

Missouri CMHC Healthcare Homes

Progress Report
2012-2015



Table of Contents

Executive Summary

Section 1: Enrollment and Population Characteristics

Section 2: Staffing

Section 3: Disease Management and Clinical Outcomes

Section 4: Service Utilization

Section 5: Training and Technical Assistance

Section 6: Focus Group Feedback

Section 7: Implications and Recommendations



Executive Summary

In 2012, Missouri implemented a statewide Health Home system through a provision in the Affordable Care Act. The Community Mental Health Center Healthcare Home (CMHC HCH) program was designed to integrate care for chronic physical health conditions into a community mental health setting, where individuals with severe mental illness or serious emotional disturbances frequently receive care for their mental health conditions but often have unidentified or untreated chronic health conditions.

A review of Missouri's Medicaid population in 2008 indicated that individuals who accounted for the highest Medicaid expenditures often had a mental health condition as well as other chronic health conditions. The CMHC HCH is designed to improve client experience of care, improve population health outcomes, and reduce cost of care. This report evaluates Missouri's CMHC HCH program, building on the initial report from June 2013, from its inception in 2012 through 2015.

When CMHC HCHs launched in 2012 there were 17,822 eligible individuals auto-assigned in the program statewide. This auto-enrollment was a one-time process, and moved to an opt-in program with an enrollment process for each new eligible individual the CMHC engaged and enrolled for these enhanced services. Enrollment has increased each subsequent year of the program, with a total of 23,541 enrolled as of December 2015. While the 26 CMHC HCHs have experienced different rates of growth, the statewide average is a 20% increase in the number of individuals participating in CMHC HCHs.

26 CMHC HEALTHCARE HOMES

23,541 ENROLLEES

CHILDREN – 15%

ADULTS 18-64 – 83%

WOMEN – 57%

Children and adults are eligible for CMHC HCH services, including individuals who have dual eligibility with Medicare. In 2015, only 2% of enrollees were older than 65 years, with 32% of the adult population possessing dual Medicaid/Medicare eligibility. Children represented 15% of all enrollees, with the average age of the population at 38.3 years. Fifty-seven percent of those enrolled were female, and individuals identifying as Caucasian represented 78% of the CMHC HCH enrollees.

In order to be eligible for CMHC HCH, individuals must have (1) a diagnosis of severe mental illness or serious emotional disturbance; or (2) have a diagnosis of a mental health disorder and substance use disorder; or (3) have a mental health or substance use disorder and one other chronic disease or risk factor. Forty-eight percent of the CMHC HCH adult enrollees have a mental health condition in addition to 2 or more other physical chronic health conditions. In general, CMHC HCH enrollees have 2 to 3 times the rate of diabetes, cardiovascular disease, asthma/COPD, hypertension, substance use disorder, tobacco use, and obesity as the general population.

CMHC Health Home Eligibility Criteria

- ✓ A serious and persistent mental illness/severe emotional disturbance, **or**
- ✓ A mental health condition and a substance use disorder, **or**
- ✓ A mental health condition or a substance use disorder, and one of the following:
Diabetes, COPD/Asthma, Cardiovascular Disease, Developmental Disability, BMI>25, Tobacco Use

Missouri defined the goals of the CMHC HCH program in their initial state plan amendment. The goals included reductions in several measures of healthcare utilization such as emergency room use and hospitalizations. Activities such as metabolic screening and hospitalization follow-up have been tracked to measure implementation of the CMHC HCH. In general, the CMHC HCHs have been successful at implementing the health home model as measured by their success at meeting the benchmark goals of the program.

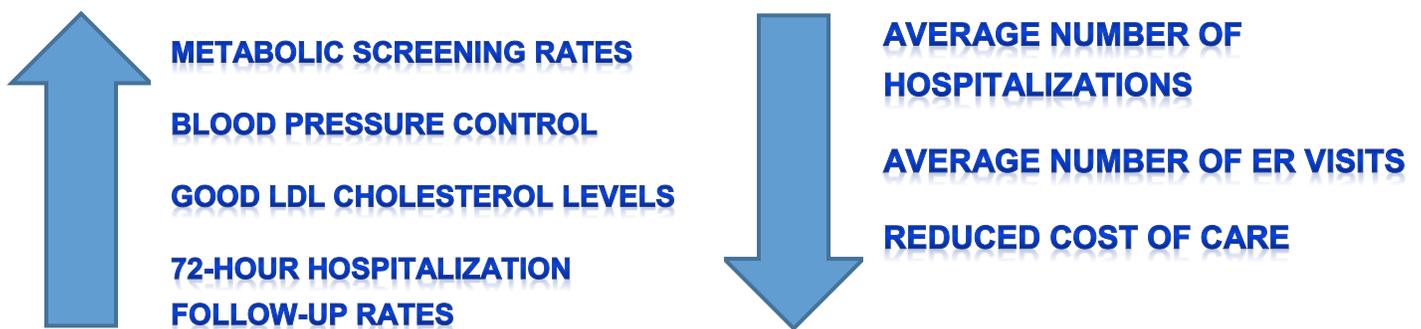


CMHC- HCH Successes:

Have met or exceeded 6 of 9 benchmark goals for disease management including:

- Increased metabolic syndrome screening rates for all CMHC HCH enrollees from 12% at the start of the program to 88% as of December 2015.
- Increased the percentage of enrollees with diabetes who had controlled blood pressure from 27% to 72%, good cholesterol levels from 22% to 54%
- Increased the percentage of enrollees with diabetes who had controlled blood glucose levels from 18% to 61%.
- Increased the percentage of enrollees with hypertension and cardiovascular disease who had controlled blood pressure from 24% to 67% and good cholesterol levels from 21% to 56%.
- Increased 72 hour hospitalization follow-up rates from 35% to 49%.
- Reduced the average number of hospitalizations by 14% and emergency room visits by 19% for enrollees.

Since 2012 the CMHC-HCH program has maintained and adapted training programs for new staff as needed to maintain continuity in the CMHC HCH program.



There are still areas of opportunity in the CMHC HCH program to improve population health. Some of these areas are challenging and the implementation team and CMHC HCH administration realize they may take more time to reflect significant change. These areas of opportunity include:

- Increase the percentage of enrollees who are tobacco free, encouraging reporting of tobacco cessation programs and harm reduction (i.e. smoking fewer cigarettes per day).
- Decrease obesity and extreme obesity in the population as measured by body mass index (BMI), but also report successes in number of people with significant weight loss.
- Continue to improve data technologies to facilitate population health management and care coordination.
- Develop a child-focused health home model to address the unique needs and care gaps for children.
- Determine new goals for population health outcome metrics for the CMHC HCH population through data analysis, targeting subgroups that may need additional supports or interventions.

Missouri CMHC HCHs have successfully implemented and maintained the health home program since January 2012. They have received national recognition for their efforts and continue to help guide other states through health home implementation projects and by sharing the lessons learned in Missouri. They have the opportunity to work towards new population health goals, and continue to improve the systematic transformation of healthcare delivery in Missouri.



SECTION 1: ENROLLMENT AND POPULATION CHARACTERISTICS

CMHC HCH Eligibility Criteria

- ✓ A serious and persistent mental illness/severe emotional disturbance, **or**
- ✓ A mental health condition and a substance use disorder, **or**
- ✓ A mental health condition or a substance use disorder, and one of the following: Diabetes, COPD/Asthma, Cardiovascular Disease, Developmental Disability, BMI>25, Tobacco Use

A. Enrollment

There have been no changes to the eligibility criteria for enrollment in the CMHC HCH program since the beginning of Missouri's Health Homes. CMHC HCHs launched in January 2012, when the CMHCs auto enrolled a total 17,822 individuals in the program statewide. This was a one-time auto enrollment for the program, and CMHC HCHs also began identifying and enrolling other individuals who met the criteria and would benefit from health home services. There are now 26 CMHC HCH operating in Missouri as of December 2015, with total enrollment numbers listed in Table 1.

CMHC HCH name	2012	2013	2014	2015	% change
Ozark Medical Center	215	285	305	404	88%
North Central Missouri MHC	326	409	531	559	71%
Family Counseling Center Inc	837	1116	1292	1398	67%
Compass Health Centers	3616	4287	4699	5412	50%
ReDiscover	732	818	896	1024	40%
Hopewell Center	647	624	792	871	35%
Community Counseling Center	741	816	909	986	33%
Clark Community Mental Health Center	296	309	382	384	30%
Mark Twain	409	424	511	512	25%
Independence Center	255	255	288	302	18%
Places For People	387	396	426	452	17%
Preferred Family Healthcare Inc	403	398	468	470	17%
Comprehensive Health Systems	198	207	227	229	16%
Bootheel Counseling Services	612	667	749	702	15%
BJC Behavioral Health	1972	2098	1861	2201	12%
Burrell Behavioral Health	2432	2501	2691	2683	10%
Adapt of Missouri Inc.	448	496	492	482	8%
Tri County Mental Health Services	491	443	462	513	4%
Ozark Center	730	634	782	715	-2%
Truman Medical Center Behavioral Health	661	639	620	636	-4%
Family Guidance Center	725	705	689	675	-7%
Comprehensive Mental Health Services	501	462	446	442	-12%
New Horizons	396	391	366	348	-12%
East Central Missouri Behavioral Health	382	376	356	331	-13%
Community Treatment Inc	439	376	359	312	-29%
Swope Health Services CMHC	743	539	533	498	-33%
Statewide Total	19594	20671	22132	23541	20%



From January 2012 through December 2015, enrollment in the CMHC HCH has had a net increase of 20%. Each CMHC HCH has grown at different rates (see Table 1). There were some large differences in growth rates across the CMHCs. Each CMHC put forth unique efforts to grow their HCH enrollment; however, in order to increase their HCH enrollment, the CMHC HCH had to maintain the staffing requirements put forth by the state and make progress on achieving the goals defined in the state plan. Children represent 25% or more of overall HCH enrollment in three (3) agencies (see shaded sites on Table 2). Given the limited number of children who are likely to have a chronic health condition in comparison to adults, these three (3) CMHC HCHs are paving the way for other health homes to follow in addressing the needs of children in their area.

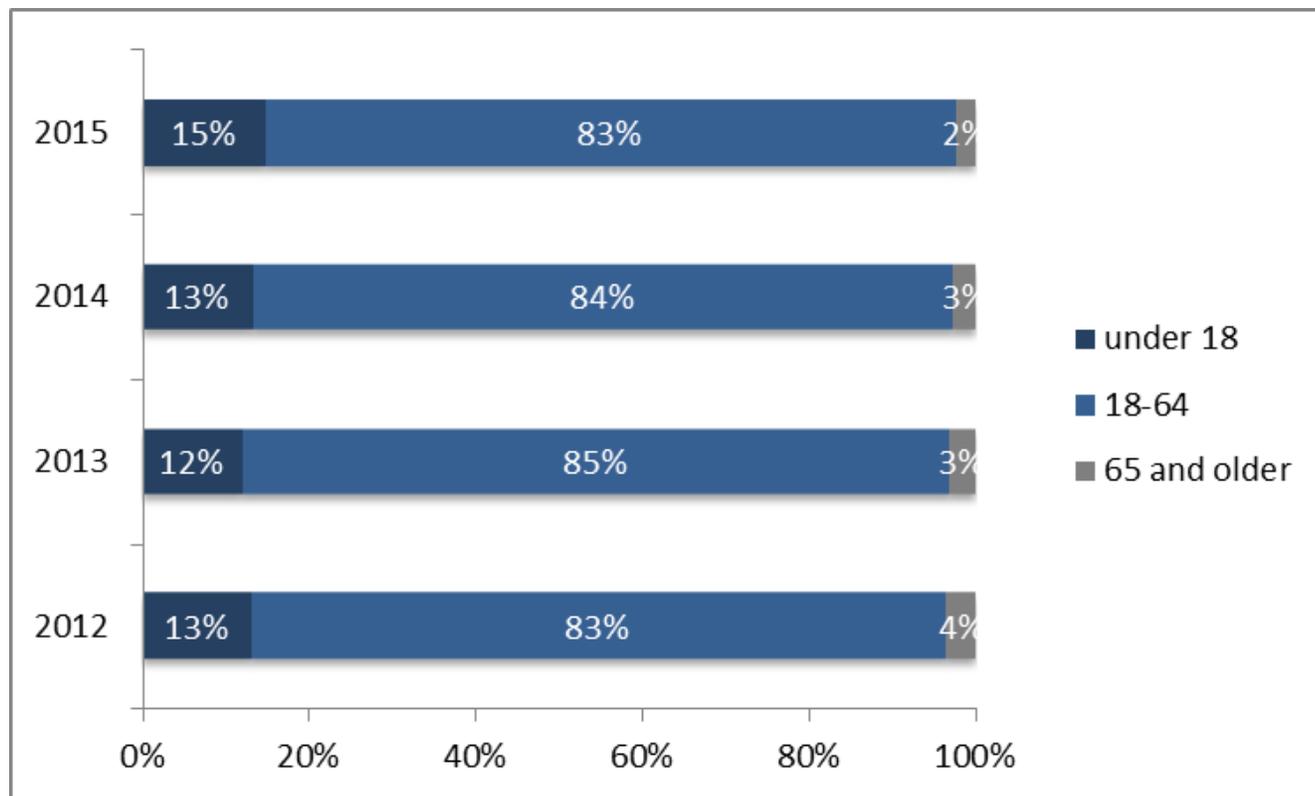
Table 2. Shows the number of children enrolled at each CMHC-HCH and % growth from 2012-2015. Light blue shaded areas represent agencies that have maintained their enrollment of children at or above 25% of their HCH population

CMHC	2012	2013	2014	2015	% change
Preferred Family Healthcare Inc	4	6	9	22	450%
Ozark Medical Center	17	13	23	92	441%
Truman Medical Center Behavioral Health	24	19	25	75	213%
Clark Community Mental Health Center	50	58	116	131	162%
North Central Missouri MHC	82	120	191	206	151%
Compass Health	477	580	762	1051	120%
Family Counseling Center Inc	148	233	249	286	93%
Community Counseling Center	116	147	185	224	93%
Burrell Behavioral Health	256	268	296	314	23%
Bootheel Counseling Services	113	121	147	125	11%
BJC Behavioral Health	183	164	118	197	8%
Comprehensive Health Systems	0	0	1	1	0%
Independence Center	0	0	0	0	0%
Places For People	0	0	0	0	0%
Ozark Center	178	99	201	169	-5%
Hopewell Center	133	93	121	125	-6%
Mark Twain	111	105	119	95	-14%
Tri County Mental Health Services	49	30	29	39	-20%
ReDiscover	68	21	21	52	-24%
East Central Missouri Behavioral Health	65	69	59	48	-26%
Family Guidance Center	229	187	172	150	-34%
Adapt of Missouri Inc.	2	2	2	1	-50%
New Horizons	2	1	1	1	-50%
Community Treatment Inc	41	9	9	20	-51%
Swope Health Services CMHC	142	67	55	30	-79%
Comprehensive Mental Health Services	62	55	23	13	-79%
Total	2552	2467	2934	3467	36%

B. Current Profile of Health Home Enrollees

Both adults and children are eligible for the Missouri Health Home program; however, not all of the CMHC HCHs serve children. Figure 1 shows the percentage of children, adults, and older adults enrolled in each CMHC HCH. The total changes have been negligible over the years, with a net increase of 2% for enrollees under the age of 18 and a net decrease of 2% of individuals aged 65 years and older. Older adults are not typically targeted for HCH services and the change in their representation in the HCH from 4% to 2% may be due to transitioning out of the DMH system or transition of care to hospice services. Efforts to increase enrollment of children have been underway since the beginning of the CMHC-HCH program.

Figure 1. Shows the percentage of CMCH-HH enrollees by age group from 2012-2015



C. Demographics

As demonstrated in Figure 1, over 80% of CMHC HCH enrollees are between the ages of 18-64. The mean age of all enrollees is 38.3 years. The 45-54 year old age group characterizes the largest single group, representing 25% of all adult enrollees. Females represent 57% of the enrollees. Similar to the statewide percentages, 78% of all enrollees identify as Caucasian, 18.5% identify as African American, with the remaining 3.5% of individuals identifying as Asian (0.2%), Hispanic (0.2%), Native American (0.4%), or do not claim a specific racial or ethnic group (2.6%). Individuals who are also eligible for Medicare may be enrolled; these dual enrollees account for 32% of the CMHC HCH adult population.

Older adults (aged over 65 years) currently represent 2% of the HCH population. As mentioned above, this age group is not a target for outreach services to join the HCH. Within this age group, individuals are more likely to have additional chronic health conditions that might not be managed through HCH services. As a result, these individuals may have transitioned to other services to help manage their health. They may also have transitioned to hospice care, moved, or passed away.

Children represent 13% of the CMHC HCH population. The majority (60%) of the children are male. Eighty percent are Caucasian, 16.5% African American, and the remaining 3.5% are Asian (0.1%), Hispanic (1.5%), and Native American (0.3%), or are not identified with a particular racial or ethnic group (1.6%). From the early stages of the program, it was clear that efforts to successfully care for children in the CMHC HCH would be more challenging, as the initial criteria and benchmark goals were designed primarily to address the needs of adults. CMHC HCHs have worked to increase the enrollment of children and a workgroup has been formed to help design new criteria, measures and benchmarks that are more appropriate for a pediatric population.

D. Chronic Disease Prevalence

Figure 2 demonstrates the percent of the CMHC HCH population with the chronic diseases managed by the Health Home. The rates of diabetes, asthma/COPD, heart disease, substance use disorder, tobacco use, and hypertension are 2-3 times higher in the CMHC HCH than the US national prevalence for each disease.

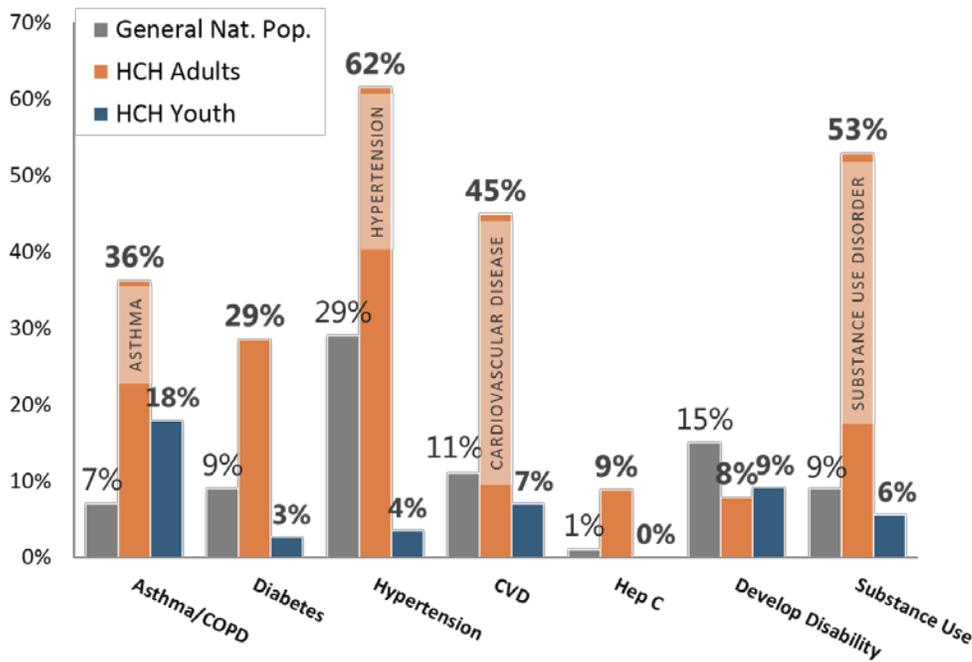


Figure 2 shows the percentage of CMHC HCH enrollees with the chronic diseases of focus for Health Home interventions. Data are based on enrollees as of 1/1/2014.

Adults $n=22801$
Children $n=3944$

In terms of obesity, defined as having a BMI>25, the prevalence in the US has increased as of 2015 to 36%, but individuals in the CMHC HCH are still well above that at 57%. Figure 3 shows the body mass index (BMI) distribution of CMHC HCH adults compared to the Missouri and Disease Management (DM3700) adult populations. The DM3700 cohort is a population of Missourians with severe mental illnesses who have high medical expenditures, but are not currently engaged in programs within the Department of Mental Health (DMH), they are considered the outreach arm for the HCH. As the figure shows, CMHC HCH and DM3700 clients have much higher rates of obesity and extreme obesity compared to Missouri's general population. Most concerning is that 20% of CMHC HCH individuals are classified as extremely obese, defined as having a BMI>40, compared to just 6% of the general population.

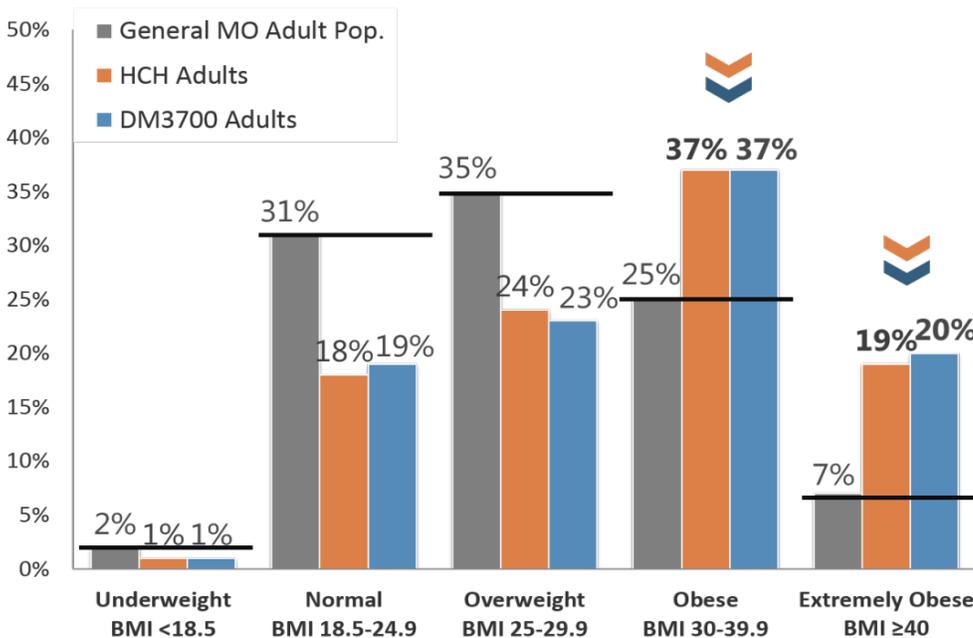


Figure 3 displays the distribution of BMI for the general MO population, CMHC HCH adult enrollees, and adult DM3700 cohort. Data are based on enrollees as of 01/01/2014.

Adults $n=20,590$

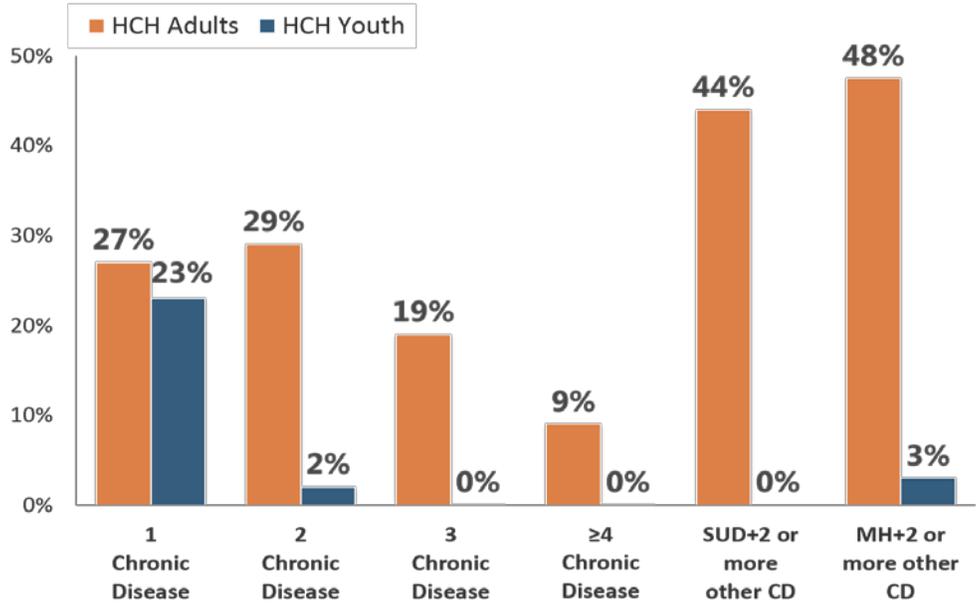
DM3700 Adults $n=2,407$

Multiple Chronic Conditions

Almost all (84%) of CMHC HCH enrollees have at least one chronic disease; 48% of enrollees have two or more chronic diseases plus a mental health condition. Of those with substance use disorder, 44% also have two or more chronic diseases (See Figure 4).

Figure 4 displays the percentage of CMHC HCH enrollees who have a number of multiple chronic conditions. Data are based on enrollees as of 01/01/2014.

Adults $n=22,081$
 Children $n=3,944$



E. Functional Assessment

The Daily Living Activities© (DLA-20©) assessment is designed to assess what daily living areas are impacted by mental illness or disability, and the level of impairment. The Modified Global Assessment of Functioning (mGAF) score represents an individual's overall level of functioning: high scores indicate superior functioning and low scores indicate severe impairment. In 2014, a majority (45%) of CMHC HCH enrollees received a score of 41-50, indicating some serious symptoms or impairment in functioning. Over one-third of enrollees (37%) had more severe symptoms and major impairments in functioning, indicating a higher level of need (Figure 5).

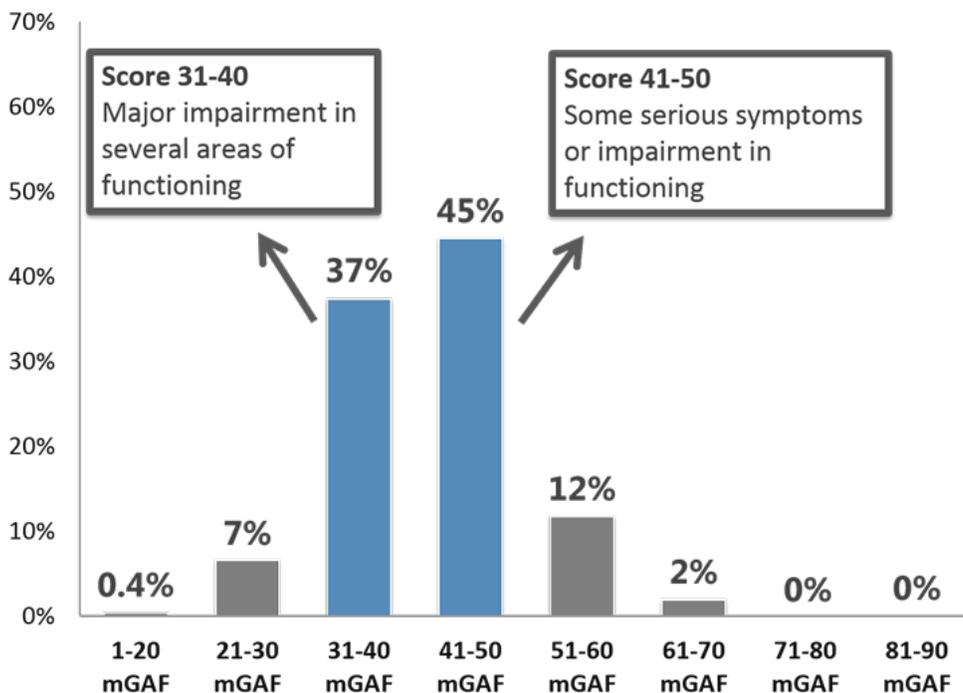


Figure 5 displays the percentage of CMHC HCH enrollees with an mGAF score derived from the DLA-20© assessment. Data are based on enrollees as of 01/01/2014.

$n=13,550$ with an mGAF in last 18 months

SECTION 2: STAFFING

Health Home staffing needs are determined based on the number of clients enrolled during a given month. The staffing levels for each position can be viewed on the sidebar to the right.

A. Administration

HCH Directors are the lead administrators in each CMHC HCH. Directors are the champions of health home practice transformation. They oversee the daily operations of the CMHC HCH, track enrollment/discharges/transfers and ensure that the staffing of the health home team meets the requirements of the state and the needs of their enrollees. A Director must coordinate and review the utilization of the care management reports. They promote and develop working relationships with hospitals, ensure the health home team is trained appropriately, and encourage the team to meet or exceed benchmark goals.

CMHC Healthcare Home Staffing Requirements per Enrollee

Healthcare Home Director | 1:500

Nurse Care Manager | 1:250

Care Coordinator | 1:500

Primary Care Physician

Consultant | 1hr per enrollee per year

Maintaining adequate staffing can be challenging for a Health Home; however, there is flexibility within the system to allow for adjustment if the CMHC HCHs experience changes in their staffing needs due to turnover, or enrollment changes. For example, in CMHC HCHs with lower enrollment numbers, if the Director is also a nurse, they can spend 50% of their effort as the HCH Director and the other 50% as a Nurse Care Manager. Therefore, it benefits the Director to be strategic in their hiring process which will allow them flexibility in the management of their staffing time to maintain the standards set in the HCH guidelines.

The Department of Mental Health (DMH) tracks the staffing levels of each CMHC HCH using a monthly report submitted by the health home Directors. The HCH Director is expected to maintain the staffing levels at 100% for each position, with an overall annual minimum of 85%. If a CMHC HCH falls below the required staffing level, DMH may require the agency to submit a plan of action for increasing their staffing or they may suspend further CMHC HCH enrollment until staffing is at required levels. If a CMHC HCH should fall below the required level for an extended period of time, DMH may request a refund, or recoupment of the per member per month (PMPM) paid to the CMHC HCH for the time they did not meet the requirements.

Care Coordinators provide additional administrative support to the health home team. They assist with the coordination of day-to-day health home activities including:

- Facilitate and assist in the review of care management and hospital admission reports
- Assist with appointment scheduling and client tracking
- Provide clerical support
- Provide technical assistance to health home team and may serve as a practice administrator for the health information technology tools.

B. Nurse Care Managers (NCM)

Nurse Care Managers are primary care Registered Nurses (RN) or Licensed Practical Nurses (LPN). There must be at least one RN on the CMHC HCH team in either the NCM or HCH Director position. The NCMs champion a holistic, person-centered approach for coordinating the healthcare needs and wellness goals of their clients. They encourage healthy lifestyles and preventive care. NCMs are expected to identify actionable areas within their caseload to improve population health. They participate in monitoring the monthly care management reports in order to establish priorities and strategies for interventions in the population. It is necessary for the NCMs to communicate with treatment teams regarding concerns, follow-ups, and recommendations. NCMs are also responsible for health, wellness, and chronic disease training

to Community Psychiatric Rehabilitation (CPR) program staff, and provide education to clients regarding health and wellness.

Nurse Care Managers may provide individual interventions. Some of the required activities of NCMs include:

- 72 hour follow-up and medication reconciliation after hospital discharge
- Participate in annual treatment planning
- Interface with Community Support Specialist (CSS) about identified health conditions
- Coordinate care with external providers
- Document client care and coordination
- Track required screenings

C. Primary Care Physician Consultants (PCPC)

Primary Care Physician Consultants have four (4) primary responsibilities. They are responsible for helping the whole care team establish priorities for disease management and the improvement of health status of their client. The PCPC should participate in case consultation with a CMHC HCH enrollee's psychiatrist, qualified mental health professional (QMHP), NCM, and CSS. They help educate the CSS and clinical staff on the nature, course and treatment of chronic diseases. Finally, the PCPC should develop collaborative relationships with a CMHC HCH enrollee's treating primary care doctor, psychiatrist, and other healthcare professionals to coordinate care. This role can be filled by a primary care physician, and can be supplemented by an advanced practice nurse (APN) specializing in primary care. An APN may be used for up to 50% of the PCPC time on a two hour to one physician hour basis. At least two hours per week of PCPC time must be a physician.



SECTION 3: DISEASE MANAGEMENT AND CLINICAL OUTCOMES

A. Metabolic Syndrome Screening (MBS)

Compared to national averages, CMHC HCH enrollees have a higher prevalence of physical health conditions, particularly asthma/COPD, cardiovascular disease, diabetes, and risk factors for disease, such as smoking and obesity. Due to the significant potential for developing metabolic syndrome, in 2010 DMH began requiring CMHCs to conduct an MBS on all individuals receiving psychotropic medications. A top priority of the CMHC HCHs was to implement an annual MBS for *all* individuals enrolled in the health home. DMH established a minimum benchmark of 80% screening completion rate for all CMHC HCHs. Individuals with any mental illness have significantly increased rates of morbidity and mortality compared to those who do not have a mental illness. The increase in morbidity is, in large part, due to cardiometabolic issues that are exacerbated by the side effects of psychotropic medications. As the entire CMHC HCH population may be affected, the ultimate goal is to screen 100% of individuals for blood pressure, LDL, and blood sugar control, and monitor weight and tobacco use.

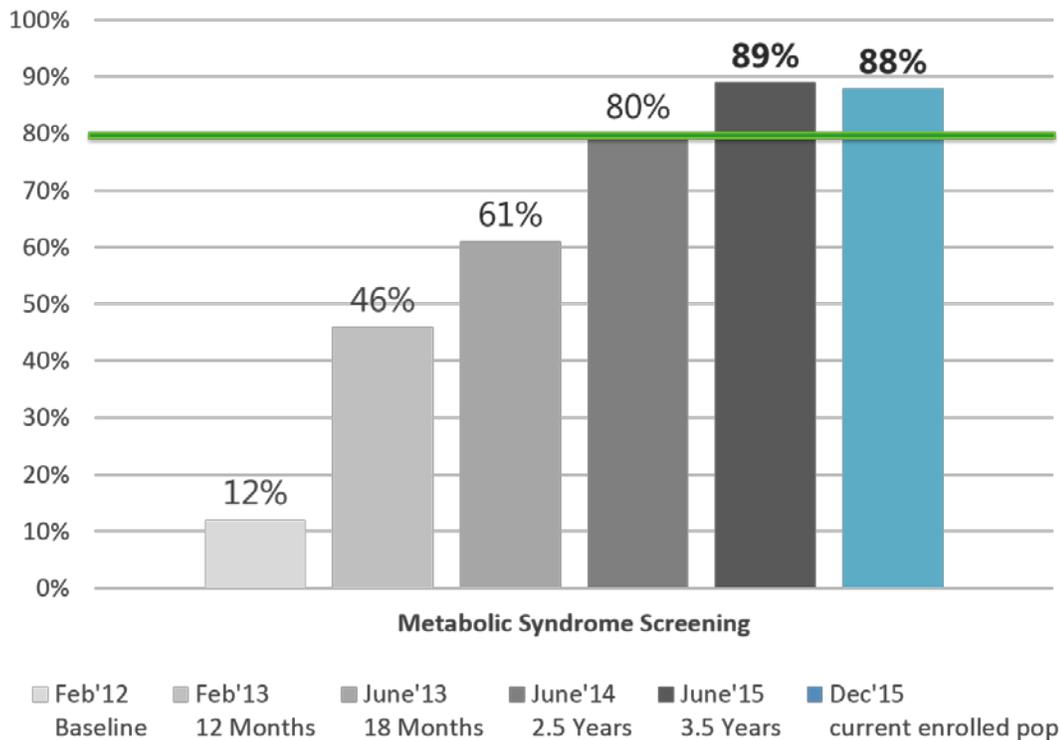


Figure 6 shows the percentage of enrollees continuously enrolled in the CMHC HCH with complete MBS data at each time point. The data for December 2015 are for all current CMHC HCH enrollees.

December 2015 enrolled
 $n=20,648$

As Figure 6 demonstrates, as of our last report in June 2013, we have dramatically improved the percent of enrollees receiving MBS screening, exceeding the benchmark goal of 80% in the three successive reporting periods. The statewide average reached 80% in June of 2014, and increased again the following year to 89% completion statewide. As of the most recent December 2015 current enrollment, 88% of the 20,648 enrolled had a complete and current metabolic screening reported.

B. Disease Management

The purpose of the MBS is to allow the CMHC HCH staff to work with individuals and develop care plans that address not only behavioral health concerns, but also their physical health concerns. Results from the screenings are discussed with the HCH enrollees, and targeted goals are set to improve their disease states and overall health. Individuals in the CMHC HCH have 2-3 times the prevalence of diabetes, cardiovascular disease and hypertension compared to the general population. As such, it is critical that they receive regular monitoring to ensure that indicators of risk for cardiovascular events (hypertension, hyperlipidemia, elevated HbA1c) are in control. The following disease management measures are based on HEDIS¹ indicators, and the benchmark goals were identified from Healthy2020² goals at the start of Health Homes..

DIABETES

The figure below (Figure 7) shows the percentage of the CMHC HCH adults with diabetes who had measures within the acceptable range of cholesterol (measured by LDL levels), blood pressure, and blood sugar (measured by hemoglobin A1c levels). The bars shaded in gray represent the adult population that was continuously enrolled in CMHC HCHs for 3.5 years ($n=6,553$) and their outcomes at each point in time of the program. The bar shaded in blue represents the entire adult population currently enrolled in the CMHC HCH as of December 2015 ($n=20,648$) and their outcomes. Not only have CMHC HCHs made MBS data collection a priority, but they have also developed clinical protocols to connect clients to proper treatment and interventions to manage their chronic conditions. The green line represents the benchmark goals.

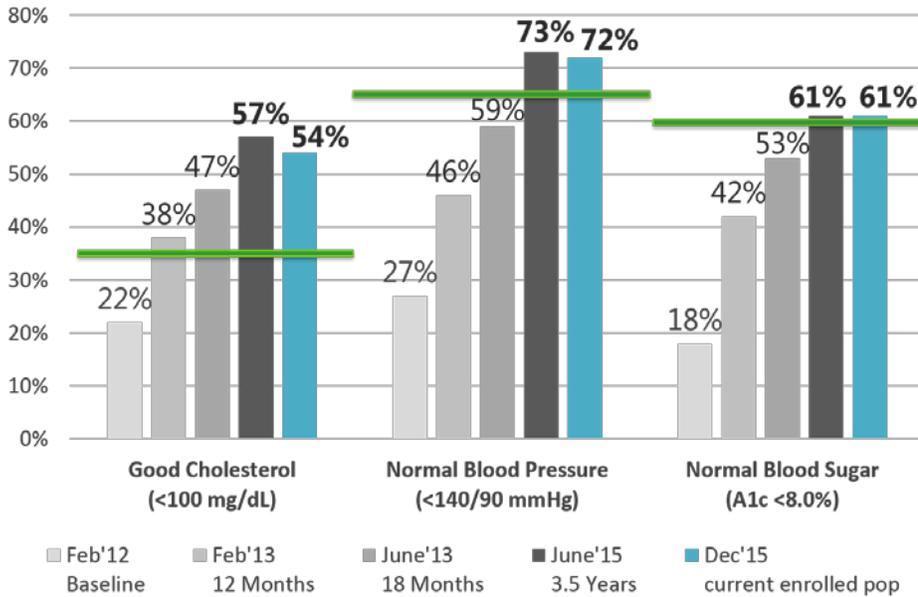


Figure 7

Diabetes Benchmark goals

- **LDL:** 36% in control, defined as an LDL below 100mg/dL. This goal was met by early 2013 and has consistently been above 50% since 2014.
- **Blood Pressure:** 65% in control, or less than 140/90 mmHg. This goal was met in 2014 and has steadily been above 70%.
- **HbA1c:** 60% in control, with an HbA1c below 8.0%. This goal was met in 2014.

HYPERTENSION AND CARDIOVASCULAR DISEASE

The chart below (Figure 8) shows the percentage of CMHC HCH adults whose hypertension (HTN) or cardiovascular disease (CVD) is in good control as measured by cholesterol (in LDL levels) and blood pressure readings. The percent of those in control has steadily improved since the inception of the program. The bars shaded in gray represent the adult population that was continuously enrolled in CMHC HCHs for 3.5 years ($n=6,553$) and their outcomes at each point in time of the program. The bar shaded in blue represents the entire adult population currently enrolled in the CMHC HCH as of December 2015 ($n=20,648$) and their outcomes.

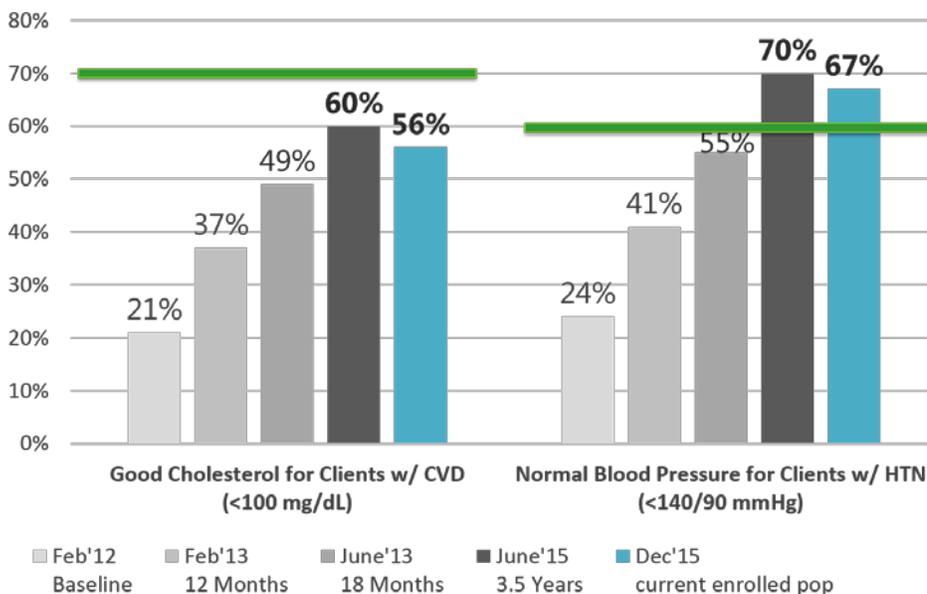


Figure 8

HTN and CVD Benchmark goals

- **LDL:** 70% in control, defined as LDL less than 100 mg/dL. This goal has not yet been met, although levels have consistently been improving. The benchmark goals set for diabetes LDL control (36%) and CVD LDL control (70%) differ significantly, and DMH will reassess the appropriate goal to attain for both of these measures.
- **Blood Pressure:** 60% in control, or less than 140/90 mmHg. This goal was met in 2014 and has steadily increased

ASTHMA/COPD

The benchmark goal for the CMHC HCH was to ensure that individuals with asthma/COPD were appropriately prescribed an oral controller medication. As of our first report, the benchmark goal had been met, with 90% of individuals with asthma/COPD prescribed a controller medication. This goal has been maintained from 2012 through June 2015.

TOBACCO USE

The benchmark goal for the CMHC HCH was to promote smoking cessation and increase the percentage of enrollees who are tobacco free to 56%. Currently, 44% of the enrollees report that they are tobacco free. Although this has not yet met the benchmark goal, efforts to decrease tobacco use continue.

C. CMHC HCH CLINICAL IMPROVEMENT

For enrollees who had high baseline values for the clinical indicators after the MBS, this analysis tracked the average change in cholesterol from the enrollee's first elevated score, through their most recent score. The values shown for clinical improvement are for all individuals with an initially high baseline reading, and are not specific to diabetes or cardiovascular disease as the benchmark goals reported above. Results are based on an individual's time in the CMHC HCH, with baseline readings calculated from the first measurement ever recorded in the HCH for an individual, Years 1, 2, and 3 representing readings taken approximately 12, 24, and 36 months after the baseline reading. Even small changes can mean significant clinical improvement.

CHOLESTEROL

Figure 9 shows the change mean cholesterol of CMHC HCH adult enrollees with initially high levels (an LDL above 100 mg/dL) at their baseline reading. LDL decreased by nearly 20% over the course of the first three years, quickly approaching healthy levels. Importantly, research indicates that a 10% reduction in LDL values can reduce the risk of cardiovascular disease by 20%³. Over the three years, levels have dropped from an average of 131.5 to 106, a net decrease of 19%.

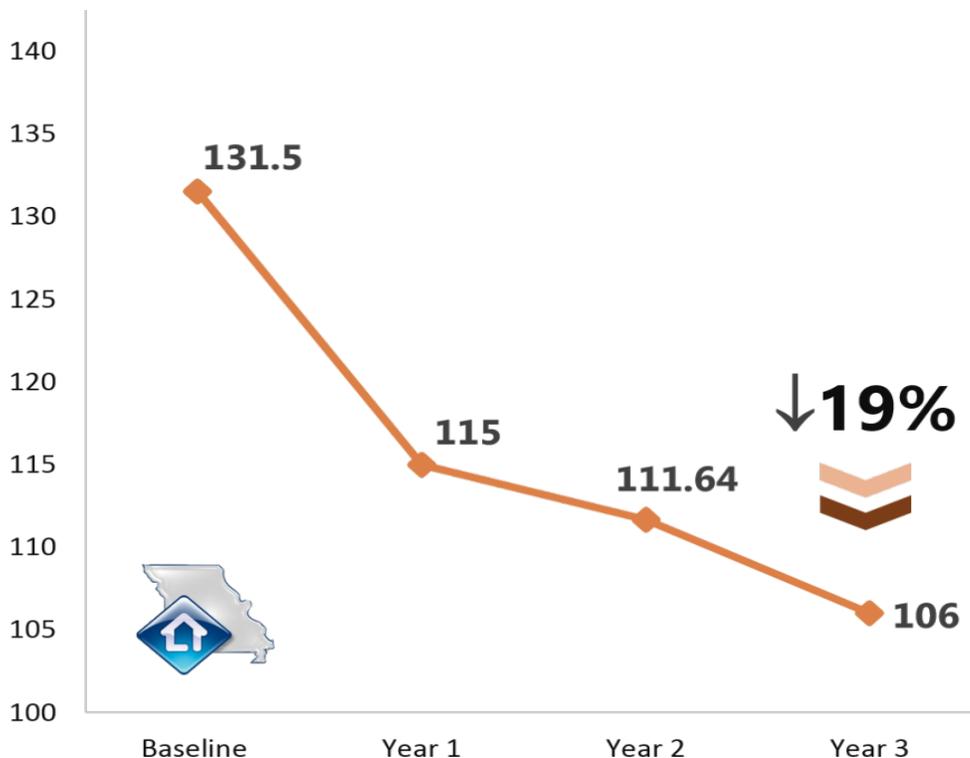


Figure 9 shows the decrease of LDL values for all CMHC HCH enrollees who had a high reading at baseline

Baseline $n= 5371$
Year 1 $n= 3078$
Year 2 $n= 2348$
Year 3 $n= 1533$

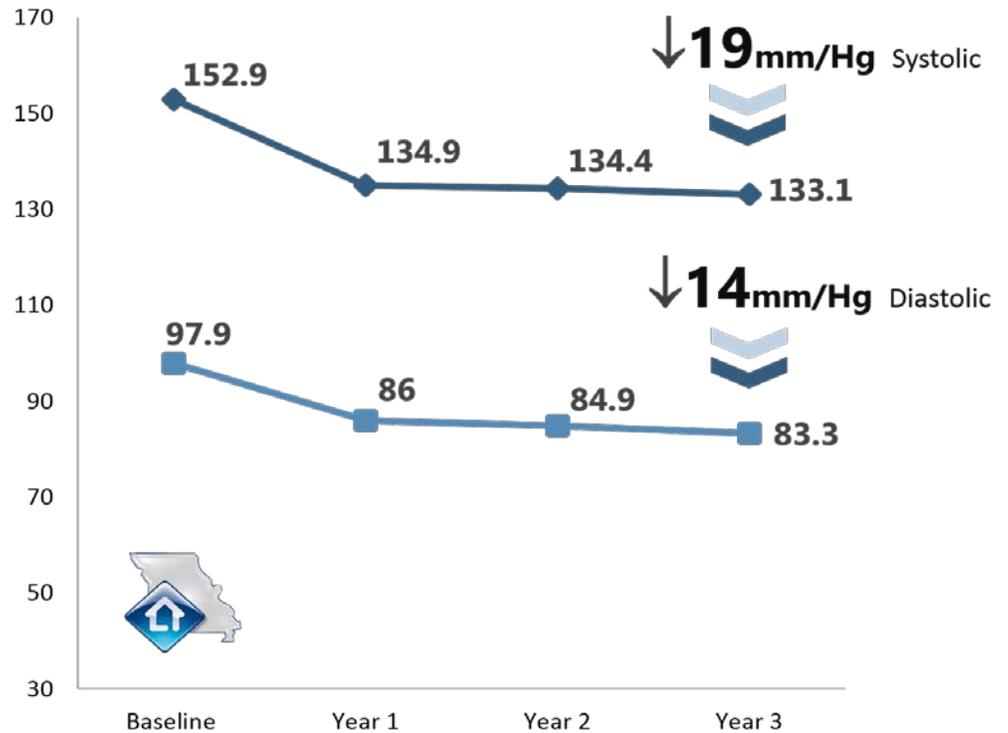
BLOOD PRESSURE

Figure 10 shows the change in mean blood pressure of all CMHC HCH adult enrollees with high blood pressure at baseline. Both systolic (SBP) and diastolic (DBP) blood pressures decrease to acceptable levels (under 140/90 mmHg) within one year. Importantly, the average decrease in blood pressure dropped from 152.9/97.9 to 133/83 bringing the values into a normal range. Research has indicated that a 6mm/Hg drop in blood pressure can reduce the risk of cardiovascular disease by 16%, and the risk of stroke by 42%⁴.

Figure 10 shows the average values for all individuals with high baseline readings for systolic and diastolic blood pressure. The number of adults included at each time point is as follows:

Baseline SBP $n= 1760$
 Year 1 SBP $n= 1119$
 Year 2 SBP $n= 792$
 Year 3 SBP $n= 498$.

Baseline DBP $n= 1563$
 Year 1 DBP $n= 1007$
 Year 2 DBP $n= 697$
 Year 3 DBP $n= 423$



BLOOD SUGAR

Figure 11 shows the change in mean blood sugar of CMHC HCH adult enrollees with HbA1c above 8% at baseline. HbA1c levels of the group with high baseline values steadily decreased and are approaching acceptable levels. Research has indicated that a one point drop in HbA1c levels translates to a 21% decrease in diabetes related deaths, a 14% decrease in heart attacks, and a 37% decrease in microvascular complications⁵.

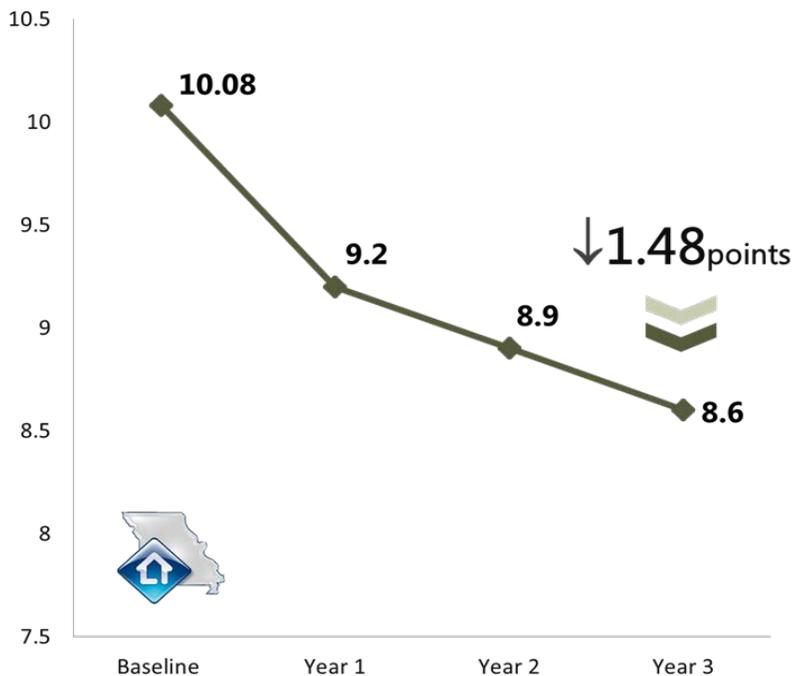


Figure 11 shows the average HbA1c values at each time point for individuals who had a high baseline HbA1c reading. Data is based on all available data at each time.

Baseline $n= 484$
 Year 1 $n= 298$
 Year 2 $n= 209$
 Year 3 $n= 155$.

D. Hospital follow-up and Medication Reconciliation

CMHCs have a history of monitoring psychiatric hospital admissions and participating in discharge planning for individuals enrolled in their Community Psychiatric Rehabilitation (CPR) programs. Now, in addition to psychiatric admissions, CMHC HCHs are responsible for participating in discharge planning and following up within 72 hours of discharge with enrollees who have been hospitalized for any reason. NCMs are also responsible for completing medication reconciliations within 72 hours of the hospital discharge. The goal of the CMHC HCH is to follow up and complete medication reconciliations within 72 hours for 80% of enrollees discharged from hospitalization.

Discharge follow-up (FU) increased from 35% in quarter 1 to 49% in quarter 16, while medication reconciliation (MR) within 72 hours increased from 30% in quarter 1 to 45% in quarter 16. Neither discharge follow-up nor medication reconciliation has met the goal; however, there has been steady improvement during the course of CMHC HCH. Follow-up within seven (7) days of a hospital discharge has been shown to reduce readmission rates⁶. We also show the percentage of enrollees who received a hospitalization follow-up and medication reconciliation within seven (7) days of discharge (Figure 13).

Figure 12 shows the percentages of enrollees who had a hospitalization follow-up and medication reconciliation within 72 hours of their discharge from the hospital

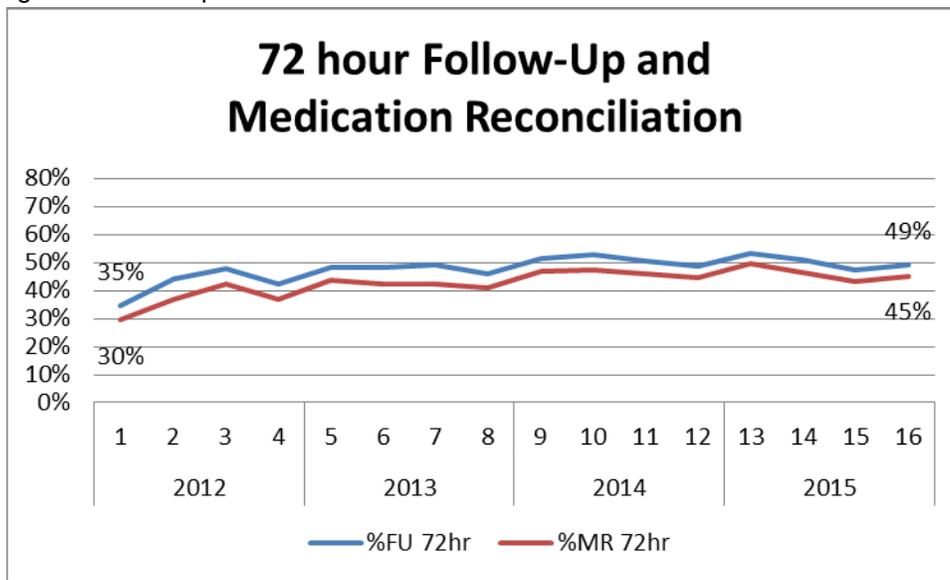
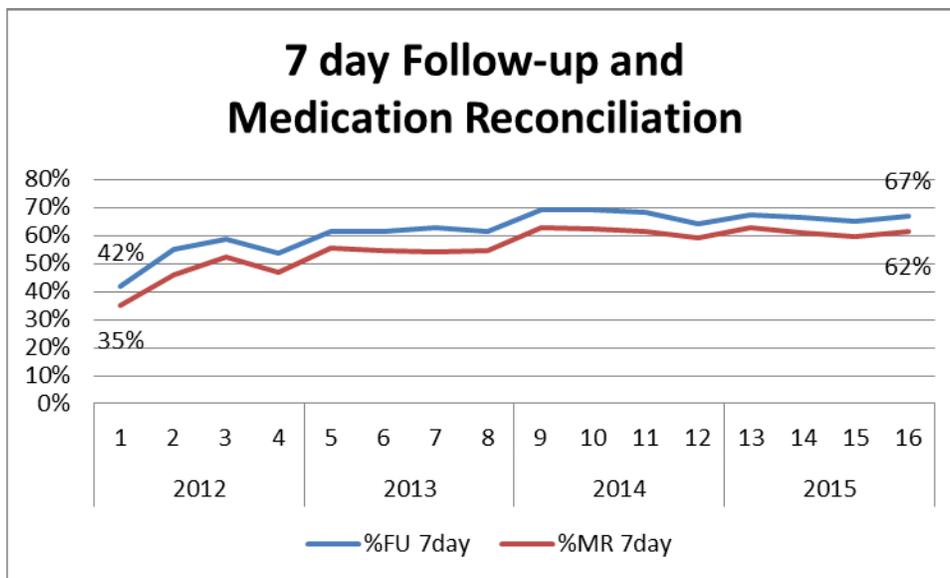


Figure 13 shows the percentage of enrollees who had follow-up and medication reconciliation within seven days of hospital discharge



SECTION 4: SERVICE UTILIZATION

A. Hospital and Emergency Room Utilization

Reductions in emergency room (ER) use, avoidable hospitalizations, and hospital readmissions can have a dramatic impact on the cost of care for the CMHC HCH enrollees. The following charts illustrate the change in these utilization measures for the enrollees.

It is of interest to know the primary health concerns of enrollees who use the ER or admitted to the hospital, in order to understand and meet the needs of the CMHC HCH population. As the chart below demonstrates, 86% of CMHC HCH enrollees entering the ER are coming in for general medical concerns, while 14% of ER visits are primarily for a behavioral health concern. However, when it comes to hospital admissions, 53% are due to general medical conditions and 47% due to mental health or substance use disorders. In 2014, there were a total of 11,978 hospital admissions. The total number is a 17% reduction from 2011, when the total number of hospitalizations was 14,504 (Figure 14).

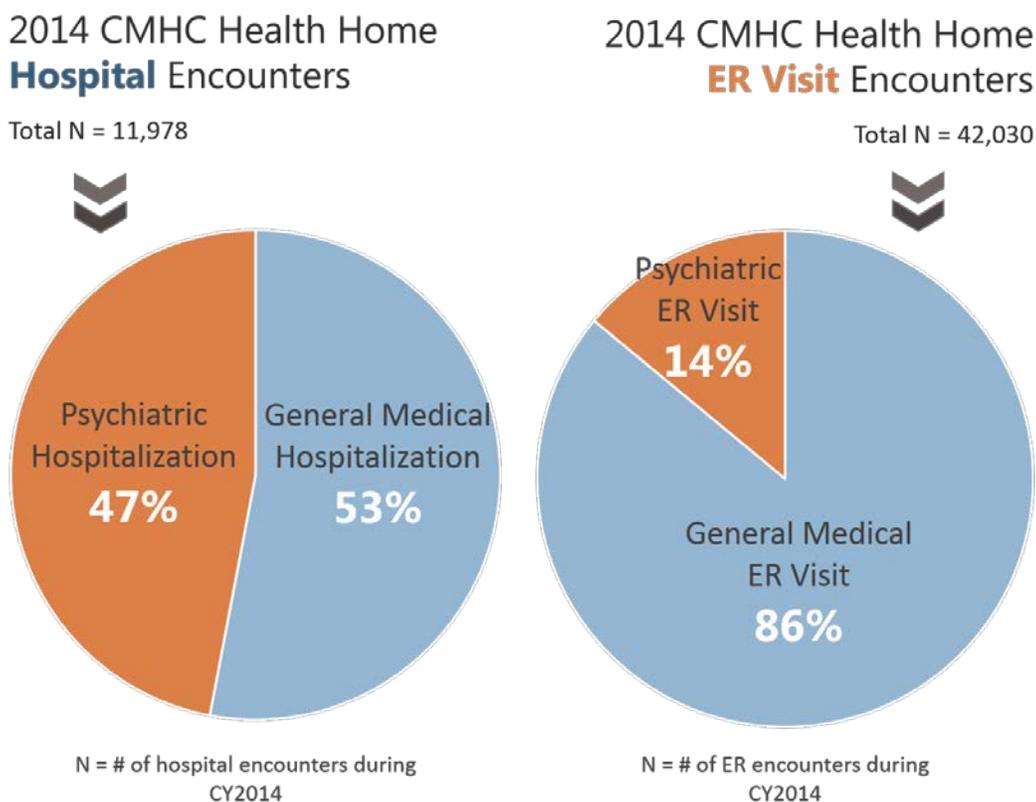


Figure 14 shows the percentages of hospitalizations and ER visits for general medical and psychiatric conditions.

If the CMHC HCH can help enrollees successfully manage their chronic illnesses, then there should be a corresponding decrease in the need for costly hospital admissions and ER visits for this population. Figure 15 demonstrates the percentage of individuals who had at least one hospitalization in the 12 months prior to their enrollment at baseline and for each year they were enrolled in the CMHC HCH program. The baseline year represents the 12 months prior to CMHC HCH enrollment, based on the individuals' enrollment date. Years 1, 2, and 3 represent months 1-12, 13-24, and 25-36 of each person's enrollment in health home, through December 2014. Since not all enrollees have completed a full 36 months, each year represents the number of adult CMHC HCH enrollees who had at least nine months attested in each one year period. The number of attestations was used to ensure individuals were accounted for who had Medicaid coverage for a majority of the number of months in each year. As indicated by Figure 15, there has been a consistent and steady decrease in the percentage of CMHC HCH enrollees who have at least one hospitalization at each point in time.

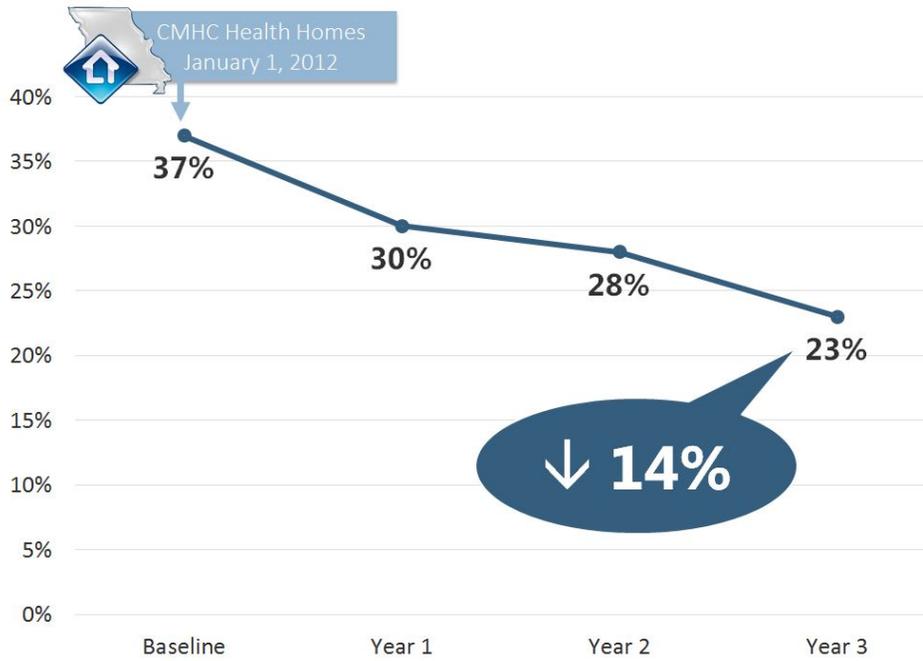


Figure 15 shows the % of HCH enrollees who had at least one hospitalization at each time point. Since not all of the HCH enrollees have been in the program for a full three years, and others may not have been Medicaid eligible during the baseline period we included those with Medicaid eligibility in the baseline period with at least nine attestations for each subsequent year (dark blue line). The number of adults included at each time point are:

Baseline $n= 30,616$
 Year 1 $n= 20,139$
 Year 2 $n= 12,413$
 Year 3 $n= 7,460$

The average number hospitalizations and ER visits have also decreased. By the third year of HCH participation, enrollees averaged 0.4 less hospitalizations each and about 0.3 less emergency room visits than they did in the first year they were enrolled.

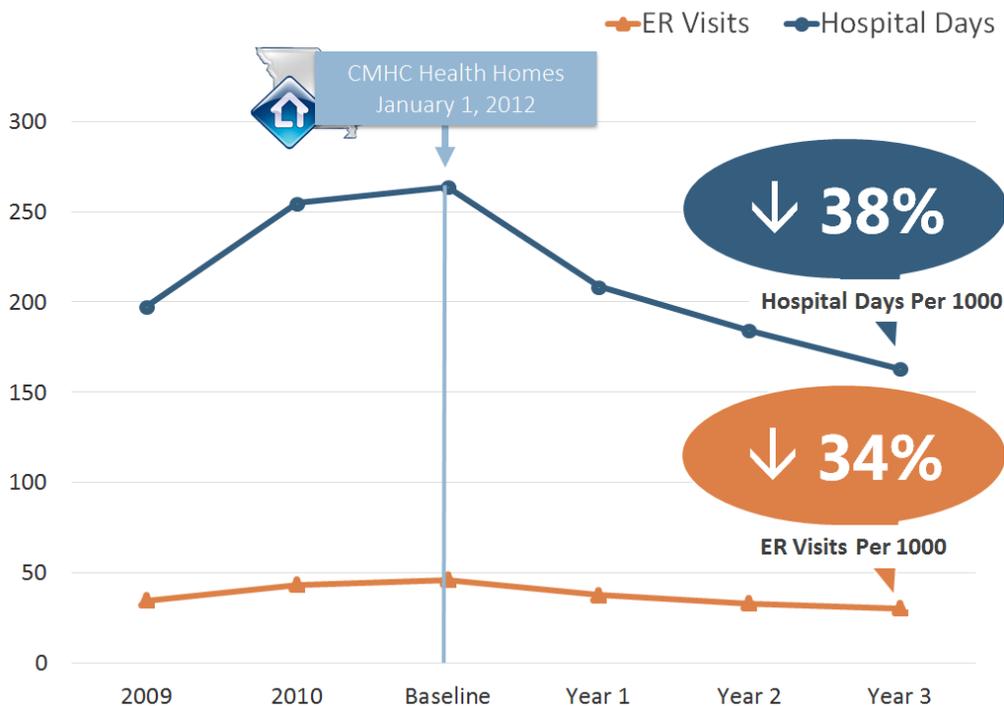


Figure 16 shows the change in average number of hospitalizations and ER visits per CMHC HCH enrollee over their time in the HCH program.

SECTION 5: TRAINING AND TECHNICAL ASSISTANCE

HEALTHCARE HOME 101

A *Healthcare Home 101* training is provided on a regular basis by the DMH and the Missouri Coalition for Community Behavioral Healthcare (Coalition) for all new CMHC HCH staff and new CPR supervisors. The training lasts a full day and is intended to orient staff to the Missouri CMHC HCH model, the roles and responsibilities of the HCH team, performance measures and goals, care management tools and reports, and current achievements.

WELLNESS COACH TRAINING

The DMH is committed to training all CSSs in the CMHCs to become *wellness coaches*. The purpose of a wellness coach is to help the clients identify their strengths across eight dimensions of wellness described in the Substance Abuse and Mental Health Service Administration's (SAMHSA) Wellness Initiative (SMA12-4569). A wellness coach will help clarify personal goals and expectations for wellness, and help integrate those into the overall care plan for the individual.

The DMH and Coalition launched this training in 2013, and continues to provide the train the trainer wellness coaching model and refresher trainings on an annual basis.

PRACTICE COACHING

A *practice coach* model was used to help prepare the CMHC HCH staff, particularly the directors, with integrating the health home model and CPR program in the CMHCs, achieving health home national accreditation (CARF), and working through challenges and barriers that affected the ability of the CMHC HCH staff to meet all of the goals of treating their clients.

Some of the challenges and barriers faced included:

- HIPAA concerns and coordination with hospitals to provide discharge planning and follow-up care;
- Coordination with PCP consultants;
- Strategies to improve MBS rates; and
- Effective use of care management reports.

Additionally, practice coaches helped to identify training needs and provided feedback to the DMH and Coalition about current issues and challenges faced by the health home teams. The DMH and Coalition continue to provide training to the CMHC HCH staff. Some examples of completed training through December 2014 are:

- Health Literacy
- Motivational Interviewing
- Nature and treatment of chronic diseases (e.g. diabetes, asthma, hypertension)
- Nature and treatment of substance use disorders as a chronic disease

SMOKING CESSATION

In 2014, several sites participated in Freedom from Smoking (FFS) trainings to become FFS facilitators. Freedom from Smoking is a program offered by the American Lung Association and has been offered annually from the DMH and Coalition.

ANNUAL TRAINING CONFERENCE

The Coalition hosts an annual conference for their members, which includes all of the CMHC HCHs, and includes sessions covering topics on behavioral health and specific integrated care training applicable to the CMHC HCH initiative.

Table 3 Shows the training topics covered by DMH and the MO Coalition for Community Behavioral Healthcare from 2013-2015

2013 Training Topics	2014 Training Topics	2015 Training Topics
Behavioral Health Physician Institute	Behavioral Health Physician Institute	Behavioral Health Physician Institute
Wellness Coaching	My Way to Health	Trauma Informed Care
Motivational Interviewing	Trauma Informed Care	Wellness
Trauma Informed Care	Behavioral Change	Motivational Interviewing
Care Planning	Wellness	Suicide Prevention
NCM Network Meeting	Care Coordination	Peer Support
Chronic Disease: hypertension, diabetes	Chronic Disease: hyperlipidemia, hepatitis C, preventative screenings	Integration
	Disease Management	Safety
	Health Home Partnerships	Medication Assisted Treatment
	Smoking Cessation	Substance Use Disorders
	Oral Health	Intellectual Disabilities

SECTION 6: FOCUS GROUP FEEDBACK

In collaboration with the Missouri Institute of Mental Health (MIMH), MIMH held focus groups in 2014 with 40 CMHC HCH enrollees at four CMHCs located in different geographic areas of the state. The following questions were posed to those participating in the focus groups:

“Can you describe the general health issues you have had to deal with recently?”

“Who has helped you to manage these or improve your health and wellness?”

“What kinds of things have they done to help you with your health issues?”

“What do you do yourself to manage or improve your health?”

“What do you think would help you to do even better in managing or improving your health?”

“What do you like about the help you receive to manage or improve your health?”

A few themes emerged during the focus group conversations:

- 1) In terms of the health issues discussed, very few of the clients discussed their physical health issues. It was very clear that the concern, in general, was about the care and help they received from the CMHCs for their mental health conditions.
- 2) The individuals who talked at length about their physical issues either had made tremendous behavioral changes that led to them expressing their achievement and control over their physical health condition, or were struggling with conditions they felt they had no control over, such as cancer or chronic pain conditions.
- 3) It was universally conveyed that the CSS was critical in helping the enrollees with disease management; however, it was also a concern that the people who serve in the CSS role typically transition out of their job requiring the clients to accept and build rapport with a new CSS, which is often difficult.
- 4) The majority of individuals reporting expressed their complete satisfaction with all the care they receive at the CMHCs. NCMs and Community Support Specialists were described as “family” and those leading the way to help all of the clients.

The following quotes highlight the views of the CMHC HCH enrollees.

- “If we didn’t have {CMHC}, a lot of us wouldn’t be here today. We have a mental illness but I’m thinking we’ve got our nurses, we’ve got the staff, we’ve got the support and if I didn’t have that I wouldn’t be alive.”
- “It feels like they’re family. That’s how close we are. I wouldn’t want to have any other doctor anywhere.”
- “It’s just been great and I’m very thankful for {CMHC} because I feel that with all the medical problems that I have and the things that’s going on with me, if I didn’t have this I wouldn’t be here right now or else I would be in a (sic) worse shape than I am right now. So I’m very grateful for it.”
- “I had to give up a lot of things...I used to like to drink a lot and I had to give up certain foods and it was just a change. I’m used to it now and my wife she prepares my needles the way I have to have them and stuff like that but I’m feeling a lot better than I was in the past. I just didn’t know what to do. When I came here hope changed.”
- “{CMHC} helped me a lot because I have a case worker who...I don’t believe I would have gone as far as I have without her, her help. She was able to get me Medicaid so that way I could get my hips replaced and be able to see the doctors.”
- “If it wasn’t for {CMHC} I have no doubt in my mind I wouldn’t be alive today. I just like the way {CMHC} ... They help you, they ask you what do you need not what they think you need.”

SECTION 7: IMPLICATIONS AND RECOMMENDATIONS

The Missouri CMHC HCH had a strong impact in the first 12 months of the program that has been sustained over years two and three. There is constant process and program improvement taking place in order to find additional ways to improve the health and lives of Missourians, in a cost effective manner. It is essential to continue to track these individuals over time, and continue to provide support and ensure they remain engaged in both their physical and behavioral health care in order to sustain the outcomes shown to date. In the previous report, which addressed achievements for the first 18 months of the CMHC HCH program, a number of specific recommendations were made for continued results and improvement of the programs. DMH has addressed a number of the recommendations and additional suggestions for improvement have been provided in this section.

A. Target Populations

i. ***Serious Mental Illness and Severe Emotional Disturbance:***

Prior to the implementation of disease management programs CMHCs had a singular focus on each individual's serious mental illness or severe emotional disturbance, despite known cardiometabolic side effects of psychotropic medications. This report has been focused primarily on chronic disease conditions; however, we included results from the annual DLA-20© measure that provides insight into the profile of day-to-day functioning of the CMHC HCH enrollees. Over 80% of enrollees have impairments in their daily functioning. While this is not surprising for this population, it is important to consider the specific impairments (domain scores) and how those impairments might impact disease management and treatment planning.

ii. ***Diabetes, Asthma, Cardiovascular Disease, and Hypertension***

Six of the seven benchmark goals set for the chronic disease management of diabetes, asthma, cardiovascular disease, and hypertension have been met or exceeded. One challenge remains with increasing LDL control for enrollees with cardiovascular disease and LDL control for enrollees with diabetes.

iii. ***Obesity and Tobacco Use***

There has been little identifiable movement towards the goals for reductions in obesity and tobacco use in the CMHC HCH. These are arguably two of the most difficult health indices to shift, but despite the difficulty, the CMHC HCH continues to push efforts to drive behavioral change and harm reduction to minimize the impact of obesity and tobacco use on the health of the population. In order to understand the impact of any intervention, the measurements may need to be more sensitive than tobacco cessation or a reduction in BMI. Tracking movement and exercise, positive diet change and reduction in tobacco use may all improve long term health and may provide some additional information about the success of the care team to impact those behaviors. Additionally, it would be beneficial to study the agencies that are using evidence-based strategies to affect behaviors associated with obesity and tobacco use in order to track and report the success of these strategies at minimizing the associated risks in the CMHC HCH population.

iv. ***Substance Use***

Treating and coordinating care for individuals with co-occurring mental health and substance use disorders have become an increasing focus for the CMHC HCHs. The DMH and Coalition have been providing opportunities for training and practice coaching assistance to identify barriers and opportunities for better collaboration with substance use treatment teams. Individuals with substance use disorders also have a high rate of other chronic diseases and effective treatment can prevent unnecessary healthcare utilization. The CMHC HCH leaders are aware of the importance of addressing substance use in the CMHC HCH population and are working on strategies to better meet the needs of this group through training and education of CMHC staff.

v. *Children and Youth*

Though children have been eligible for health home services from the start of the program, there have not been pediatric focused interventions or goals set to optimally address the needs of children. Some CMHC HCHs have been successful in increasing their youth enrollment, while others have seen a decrease.

There are important differences between serving adults and serving youth:

- Serving children means working with a family, not just one individual.
- Children and youth are not as readily available to CMHC site-based staff as are adults who often attend weekly or daily psycho-social rehabilitation opportunities at CMHC sites.
- Children and youth are often involved with community-based systems of care that include representatives from multiple child-serving systems.

As discussed in the previous 18-month report, individuals working with children and youth need to be able to spend considerable time in the community, and especially in the home of the family. This is not currently possible for NCMs, given their caseload sizes. In order to meet the needs of the youth population, a workgroup has been developed to design a better model for serving the youth to address current health concerns as well as prevent the onset of additional disease as they age into adulthood.

B. Benchmark Goals

As previously mentioned, six of the nine benchmark goals for clinical indicators have been met or exceeded. However, some of these goals may have been too low or too narrow. The initial goals for hypertension and LDL control for example were set only for individuals with cardiovascular disease and diabetes. Recognizing this as insufficient for disease prevention, the CMHC HCHs have set out to screen 80% of the entire HCH population, and the control markers set have been achieved for not only those with cardiovascular disease and diabetes, but for all enrollees. The screenings of the entire population, which reached 80% in 2014, have allowed individuals who had high levels of HbA1c, LDL, or high blood pressure to receive coordinated primary care to manage and reduce these markers, which may have been missed if the CMHC HCH did not conduct full-scale screening measures.

Additional decisions need to be reached with regard to the modification of any benchmark goals, including BMI and tobacco use. Achievable goals that will help prevent the development of chronic conditions and manage current conditions for this population have yet to be determined; however, some additional specificity to measures that provide a better means of detecting positive behavior change are encouraged to fully understand the effect of the CMHC HCH on these indices.

C. Staffing

The major staffing issue that remains is the NCM staffing ratio of 1:250. This is a large caseload given all of the responsibilities of an NCM. A review of the staffing report indicates that many CMHC HCHs have made efforts to reduce NCM caseloads. The statewide average caseload size was 229 at the end of 2014. It may be possible now to conduct analyses to determine optimal caseload sizes. Additionally, agencies could be surveyed to understand strategies they may use, such as risk stratification, to disperse the NCM caseloads in such a way that they are able to adequately address the diverse needs of their clients.

D. Hospital and Emergency Room Follow-Up

Hospital follow-up has consistently improved from the start of the program through 2015. Many of the same challenges described in the 18-month report still exist, but the CMHC HCH staff have developed relationships and strategies to be able to meet the goal of 72 hour follow-up for hospitalizations and starting in 2015 will be able to track and follow up with enrollees after an ER visit. It is important to track and report on readmissions, to understand whether or not the follow-up and medication reconciliation efforts have reduced all-cause 30-day hospital readmissions as intended.

E. System Transformation

The CMHC HCHs have been successful at implementing large scale change to address the physical health concerns of their clients in addition to the behavioral health concerns. They have received national recognition for their success

and leaders are routinely sought out by other state administrators for guidance in setting up health homes. Learning about process improvement is ongoing, and as the system has changed, so have some of the needs. Future plans are in place for process improvement and better data tracking and reporting tools. They have successfully addressed areas of improvement with focus, planning, and training and continue to push forward to improve the system and to meet or exceed goals.

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