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Policy Report

Baseline and 9 month follow-up Outcomes of Health Care for Iowa Medicaid Health Home Program Enrollees

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Key Findings

- Outpatient visit and emergency department visit rates were lower in the post-enrollment period for enrollees in tiers 1-3 but higher for enrollees in tier 4.
- Hospital readmissions for the same diagnoses within 30 days remained stable from the pre-enrollment to the post-enrollment period with less than 10 readmissions for the same diagnosis in each period.
- Generally, enrollees had fewer well care and ambulatory care visits with their health home provider in the post-enrollment period. However, enrollees 12-17 years of age had more well care and ambulatory care visits in the post-enrollment period.
- Nursing facility utilization is not compared in this report due to the length of time until claims are adequately adjudicated.

Introduction

The Iowa Medicaid Health Home incentivizes health care providers in Iowa to offer additional services to Medicaid patients with chronic conditions through a monthly payment tied to the number and severity of the enrollee's chronic condition (Table 1). The Health Home model was authorized under a state plan amendment approved by the Centers for Medicare and Medicaid Services with enrollment beginning July 1, 2012.

Health Home is a specific designation under section 2703 of the Patient Protection and Affordable Care Act and is a model of care that provides patient-centered, whole person, coordinated care for all stages of life and transitions of care specifically for individuals with chronic illnesses. For Iowa Medicaid, Health Home practices are enrolled Medicaid provider organizations capable of providing enhanced personal, coordinated care for Medicaid enrollees meeting program eligibility criteria. In return for the enhanced care provided, the Iowa Medicaid Enterprise (IME) offers monthly care coordination payments and the potential for annual performance based incentives designed to improve patient health outcomes and lower overall Medicaid program costs.

Additional information about the Iowa Medicaid Health Home is located at http://www.ime.state.ia.us/Providers/healthhome.html .

Eligibility for the Medicaid Health Home Program

To be eligible for the Health Home Medicaid enrollees must have at least two chronic conditions or one chronic condition and be at risk for developing a second condition from the following list:

- Hypertension
- Overweight (Adults with a Body Mass Index of 25 or greater/Children in the 85th percentile)
- Heart Disease
- Diabetes
- Asthma
- Substance Abuse
- Mental Health Problems

In addition, they may not be in IowaCare, PACE, Iowa Family Planning Network, QMB/SLMB, HMO or be a presumptively eligible child or adult.

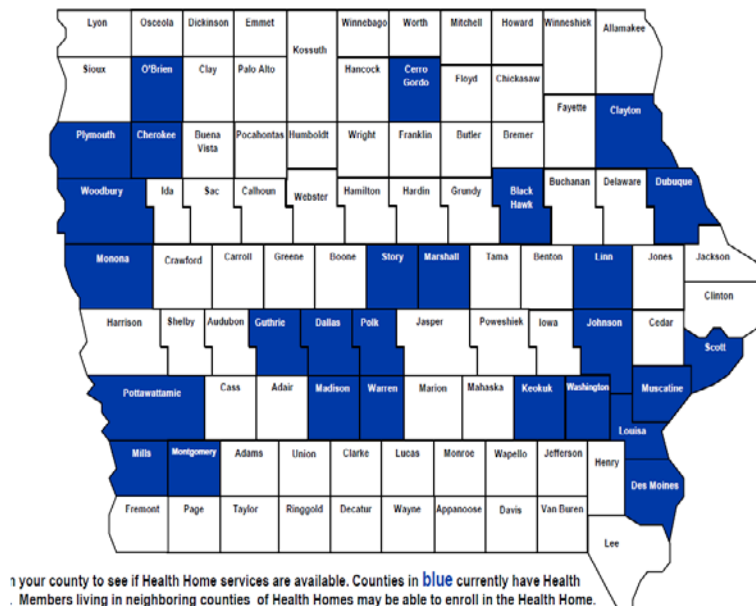
Table 1. Tier definitions

Tier	Sum of chronic conditions	Monthly payment
1	1-3	$12.80
2	4-6	$25.60
3	7-9	$51.21
4	10 or more	$76.81

Provider Network

Medicaid Health Home enrolled providers include but are not limited to: physician clinics, community mental health centers, Federally Qualified Health Centers (FQHCs), and Rural Health Clinics (RHCs).

Figure 1. Map of the counties with Health Home providers as of October, 2013.



(Map: Courtesy of the Iowa Department of Human Services)

Methodology

A variety of outcomes measures were originally anticipated to determine the effectiveness of Medicaid Health Homes. However, provider, and thereby, recipient enrollment was slow in the program. The original list of outcomes is provided below. Though most of the outcomes measures can be calculated through the administrative data, some are only accessible through Continuity of Care Documents (CCDs) or chart review. Measures marked with an asterisk are attainable through administrative data.

- Childhood immunization status*
- Flu shots for adults and children over 6 months of age*
- Document BMI and appropriate follow-up
- Comprehensive diabetes care
  - Dilated eye exam*
  - Micro albumin*
  - Proportion with Hemoglobin A1c less than 8
  - Proportion with LDL less than 100
- Asthma patients with asthma-related emergency department visit*
- Use of appropriate medications for people with asthma*
- Percent of patients 5-40 with diagnosis of asthma who have had a visit*
- Proportion of patients with BP less than 140 systolic and 90 diastolic
- Systemic antimicrobials*
- 7 day office follow-up to mental health admission*
- Clinical depression screening
- Emergency department utilization*
- Skilled nursing facility admissions*
- Hospital readmissions*

Outcome measures include stringent inclusion criteria. Claims and enrollment data from enrollees who meet the following criteria may be included in outcomes analyses:

1. Must have no more than a one month gap in enrollment during the measurement period.
2. Must have no more than a one month of enrollment for restricted services programs such as dual eligibility for Medicare or enrollment in Family Planning.

3. Must have been enrolled in the Health Home early enough to allow time for claim adjudication ensuring we have at least 95% of claims related to the enrollee's health care.

Outcome measures are normally reported for a specific time frame, either a calendar or fiscal year. The Health Home program enrolled individuals on a monthly basis with approximately 300 being enrolled each month. This necessitated a change in outcome calculation. Providers began enrolling eligible Medicaid members into the Health Home program beginning on July 1, 2012. From that time through July 2013, 4,660 Medicaid members were enrolled into the program. In an effort to ensure we had a full complement of data for each enrollee in the outcome analyses over half of these enrollees were removed. 1,758 were removed because of dual eligibility with Medicare, 351 were removed because they were not eligible for at least 11 months during the previous year, 28 were removed because they were over 64 and their Medicare eligibility was unclear, and 487 were removed because they became eligible after May 1, 2013. Removing individuals who became eligible for Medicare during the 9 months following enrollment into the health home, resulted in a final study population of 898 individuals with full enrollment and claims during the period 1 year prior to enrollment through 9 months post enrollment.

Demographics

The full population of 4,460 enrollees included 4,143 (89%) and 517 children (11%). Of those enrollees, most (45%) were eligible through Supplemental Security Income (SSI) due to a disability in addition to limited income. Of the remaining 55%, 29% were income eligible, 16% were in the Medicaid Buy-Out (Medicaid for Employed People with Disability), 10% were part of the Medicaid Home and Community-Based Services Waiver (HCBS) program, and 2% were eligible for Medicaid for other reasons, including being in the foster care system. The study population of 898 enrollees had a larger percentage of children and more enrollees who access Medicaid services through income eligibility. The population included 740 adults (82%) and 158 children (18%) who were eligible for Medicaid through SSI (48%), income eligible programs such as FIP (46%), HCBS (4%), and through other programs such as foster care (2%).

Table 2 indicates the number of enrollees per health home provider. There were only 9 active health home providers that served enrollees long enough to provide data for the outcomes. Enrollees from 34 counties accessed care through these health home providers.

Table 2. Number of enrollees by health home provider

Health home provider	Number (percent) of enrollees in population	Number (percent) of enrollees in outcome analyses
Waterloo Medical Education	402 (9%)	163 (18%)
Primary Health Care FQHC (includes all three locations)	2,175 (16%)	224 (25%)
Broadlawns	835 (18%)	60 (7%)
Mercy-Akron	134 (3%)	57 (6%)
Siouxland	1,202 (26%)	361 (40%)
McFarland Clinic-North	15 (<1%)	0 (0%)
McFarland Clinic-East	81 (2%)	22 (2%)
Primghar Mercy Medical Center	38 (1%)	11 (1%)
Madison County Health Home	10 (<1%)	0 (0%)

Table 3. Age, Gender, and Race/Ethnicity for the health home enrollee population and study population

Characteristic	Number (percent) of enrollees in population	Number (percent) of enrollees in outcome analyses
Female	63%	66%
Race/Ethnicity*		
White	53%	57%
Black or African American	15%	14%
Hispanic/Latino	5%	9%
Asian/Pacific Islander	<1%	1%
American Indian	2%	3%
Other	<1%	1%
Undeclared	22%	16%
Age		
0-19 years old	12%	21%
20-44 years old	27%	38%
45-64 years old	46%	41%

Comparisons of characteristics of the enrollees in the outcome analyses to the enrollees in the health home population indicate that those in the analyses are younger, more likely to be white or Hispanic and less likely to be undeclared.

Outcome results

The National Committee for Quality Assurance (NCQA) provides nationally accepted outcome measurement protocols under the Healthcare Effectiveness Data and Information Set (HEDIS). The outcome measures provided in this report are a selection of these measures that have been modified due to the small number of health home enrollees who met the inclusion criteria. The three primary outcomes emergency department visits, skilled nursing facility admissions, and hospital readmissions are normally considered to occur infrequently or rarely. In particular, since those 65 years of age and over and those with dual Medicaid/Medicare eligibility were removed from the measures, there is very little reason to expect skilled nursing facility admissions.

Limitations

Claims data has a set of limitations that must be considered when calculating population rates. Only claims actually submitted by the providers are used for outcome rate calculations, we may be missing claims and therefore, underestimating the rates for specific services. This outcomes analysis is limited to a 9 month time frame in the pre- and post-enrollment period for some measures. This limitation may artificially affect the rate comparisons. For example, enrollees who access well care during the pre-enrollment period may not access care at exactly the same time in the post-enrollment period and may, in fact, wait more than one year for a repeat visit. These visits will not be captured with the current protocol. Finally, the run out period for the claims used in these analyses is only 4 months. Though we are certain of capturing at least 90% of the claims in the post-enrollment period, we know that we have nearly 100% of the claims in the pre-enrollment period. This discrepancy may account for rate differences.

Ambulatory Care

Ambulatory care visits include any visits to a health care provider that do not include an inpatient admission. These visits encompass physician office visits, outpatient clinics, and emergency departments. Outpatient visits were defined through CPT coding and revenue codes. The CPT codes included 99201–99205, 99211–99215, and 99241–99245 to define office visits; 99341–99345, and 99347-99350 to define home visits; 99304–99310, 99315, 99316, and 99318 to define nursing facility care; 99324–99328 and 99334–99337 to define domiciliary or rest home care; 99381–99387, 99391–99397, 99401-99404, 99411, 99412, 99420 and 99429 to define preventive medicine; and 92002, 92004, 92012 and 92014 to define ophthalmology and optometry. The revenue codes included 510-519, 526-529 982, and 983 to define office visits and 524 and 525 to define nursing facility care. Emergency department visits were defined by combinations of codes as follows: 1) revenue code 450-459 or 981, 2) CPT code 10040–69979 and place of service 23, or 3) CPT code 99281–99285. Emergency department visits include care provided in the emergency room and urgently or emergently at a physicians office or satellite location.

Two modifications were made to the HEDIS specifications for this measure: 1) the specifications retain all members regardless of the number of months they are eligible, while the following measure only includes enrollees who were eligible for at least 11 months in the 12 months prior to enrollment and at least 8 months in the 9 months following enrollment and 2) mental health and substance abuse claims are normally removed, while they were maintained for the following measure.

Tables 4-6 and Figures 2 and 3 present the rates for ambulatory visits broken into emergency department and outpatient. These rates are much higher than those found in the IowaCare program and reflect a population that is chronically ill. These rates are reflected in Figure 2 which illustrates that as the severity of illness increases so does the number of visits per 1000 eligible months, especially emergency department visits. Table 5 and Figure 3 provide the visit rates by age. Not surprisingly, the rates for both emergency department and outpatient visits are lowest for the group of children, adolescents and young adults. The outpatient visit rate continues to rise with age, while the emergency department rate rises and then declines for the oldest group. Table 6 shows that women are more likely to utilize the emergency department and outpatient care than men across all age groups.

Table 4. Emergency department and outpatient visits by health home tier

	ED visits/1000 months		**Outpatient Visits/1000 months**	
Tier level	12 months prior to enrollment	9 months following enrollment	12 months prior to enrollment	9 months following enrollment
Tier 1	129	122	609	547
Tier 2	188	176	791	754
Tier 3	275	142	1042	885
Tier 4	308	433	1058	1167
Total	167	147	723	662

Figure 2. Emergency department and outpatient visits per 1000 eligible months by tier

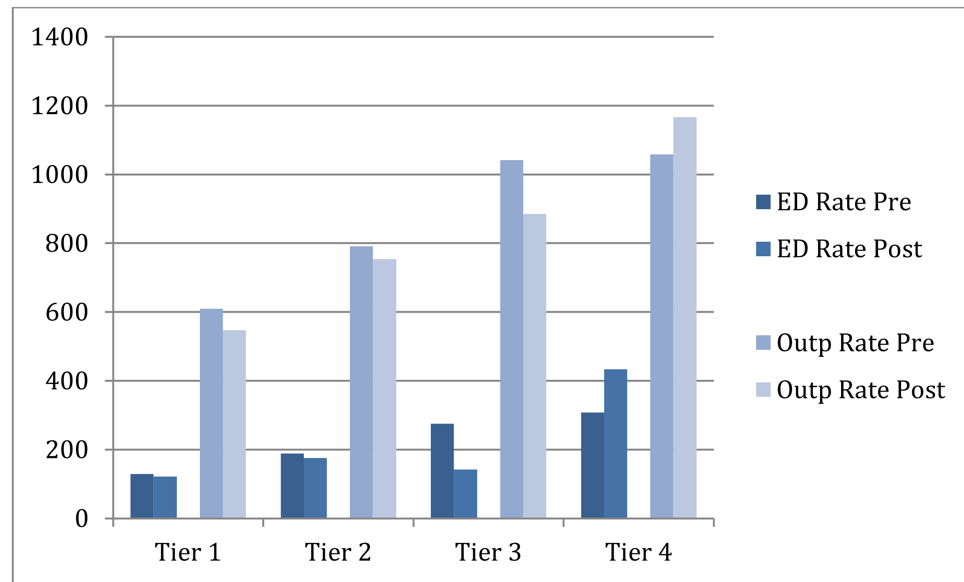


Table 5. Emergency department and outpatient visits per 100 eligible months by age

	ED visits/1000 months		**Outpatient Visits/1000 months**	
Age	12 months prior to enrollment	9 months following enrollment	12 months prior to enrollment	9 months following enrollment
0-19 years old	172	85	914	577
20-44 years old	969	661	3262	2194
45-64 years old	656	436	3603	2566

Figure 3. Emergency department and outpatient visits per 1000 eligible months by age

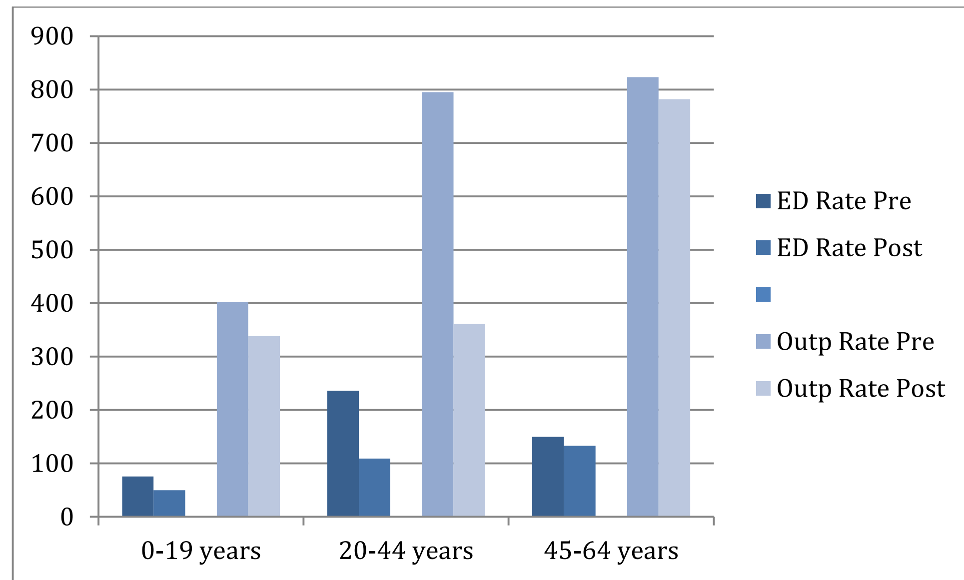
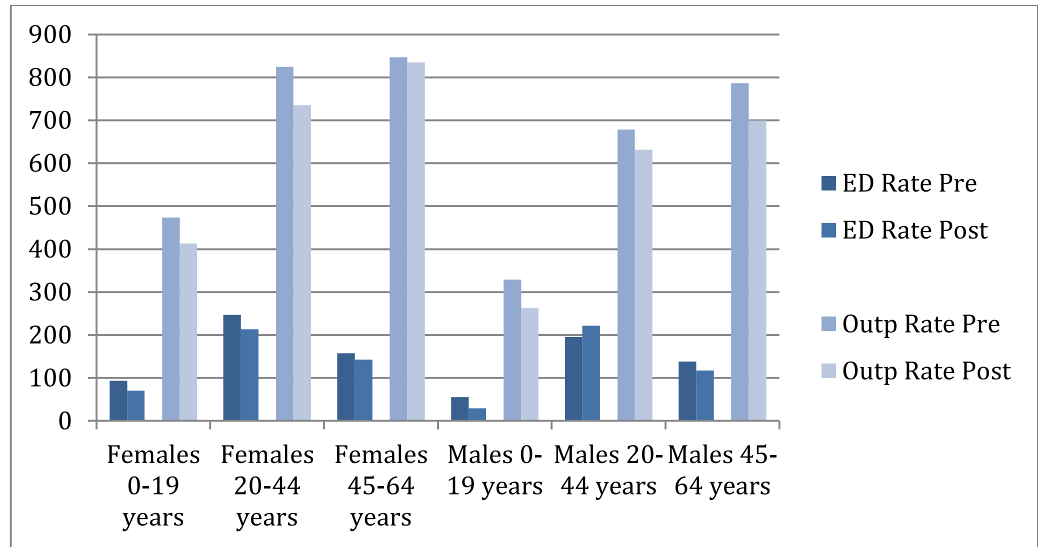


Table 6. Emergency department and outpatient visits per 1000 eligible months by age and gender

Age	Females	Males
ER rate		
0-19 years old	93	70
20-44 years old	247	213
45-64 years old	157	143
Outpatient rate		
0-19 years old	55	30
20-44 years old	195	222
45-64 years old	138	117

Figure 4. Emergency department and outpatient visits per 1000 eligible months by gender and age



Emergency department diagnosis

Primary diagnosis codes associated with an emergency department visit were used to determine the most common reasons for emergency department visits. These visits are listed in Table 7. As is seen in the IowaCare population, the primary reasons that enrollees come to the emergency department are related to pain-Abdominal, Chest, Back, and Headache. Respiratory symptoms are listed more often for the health home population than for IowaCare as would be expected in a group that has asthma as one of the qualifying diagnoses. ED visits for these reasons are expected to decrease as an outcome of health home. The diagnoses provided in Table 7 are derived from two sets of claims. Since these numbers are not adjusted for the number of enrolled months as the previous rates were, the claims for the pre-enrollment period mirror the months during the 9 month post-enrollment period. For example, an individual enrolled on July 1, 2013 would have claims from July1, 2011 through February 29, 2012 for the pre-enrollment period and claims from July 1, 2012 through February 29, 2013 for the post-enrollment period.

Table 7. Top ten diagnoses for emergency room visits in year prior to health home enrollment compared to the IowaCare population

ICD-9 Code	Description	Number of visits pre-enrollment	Number of visits post-enrollment	SFY 2012 Number of visits (rank) IowaCare enrollees
789.0	Abdominal pain	157	95	2,192 (1)
786.5	Chest pain	116	80	1,675 (2)
784.0/346.9	Headache/Migraine	88	60	1,146 (4)
724.1-724.9	Back pain	71	36	1,569 (3)
493	Asthma	50	30	516 (7)
719.4	Pain in joint	40	29	1,083 (5)
780.3	Convulsions	31		N/A
462	Acute pharyngitis	30		N/A
599.0	UTI	29	23	377 (10)
787.0	Nausea/vomiting	29	17	435 (9)
465.9	Acute URI		15	514 (8)

Nursing facility utilization

Those enrolled in health homes are expected to have a decreased rate of skilled nursing facility admissions. Data for this measure is only reported for the pre-enrollment period due to the long lag time between experiencing the care and having the facility bill the services. During the pre-enrollment period there were three skilled nursing facility (SNF) admission; one person was admitted for 4 months for wound care related to skin ulcers, one person was admitted for 1 week for therapeutic drug monitoring related to septicemia, and the third person was admitted for two different periods for abscess with a known bacteria. There was also one admission to a Psychiatric Medical Institution for Children (PMIC) for a teenager with major depressive disorder. In addition to skilled nursing facility admissions there were 11 enrollees admitted to or residing in an Intermediate Care Facility and one admitted to a Residential Care Facility (RCF).

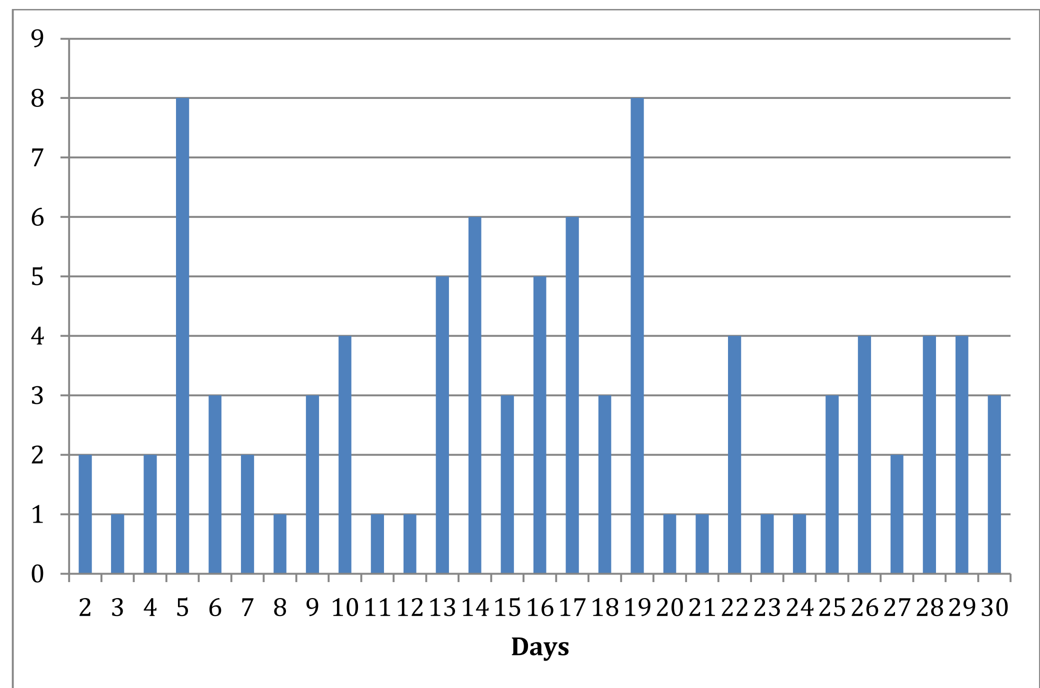
Hospital Readmission

The outcome measure for hospital readmission is derived from the HEDIS All Cause Plan Readmission rate measure. The number of enrollees was too small to adequately risk adjust the data, however, some information regarding readmissions serves to

inform the evaluation. Hospital stays are identified for adults (over 18) only as there is little information regarding methods for calculating these rates in children. Also, stays for pregnancy related diagnoses or mental health/substance abuse related diagnoses are removed from the analyses. The first admission is considered the Index Hospital Stay (IHS). There were 57 enrollees with 159 hospital stays with a readmission within 30 days. Of these, 37 had one hospital stay with a readmission, 12 had two stays with a readmission, and eight had 3-5 stays with a readmission. For this latter group, the readmission to one stay may actually form the IHS for the next stay, resulting in serial readmissions under 30 days.

The average length of stay for IHS was 4 days with 1 day being the shortest stay and 13 days being the longest stay. The gap between hospital stays averaged 16 days with the shortest gap between stays being two days. Figure 4 displays these results.

Figure 5. Length of gap between IHS and readmission hospital stay



The most common primary diagnoses on IHS are listed by condition with number of stays in parentheses: diabetes (7), heart failure (7), acute myocardial infarction (6), chronic bronchitis (4), asthma (4) and cellulitis/abscess (4). The most common primary diagnoses for readmission were other complications of procedures, not elsewhere classified (8), asthma (6), respiratory symptoms (5), septicemia (4), chronic bronchitis (4), and cellulitis/abscess (4). Clearly, readmissions due to complications, septicemia or abscess should be reduced when enrollees are provided the full complement of services under the health home model.

In an effort to determine the effects of the Health Home on readmissions, the number of readmissions within 30 days for the same diagnosis was computed. Within the pre-enrollment period there were seven and in the post-enrollment period there were six readmissions within 30 days for the same diagnosis code. The readmissions occurred

for seven enrollees, with three having readmissions in both the pre- and post-enrollment period. The codes are listed in Table 8.

Table 8. Primary diagnosis for IHS and readmission within 30 days for the pre- and post-enrollment periods.

Diagnosis code	Description	Number in pre-enrollment	Number in post-enrollment
250.13	Ketoacidosis, Type 1 diabetes, uncontrolled	1	1
276.1	Hyponatremia	1	0
282.62	Sickle-cell with crisis	2	1
427.31	Atrial fibrillation	2	1
491.21	Acute obstructive chronic bronchitis	1	0
493.92	Asthma, unspec, acute	0	1
786.59	Painful respiration	0	1
998.12	Hematoma complicating a procedure	0	1

Access to preventive and ambulatory care at the health home

Health home providers may enroll qualifying Medicaid recipients by completing and form to determine eligibility and the tier placement. In addition, they are asked to obtain the recipients agreement to be enrolled. These activities can either take place during an office visit or the provider can fill out the form without the recipient present and ascertain agreement through a phone conversation. One expected outcome of the health home is more consistent monitoring of enrollees chronic conditions. The baseline measure for this outcome is the proportion of enrollees with at least one preventive visit and the proportion of enrollees with at least one ambulatory visit with the health home provider. We utilized definitions from four separate measures to calculate these rates.

1. Adult access to Ambulatory Care measure
2. Well child visits in the third, fourth, fifth and sixth year of life
3. Well child visits in the first 15 months of life
4. Adolescent well care

These measures resulted in the definition of preventive care and ambulatory care provided below.

Preventive care

CPT codes included: 99381-99387, 99391-99397,99401-99404,9411-99412, 99420, 99429, G0438, G0439. Diagnosis codes included: V70.9, V70.9, V70.9, V70.9.

Ambulatory care

CPT codes included: 99381-99387, 99391-99397,99401-99404,9411-99412,99201-99205, 99211-99215, 99241-99245,99341-99350, 99304-99310, 99315, 99316, 99318, 99324-99328, 99334-99337, 92002, 92004, 92012. 92014.
99420, 99429, G0438, G0439. Diagnosis codes included: V70.9, V70.9, V70.9, V70.9.

Most health home enrollees (70%) had seen the health home provider in the pre-enrollment period. This was true across age groups, however, health home enrollees were less likely to have seen the health home provider for a preventive visit in the year prior to enrollment if they were in older age categories. Figures 6 and 7 provide the visit rates by age. The patterns of care are similar by visit type, preventive care rates are lower for enrollees in older age categories and ambulatory care rates are similar across age categories.. These data indicate that health home enrollees should be familiar with their health home and may be expected to have a well-established relationship with the health home office.

With one exception well care and ambulatory care rates are lower in the post-enrollment period. This may be difficult to explain as health homes should be increasing the rates of well care and of ambulatory care required for monitoring diseases and treatments. These rates should be interpreted with care as the program is just starting and we are unable to utilize a full year of claims due to the timing of the outcomes analyses and program start date.

Figure 6. Well care visits at the health home provider by age in the pre- and post-enrollment period

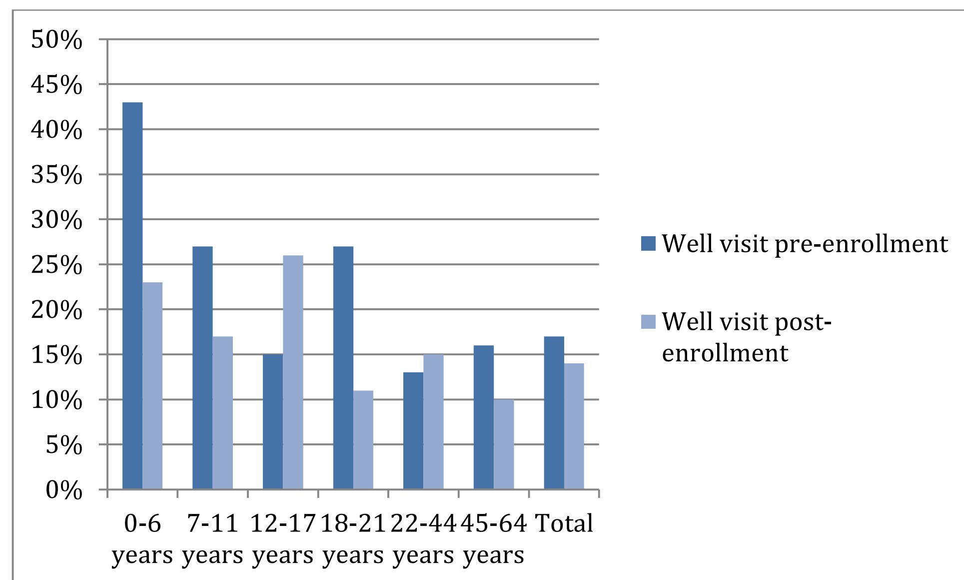


Table 9. Well care visits at the health home provider by age in the pre- and post-enrollment period

		Percent with well care visits		**Percent with ambulatory visit**	
Age	Number in age group	Pre-enrollment	Post-enrollment	Pre-enrollment	Post-enrollment
0-6 years	30	43%	23%	58%	43%
7-11 years	41	17%	17%	63%	54%
12-17 years	93	15%	26%	66%	69%
18-21 years	45	27%	11%	69%	53%
20-44 years old	324	13%	15%	70%	67%
45-64 years old	365	16%	10%	72%	68%

Figure 7. Ambulatory care visits at the health home provider by age and gender in the pre- and post-enrollment period