purposes of calculating these performance measures. The encounter and claims data will not be limited to Health Home claims.

## Reporting Schedule

The table below displays the reporting schedule for each measure. It indicates the report periods for the measures and any measures that will no longer be reported.

Measures	Reporting Schedule		
	Annual Reporting (CY 2013)	Quarterly Reporting (CY 2014)	Measure No Longer Reported (Beginning CY 2014)
Use of Appropriate Medications for People with Asthma	X	X	
Cholesterol Management for Patients with Cardiovascular Conditions	X		X
Controlling High Blood Pressure	X	X	
Comprehensive Diabetes Care: HbA1c Level Below 7.0 Percent	X	X	
Comprehensive Diabetes Care: Cholesterol Management	X		X
Client Perception of Care—National Outcome Measure (SPMI Health Home)	X		X
Proportion of Days Covered of Medication	X		X
Schizophrenia—Annual Assessment of Weight/BMI, Glycemic Control, Lipids	X		X

ODM Methods for Health Homes Clinical Performance Measures

Measures	Reporting Schedule		
	Annual Reporting (CY 2013)	Quarterly Reporting (CY 2014)	Measure No Longer Reported (Beginning CY 2014)
Bipolar—Annual Assessment of Weight/BMI, Glycemic Control, Lipids	X		X
Screening for Clinical Depression and Follow-up Plan	X	X	
Follow-up After Hospitalization for Mental Illness	X	X	
Initiation and Engagement of Alcohol and Other Drug (AOD) Dependence Treatment	X	X	
Smoking & Tobacco Use Cessation	X	X	
Percent of Live Births Weighing Less than 2,500 Grams	X		X
Timeliness of Prenatal Care	X		
Postpartum Care	X		X
Adult BMI Assessment	X	X	
Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents	X		X
Adolescent Well-Care Visits	X	X	
Adults' Access to Preventive/Ambulatory Health Services	X	X	
Appropriate Treatment for Children with Upper Respiratory Infections	X	X	
Annual Dental Visit	X		X
Ambulatory Care—Sensitive Condition Admission	X	X	
Inpatient & ED Utilization—Rates	X	X	
All-Cause Readmissions	X	X	
Timely Transmission of Transition Record	X	X	
Medication Reconciliation Post-Discharge	X	X	

## **ASTHMA**

### **Use of Appropriate Medications for People with Asthma (ASM)**

*The percentage of members 5 through 64 years of age with persistent asthma who received prescribed medications acceptable as primary therapy for long-term control of asthma.*

**Numerator:** For each member in the denominator, those who had at least one prescription for an asthma controller medication during the report period (Table ASM-E).

**Denominator (Annual Reporting):** Members 5 through 64 years of age who had 11 or more months of enrollment in the Health Home during the reporting period, 11 or more months of enrollment in Medicaid during the year prior to the reporting period, and were identified as having persistent asthma during both the report period and the year prior to the report period (Table ASM-A).

**Denominator (Quarterly Reporting):** Members 5 through 64 years of age who were enrolled in the Health Home during the last month of the reporting period and were identified as having persistent asthma during both the report period and the year prior to the report period (Table ASM-A).

**Exclusions:** Exclude from the eligible population (i.e., denominator) all members diagnosed with emphysema, chronic obstructive pulmonary disease (COPD), cystic fibrosis, obstructive chronic bronchitis, chronic respiratory conditions due to fumes/vapors, or acute respiratory failure (Table ASM-F) any time on or prior to the last day of the reporting period.

#### **Report Periods:**

- Annual Report Period: January 1, 2013 – December 31, 2013

### Table ASM-A: Methods to Identify Members with Persistent Asthma

**Members must meet one of the four criteria below during both the reporting year and the year prior to the reporting year (criteria need not be the same across both years).**

1. Member has at least one emergency department visit (Table ASM-C) with asthma as the principal diagnosis (Table ASM-B).
2. Member has at least one acute inpatient encounter (Table ASM-C) with asthma as the principal diagnosis (Table ASM-B).
3. Member has at least four outpatient asthma visits or observation visits (Table ASM-C) on different dates of service, with asthma as one of the listed diagnoses (Table ASM-B) and at least two asthma medication dispensing events (Table ASM-D). Visit type need not be the same for the four visits.
4. Member has at least four asthma medication dispensing events (i.e., an asthma medication dispensed on four occasions) (Table ASM-D).\*\* A member with at least four asthma medication dispensing events, where leukotriene modifiers were the sole asthma medication dispensed will be excluded from the denominator unless the member also has at least one diagnosis of asthma (Table ASM-B) in any setting in the same year as the leukotriene modifier.

*A list of NDC codes for the appropriate denominator (i.e., members with persistent asthma) asthma medications may be found at [www.ncqa.org](http://www.ncqa.org).*

\*\*Note: The definition of dispensing event differs depending on whether the drug is oral, an inhaler, or an injection. For oral medications, a dispensing event for oral medications is defined as one prescription of an amount lasting 30 days or less. To calculate dispensing events for prescriptions lasting longer than 30 days, divide the days supply by 30 and rounded down to convert. For example, a 100-day prescription is equal to 3 dispensing events ( $100/30=3.33$ , rounded down to 3).

Multiple prescriptions for different oral medications dispensed on the same day should be assessed separately. If multiple prescriptions for the same oral medication are dispensed on the same day, the organization should sum the days supply and divide by 30. Use the Drug ID to determine if the prescriptions are the same or different (the Drug ID is obtained from NCQA's list of NDC codes).

- Two prescriptions for different medications dispensed on the same day, each with a 60-day supply, equals four dispensing events (two prescriptions with two dispensing events each).
- Two prescriptions for different medications dispensed on the same day, each with a 15-day supply, equals two dispensing events (two prescriptions with one dispensing event each).
- Two prescriptions for the same medication dispensed on the same day, each with a 15-day supply, equals one dispensing event (sum the days supply for a total of 30 days).
- Two prescriptions for the same medication dispensed on the same day, each with a 60-day supply, equals four dispensing events (sum the days supply for a total of 120 days).

All inhalers (i.e., canisters) of the same medication dispensed on the same day count as one dispensing event. Medications with different drug IDs dispensed on the same day are counted as different dispensing events. For example, if a member received three canisters of Medication A and two canisters of

Medication B on the same date, it would count as two dispensing events. Injections count as one dispensing event. Multiple dispensing events of the same medication or a different medication count as separate dispensing events. Allocate the dispensing events to the appropriate year based on the date when the prescription was filled.

Allocate the dispensing events to the appropriate year based on the date when the prescription was filled.

**Table ASM-B: Codes to Identify Asthma**

Diagnosis	ICD-9-CM Diagnosis Codes
Asthma	493.0, 493.1, 493.8, 493.9

**Table ASM-C: Codes to Visit Type**

Description	CPT Codes	UB Revenue Codes	HCPCS Codes
Acute Inpatient	99221-99223, 99231-99233, 99238-99239, 99251-99255, 99291	0100, 0101, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x, 021x, 072x, 0987	
Emergency Department (ED) Services	99281-99285	045x, 0981	
Outpatient Visit	99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455-99456	051x, 0520-0523, 0526-0529, 0982, 0983	G0402, G0438, G0439
Observation Visit	99217-99220		

**Table ASM-D: Asthma Medications**

Description	Prescriptions
Antiasthmatic combinations	<ul style="list-style-type: none"> <li>• Dyphylline-guaifenesin</li> <li>• Guaifenesin-theophylline</li> </ul>
Antibody inhibitor	<ul style="list-style-type: none"> <li>• Omalizumab</li> </ul>
Inhaled steroid combinations	<ul style="list-style-type: none"> <li>• Budesonide-formoterol</li> <li>• Fluticasone-salmeterol</li> <li>• Mometasone-formoterol</li> </ul>
Inhaled corticosteroids	<ul style="list-style-type: none"> <li>• Beclomethasone</li> <li>• Budesonide</li> <li>• Ciclesonide</li> <li>• Flunisolide</li> <li>• Fluticasone CFC free</li> <li>• Mometasone</li> <li>• Triamcinolone</li> </ul>
Leukotriene modifiers	<ul style="list-style-type: none"> <li>• Montelukast</li> <li>• Zafirlukast</li> <li>• Zileuton</li> </ul>
Long-acting, inhaled beta-2 agonists	<ul style="list-style-type: none"> <li>• Aformoterol</li> <li>• Formoterol</li> <li>• Salmeterol</li> </ul>
Mast cell stabilizers	<ul style="list-style-type: none"> <li>• Cromolyn</li> </ul>
Methylxanthines	<ul style="list-style-type: none"> <li>• Aminophylline</li> <li>• Dyphylline</li> <li>• Theophylline</li> </ul>
Short-acting, inhaled beta-2 agonists	<ul style="list-style-type: none"> <li>• Albuterol</li> <li>• Levalbuterol</li> <li>• Metaproterenol</li> <li>• Pirbuterol</li> </ul>
<i>NCQA provides a comprehensive list of medications and NDC codes on its Web site (<a href="http://www.ncqa.org">www.ncqa.org</a>).</i>	

**Table ASM-E: Asthma Controller Medications**

Description	Prescriptions
Antiasthmatic combinations	<ul style="list-style-type: none"> <li>• Dyphylline-guaifenesin</li> <li>• Guaifenesin-theophylline</li> </ul>
Antibody inhibitor	<ul style="list-style-type: none"> <li>• Omalizumab</li> </ul>
Inhaled steroid combinations	<ul style="list-style-type: none"> <li>• Budesonide-formoterol</li> <li>• Fluticasone-salmeterol</li> <li>• Mometasone-formoterol</li> </ul>
Inhaled corticosteroids	<ul style="list-style-type: none"> <li>• Beclomethasone</li> <li>• Budesonide</li> <li>• Ciclesonide</li> <li>• Flunisolide</li> <li>• Fluticasone CFC free</li> <li>• Mometasone</li> <li>• Triamcinolone</li> </ul>
Leukotriene modifiers	<ul style="list-style-type: none"> <li>• Montelukast</li> <li>• Zafirlukast</li> <li>• Zileuton</li> </ul>
Mast cell stabilizers	<ul style="list-style-type: none"> <li>• Cromolyn</li> </ul>
Methylxanthines	<ul style="list-style-type: none"> <li>• Aminophylline</li> <li>• Dyphylline</li> <li>• Theophylline</li> </ul>
<i>NCQA provides a comprehensive list of medications and NDC codes on its Web site (<a href="http://www.ncqa.org">www.ncqa.org</a>).</i>	

**Table ASM-F: Codes to Identify Required Exclusions**

Description	ICD-9-CM Diagnosis Codes
Emphysema	492
Other Emphysema	518.1, 518.2
COPD	493.2, 496
Cystic fibrosis	277.0
Acute respiratory failure	518.81
Obstructive Chronic Bronchitis	491.20, 491.21, 491.22
Chronic Respiratory Conditions Due to Fumes/Vapor	506.4

## CARDIOVASCULAR CARE

### Cholesterol Management for Patients with Cardiovascular Conditions (CMC)

*The percentage of members 18–75 years of age who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) in the year prior to the report period, or who had a diagnosis of ischemic vascular disease (IVD) during the report period and the year prior to the report period, and who had an LDL-C control level of less than 100 mg/dL during the report period.*

**Numerator:** The number of members in the denominator whose most recent LDL-C test (Table CMC-D) was less than 100 mg/dL (CPT II code 3048F).

**Denominator (Annual Reporting):** The number of members 18 to 75 years of age who had 11 or more months of enrollment in the Health Home during the reporting year, 11 or more months of enrollment in Medicaid during the year prior to the reporting period, and met one of the following below.

#### Report Periods:

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table CMC-A: Codes to Identify AMI, CABG, and PCI**

Description	CPT Codes	HCPCS Codes	ICD-9-CM Diagnosis Codes	ICD-9-CM Procedure Codes
AMI (include only inpatient claims)			410.x1	
CABG (include only inpatient claims)	33510-33514, 33516-33519, 33521-33523, 33533-33536	S2205-S2209		36.1, 36.2
PCI	92920, 92924, 92928, 92933, 92937, 92941, 92943, 92980, 92982, 92995	G0290		00.66, 36.06, 36.07

**Table CMC-B: Codes to Identify IVD**

Description	ICD-9-CM Diagnosis Codes
IVD	411, 413, 414.0, 414.2, 414.8, 414.9, 429.2, 433-434, 440.1, 440.2, 440.4, 444, 445

**Table CMC-C: Codes to Identify Visit Type**

Description	CPT Codes	UB Revenue Codes	HCPCS Codes
Outpatient	99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456	051x, 0520-0523, 0526-0529, 0982, 0983	G0402, G0438, G0439
Acute inpatient	99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291	010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x, 021x, 072x, 0987	

**Table CMC-D: Codes to Identify LDL-C Levels**

Description	CPT Category II Codes
LDL-C less than 100 mg/dL	3048F
LDL-C 100-129 mg/dL	3049F
LDL-C greater than or equal to 130 mg/dL	3050F

## Controlling High Blood Pressure (CBP)\*

*The percentage of members 18–85 years of age who had a diagnosis of hypertension (HTN) and whose blood pressure (BP) was adequately controlled (<140/90) during the report period.*

**Numerator:** The number of members in the denominator whose most recent BP (Table CBP-C) after the diagnosis of hypertension is adequately controlled. For a member’s BP to be adequately controlled, the systolic BP must be less than 140 (CPT II codes 3074F or 3075F) and the diastolic BP must be less than 90 (CPT II codes 3078F or 3079F).

**Denominator (Annual Reporting):** The number of members age 18 to 85 who had 11 or more months of enrollment in the Health Home during the reporting period and had at least one outpatient visit (Table CBP-B) with a diagnosis of hypertension (Table CBP-A) during the first six months of the report period.

**Denominator (Quarterly Reporting):** The number of members age 18 to 85 who were enrolled in the Health Home during the last month of the reporting period and had at least one outpatient visit (Table CBP-B) with a diagnosis of hypertension (Table CBP-A) during the first six months of the report period.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

### Table CBP-A: Codes to Identify Hypertension

Description	ICD-9-CM Diagnosis
Hypertension	401

### Table CBP-B: Codes to Identify Outpatient Visits

Description	CPT Codes
Outpatient visits	99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

**Table CBP-C: Codes to Identify BP Measurements**

Description	CPT Category II Codes
Systolic blood pressure less than 130	3074F
Systolic blood pressure 130-139	3075F
Systolic blood pressure 140 or greater	3077F
Diastolic blood pressure less than 80	3078F
Diastolic blood pressure 80-89	3079F
Diastolic blood pressure 90 or greater	3080F

## DIABETES CARE

### Comprehensive Diabetes Care: HbA1c Level Below 7.0 Percent (CDC1)

*The percentage of members 18–65 years of age with diabetes (Types 1 and 2) who had a Hemoglobin A1c (HbA1c) less than 7.0 percent.*

**Numerator:** The number of members in the denominator whose most recent Hemoglobin A1c (HbA1c) test (Table CDC-F) had levels less than 7.0 percent (CPT Category II Code 3044F) during the report period. The member is not numerator compliant if the result for the most recent HbA1c test is greater than or equal to 7.0 percent or if an HbA1c test was not performed during the report period.

**Denominator (Annual Reporting):** The number of members with Type 1 or 2 diabetes (Table CDC-A) age 18 through 65 who had 11 or more months of enrollment in a Health Home during the reporting period.

**Denominator (Quarterly Reporting):** The number of members with Type 1 or 2 diabetes (Table CDC-A) age 18 through 65 who were enrolled in a Health Home during the last month of the reporting period.

**Exclusions for HbA1c rate:** For the HbA1c rate, exclude members from the denominator who meet any of the criteria provided below. Use Table CDC-E unless otherwise specified.

- *CABG:* Members discharged alive for CABG in the report period or the year prior to the report period. Refer to Table CDC-E and use codes for CABG only. CABG cases should be from inpatient claims/encounters only. Use both facility and professional claims to identify CABG.
- *PCI:* Member who had PCI in any setting during the report period or the year prior to the report period. Refer to Table CDC-E and use codes for PCI only. Include all cases of PCI, regardless of setting (e.g., inpatient, outpatient, ED).
- *IVD:* Members who met at least one of the following criteria during both the report period and the year prior to the report period. Criteria need not be the same across both years.
  - At least one outpatient visit (Table CDC-D) with an IVD diagnosis (Table CDC-E), *or*
  - At least one acute inpatient claim/encounter (Table CDC-D) with an IVD diagnosis (Table CDC-E)
- *Thoracic aortic aneurysm:* Members who met at least one of the following criteria during both the report period and the year prior to the report period. Criteria need not be the same across both years.
  - At least one outpatient visit (Table CDC-D) with a thoracic aortic aneurysm diagnosis (Table CDC-E), *or*
  - At least one acute inpatient claim/encounter (Table CDC-D) with a thoracic aortic aneurysm diagnosis (Table CDC-E).

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- *Chronic heart failure (CHF)*: Members who had at least one encounter, in any setting, with a code to identify CHF (Table CDC-E). Look as far back as possible in the member's history through the end of report period.
- *Prior myocardial infarction (MI)*: Members who had at least one encounter, in any setting, with any code to identify prior MI (Table CDC-E). Look as far back as possible in the member's history through the end of report period.
- *Chronic Kidney Disease (Stage 4)*: Members who had at least one encounter, in any setting, with a code to identify chronic kidney disease (stage 4) (Table CDC-E). Look as far back as possible in the member's history through the end of report period.
- *End stage renal disease (ESRD)*: Members who had at least one encounter, in any setting, with a code to identify ESRD (Table CDC-E). Look as far back as possible in the member's history through the end of report period.
- *Dementia*: Members who had at least one encounter, in any setting, with a code to identify dementia (Table CDC-E). Look as far back as possible in the member's history through the end of report period.
- *Blindness*: Members who had at least one encounter, in any setting, with a code to identify blindness (Table CDC-E). Look as far back as possible in the member's history through the end of report period.
- *Amputation (lower extremity)*: Members who had at least one encounter, in any setting, with a code to identify lower extremity amputation (Table CDC-E). Look as far back as possible in the member's history through the end of report period.

### **Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table CDC-A: Methods to Identify Diabetic Members**

<b>Methods to Identify Diabetic Members*</b>	
<b>Method 1: Pharmacy</b>	
Members who were dispensed insulin or oral hypoglycemics/antihyperglycemics on an ambulatory basis during the measurement year or the year prior to the measurement year (Table CDC-B).	
<b>Method 2: Inpatient, Outpatient, &amp; Emergency Department Visits</b>	
Members who had:	
i.	Two (2) visits with different dates of service in an outpatient, observation, or nonacute inpatient setting (Table CDC-D) with a diagnosis of diabetes (Table CDC-C). Visit type need not be the same for the two visits, OR
ii.	One (1) visit in an acute inpatient <u>or</u> emergency department setting (Table CDC-D) with a diagnosis of diabetes (Table CDC-C)
<i>*To be included in the measure, a member needs to be identified using <u>only one</u> method. Members are included in the denominator if they are identified as diabetic in either the report period or the year prior to the report period.</i>	

**Table CDC-B: Prescriptions to Identify Diabetics Using Pharmacy Data**

<b>Description</b>	<b>Prescription</b>
Alpha-glucosidase inhibitors	<ul style="list-style-type: none"> <li>• Acarbose</li> <li>• Miglitol</li> </ul>
Amylin analogs	<ul style="list-style-type: none"> <li>• Pramlintide</li> </ul>
Antidiabetic combinations	<ul style="list-style-type: none"> <li>• Glimepiride-pioglitazone</li> <li>• Glimepiride-rosiglitazone</li> <li>• Glipizide-metformin</li> <li>• Glyburide-metformin</li> <li>• Linagliptin-metformin</li> <li>• Metformin-pioglitazone</li> <li>• Metformin-rosiglitazone</li> <li>• Metformin-saxagliptin</li> <li>• Metformin-sitagliptin</li> <li>• Saxagliptin</li> <li>• Sitagliptin-simvastatin</li> </ul>
Insulin	<ul style="list-style-type: none"> <li>• Insulin aspart</li> <li>• Insulin aspart-insulin aspart protamine</li> <li>• Insulin detemir</li> <li>• Insulin glargine</li> <li>• Insulin glulisine</li> <li>• Insulin inhalation</li> <li>• Insulin isophane beef-pork</li> <li>• Insulin isophane human</li> <li>• Insulin isophane-insulin regular</li> <li>• Insulin lispro</li> <li>• Insulin lispro-insulin lispro protamine</li> <li>• Insulin regular human</li> </ul>
Meglitinides	<ul style="list-style-type: none"> <li>• Nateglinide</li> <li>• Repaglinide</li> </ul>
Miscellaneous antidiabetic agents	<ul style="list-style-type: none"> <li>• Exenatide</li> <li>• Linagliptin</li> <li>• Liraglutide</li> <li>• Metformin-repaglinide</li> <li>• Sitagliptin</li> </ul>
Sodium glucose cotransporter 2 (SGLT2) inhibitor	<ul style="list-style-type: none"> <li>• Canagliflozin</li> </ul>
Sulfonylureas	<ul style="list-style-type: none"> <li>• Acetohexamide</li> <li>• Chlorpropamide</li> <li>• Glimepiride</li> <li>• Glipizide</li> <li>• Glyburide</li> <li>• Tolazamide</li> <li>• Tolbutamide</li> </ul>
Thiazolidinediones	<ul style="list-style-type: none"> <li>• Pioglitazone</li> <li>• Rosiglitazone</li> </ul>

Note: Glucophage/metformin is not included because it is used to treat conditions other than diabetes; members with diabetes on these medications are identified through diagnosis codes only. A comprehensive list of medications and NDC codes are available on NCQA’s Web site ([www.ncqa.org](http://www.ncqa.org)).

**Table CDC-C: Codes to Identify Diabetes**

Description	ICD-9-CM Diagnosis Codes
Diabetes	250, 357.2, 362.0, 366.41, 648.0

**Table CDC-D: Codes to Identify Visit Type**

Description	CPT Codes	UB Revenue Codes	HCPCS Codes
Outpatient	99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456	051x, 0520-0523, 0526-0529, 0982, 0983	G0402, G0438, G0439
Observation	99217-99220		
Nonacute inpatient	99304-99310, 99315, 99316, 99318, 99324-99328, 99334-99337	0118, 0128, 0138, 0148, 0158, 019x, 0524, 0525, 055x, 066x	
Acute inpatient	99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291	010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x, 021x, 072x, 0987	
Emergency Department	99281-99285	045x, 0981	

**Table CDC-E: Codes to Identify HbA1c Denominator Exclusions**

Description	CPT Codes	HCPCS Codes	ICD-9-CM Diagnosis Codes	ICD-9-CM Procedure Codes	UB Revenue Codes	UB Type of Bill	POS Codes
CABG	33510-33514, 33516-33519, 33521-33523, 33533-33536	S2205-S2209		36.1, 36.2			
PCI	92920, 92924, 92928, 92933, 92937, 92941, 92943, 92980, 92982, 92995	G0290		00.66, 36.06, 36.07			

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Description	CPT Codes	HCPCS Codes	ICD-9-CM Diagnosis Codes	ICD-9-CM Procedure Codes	UB Revenue Codes	UB Type of Bill	POS Codes
IVD			411, 413, 414.0, 414.2, 414.8, 414.9, 429.2, 433-434, 440.1, 440.2, 440.4, 444, 445				
Thoracic aortic aneurysm			441.01, 441.03, 441.1, 441.2, 441.6, 441.7				
MI			410, 412				
CKD/ESRD	36145, 36147, 36800, 36810, 36815, 36818-36821, 36831-36833, 90919-90921, 90923-90925, 90935, 90937, 90940, 90945, 90947, 90957-90962, 90965, 90966, 90969, 90970, 90989, 90993, 90997, 90999, 99512	G0257, G0308-G0319, G0321-G0323, G0325-G0327, G0392, G0393, S9339	585.4, 585.5, 585.6, V45.1	38.95, 39.27, 39.42, 39.43, 39.53, 39.93-39.95, 54.98	080x, 082x-085x, 088x	072X	65
Blindness			369.0, 369.1, 369.2, 369.4, 369.6, 369.7				

ODM Methods for Health Homes Clinical Performance Measures

Description	CPT Codes	HCPCS Codes	ICD-9-CM Diagnosis Codes	ICD-9-CM Procedure Codes	UB Revenue Codes	UB Type of Bill	POS Codes
Amputation (lower extremity)	27290, 27295, 27590-27592, 27594, 27596, 27598, 27880, 27881, 27882, 27884, 27886, 27888, 27889, 28800, 28805, 28810, 28820, 28825			84.1			
CHF			425, 428				
Dementia			290, 291.2, 292.82, 294.0-294.2, 331.0, 331.1, 331.82				

**Table CDC-F: Codes to Identify HbA1c Levels**

Description	CPT Category II Codes
HbA1c <7.0%	3044F
HbA1c ≥7.0%	3045F, 3046F

## Comprehensive Diabetes Care: Cholesterol Management (CDC2)

*The percentage of members 18–75 years of age with diabetes (Types 1 and 2) who had: 1) LDL-C screening and 2) LDL-C level less than 100 mg/dL.*

**Numerator:** The number of members in the denominator who met each of the following:

1. Had an LDL-C screening (Table CDC-G)
2. Whose most recent LDL-C screening (Table CDC-H) during the report period is less than 100 mg/dL (CPT Category II code 3048F). If the result for the most recent LDL-C test during the last quarter of the report period is  $\geq 100$  mg/dL or if an LDL-C test was not performed during the report period, the member is not numerator compliant.

**Denominator (Annual Reporting):** The number of members with Type 1 or 2 diabetes (Table CDC-A) age 18 through 75 who had 11 or more months of enrollment in a Health Home during the reporting period.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

### Table CDC-G: Codes to Identify LDL-C Screening

CPT	CPT Category II Codes
80061, 83700, 83701, 83704, 83721	3048F, 3049F, 3050F

### Table CDC-H: Codes to Identify LDL-C Levels

Description	CPT Category II Codes
LDL-C <100 mg/dL	3048F
LDL-C 100-129 mg/dL	3049F
LDL-C $\geq 130$ mg/dL	3050F

**MANAGEMENT OF BEHAVIORAL HEALTH CONDITIONS**

**Client Perception of Care—National Outcome Measure (SPMI Health Home)**

**Note: This measure will be removed from Year 2 reporting (i.e., CY 2014).**

**Note: This measure will be specified and calculated by ODMH.**

## Proportion of Days Covered of Medication (PDC)

**Note:** This measure will be removed from Year 2 reporting (i.e., CY 2014).

*The percentage of members who met the Proportion of Days Covered (PDC) threshold of 80 percent during the report period for cardiovascular disease, mental illness, diabetes, or asthma prescriptions.*

**Numerator:** The number of members who meet the PDC threshold of 80 percent (Table PDC-A).

**Denominator:** The four separate denominators include members who filled at least one prescription for 1) cardiovascular disease, 2) mental illness, 3) diabetes, or 4) asthma (Table PDC-B) and who had 11 or more months of enrollment in a Health Home during the reporting period.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

### Table PDC-A: Method to Determine Numerator Events

Steps to Determine Members with Greater than 80 Percent of Day Covered
1. Determine the index prescription date, which is the first occurrence during the report period of a prescription for a qualifying drug.
2. Determine the member's measurement period, defined as the index prescription date to the end of the calendar year, disenrollment, or death.
3. Within the report period, count the days the patient was covered by at least one prescription for each class based on the prescription fill date and days supply. If prescriptions for the same drug overlap, then adjust the prescription start date to the day after the previous fill has ended. To ensure that days supply that extends beyond the reporting year is not counted, subtract any days supply that extends beyond December 31 of the report period.
4. Divide the number of covered days (Step 3) by the number of days in Step 2. Multiply this number by 100 to obtain the PDC as a percentage.
5. Calculate the number of members who had a PDC greater than 80 percent of the days in their report period covered by medication.

**Table PDC-B: Codes to Identify Denominator-Qualifying Medications**

Description	Prescription		
Cardiovascular disease	Therapeutic class: A1A, A2A, A2C, A4A, A4B, A4C, A4D, A4F, A4G, A4H, A4I, A4J, A4K, A4T, A4U, A4V, A4W, A4X, A4Y, A4Z, A7B, A7C, A7E, A7H, A7J, A9A, J7A, J7B, J7C, J7E, J7G, J7H, M4D, M4E, M4I, M4J, M4L, M4M, M9L, M9P, M9T, M9V, R1F, R1H, R1K, R1L, R1M		
Mental illness	Therapeutic class: H2G, H2H, H2J, H2L, H2M, H2S, H2U, H2W, H2X, H7B, H7C, H7D, H7E, H7J, H7O, H7P, H7R, H7S, H7T, H7U, H7X, H7Z, H8H, H8I, H8J, H8P		
Diabetes	<ul style="list-style-type: none"> <li>• acarbose</li> <li>• acetohexamide</li> <li>• chlorpropamide</li> <li>• exenatide</li> <li>• glimepiride</li> <li>• glimepiride-pioglitazone</li> <li>• glimepiride-rosiglitazone</li> <li>• glipizide</li> <li>• glipizide-metformin</li> <li>• glyburide</li> <li>• glyburide-metformin</li> <li>• insulin aspart</li> <li>• insulin aspart-insulin aspart protamine</li> <li>• insulin detemir</li> <li>• insulin glargine</li> <li>• insulin glulisine</li> <li>• insulin inhalation</li> <li>• insulin isophane human</li> <li>• insulin isophane-insulin regular human</li> <li>• insulin lispro</li> <li>• insulin lispro-insulin lispro protamine</li> <li>• insulin regular human</li> <li>• liraglutide</li> <li>• metformin-pioglitazone</li> <li>• metformin-repaglinide</li> <li>• metformin-repaglinide 5</li> <li>• metformin-rosiglitazone</li> <li>• metformin-sitagliptin</li> <li>• miglitol</li> <li>• nateglinide</li> <li>• pioglitazone</li> <li>• pramlintide</li> <li>• repaglinide</li> <li>• rosiglitazone</li> <li>• saxagliptin</li> <li>• sitagliptin</li> <li>• tolazamide</li> <li>• tolbutamide</li> </ul>		
Asthma	<ul style="list-style-type: none"> <li>• montelukast</li> <li>• theophylline</li> <li>• dyphylline</li> <li>• dyphylline-guaifenesin</li> <li>• triamcinolone</li> <li>• zileuton</li> <li>• formoterol</li> <li>• theophylline</li> <li>• albuterol</li> <li>• mometasone</li> <li>• formoterol-mometasone</li> <li>• salmeterol</li> <li>• fluticasone</li> <li>• pirbuterol</li> <li>• budesonide</li> <li>• aminophylline</li> <li>• cromolyn</li> <li>• salmeterol</li> <li>• fluticasone</li> <li>• fluticasone-salmeterol</li> <li>• budesonide-formoterol</li> <li>• potassium iodide-theophylline</li> <li>• metaproterenol</li> <li>• flunisolide</li> <li>• nedocromil</li> <li>• zafirlukast</li> <li>• levalbuterol</li> <li>• oxtriphylline</li> <li>• guaifenesin-theophylline</li> <li>• omalizumab</li> <li>• beclomethasone</li> <li>• ciclesonide CFC free</li> <li>• metaproterenol</li> <li>• guaifenesin-theophylline</li> <li>• arformoterol</li> </ul>		

*Note: This list was provided by ODMH.*

## MENTAL ILLNESS OUTCOMES

### **Schizophrenia—Annual Assessment of Weight/BMI, Glycemic Control, Lipids (SSD1)**

**Note: This measure will be removed from Year 2 reporting (i.e., CY 2014).**

*The percentage of members 18-64 years of age diagnosed with schizophrenia, who were dispensed an antipsychotic medication, and received a BMI assessment, a glycemic control assessment, and a lipid screening during the report period.*

**Numerator:** The number of members in the denominator who received a BMI assessment, a glycemic control assessment, and a lipid screening (Table SSD-D).

**Denominator:** The number of members ages 18-64 who had 11 or more months of enrollment in the Health Home during the reporting period, had a primary or secondary diagnosis of schizophrenia (Table SSD-B) on a Health Home claim, and who had at least two outpatient encounters on different days or one inpatient discharge (Table SSD-A) with a diagnosis of schizophrenia, and who were prescribed an antipsychotic medication (Table SSD-C).

**Exclusions:** Exclude members with diabetes. Identify diabetic members using the methods outlined in the Comprehensive Diabetes Care measure specifications. Exclude members who had no antipsychotic medications dispensed during the measurement year.

**Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table SSD-A: Codes to Identify Visit Type**

Description	UB Revenue Codes			
Acute inpatient	010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x, 021x, 072x, 0987			
	CPT Codes	POS Codes		
	90791-90792, 90801, 90802, 90816-90819, 90821-90824, 90826-90829, 90832-90834, 90836-90840, 90845, 90847, 90849, 90853, 90857, 90862, 90870, 90875, 90876, 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291	<i>WITH</i>	21, 51	
Outpatient, intensive outpatient and partial hospitalization	CPT Codes	HCPCS Codes	UB Revenue Codes	
	90804-90815, 98960-98962, 99078, 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99384-99387, 99394-99397, 99401-99404, 99411, 99412, 99510	G0155, G0176, G0177, G0409-G0411, H0002, H0004, H0031, H0034-H0037, H0039, H0040, H2000, H2001, H2010-H2020, M0064, S0201, S9480, S9484, S9485	0510, 0513, 0516, 0517, 0519-0523, 0526-0529, 0900, 0901, 0902-0905, 0907, 0911-0917, 0919, 0982, 0983	
	CPT Codes	POS Codes		
90791-90792, 90801, 90802, 90816-90819, 90821-90824, 90826-90829, 90832-90834, 90836-90840, 90845, 90847, 90849, 90853, 90857, 90862, 90870, 90875, 90876, 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291	<i>WITH</i>	03, 05, 07, 09, 11, 12, 13, 14, 15, 20, 22, 24, 33, 49, 50, 52, 53, 71, 72		
ED	CPT Codes		UB Revenue Codes	
	99281-99285		045x, 0981	
	CPT Codes	POS Codes		
90791-90792, 90801, 90802, 90832-90834, 90836-90840, 90845, 90847, 90849, 90853, 90857, 90862, 90870, 90875, 90876, 99291	<i>WITH</i>	23		
Nonacute inpatient	CPT Codes	HCPCS Codes	UB Revenue Codes	
	99304-99310, 99315, 99316, 99318, 99324-99328, 99334-99337	H0017-H0019, T2048	0118, 0128, 0138, 0148, 0158, 019x, 0524, 0525, 055x, 066x, 1000, 1001, 1003-1005	

	CPT Codes		POS Codes
	90791-90792, 90801, 90802, 90816-90819, 90821-90824, 90826-90829, 90832-90834, 90836-90840, 90845, 90847, 90849, 90853, 90857, 90862, 90870, 90875, 90876, 99291	<i>WITH</i>	31, 32, 56

**Table SSD-B: Codes to Identify Schizophrenia**

Description	ICD-9-CM Diagnosis Codes
Schizophrenia	295

**Table SSD-C: Codes to Identify Antipsychotic Medications**

Description	Prescription			J-Codes
Miscellaneous antipsychotic agents	<ul style="list-style-type: none"> <li>• Aripiprazole</li> <li>• Asenapine</li> <li>• Clozapine</li> <li>• Haloperidol</li> <li>• Iloperidone</li> </ul>	<ul style="list-style-type: none"> <li>• Loxapine</li> <li>• Lurasidone</li> <li>• Molindone</li> <li>• Olanzapine</li> <li>• Paliperidone</li> </ul>	<ul style="list-style-type: none"> <li>• Pimozide</li> <li>• Quetiapine</li> <li>• Quetiapine fumarate</li> <li>• Risperidone</li> <li>• Ziprasidone</li> </ul>	
Phenothiazine antipsychotics	<ul style="list-style-type: none"> <li>• Chlorpromazine</li> <li>• Fluphenazine</li> <li>• Perphenazine</li> </ul>	<ul style="list-style-type: none"> <li>• Perphenazineami triptyline</li> <li>• Prochlorperazine</li> </ul>	<ul style="list-style-type: none"> <li>• Thioridazine</li> <li>• Trifluoperazine</li> </ul>	
Psychotherapeutic combinations	<ul style="list-style-type: none"> <li>• Fluoxetine-olanzapine</li> </ul>			
Thioxanthenes	<ul style="list-style-type: none"> <li>• Thiothixene</li> </ul>			
Long-acting injections	<ul style="list-style-type: none"> <li>• Fluphenazine decanoate</li> <li>• Haloperidol decanoate</li> </ul>	<ul style="list-style-type: none"> <li>• Olanzapine</li> <li>• Paliperidone palmitate</li> </ul>	<ul style="list-style-type: none"> <li>• Risperidone</li> </ul>	J1631, J2358, J2426, J2680, J2794

**Table SSD-D: Codes to Identify Required Assessments**

Description	CPT Codes	CPT Category II Codes	ICD-9-CM Diagnosis Codes
BMI assessment	G8417-G8420	3008F, 2001F	V85.0-V85.4
Glycemic control assessment	80047, 80048, 80050, 80053, 80069, 82947, 82950, 82951,		
Lipid assessment	83036, 83037	3044F, 3045F, 3046F	

## **Bipolar Disorder—Annual Assessment of Weight/BMI, Glycemic Control, Lipids (SSD2)**

**Note:** This measure will be removed from Year 2 reporting (i.e., CY 2014).

*The percentage of members 18-64 years of age diagnosed with bipolar disorder, who were dispensed an antipsychotic medication, and received a BMI assessment, a glycemic control assessment, and a lipid screening.*

**Numerator:** The number of members in the denominator with bipolar disorder who received a BMI assessment, a glycemic control assessment, and a lipid screening (Table SSD-D).

**Denominator:** The number of Health Home members 18-64 years of age who had 11 or more months of enrollment in the Health Home during the reporting period, had a primary or secondary diagnosis of bipolar disorder (Table SSD-E) on a Health Home claim, who had at least two outpatient encounters on different days or one inpatient discharge (Table SSD-A) with a diagnosis of bipolar disorder, and who were prescribed an antipsychotic medication (Table SSD-C).

**Exclusions:** Exclude members with diabetes. Identify diabetic members using the methods outlined in the Comprehensive Diabetes Care measure specifications. Exclude members who had no antipsychotic medications dispensed during the measurement year.

### **Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

### **Table SSD-E: Codes to Identify Bipolar Disorder**

<b>Description</b>	<b>ICD-9-CM Diagnosis Codes</b>
Bipolar disorder	296.0, 296.1, 296.4, 296.5, 296.6, 296.7

## Screening for Clinical Depression and Follow-up Plan (SCD)\*

*The percentage of members 18 years of age and older screened for clinical depression using a standardized depression screening tool, and if positive, a follow-up plan is documented on the date of the positive screen.*

**Numerator:** The number of members in the denominator who received screening and, if positive, a follow-up plan is documented on the date of the positive screen. Numerator compliance can be determined with either of two methods:

1. Codes to document clinical depression screen (Table SCD-B).
2. Codes that indicate screening for depression (Table SCD-C) occurring in conjunction with an ODMH service or visit with a mental health practitioner (Table SCD-D).

**Denominator (Annual Reporting):** Members age 18 years and older (as of the encounter date) who had a qualifying encounter (Table SCD-A) and were enrolled in the Health Home on the day of the encounter.

**Denominator (Quarterly Reporting):** Members age 18 years and older (as of the encounter date) who were enrolled in the Health Home during the last month of the reporting period and who had a qualifying encounter (Table SCD-A).

**Exclusion:** Members that had a diagnosis of depression (SCD-E) or bipolar disorder (Table SSD-E) in the 120 days prior to the encounter.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table SCD-A: Codes to Identify Qualifying Encounters**

CPT	HCPCS
90791, 90792, 90832, 90834, 90837, 90839, 90801, 90802, 90804-90809, 92557, 92567, 92568, 92625, 92626, 96150, 96151, 97003, 99201-99205, 99212-99215	G0101, G0402, G0438, G0439, G0444

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

**Table SCD-B: Codes to Document Clinical Depression Screen**

Description	HCPCS
Positive screen for clinical depression using a standardized tool and a follow-up plan documented	G8431
Negative screen for clinical depression using a standardized tool, patient not eligible/appropriate for follow-up plan documented	G8510
Screening for clinical depression not documented, patient not eligible/appropriate	G8433
Screening for clinical depression documented, follow-up plan not documented, patient not eligible/appropriate	G8940
Clinical depression screening not documented, reason not given	G8432
Positive screen for clinical depression documented, follow-up plan not documented, reason not given	G8511

**Table SCD-C: Codes to Identify Screening for Depression**

CPT Codes	HCPCS
90801	H0031, G8511

**Table SCD-D: Codes to Identify Mental Health Practitioner**

Provider Type	Specialty Code
04	042
20	213
42	420
51	511, 512
65	213
72	213
84	840, 841

*AND*

**Table SCD-E: Codes to Identify Major Depression**

Description	ICD-9-CM Diagnosis Codes
Major Depression	296.20-296.25, 296.30-296.35, 298.0, 311

## **Follow-up After Hospitalization for Mental Illness (FUH)\***

*The percentage of discharges for members 6 years of age and older who were hospitalized for treatment of selected mental illness diagnoses and who had an outpatient visit, an intensive outpatient encounter, or partial hospitalization with a mental health practitioner, and who received follow-up within seven days of discharge.*

**Numerator:** The number of discharges for which the member received follow-up on the date of discharge or within seven days of discharge. Follow-up includes:

- An outpatient visit, intensive outpatient encounter, or partial hospitalization (Table FUH-D) with a mental health practitioner, or
- A transitional care management services (Table FUH-F) where the date of service on the claim is 29 days after the date the member was discharged with a principal diagnosis of mental illness.

**Denominator (Annual Reporting):** The number of discharges for members 6 years of age and older who were discharged alive from an acute inpatient setting with a principal mental illness diagnosis (Table FUH-A) during the first 11 months of the report period. Use only facility claims to identify discharges. Do not use diagnoses from professional claims. In addition, the member must have been enrolled in a Health Home on discharge through seven days after discharge.

**Denominator (Quarterly Reporting):** The number of discharges for members 6 years of age and older who were enrolled in a Health Home during the last month of the reporting period and were discharged alive from an acute inpatient setting with a principal mental illness diagnosis (Table FUH-A) during the first 11 months of the report period. Use only facility claims to identify discharges. Do not use diagnoses from professional claims. In addition, the member must have been enrolled in Medicaid on discharge through seven days after discharge.

### **Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

**Table FUH-A: Codes to Identify Mental Illness Diagnosis**

Description	ICD-9-CM Diagnosis Codes
Mental illness diagnosis	295–299, 300.3, 300.4, 301, 308, 309, 311–314

If the discharge is followed by readmission or direct transfer to an acute facility for a mental health principal diagnosis (Table FUH-B) within the seven-day follow-up period, count only the readmission discharge or the discharge from the facility to which the member was transferred. Although rehospitalization might not be for a selected mental health disorder, it is probably for a related condition.

Exclude both the initial discharge and the readmission/direct transfer discharge if the readmission/direct transfer discharge occurs after the 11th month of the report period.

Exclude discharges followed by readmission or direct transfer to a *nonacute facility* for a mental health principal diagnosis (Table FUH-B) within the seven-day follow-up period. These discharges are excluded from the measure because readmission or transfer may prevent an outpatient follow-up visit from taking place. Refer to Table FUH-C for codes to identify nonacute care.

Exclude discharges in which the beneficiary was transferred directly or readmitted within the seven days after discharge to an acute or nonacute facility for a non-mental health principal diagnosis. This includes an ICD-9-CM Diagnosis code other than those in Table FUH-B . These discharges are excluded from the measure because rehospitalization or transfer may prevent an outpatient follow-up visit from taking place.

**Table FUH-B: Codes to Identify Mental Health Diagnosis for Readmissions/Transfers**

Description	ICD-9-CM Diagnosis Codes
Mental health diagnosis	290, 293-302, 306-316

**Table FUH-C: Codes to Identify Nonacute Care**

Description	HCPCS	UB Revenue Codes	UB Type of Bill	POS Codes
Hospice		0115, 0125, 0135, 0145, 0155, 0650, 0656, 0658, 0659	081x, 082x	34
SNF		019x	021x, 022x, 028x	31, 32
Hospital transitional care, swing bed or rehabilitation			018x	
Rehabilitation		0118, 0128, 0138, 0148, 0158		
Respite		0655		
Intermediate care facility				54
Residential substance abuse treatment facility		1002		55
Psychiatric residential treatment center	T2048, H0017-H0019	1001		56
Comprehensive inpatient rehabilitation facility				61
Other nonacute care facilities that do not use the UB revenue or type of bill codes for billing (e.g., ICF, SNF)				

**Table FUH-D: Codes to Identify Visits**

CPT Codes		HCPCS
Follow-up visits identified by the following CPT or HCPCS codes must be with a mental health practitioner (Table FUH-E).		
90804-90815, 98960-98962, 99078, 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99383-99387, 99393-99397, 99401-99404, 99411, 99412, 99510, 90863		G0155, G0176, G0177, G0409-G0411, H0002, H0004, H0031, H0034-H0037, H0039, H0040, H2000, H2001, H2010-H2020, M0064, S0201, S9480, S9484, S9485
CPT Codes		POS
Follow-up visits identified by the following CPT/POS codes must be with a mental health practitioner (Table FUH-E).		
90791, 90792, 90801, 90802, 90816-90819, 90821-90824, 90826-90829, 90832-90834, 90836-90840, 90845, 90847, 90849, 90853, 90857, 90862, 90870, 90875, 90876	<i>WITH</i>	03, 05, 07, 09, 11, 12, 13, 14, 15, 20, 22, 24, 33, 49, 50, 52, 53, 71, 72
99221-99223, 99231-99233, 99238, 99239, 99251-99255	<i>WITH</i>	52, 53
CPT Category II		Modifier
1110F	<i>WITH</i>	U4
UB Revenue Codes		
The organization does not need to determine practitioner type for follow-up visits identified by the following UB revenue codes.		
0513, 0900-0905, 0907, 0911-0917, 0919		
Visits identified by the following revenue codes must be with a mental health practitioner or in conjunction with a diagnosis code from Table FUH-A.		
0510, 0515-0517, 0519-0523, 0526-0529, 0982, 0983		

**Table FUH-E: Methods to Identify Mental Health Practitioner**

Provider Type	WITH	Specialty Codes
04	<i>WITH</i>	042
20	<i>WITH</i>	213
42	<i>WITH</i>	420
51	<i>WITH</i>	511 or 512
65	<i>WITH</i>	213
72	<i>WITH</i>	213
84	<i>WITH</i>	840 or 841

**Table FUH-F: Codes to Identify Transitional Care Management Services**

CPT Code
99495

## SUBSTANCE ABUSE

### Initiation and Engagement of Alcohol and Other Drug (AOD) Dependence Treatment (IET)\*

***Initiation:** The percentage of members diagnosed with AOD dependence who initiate treatment through an inpatient AOD admission or an outpatient service with an AOD service within 14 days of diagnosis.*

***Engagement:** The percentage of members who initiated treatment and who have two or more additional AOD services within 30 days after the date of the initiation visit.*

#### **Numerator:**

Initiation of AOD Treatment: Initiation of AOD treatment through an inpatient admission, outpatient visit, intensive outpatient encounter or partial hospitalization within 14 days of diagnosis.

1. Identify all members in the denominator whose index episode was an inpatient discharge with any AOD diagnosis. This visit counts as the initiation event.
2. Identify all members in the denominator whose index episode start date was an outpatient, intensive outpatient, partial hospitalization, detoxification, or emergency department visit. Use Table IET-B and IET-A to determine if the members had an additional outpatient visit or inpatient admission with any AOD diagnosis within 14 days of the index episode start date (inclusive). If the initiation encounter is an inpatient admission, the admission date (not the discharge date) must be within 14 days of the index episode start date (inclusive). If the index episode start date and the initiation visit occur on the same day, they must be with different providers in order to count.
3. Exclude from the denominator members whose initiation service was an inpatient stay with a discharge date during the last month of the report period.
4. Note: Do not count Index Episodes that include detoxification codes (including inpatient detoxification) as being initiation of treatment.

Engagement of AOD Treatment: Initiation of AOD treatment and two or more inpatient admissions, outpatient visits, intensive outpatient encounters or partial hospitalizations (Table IET-B) with any AOD diagnosis (Table IET-A) within 30 days after the date of the Initiation encounter (inclusive). Multiple engagement visits may occur on the same day, but they must be with different providers in order to be counted. For members who initiated treatment via an inpatient stay, use the discharge date as the start of the 30-day engagement period. If the engagement encounter is an inpatient admission, the admission date (not the discharge date) must be within 30 days of the Initiation encounter (inclusive). Do not count engagement encounters that include detoxification codes (including inpatient detoxification).

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

**Denominator (Annual Reporting):** Members 13 years and older who were enrolled in a Health Home 60 days prior to the index episode start date through 44 days after the index episode start date and had a new episode of AOD during the first ten and a half months of the report period. Follow the steps below to determine new episodes of AOD.

**Denominator (Quarterly Reporting):** Members 13 years and older who were enrolled in a Health Home during the last month of the reporting period and had a new episode of AOD during the first ten and a half months of the report period. Follow the steps below to determine new episodes of AOD.

*Step 1:* Identify the index episode. Identify members who had one of the following during the first ten and a half months of the report period.

- An outpatient visit, intensive outpatient visit, or partial hospitalization (Table IET-B) with a diagnosis of AOD (Table IET-A).
- A detoxification visit (Table IET-C).
- An ED visit (Table IET-D) with a diagnosis of AOD (Table IET-A).
- An inpatient discharge with a diagnosis of AOD as identified by either of the following.
  - An inpatient facility code (Table IET-F) in conjunction with a diagnosis of AOD (Table IET-A).
  - An inpatient facility code (Table IET-F) in conjunction with an AOD procedure code (Table IET-E).

*Step 2:* Determine the index episode start date. For each member identified in step 1, determine the index episode start date by identifying the date of the member's earliest encounter during the report period (e.g., outpatient, detoxification or emergency department visit date; inpatient discharge date). For members whose first episode was an ED visit that resulted in an inpatient stay, use the inpatient discharge.

*Step 3:* Determine if the index episode start date is a new episode. Members with a new episode of AOD dependence have a negative diagnosis history, defined as a period of 60 days prior to the index episode start date, during which the member had no claims/encounters with any diagnosis of AOD dependence (Table IET-A). For members with an inpatient visit, use the admission date to determine negative diagnosis history. For ED visits that result in an inpatient admission, use the ED date of service to determine the negative diagnosis history.

*Step 4:* Calculate continuous enrollment. The member must be continuously enrolled in Medicaid (Quarterly Reporting)/Health Home (Annual Reporting) without any gaps for 60 days prior through 44 days after the index episode start date.

**Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table IET-A: Codes to Identify AOD Dependence**

ICD-9-CM Diagnosis Codes
291, 303.00-303.02, 303.90-303.92, 304.00-304.02, 304.10-304.12, 304.20-304.22, 304.30-304.32, 304.40-304.42, 304.50-304.52, 304.60-304.62, 304.70-304.72, 304.80-304.82, 304.90-304.92, 305.00-305.02, 305.20-305.22, 305.30-305.32, 305.40-305.42, 305.50-305.52, 305.60-305.62, 305.70-305.72, 305.80-305.82, 305.90-305.92, 535.3, 571.1

**Table IET-B: Codes to Identify Outpatient, Intensive Outpatient, and Partial Hospitalization Visits**

CPT Codes	HCPCS Codes	UB Revenue Codes
90804-90815, 98960-98962, 99078, 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99384-99387, 99394-99397, 99401-99404, 99408, 99409, 99411, 99412, 99510	<i>OR</i>	G0155, G0176, G0177, G0396, G0397, G0409-G0411, G0443, H0001, H0002, H0004, H0005, H0007, H0015, H0016, H0020, H0022, H0031, H0034-H0037, H0039, H0040, H2000, H2001, H2010-H2020, H2035, H2036, M0064, S0201, S9480, S9484, S9485, T1006, T1012
	<i>OR</i>	0510, 0513, 0515-0517, 0519-0523, 0526-0529, 0900, 0902-0907, 0911-0917, 0919, 0944, 0945, 0982, 0983
CPT Codes	POS Codes	
90791, 90792, 90801, 90802, 90832-90834, 90836-90840, 90845, 90847, 90849, 90853, 90857, 90862, 90875, 90876	<i>WITH</i>	03, 05, 07, 09, 11, 12, 13, 14, 15, 20, 22, 33, 49, 50, 52, 53, 57, 71, 72
90816-90819, 90821-90824, 90826-90829, 99221-99223, 99231-99233, 99238, 99239, 99251-99255	<i>WITH</i>	52, 53

**Table IET-C: Detoxification Services Codes**

HCPCS Codes	ICD-9-CM Procedure Codes	UB Revenue Codes
H0008-H0014	<i>OR</i>	94.62, 94.65, 94.68
	<i>OR</i>	0116, 0126, 0136, 0146, 0156

**Table IET-D: Emergency Department Services Codes**

CPT Codes	UB Revenue Codes
99281-99285	<i>OR</i>
	045x, 0981

**Table IET-E: Codes to Identify AOD Procedures**

ICD-9-CM Procedure Codes	HCPCS Codes		UB Revenue Codes	Provider Type
94.61, 94.63, 94.64, 94.66, 94.67, 94.69		<i>WITH</i>	011x, 012x, 018x, 021x, 022x, 041x, 042x, 084x	
	H0003-H0005, H0007, H0014-H0016, H0020, A9999	<i>WITH</i>		95

**Table IET-F: Codes to Identify Inpatient Services**

UB Bill Type Codes
11x, 12x, 18x, 21x, 22x, 41x, 42x, 84x

## Smoking & Tobacco Use Cessation (MSC)

*The percentage of tobacco-using members who received a tobacco cessation intervention.*

**Numerator:** The number of tobacco-using members who received a tobacco cessation intervention (Table MSC-B) during the report period.

**Denominator (Annual Reporting):** The number of members who were enrolled in the Health Home for 11 months during the report period and who were identified as tobacco users (Table MSC-A) during the report period.

**Denominator (Quarterly Reporting):** The number of members who were enrolled in the Health Home during the last month of the reporting period who were identified as tobacco users (Table MSC-A) during the report period.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

### Table MSC-A: Codes to Identify Tobacco Users

ICD-9-CM Diagnosis Codes	CPT Category II Codes
305.1, 649.0, 989.84	1034F, 1035F

### Table MSC-B: Codes to Identify Tobacco Cessation Interventions

CPT Category II Codes	Prescription
4000F, 4001F, 4004F	<i>OR</i> Chantix, smoking cessation patch (therapeutic classes J3A, J3C, or H7N)

## PREVENTIVE CARE

### Percent of Live Births Weighing Less than 2,500 Grams (LBW)

**Note: This measure will be removed from Year 2 reporting (i.e., CY 2014).**

*The percentage of women who delivered live births less than 2,500 grams.*

**Numerator:** The number of births in the denominator with a birth weight less than or equal to 2,500 grams.

**Denominator:** The number of live births during the report period (see *Steps for Identifying Live Births* below).

**Annual Report Period:** January 1, 2013 – December 31, 2013

#### ***Steps for Identifying Live Births:***

**Step 1:** Identify live births. For the desired date range, identify all members that have claims containing any of the codes listed in Table LBW-A. Exclude all deliveries whose admission date (first date of service) is not during the reporting year.

#### **Table LBW-A: Codes to Identify Live Births**

##### **ICD-9-CM Diagnosis Codes**

650 -Normal Delivery
V27.0 - Single liveborn
V27.2 - Twins, both liveborn
V27.3 - Twins, one liveborn and one stillborn
V27.5 - Other multiple birth, all liveborn
V27.6 - Other multiple birth, some liveborn
V30 - Single liveborn
V31 - Twin, mate liveborn
V32 - Twin, mate stillborn
V33 - Twin, unspecified
V34 - Other multiple, mates all liveborn
V35 - Other multiple, mates all stillborn
V36 - Other multiple, mates live- and stillborn
V37 - Other multiple, unspecified
V39 - Unspecified

**Step 2:** Identify deliveries for members not identified in Step 1. For the reporting period, identify all members that have encounters containing any of the codes listed in Table LBW-B. Exclude all deliveries whose admission date (first date of service) is not during the reporting year.

**Table LBW-B: Codes Used To Identify Deliveries**

<b>ICD-9-CM Procedure Codes</b>
72.x Forceps, vacuum, and breech delivery
73.x Other procedures inducing or assisting delivery
74.0 Cesarean section and removal of fetus; Classical cesarean section
74.1 Cesarean section and removal of fetus; Low cervical cesarean section
74.2 Cesarean section and removal of fetus; Extraperitoneal cesarean section
74.4 Cesarean section and removal of fetus; Cesarean section of other specified type
74.99 Cesarean section of unspecified type
<b>ICD-9-CM Diagnosis Codes</b>
640.x1, 641.x1, 642.x1, 642.x2, 643.x1, 644.21, 645.x1, 646.x1, 646.x2, 647.x1, 647.x2, 648.x1, 648.x2, 649.x1, 649.x2, 651.x1, 652.x1, 653.x1, 654.x1, 654.02, 654.12, 654.32, 654.x2, 655.x1, 656.x1, 657.01, 658.x1, 659.x1, 660.x1, 661.x1, 662.x1, 663.x1, 664.x1, 665.01, 665.x1, 665.x2, 666.x2, 667.x2, 668.x1, 668.x2, 669.x1, 669.x2, 670.02, 671.x1, 671.x2, 672.02, 673.x1, 673.x2, 674.x1, 674.x2, 675.x1, 675.x2, 676.x1, 676.x2, 678.x1, 679.x1, 679.x2
<b>CPT Codes</b>
59400 Routine obstetrical care including antepartum and postpartum care and vaginal delivery
59409 Vaginal delivery (with or without episiotomy and/or forceps)
59410 Obstetrical care for vaginal delivery only, including postpartum care
59510 Cesarean delivery
59514 Cesarean delivery only
59515 Cesarean delivery only; including postpartum care
59610 VBAC delivery
59612 Vaginal delivery only, after previous cesarean delivery (with or without episiotomy and/or forceps)
59614 VBAC care after delivery; vaginal delivery only, after previous cesarean delivery, including postpartum care
59618 Attempted VBAC delivery
59620 Cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery
59622 Attempted VBAC after care, cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery, including postpartum care

**Step 3:** For members identified in Step 2, use Table LBW-C to exclude members that have a delivery claim not resulting in a live birth.

**Table LBW-C: Codes Used To Verify Live Births**

Exclude Deliveries Not Resulting in a Live Birth
630-637 Other abnormal product of conception, hydatidiform mole, ectopic or abdominal pregnancy, missed or spontaneous abortion, legally/illegally induced abortion, legally unspecified abortion
639 Complications following abortion or ectopic and molar pregnancies
656.4 Intrauterine death affecting management of mother
768.0 Fetal death from asphyxia or anoxia before onset of labor or at unspecified time
768.1 Fetal death from asphyxia or anoxia during labor
V27.1 Outcome of delivery, single stillborn
V27.4 Outcome of delivery, twins, both stillborn
V27.7 Outcome of delivery, other multiple birth, all stillborn

**Step 4:** Attach member’s demographic information for all live births identified in steps 1 and 3.

**Step 5:** For any claims identified as mother’s claims (where the member’s date of birth is not the reporting year), attach possible infant demographics to each claim.

**Step 6:** Attach demographic information from the name and address file provided by the Ohio Department of Health (ODH) to the vital statistics file by matching unique certificate numbers in each file. The resulting file should contain the data elements listed in Table LBW-D.

**Table LBW-D: Vital Stats File Data Elements**

Vital Stats File Data Elements			
Certificate Number	Mother’s First Name	Mother’s Date of Birth	Birth weight
Child’s First Name	Mother’s Middle Initial	Child’s Date of Birth	Plural Birth Indicator
Child’s Middle Initial	Mother’s Last Name	Child’s Gender	Birth Order
Child’s Last Name	Mother’s Race	County of Birth	Indicator of Live Birth
Father’s Last Name	Mother’s Maiden Name		

**Step 7:** Common unique identifiers derived from ODM’s demographic data and encounter data (i.e., birthfile), and the vital statistics data (i.e., vital stats file) are used to match infants and mothers to the birth weight information recorded in the vital statistics data.

**Step 8:** Calculate rates using the birth weight listed in the vital statistics file.

## **Timeliness of Prenatal Care (PPC1)**

**Note:** This measure will only be reported annually.

*The percentage of deliveries who had their first prenatal visit within 42 days of Health Home enrollment or by the end of the first trimester for those women who were enrolled in the Health Home during the early stage of pregnancy.*

**Numerator:** One (or more) prenatal care visit(s) within 42 days of enrollment in the Health Home or within the first trimester if the member was already enrolled in the Health Home.

**Denominator:** The eligible population.

**Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Denominator:**

*Step 1:* Identify all women enrolled in a Health Home with a live birth between November 6 of the year prior to the report year, and November 5 of the report year. Women who are identified through the codes listed in Table PPC-A are automatically included in the eligible population and require no further verification of the outcome.

Women who were not identified through the codes listed in Table PPC-A may be identified through any of the codes listed in the Table PPC-B. Deliveries not resulting in a live birth should be excluded.

*Step 2:* For women identified in Step 1, determine if enrollment in the Health Home was continuous between 43 days prior to delivery and 56 days after delivery, with no gaps.

**Table PPC-A: Codes to Identify Live Births**

<b>ICD-9-CM Diagnosis Codes</b>	<b>ICD-9-CM Diagnosis Codes (must have a matching delivery encounter)</b>
650 -Normal Delivery	V30 - Single liveborn
V27.0 - Single liveborn	V31 - Twin, mate liveborn
V27.2 - Twins, both liveborn	V32 - Twin, mate stillborn
V27.3 - Twins, one liveborn and one stillborn	V33 - Twin, unspecified
V27.5 - Other multiple birth, all liveborn	V34 - Other multiple, mates all liveborn
V27.6 - Other multiple birth, some liveborn	V35 - Other multiple, mates all stillborn
	V36 - Other multiple, mates live- and stillborn
	V37 - Other multiple, unspecified
	V39 - Unspecified

**Table PPC-B: Codes Used To Identify Deliveries and Verify Live Births**

<b>Identify Deliveries</b>
<p><b><u>ICD-9-CM Procedure Codes:</u></b>                      72.x Forceps, vacuum, and breech delivery                      73.x Other procedures inducing or assisting delivery                      74.0 Cesarean section and removal of fetus; Classical cesarean section                      74.1 Cesarean section and removal of fetus; Low cervical cesarean section                      74.2 Cesarean section and removal of fetus; Extraperitoneal cesarean section                      74.4 Cesarean section and removal of fetus; Cesarean section of other specified type                      74.99 Cesarean section of unspecified type</p> <p><b><u>ICD-9-CM Diagnosis Codes:</u></b>                      640.x1, 641.x1, 642.x1, 642.x2, 643.x1, 644.21, 645.x1, 646.x1, 646.x2, 647.x1, 647.x2, 648.x1, 648.x2, 649.x1, 649.x2, 651.x1, 652.x1, 653.x1, 654.x1, 654.x2, 655.x1, 656.01, 656.11, 656.21, 656.31, 656.51, 656.61, 656.71, 656.81, 656.91, 657.01, 658.x1, 659.x1, 660.x1, 661.x1, 662.x1, 663.x1, 664.x1, 665.x1, 665.x2, 666.x2, 667.x2, 668.x1, 668.x2, 669.x1, 669.x2, 670.02, 671.x1, 671.x2, 672.02, 673.x1, 673.x2, 674.x1, 674.x2, 675.x1, 675.x2, 676.x1, 676.x2, 678.x1, 679.x1, 679.x2</p>

**Identify Deliveries (Continued)**

**CPT Codes:**

59400 Routine obstetrical care including antepartum and postpartum care and vaginal delivery  
59409 Vaginal delivery (with or without episiotomy and/or forceps)  
59410 Obstetrical care for vaginal delivery only, including postpartum care  
59510 Cesarean delivery  
59514 Cesarean delivery only  
59515 Cesarean delivery only; including postpartum care  
59610 VBAC delivery  
59612 Vaginal delivery only, after previous cesarean delivery (with or without episiotomy and/or forceps)  
59614 VBAC care after delivery; vaginal delivery only, after previous cesarean delivery, including postpartum care  
59618 Attempted VBAC delivery  
59620 Cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery  
59622 Attempted VBAC after care, cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery, including postpartum care

**Exclude Deliveries Not Resulting in a Live Birth:**

**ICD-9-CM Diagnosis Codes:**

630-637 Other abnormal product of conception, hydatidiform mole, ectopic or abdominal pregnancy, missed or spontaneous abortion, legally/illegally induced abortion, legally unspecified abortion  
639 Complications following abortion or ectopic and molar pregnancies  
656.4 Intrauterine death affecting management of mother  
768.0 Fetal death from asphyxia or anoxia before onset of labor or at unspecified time  
768.1 Fetal death from asphyxia or anoxia during labor  
V27.1 Outcome of delivery, single stillborn  
V27.4 Outcome of delivery, twins, both stillborn  
V27.7 Outcome of delivery, other multiple birth, all stillborn

The infant record contains (or is supposed to contain) the infant's Medicaid identification number. Therefore, it is necessary to match these encounters against the delivery encounters to obtain the mother's recipient identification number, which is used to obtain the prenatal and postpartum visits and to identify whether a C-section delivery occurred. Listed below are the codes used to identify deliveries.

Mother and baby claims are unduplicated by Medicaid recipient ID, with preference given to Inpatient type bill.

Mothers who deliver twice in the same year are included twice in this analysis.

**Table PPC-C: Methods for Matching Infants and Mothers**

<b>Methods for Matching Infants and Mothers Encounters</b>
<p>The infants and mothers encounters are matched using the following two methods:</p> <ol style="list-style-type: none"><li>1) Same last name, same three digit submitter number, and the infant's admission date is within 14 days before or 14 days after the mother's delivery stay;</li></ol> <p style="text-align: center;"><b>OR</b></p> <ol style="list-style-type: none"><li>2) Same address and zip code, same three digit submitter number, and the infant's admission date is within 14 days before or 14 days after the mother's delivery stay.</li></ol> <p>If a newborn encounter matches to more than one mother delivery encounter and, consequently, it is not possible to determine which mother the newborn is associated with, then the matched encounter will not be included in the denominator. However, it continues to be possible for the mother's encounter to be included in the denominator if the mother's encounter contains one of the following diagnosis codes:</p> <ul style="list-style-type: none"><li>650 - Normal Delivery</li><li>V27.0 - Single liveborn</li><li>V27.2 - Twins, both liveborn</li><li>V27.3 - Twins, one liveborn and one stillborn</li><li>V27.5 - Other multiple birth, all liveborn</li><li>V27.6 - Other multiple birth, some liveborn</li></ul>

**Numerator Specifications:**

Only include visits that occur while member was enrolled.

*Step 3:* Determine if women identified in step 2 were enrolled on or before 280 days prior to delivery. For these women, go to step 4. For women not enrolled on or before 280 days prior to delivery, go to step 5.

*Step 4:* Determine if women identified in step 3 were continuously enrolled during the first trimester (176-280 days prior to delivery) with no gaps in enrollment. For these women, use one of the three decision rules to determine if there was a prenatal visit during the first trimester. For women not continuously enrolled during the first trimester (e.g., had a gap between 176-280 days prior to delivery), go to step 5.

*Step 5:* For women identified in steps 3 and 5, determine the last enrollment start date (i.e., the enrollment start date during the pregnancy that is closest to the delivery date).

For women whose last enrollment started on or between 219-279 days prior to delivery, go to step 6. For women whose last enrollment started less than 219 days prior to delivery, go to step 7.

*Step 6:* If the last enrollment segment started on or between 219-279 days prior to delivery, determine numerator compliance using the Table PPC-I and find a visit between the last enrollment start date and 176 days prior to delivery.

*Step 7:* If the last enrollment segment started less than 219 days prior to delivery, determine numerator compliance using the Table PPC-I and find a visit within 42 days after enrollment.

### Prenatal Care Visit Codes

There are **three** decision rules for identifying prenatal visits.

**Decision Rule 1:** Either of the following during the first trimester, where the practitioner type is an OB practitioner, a midwife or family practitioner or other PCP (Table PPC-D):

- A bundled service (Table PPC-E) where the organization can identify the date when prenatal care was initiated (because bundled service codes are used on the date of delivery, these codes may be used only if the claim form indicates when prenatal care was initiated).
- A visit for prenatal care (Table PPC-F).

**Table PPC-D: Codes to Identify Primary Care Practitioners (PCPs)**

Provider Type	Physician Specialty Code	Other
<b>01</b> (General Hospital) <b>04</b> (Outpatient Health Facility) <b>05</b> (Rural Health Facility) <b>09</b> (Maternal/Child Health Clinic - 9 mo.) <b>12</b> (Federally Qualified Health Center) <b>50</b> (Comprehensive Clinic) <b>52</b> (Public Health Dept. Clinic) <b>65</b> (Certified Nurse, Specialist) <b>71</b> (Certified Nurse, Midwife) <b>72</b> (Certified Nurse, Practitioner)	<b>201, 203, 205, 206, 207, 208, 209, 210, 212, 213, 214, 215, 219, 229, 233, 234, 235, 263, 264, 274, 275, 290, 297, 320, 321, 324, 325, 326, 327, 328, 329, 330, 331, 333, 335, 337, 341, 342, 363, 721</b>	Provider Type of <b>20</b> (Physician, Individual), <b>21</b> (Physician, Group), <b>22</b> (Osteopath, Individual), or <b>23</b> (Osteopath, Group) where specialty code is <b>362</b> (unspecified) or is not indicated.

**Table PPC-E: Codes to Identify Prenatal Bundled Services**

CPT	Description
59400	Routine obstetric care including antepartum care, vaginal delivery and postpartum care
59425	Antepartum care only; 4-6 visits
59426	Antepartum care, 7 or more visits
59510	Routine obstetric care including antepartum care, cesarean delivery, and postpartum care
59610	Routine obstetric care including antepartum care, vaginal delivery, and postpartum care, after previous cesarean delivery
59618	Routine obstetric care including antepartum care, vaginal delivery, and postpartum care following attempted vaginal delivery after previous cesarean delivery
HCPCS	
H1005	

**Table PPC-F: Codes to Identify Prenatal Visit**

CPT	Description
99500	Home visit for prenatal monitoring and assessment to include fetal heart rate, non-stress test, uterine monitoring, and gestational diabetes monitoring
CPT	Description
Category II	Description
0500F	Initial prenatal care visit
0501F	Prenatal flow sheet
0502F	Subsequent prenatal care
HCPCS	
H1000-H1004	

**Decision Rule 2:** Any visit to an OB practitioner or midwife (Table PPC-D) with a prenatal visit (Table PPC-G) and one of the following (Table PPC-H):

- An obstetric panel.
- An ultrasound (echocardiography) of the pregnant uterus.
- A pregnancy-related diagnosis code.
- All of the following:
  - Toxoplasma.
  - Rubella.
  - Cytomegalovirus.
  - Herpes simplex.
- Rubella and ABO.
- Rubella and Rh.

*Note: A visit to a midwife must include Provider Type = 71 or 72, **OR** Physician Specialty Code = 212, 219, 275, or 290.*

**Table PPC-G: Codes to Identify Prenatal Visit**

CPT Codes	UB Revenue Codes
99201-99205, 99211-99215, 99241-99245	0514

**Table PPC-H: Codes to Identify Obstetric Panel, Ultrasound, and Pregnancy-Related Diagnosis**

CPT Codes	Description
80055	Obstetric Panel
76801, 76805, 76811, 76813, 76815-76821, 76825-76828	Prenatal Ultrasound
86644	Cytomegalovirus
86694, 86695, 86696	Herpes simplex
86762	Rubella
86777	Toxoplasma
86900	ABO
86901	Rh
ICD-9-CM Procedure Codes	
88.78	Prenatal Ultrasound
ICD-9-CM Diagnosis Codes	
640.x3, 641.x3, 642.x3, 643.x3, 644.x3, 645.x3, 646.x3, 647.x3, 648.x3, 649.x3, 651.x3, 652.x3, 653.x3, 654.x3, 655.x3, 656.x3, 657.x3, 658.x3, 659.x3, 678.x3, 679.x3, V22-V23, V28	Pregnancy Diagnosis

**Decision Rule 3:** Any of the following during the first trimester, where the practitioner type is a family practitioner or other PCP (Table PPC-D) with a pregnancy related ICD-9-CM Diagnosis code (Table PPC-H) and a prenatal visit (Table PPC-G) AND one of the following:

- An obstetric panel (Table PPC-H)
- An ultrasound (echocardiography) of the pregnant uterus. (Table PPC-H)
- All of the following: (Table PPC-H)
  - Toxoplasma.
  - Rubella.
  - Cytomegalovirus.
  - Herpes simplex.
- Rubella and ABO. (Table PPC-H)
- Rubella and Rh. (Table PPC-H)

Note: For Decision Rule 3 criteria that require a prenatal visit code **and** a pregnancy-related diagnosis code, codes must be on the same claim.

**Table PPC-I: Markers for Prenatal Care**

<b>Markers for Prenatal Care: The member must meet criteria in Part A or (Part B and Part C).</b>		
<b>PART A: Any one code.</b>		
<b>CPT Codes</b>	<b>HCPCS Codes</b>	<b>CPT Category II Codes</b>
59400, 59425, 59426, 59510, 59610, 59618, 99500	H1000-H1004, H1005	0500F, 0501F, 0502F
<b>PART B: Any one code.</b>		
<b>CPT Codes</b>	<b>ICD-9-CM Diagnosis Codes</b>	<b>ICD-9-CM Procedure Codes</b>
76801, 76805, 76811, 76813, 76815-76821, 76825-76828	640.x3, 641.x3, 642.x3, 643.x3, 644.x3, 645.x3, 646.x3, 647.x3, 648.x3, 649.x3, 651.x3, 652.x3, 653.x3, 654.x3, 655.x3, 656.x3, 657.x3, 658.x3, 659.x3, 678.x3, 679.x3, V22-V23, V28	88.78
<b>PART C: Any one code.</b>		
<b>CPT Codes</b>	<b>UB Revenue Codes</b>	
99201-99205, 99211-99215, 99241-99245	0514	

Note: ICD-9-CM Diagnosis code for pregnancy must be a Principal Diagnosis Code.

**Table PPC-J: Codes to Identify Prenatal Risk Assessment and Counseling/Education**

<b>HCPCS</b>	<b>CPT Codes</b>
H1000-H1004, H1005	99500

## **Postpartum Care (PPC2)**

**Note: This measure will be removed from Year 2 reporting (i.e., CY 2014).**

*The percentage of deliveries that had a postpartum visit on or between 21 days and 56 days after delivery.*

**Numerator:** A postpartum visit for a pelvic exam or postpartum care on or between 21 and 56 days after delivery. Postpartum visits may be identified using the codes listed in Table PPC-J. Any of the following meet criteria:

- A postpartum visit.
- Cervical cytology.
- A bundled service where the organization can identify the date when postpartum care was rendered (because bundled service codes are used on the date of delivery, not on the date of the postpartum visit, these codes may be used only if the claim form indicates when postpartum care was rendered).

**Denominator:** The same denominator as outlined in the Timeliness of Prenatal Care measure.

**Annual Report Period:** January 1, 2013 – December 31, 2013

**Table PPC-J: Codes to Identify Postpartum Visits**

<b>Code</b>	<b>Description</b>
<b>ICD-9-CM Diagnosis and Procedure Codes</b>	
89.26	Gynecological examination
V24.1	Lactating mother
V24.2	Routine postpartum follow-up
V25.1	Insertion of intrauterine contraceptive device
V72.3	Gynecological exam
V76.2	Special screening for malignant neoplasm (cervix)
<b>UB Revenue Codes</b>	
0923	Pap Smear
<b>CPT</b>	
57170	Diaphragm cervical cap fitting
58300	Insertion of intrauterine device
59400	Routine obstetric care including antepartum care, vaginal delivery, and postpartum care
59410	Vaginal delivery, including postpartum care
59430	Postpartum care only
59510	Routine obstetric care including antepartum care, cesarean delivery, and postpartum care
59515	Cesarean delivery only, including postpartum care
59610	Routine obstetric care including antepartum care, vaginal delivery, and postpartum care after previous cesarean delivery
59614	Vaginal delivery only, after previous cesarean delivery, including postpartum care
59618	Routine obstetric care including antepartum care, vaginal delivery, and postpartum care following attempted vaginal delivery after previous cesarean delivery
59622	Cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery, including postpartum care
88141-88143	Cytopathology, cervical or vaginal
88147-88148	Cytopathology smears
88150	Cytopathology slides
88152-88154	Cytopathology slides
88164-88167	Cytopathology slides
88174-88175	Cytopathology, cervical or vaginal
99501	Home visit for postnatal assessment and follow-up care
<b>CPT Category II Codes</b>	
0503F	Postpartum care visit
<b>HCPCS Codes</b>	
G0101	Cervical or vaginal cancer screening; pelvic and clinical breast examination
G0123-G0124	Screening cytopathology, cervical or vaginal (any reporting system)
G0141	Screening cytopathology smears, cervical or vaginal
G0143-G0145	Screening cytopathology smears, cervical or vaginal
G0147-G0148	Screening cytopathology smears, cervical or vaginal
P3000-P3001	Screening Papanicolaou smear, cervical or vaginal
Q0091	Screening Papanicolaou smear; obtaining, preparing and conveyance of cervical or vaginal smear to laboratory

## Adult BMI Assessment (ABA)\*

*The percentage of members 18–74 years of age who had an outpatient visit and whose body mass index (BMI) was documented during the report period or the year prior to the report period.*

**Numerator:** The number of members meeting denominator criteria who had a BMI assessment during the report period or the year prior to the report period. For members younger than 19 years of age on the date of service, BMI percentile (Table ABA-C) also meets criteria.

**Denominator (Annual Reporting):** The number of members 18 to 74 years of age who had 11 or more months of enrollment in the Health Home during the reporting period, had 11 or more months of enrollment in Medicaid during the year prior to the reporting period, and had an outpatient visit (Table ABA-A) during the report period or the year prior to the report period.

**Denominator (Quarterly Reporting):** The number of members 18 to 74 years of age who were enrolled in a Health Home during the last month of the reporting period and had an outpatient visit (Table ABA-A) during the report period or the year prior to the report period.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table ABA-A: Codes to Identify Outpatient Visits**

CPT Codes	HCPCS Codes	UB Revenue Codes
99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456	G0402, G0438, G0439	051x, 0520-0523, 0526-0529, 0982, 0983

**Table ABA-B: Codes to Identify BMI/Weight Assessments**

CPT Codes	CPT Category II Codes	ICD-9-CM Diagnosis Codes
G8417-G8420	3008F, 2001F	V85.0-V85.4

**Table ABA-C: BMI Percentiles**

Description	ICD-9-CM Diagnosis Codes
BMI Percentiles	V85.51-V85.54

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

**Exclusion:** Exclude members who had a diagnosis of pregnancy during the report period or the year prior to the report period (Table ABA-D).

**Table ABA-D: Codes to Identify Pregnancies**

Description	ICD-9-CM Diagnosis Codes
Pregnancy	630-679, V22, V23, V28

## Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)

**Note: This measure will be removed from Year 2 reporting (i.e., CY 2014).**

*The percentage of members 3–17 years of age who had an outpatient visit with a PCP or obstetrician/gynecologist (OB/GYN) and who had evidence of the following during the report period.*

- *BMI percentile documentation*
- *Counseling for nutrition*
- *Counseling for physical activity*

**Numerator:** The number of members in the denominator that had each of the three following numerators: 1) BMI percentile documentation, 2) counseling for nutrition, and 3) counseling for physical activity. For adolescents 16-17 years of age on the date of service, a BMI value also meets criteria (Table WCC-B).

**Denominator:** Members ages 3-17 who had 11 or more months of enrollment in a Health Home during the reporting period and who had an outpatient visit (Table WCC-A) with a PCP or OB/GYN (Table WCC-C) during the report period.

**Report period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table WCC-A: Codes to Identify Outpatient Visits**

CPT Codes	UB Revenue Codes	HCPCS Codes
99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456	051x, 0520-0523, 0526-0529, 0982, 0983	G0402, G0438, G0439

**Table WCC-B: Codes to Determine Weight Assessment and Counseling for Nutrition and Physical Activity**

Description	CPT Codes	CPT Category II Codes	ICD-9-CM Diagnosis Codes	HCPCS Codes
BMI percentile (all ages)	G8417-G8420	3008F, 2001F	V85.51-85.54	
BMI (for ages 16-17)			V85.0-V85.4	
Counseling for nutrition	97802-97804		V65.3	G0270, G0271, G0447, S9449, S9452, S9470
Counseling for physical activity			V65.41	G0447, S9451

**Table WCC-C: Codes to Identify PCPs and OB/GYNs**

Provider Type	Physician Specialty Code	Other
<b>01</b> (General Hospital) <b>04</b> (Outpatient Health Facility) <b>05</b> (Rural Health Facility) <b>09</b> (Maternal/Child Health Clinic - 9 mo.) <b>12</b> (Federally Qualified Health Center) <b>50</b> (Comprehensive Clinic) <b>52</b> (Public Health Dept. Clinic) <b>65</b> (Certified Nurse, Specialist) <b>71</b> (Certified Nurse, Midwife) <b>72</b> (Certified Nurse, Practitioner)	<b>201, 203, 205, 206, 207, 208, 209, 210, 212, 213, 214, 215, 219, 229, 233, 234, 235, 263, 264, 274, 275, 290, 297, 320, 321, 324, 325, 326, 327, 328, 329, 330, 331, 333, 335, 337, 341, 342, 363, 721</b>	Provider Type of <b>20</b> (Physician, Individual), <b>21</b> (Physician, Group), <b>22</b> (Osteopath, Individual), or <b>23</b> (Osteopath, Group) where specialty code is <b>362</b> (unspecified) or is not indicated.

## Adolescent Well-Care Visits (AWC)

*The percentage of members 12–21 years of age who received at least one comprehensive well-care visit with a PCP or OB/GYN during the report year.*

**Numerator:** Members with at least one comprehensive well-child visit (Table AWC-A) with a PCP or OB/GYN (Table AWC-B) practitioner during the report year.

**Denominator (Annual Reporting):** Members age 12-21 who had 11 or more months of enrollment in a Health Home during the reporting period.

**Denominator (Quarterly Reporting):** Members age 12-21 who were enrolled in a Health Home during the last month of the reporting period.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table AWC-A: Codes to Identify Adolescent Well-Care Visits**

CPT	HCPCS Codes	ICD-9-CM Diagnosis Codes
99381-99385, 99391-99395, 99461	G0438, G0439	V20.2, V20.3, V20.31, V20.32, V70.0, V70.3, V70.5, V70.6, V70.8, V70.9

**Table AWC-B: Codes to Identify PCPs and OB/GYNs**

Provider Type	Physician Specialty Code	Other
<b>01</b> (General Hospital) <b>04</b> (Outpatient Health Facility) <b>05</b> (Rural Health Facility) <b>09</b> (Maternal/Child Health Clinic - 9 mo.) <b>12</b> (Federally Qualified Health Center) <b>50</b> (Comprehensive Clinic) <b>52</b> (Public Health Dept. Clinic) <b>65</b> (Certified Nurse, Specialist) <b>71</b> (Certified Nurse, Midwife) <b>72</b> (Certified Nurse, Practitioner)	<b>201, 203, 205, 206, 207, 208, 209, 210, 212, 213, 214, 215, 219, 229, 233, 234, 235, 263, 264, 274, 275, 290, 297, 320, 321, 324, 325, 326, 327, 328, 329, 330, 331, 333, 335, 337, 341, 342, 363, 721</b>	Provider Type of <b>20</b> (Physician, Individual), <b>21</b> (Physician, Group), <b>22</b> (Osteopath, Individual), or <b>23</b> (Osteopath, Group) where specialty code is <b>362</b> (unspecified) or is not indicated.

## Adults' Access to Preventive/Ambulatory Health Services (AAP)

*The percentage of members 20 years and older who had an ambulatory or preventive care visit.*

**Numerator:** The number of members who meet the denominator criteria and had an ambulatory or preventive care visit (Table AAP-A) during the report period.

**Denominator (Annual Reporting):** The number of members 20 year of age and older who had 11 or more months of enrollment in a Health Home during the reporting period.

**Denominator (Quarterly Reporting):** The number of members 20 year of age and older who were enrolled in a Health Home during the last month of the reporting period.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table AAP-A: Codes to Preventive/Ambulatory Health Services**

Description	CPT Codes	HCPCS Codes	ICD-9-CM Diagnosis Codes	UB Revenue Codes
Office or other outpatient services	99201-99205, 99211-99215, 99241-99245			051x, 0520-0523, 0526-0529, 0982, 0983
Home services	99341-99345, 99347-99350			
Nursing facility care	99304-99310, 99315, 99316, 99318			0524, 0525
Domiciliary, rest home or custodial care services	99324-99328, 99334-99337			
Preventive medicine	99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429	G0344, G0402, G0438, G0439		
Ophthalmology and optometry	92002, 92004, 92012, 92014	S0620, S0621		
General medical examination			V70.0, V70.3, V70.5, V70.6, V70.8, V70.9	
Routine infant or child check			V20.2	

## **Appropriate Treatment for Children with Upper Respiratory Infections (URI)**

*The percentage of children 3 months–18 years of age given a diagnosis of upper respiratory infection (URI) and were not dispensed an antibiotic prescription.*

**Numerator:** The number of members in the denominator who were dispensed an antibiotic prescription (Table URI-D) within three days of the episode date.

**Denominator (Annual Reporting):** Children 3 months-18 years of age who were given a diagnosis of URI (Table URI-A), had a 30-day negative medication history prior to the episode date, and did not have a competing diagnosis (Table URI-C) on the same day as or for three days after the episode date. To be included in the measure, members must have been enrolled in the Health Home 30 days prior to the episode date through 3 days after the episode date (inclusive). Determine qualifying occurrences of URI as outlined below.

**Denominator (Quarterly Reporting):** Children 3 months-18 years of age who were given a diagnosis of URI (Table URI-A), had a 30-day negative medication history prior to the episode date, and did not have a competing diagnosis (Table URI-C) on the same day as or for three days after the episode date. To be included in the measure, members must be enrolled in the Health Home for the month the episode occurs, and have been enrolled in Medicaid 30 days prior to the episode date. Determine qualifying occurrences of URI as outlined below.

*Step 1:* Identify all members who had an outpatient, observation visit, or ED visit (Table URI-B) with only a diagnosis of URI (Table URI-A) during the 12 month window beginning 6 months prior to the start of the measurement year. Exclude claims/encounters with more than one diagnosis and ED visits that result in an inpatient admission.

*Step 2:* Determine all URI Episode Dates. For each member identified in Step 1, determine all outpatient or ED claims/encounters with only a URI diagnosis.

*Step 3:* Test for Negative Medication History. Exclude Episode Dates where a new or refill prescription for an antibiotic medication (Table URI-D) was filled 30 days prior to the Episode Date or was active on the Episode Date.

*Step 4:* Test for Negative Competing Diagnosis. Exclude Episode Dates where the member had a claim/encounter with a competing diagnosis (Table URI-C) on or three days after the Episode Date.

*Step 5:* Calculate continuous enrollment. The member must be continuously enrolled in the Health Home (annual reporting) and in Medicaid (quarterly reporting) without a gap in coverage from 30 days prior to the Episode Date through 3 days after the Episode Date.

*Step 6:* Select the Index Episode Start Date. This measure examines the earliest eligible episode per member.

**Calculation:** The measure is reported as an inverted rate  $[1 - (\text{numerator}/\text{eligible population})]$ . A higher rate indicates appropriate treatment of children with URI (i.e., the proportion for whom antibiotics were not prescribed).

**Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table URI-A: Codes to Identify URI**

Description	ICD-9-CM Diagnosis Codes
Acute nasopharyngitis (common cold)	460
URI	465

**Table URI-B: Codes to Identify Visit Type**

Description	CPT Codes	UB Revenue Codes	HCPCS Codes
Outpatient	99201-99205, 99211-99215, 99241-99245, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455-99456	051x, 0520-0523, 0526-0529, 0982, 0983	G0402, G0438, G0439
ED*	99281-99285	045x, 0981	
Observation	99217-99220		

\*Do not include ED visits that result in an inpatient admission.

**Table URI-C: Codes to Identify Competing Diagnoses**

Description	ICD-9-CM Diagnosis Codes
Intestinal infections	001-009
Pertussis	033
Bacterial infection unspecified	041.9
Lyme disease and other arthropod-borne diseases	088
Otitis media	382
Acute sinusitis	461
Acute pharyngitis	034.0, 462
Acute tonsillitis	463
Chronic sinusitis	473
Infections of the pharynx, larynx, tonsils, adenoids	464.1-464.3, 474, 478.21, 478.22, 478.24, 478.29, 478.71, 478.79, 478.9
Prostatitis	601
Cellulitis, mastoiditis, other bone infections	383, 681, 682, 730
Acute lymphadenitis	683
Impetigo	684
Skin staph infections	686
Pneumonia	481- 486
Gonococcal infections and venereal diseases	098, 099, V01.6, V02.7, V02.8
Syphilis	090-097
Chlamydia	078.88, 079.88, 079.98
Inflammatory diseases (female reproductive organs)	131, 614-616
Infections of the kidney	590

Description	ICD-9-CM Diagnosis Codes
Cystitis or UTI	595, 599.0
Acne	706.0, 706.1

**Table URI-D: Antibiotic Medications**

Description	Prescription
Aminopenicillins	<ul style="list-style-type: none"> <li>• Amoxicillin</li> <li>• Ampicillin</li> </ul>
Beta-lactamase inhibitors	<ul style="list-style-type: none"> <li>• Amoxicillin-clavulanate</li> </ul>
First generation cephalosporins	<ul style="list-style-type: none"> <li>• Cefadroxil</li> <li>• Cephalexin</li> <li>• Cefazolin</li> </ul>
Folate antagonist	<ul style="list-style-type: none"> <li>• Trimethoprim</li> </ul>
Lincomycin derivatives	<ul style="list-style-type: none"> <li>• Clindamycin</li> </ul>
Macrolides	<ul style="list-style-type: none"> <li>• Azithromycin</li> <li>• Clarithromycin</li> <li>• Erythromycin</li> <li>• Erythromycin ethylsuccinate</li> <li>• Erythromycin lactobionate</li> <li>• Erythromycin stearate</li> </ul>
Miscellaneous antibiotics	<ul style="list-style-type: none"> <li>• Erythromycin-sulfisoxazole</li> </ul>
Natural penicillins	<ul style="list-style-type: none"> <li>• Penicillin G potassium</li> <li>• Penicillin G sodium</li> <li>• Penicillin V potassium</li> </ul>
Penicillinase-resistant penicillins	<ul style="list-style-type: none"> <li>• Dicloxacillin</li> </ul>
Quinolones	<ul style="list-style-type: none"> <li>• Ciprofloxacin</li> <li>• Levofloxacin</li> <li>• Moxifloxacin</li> <li>• Ofloxacin</li> </ul>
Second generation cephalosporins	<ul style="list-style-type: none"> <li>• Cefaclor</li> <li>• Cefuroxime</li> <li>• Cefprozil</li> </ul>
Sulfonamides	<ul style="list-style-type: none"> <li>• Sulfamethoxazole-trimethoprim</li> <li>• Sulfisoxazole</li> </ul>
Tetracyclines	<ul style="list-style-type: none"> <li>• Doxycycline</li> <li>• Tetracycline</li> <li>• Minocycline</li> </ul>
Third generation cephalosporins	<ul style="list-style-type: none"> <li>• Cefdinir</li> <li>• Cefixime</li> <li>• Cefpodoxime</li> <li>• Cefibuten</li> <li>• Cefditoren</li> <li>• Ceftriaxone</li> </ul>
<p><i>NCQA provides a comprehensive list of medications and NDC codes on its Web site (<a href="http://www.ncqa.org">www.ncqa.org</a>).</i></p>	

## Annual Dental Visit (ADV)

**Note: This measure will be removed from Year 2 reporting (i.e., CY 2014).**

*The percentage of members who had at least one dental visit during the report period.*

**Numerator:** One (or more) dental visits (Table ADV-A) with a dental practitioner during the report period.

**Denominator:** Members who had 11 or more months of enrollment in a Health Home during the reporting period.

**Reporting Units:** Report rates for two age categories: 2-21 years of age and 22 years and older.

**Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table ADV-A: Codes to Identify Annual Dental Visits**

CPT Codes	HCPCS/CDT Codes*
70300, 70310, 70320, 70350, 70355	D0120-D0999, D1110-D2999, D3110-D3999, D4210-D4999, D5110-D5899, D6010-D6205, D7111-D7999, D8010-D8999, D9110-D9999
*CDT (Current Dental Terminology)	

## UTILIZATION

### Ambulatory Care—Sensitive Condition Admission (SCA)\*

*The acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital, per 100,000 population younger than 75 years of age.*

**Numerator:** The total number of acute care hospitalizations for members under 75 years of age with an ambulatory care sensitive condition as a primary diagnosis (Table SCA-A).

**Denominator:** The total number of Health Home members under 75 years of age at the midpoint of the reporting period.

**Exclusions:** Deaths prior to discharge.

**Formula:** (Total number of acute care hospitalizations for ambulatory care sensitive conditions younger than 75 years of age / total mid-year population younger than 75 years of age) x 100,000.

**Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table SCA-A: Codes to Identify Sensitive Conditions**

Description	Primary ICD-9-CM Diagnosis Codes		Secondary ICD-9-CM Diagnosis Codes
Grand mal status and other epileptic convulsions	345		
COPD	491, 492, 494, 496		
	466, 480–486, 487.0	<i>AND</i>	496
Asthma	493		
Diabetes	250.0, 250.1, 250.2, 250.8		
Heart failure and pulmonary edema	428, 518.4	<i>AND NOT</i>	336, 35xx, 36xx, 373x, 375x, 377x, 378x, 379.4–379.8
Hypertension	401.0, 401.9, 402.0, 402.1, 402.9		
Angina	411.1, 411.8, 413		

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

## **Inpatient & ED Utilization—Rates (UTL)**

*The number of inpatient, emergency department, AOD, and mental health inpatient discharges per 1,000 member months.*

### **Numerators:**

1. Total Inpatient Discharges (Table UTL-A) excluding discharges with a principal diagnosis of mental health or chemical dependency or live-born infant (Table UTL-B).
2. Total ED visits (Table UTL-C) excluding mental health and chemical dependency services (Table UTL-D). Any of the following meet criteria:
  - A principal diagnosis of mental health or chemical
  - Psychiatry
  - Electroconvulsive therapy
  - Alcohol or drug rehabilitation or detoxification

ED visits that result in an inpatient stay should not be counted toward this measure. In addition, only one ED visit should be counted per date of service.

3. Total AOD Inpatient Discharges, as determined by the following criterion.
  - a. An inpatient facility code (Table UTL-A) in conjunction with any diagnosis of chemical dependency (Table UTL-E).
4. Total Mental Health Discharges, as determined by the following criterion.
  - a. An inpatient facility code (Table UTL-A) in conjunction with a principal mental health diagnosis (Table UTL-F).

**Denominator:** The number of Health Home member months.

### **Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table UTL-A: Codes to Identify Inpatient Discharges**

UB Type of Bill		
11x, 12x, 41x, 84x	<i>OR</i>	Any acute inpatient facility code

**Table UTL-B: Codes to Identify Exclusions**

Principal ICD-9-CM Diagnosis Codes
V30-V37, V39, 290-316

**Table UTL-C: Codes to Identify ED Visits**

CPT Codes		UB Revenue Codes	
99281-99285		045x, 0981	
<i>OR</i>			
CPT Codes		POS Codes	
10040-69979	<i>WITH</i>	23	

**Table UTL-D: Codes to Identify Exclusions for Emergency Department Visits**

Principal ICD-9-CM Diagnosis Codes	
290-316	
<i>OR</i>	
CPT Codes	
90785, 90791, 90792, 90801-90802, 90804-90824, 90826-90829, 90832-90834, 90836-90840, 90845-90847, 90849, 90853, 90857, 90862, 90863, 90865, 90867-90870, 90875, 90876, 90880, 90882, 90885, 90887, 90889, 90899	

**Table ULT-E: Codes to Identify Chemical Dependency Diagnosis**

ICD-9-CM Diagnosis Codes
291-292, 303-304, 305.0, 305.2-305.9, 535.3, 571.1

**Table UTL-F: Codes to Identify Mental Health Diagnosis**

ICD-9-CM Diagnosis Codes
290, 293-302, 306-316

## **All-Cause Readmissions (ACR)\***

*For members 18 years of age and older, the number of acute inpatient stays during the report period that were followed by an acute readmission for any diagnosis within 30 days.*

**Numerator:** The number of acute 30-day readmissions for any diagnosis.

**Denominator (Annual Reporting):** All Health Home member acute inpatient discharges that occur during the report period prior to the first day of the last month of the report period for members 18 years of age and older in which the member was enrolled in the Health Home through 30 days after discharge.

**Denominator (Quarterly Reporting):** All Health Home member acute inpatient discharges that occur during the report period prior to the first day of the last month of the report period for members 18 years of age and older in which the member is enrolled in a Health Home in the last month of the reporting period. In addition, the member had to be enrolled in Medicaid through 30 days after discharge.

*Step 1:* Using only institutional claims (Table ACR-A), identify all acute inpatient stays (Table ACR-B) with a discharge date during the report period prior to the first day of the last month of the report period. Include acute admissions to behavioral healthcare facilities. Exclude nonacute inpatient rehabilitation services, including nonacute inpatient stays at rehabilitation facilities.

*Step 2:* Acute-to–acute transfers: Keep the original admission date as the Index Admission Date, but use the transfer’s discharge date as the Index Discharge Date.

*Step 3:* Exclude hospital stays where the Index Admission Date is the same as the Index Discharge Date.

*Step 4:* Exclude any acute inpatient stay with a discharge date in the 30 days prior to the Index Admission Date.

*Step 5:* Exclude stays for the following reasons:

- Inpatient stays with discharges for death.
- Acute inpatient discharge with a principal diagnosis for pregnancy or for any other condition originating in the perinatal period in Table ACR-C.

*Step 6:* Calculate continuous enrollment.

### **Report Period:**

- Annual Report Period: January 1, 2013 – December 31, 2013

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

**Table ACR-A: Codes to Identify Institutional Claims**

Type of Bill
0111, 0121, 0114, 0124

**Table ACR-B: Codes to Identify Visit Type**

Description	CPT	UB Revenue
Acute inpatient	99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291	010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x, 021x, 072x, 080x, 0987

**Table ACR-C: Codes to Identify Maternity Related Inpatient Discharges**

Description	ICD-9-CM Diagnosis Codes
Pregnancy	630-679, V22, V23, V28
Conditions originating in the perinatal period	760-779, V21, V29-V39

## CARE COORDINATION

### Timely Transmission of Transition Record (TTR)\*

*Percentage of members, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a transition record was transmitted to the Health Home within 24 hours of discharge.*

**Numerator:** Members for whom a transition record was transmitted to the Health Home within 24 hours of discharge for each discharge during the report period (Table TTR-C).

**Denominator:** All members, regardless of age, who were discharged from an inpatient facility to home/self-care or any other site of care (Table TTR-A), excluding members who died, left against medical advice, or discontinued care (Table TTR-B) and who were enrolled in the Health Home on the date of discharge and one day past discharge.

#### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table TTR-A: Codes to Identify Members Discharged from an Inpatient Facility**

Description	Type of Bill Codes		Discharge Status
Hospital inpatient	0111, 0121, 0114, 0124	AND	01, 02, 03, 04, 05, 06, 43, 50, 51, 61, 62, 63, 64, 65, 66, 70

**Table TTR-B: Codes to Identify Denominator Exclusions**

Description	Discharge Status
Left against medical advice	07
Expired	20
Expired at home	40
Expired in a medical facility	41
Expired—place unknown	42

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\* This measure is a CMS Health Home Core Quality Measure. Methodology provided for these Core Measures may undergo revisions once CMS releases the full measure specifications.

**Table TTR-C: Codes to Identify Transition Record Transmission**

<b>Description</b>	<b>CPT Category II Codes</b>		<b>Modifier</b>
Discharge with transition record within 24 hours	1110F	AND	U3

## Medication Reconciliation Post-Discharge (MPD)

*Percentage of members, regardless of age, discharged from an inpatient facility to home or any other site of care for whom a reconciled medication list was transmitted to the Health Home within 24 hours.*

**Numerator:** Number of members for whom a reconciled medication list was transmitted to the Health Home within 24 hours of discharge (Table MPD-A).

**Denominator:** All members, regardless of age, who were discharged from an inpatient facility to home/self-care or any other site of care (Table TTR-A), excluding members who died, left against medical advice, or discontinued care (Table TTR-B) and who were enrolled in the Health Home on the date of discharge and one day past discharge.

### Report Period:

- Annual Report Period: January 1, 2013 – December 31, 2013

**Table MPD-A: Codes to Identify Discharge Medication Reconciled With Medication List**

Description	CPT Category II Codes
Discharge medications reconciled with current medication list	1111F

## *Appendix C:* **Cost Savings and Utilization Analysis Methodology**

This section provides a copy of detailed methodology employed to calculate cost savings for the Health Homes and the detailed methodology used for the utilization measures analysis.



HEALTH HOMES  
COMPREHENSIVE EVALUATION  
REPORT ANALYSIS

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Methodology Document

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*for*

Ohio Department of Medicaid



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## Overview

The Ohio Department of Medicaid (ODM) in partnership with the Ohio Department of Mental Health (ODMHAS) implemented the Health Home initiative in October 2012 in five counties for Medicaid consumers. The Health Homes serving this population were evaluated using both clinical performance measures and a cost savings calculation. The performance measure and cost savings evaluation is a component of the comprehensive evaluation that served as ODM's mechanism for formally evaluating the impact of the Health Homes.

This study evaluated Medicaid costs and utilization for Health Home Medicaid members. ODM's approach involves comparing changes in per member per month (PMPM) costs and service utilization over time for consumers that were enrolled in a Health Home (i.e., treatment group) versus those that were not enrolled in a Health Home (i.e., control group). The comparison of a treatment group to a control group allows for the calculation of expected cost and utilization rates for the Health Home population absent of the influence of the Health Home initiative. A control group with characteristics similar to the treatment group was selected using propensity score-based matching. A difference-in-differences analysis was then performed to compare changes in costs and utilization rates from the baseline period (July 1, 2011 – June 30, 2012) to the remeasurement period (January 1, 2013 – December 31, 2013) for both groups.

The advantage of this methodology is that it allows for a more precise estimate of the true effect of the Health Home program. It accounts for expected cost and utilization changes for Health Home members had they not been enrolled in the program. This methodology minimizes any changes in cost or utilization that the Health Home population would have experienced regardless of enrollment in the program. For example, if costs before and after Health Home enrollment showed a 25 percent reduction, one might conclude that the Health Home program reduced costs by 25 percent. However, this conclusion could be erroneous if, for example, costs generally declined by 10 percent over that same time period. In this example, the true effect of the Health Home program leads to a cost reduction of 15 percent (i.e., 25 percent minus 10 percent) rather than 25 percent. By computing the cost and utilization rate changes for a similar group that was not enrolled in Health Homes, it is possible to remove the confounding effect of any changes in costs and utilization rates that the Health Home population would have experienced regardless of program participation.

The sections that follow outline the methodological details for the cost savings analysis. A nearly identical methodology was used for the utilization analysis.

## **Data Sources**

The sources of data for calculating the expected cost savings and utilization rates are noted below:

- ◆ MCP submitted encounter data.
- ◆ Fee-for-service (FFS) claims data.
- ◆ Medicaid eligibility and managed care enrollment data.
- ◆ Demographic data.
- ◆ Health Home enrollment data.

Encounter, claims, eligibility, managed care enrollment, and demographic data were provided via the vendor files. ODM provided monthly Health Home enrollment files.

## **Report Periods**

The analysis included a comparison of utilization and costs over two time periods, a baseline period and a remeasurement period. The baseline period is the period prior to Health Home program implementation. The remeasurement period was used to reassess the treatment and control groups after program implementation to determine if the Health Home program has successfully reduced costs and utilization rates for treating its consumers.

The baseline and remeasurement report periods were developed considering the following constraints:

- ◆ The transition to MITS began in August of 2011 (which affected dates of service beginning in July 2011). Managed care encounters prior to the implementation of MITS contain incomplete managed care payment data.
- ◆ The Health Home program was implemented in October 2012.

The following report periods were used:

- ◆ Baseline period: July 1, 2011 – June 30, 2012
- ◆ Remeasurement period: January 1, 2013 – December 31, 2013

These report periods have been structured to allow a three-month ramp-up period between the Health Home launch and the beginning of the remeasurement period. For the treatment group during the remeasurement period, costs and utilization were measured only during the member's Health Home enrollment period. For example, if a Health Home member is enrolled from January – June 2013 (following the enrollment requirements as described on Page 3), the costs for the member would be assessed during the January – June period.

## Eligible Populations

In order to determine the effect of the Health Home intervention, both a treatment group and a control group must be identified. The following describes the eligible population criteria for each group.

### ***Treatment Group***

To be included in the treatment group, members must meet the following criteria:

- ◆ Continuously enrolled for six months during the remeasurement period in one of the following Health Homes: Butler Behavioral Health Services, Harbor, Shawnee Mental Health Center, Unison Behavioral Health Group, or Zepf Center. Continuous enrollment was defined as six consecutive months for which a Health Homes services CPT code (S0281) is present. A one month gap in the middle of the six month span was permitted.
- ◆ Born prior to the first day of the baseline period.
- ◆ Reside in a Health Home county.<sup>1</sup>

### ***Control Group***

To be included in the control group, members must meet the following criteria:

- ◆ Continuously enrolled for six months in Medicaid during the remeasurement period.
- ◆ Born prior to the first day of the baseline period.
- ◆ Reside in a Health Home county.
- ◆ Never have been enrolled in a Health Home.

### ***Exceptions***

In the event that members who meet the eligibility requirements are excluded from the final analysis (e.g., due to the member being a statistical outlier in terms of cost and/or utilization), the final report documented the process used to determine exceptions.

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<sup>1</sup> Health Home counties include: Lucas, Butler, Adams, Scioto, and Lawrence.

## Propensity Score-Based Matching Statistical Analysis

For purposes of determining the expected cost savings and utilization rates, a non-Health Home population with characteristics similar to the Health Home population must be identified. Propensity score-based matching is a common methodology used to select a control group that is statistically similar to a treatment group.

### 1. Covariate Identification

Demographic, utilization, and disease covariates were identified for each member. The following provides a description of each of the covariates and the methods that were used to identify the covariates. All covariates were identified during the baseline period, and are expected to be related to the likelihood of a member being part of the Health Home population. It is important to note that the covariates listed in Table 1 and Table 2 provide a starting point for the analysis. The final selection of covariates used in the analysis may be refined and could exclude certain covariates identified in Table 1 or Table 2 for a variety of statistical reasons, such as poor predictive capability.<sup>2</sup>

Table 1 provides a list of the demographic and utilization covariates, and the method that were used to identify each covariate.

Table 1—Demographic and Utilization Covariates	
Covariates	Identification Method
<b>Age</b>	
Age	Member’s date of birth was used to identify the member’s age at the end of the remeasurement period.
<b>Gender</b>	
Male Female	Members gender in the demographic file.
<b>Race/Ethnicity</b>	
White Black Other	Members flagged as “D” or “C” were classified as White. Members flagged as “N” or “B” were classified as Black. All others were classified as Other.
<b>County (County Code)</b>	
Butler (09) Lucas (48) Adams (01) Lawrence (44) Scioto (73)	Member’s county of residence as determined by county code.
<b>Member Months</b>	
Number of months a member was enrolled in Medicaid.	Eligibility file was used to determine number of months enrolled in Medicaid.

<sup>2</sup> Specifically, binary covariates (e.g., disease covariates or county dummies) were dropped if there were 10 or fewer Health Home members in the category.

Table 1—Demographic and Utilization Covariates	
Covariates	Identification Method
<b>Enrollment</b>	
Number of months enrolled in managed care	Medicaid enrollment
Number of months on a waiver	Waiver eligibility
Number of months part of Covered Families and Children (CFC) population	Member is enrolled in CFC as defined by Aid Categories 4001, 4011, 4012, 4013, 4014, 4015, 4016, 4017, 4018, 4019, 4020, 4021, 4022, 4023, 4024, 4026, 4027.
Number of months part of Aged, Blind, or Disabled (ABD) population	Member is enrolled in ABD as defined by Aid Categories 4002, 4007, 4008, 4009.
<b>Eligibility</b>	
Number of months as a Dual eligible	Member is dual eligible as defined by aid categories 3xxx.
<b>Mental Health</b>	
Number of Visits to a Community Mental Health Center	Claims with provider type 84 or provider ID 000000002034042.
<b>Serious and Persistent Mental Illness (SPMI) or Serious Emotional Disturbance (SED) Characteristics</b>	
Number of Mental Health Inpatient Admissions	Inpatient admissions (i.e., Claim Type I) with a primary diagnosis of mental health (i.e., anxiety disorders, conduct disorders, depression, mental disorder not otherwise specified as defined in Table 2)
Number of Mental Health Emergency Department Visits	Emergency department visit (i.e., defined in Table 4) with a primary diagnosis of mental health (i.e., anxiety disorders, conduct disorders, depression, mental disorder not otherwise specified as defined in Table 2)
Mental Health Prescriptions	Thirteen or more prescriptions from the following combined drug classes: 1) Psychother, Antidepressants; 2) Psychother, Tranq/Antipsychotic; 3) Antimanic Agents; 4) Anticonvulsant, Benzodiazepine; or 5) Anticonvulsant, Misc.
<p><i>Note: Demographic covariates were selected for inclusion to capture any systematic correlation with Health Home enrollment status that is not explicitly captured by the disease covariates and eligibility/enrollment indicators included in the model. To the extent that unobserved factors are systematically related to age, race, gender, and geographic location, and also related to the likelihood of enrollment in a Health Home, the inclusion of such demographic factors helped account for these differences. Eligibility/Enrollment and mental health data are included in order to match Health Home members with non-Health Home members on these metrics.</i></p>	

Table 2 lists the disease covariates that were incorporated into the propensity scoring methodology. Encounter and claims data were used to identify members who had a primary diagnosis for any of the diseases listed in Table 2. Each disease was evaluated separately. For example, a member diagnosed with both Asthma and Hypertension would be flagged as having two disease covariates.

Table 2—Disease Covariates			
Asthma	Acute bronchitis	Autism	ADHD
Bipolar disorder	Pregnancy	Psychotic disorder	Hypertension
Coronary atherosclerosis and other heart disease	Diabetes mellitus	Other developmental disorder	Substance-related disorders
Developmental disorders	Post-traumatic stress	Cardiac dysrhythmias	Spondylitis

Table 2—Disease Covariates			
	disorder		
Blindness and vision defect	Thyroid disorders	COPD and bronchiectasis	Alcohol-related disorders
Obsessive-compulsive disorder	Cystic fibrosis	Osteoarthritis	Epilepsy
Anxiety disorders	Conduct disorders	Depression	Mental disorder not otherwise specified
Esophageal disorders	Congestive heart failure	Cancer	Other nervous system disorders
Neoplasms of unspecified nature	Intracranial injury	Delirium, dementia, and amnesic and other cognitive disorders	HIV infection

*Note: This list of disease covariates was developed based on an analysis of the common disease categories found for Health Home members. Primary diagnosis codes for Health Home members were grouped using the Clinical Classifications Software (CCS) developed by the Agency for Healthcare Research and Quality (AHRQ). Certain CCS categories were subdivided to capture additional specificity for mental illness diagnoses.*

## 2. Propensity Score Matching

Propensity scores were derived in order to compare the Health Home and non-Health Home populations, and reflect the probability that an individual was enrolled in a Health Home. The treatment and control groups were matched on the propensity scores, and the final treatment and control groups contained only matched members. The result is that the non-Health Home group takes on characteristics that are more comparable to those members in a Health Home. Thus, the propensity score is used to improve covariate balance and reduce the effects of selection bias.

The covariates discussed in the previous section were used to estimate a propensity score for each member. Logistic regression was used to calculate the propensity score. The equation used for the logistic regression is as follows:

$$\Pr(Y_i = 1) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik})]}$$

where  $\Pr(Y_i = 1)$  is the propensity score for individual  $i$ , the  $\beta$ s are parameters to be estimated, and the  $X$ s are the  $k$  covariates.<sup>3</sup> While constructing the logistic regression, an analysis of outliers was performed, and members were excluded if they were deemed too levered or influential.

The two populations' propensity scores were used to match the populations. This matching methodology makes “best” matches first (i.e., matches on the highest digit match) and then matches on successive “next-best” matches. This is done in a top-down sequence until no more matches can be made. A Greedy 5→1 digit match was used for purposes of matching the

<sup>3</sup> Linden, A., Adams, J.L., and Roberts, N. (2005). “Using propensity scores to construct comparable control groups for disease management program evaluation.” *Disease Management Health Outcomes*. 13(2): 107-115.

populations.<sup>4</sup> The Greedy 5→1 digit match means that the populations were first matched on the propensity score out to the fifth decimal place. For those that did not match, the populations were then matched on the propensity score out to the fourth decimal place. This continued down to a 1-digit match. Once a case and control are matched, the matches were not reconsidered. Therefore, subsequent matches were determined on what is currently available.

### 3. Assessing Covariate Balance

Matching using propensity scores has been shown to create a “covariate balance,” such that the matched control population is similar for all the covariates included in calculating the propensity score.<sup>5</sup> Once matching was performed, the covariates were evaluated to determine that the populations were matched appropriately, meaning that the propensity scoring and matching process improved covariate balance as anticipated. The formula below outlines how standardized bias coefficients ( $B_1$  and  $B_0$ ) can be used to compute the percentage reduction in bias achieved through the matching process. This bias reduction represents how much closer the control group is to reflecting the characteristics of the people in the treatment group as a result of matching. The formula can be used to conclude that matching reduced bias in the control group by a certain percentage  $BR$ .<sup>6</sup>

$$BR = 100 \left( 1 - \frac{B_1}{B_0} \right)$$

Subscript 1 denotes after matching, and subscript 0 denotes before matching.

Where:

$$B_1 = \frac{100(\bar{x}_{1C} - \bar{x}_{1P})}{\sqrt{\frac{(s_{1C}^2 + s_{1P}^2)}{2}}} \equiv \text{standardized bias after matching}$$

$$B_0 = \frac{100(\bar{x}_{0C} - \bar{x}_{0P})}{\sqrt{\frac{(s_{0C}^2 + s_{0P}^2)}{2}}} \equiv \text{standardized bias before matching}$$

The standardized bias for binary data (e.g., gender, each disease covariate) is computed as:

<sup>4</sup> Parsons, L.S. (2001). “Reducing Bias in Propensity Score Matched-Pair Sample Using Greedy Matching Techniques.” Paper 214-26. Proceedings of the Twenty-Sixth Annual SAS Users Group International Conference. Cary (NC): SAS Institute Inc.

<sup>5</sup> Parsons, L.S. (2001). “Reducing Bias in Propensity Score Matched-Pair Sample Using Greedy Matching Techniques.” Paper 214-26. Proceedings of the Twenty-Sixth Annual SAS Users Group International Conference. Cary (NC): SAS Institute Inc.

<sup>6</sup> Rosenbaum, P.R. and Rubin, D.B. (1985). Constructing a Control Group Using Multivariate Matched Sampling Methods that Incorporate the Propensity Score. *The American Statistician* 39:33 – 38.

$$B = \frac{100(p_C - p_P)}{\sqrt{\frac{p_P(1 - p_P) + p_C(1 - p_C)}{2}}}$$

$\bar{x}_C$  = mean of the control group

$\bar{x}_P$  = mean of the program (treatment) group

$s_C^2$  = variance of the control group

$s_P^2$  = variance of the program (treatment) group

$p_C$  = proportion of the covariate in the control group.

$p_P$  = proportion of the covariate in the program (treatment) group.

If a covariate remains unbalanced after the matching process, that covariate was included in the difference-in-differences regression model as a control variable. Including the covariate in the regression explicitly accounts for the differences between treatment and control groups, while simultaneously controlling for the joint differences captured by the propensity score matching. Balance for each covariate was evaluated by comparing the distributions between the control group and treatment group using a two sample t-test or two proportion z-test.

## Difference-in-Differences Analysis

Once the populations are matched, difference-in-differences analyses were performed to compare the PMPM costs and utilization for the two populations during the baseline period and the remeasurement period. The difference-in-differences analyses allowed for an expected cost or utilization for the treatment group (i.e., Health Home population) to be calculated by taking into account expected changes in costs or utilization without the Health Home intervention. This is done by subtracting the change in averages for the control group from the change in averages for the treatment group.<sup>7</sup> This removes biases from the remeasurement period comparisons due to permanent differences between the two groups. The final difference-in-differences model is:

$$Y_{it} = \beta_0 + \beta_1 T_{it} + \beta_2 R_t + \delta_1 (R_t * T_{it}) + \gamma \mathbf{D}'_{it} + u_{it}$$

where  $Y_{it}$  is the outcome of interest for individual  $i$  in time period  $t$ .  $R_t$  is a dummy variable for the remeasurement time period. The dummy variable  $T_{it}$  identifies the treatment group with a 1 and the control group with a 0. The vector  $\mathbf{D}'$  represents mean-centered observed covariates that remained unbalanced after the propensity score matching process, and  $\gamma$  is a coefficient vector. The coefficient  $\beta_1$  identifies the average difference between the groups prior to the Health Home intervention. The time period dummy,  $R$ , captures factors that would have changed in the absence of the intervention. The coefficient of interest,  $\delta_1$ , multiplies the interaction term,  $R_t * T_{it}$ , which is the same as the dummy variable equal to one for those observations in the treatment group in the remeasurement period. The final difference-in-differences estimate is:

<sup>7</sup> Imbens/Woodridge. Difference-in-Differences Estimation. Lecture Notes 10, Summer 2007. Available at: [http://www.nber.org/WNE/lect\\_10\\_diffindiffs.pdf](http://www.nber.org/WNE/lect_10_diffindiffs.pdf). Accessed on: January 21, 2014.

$$\hat{\delta}_1 = (\bar{y}_{T,R} - \bar{y}_{T,B}) - (\bar{y}_{C,R} - \bar{y}_{C,B}) \mid \mathbf{D}'$$

The estimate provides the expected cost without the intervention (i.e., expected adjustment factor) while holding constant all observed covariates in  $\mathbf{D}'$ . Adding these covariates allowed for a more precise estimation of the true Health Home program effect by controlling for observed differences between the comparison and treatment groups.

## Cost Savings Analysis

### Exclusions

After receipt of the data, HSAG evaluated medical costs associated with deliveries and women who had a delivery during the baseline and remeasurement periods. HSAG, in conjunction with ODM, determined that these members and costs do not need to be excluded from the analysis.

Costs associated with traumatic or related events (i.e., accidents) were removed from the analysis. Traumatic or related events were identified as outlined in Table 3 below. Additionally, prior to construction of the regression model, the data were reviewed for cost outliers. In the event that members experience extremely high costs (e.g., transplants), these costs and/or members were removed from the data prior to analysis. After construction of the regression model, the results were examined for cases exhibiting undue leverage on the results, and further analysis performed removing those influential observations to more accurately assess the impact of the program.

Table 3—Codes Used To Identify Traumatic or Related Events
ICD-9-CM Diagnosis Codes
800-854, 860-871, 874.0-874.59, 885-887, 895-897, 900-915, 918, 920-959, 990-996, E80-E84, E88-E92, E96-E98

### Categories of Service

The difference-in-differences analysis was performed at the category-of-service level. The following categories of service were evaluated:

- ◆ Medical (e.g., Professional) – Mental Health
- ◆ Medical (e.g., Professional) – Non-mental Health
- ◆ Emergency Department (ED)
- ◆ Inpatient
- ◆ Outpatient
- ◆ Pharmacy
- ◆ Other

The ED category of service was identified as outlined in Table 4. For the remaining non-ED claims, category of service was identified by the CDE\_CLM\_TYPE field in the vendor files, as depicted in Table 5 below. Additionally, Table 6, on page 11, provides the codes to identify the outpatient mental health services.

Table 4—Codes to Identify ED Visits		
<b>UB Revenue Codes</b>	<b>AND</b>	<b>UB Type of Bill Codes</b>
045x, 0981		013x
<i>OR</i>		
<b>CPT Codes</b>	<b>AND</b>	<b>Place of Service Codes</b>
10040 – 69979		23
<i>OR</i>		
	<b>CPT Codes</b>	
	99281 – 99285	

Table 5—Categories of Service Identification		
Category of Service	CDE_CLM_TYPE Value	Additional Codes
Medical – Non-Mental Health	M (Professional Claim Type)	All codes occurring on this claim type counted as medical claims, with the exceptions of: <ul style="list-style-type: none"> <li>• Claim lines containing the Health Home case management CPT code (S0281), which were evaluated separately.</li> <li>• Claims containing codes defined in Table 6.</li> </ul>
Medical – Mental Health	M (Professional Claim Type)	This category was limited to claims containing the codes in Table 6. Claim lines containing the Health Home case management CPT code (S0281) were excluded.
Inpatient	I (Inpatient Claim Type)	
Outpatient	O (Outpatient Claim Type)	
Pharmacy	P and Q (Pharmacy and Compound Pharmacy Claim Types)	
Other	Not identified in any of the above CDE_CLM_TYPE, and also not identified as CDE_CLM_TYPE = “D”	

**Table 6—Codes to Identify Mental Health Services**

Mental Health Service	Local Codes (Prior to June 30, 2012)	CPT Code (July 1, 2012 – December 31, 2012)	CPT Code (January 1, 2013 to Current)
Pharmacologic Management	Z1831	90862	90863
Mental Health Assessment (non-physician)	Z1832	H0031	H0031
Psychiatric Diagnostic Interview (physician)	Z1839	90801	90792
Counseling & Therapy (Ind)	Z1833	H0004	H0004
Counseling & Therapy (Grp)	Z1834	H0004	H0004
Crisis Intervention	Z1837	S9484	S9484
Partial Hospitalization	Z1838	S0201	S0201
Community Psychiatric Support Tx (Ind)	Z1840	H0036	H0036
Community Psychiatric Support Tx (Grp)	Z1841	H0036	H0036

### Calculation of Cost Savings

Costs savings were calculated for each category of service and overall (i.e., total) for each of the units of analysis described below. In addition, Statewide, Health Home, and County results were stratified by Age Group and CMHC Experience.

The Age Group stratification consists of two additional analyses for each unit of analysis described above. One analysis limits members to only those under 18 years of age as of the first day of the remeasurement period, and the second analysis limits members to those that are 18 years of age or older as of the first day of the remeasurement period.

The CMHC Experience stratification consists of two additional analyses for each unit of analysis described above. One analysis limits members to only those having CMHC experience (i.e., if they have a claim with a provider type of 84 or a provider ID of 000000002034042—OHIO DEPT OF MENTAL HLTH-MACSYS) during the baseline period, and the second analysis limits members to those without CMHC experience (i.e., if they have no CMHC claims during the baseline period).

Cost savings were calculated for the following units of analysis:

- ◆ Statewide Overall—All members meeting the criteria outlined in the Eligible Population section were included in this analysis.
  - Age Group Stratification.
  - CMHC Experience Stratification.
- ◆ Health Homes—Health Home members were assigned to a Health Home based on their longest continuous enrollment span. Any ties were assigned to the last Health Home the member was enrolled in.
  - Age Group Stratification within each Health Home.
  - CMHC Experience Stratification within each Health Home.
- ◆ Health Home Design—Health Home design was evaluated as follows:
  - Access to pharmacist on-site.

- ◆ County—One county was evaluated:<sup>8</sup>
  - Lucas County.
  - Age Group Stratification for Lucas County.
  - CMHC Experience Stratification for Lucas County.
- ◆ Managed Care Plan (MCP)—Members with at least six months of continuous enrollment in an MCP during the remeasurement period were included in this analysis. The treatment group was limited to members with at least six months of continuous MCP enrollment occurring simultaneously with six months of continuous Health Home enrollment. This analysis was limited to the following MCPs: Buckeye, CareSource, Molina, Paramount, and UnitedHealthcare.

The expected costs were subtracted from the actual costs to determine the cost savings for each category of service. In order to calculate the total cost savings, the expected cost was subtracted from the sum of the actual and administrative (i.e., PMPM payment for each Health Home member) costs.<sup>9</sup>

## Utilization Analysis Methodology

HSAG performed an evaluation for the utilization measures. HSAG evaluated the actual versus expected rates for the inpatient discharge, emergency department, alcohol and other drug dependence, and mental health utilization performance measures. In order to determine the overall program effect, the utilization rates were calculated for two separate groups over two time periods: the control group during the baseline, the control group during the remeasurement period, the treatment group during the baseline, and the treatment group during the remeasurement period.

The same data sources and report periods for the cost saving analysis (refer to page 2) were used for calculating the utilization rates. In addition, the eligible population was derived from the matched populations using the propensity score-based matching methodology described starting on page 4, and a difference-in-differences analysis was performed to determine the program's impact on utilization.

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<sup>8</sup> A separate analysis was only performed for Lucas County. Additional analyses are not required for Butler County and Adams, Lawrence, and Scioto Region, since this county and region only contain one Health Home (Butler Health Home and Shawnee Health Home, respectively).

<sup>9</sup> Since PMPM payments are not made at the category of service level, administrative costs cannot be taken into account when calculating the cost savings for each category of service.

## Utilization Rate Calculation<sup>10</sup>

### Emergency Department (ED) Utilization Rate of Members

**Measure:** The number of ED visits per 1,000 member months.

**Calculation of Health Home Program Effect:** The overall program effect was calculated as outlined in the Difference-in-Differences Analysis section beginning on page 8. That is, the program effect was calculated by subtracting the change in average ED visits for the control group from the change in average ED visits for the treatment group.

**Rate:** The average number of ED visits per 1,000 member months.

**Numerator:** The number of ED visits (Table 7) excluding mental health and chemical dependency services (Table 9) for each member who meets denominator criteria. ED visits are counted if they occurred during a month that the member contributed to the denominator. Multiple ED visits on the same date counted as one visit. ED visits that result in an inpatient stay were not counted toward this measure.

Table 7—Codes to Identify ED Visits		
<b>UB Revenue Codes</b>	<b>AND</b>	<b>UB Type of Bill Codes</b>
045x, 0981		013x
<b>OR</b>		
<b>CPT Codes</b>	<b>AND</b>	<b>Place of Service Codes</b>
10040 – 69979		23
<b>OR</b>		
	<b>CPT Codes</b>	
	99281 – 99285	

**Denominator:** The number of member months that occurred during the baseline and remeasurement periods. For the treatment group, member months are calculated based on months of enrollment in Medicaid during the baseline period and months of enrollment in a Health Home during the remeasurement period. For the comparison group, member months are calculated based on months of enrollment in Medicaid during both the baseline and remeasurement periods.

#### Exclusions:

- ED visits resulting in an inpatient stay (i.e., ED visits on the day prior to, or the same day, as the first day of an inpatient admission) were excluded from the numerator. Inpatient stays are identified in Table 8.

Table 8—Codes to Identify Inpatient Discharges		
<b>UB Type of Bill</b>		
011x, 012x, 041x, 084x	<b>OR</b>	Any acute inpatient facility code

<sup>10</sup> All Utilization measure specifications are derived from: National Committee for Quality Assurance. *HEDIS® 2014, Volume 2: Technical Specifications for Health Plans*. Washington, DC: NCQA Publication; 2013. The specifications have been adapted according to ODM’s needs.

2. Mental health and chemical dependency services are excluded (Table 9).

Table 9—Codes to Identify Mental Health and Chemical Dependency Services	
Principal ICD-9-CM Diagnosis Codes	
290-316	
<i>OR</i>	
CPT Codes	
90785, 90791, 90792, 90801-90802, 90804-90824, 90826-90829, 90832-90834, 90836-90840, 90845-90847, 90849, 90853, 90857, 90862, 90863, 90865, 90867-90870, 90875, 90876, 90880, 90882, 90885, 90887, 90889, 90899, Z1831, Z1839	

## Inpatient Discharge Rate of Members

**Measure:** *The number of inpatient visits per 1,000 member months.*

**Calculation of Health Home Program Effect:** The overall program effect was calculated as outlined in the Difference-in-Differences Analysis section beginning on page 8. That is, the program effect was calculated by subtracting the change in average inpatient visits for the control group from the change in average inpatient visits for the treatment group.

**Rate:** The average number of inpatient discharges per 1,000 member months.

**Numerator:** The number of inpatient discharges (Table 8) excluding discharges with a principal diagnosis of mental health or chemical dependency or live-born infant (Table 10) for each member who meets denominator criteria. Inpatient visits are counted if they occurred during a month that the member contributed to the denominator. Transfers between institutions counted as separate admissions. Transfers within an institution counted as separate admissions, if the transfer is between acute and nonacute levels of service.

**Denominator:** The number of member months during the baseline and remeasurement periods. For the treatment group, member months are calculated based on months of enrollment in Medicaid during the baseline period and months of enrollment in a Health Home during the remeasurement period. For the comparison group, member months are calculated based on months of enrollment in Medicaid during both the baseline and remeasurement periods.

**Exclusions:**

1. Delivery encounters and mental health and chemical dependency services (as defined in Table 10) were excluded.

Table 10—Codes to Identify Delivery Encounters and Mental Health and Chemical Dependency Services
Principal ICD-9-CM Diagnosis Codes
V30-V37, V39, 290-316

## Alcohol and Other Drug Dependence Utilization Rate of Members

**Measure:** *The number of alcohol and other drug dependence inpatient visits per 1,000 member months.*

**Calculation of Health Home Program Effect:** The overall program effect was calculated as outlined in the Difference-in-Differences Analysis section beginning on page 8. That is, the program effect was calculated by subtracting the change in average alcohol and other drug dependence inpatient visits for the control group from the change in average alcohol and other drug dependence inpatient visits for the treatment group.

**Rate:** The average number of alcohol and other drug dependence inpatient discharges per 1,000 member months.

**Numerator:** The number of alcohol and other drug dependence inpatient discharges for each member who meets denominator criteria. Alcohol and other drug dependence inpatient discharges are determined by an inpatient code (Table 8) in conjunction with any diagnosis of chemical dependency (Table 11). Count transfers between institutions, and transfers within an institution if the transfer is between different levels of care, as separate admissions. Visits are counted if they occurred during a month that the member contributed to the denominator.

**Denominator:** The number of member months during the baseline and remeasurement periods. For the treatment group, member months are calculated based on months of enrollment in Medicaid during the baseline period and months of enrollment in Health Homes during the remeasurement period. For the comparison group, member months are calculated based on months of enrollment in Medicaid during both the baseline and remeasurement periods.

**Table 11—Codes to Identify Chemical Dependency Diagnosis**

ICD-9-CM Diagnosis Codes
291-292, 303-304, 305.0, 305.2-305.9, 535.3, 571.1

## Mental Health Inpatient Utilization Rate of Members

**Measure:** *The number of mental health inpatient visits per 1,000 member months.*

**Calculation of Health Home Program Effect:** The overall program effect was calculated as outlined in the Difference-in-Differences Analysis section beginning on page 8. That is, the program effect was calculated by subtracting the change in average mental health inpatient visits for the control group from the change in average mental health inpatient visits for the treatment group.

**Rate:** The average number of inpatient mental health discharges per 1,000 member months.

**Numerator:** The number of inpatient mental health discharges for each member who meets denominator criteria. Mental health discharges are determined by an inpatient code (Table 8) in conjunction with a principal mental health diagnosis (Table 12). Inpatient visits are counted if they occurred during a month that the member contributed to the denominator. Count transfers between institutions, and transfers within an institution if the transfer is between different levels of care, as separate admissions.

**Denominator:** The number of member months during the baseline and remeasurement periods. For the treatment group, member months are calculated based on months of enrollment in Medicaid during the baseline period and months of enrollment in a Health Home during the remeasurement period. For the comparison group, member months are calculated based on months of enrollment in Medicaid during both the baseline and remeasurement periods.

Table 12—Codes to Identify Mental Health Diagnosis	
ICD-9-CM Diagnosis Codes	
	290, 293-302, 306-316

## Appendix D: Ohio Department of Mental Health & Addiction Services Inpatient Reports

This section provides the CY 2013 results from the Health Homes state psychiatric hospital inpatient reports for the following:

- ◆ Inpatient Utilization Measure
- ◆ 30-day Readmissions

### Inpatient Utilization Measure

Consumers must have been 18 years or older and discharged during CY 2013 with continuous Health Home enrollment. Table D-1 displays the total discharges, total Health Home months, and rate for each Health Home, as well as an aggregate total.

Health Home	Total Discharges	Total Health Homes Months	Rate
Butler	1	3,687	0.271
Harbor	2	7,675	0.261
Shawnee	44	16,602	2.65
Unison	23	20,111	1.144
Zepf	11	21,721	0.506
<b>Health Homes State Total</b>	<b>81</b>	<b>69,796</b>	<b>1.161</b>

Shawnee and Unison had the largest number of discharges compared to the number of Health Home months, while Butler had the lower number of discharges in 2013.

### 30-day Readmissions

Consumers must have been discharged during CY 2013 to be included in the 30-day readmissions calculations. Lower rates are better than higher rates. Table D-2 displays the total 30-day readmissions, total discharges, and rate for each Health Home, as well as an aggregate total.

Table D-2—Health Homes State Psychiatric Hospital 30-day Readmissions by Health Home CY 2013			
Health Home	Total 30-day Readmissions	Total Discharges	Rate
Butler	0	1	0.0%
Harbor	0	2	0.0%
Shawnee	18	44	40.9%
Unison	8	23	35.0%
Zepf	0	11	0.0%
<b>Health Homes State Total</b>	<b>26</b>	<b>81</b>	<b>32.1%</b>

Shawnee and Unison had high readmission rates of approximately 41 and 35 percent, respectively, while Butler Harbor, and Zepf did not have any readmissions in 2013.

Table D-3 displays the total 30-day readmissions, total discharges, and rate for each Health Home county, as well as an aggregate total.

Table D-3—Health Homes State Psychiatric Hospital 30-day Readmissions by County CY 2013			
Health Home County	Total 30-day Readmissions	Total Discharges	Rate
Adams	0	6	0.0%
Butler	0	1	0.0%
Lawrence	1	3	33.0%
Lucas	8	36	22.0%
Scioto	17	35	49.0%
<b>Health Homes State Total</b>	<b>26</b>	<b>81</b>	<b>32.1%</b>

Scioto county had the highest readmission rate with 49 percent, while Adams and Butler counties did not have any readmissions in 2013.