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# Evaluation of Health Care Homes: 2010-2012

**Minnesota Department of Health  
Minnesota Department of Human Services  
University of Minnesota**

*Report to the Minnesota Legislature*

**January 2014**



# **Evaluation of Health Care Homes:**

**January 2014**

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# Evaluation of the State of Minnesota's Health Care Home Initiative

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Evaluation Report for years 2010-2012

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The views and analysis provided in this report are those of the authors. No endorsement by the Minnesota Department of Health is intended or should be inferred.

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## EXECUTIVE SUMMARY

This report is the first of two legislatively mandated reports evaluating the Health Care Home initiative. It provides a preliminary evaluation of the Health Care Home (HCH) initiative. It includes a description of demographic trends, including HCH enrollee and provider demographics; the quality of care provided by HCHs and eligible non-HCH clinics; health care home payment arrangements and interactions with payment policies; racial disparities in the use of care between both HCH and eligible non-HCH clinics and within HCH clinics; and costs and use of health care services related to patients served by HCHs.

In 2008, the Minnesota Legislature mandated that “the commissioners of health and human services shall develop and implement standards of certification for health care homes for state health care programs”<sup>1</sup> that deliver services that have:

- Access for all enrollees, particularly those who have, or are at risk for, complex or chronic conditions;
- Population health management focus;
- Team based care with a primary care provider and care coordinator;
- Electronic searchable registries and tools to support care coordination, monitor patient health, and screen enrollees;
- Care plans;
- Continuous access to staff through on-call providers or triage staff who have access to the enrollees’ medical information;
- Coordinated care processes within the clinic and community, such as inpatient admissions, referrals, laboratory and imaging, and hospital-to-home services;
- Ability to measure, monitor, and provide feedback on population health; and
- Continuous patient engagement and care improvement.

This report describes the implementation and outcomes of the Health Care Home initiative from July 2010 through December 2012 for Medicaid enrollees in certified Health Care Homes as compared to those clinics in Minnesota eligible to be HCHs but not certified. HCH and HCH-eligible clinics must provide primary care, where “primary care means overall and ongoing medical responsibility for a patient's comprehensive care for preventive care and a full range of acute and chronic conditions, including end-of-life care when appropriate.”<sup>2</sup> In general, the evaluation suggests that HCHs are associated with positive trends of improved quality and reduced or equivocal costs while serving those with high medical need.



## KEY FINDINGS

**HCH Model:** A strength of the HCH Initiative is that the HCH model is based on a well-defined HCH fidelity standard and certification process which focuses on patient centered integrated care and uses direct observation in site visits to assess HCH implementation. This follows recommended standards for evaluating complex programs such as HCHs<sup>3,4</sup> and assures evaluation reliability because HCHs.

**Enrollee Demographics:** The number and percent of Medicaid enrollees in HCH certified clinics increases over time. HCH clinics tend to care for patients who are in higher HCH payment tiers, have higher expenses, are persons of color, speak a primary language other than English, are not institutionalized (are community-dwelling), are children (less than 5 years old) or older (greater than 75 years old), and have lower levels of educational attainment than patients in non-HCH clinics. HCH clinics and non-HCH clinics care for patients with similar levels of medical comorbidity. Medical comorbidity does not measure care coordination needs due to psychosocial factors that affect enrollee complexity for which there is not a direct measure in this evaluation. These findings suggest that HCHs are serving populations targeted by the HCH initiative, including enrollees with more severe medical conditions and medical need and enrollees from historically disadvantaged populations.

**Provider Demographics:** HCHs certified by December of 2012 were located largely in the Minneapolis-St. Paul metropolitan area, but were also represented in all areas of Minnesota. Approximately 40% of HCH organizations were Integrated Medical Groups and 30% were Independent Medical Groups, while the majority of clinics certified as HCHs were part of Integrated Medical Groups. Other organizational types such as Federally Qualified Health Centers and Hospital based organizations were also represented in the HCH population. HCH providers were largely Family Medicine providers, with Internal Medicine and Pediatric specialties also represented. Nearly half of the certified Family Medicine and Pediatrics providers in the state were providing care within HCHs.

Among HCH eligible clinics, the higher a clinic's percent of MHCP enrollees, the higher the percentage of a clinic's enrollees who were black, the higher the percentage of a clinic's enrollees in a higher payment tier, the larger the clinic, and the higher the clinic's quality was, the more likely the clinic was to become a HCH. Clinics with a high percent of Self-pay/Uninsured or Medicare enrollees and clinics in micropolitan and isolated frontier towns were less likely to become a HCH. The likelihood of HCH eligible clinics becoming certified increases over time, suggesting that interest in the HCH Initiative is increasing over time. A diverse array of clinics have become HCH certified, including providers who serve costly enrollees, such as enrollees with neurological conditions, enrollees with high needs for care coordination served by safety net providers, and elderly enrollees.

**Care Quality:** Comparison of Statewide Quality Reporting and Measurement System (SQRMS) care quality measures for Minnesota HCH eligible clinics showed that HCHs had better Colorectal Cancer Screening, Asthma Care, Diabetes Care, and Depression Follow-up for attributed patients than non-HCH clinics. The quality of care provided by clinics certified as HCHs was higher than non-certified primary care clinics for most assessed quality measures.

**Payment:** A majority of HCH clinics have adopted important aspects of the State of Minnesota's payment method, including widespread use of the Minnesota State Care Coordination Tier assignment tool for billing and/or clinical management purposes and use of monthly billing for care coordination reimbursement. HCHs believe that reimbursement for HCH services is important and are attempting to access reimbursement by billing multiple payers for care coordination services. Clinics are still working out the details of how to efficiently bill for and access payments for HCH services, and may particularly be impacted by administrative challenges to billing multiple payers who use differing payment arrangements for care coordination. HCH clinics have experienced some cost increases, which may be due to start-up costs of program implementation. While HCHs did note specific modifications that might be made to the patient tiering tool, such as greater ability to account for psychosocial factors, most appear to view the tool as a good starting place for assessing patient tier and cost.

**Disparities in Care:** Enrollee level analyses suggest that HCHs are serving the populations targeted by the HCH initiative, which include enrollees with higher severity medical conditions and enrollees from disadvantaged populations. Compared to populations of color in non-certified clinics, populations of color cared for by HCHs used fewer emergency department and ambulatory care services, had fewer evaluation and management visits, and used more professional services and hospital outpatient services. Compared to White enrollees in HCH clinics, populations of color cared for in HCHs had more HCH care coordination encounters and used more emergency department services, but otherwise used fewer health care services overall. These trends may indicate that Health Care Homes are making a concerted effort to provide access to care and coordination of care for historically underserved populations. We plan to examine trends and disparities in health care in greater depth to better understand the overall patterns presented here.

**Estimated Costs and Cost Savings:** Medicaid enrollees in HCH clinics were more expensive than those in the comparison clinics in 2010, the startup year for the HCH Initiative. These differences became smaller in 2011, and by 2012, enrollees in HCH clinics were less expensive than enrollees non-HCH clinics. In 2010, reimbursement for professional services was the dominant factor in clinics certified as HCHs being more expensive. Although enrollees in HCH clinics had higher costs and use during 2010 and 2011, their lower costs by 2012 resulted in enrollees in HCH clinics having overall Medicaid expenditures 9.2% less than enrollees in non-HCH clinics.

## LIMITATIONS

There are a number of limitations associated with this initial evaluation of the HCH initiative. First, the evaluation is of the HCH Initiative in its initial phases. The first clinic was certified as a HCH in July 2010. While the probability of clinics that are not HCHs becoming certified has increased over time, the number of HCH clinics and the number of enrollees attributed to HCH clinics in the first years of the initiative were low, making evaluation difficult.

Second, the analysis of costs used actual costs for Fee-for-Service enrollees and estimated costs for managed care organizations (MCOs). The strength of this approach is that it is a good estimate of the cost to the Medicaid program for these enrollees. The weaknesses are that costs are estimated only for a subset of Medicaid enrollees and that costs may not be the strongest measure of resource use. We hope to address some of these limitations in future evaluation reports.

Despite these limitations, the evaluation does suggest that HCHs are associated with positive trends of improved quality and reduced or equivocal costs while serving those with high medical need.

## NEXT STEPS

An interim evaluation report will be submitted to the Department of Health in 2014, and an additional evaluation report will be submitted to the State Legislature in 2015 to examine the HCH initiative after 5 years of implementation. Next steps to move toward a continued and deeper evaluation of the HCH initiative include data, methodological, and substantive issues.

- Data: The evaluation will be expanded to include Medicaid, Medicare, and SQRMS quality data as they become available. This will contribute to a greater understanding of the populations and care patterns related to the HCH initiative.
- Methods: Methodological issues include estimating the degree to which the HCH Initiative caused clinic transformation, which in turn caused changes in access, cost, and quality; exploring the sensitivity and specificity of, and strategies for improvement of, the attribution method; risk adjustment and subgroup analyses in assessments of access, cost, and quality; and analysis of additional quality measures such as Healthcare Effectiveness Data and Information Set (HEDIS) measures and patient quality measures.
- Substantive issues: Additional substantive issues include developing further understanding of the causal mechanisms underlying the effect of HCH care on patient outcomes; examining the role of patient centered integrated care in HCH Initiative effects; examining how HCH effects differ across enrollee populations (such as by socio-economic status and race/ethnicity); and understanding the transformation of clinics to Health Care Homes and how the specific HCH standards are related to HCH performance.

## CHAPTER 1: INTRODUCTION

The State of Minnesota's Health Care Home (HCH) initiative is a joint initiative of the Minnesota Department of Health (MDH) and the Minnesota Department of Human Services (DHS), as directed by the Minnesota State Legislature. This initiative contributes to improving health care and population health in the State of Minnesota by implementing a Health Care Home practice model in health care clinics statewide. The Health Care Home is "an approach to primary care in which primary care providers, families, and patients work in partnership to improve health outcomes and quality of life for individuals with chronic health conditions and disabilities."<sup>5</sup>

As part of the HCH initiative's enabling legislation, the State Legislature also directed MDH and DHS to provide comprehensive evaluations of the Health Care Home care delivery model to the legislature three and five years after implementation.<sup>6,7</sup> Following this direction, this report provides a preliminary evaluation of the State of Minnesota's Health Care Home initiative three years after implementation.

### EVALUATION GOALS

The goal of this report is to provide a preliminary evaluation of the Health Care Home initiative and its impact on health care and patient health in Minnesota. This includes an assessment of the following:

1. Demographics:
  - a. The number of state Health Care Home initiative enrollees in health care homes and the number and characteristics of enrollees with complex or chronic conditions, identified by income, race, ethnicity, and language
  - b. The number and geographic distribution of health care home providers
2. Quality of Care:
  - a. The performance and quality of care of health care homes
  - b. Measures of preventive care
3. Payment:
  - a. Health care home payment arrangements and costs related to implementation and payment of care coordination fees
4. Health Disparities:
  - a. The estimated impact of health care homes on health disparities
5. Costs:
  - a. The estimated savings from implementation of the Health Care Home model for the fee-for-service, managed care, and county-based purchasing sectors

## BACKGROUND OF THE HEALTH CARE HOME INITIATIVE

The Health Care Home initiative was established as part of Minnesota's broader Health Reform Initiative enacted in 2008. 'Health Reform Minnesota' included a suite of initiatives designed to support the broader goals of improving population health, patient experience, and the affordability of health care.<sup>8</sup> In addition to the Health Care Home initiative, this suite included quality, cost, and payment reform initiatives, the Statewide Health Improvement Program (SHIP), and supporting activities such as e-Health and consumer engagement.<sup>8</sup> This health reform legislation allowed Minnesota to be a national leader on developing and implementing patient-centered medical homes.

### *HEALTH CARE HOME LEGISLATION*

The legislation enabling the Health Care Home initiative (Minnesota Statutes 256B.0751 to 256B.0753) established the framework for developing Health Care Homes in Minnesota.<sup>6,9,10</sup> The law directed the Commissioners of Health and Human Services to develop and implement certification standards and processes for HCHs, to collect data on HCH performance and effect, and to develop care coordination payments for HCHs.

**Certification standards and processes.** The Commissioners were directed to develop the following HCH certification criteria: use of high-quality, efficient primary care; patient-centered care (including providing a consistent care contact and comprehensive health plan) for HCH patients having, or at risk of having, chronic conditions; evidence-based health care practiced by a range of qualified health care providers; utilization of health information and technology and patient rosters; and measurement of HCH quality, cost, resource use, and patient experience. Personal clinicians and primary care clinics were eligible to become certified when all of the primary care clinic's clinicians meet the criteria of a Health Care Home. Certified HCHs were required to renew their certification annually, and to participate in a HCH learning collaborative to "exchange information related to quality improvement and best practices."<sup>7</sup> (The certification standards and process developed by the state are discussed in Appendix B of this report.)

**Data collection and evaluation.** The Commissioners of Health and Human Services were directed to collect data from HCHs to monitor certification compliance and to evaluate the impact of HCHs on health care quality, cost, and outcomes, including evaluation reports three and five years after implementation.<sup>7</sup>

**Care coordination payments.** The Commissioners were further directed to develop a payment system to provide payments per patient to certified HCHs that addressed the cost of providing care coordination services and managing or employing care coordinators. Payment amounts were to vary based on patient complexity of care, with higher payments for patients requiring more care coordination, and with the option of including payment variation based on patient barriers to health care, such as limited English proficiency. The payment system was to be applied to enrollees of Minnesota health care programs (such as Medical Assistance or Minnesota Care) in the fee-for-service, managed care, or

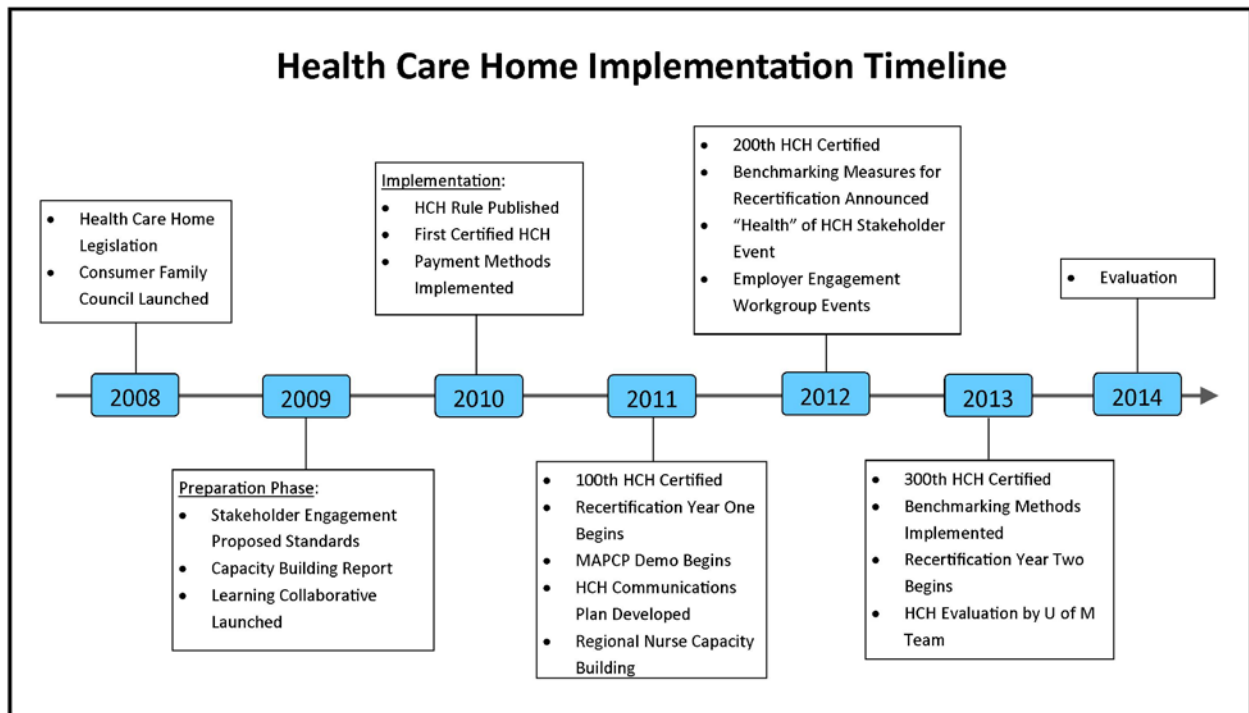
county-based purchasing plans. The law required that health plan companies (health insurers or health maintenance organizations) include HCHs in their provider networks and pay a care coordination fee for members enrolled in HCHs consistent with the care coordination fee developed for Minnesota health care programs.<sup>7</sup>

This legislation paved the way for a unique, Minnesota-based Health Care Home initiative with robust requirements for certification and transformation of primary care, as well as financial support for transformation through care coordination payments provided by multiple governmental and non-governmental payers.

*HEALTH CARE HOME DEVELOPMENT AND IMPLEMENTATION*

Following the passage of Health Care Home and Health Reform legislation in 2008, the Minnesota Department of Health (MDH) and the Minnesota Department of Human Services (DHS) began the process of implementing the Health Care Home initiative which continues today. A timeline of HCH implementation is provided in Figure 1 below.

Figure 1. Health Care Home Implementation Timeline.



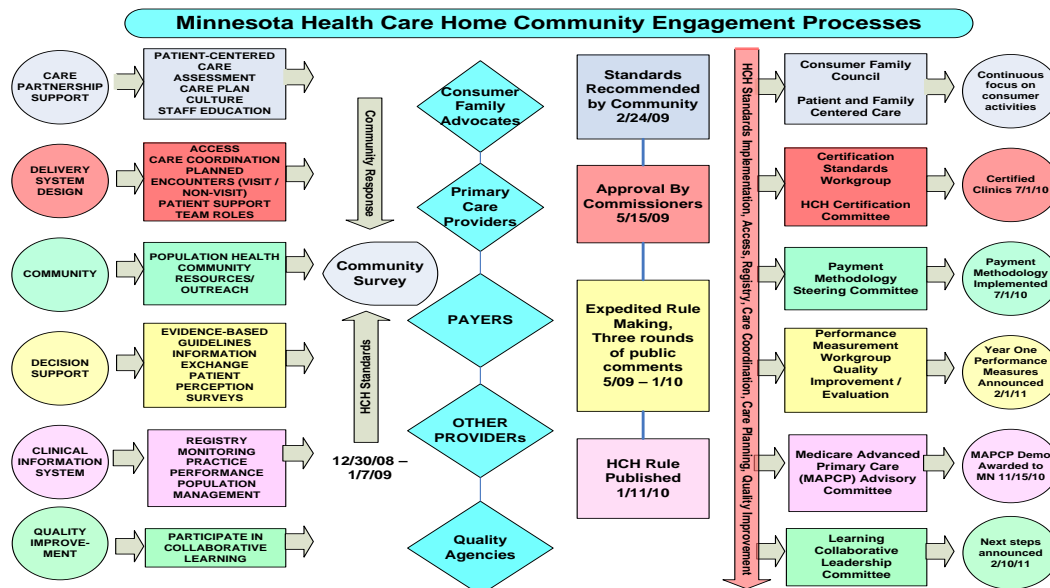
Beginning in 2008, MDH and DHS provided joint leadership and worked to include public, private, and patient stakeholders in HCH decision-making and implementation processes. In 2009, MDH and DHS conducted a number of activities relating to HCH implementation, including conducting a capacity assessment of current primary care transformation activities. They began an extensive stakeholder process to develop recommendations to the Commissioners of Health and Human Services regarding HCH standards and the development of the HCH rule. Stakeholders were also involved in the work of

MDH and DHS to develop certification standards, a certification process, learning collaboratives, outcome measures, and a multi-payer care coordination claims payment method.<sup>11</sup>

To assess capacity for HCH model development, the agencies surveyed primary care providers and health care consumers enrolled in the Minnesota Health Care Program. Many of the responding clinics were preparing for HCH implementation and had already implemented some of the HCH components, though more clinics reported having implemented some HCH components in urban areas than rural areas.<sup>12</sup> Clinics also noted barriers to clinic-level HCH implementation, which included workforce shortages and staff time, as well as start-up costs and the gap between consumer understanding of clinic services and provider perceptions of services. Consumers indicated that they had some awareness of health care homes, but many did not have a complete knowledge of the definition of a health care home or awareness of how a HCH would affect them and their health care.<sup>12</sup>

The state used a community engagement process to develop the HCH certification standards. Based on community and stakeholder input, MDH and DHS developed the following five broad categories that make up the basic standards in the HCH administrative rule: (1) access and communication, (2) participant registry and tracking participant care activity, (3) care coordination, (4) care plan, and (5) performance reporting and quality improvement. They also developed a process for clinics to become certified as HCHs that included an initial application and clinic site visits. Further detail on activities in 2009 are available in the December 2009 Report on Implementation.<sup>11</sup> For more detail about the community engagement process, see Figure 2.

Figure 2. Health Care Home Community Engagement Process



In January of 2010, the administrative rule relating to Health Care Homes was published. The rule defined certification and recertification procedures, health care home standards, criteria and conditions for variances, and a process for appeals, revocation, reinstatement, and surrender.<sup>13</sup> During 2010, MDH began to certify the first Health Care Homes for operation in Minnesota. Forty-seven HCHs were certified in 2010, representing 428 clinicians. Also in 2010, MDH hosted educational opportunities for clinics to learn more about the certification process, awarded mini-grants to clinics to help them prepare to become HCHs, and developed and implemented a statewide HCH learning collaborative. Development of outcomes measures, evaluation efforts, and consumer engagement efforts were pursued during 2010. The state applied for and was named as a participant in the Centers for Medicare and Medicaid Services (CMS) Multi-payer Advanced Primary Care Practice (MAPCP) demonstration project, which would allow certified HCHs to receive reimbursement for care coordination services through the Medicare program.<sup>14</sup>

MDH and DHS worked together in 2010 to develop a payment method for care coordination payments to certified HCH practices. The method stratifies payment by patient complexity. This payment method is described in Chapter 4 of this report. The opportunity for HCH practices to receive payment based on this method began in July of 2010.<sup>14</sup>

Efforts to develop and enhance the HCH initiative continued in 2011, with a total of 156 clinics certified as HCHs at the end of the year. MDH and DHS pursued and increased collaborative learning and capacity building activities, developed a HCH consumer communications plan, implemented and evaluated the payment method, continued development of evaluation plans and HCH outcomes measures, and began to implement participation in the MAPCP demonstration project.<sup>15</sup>

Other efforts within the state to reform the health care system have continued concurrent with the development and implementation of the HCH initiative from 2009 onward. Governor Mark Dayton signed an executive order in 2011, 'Establishing a Vision for Health Care Reform in Minnesota,' which created a task force to advise the Governor and Legislature on health care reform with the objectives of achieving better health care, lower costs, and healthier communities.<sup>16</sup> This order further directed Commissioners of state agencies to design and develop a Minnesota health insurance exchange (MNsure), improve quality of and access to Minnesota's public health insurance programs and develop affordable health coverage options, appropriately reduce the use and cost of the health care system, and ensure a prepared state health workforce.<sup>16</sup> The Minnesota Health Care Reform Task Force then developed a 'Roadmap to a Healthier Minnesota,' which recommends the following eight strategies to move health care reform forward: (1) pay for value, (2) support patient-centered, coordinated care, (3) prepare and support the health provider workforce, (4) improve health for specific at-risk populations, (5) engage communities, (6) measure performance and ensure system stability, (7) design benefits to enhance personal responsibility, and (8) increase access and support consumer navigation.<sup>17</sup> These strategies are designed to interact interdependently with one another and ongoing health reform efforts, such as the HCH initiative, to work as a whole in transforming health care and public health in Minnesota.



## EVALUATION REPORT

Minnesota developed and implemented a unique state-based Health Care Home initiative intended to support the triple aim of improving quality and access and decreasing health care costs while providing patient-centered care to Minnesotans across the state. This report continues a preliminary examination of how this initiative is functioning in terms of access, quality, and costs over its first three years.

This report is organized by chapter to provide background and methodological information and address the legislative evaluation questions. Chapter 2 describes demographics of participating patients and providers, Chapter 3 describes the quality of care in HCH certified clinics as compared to non-HCH certified clinics, Chapter 4 describes the implementation of the state payment method among HCHs, Chapter 5 describes costs associated with the HCH model, Chapter 6 describes the interaction between HCHs and disparities in care, Chapter 7 describes the HCH model, Chapter 8 describes the overall data and methods used to conduct the evaluation (specific details of methods are also included in each chapter), and Chapter 9 provides a summary and conclusions of the report. Appendices A through F provide additional detailed information on certification, methods, measures, and analysis used in this evaluation, and Appendix G provides references for this report.

## CHAPTER 2: DEMOGRAPHICS

### DEMOGRAPHICS SUMMARY

Characteristics of organizations and providers participating in Health Care Homes during the evaluation period (July 2010-December 2012) include:

- 4 out of every 10 primary care physicians in Minnesota practice in a certified HCH.
- Nearly half of the certified Family Medicine and Pediatrics providers in the state provide care within HCHs.
- Nearly half of certified HCH organizations are Integrated Medical Groups and approximately 30% are Independent Medical Groups. The vast majority of certified HCH clinics are part of an Integrated Medical Group.
- Just over 53% of HCHs are in the Twin Cities Metropolitan area, mirroring the distribution of Minnesota's population.

Characteristics of patient participants in Health Care Homes during the evaluation period include:

- As compared to non-certified primary care clinics, Certified Health Care Home clinics tend to care for enrollees who:
  - Are younger,
  - Are persons of color,
  - Speak a primary language other than English, and
  - Have lower levels of educational attainment.
- Certified HCH clinics and non-HCH clinics care for patients with similar levels of comorbidity.

Analysis of which clinic and patient characteristics are correlated with participating in the HCH initiative indicate that:

- Clinics were more likely to be certified if:
  - They had a high proportion of their patients enrolled in Minnesota Health Care Programs
  - They had a high proportion of Black patients or patients in higher severity tiers
- The likelihood of non-certified clinics becoming certified increased over time
- Patients were more likely to be served by a HCH if:
  - They had a higher severity tier or higher expenses
  - They were under 5 or over 75 years of age
  - They identified as Hispanic, Black, or Asian, or spoke a primary language other than English
  - They had less than a high school education

These results suggest that Health Care Home clinics are serving targeted populations, including patients from historically disadvantaged populations and/or with higher severity medical conditions or health care need.

## INTRODUCTION

A key aspect of evaluating the progress of the Health Care Home initiative is to understand the characteristics of Health Care Home organizations and their enrollees. The enabling legislation for the HCH initiative specifies that evaluations of the initiative should include “the number of state health care program enrollees in health care homes and the number and characteristics of enrollees with complex or chronic conditions, identified by income, race, ethnicity, and language,” as well as “the number and geographic distribution of health care home providers.”<sup>7</sup>

The Minnesota Department of Health has further requested that the evaluation include a description of certified Health Care Homes, including the number and geographic characteristics, organizational characteristics, number and type of certified providers, and demographic characteristics of clinics. This chapter provides an overview of the organizational and patient characteristics for HCH clinics and enrollees.

## CHARACTERISTICS OF HCH CLINICS

### *SUMMARY OF HCH ORGANIZATIONAL AND PROVIDER CHARACTERISTICS*

HCHs certified by December of 2012 were located largely in the Minneapolis-St. Paul metropolitan area, but were also represented in all areas of Minnesota. The majority of clinics certified as HCHs were part of integrated health care systems, but other organizational types such as independent primary care clinics and community health centers were also represented in the clinic population. Providers operating within Health Care Homes were largely Family Medicine providers, with Internal Medicine and Pediatric specialties also represented. Nearly half of the certified Family Medicine and Pediatrics providers in the state were providing care within Health Care Homes.

### *NUMBER OF HEALTH CARE HOMES*

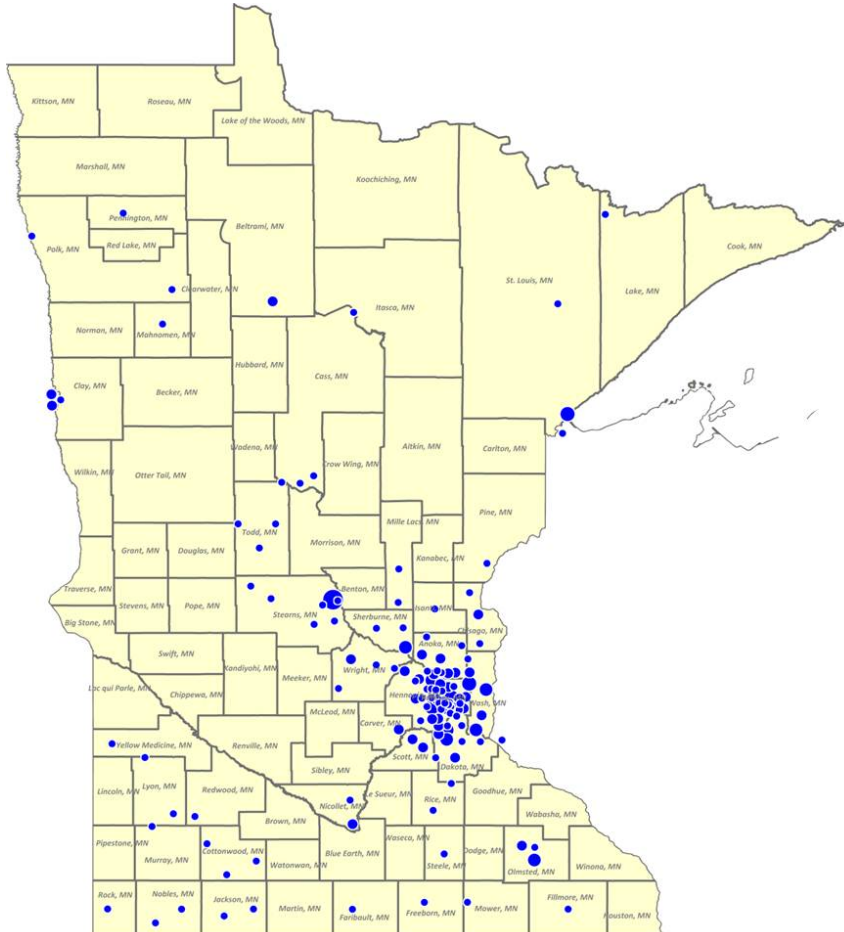
At the end of the evaluation period on December 31 2012, there were 217 certified and operational Health Care Home clinics in Minnesota.

### *GEOGRAPHIC DISTRIBUTION OF HEALTH CARE HOMES*

Certified Health Care Homes operate both within the Minneapolis-St. Paul metropolitan area and throughout the state. Figures 1 and 2 show the distribution of certified HCHs in the state at the end of 2012. As noted in Figure 3, while most HCHs are concentrated in the metropolitan area, they are also

represented in all areas of the state (providers shown by State Community Health Services Advisory Committee region).

Figure 1. Certified Health Care Homes in Minnesota, December 2012\*

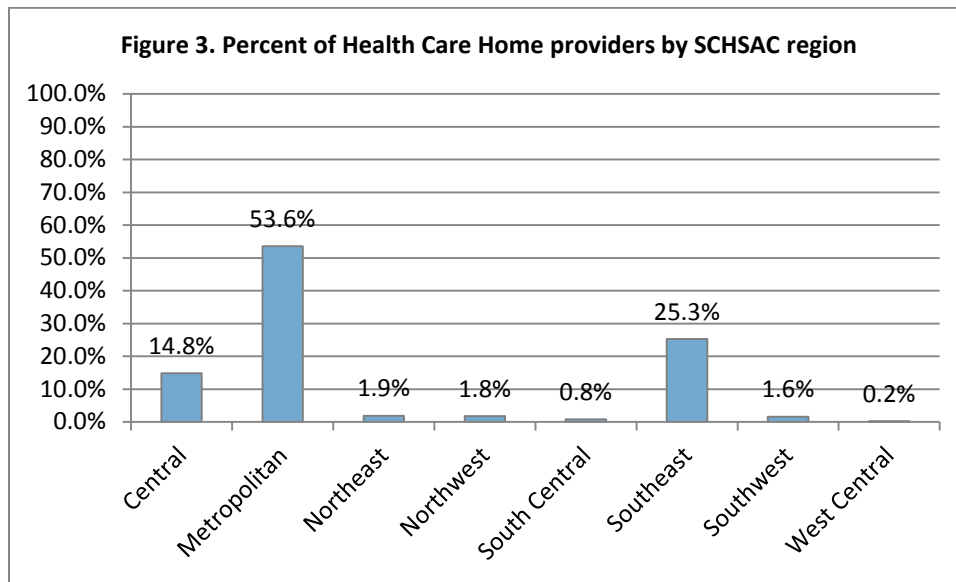


\*Circles indicate presence of certified HCH. Larger circles indicate a higher concentration of HCHs in this location. Source: MDH HCH certification database.

Figure 2. Certified Health Care Homes in the Minneapolis-St. Paul Metropolitan Area, December 2012



\*Circles indicate presence of certified HCH. Larger circles indicate a higher concentration of HCHs in this location. Source: MDH HCH certification database.

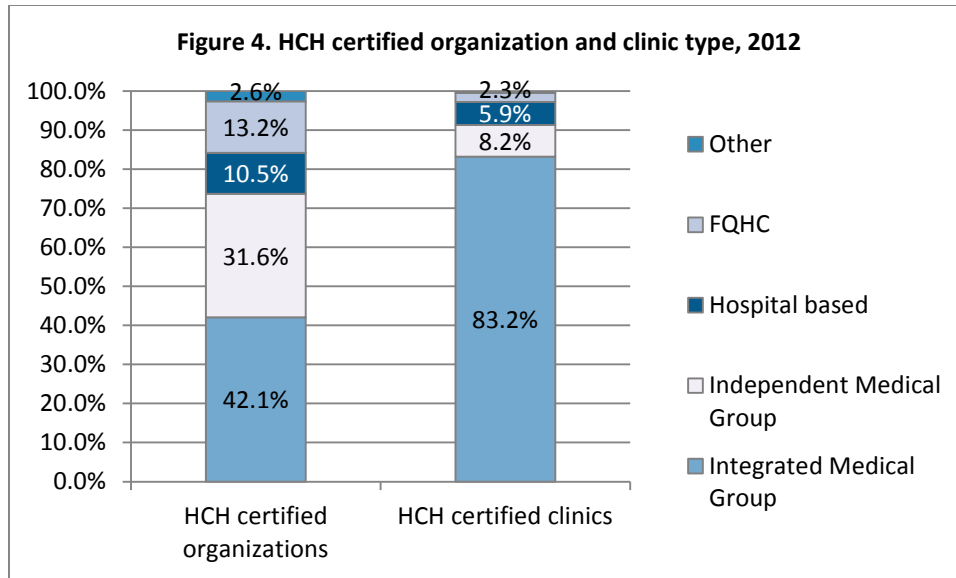


SCHSAC: State Community Health Services Advisory Committee region

*ORGANIZATIONAL CHARACTERISTICS OF HEALTH CARE HOME CLINICS*

Health Care Home clinics in Minnesota represent a wide range of organizational contexts and characteristics. The simplest way to think of an individual HCH is as a free-standing primary care clinic. However, HCHs have a relatively diverse set of organizational characteristics.

Figure 4 shows the type of certified Health Care Home organizations and clinics as of December 31, 2012. This Figure shows organization type by organization or application group as well as by individual clinic certified as part of an application group. An application group is a set of clinics associated with a specific organization that have applied for certification, and become certified as part of this overarching organizational group. Looking at HCH organizations or application groups, we see that 42.1% of HCH organizations are Integrated Medical Groups, 31.6% are Independent Medical groups, 13.2% are Federally Qualified Health Center (FQHC) organizations, and 10.5% are Hospital based organizations. Looking at HCH clinics certified as part of these organizations or application groups, we see that the majority of clinics (83.2%) certified as HCHs by the end of 2012 were part of an Integrated Medical Group, 8.2% were part of an Independent Medical Group, 5.9% were Hospital based clinics, and 2.3% were part of a FQHC organization. Organization type data is self-reported by applying organizations and was provided to the University research team by MDH.



*NUMBER AND TYPE OF CERTIFIED PROVIDERS OPERATING IN HEALTH CARE HOME CLINICS*

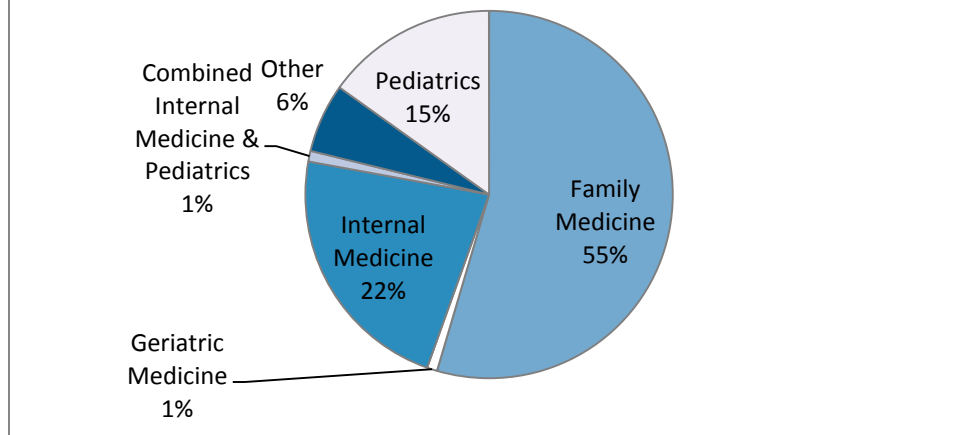
Figure 5 shows the distribution of primary care physicians in the state as compared with the distribution practicing in Health Care Homes as of March 2011 (most recent data available). In total, 2,187 practitioners certified to practice family medicine in Minnesota also practice in a Health Care Home (38% of all primary care practitioners certified in the state). Forty-five percent of family medicine practitioners, 43% of pediatricians, and 26% of internal medicine practitioners in the state operate in a HCH.

Figure 5. Distribution of Primary Care Physicians in Minnesota and in Health Care Homes, March 2011

ABMS or AOA specialty board certification	Minnesota*		Health Care Homes		
	Number	Percent of total in MN	Number	Percent of Total in HCH	Percent in HCH of total in MN
Total Primary Care	5,787	100%	2,187	100%	38%
Family Medicine	2,874**	50%	1,283	59%	45%
Internal Medicine	2,040**	35%	527	24%	26%
Pediatrics	873**	15%	377	17%	43%

\*Includes only physicians with single board certifications.  
 \*\*Denotes primary care physicians.  
 Source: Minnesota Department of Health (MDH).<sup>18</sup>

**Figure 6. Percent of providers in HCHs by provider specialty, March 2011\***



\*Source: Minnesota Department of Health, 2013<sup>18</sup> and HCH certification database analysis.

When looking at all types of health care providers operating within Health Care Homes, we see that primary care physicians (including family medicine, internal medicine, and pediatrics) make up the plurality (92% cumulatively) of providers in HCHs. Figure 6 shows the percent of provider specialties within HCHs, where a majority of providers specialize in Family Medicine (55%), followed by Internal Medicine (22%) and Pediatrics (15%).

#### *CORRELATES OF CLINICS BECOMING CERTIFIED AS HCHS*

The analysis of clinics becoming certified as HCHs examined the correlates of clinics that were not certified in a year becoming certified in the following year. The analysis included only clinics at risk of changing their status from not HCH certified to HCH certified. For example, whether a clinic was certified in 2010 was regressed on 2009 clinic characteristics, such as average care quality, number of enrollees, percent of enrollees with various types of insurance (e.g., Minnesota Health Care Programs (MHCP), Medicare, Self-Pay/Uninsured), and percent of enrollees in the HCH payment tiers. SQRMS data was used to measure clinic care quality for diabetes and vascular care, number of enrollees, and percent of enrollees in MHCP, Medicare, and Self-Pay/Uninsured (the contrast is Commercial insurance). Medicaid claims data was used to measure the percent of enrollees in each HCH payment tier, the proportion of Black enrollees and Asian enrollees. The clinic's county was used to describe the clinic's rurality (urban, micropolitan, small town, isolated town). The enrollee's zip code was used to link to data on the average income in the zip codes served by the clinic. The model was estimated using Stata 13.

The higher a percent of clinic's enrollees who had MHCP insurance, identified as black, and were in a higher payment tier; the larger the clinic; and the higher the clinic's quality was; the more likely the clinic was to become a HCH. Clinics with a high percent of Self-pay/Uninsured or Medicare enrollees and clinics in micropolitan and isolated frontier towns were less likely to become a HCH. The likelihood of

HCH eligible clinics becoming certified increases over time, suggesting that interest in the HCH Initiative is increasing over time.

## CHARACTERISTICS OF HCH ENROLLEES

The following description of HCH enrollees is limited to Minnesota Medicaid enrollees. Other populations are not included because we did not have access to data on individuals who were uninsured or insured by other programs or private insurance.

It is important to understand that changes in the HCH versus non-HCH population distributions over time may have been caused by at least two processes.

- At any given time, HCH clinics might be providing health care for different patient populations than non-HCH clinics.
- The new clinics entering the HCH population each year may differ in terms of population and characteristics from the previous year's HCH clinics or the current and previous non-HCH clinics. Differentiating these processes is possible but not prudent with only 3 years of experience, especially with low clinic participation at the beginning of certification in the last half of 2010.

The number and percent distribution of Medicaid enrollees attributed to certified Health Care Homes and non-HCH certified comparison clinics is shown in the data and methods chapter (Chapter 8) of this report. It is important to note that the number of patients we were able to attribute to HCH and non-HCHs was small in 2010 (53,977 total attributed enrollees) and increased through 2012 (311,807 total attributed enrollees). This change in the size of the population of analysis may affect measured trends in demographics, cost, and quality.

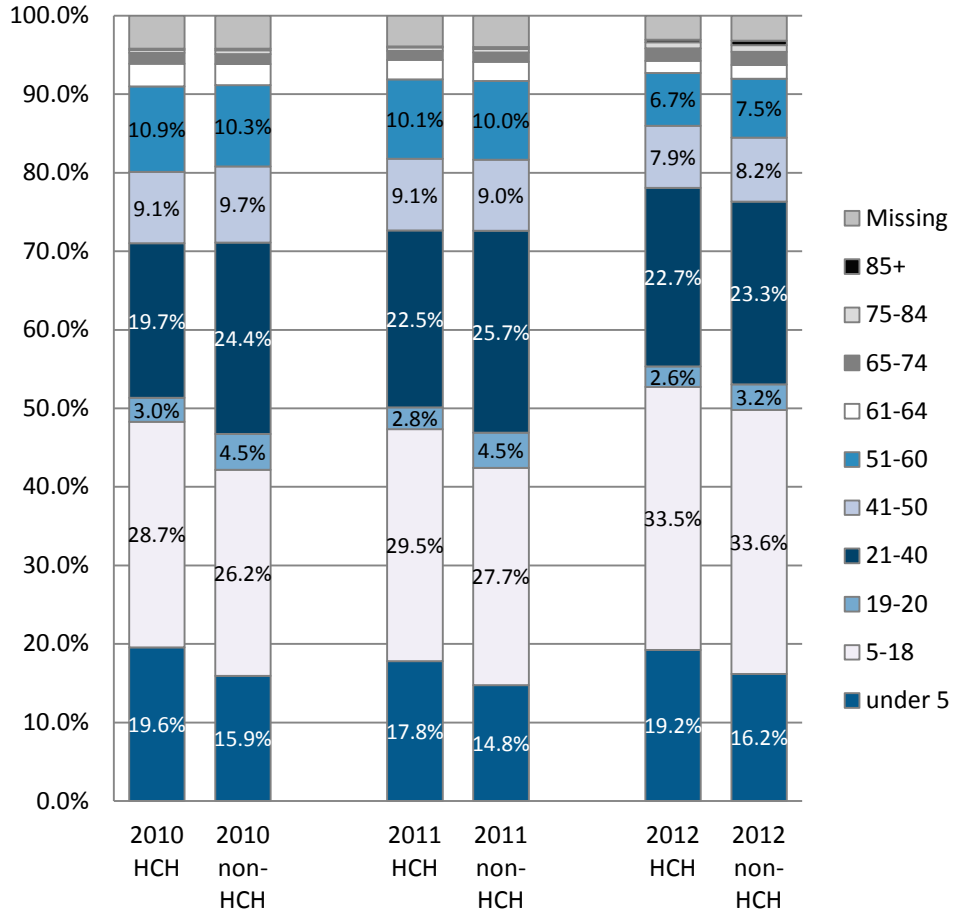
### *AGE AND GENDER AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES*

Figure 7 shows the distribution of enrollees by age among certified clinics and comparison clinics. Certified clinics have statistically more enrollees under 19 and fewer 19 to 20 year olds than comparison clinics with similar numbers of enrollees over 21. The trend over time in both certified and comparison clinics has been toward younger enrollees, especially in the age range from 5 – 18. This figure shows age intervals to correspond to specific Medicaid populations. These include ages 5-18 who are children eligible to be covered by Medicaid, 19-20 who are children eligible to be covered by Medicaid but legally considered adults; 21-40 adults; 41-50 and 51-60 adults (these categories used to correspond with SQRMS quality measures); 61-64 adults who are pre- Medicare age eligibility; and 65-75, 76-85, and 85+ Medicare eligible adults.

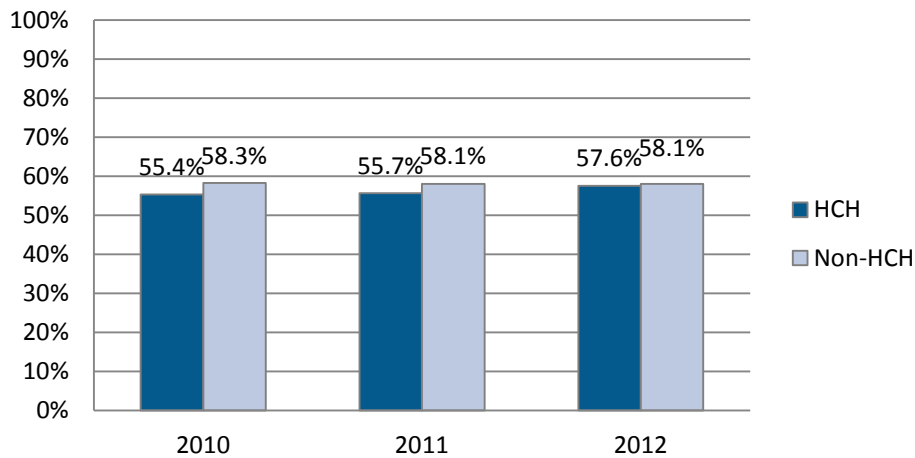
Figure 8 shows the distribution of female enrollees, with certified clinics having slightly fewer females than non-certified clinics. This indicates that while there are slightly fewer females attributed to HCH clinics, the gender distribution between HCH and non-HCH clinics is relatively similar.



**Figure 7. Age distribution of attributed Medicaid enrollees in HCH and non-HCH clinics, 2010-2012**



**Figure 8. Percent of attributed Medicaid female enrollees in HCH and non-HCH clinics, 2010-2012**

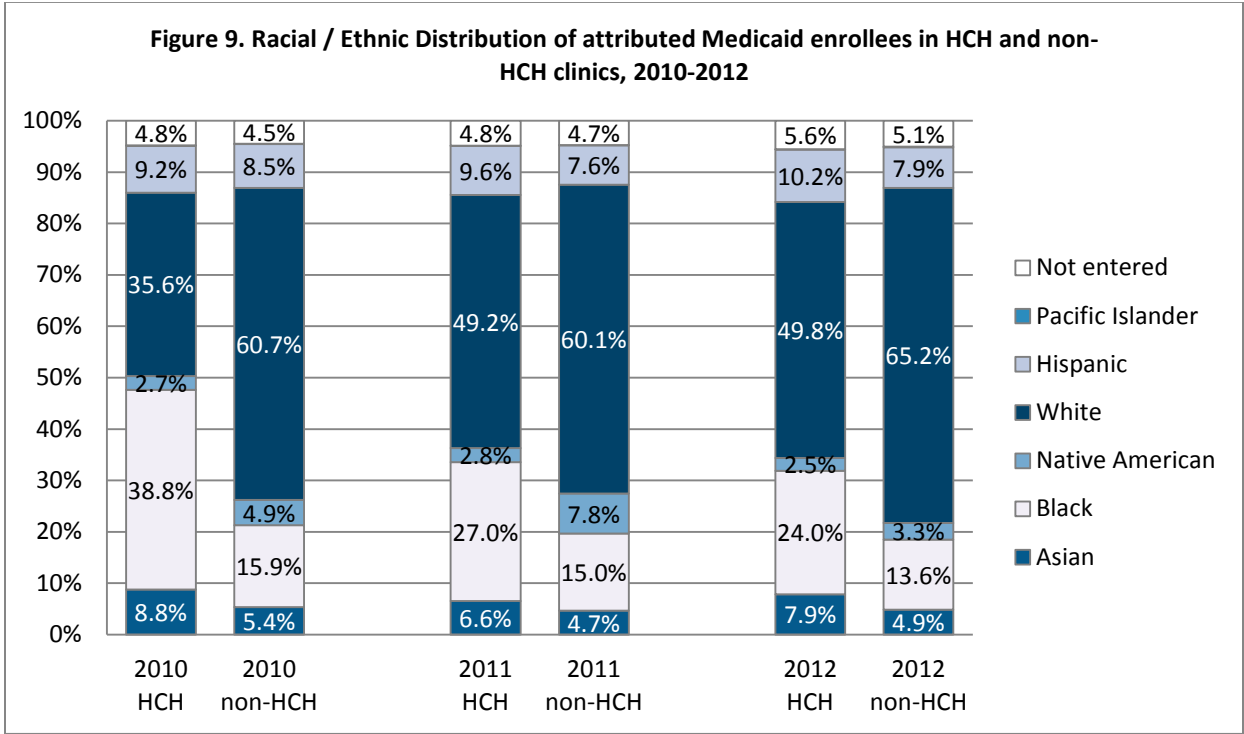


*RACE AND ETHNICITY AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES*

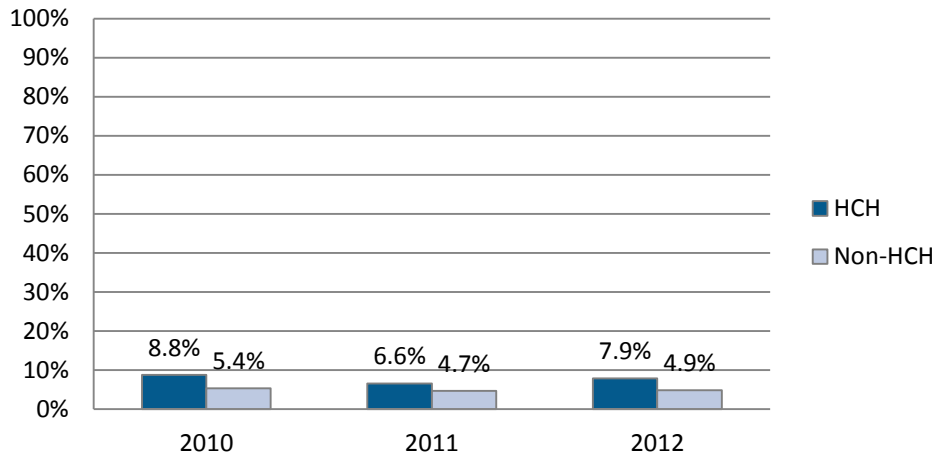
Minnesota Medicaid records racial data as Asian, Black, Native American, Pacific Islander, or white. Hispanic ethnicity is also collected as a subset of race (enrollees will be recorded, for example, as Hispanic-White or Hispanic-Black). We report this ethnicity as a separate category, but note that enrollees reporting Hispanic ethnicity were coded as 'Hispanic' in this analysis regardless of their associated race.

Figure 9 shows the percentage distribution of each racial group in non-certified clinic and certified clinics. This figure shows that Health Care Home certified clinics serve a greater proportion of non-White patients than uncertified clinics in 2010 through 2012 with certified HCHs having a majority of their members being persons of color (64.4%, 50.8% and 50.2% in 2010, 2011 and 2012 respectively). At the same time the percent of persons of color in non-certified clinics remained fairly stable in 2010 and 2011 (39.3% and 39.9% respectively) and went down to 34.8% in 2012.

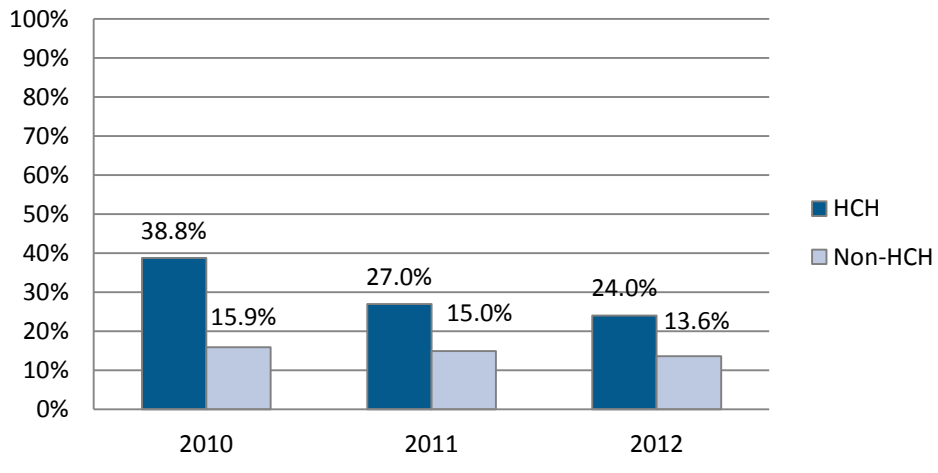
Differences in the racial composition over time between non-certified and certified clinics are shown in detail in Figures 10-14. In all cases, the difference between non-certified and certified clinic attributed enrollee populations within years is statistically significant. There are small differences in population for Asian/Pacific Islander and Native American populations. However, there are sizable differences for Black and White enrollees, with more Black enrollees in certified clinics and more White enrollees in non-certified clinics. The Pacific Islander population represents less than 0.2% of the population of attributed Medicaid enrollees, and is not shown in a separate figure due to these small numbers.



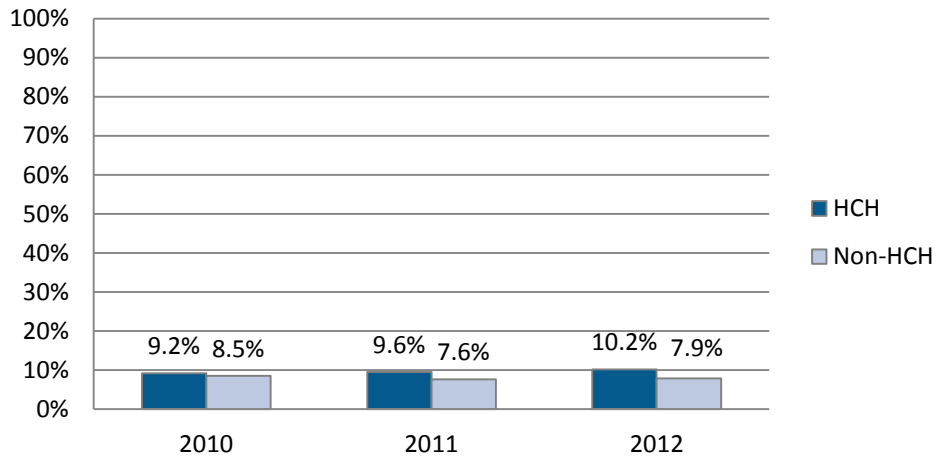
**Figure 10. Percent of attributed Medicaid Asian enrollees in HCH and non-HCH clinics, 2010-2012**



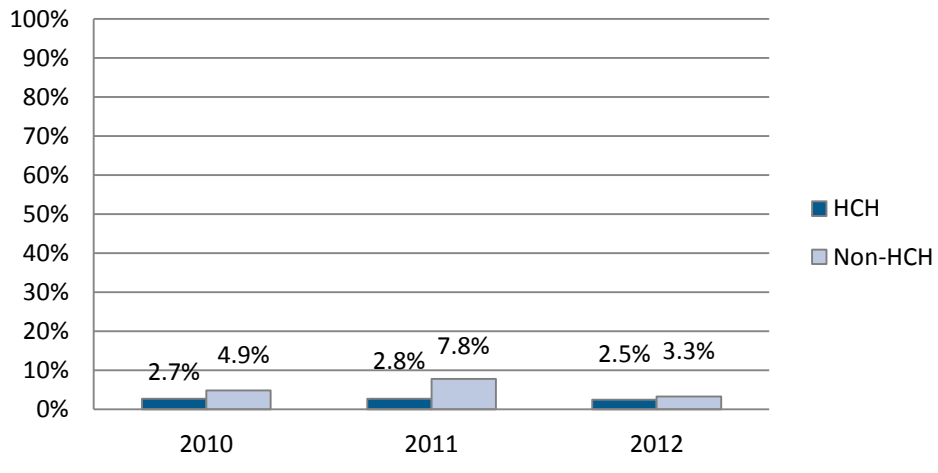
**Figure 11. Percent of attributed Medicaid black enrollees in HCH and non-HCH clinics, 2010-2012**

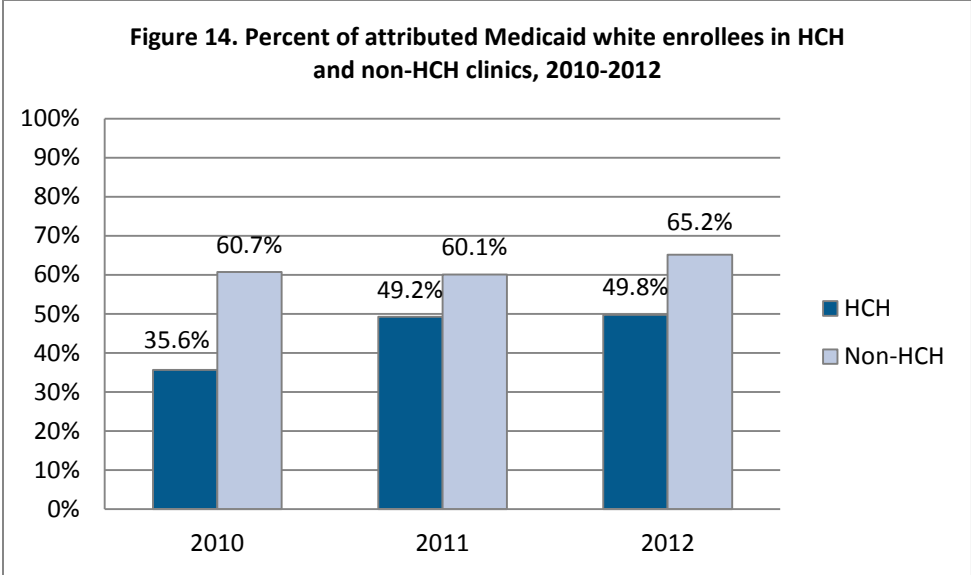


**Figure 12. Percent of attributed Medicaid Hispanic enrollees in HCH and non-HCH clinics, 2010-2012**



**Figure 13. Percent of attributed Medicaid Native American enrollees in HCH and non-HCH clinics, 2010-2012**

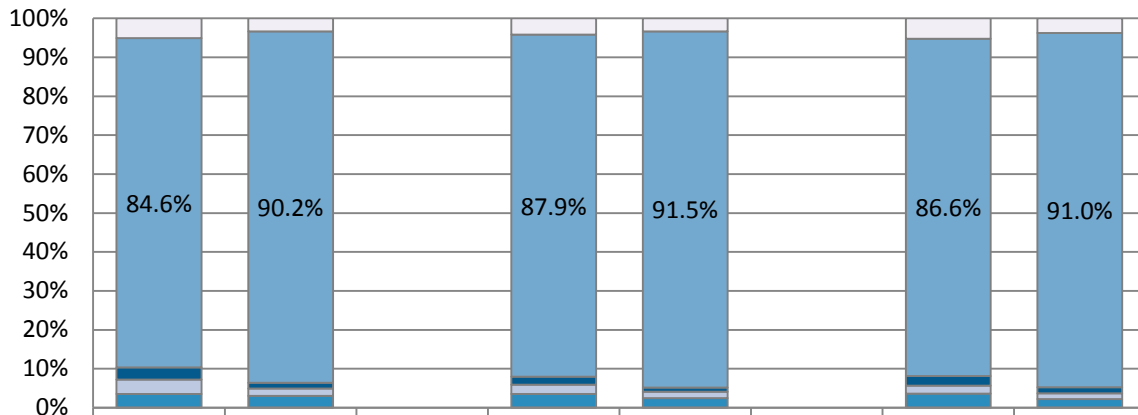




*LANGUAGE AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES*

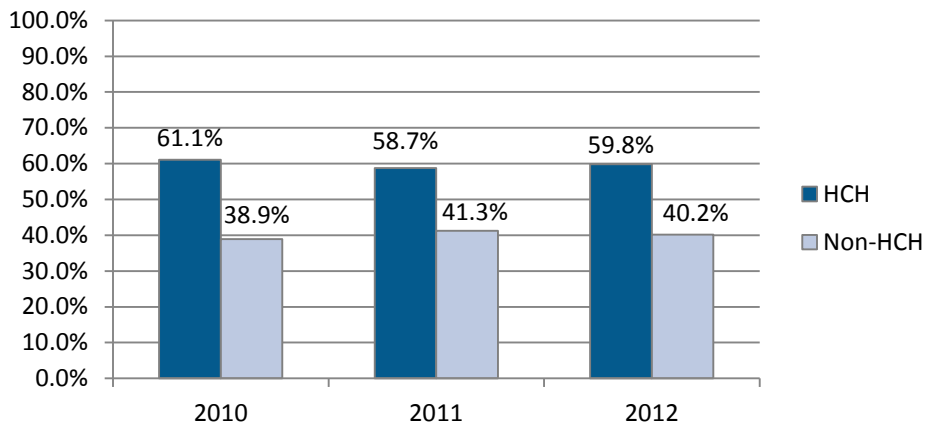
While Minnesota Medicaid collects information on over twenty four (24) languages spoken by their enrollees, four (4) languages, English, Spanish, Somali, and Hmong account for the language spoken by over 95% of all Medicaid enrollees. Differences in the distribution of these four languages between HCH and non-HCH enrollees are statistically significant in all years. While there are only small differences between HCH and non-HCH certified clinics, HCH certified clinics provide care for a slightly higher proportion of non-English language speaking enrollees over time. These distributions are shown in Figures 15 and 17-20. Figure 16 shows that HCHs provide care for the majority of Medicaid enrollees attributed to a HCH or non-HCH clinic who speak a language other than English as their primary language. This distribution remains consistent over time, with approximately 60% of enrollees who speak a language other than English being attributed to a HCH in 2010, 2011, and 2012.

**Figure 15. Language distribution of attributed Medicaid enrollees in HCH and non-HCH clinics, 2010-2012**

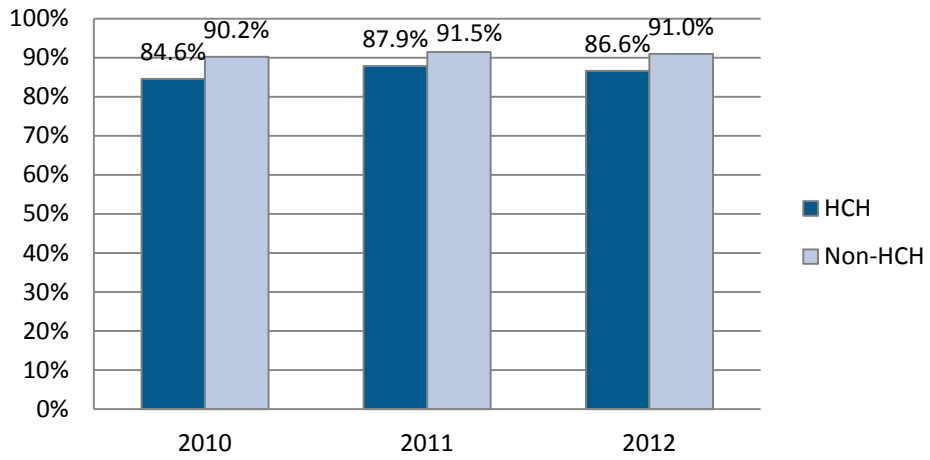


	2010 HCH	2010 non-HCH	2011 HCH	2011 non-HCH	2012 HCH	2012 non-HCH
Other	5.0%	3.4%	4.1%	3.3%	5.2%	3.7%
English	84.6%	90.2%	87.9%	91.5%	86.6%	91.0%
Somali	3.1%	1.5%	2.1%	1.1%	2.5%	1.6%
Hmong	3.7%	1.9%	2.4%	1.6%	2.0%	1.4%
Spanish	3.5%	3.1%	3.5%	2.5%	3.6%	2.3%

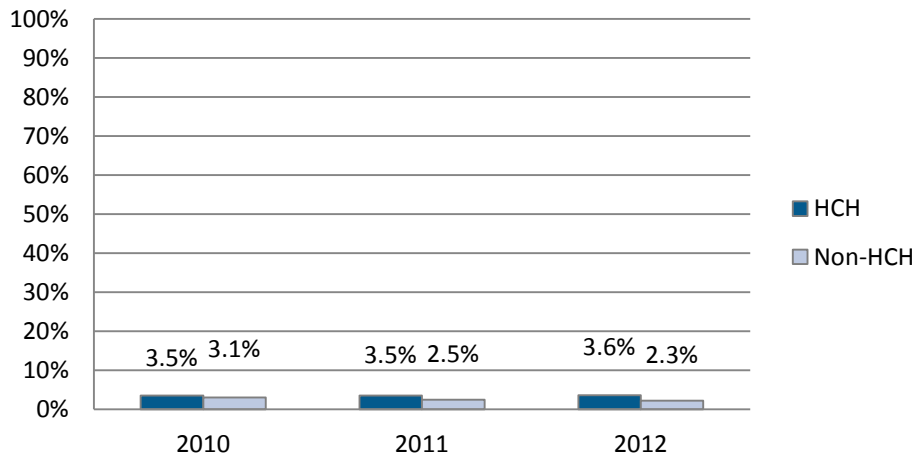
**Figure 16. Percent of total annual attributed Medicaid enrollees who speak a language other than English, by HCH or Non-HCH clinic attribution status, 2010-2012**

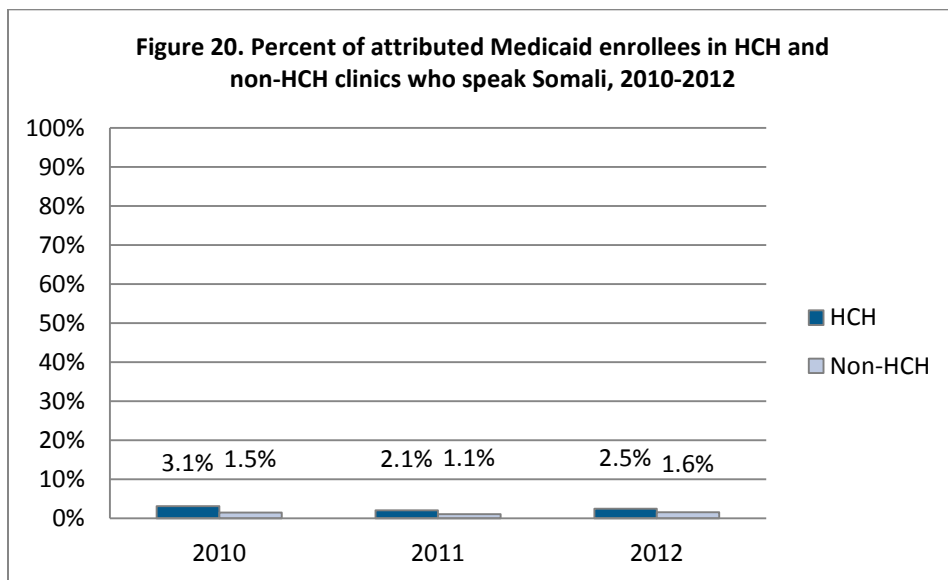
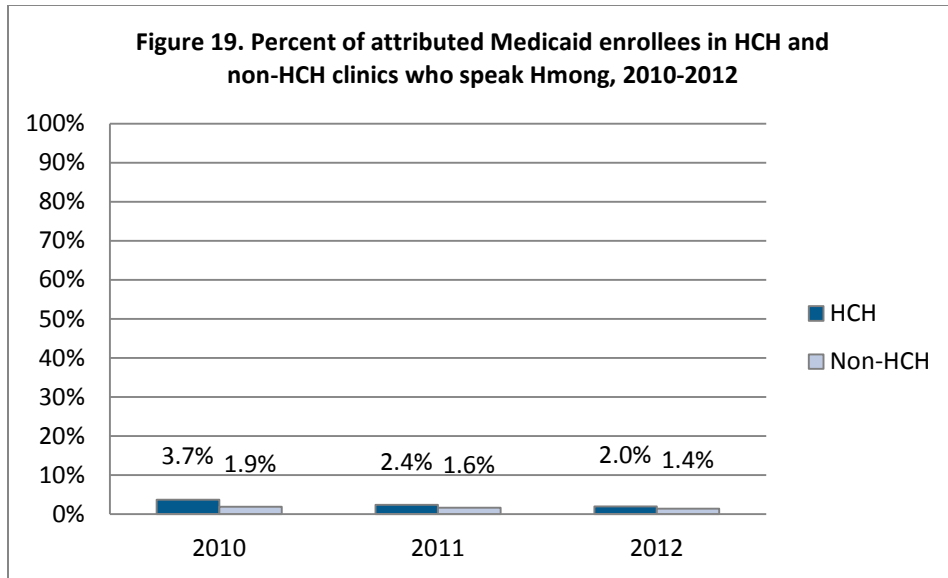


**Figure 17. Percent of attributed Medicaid enrollees in HCH and non-HCH clinics who speak English, 2010-2012**



**Figure 18. Percent of attributed Medicaid enrollees in HCH and non-HCH clinics who speak Spanish, 2010-2012**

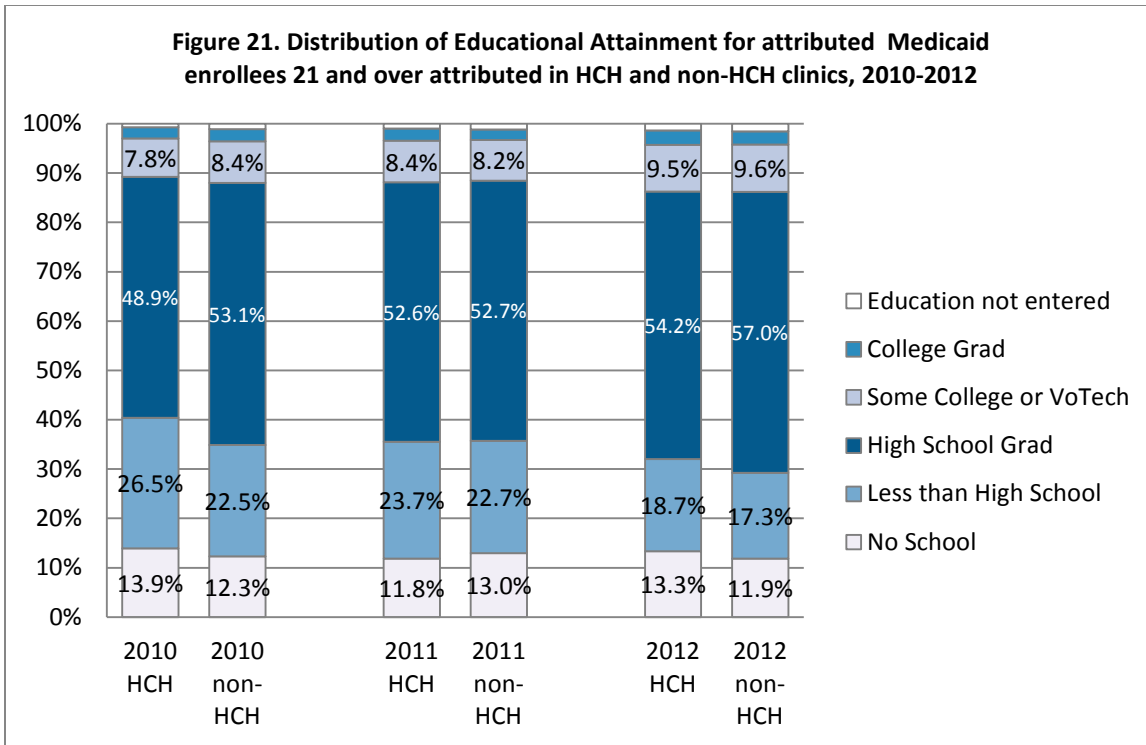




**EDUCATIONAL ATTAINMENT FOR THOSE 20 AND OLDER AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES**

While there are statistically significant differences in educational attainment between the certified clinics and the comparison clinics, they are small and erratic. As shown in Figure 21, certified clinics have significantly more enrollees with less than a high school degree in both 2010 and 2012 but not in 2011, and they have more college graduates in 2011 and 2012 but in 2010 the difference was not significant. In general over time educational attainment among enrollees has been increasing in both groups.



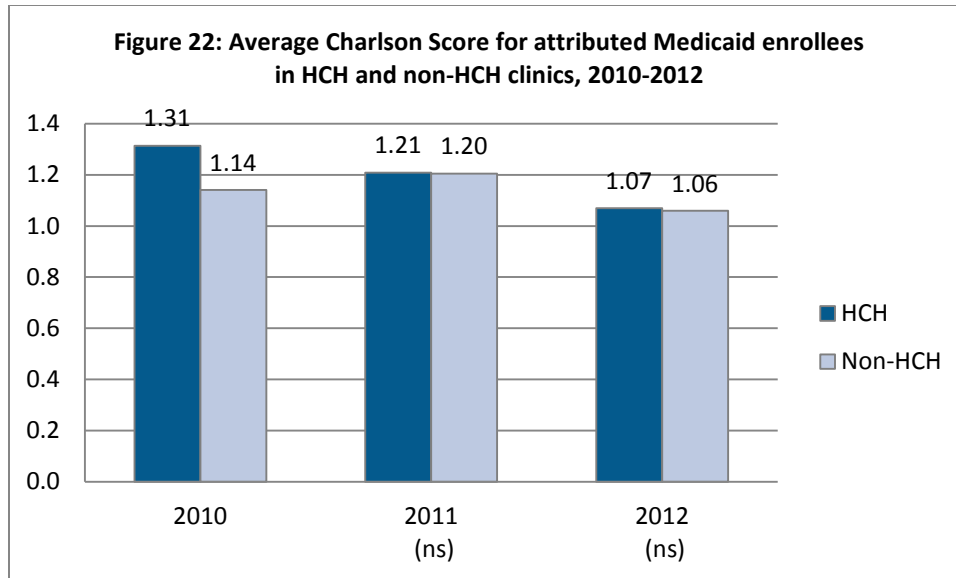


*COMORBIDITIES AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES*

The number of comorbidities a person has dramatically affects their health and their pattern of health care. Comorbidities have been shown to predict short term (1-year) mortality and to a lesser extent hospitalization. Understanding the differences in disease burden between HCH and non-HCH clinics is critical in evaluating the disease burden and thus, the long term cost and efficacy of HCHs.

We calculated the Charlson Index of comorbidity for each enrollee and compared the average score between non-HCH and HCH clinics between 2010 and 2012. The Charlson index is a weighted index that takes into account the number and the seriousness of comorbid disease. The Charlson index can be thought of as an indicator of a person’s sickness burden. The index is highly correlated with one year mortality with scores of 3-4 having an expected one year mortality rate of 52% and those with a score of 5 or higher a rate of 85%. Only in 2010, when the certified clinics had higher morbidity, were the differences between the non-HCH and HCH clinics statistically significant. In 2011 and 2012 there was no statistically significant difference between the certified clinics and the comparison clinics. These results can be seen in Figure 22.

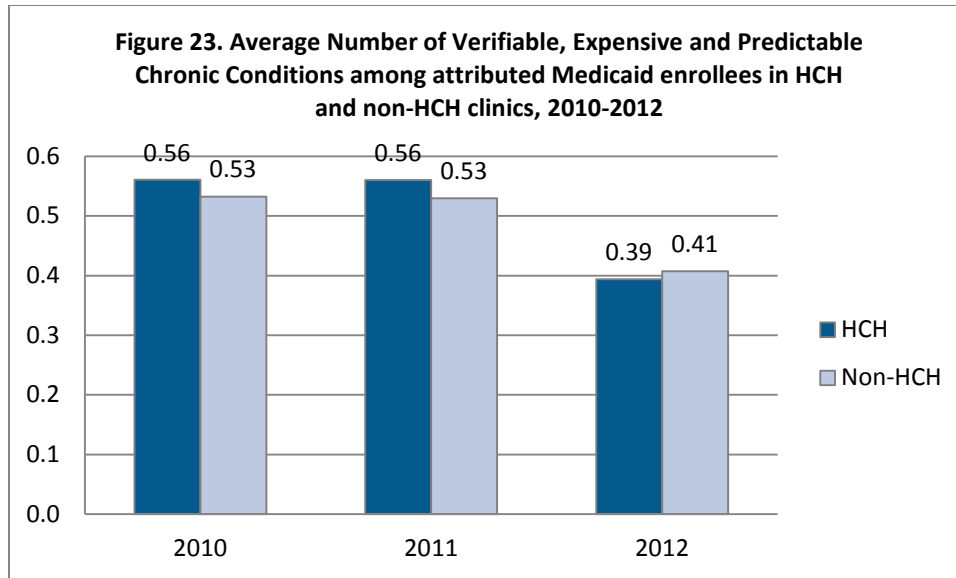
While the comorbidity burden is fairly constant between the certified and comparison clinics it has been dropping quickly for both. Data available for this analysis do not allow us to assess the likely cause of this trend, although it may be an artifact of the analysis related to the increasing numbers of enrollees we were able to attribute to clinics over time.



ns: Annual differences between HCH and non-HCH clinics were not statistically significant.

We also examined another measure of morbidity, the average number of verifiable, expensive and predictable chronic conditions. These are referred to as VEPs and were developed by Adams Dudley and his colleagues at the University of San Francisco.<sup>19</sup> These researchers identified 100 high-cost chronic conditions and found that 9.3 percent of patients with one or more of the VEP 100 conditions accounted for 49 percent of total expenses and 84 percent of the variation in cost. We present the average number of these 100 VEPs in both certified Health Care Homes and in the comparison clinics in Figure 23.

As is clear, the certified clinics have a statistically significantly higher average number of these conditions in 2010 and 2011 but statistically fewer in 2012. But these differences are rather small and might be considered inconsequential. In either case the certified clinics have similar morbidity to the comparison clinics.



*WHICH ENROLLEES ARE SERVED BY HCHS?*

The enrollee level analysis examined the correlates of enrollees being served by a HCH and the correlates of enrollees receiving care coordination, as reflected in a care coordination transaction being submitted for the enrollee. The data came from Medicaid claims. Only enrollees who were attributed to a HCH eligible clinic were included in the analysis. Whether an enrollee was served by a HCH or had a care coordination claim during a year was regressed on the enrollee’s HCH payment tier, age, gender, annual expenses, dual eligibility for Medicaid and Medicare, race (Asian, Black, American Indian, Pacific Islander, contrast is White), ethnicity (Latino), whether they spoke a primary language other than English speaker, whether they had less than a high school education, and whether they were community dwelling (non-institutionalized). The Glimmix procedure in SAS 9.3 was used to estimate the model.

Enrollees in a higher HCH payment tiers, enrollees with higher expenses; who were children (less than 5 years old) and the elderly (greater than 75 years old); who identified as Asian, Black, and/or Hispanic; who spoke a primary language other than English; who were community dwelling; and who had less than a high school education were more likely to be served by HCHs. Dual-eligible enrollees and American Indians were less likely to be served by HCHs. The analyses suggest that HCHs are serving the populations targeted by the HCH initiative, including enrollees with higher severity medical conditions and enrollees from disadvantaged populations.

*SUMMARY OF HCH PATIENT CHARACTERISTICS*

The figures above show that the number and percent of Medicaid enrollees attributed to Health Care Homes is increasing over time. Certified Health Care Homes also tend to have more Black enrollees, while non-certified clinics have more White enrollees. They also illustrate that the percentage of HCH attributed patients who speak languages other than English is slightly higher than the non-HCH

attributed population. While illness burden is dropping in both HCH and non-HCH populations, the HCH population has similar rates of morbidity and comorbidity over time to the non-HCH population.

## CHAPTER 3: QUALITY

### INTRODUCTION

This chapter addresses quality of care in Health Care Homes. In this section we report differences between HCH certified and non-HCH certified clinics in Minnesota for the years 2010 through 2012 using the quality metrics reported through the State Quality Measurement and Reporting System (SQRMS) for those years (Colorectal Cancer Screening, Depression Remission, Optimal Asthma Care, Optimal Diabetes care, and Optimal Vascular Care measures).

### QUALITY SUMMARY

HCH certified clinics showed statistically significant higher quality performance on most quality measures. HCHs had higher rates of:

- Optimal Colorectal Cancer Screening
- Optimal and Average Asthma Care
- Optimal Diabetes Care
- Optimal and Average Vascular Care
- Depression Follow-up

HCH certified clinics showed particularly higher quality performance than HCH-eligible but non-certified clinics on Asthma Care, Colorectal Cancer Screening, and Vascular Care measures.

### *STATE QUALITY REPORTING AND MEASUREMENT SYSTEM QUALITY MEASURES*

We assessed the quality of care provided by HCH certified and non-HCH certified clinics based on State Quality Reporting and Measurement System (SQRMS) quality data from 2010 through 2012. Analyses include patient-level performance on five major SQRMS quality measures:

- Colorectal Cancer Screening
- Depression Remission
- Optimal Asthma care
- Optimal Diabetes care
- Optimal Vascular care

We supplemented these measures with Depression Follow-up, Average Asthma Care, Average Diabetes Care, and Average Vascular Care analyses. We include HCH certified clinics and clinics eligible for HCH certification in this analysis, defined as described in the Data and Methods chapter of this report.

Measurement was conducted at the patient level, with patients nested within clinics. We assessed differences between quality scores for individual patient care reported by HCH clinics and non-HCH clinics. Attribution for these patients was based on clinic self-reporting of patients and patient quality data to Statewide Quality Reporting and Measurement System.

We used two types of measures for Asthma, Diabetes, and Vascular conditions. The first is the SQRMS optimal measure, in which a patient is considered to reach optimal care when all of the measurement sub-parts are achieved. For example, in the Optimal Diabetes Care measure, a patient must meet all of 5 goals to have optimal care: (1) HbA1c <8.0, (2) LDL test <100, (3) Blood Pressure with a systolic value <140 and a diastolic value <90, (4) documentation of being a non-tobacco user, and (5) if the patient has a co-morbidity of Ischemic Vascular Disease, there is documentation in the measurement period that the patient is on daily aspirin OR there is documentation of an accepted contraindication..

The second type of measure is a composite average measure, which calculates the average (mean) number of care goals met for a condition. For example, for Average Diabetes Care we would measure the mean number of the 5 care goals met. The composite average measure allows for a more detailed look at quality measurement for these conditions, wherein we can see approximately what percentage of the care goals have been met instead of looking at an 'all-or-none' measure where all of the goals must be met to achieve optimal care.

Tests for statistical significance for most analyses were set at a p-value less than 0.0001 (meaning that there is less than a 1 in 10,000 chance that these results would have occurred randomly). Unless otherwise indicated, all annual differences between HCH and non-HCH quality scores presented in this chapter are statistically significant at this value. Further description and specifications for each of these quality measures is provided in Appendix C.

### *Colorectal Cancer Screening*

The SQRMS Colorectal Cancer Screening measure indicates the proportion of patients who are up to date with regular colorectal cancer screenings.<sup>20</sup> Clinics report data to SQRMS on patients aged 51 to 75 seen in person by eligible providers at least twice during the two years previous to and including the measurement period, and seen in person by eligible providers at least once during the annual measurement period. Within this clinic population, patients are considered up to date with appropriate colorectal cancer screening exams if they have received either a colonoscopy within the measurement period or previous 9 years, a sigmoidoscopy within the measurement period or previous 4 years, or a stool blood test within the measurement period.<sup>20</sup> Results for Colorectal Cancer Screening quality measurement are shown in Figure 1 below.

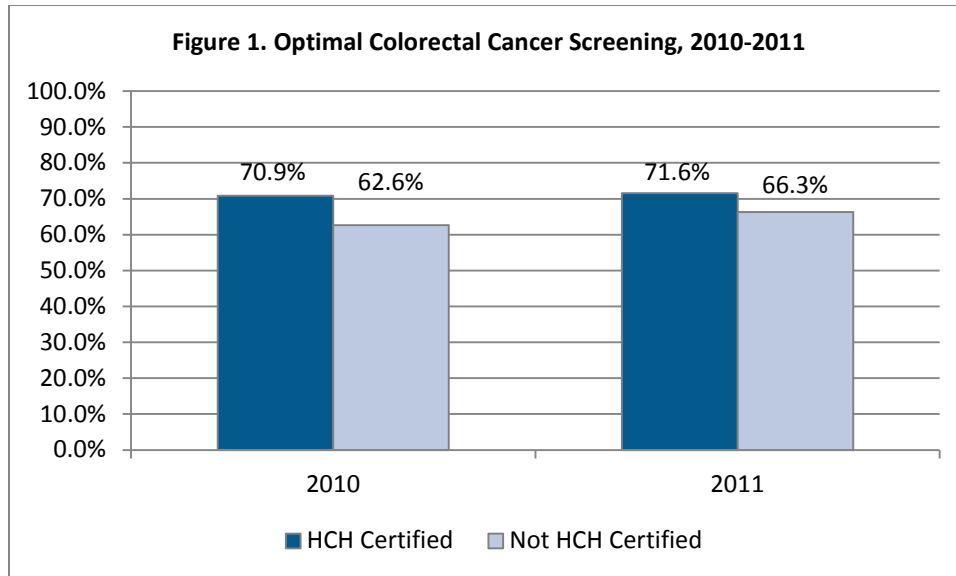


Fig. 1: Total N by year (HCH certified and eligible clinics). 2010: 543; 2011: 563. Annual differences between HCH and non-HCH statistically significant at p-value <0.0001.

Figure 1 shows that HCH certified clinics have a higher rate of optimal Colorectal Cancer screening in both 2010 and 2011. Comparisons are statistically significant at a p-value of <.01.

#### *Depression Remission*

The SQRMS Depression Remission at Six Months measure indicates the percentage of patients who are identified as having Depression (defined by a Patient Health Questionnaire [PHQ-9] score greater than 9) who subsequently reach remission (a PHQ-9 score less than 5) six months after Depression is identified.<sup>21</sup>

In addition to measuring remission, we assessed quality based on a measure of Depression Follow-up at Six Months. The denominator for this measure is the number of patients who were assessed as having Depression at the index visit. The numerator is the number of patients who had a follow-up PHQ-9 administered within six months (plus or minus 30 days) from the index identification of Depression. Depression Follow-up is a good measure of continuity of care, because it shows whether patients diagnosed with depression receive follow-up care to continually assess and care for their condition. The small population in the sample for Depression Remission led comparisons between HCH and non-HCH to not be statistically significant for this measure. There is a slightly larger population to assess in the Depression Follow-up measure, which gives us more statistical confidence in our results.

Quality analysis results for Depression Remission and Depression Follow-up measures are shown in Figures 2 and 3 below.

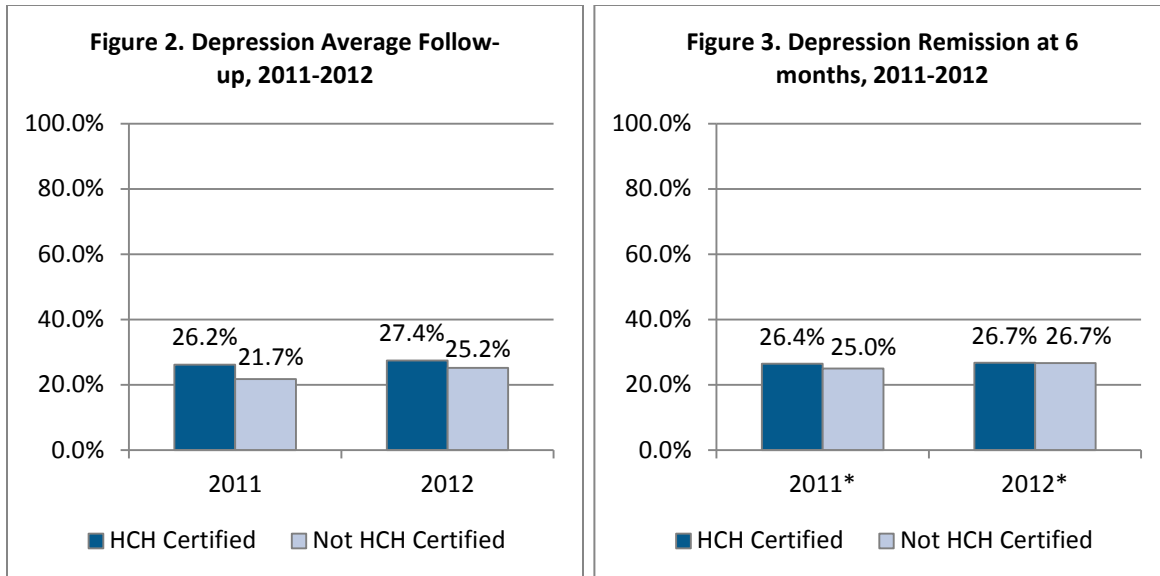


Fig. 2&3: Total N by year (HCH certified and eligible clinics). 2011: 454; 2012: 498. Annual differences between HCH and non-HCH clinics in Fig. 2 are statistically significant at p-value <0.0001.

\*Annual differences between HCH and non-HCH clinics in Fig. 3 are not statistically significant.

Figure 2 shows that HCH clinics have a slightly higher rate of follow-up visits at six months after identification of Depression than non-HCH clinics. Differences between HCH and non-HCH clinics are statistically significant. Figure 3 shows that for both HCH and non-HCH clinics, approximately one-quarter of Depression patients who have a follow-up visit achieve remission at six months. While the figures do show slight differences in rates between HCH and non-HCH clinics, these differences are not statistically significant, indicating that we cannot confidently say that there was a difference between HCH and non-HCH rates of remission.

### *Optimal Asthma Care*

The SQRMS Optimal Asthma Care measure indicates the percentage of patients with Asthma who are optimally managed to reduce risk.<sup>22</sup> The Optimal Asthma Care measure was first collected in 2011 and some variation among clinics may be due to the rate of implementing the measure across clinics. At the start of the measurement period, clinics report data to SQRMS on patients aged 5 to 50 recently seen by an eligible provider and diagnosed with Asthma. Within this population, patients are considered to have Optimal Asthma Care when they meet ALL of the following targets: (1) well-controlled asthma (based on applicable Asthma Control Tests or Questionnaires), (2) not at elevated risk of exacerbation (based on number of patient-reported hospital and emergency department visits), and (3) educated about Asthma self-management and has a written Asthma management plan present in medical chart.<sup>22</sup>

Our analysis looks at two different types of Asthma care measurement: Optimal Asthma Care and Average Asthma Care. Optimal Asthma Care is achieved when the patient meets all of the criteria



described above. Average Asthma Care is the mean percentage of these individual goals achieved per patient. Results for Asthma Care quality analyses are shown in Figures 4 and 5 below.

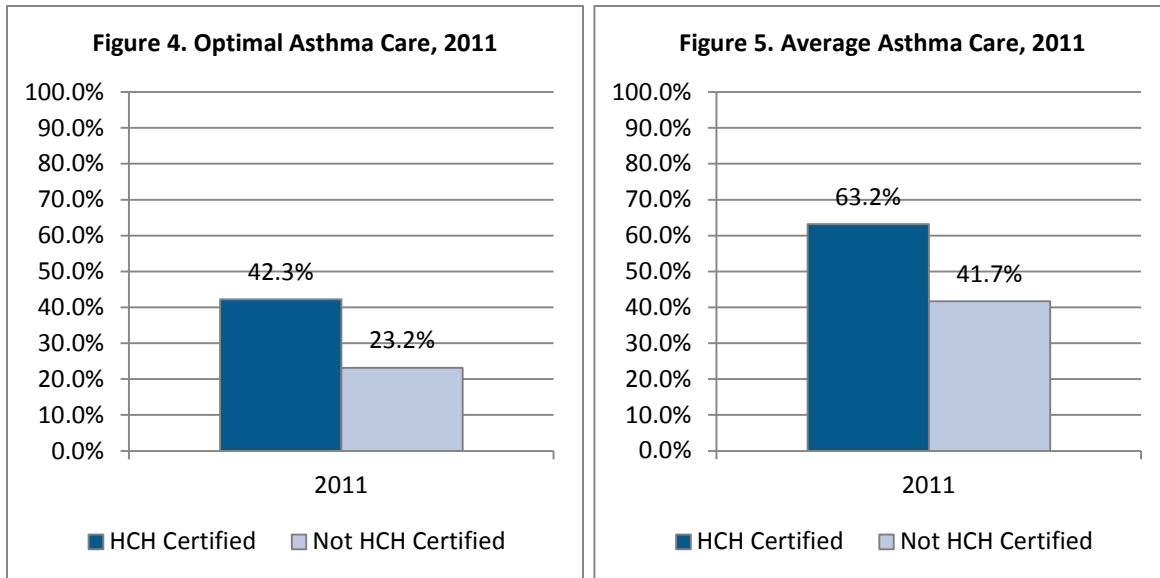


Fig. 4&5: Total N by year (HCH certified and eligible clinics). 2011: 562. Annual differences between HCH and non-HCH clinics are statistically significant at p-value <0.0001.

Figure 4 shows that, at the individual patient level, a greater proportion of patients receiving care at HCH certified clinics have Optimal Asthma care than the proportion of patients receiving care at non-HCH certified clinics. Figure 5 indicates that when examining average Asthma care goals met individually, HCH clinics meet a much higher percentage of these goals than non-HCH clinics.

#### *Optimal Diabetes Care*

The SQRMS Optimal Diabetes Care measure indicates the percentage of adults with Type 1 or Type 2 Diabetes who have optimally managed modifiable risk factors.<sup>23</sup> Clinics report data to SQRMS on patients aged 18 to 75 at the start of the annual measurement period who were recently seen by an eligible provider and diagnosed with Diabetes mellitus. Within this population, Optimal Diabetes Care is achieved when patients meet ALL of the following criteria: (1) HbA1c <8.0, (2) LDL cholesterol <100, (3) systolic blood pressure <140 and diastolic blood pressure <90, (4) documentation of being a non-tobacco user, and (5) documentation that patients comorbid with Ischemic Vascular Disease are on daily aspirin or have an accepted contraindication.<sup>23</sup>

Average Diabetes care is the mean percentage of the individual goals achieved per patient. Results for Diabetes Care quality analyses are shown in Figures 6 and 7 below.

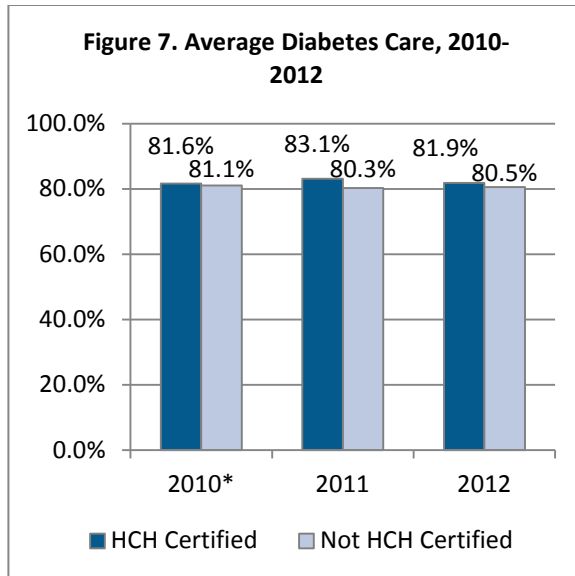
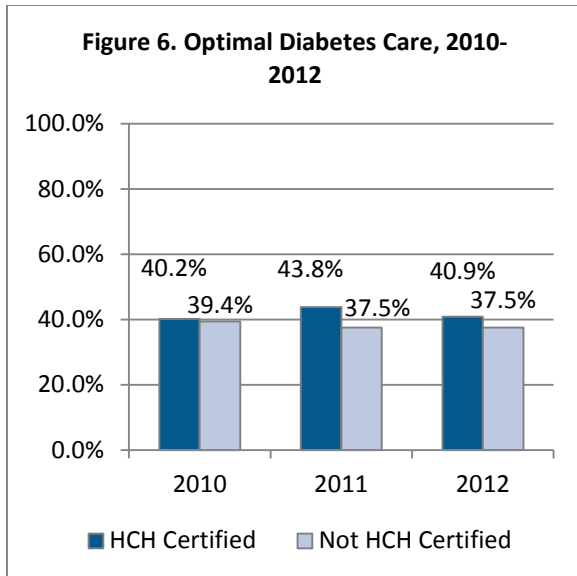


Fig. 6&7: Total N by year (HCH certified and eligible clinics). 2010: 507; 2011: 546; 2012: 538. Unless otherwise noted, annual differences between HCH and non-HCH clinics are statistically significant at p-value <0.0001.

\*Annual difference between HCH and non-HCH clinics for 2010 in Fig. 7 is not statistically significant.

Rates of Optimal Diabetes Care are slightly higher within HCH clinics as compared to non-HCH clinics between 2010 and 2012 (Figure 6). Rates for non-HCH clinics remain at 37% to 39% over time, and rates for HCH clinics remain at 40% to 44% over time. Looking at the Average Diabetes Care measure, we see that the percentage of individual Diabetes Care goals met by patients within HCH and non-HCH clinics are high over time (consistently at about 80-83%) and are similar for both HCH and non-HCH clinics (Figure 7). However, the average percentage of care goals achieved is slightly higher within HCH clinics as compared to non-HCH clinics, except in 2010 where there is no statistically significant difference between HCH and non-HCH clinics.

### Optimal Vascular Care

The SQRMS Optimal Vascular Care measure indicates the percentage of adults with Ischemic Vascular Disease who have optimally managed modifiable risk factors.<sup>24</sup> Clinics report data on patients aged 18 to 75 diagnosed with Ischemic Vascular Disease at the start of the annual measurement period who have been seen recently by an eligible provider. Within this population, patients are considered to have optimal care when they meet ALL of the following targets: (1) LDL cholesterol <100, (2) systolic blood pressure <140 and diastolic blood pressure <90, (3) documentation of non-tobacco use, and (4) documentation that the patient is on daily aspirin or has an accepted contraindication.<sup>24</sup>

As with previous measures, our analysis looks at two different types of measurement: Optimal Vascular Care and Average Vascular Care. Optimal Vascular Care is achieved when the patient meets all of the criteria described above. Average Vascular Care is the mean percentage of these individual goals achieved per patient. Results for Vascular Care quality analyses are shown in Figures 8 and 9 below.

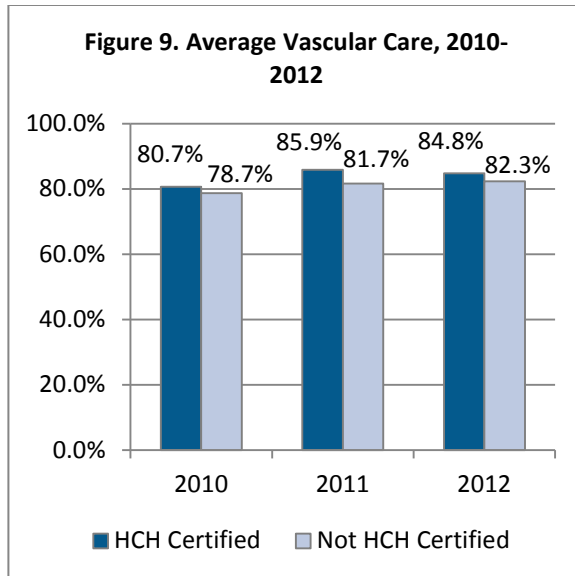
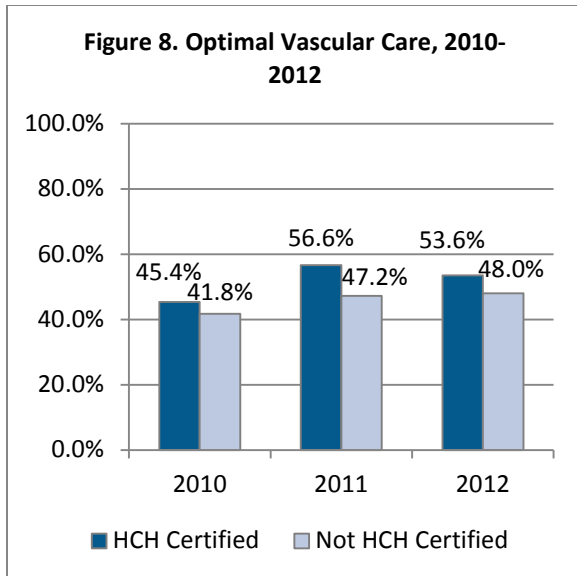


Fig. 8&9: Total N by year (HCH certified and eligible clinics). 2010: 499; 2011: 529; 2012: 531. Annual differences between HCH and non-HCH clinics are statistically significant at p-value <0.0001.

Figure 8 indicates that rates of Optimal Vascular Care increased over time from 2010 to 2012 in both HCH and non-HCH clinic populations. Rates of Optimal Vascular Care achieved in HCH clinics remain consistently higher than rates in non-HCH clinics. The average percentage of individual vascular care goals met by patients at the individual patient level or at the clinic level increased slightly from 2010 to 2012 (Figure 9). The percentage of goals met is consistently higher for populations within HCH clinics than non-HCH clinics. While small, these differences are statistically significant ( $p < .0001$ ).

## CONCLUSIONS

This analysis compared performance on key Statewide Quality Reporting and Measurement System quality of care measures for HCH certified versus non-HCH certified clinics in Minnesota. Of the clinics reporting data on these measures to SQRMS, HCH certified clinics showed statistically significant higher quality performance on most quality measures (Table 1). HCHs had statistically significant higher rates of Optimal Colorectal Cancer Screening, Optimal Asthma Care, Optimal Diabetes Care, and Optimal Vascular Care than non-HCH clinics. HCHs also had higher rates of average care in Depression Average Follow-up, Average Asthma Care, Average Diabetes Care (except in 2010), and Average Vascular Care. Differences between HCH and non-HCH clinics were not statistically significant for Depression Remission at 6 months in 2011 and 2012 or for Average Diabetes Care in 2010. For every statistically significant analysis result, the quality of care provided by HCH clinics was better than the quality of care provided by non-HCH clinics.

The biggest differences in quality between HCH and non-HCH clinics were observed in the Asthma care measures, where the HCH quality rate is approximately 20 percent higher than the non-HCH quality rate for both Optimal Asthma Care and Average Asthma Care (Table 1). Relatively large

differences were also observed for Colorectal Cancer Screening (HCH 5 to 8 percent higher than non-HCH) and Optimal Vascular Care (HCH 4 to 9 percent higher than non-HCH; Table 1).

Table 1. SQRMS Quality Measures for HCH and non-HCH by year

	Year	HCH Certified	Not HCH Certified	Percentage Point Difference (positive # represents higher HCH quality)†	p-value*
<b>Colorectal Cancer</b>					
Optimal Screening	2010	70.9%	62.6%	8.3	<.0001
	2011	71.6%	66.3%	5.3	<.0001
<b>Depression</b>					
Remission at 6 months	2011	26.4%	25.0 %	1.4	0.0477
	2012	26.7%	26.7 %	0.0	0.9217
Average follow-up	2011	26.2%	21.7 %	4.5	<.0001
	2012	27.4%	25.2 %	2.2	<.0001
<b>Asthma</b>					
Optimal Care	2011	42.3%	23.2 %	19.1	<.0001
Average Care	2011	63.2%	41.7 %	21.5	<.0001
<b>Diabetes</b>					
Optimal Care	2010	40.2 %	39.4 %	0.8	<.0001
	2011	43.8 %	37.5 %	6.3	<.0001
	2012	40.9 %	37.5 %	3.4	<.0001
Average Care	2010	81.6 %	81.1 %	0.5	<.0002
	2011	83.1 %	80.3 %	2.8	<.0001
	2012	81.9 %	80.5 %	1.4	<.0001
<b>Vascular</b>					
Optimal Care	2010	45.4 %	41.8 %	3.6	<.0001
	2011	56.6 %	47.2 %	9.4	<.0001
	2012	53.6 %	48.0 %	5.6	<.0001
Average Care	2010	80.7 %	78.7 %	2.0	<.0001
	2011	85.9 %	81.7 %	4.2	<.0001
	2012	84.8 %	82.3 %	2.5	<.0001

\*p-values of <.0001 indicate statistically significant annual comparisons between HCH and non-HCH clinics (there is less than 1 chance in 10,000 that these results would have occurred randomly.)

†Difference in percentage points calculated by subtracting the non-HCH performance percentage from the HCH performance percentage (e.g. for Colorectal Cancer Optimal Screening, 70.9 - 62.6 = an 8.3 percentage point difference.)

This analysis presents overall quality scores and was not adjusted for patient characteristics such as comorbidity or insurance coverage. The results do not provide sufficient evidence to comment on the possible causal effect of becoming an HCH on improving quality of care. However, this analysis does confirm that the rates of care quality provided in HCHs are on par with, and most often superior to, quality of care performance rates in non-HCH certified clinics.

## CHAPTER 4: PAYMENT

### INTRODUCTION

The purpose of this chapter is to address how HCH clinics implemented the payment method including processes for patient tier assignment, billing for care coordination and operational changes and costs related to implementation. The development of the HCH payment method is described in Appendix F.

To learn how HCH organizations and clinics have implemented the state payment methodology and their experiences with payment of care coordination fees and the clinic costs related to implementation, the evaluation team analyzed Medicaid care coordination claims for 2010 to 2012, and developed and administered a survey to understand implementation efforts and perceptions of all HCH clinics certified as of December 2012.

### PAYMENT SUMMARY

Claims analysis indicates that:

- HCH clinics submission of claims to Medicaid for HCH care coordination services has increased steadily over time since the beginning of the HCH Initiative implementation.

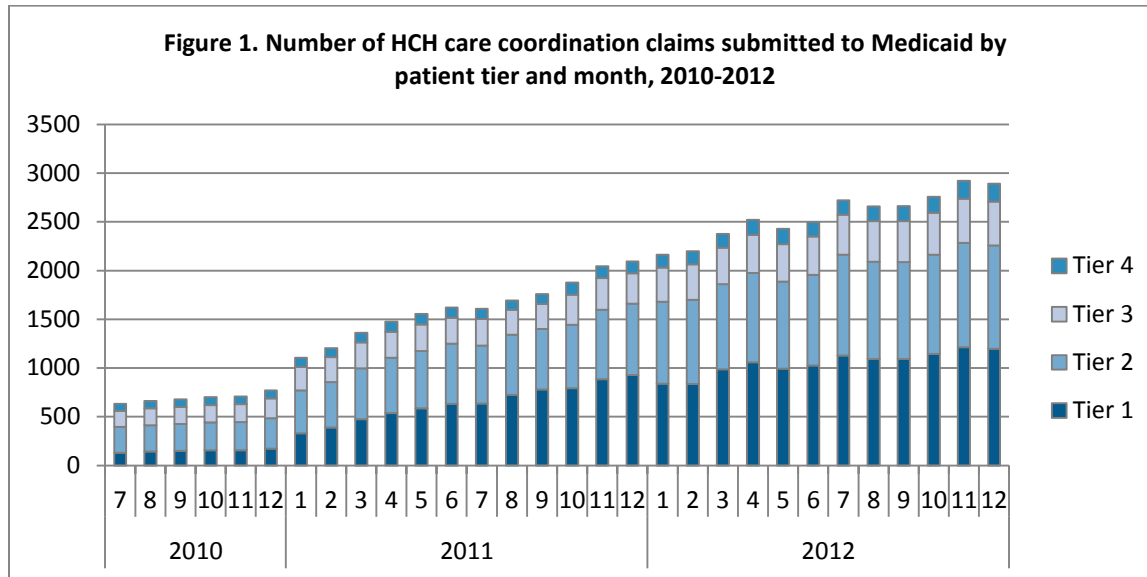
Surveys of Health Care Home organizations certified within the evaluation period (July 2010 through December 2012) indicate that:

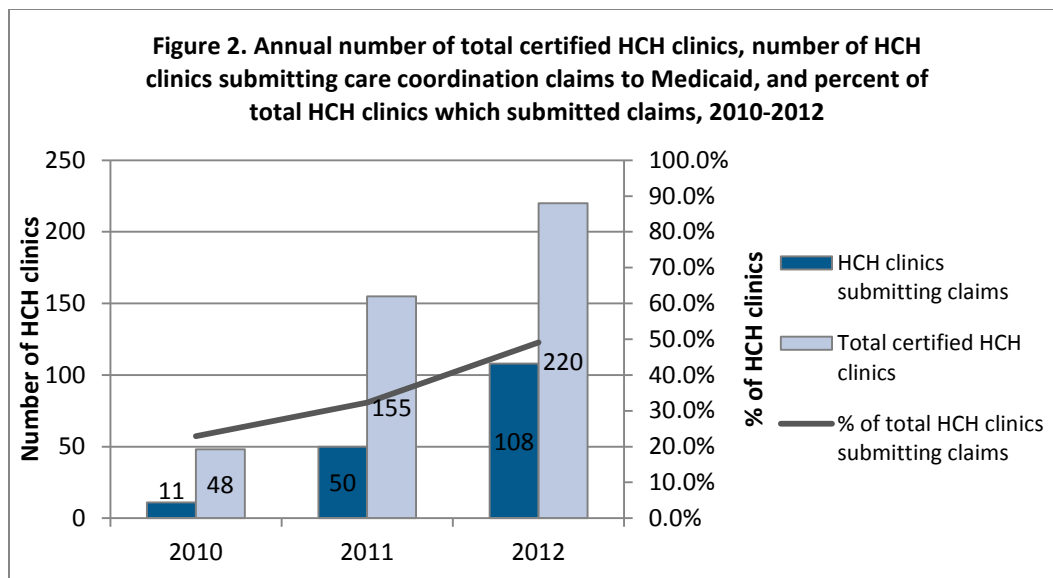
- Financing HCH services is important to HCH organizations, with a large proportion of organizations reporting that it is important to collect payment for care coordination services.
- Financial incentives do not appear to be a primary driver of clinic or organization participation in the HCH initiative. Fewer than half of respondents report conducting a financial analysis before becoming certified as a HCH, and only one-fifth said a financial analysis influenced their decision to become certified.
- HCH organizations reported being better able to capture payment due to them for HCH care coordination services from Medicaid than from Medicare, managed care, and commercial insurers (with the exception of organizations participating in the Medicare Advanced Primary Care Program who are also able to capture payment from Medicare).
- While less than half (40%) of survey respondents report experiencing cost increases related to operating as a HCH to date, these cost increases appear to be largely related to increased staff and billing expenses to implement the HCH model.
- The majority of responding HCHs have adopted and are actively using the state billing methods including the state-developed care coordination tier assignment tool to support care coordination billing.

- The majority of responding HCHs rate the state-developed care coordination tier assignment tool as adequate for current billing and clinical use, and their comments note that they consider the tool an acceptable start at providing tiering of patient complexity and cost which can be modified to better encompass patient care complexity, psychosocial factors, and time and cost required to coordinate patient care.

### MEDICAID CARE COORDINATION CLAIMS 2010-2012

The University of Minnesota evaluation team looked at trends in care coordination claims submitted to the Minnesota Department of Human Services by certified Health Care Home clinics from 2010 through 2012. The number of claims for HCH care coordination submitted to DHS increased steadily over time from 2010 to 2012. The majority of claims are for Tier 1 or Tier 2 patients, with one-third to one-quarter of monthly claims for Tier 3 and 4 patients (see Figure 1). Figure 2 shows that the number of HCH certified clinics submitting monthly claims for HCH care coordination for Medicaid enrolled patients increased steadily from 2010 through 2012. Figure 2 also shows that the percent of certified HCH clinics that submit claims is increasing over time, from 22.9% in 2010 to 32.3% in 2011 to 49.1% in 2012.





This analysis indicates that the use of claims to Medicaid for HCH care coordination services has increased steadily over time since the beginning of the HCH Initiative implementation. Slightly fewer than half of all certified clinics submitted care coordination claims to Medicaid in 2012. This may not represent the full use of care coordination claims, as additional claims have been submitted to non-Medicaid payers that are not represented in this data set.

## HCH EVALUATION PAYMENT SURVEY

While many of the questions the evaluation team was asked to address could be answered using existing claims data, understanding *how* the state of Minnesota's HCH payment methodology was implemented in the HCH certified clinics required collecting primary data. This was accomplished through a survey administered to all HCH clinics certified during the analysis period.

The University of Minnesota evaluation team developed three surveys asking specific, detailed questions about how payment methods were implemented (for example, what tiering tools were used by HCHs, and for what payers were HCHs billing for monthly care coordination payments). To learn how HCH organizations and clinics have implemented the state payment method, and learn about their experiences with payment of care coordination fees and the clinic costs related to implementation, we surveyed all clinics certified as HCHs as of December 31<sup>st</sup> 2012 (n=217 clinics, 35 organizations).

There are three main areas related to payment methodology practices: finance, billing, and patient tiering. While all three areas are inter-related, they deal with unique day-to-day and decision-making processes within clinic operations. Because of this, we designed three different surveys intended to be answered by individuals knowledgeable with each of these areas and decision making related to that aspect of their HCH clinic operation.

- The **billing practices survey** asked HCHs about decisions and preparations made for clinic billing for monthly care coordination services, about how the process works, about if

they had to make changes to their billing system as part of HCH certification, and about additional feedback on billing.

- The **financial practices survey** asked HCHs about any financial analyses conducted prior to becoming certified as a HCH and if and how these analyses affected their decision to become an HCH; about financial monitoring processes; about any impact on their cost structure for operating as a HCH; about which types of payers they collect care coordination payments from; about the importance of care coordination payments; and about additional comments on HCH certification and financial processes.
- The **patient tiering practices survey** asked HCHs about the tools and processes used to complete the tiering process; about if or how patient tiering connects with the billing process; about how effective they feel their current tiering process is; and about any additional feedback they have on patient tiering. Taken together, these three surveys provided the information required to examine in detail the implementation of the main aspects of the payment methodology and to understand HCH processes related to implementation.

A full description of the payment surveys, full text of the surveys, and discussion of survey analysis methods is provided in Appendix F.

#### *SURVEY RESULTS: FINANCIAL PRACTICES SURVEY*

##### *Financial Practices Survey Overall Findings*

Results from the Financial Practices Survey indicate that financing HCH services is important to HCH organizations. A large proportion (75%-80%) of organizations reported it is important to collect reimbursement for care coordination services (see Figure 7). However, fewer than half of survey respondents conducted a financial analysis before becoming certified as a HCH, and only about one-fifth of respondents said that the results of this financial analysis influenced their decision to become certified. This indicates that while HCH clinics do feel it is important to be reimbursed for their work, financial incentives were not the main driver of participation in the HCH model.

The majority of HCH organizations stated they are able to capture payment due to them for HCH care coordination services from Medicaid payers. A smaller proportion is able to capture payment from Medicare, private managed care and commercial insurers (with the exception of HCH clinics participating in the MAPCP). About one-half of organizations surveyed state they actively monitor financial performance related to caring for their HCH patient population. However, nearly one-half (46.7%) of respondents do not know what their financial results are from operating as a HCH clinic to date. Forty percent (40%) of respondents have experienced cost increases to date, while 13.4% have experienced no change in cost structure or have experienced cost savings. Those who reported cost increases note that they are due to increased staff and billing expense related to start-up for HCH care coordination work. Given the limited time period of this evaluation (July 2010-December 2012), these expenses appear



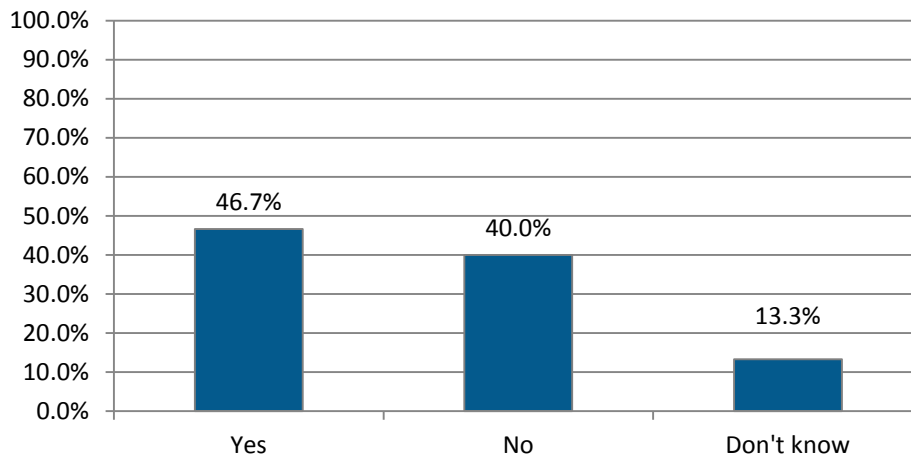
to be related to start-up investments for the HCH model implementation. These may change over time as the HCH patient volume increases and as the model becomes institutionalized. Regardless of financial challenges, one-half of respondents plan to increase the number of patients they provide HCH care coordination for, and plan to expand care coordination infrastructure to support care for these patients.

#### *Financial Practices Survey Detailed Findings*

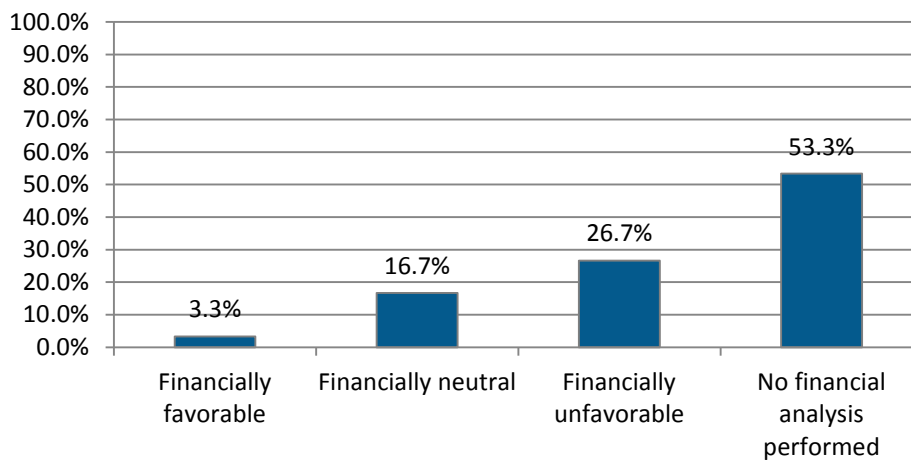
The financial practices survey asked HCHs about financial analyses prior to becoming certified as a HCH and if/how these impacted the decision to become a HCH, about financial monitoring processes, about any impact on cost structure of operating as a HCH, about which types of payers they collect care coordination payments from and the importance of these payments, and about additional feedback on financial processes for HCHs.

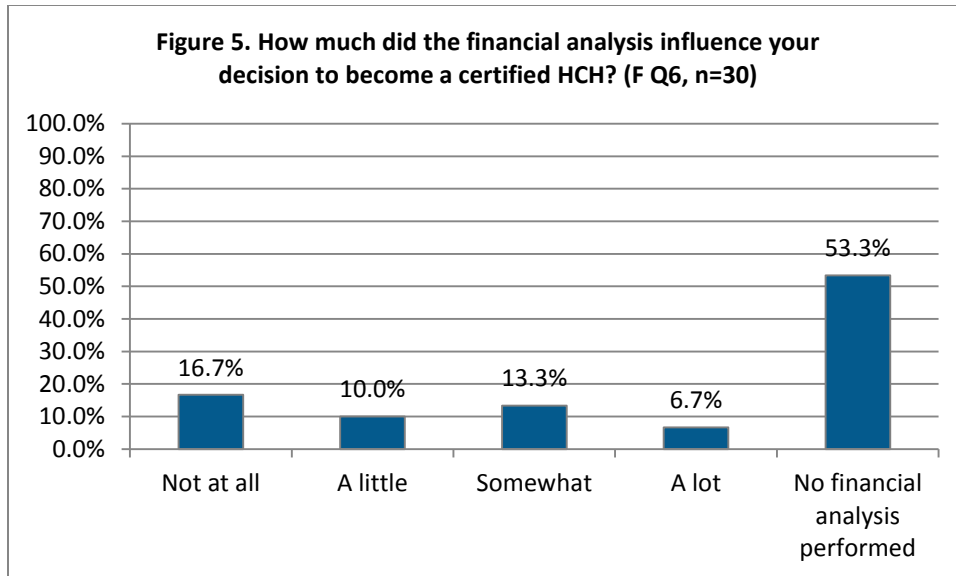
Respondents were first asked to describe financial analyses completed regarding the impact of becoming a HCH before they became certified. Forty six point seven percent (46.7%) of responding organizations performed a financial analysis to assess the financial impact of becoming an HCH; a total of 53.3% either did not conduct a financial analysis (40%) or did not know if a financial analysis had been conducted (13.3%; F Q4, n=30, see Figure 3). Twenty-six point seven percent (26.7%) of all survey respondents describe the results of these analyses as being financially unfavorable to their HCH, while 16.7% had financially neutral results and 3.3% reported financially favorable results (F Q5, n=30, see Figure 4). The results of these analyses had a mixed impact on the decision of these organizations to become certified as Health Care Homes, with 26.7% reporting that financial analysis influenced their decision to become certified a little or not at all, and 20% reporting that the analysis influenced their decision somewhat or a lot (F Q5, n=30, see Figure 5). However it is important to note that the majority of organizations did not conduct a financial analysis, and our sample includes only certified HCHs, so those who may have chosen not to participate for financial reasons would not be represented in this sample.

**Figure 3. Were any financial analyses performed to assess the financial impact of becoming an HCH? (F Q4, n=30)**



**Figure 4. Were the results of the financial you analysis financially favorable, neutral, or unfavorable to your clinic? (F Q5, n=30)**

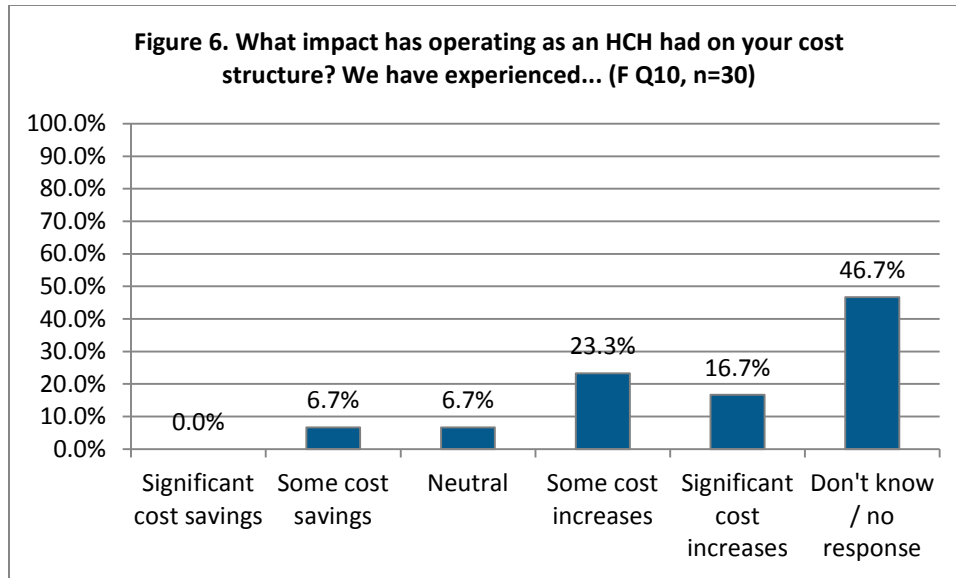




A little over half of respondents (53.3%) are currently monitoring financial performance associated with being a HCH clinic (F Q7, n=30). Sixteen point seven percent (16.7%) are not currently monitoring financial performance but plan to in the future, while 13.3% are not monitoring financial performance and do not plan to in the future.

Nearly half of respondents (46.7%) did not know what impact operating as an HCH had on their cost structure or did not respond to that question (F Q10, n=30, see Figure 6). Of those who did know and responded to the question, 16.7% reported experiencing significant cost increases and 23.3% reported some cost increases. Six point seven percent (6.7%) did not experience cost increases or savings, and 6.7% experienced cost savings.

Many organizations that experienced cost increases noted that they were due to “*care coordination staffing,*” “*increased staff expense,*” and “*increased staff time for care coordination.*” Other reasons cited for cost increases included the “*high cost*” of preparing claims, “*manual processes that we must do for monthly billing,*” and “*added staff not reimbursed adequately by tiering payments.*” It is important to note that these data show reports of HCH perceptions of change to their cost structure that becoming a certified HCH required, not actual cost data from clinics. It should be noted that an initial outlay of costs might be expected as clinics transform billing, management, and practice provision systems to meet the HCH model.

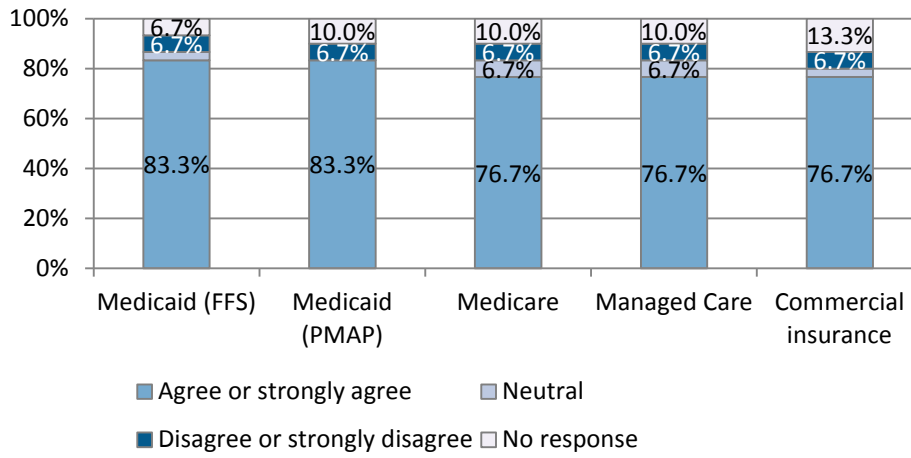


The majority of HCH organizations (75% to 80%) believe that it is important to collect payment for care coordination provided to HCH patients enrolled in any type of insurance (F Q14, n=30, see Figure 7).

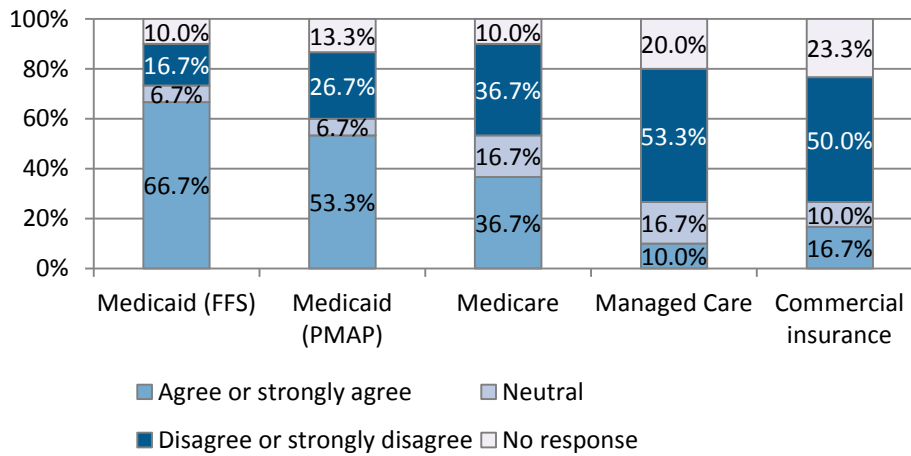
The majority of respondents agreed or strongly agreed that they were able to capture HCH care coordination payments due to them for HCH patients in fee-for-service (FFS) Medicaid (FFS; 66.7%) and Prepaid Medical Assistance Program (PMAP; 53.3%) populations (F Q15, n=30, see Figure 8). However, HCH organizations disagreed or strongly disagreed that they were able to capture payments for Managed Care (53.3% disagree) or commercial insurance (50.0%) populations. Note that Managed Care may include payment through the state-based MinnesotaCare program or other Managed Care programs, as the categories provided for response specified only fee-for-service Medicaid, PMAP Medicaid, Medicare, Managed Care, and Commercial Insurance.

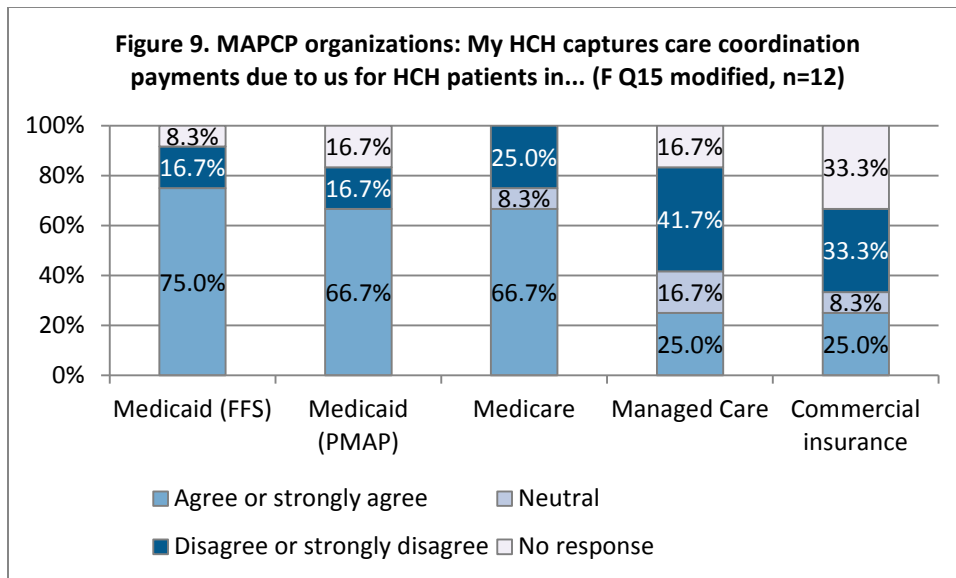
Forty percent (40%) of organizations responding to the survey participate in the Medicare Advanced Primary Care Program, and 43.3% do not, while 16.7% don't know or have no response (F Q13, n=30,). HCH organizations participating in MAPCP agree or strongly agree more often than the overall HCH respondent population that their HCH captures care coordination payments due to them for patients in Medicare (F Q15 modified, n=12, see Figure 9).

**Figure 7. It is important to collect reimbursement for care coordination provided to my clinic's HCH patients in... (F Q14, n=30)**



**Figure 8. My HCH captures care coordination payments due to us for HCH patients in... (F Q15, n=30)**





A little over half (53.3%) of respondents plan to take steps to increase the percentage of HCH enrollees for whom they receive Medicaid HCH care coordination payments (F Q18, n=30). Only 6.7% do not plan to increase numbers of HCH enrollees, but 33.3% of respondents did not know if they would take steps to increase HCH enrollment or not (6.7% did not respond to the question). Respondents noted that these steps include expanding to additional populations that need care coordination services, building care coordination infrastructure to accommodate more patients, and conducting ongoing enrollment of patients into the HCH.

When asked to offer any additional comments about financial matters related to HCH, the majority of survey participants did not respond (F Q19, n=30, n=10 [33.3%] responded; n=20 [66.6%] did not). Those who chose to respond noted challenges surrounding reimbursement and billing. Four respondents believe that reimbursement does not adequately support the care they provide, stating that: *“in order to sustain care coordination for this patient population a more robust reimbursement needs to occur,”* and that *“reimbursement amounts are too low to support the staff required to fully implement the program.”* Two respondents commented on billing, noting that *“we are anxious to get a system in place to facilitate billing for care coordination”* where their billing system is currently manual and *“requires a lot of follow-up”*; as well as an organization that noted it is getting denials of reimbursement for the Medicare population and *“efforts to work through these issues cost more than it’s worth in billing/reimbursement.”* Others noted that the approach to HCH financing *“needs to be applicable to small especially rural independent clinics,”* and that *“we’d like to see all commercial plans cover HCH services without responsibility.”*

## *SURVEY RESULTS: BILLING PRACTICES SURVEY*

### *Billing Practices Survey Overall Findings*

This survey indicates that the majority of responding HCHs do submit HCH care coordination claims, most often to governmental payers including Medicaid and Medicare programs. The majority of responding HCHs also use the Minnesota State Care Coordination Tier Assignment tool and no other tier assignment tools, and 40% report that the state tool is useful for billing while only 11% report that they use other tier assignment tools and find these tools useful for billing purposes. These data indicate that a majority of HCHs have adopted and are actively using the state payment and billing methodology for care coordination.

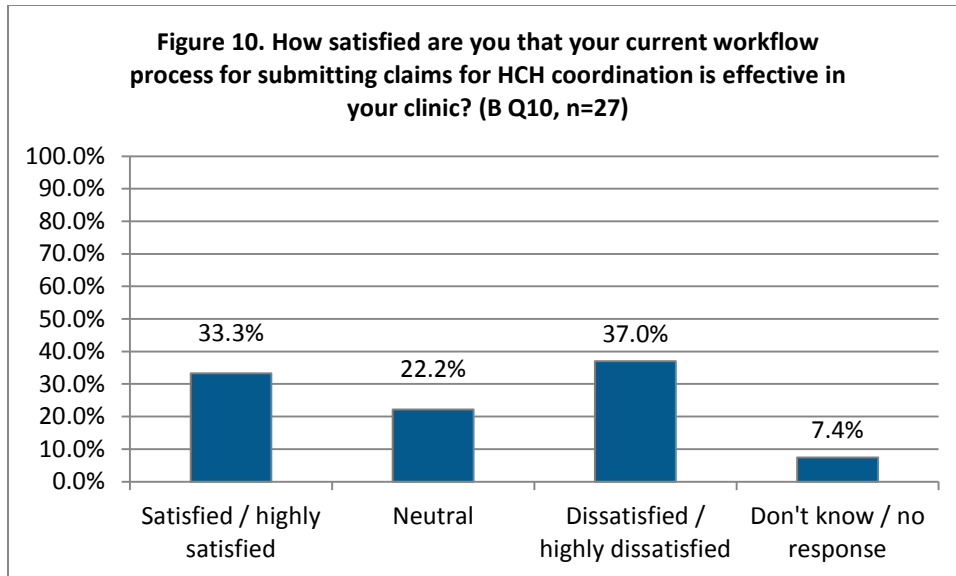
### *Billing Practices Survey Detailed Findings*

The billing practices survey asked HCHs about decisions and preparations made for clinic billing for monthly care coordination services, about how their process works, about if they had to make changes to their billing system in order to operate as a HCH certified clinic, and about additional feedback on billing.

Survey respondents were asked to describe their top three decisions that had to be made about the billing workflow process in order for their clinic to become a HCH (B Q4: n=27). The top decision most often had to do with the use of the tiering tool (including training staff on use of the tool, who would complete the tool, and what processes would be used to complete the tool; n=9). Respondents also noted top decisions that related to the automation of the billing process (can it be automated and/or integrated into electronic health records; n=4); how to bill (n=4); the impact of billing on patient behavior and liability through co-pays, wherein some insurers payment policy for care coordination requires that patients pay a co-pay or share of the care coordination cost (n=2); how to identify and track HCH patients (n=2); and whether or not to bill (if billing would cover costs; n=1). While these issues were noted as being important to implementing a billing workflow process for HCH, 37% of respondents noted that these issues did not factor into their decision to become a certified HCH clinic at all, and 14.8% said it factored in the decision to become a HCH a little (B Q5, n=27).

Sixty-three percent (63.0%) of respondents noted that they have made changes to their billing workflow processes related to being a HCH clinic, while 33.3% have not made changes and 3.7% do not know if changes were made (B Q6: n=27). The time taken by HCH organizations to make billing changes varied greatly, with approximately the same proportion of organizations taking less than a month to make changes (n=3) as those taking more than a year (n=4; B Q7, n=27).

HCH organizations had mixed responses when asked how satisfied they are that their current claims process is effective; 33.3% reported being satisfied or highly satisfied with their current process and 37.0% reported being dissatisfied or highly dissatisfied (B Q10, n=27, see Figure 10).



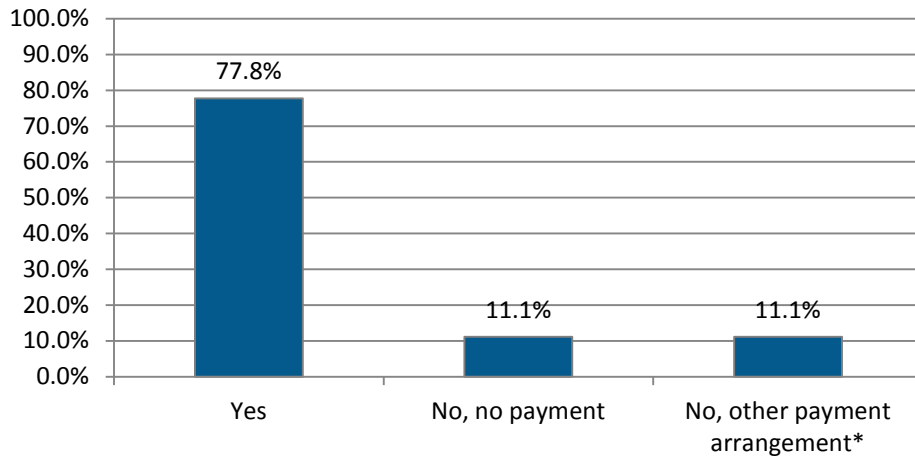
Approximately three-quarters of survey respondents do submit HCH care coordination claims (B Q11, n=27, see Figure 11). A small number do not submit claims and do not receive care coordination payment from other sources (11.1%, n=3). A small number of organizations reported that they do not submit claims, but that care coordination payment is included in other payment arrangements, including grant arrangements or total cost of care contracts. One of these organizations notes that these payment arrangements support HCH only indirectly *“through aspects of aligned incentive agreements.”*

More than three-quarters of respondents (77.8%) report submitting HCH care coordination claims for FFS Medicaid enrollees, while a smaller number (59.3%) submit claims to Managed Care payers for Medicaid enrollees (59.3%), Medicare (55.6%), and Commercial insurance (51.9%, B Q12, n=27, see Figure 12). One-third of respondents submit claims to Managed Care insurers, and 22.2% do not submit claims at all.

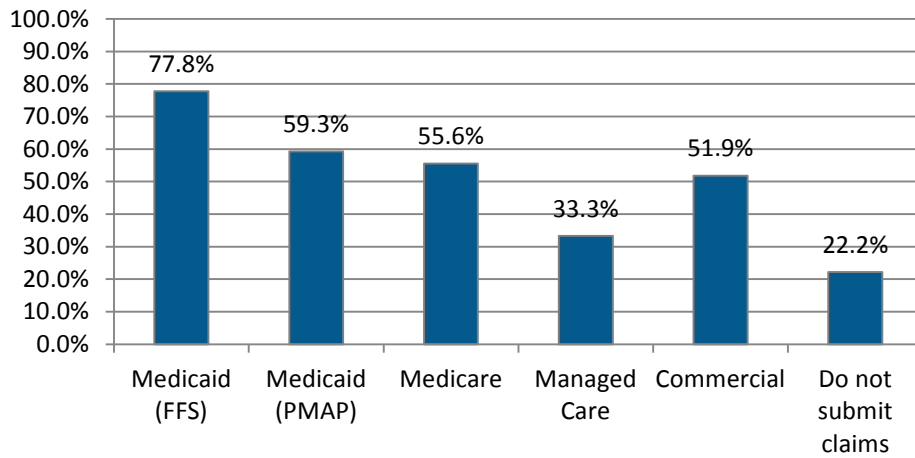
After submitting HCH care coordination claims, 70.4% of respondents have experienced denials of claims (B Q 14, n=27, see Figure 13). Respondents note that there were many different reasons for these claim denials, including: insurers that did not list care coordination as a covered benefit; insurers that require specific diagnosis codes which are different from the codes required in the state payment method; and if a provider is not registered as part of a HCH, the provider certification information is not on file, or the provider type is ineligible to bill for the service.

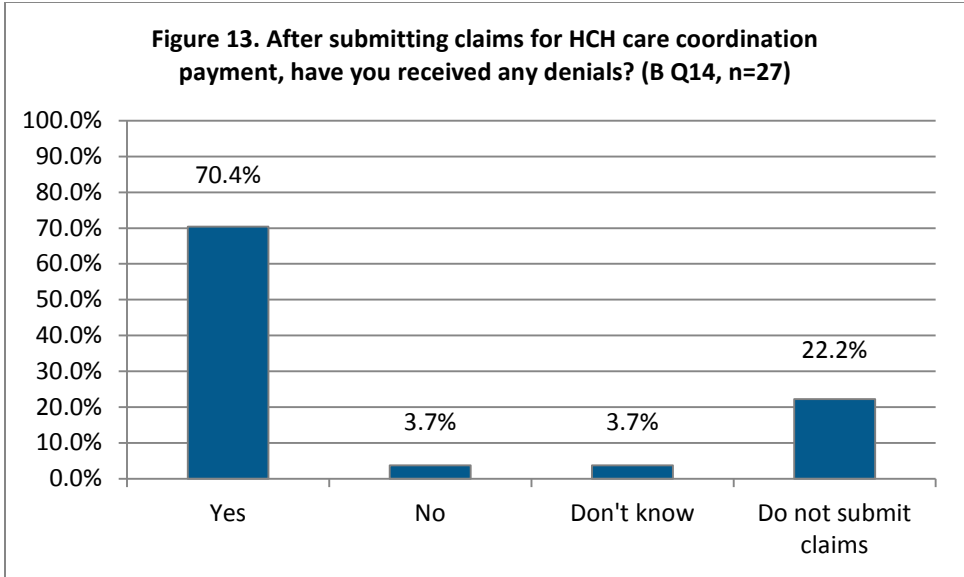


**Figure 11. Do you submit HCH care coordination claims? (B Q11, n=27)**

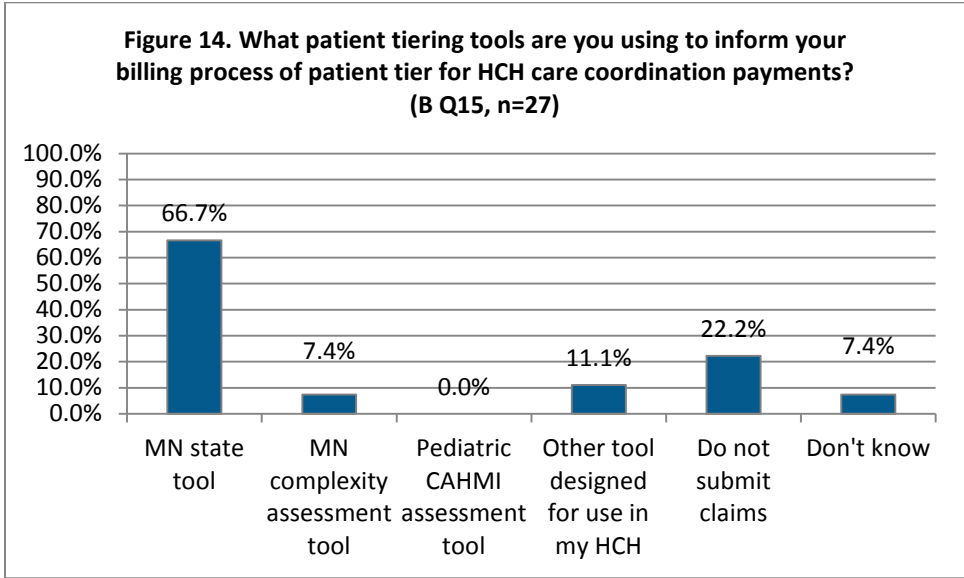


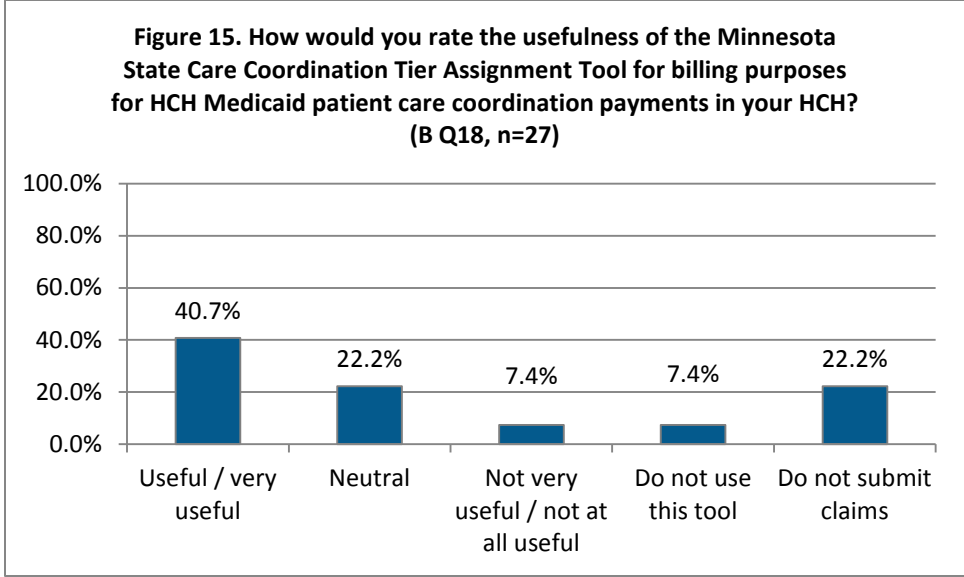
**Figure 12. To which payers do you submit HCH care coordination claims? (B Q12, n=27)**



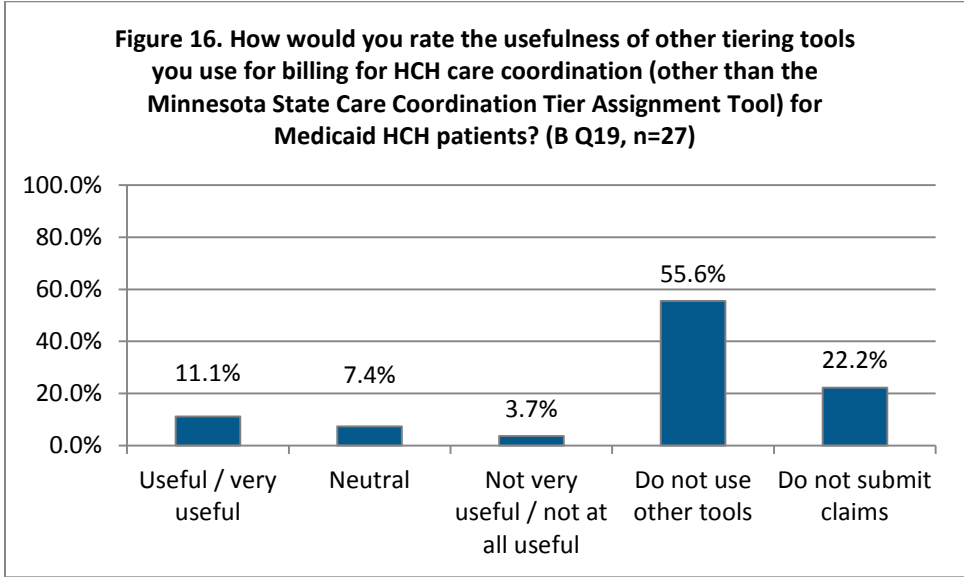


The majority of respondents (66.7%) use the State of Minnesota Care Coordination Tier Assignment Tool to inform their billing process of patient tier for HCH care coordination payments (B Q15, n=27, see Figure 14). A small proportion of HCHs use the Minnesota Complexity Assessment Tool (7.4%) and/or another tier assignment tool designed for use in their particular HCH (11.1%).





When asked to rate the usefulness of the MN State Care Coordination Tier Assignment tool for HCH billing purposes, 40.7% of respondents rate the tool as useful or very useful, and 22.2% rate the tool as neutral (B Q18, n=27, see Figure 15). 7.4% rate the tool as not very or not at all useful. When asked to rate other tools, the majority of respondents (55.6%) note that they do not use tier assignment tools for billing other than the state tool (B Q19, n=27, see Figure 16).



Finally, respondents were asked to add any other comments they had about billing for HCH care coordination services (B Q20, n=27). Eleven survey participants (40.7%) chose to respond to this question. Their comments referred to a wide range of issues regarding billing for HCH care coordination services. Respondents noted challenges and possible improvements to the billing process and payment

method, such as suggesting that *“invoice billing would be better than HCFA 1500 billing for care coordination services,”* that the manual tiering process is *“time consuming,”* that they would like to bill for all patients with chronic conditions *“since care coordination is being provided ... regardless of their tiered status,”* and that *“administrative, billing and claim follow-up costs exceed reimbursement.”* Respondents also noted that a *“simple systematic way to submit consistently to payers”* is needed, and that *“all payers need to recognize this is a valuable service and should include it in their benefits without patient responsibility.”* Finally, one HCH added a positive comment that *“developing the tiering score assists as a review of the patient chart by patient, care coordinator, influential provider and medical director. This promotes completeness of disease identification.”* (Note that by “influential provider” the evaluation team surmises the respondent was referring to the primary care provider most involved with a particular patients’ care.)

#### *SURVEY RESULTS: PATIENT TIERING PRACTICES SURVEY*

##### *Patient Tiering Practices Survey Overall Findings*

The patient tiering practices survey indicates that the state HCH tiering method has been adopted by the majority of HCH organizations, and that respondents believe this tiering method is adequate for current billing and clinical use. While HCHs believe that the state tiering method is a good start at providing tiering of patient complexity and cost, specific improvements and modifications could be made to better encompass patient care complexity.

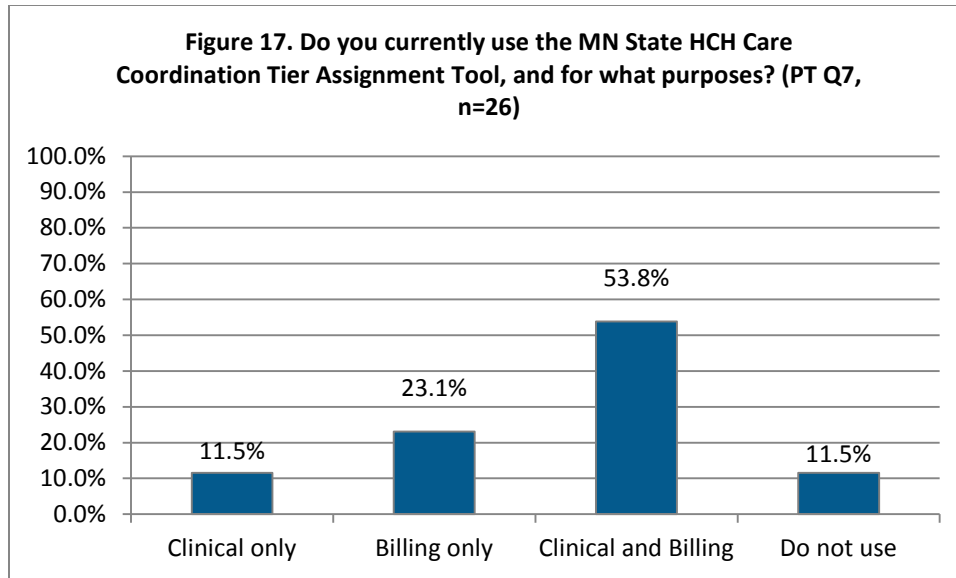
##### *Patient Tiering Survey Detailed Findings*

The patient tiering survey asked HCHs about the tools and processes used to complete the tiering process; about if or how patient tiering connects with the billing process; about how effective they feel their current tiering process is; and about any additional feedback they have on patient tiering.

Almost all HCHs had not used a tier assignment tool before becoming certified as a HCH (Q4, n=26, no previous use = 25). The single organization that had used a tier assignment tool used a *“clinical complexity, three tier tool to plan for frequency of [patient] visit.”*

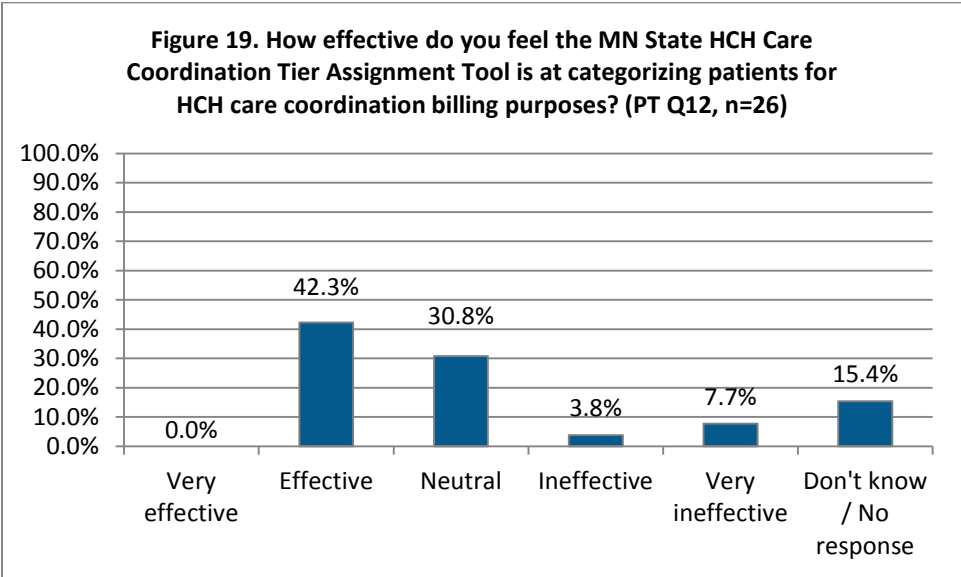
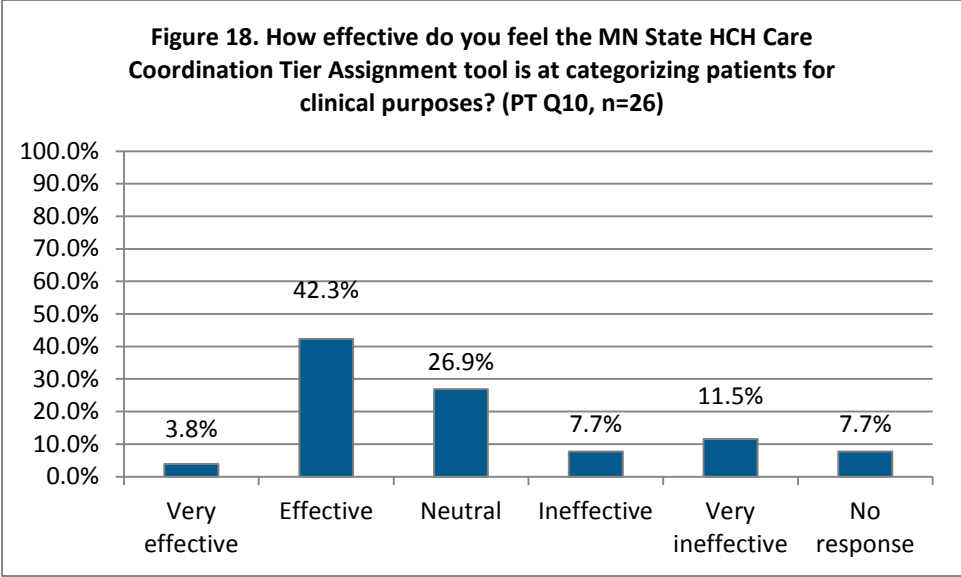
As part of becoming a HCH, most organizations implemented a new patient tier assignment tool (Q5, n=26, new tool = 22, no new tool = 4). Of those who implemented a new tool, the majority used the state patient tier assignment tool or a variant of the tool (n=19). Organizations varied in the amount of time they took to implement the tool, but a majority implemented the tool in less than six months (Q6, n=26, < 6 months = 15, > 6 months = 4, no response = 7).

About half of respondents use the state tiering tool for both clinical and billing purposes. 23.1% use the tool for billing purposes only; 11.5% for clinical purposes only; and 11.5% do not use the tool (Q7, n=26, see Figure 17).



HCH respondents report that the MN state tier assignment tool is either effective (42.3%) or neither effective nor ineffective (26.9%) at categorizing patients for clinical purposes (PT Q10, n=26, see Figure 18). The main criticism of the tool provided by those respondents who felt the tool was ineffective was that it *“does not capture the complexity or clinical needs of patients”*. Respondents commented that *“clients may have multiple complex conditions within one tiering category,”* which are not fully accounted for in the tool. Others noted that the tool *“does not account for the psychosocial needs aspects of medical complexity,”* and is *“not accurate or useful in pediatric patients.”*

HCH respondents also reported that the state tier assignment tool was effective at categorizing patients for billing purposes (42.3%) or that the tool was neither effective nor ineffective (30.8%; PT Q12, n=26, see Figure 19). Those who find the tool ineffective for billing purposes note that *“social criteria should be considered as they add to patient complexity in a significant way that the current tool misses,”* and *“[The tool] doesn’t capture the full-picture of how much care coordination a patient needs or predict how much time a care coordinator will spend with the patient.”* Those who find the tool effective for billing purposes noted that *“it is a good first phase to get us going in the right direction – this could be enhanced based on other predictive modeling / risk stratification models,”* and that the tool is *“effective under current payment methodology; however, it does not support appropriate payment for services based on complexity and needs.”* These comments indicate that the state tiering tool is an adequate and effective basis for current clinical and billing work, but should be further developed and refined to better reflect clinical and psycho-social complexity as it relates to care coordination time and cost of care.



Finally, respondents were asked if they had anything else to tell us about patient tiering within their HCH. A minority of respondents chose to comment (Q18, n=26, 9 responses). These comments mostly focused on challenges with use of the tiering tool and strategies or solutions to overcome these challenges.

Two HCHs described how they attempted to provide electronic tiering of the patient population. One organization tried an e-tiering pilot but found that it *“consistently resulted in lower tier assignments for our more severely involved clients.”* The other organization is working on understanding which elements of the tiering tool are best implemented manually or electronically and reports that *“we continue to look at models and systems to enhance and make the tiering process systematic and less manual for providers and care coordinators.”*

Other HCHs noted that *“we would prefer if this process occurred at the payer’s end since it is burdensome to clinic staff,”* that the *“current tool is too subjective,”* that tiering *“requires a lot of work and doesn’t always result in a tier we feel represents the patients’ true care coordination needs due to the lack of inclusion for social determinants of health,”* and that *“all payers should recognize the value of HCH services and offer eligibility without patient responsibility.”*

## CONCLUSIONS

Analysis of claims data and survey data collected from Health Care Home clinics allows us to draw several conclusions about the implementation of the state payment method, billing, and general costs associated with HCH implementation.

While it is clear that HCH organizations feel it is important to obtain adequate financing to support initial transformation and maintain care coordination and billing, clinics are still working out the details of how to efficiently bill for and access payments for HCH services. The majority of HCH organizations responding to these surveys report submitting HCH care coordination claims, most often to governmental payers including Medicaid and Medicare programs. However, analysis of claims submitted to Medicaid shows about half of certified clinics submitting care coordination claims in 2012. Possible reasons for this discrepancy may be that clinics responding to the survey include claims submitted to payers other than Medicaid, and the full number of claims being submitted is not reflected in a Medicaid-only analysis. Additionally, given that survey results indicate establishing systems and procedures for billing may be a time consuming process, some clinics may intend to submit claims but do not yet have the systems in place to do so. Our finding that the proportion of certified clinics submitting care coordination claims is increasing over time may also support the idea that ability to bill for care coordination is a lagged process that clinics are better able to implement over time.

HCHs are able to capture payment due to them from governmental payers, in particular Medicaid payers, but have more challenges attempting to access payment from non-governmental payers. These challenges include implementing multiple billing processes to match differing billing requirements based on payer and unwillingness to charge payers for care coordination if it means patients may have to pay a co-pay for these billings. While surveys did not specifically ask about varying billing and payment methods by payer, comments from HCHs indicate that having multiple different payment arrangements for HCHs may cause confusion and increase administrative costs.

Not all HCH organizations monitor costs and financial performance associated with operating as a HCH. Among those that do, the majority have experienced cost increases. However, HCHs note that these expenses may largely be driven by investments to change billing systems and add care coordination staff; and the impact of these start-up costs may be lessened over time as the HCH model becomes institutionalized within clinics.

The majority of HCHs have adopted the Minnesota State Care Coordination Tier Assignment tool for billing and/or clinical management purposes, and few HCHs use any other patient tiering tools for

clinical or billing purposes. While HCHs did note specific modifications that might be made to the patient tiering tool, such as greater ability to account for psychosocial factors, most appear to view the tool as a good starting place for assessing patient tier and cost.



## CHAPTER 5: UTILIZATION AND COST ESTIMATES

### UTILIZATION AND COST SUMMARY

Medicaid enrollees attributed to certified Health Care Homes were:

- On average more expensive than those attributed to non-HCH clinics in 2010 and 2011.
- However, these differences became smaller in 2011 and 2012, with reimbursement for professional services being the dominant factor in HCH clinics being more expensive.
- Enrollees attributed to HCHs had 9.2% lower overall estimated per capita Medicaid expenditures over all 3 years of the HCH initiative from 2010-2012.

### INTRODUCTION

In this chapter we review Medicaid claims data for the years 2010 through 2012 comparing the use and cost of Medicaid services for enrollees attributed to HCH clinics and non-HCH comparison clinics. In addition, we examine a principal question of the evaluation: Was care provided to enrollees attributable to a Health Care Home more expensive or less expensive than those who were not attributed to a HCH? The data presented in this chapter have not been risk adjusted in any way, and reflect actual Medicaid expenditures.

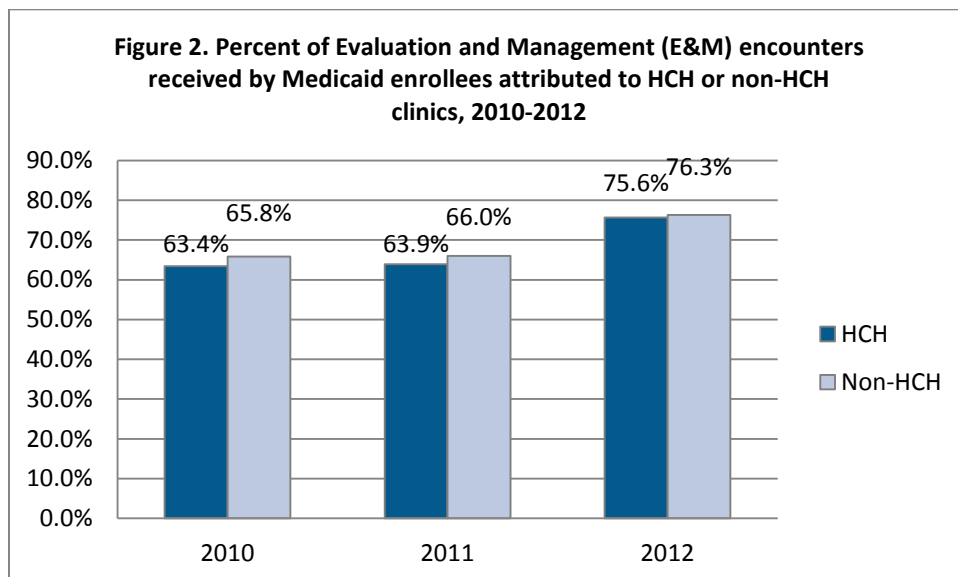
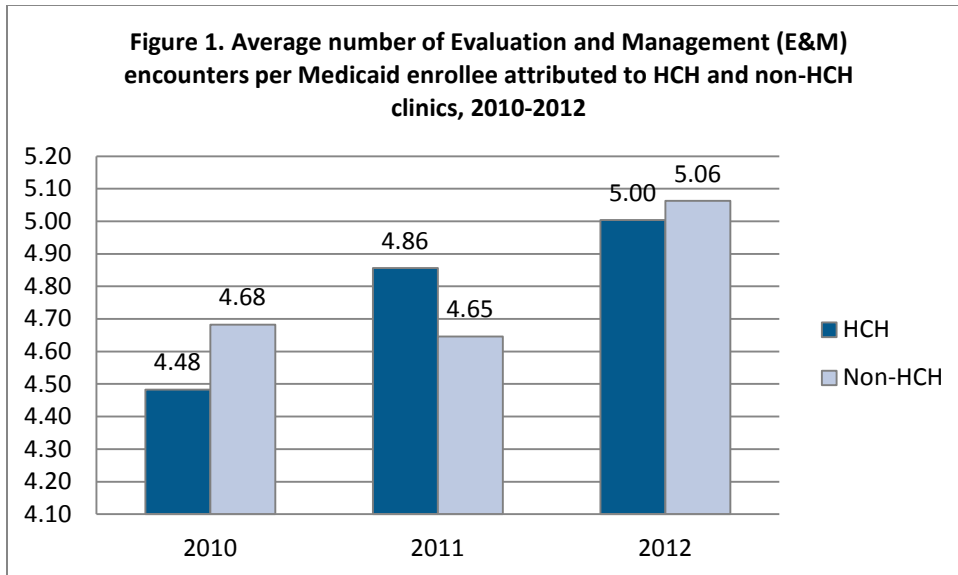
### USE OF SERVICES AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES

Before considering differences in reimbursement for HCH and non-HCH populations, we examine differences in the use of services on a per patient basis. This provides a context for a discussion of differences in reimbursement, as clinics have differing contractual arrangements for non-Medicaid enrollees which can lead to differences in patterns of service use based on the reimbursement that the clinic receives for non-Medicaid enrollees.

First we show the distributions of the use of physician services. We show these data for descriptive purposes and for future comparison, but refrain from making evaluative statements about their distribution at this time.

Figure 1 shows the difference in the average number of evaluation and management (E&M) encounters per enrollee attributed to HCH certified versus non-HCH clinics. There is no clear pattern of differences in E&M encounters between HCH and non-HCH, with HCHs having fewer encounters in 2010 and 2012 but non-HCH comparison clinics having fewer encounters in 2011. Figure 2 shows the percent of total E&M encounters received by Medicaid enrollees in the clinics to which they are attributed. We see only slight differences in this percentage between HCH and non-HCH clinics, with non-HCH clinics maintaining a slightly higher percentage of E&M visits received by their attributed enrollees over time. Figure 1 shows E&M encounters for both primary care and specialty care clinics, and some E&M visits may occur at specialty clinics where HCH patients need to receive care. We cannot conclude if these

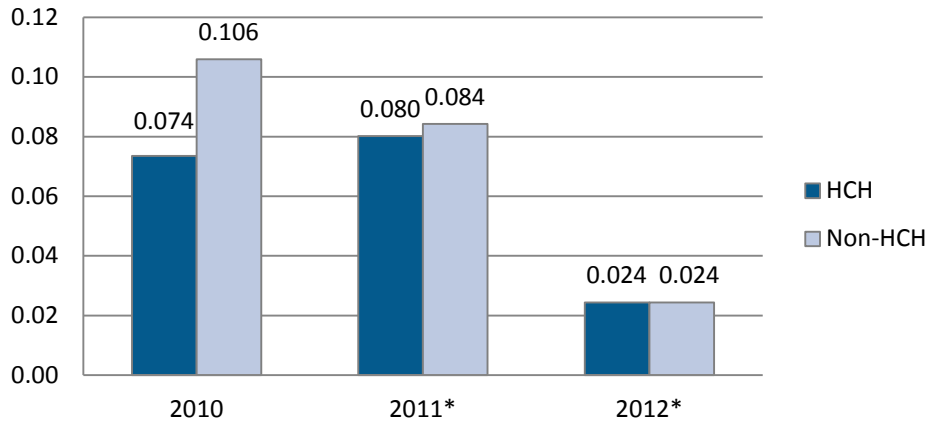
differences arise from either appropriate or inappropriate utilization or from effects from becoming served by a HCH taking time to develop and become observable, and we lack the pertinent data to draw a firm conclusion as to which is the case.



Figures 3 through 5 show the use of hospital inpatient, outpatient, and emergency department care by Medicaid enrollees attributed to certified HCH clinics compared to non-HCH clinics.

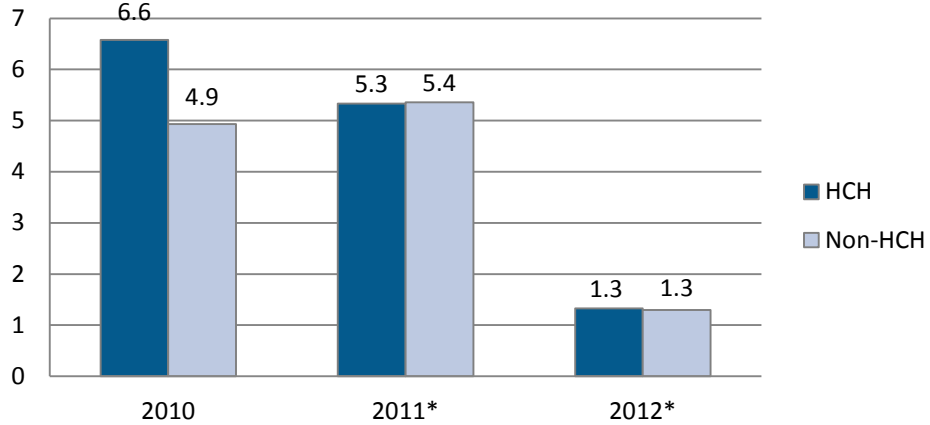
Figures 3 and 4 indicate that while enrollees attributed to Health Care Homes had significantly lower inpatient hospitalizations and higher hospital outpatient services in 2010 there is no statistically significant difference between services received in HCH and non-HCH clinics in 2011 and 2012. Figure 5 shows that Medicaid enrollees attributed to Health Care Homes have fewer Emergency Department (ED) visits than enrollees attributed to non-Health Care Homes in 2010, 2011, and 2012.

**Figure 3. Average number of Hospital Inpatient stays among Medicaid enrollees attributed to HCH and non-HCH clinics, 2010-2012**

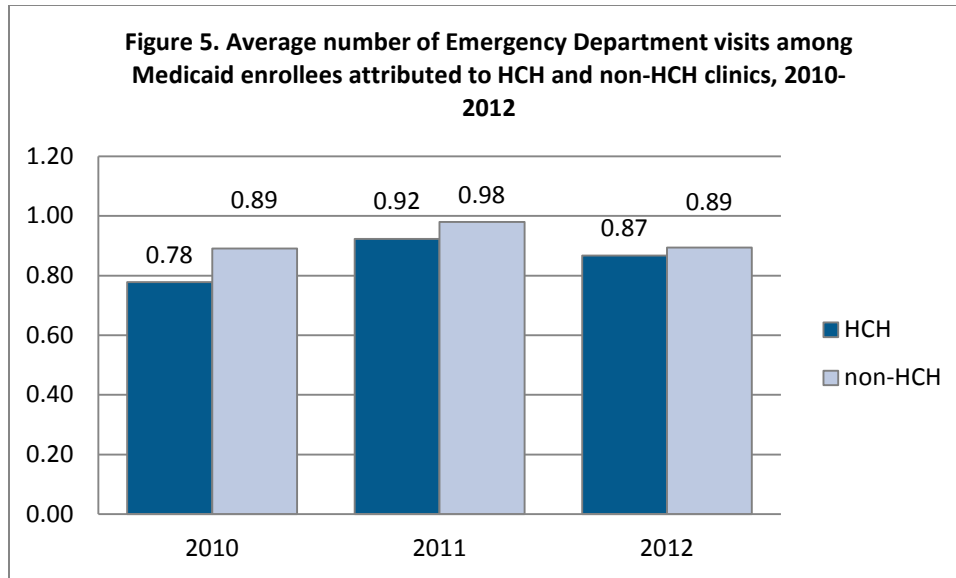


\*Differences between HCH and non-HCH clinics for these years are not statistically significant.

**Figure 4. Average Number of Hospital Outpatient Encounters among Medicaid enrollees attributed to HCH and non-HCH clinics, 2010-2012**



\*Differences between HCH and non-HCH clinics for these years are not statistically significant.



**SUMMARY**

This analysis indicates that Medicaid enrollees attributed to Health Care Homes had slightly fewer of their evaluation and management visits at their attributed clinic than enrollees attributed to non-Health Care Homes. Despite this, enrollees attributed to Health Care Homes used the same amount or slightly fewer hospital services across the analysis period than did enrollees attributed to non-Health Care Homes. In particular, enrollees attributed to HCHs show consistently lower rates of ED use than non-HCH attributed enrollees. The average number of ED visits among Medicaid enrollees attributed to HCHs was 12% lower than non-HCHs in 2010, 6% lower in 2011, and 2.2% lower in 2012. The magnitude of these effects is similar to the effects observed in other research on medical homes.<sup>25</sup> Further research will examine the stability and duration of these effects. In general, emergency departments are thought to be overused and a reduction in emergency department use would be seen as a positive impact. However, as is true with any utilization, the amount of utilization is dependent on the enrollees' appropriate need for services. We cannot draw conclusions about whether these data reflect appropriate need or appropriate service use at this time.

**REIMBURSEMENT FOR SERVICES AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES**

Reimbursement for services for Medicaid enrollees was calculated from Medicaid paid claims for the years 2010, 2011, and 2012. The analysis that follows shows differences in reimbursement between certified Health Care Home clinics and non-HCH comparison clinics during the reporting period.

Care should be taken in interpreting these results as there may be differences in the completeness of claims across clinics and across services provided in those clinics. These results are also not risk adjusted and include HCH and non HCH clinics that provide service for high cost and/or

complex enrollees. These results do reflect the actual dollars the Medicaid program paid to these clinics during these times for the fee-for-service enrollees. However, reimbursement amounts for non-fee-for-service managed health care program (MHCP) enrollees were based on imputed paid amounts rather than actual paid amounts. So, the total reimbursement amounts shown here combine actual paid amounts for fee-for-service Medicaid and estimated paid amounts for managed care Medicaid enrollees. We do not report statistical significance in the differences between reimbursement for certified and non-certified clinics as it is the dollar difference in reimbursement that is of interest, not the probability that differences may be due to chance.

Figure 6 shows average per enrollee per year reimbursement estimates for enrollees in HCH and non-HCH clinics. The average Medicaid reimbursement per enrollee attributed to HCHs was 27.2% higher than reimbursement per enrollee attributed to non-Health Care Home clinics in 2010 and 12.9% higher in 2011. However, HCH enrollee reimbursement was 5.3% lower than reimbursement for enrollees attributed to non-HCH clinics in 2012. The average reimbursement per enrollee attributed to HCH clinics decreased by 11.2% between 2010 and 2011 and by 36.5% between 2011 and 2012. In comparison, the average reimbursement per enrollee attributed to non-HCH clinics increased by 5.9% between 2010 and 2011 and decreased by 23.0% between 2011 and 2012. Analyses with more observation years and risk adjustment are necessary to fully understand these changes in average reimbursement per enrollee per year.

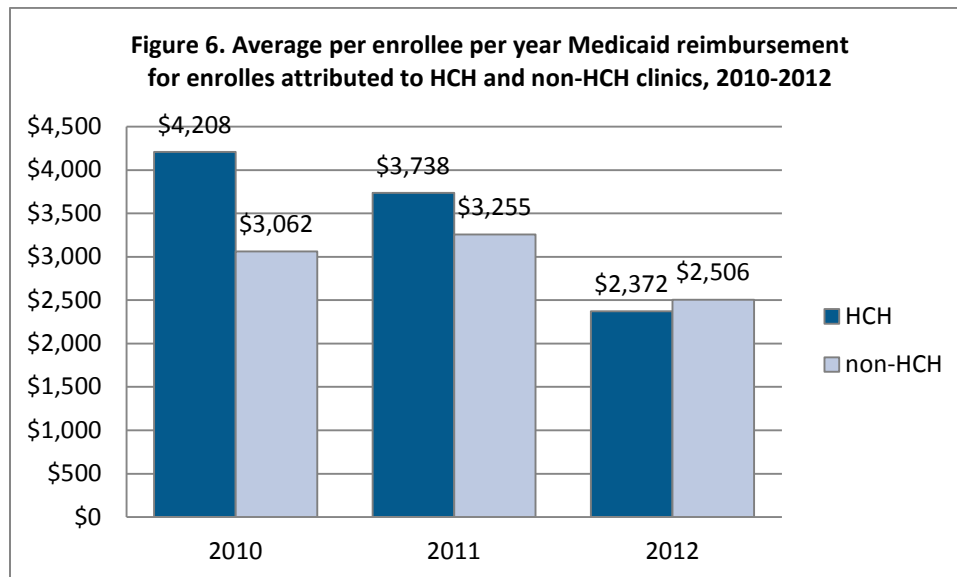
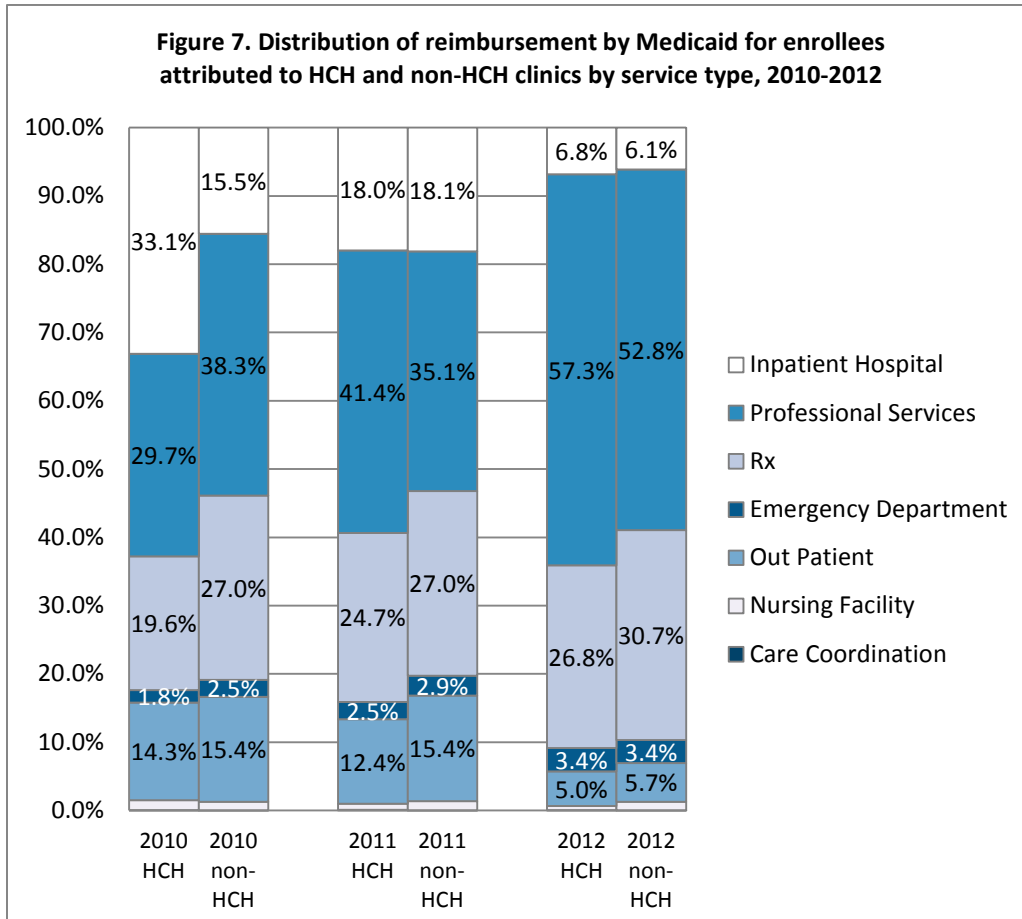


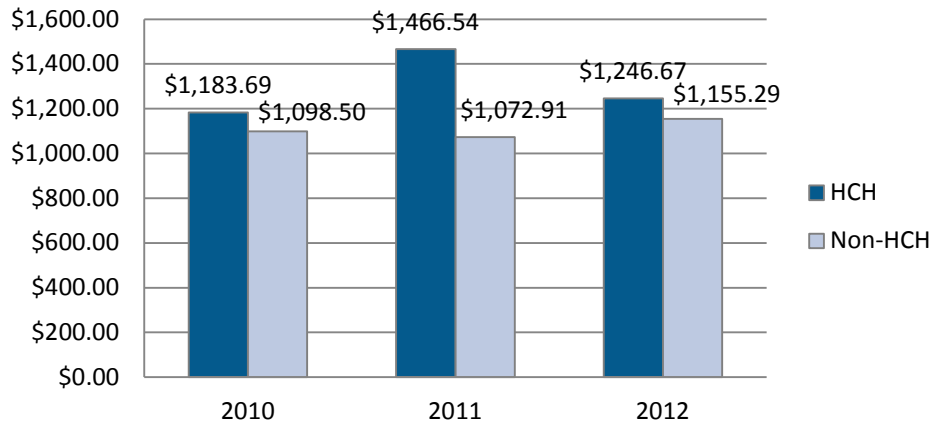
Figure 7 shows the percentage distribution of estimated reimbursement by Medicaid to HCH and non-HCH certified clinics for major reimbursable services provided to attributed enrollees. This allows us to examine the proportion of overall costs paid by the Medicaid program for enrollees attributed to HCH and non-HCH clinics by type of health care service. As shown in Figure 7, enrollees attributed to HCHs

had a greater proportion of reimbursement for inpatient care in 2010 than non-HCH clinics, as well as a smaller proportion of reimbursement for drugs in 2010 than non-HCH clinics. Other than these dissimilarities, there are few clear differences in the distribution of reimbursement for attributed enrollees between HCH and non-HCH clinics. While the distribution of different reimbursed services is not an intuitive metric, it is informative. In practice, clinic financial reports track the amount of use, and thus reimbursement, by these categories, and this distribution allows us examine to the relative scale and importance of reimbursement for each type of service use.

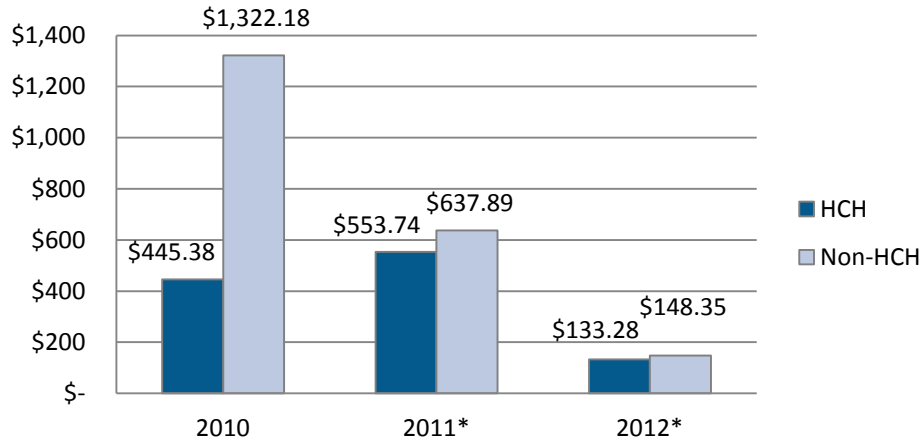


Figures 8 through 13 show reimbursement patterns and amounts for the individual services shown in Figure 7. Figure 8 shows that average reimbursement for professional services was higher for enrollees attributed to HCH clinics than those attributed to non-HCHs in 2010, 2011 and 2012. Figures 9 through 13 do not show any dominant trends in reimbursement between enrollees attributed to HCH and non-HCH clinics for hospital inpatient, hospital outpatient, emergency department, nursing facility, or pharmacy services.

**Figure 8. Average per enrollee per year Medicaid reimbursement for Professional Services provided for enrollees attributed to HCH and non-HCH clinics, 2010-2012**

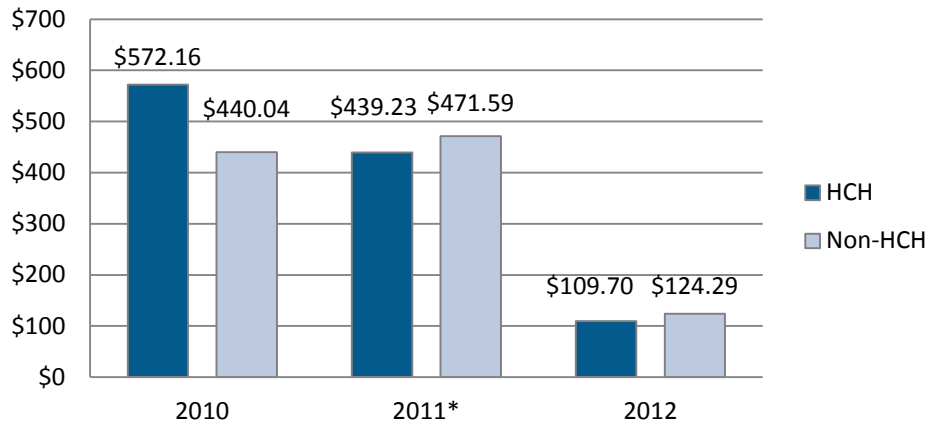


**Figure 9. Average per enrollee per year Medicaid reimbursement for Hospital Inpatient care services provided for enrollees attributed to HCH and non-HCH clinics, 2010-2012**



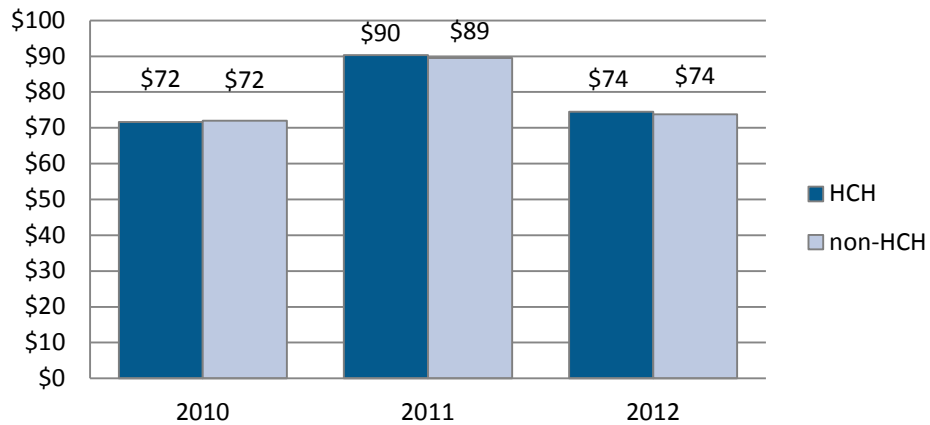
\*Differences between HCH and non-HCH clinics for these years are not statistically significant.

**Figure 10. Average per enrollee per year Medicaid reimbursement for Hospital Outpatient encounters for enrollees attributed to HCH and non-HCH clinics, 2010-2012**

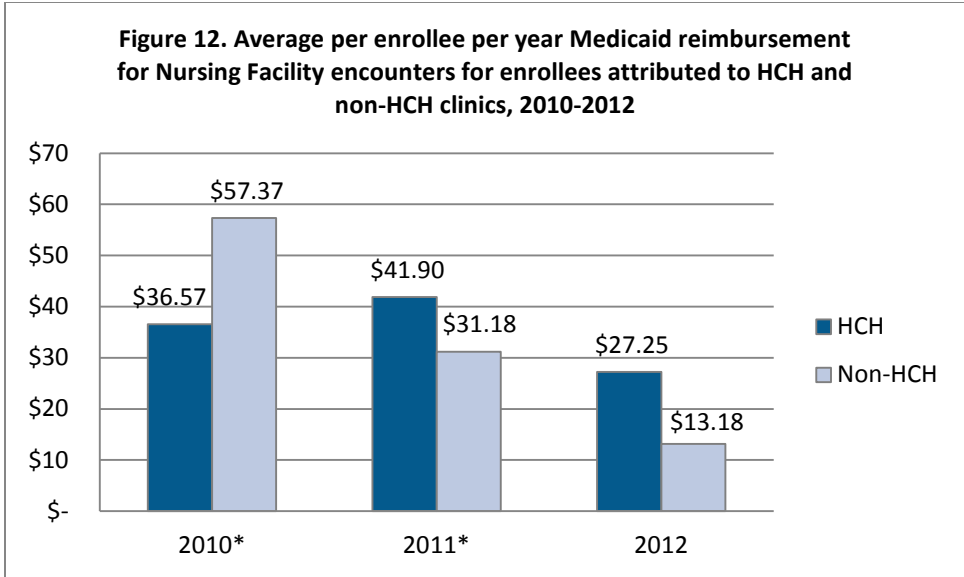


\*Differences between HCH and non-HCH clinics for these years are not statistically significant.

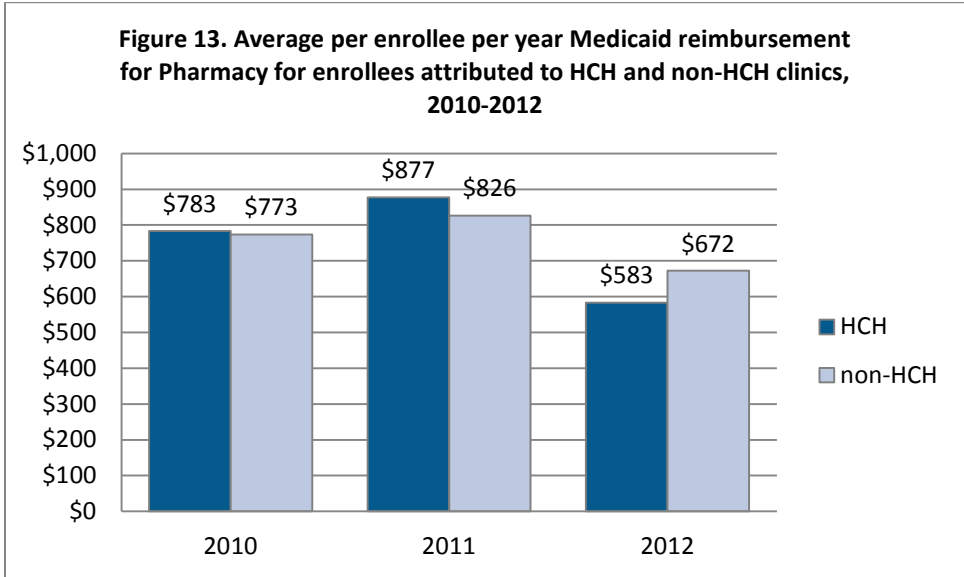
**Figure 11. Average per enrollee per year Medicaid reimbursement for Emergency Department services for enrollees attributed to HCH and non-HCH clinics, 2010-2012**







\*Differences between HCH and non-HCH clinics for these years are not statistically significant.



These Figures indicate that there was no overarching difference in reimbursement for attributed enrollees between HCH and non-HCH clinics for the evaluation period, other than higher reimbursement for professional services for enrollees attributed to HCH clinics.

**SUMMARY**

Medicaid enrollees attributed to Health Care Homes were, on average and during the start-up year, more expensive than those in the comparison clinics. However, these differences become smaller in 2011 and 2012 with reimbursement for professional services being the dominant factor in enrollees attributed to HCHs being more expensive. Note that these differences can be due to a number of specific

effects: the actual cost of the service to the provider, the case mix of the patient population, or the disease burden of the enrollees.

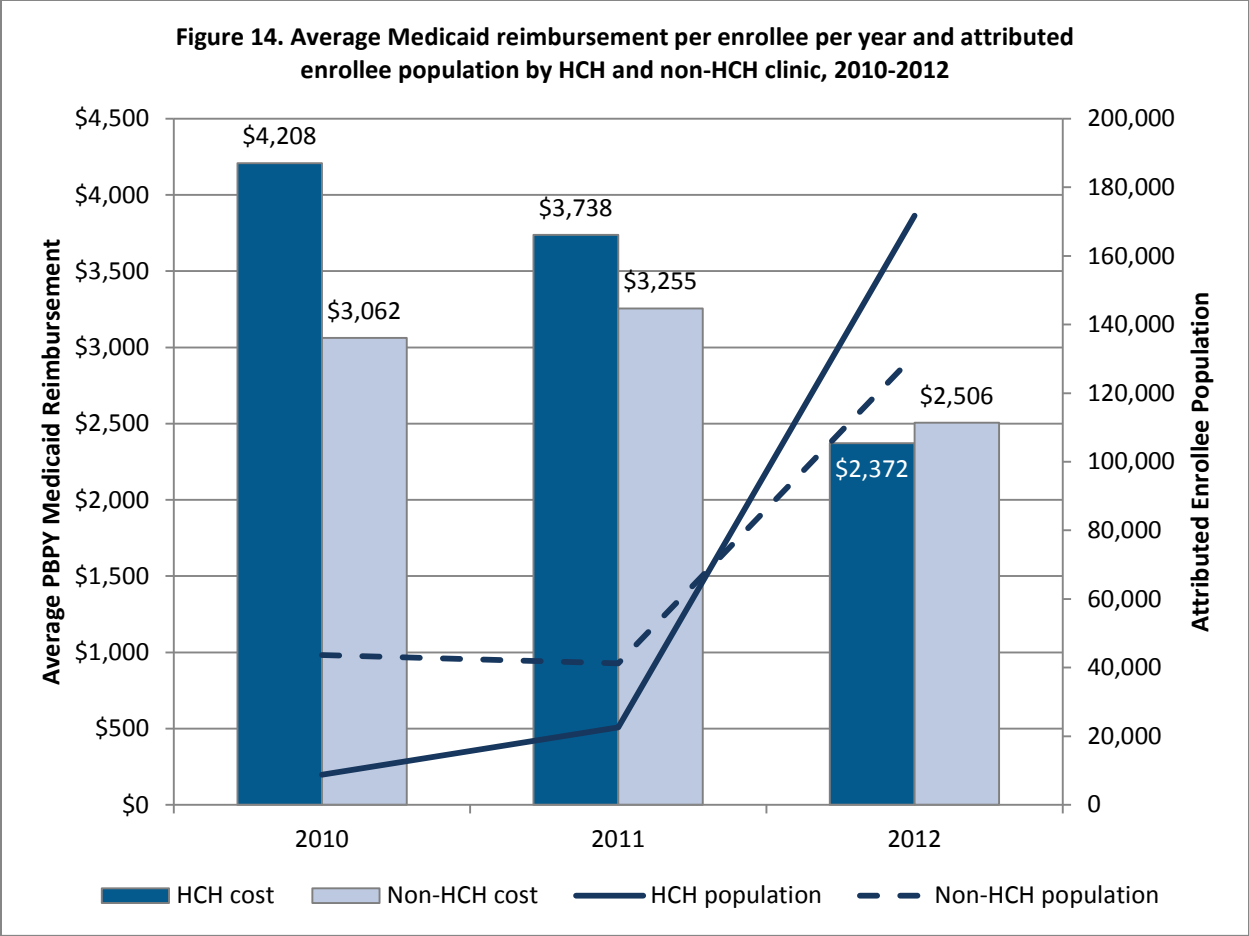
### ESTIMATED COST SAVINGS OF THE HEALTH CARE HOMES INITIATIVE

To begin to answer the question of cost savings, we examine the total experience of Medicaid enrollees, not the average experience as in the previous section of analysis.

Table 1 shows the total number of Medicaid enrollees, the total cost of those enrollees who were attributed to either a HCH or a non-HCH clinic during 2010, 2011, or 2012, and their total and average cost in reimbursement for enrollees attributed to these clinics from the Medicaid program from 2010 to 2012. Over the three year evaluation period of the Health Care Homes initiative, the cost of enrollees attributed to HCH clinics represented an estimated net savings to Medicaid of 9.2% as compared to the cost of enrollees attributed to non-HCH clinics.

<b>Table 1: Calculation of Medicaid Cost Savings over 3 years of Health Care Homes Initiative</b>				
	<b>Total Number of Attributed Enrollees over 2010, 2011, and 2012</b>	<b>Total Cost for attributed enrollees over 2010, 2011, and 2012</b>	<b>Average Cost per Attributed Enrollee over 2010, 2011, and 2012</b>	<b>Estimated HCH Cost Savings over 2010, 2011, and 2012</b>
<b>HCH clinics</b>	<b>203,071</b>	<b>\$525,626,946</b>	<b>\$2,588</b>	<b>9.2%</b>
<b>Non-HCH clinics</b>	<b>264,523</b>	<b>\$753,975,197</b>	<b>\$2,850</b>	

Although Figure 6 in the section above shows that enrollees attributed to HCHs in 2010 and 2011 had higher average per-enrollee cost to Medicaid, the overall cost to the Medicaid program of HCH enrollees is lower than non-HCH enrollees. Figure 14 shows annual per enrollee costs along with population size and indicates that overall cost can be less despite annual costs being more as a result of changes in the population size of HCH and non-HCH attributed enrollees over time. Although individual enrollees attributed to HCHs were more expensive than those attributed to non-HCHs in 2010, there was a small total population of enrollees attributed to HCHs, leading to a low overall cost to the program. As attribution to HCHs increases dramatically in 2012, the savings per enrollee attributed to HCH in 2012 is magnified by the larger population. This analysis does not allow us to determine if Health Care Homes had a causal effect on decreasing costs, as the decreased cost per enrollee for HCHs in 2012 may be due to either changes in the population attributed to HCH or to an actual effect of HCH. Causal effects will be examined in the second phase of the evaluation, which takes place in 2014.



**CONCLUSION**

In conclusion, Health Care Homes, while averaging higher estimated costs and use for attributed enrollees during their start-up years, had lower overall estimated Medicaid expenditures of 9.2% less than expenditures for enrollees attributed to non-Health Care Home comparison clinics.

Finally, care must be exercised in interpreting these data as they are merely the result of the current demonstration and may not represent the ‘true’ causal impact of Health Care Homes. For instance, we cannot, without a multivariate approach, determine if these differences are due to the certified clinics predominately presiding in large metropolitan areas. Clinics in large metropolitan areas have higher underlying costs than the comparison clinics, differences in the price of goods, and the ability to negotiate favorable contracts because of high levels of competition or differences in enrollee education, age, or health status, any of which would explain the differences we found.

## CHAPTER 6: DISPARITIES IN USE AND COST BY RACE

### DISPARITIES IN USE AND COST SUMMARY

Compared to populations of color in non-certified clinics, HCH populations of color:

- Used fewer emergency department and ambulatory surgery services
- Had fewer E&M visits
- Used more professional services and significantly more hospital outpatient services

Compared to whites in certified HCHs, populations of color:

- Had more care coordination encounters
- Used more emergency department services
- Otherwise, generally used fewer services

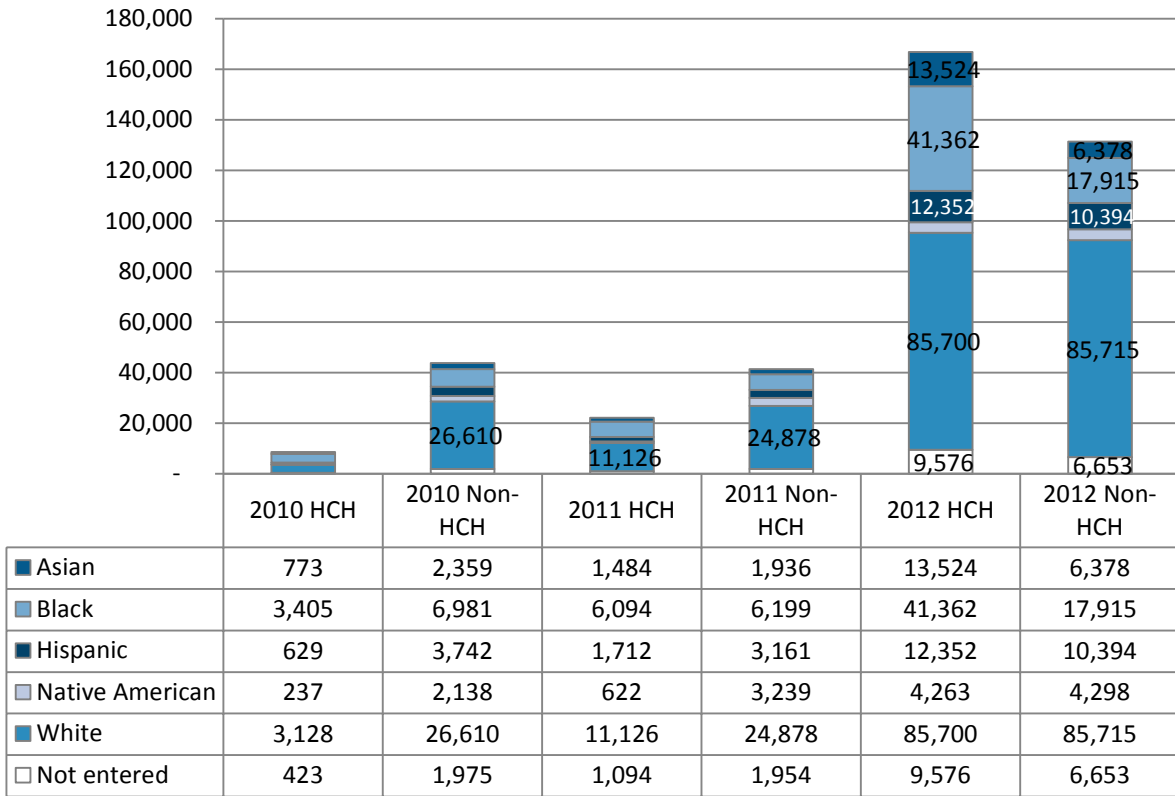
### INTRODUCTION

In this chapter, we document differences in the number of services received by white Medicaid enrollees and enrollees of color. Our approach is twofold. First, we examine differences in the use of services between populations of color in certified Health Care Homes and those in the comparison clinics. Next, we examine differences between white Medicaid enrollees and enrollees of color in certified Health Care Homes.

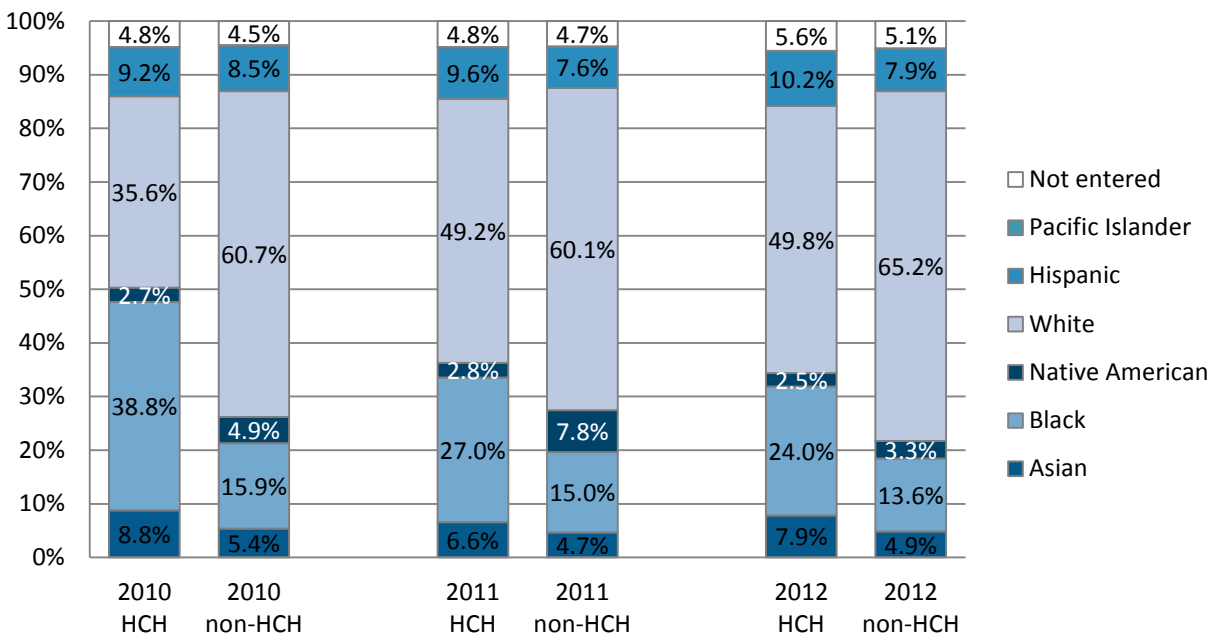
Because of the small number of non-white enrollees of color in certified Health Care Homes in 2010 and 2011, we limit our examination to the 2012 results (see Figure 1). We also limit our discussion to populations of color rather than to individual races, as the number of enrollees within individual race categories becomes too small to render stable findings. Typically, when examining disparities we would also examine measures of health care quality. However, the quality data available through SQRMS for this report do not include any patient identification, including race.

Figure 1 shows the overall racial and ethnic population distribution for Medicaid enrollees attributed to HCH and non-HCH clinics from 2010-2012. Figure 2 (which was also included in the Demographics chapter of this report) shows the distribution of race and ethnicity within the HCH and non-HCH attributed clinic populations. As noted in the Demographics chapter, HCHs appear to serve a greater proportion of patients of color than non-HCHs in 2010-2012.

**Figure 1. Racial and Ethnic population distribution of Medicaid enrollees attributed to HCH and non-HCH clinics, 2010-2012**



**Figure 2. Racial and Ethnic Distribution of Medicaid enrollees attributed to HCH and non-HCH clinics, 2010-2012**



## USE OF SERVICES AMONG HCH AND NON-HCH ATTRIBUTED MEDICAID ENROLLEES OF COLOR

We tested the difference in the percent of Medicaid enrollees of color in certified Health Care Homes and the comparison clinics who received common medical services. The results are shown in Figure 3.

Overall, Medicaid enrollees of color attributed to certified clinics had fewer emergency department visits, fewer ambulatory surgeries, fewer evaluation and management visits, and more professional services in their attributed clinic than those in comparison clinics. Medicaid enrollees of color attributed to HCHs had more professional services (which are typically physician visits but also include visits to any provider), used more hospital outpatient care, and received care at more clinics than populations of color attributed to comparison clinics. (Note that having more hospital outpatient care dictates that that the enrollee would also have more visits outside their attributed clinic.)

Figure 3. Differences between per enrollee per year use of services by Medicaid enrollees of color attributed to certified Health Care Homes compared to those attributed to non-HCH clinics, 2012	
Service Type	Difference between HCH and non-HCH Service Use
Total number of pharmacy bills	No Difference
Total hospital inpatient stays	No Difference
Visits to a Federally Qualified Health Center (FQHC)	No Difference
Use of hospice services	No Difference
Primary care physician encounters	No Difference
Evaluation and Management (E&M) encounters in attributed clinic	HCH had significantly fewer (5.6% fewer)
Total E&M encounters	HCH had significantly fewer (3.4% fewer)
Emergency Department visits	HCH had significantly fewer (6.2% fewer)
Ambulatory surgeries	HCH had significantly fewer (26.8% fewer)
Number of distinct clinics visited	HCH had significantly more (4.6% more)
Professional encounters in attributed clinic	HCH had significantly more (5.2% more)
Total professional encounters	HCH had significantly more (4.2% more)
Use of outpatient hospital services	HCH had significantly more (21.5% more)

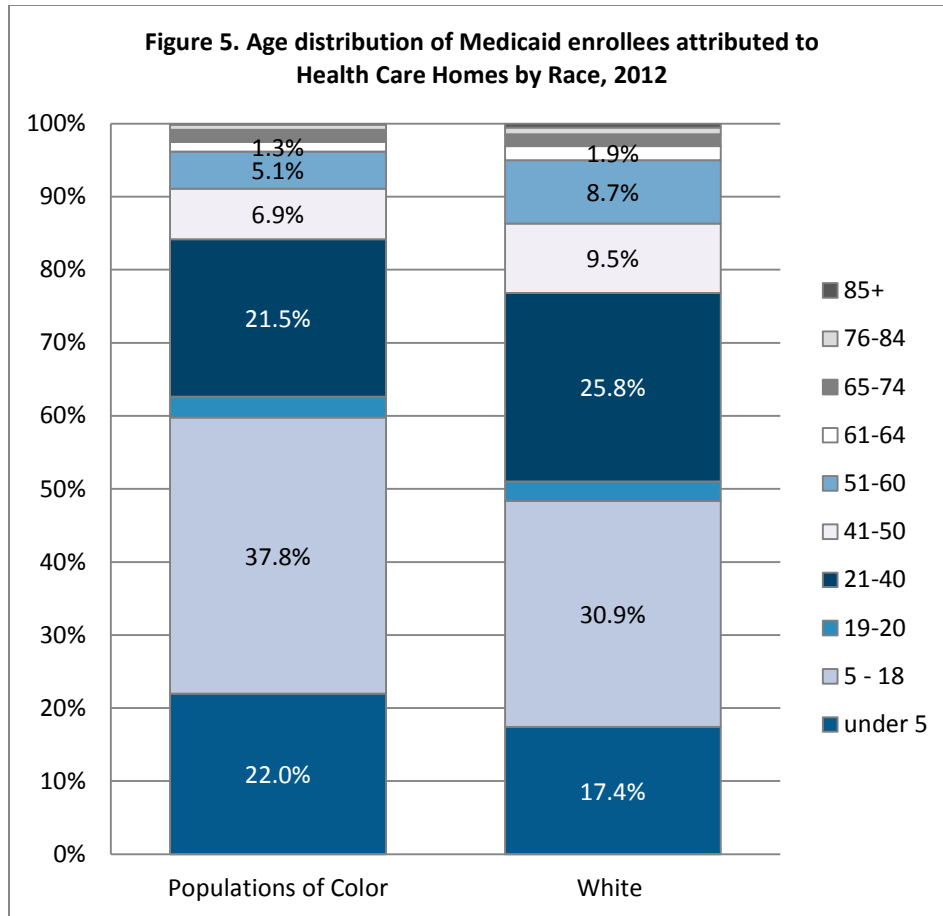
It is important to note that we cannot determine the effect of the health care use trends shown in Figure 3 on health care disparities. Additional care may be an indicator of better quality (i.e. receiving care when it is appropriate) or unnecessary care. Likewise, fewer services can be interpreted as less waste or poorer quality (i.e. not receiving services when appropriate).

## USE OF SERVICES WITHIN CERTIFIED HEALTH CARE HOMES

Figure 4 examines the trends in use of common health care services, comparing use of services by both White Medicaid enrollees and enrollees of color attributed to Health Care Home clinics. Here we see a number of differences in the use of health care services. In almost every category, White enrollees used more care services than populations of color in 2012. One notable exception is the use of care coordination where enrollees of color had significantly more care coordination episodes than White enrollees, indicating that Medicaid-enrolled populations of color may be receiving more attention through care coordination in Health Care Homes than White populations.

Figure 4. Differences between per enrollee per year use of services by White Medicaid enrollees attributed to certified Health Care Homes compared to Medicaid enrollees of color attributed to HCH clinics, 2012	
Service Type	Difference between populations of color and White Service use within HCH clinics
Visits to a Federally Qualified Health Center (FQHC)	No Difference
Care coordination episodes	Populations of color had significantly more (28.6% more)
Emergency Department visits	Populations of color had significantly more (4.6% more)
Use of nursing home services	Populations of color had significantly fewer (85.3% fewer)
Use of hospice services	Populations of color had significantly fewer (73.1% fewer)
Ambulatory surgeries	Populations of color had significantly fewer (56.4% fewer)
Total number of pharmacy bills	Populations of color had significantly fewer (43.3% fewer)
Total hospital inpatient stays	Populations of color had significantly fewer (28.0% fewer)
Use of outpatient hospital services	Populations of color had significantly fewer (22.0% fewer)
Total professional encounters	Populations of color had significantly fewer (21.9% fewer)
Professional encounters in attributed clinic	Populations of color had significantly fewer (21.8% fewer)
Total Evaluation and Management encounters	Populations of color had significantly fewer (18.9% fewer)
Primary care physician encounters	Populations of color had significantly fewer (15.2% fewer)
Evaluation and management encounters in attributed clinic	Populations of color had significantly fewer (13.6% fewer)
Number of distinct clinics visited	Populations of color had significantly fewer (1.6% fewer)

It is again important to note that these differences are descriptive and not causal, and we urge caution in interpreting these data. Indeed, it is our opinion that true disparities in care cannot be understood from an examination of medical claims. Descriptive analyses of racial differences may be interrelated with other differences, such as the dramatic differences in the age distribution between populations of color and Whites (see Figure 5).



## CONCLUSIONS

In terms of health care service use in 2012, Medicaid enrollees of color attributed to certified Health Care Homes used fewer emergency department and ambulatory surgery services and had fewer E&M visits, but had more professional and outpatient services than Medicaid enrollees of color attributed to non-HCH clinics. However, when compared to their White counterparts within certified Health Care Homes, Medicaid enrollees of color used fewer health care services almost across the board in 2012, with the exception of having more Emergency Department visits (4.6% more) and more Care Coordination episodes (28.6% more).

While this analysis does not allow us to draw major conclusions about disparities in use of health care services related to receiving care in HCH clinics, the descriptive analysis of demographics in HCH and non-HCH clinics provided in Chapter 2 of this report also informs our understanding of this topic. The data shown in Chapter 2 indicate that HCH clinics tend to care for a higher proportion of non-White patients than non-HCH clinics, a higher proportion of patients with less than a high school degree, and a higher proportion of patients speaking a language other than English as their primary language. These trends, combined with the finding noted above that patients of color attributed to HCH clinics tend to receive more care coordination services than White patients attributed to HCH clinics, may indicate that



Health Care Homes are making a concerted effort to provide access to care and coordination of care for these historically underserved populations. In the future, we plan to examine trends and disparities in health care in greater depth to better understand the overall patterns presented here.

## CHAPTER 7: HEALTH CARE HOME EVALUATION APPROACH AND LOGIC MODEL

### INTRODUCTION

The purpose of the HCH evaluation is to document for the Minnesota legislature the impact of the Health Care Homes (HCHs) initiative on health care quality, cost, and outcomes<sup>26</sup>. Both the state of Minnesota and Minnesota's primary care clinics have important roles in the Health Care Home Initiative. The state's involvement focuses on encouraging health systems and clinics to participate in the HCH Initiative as certified HCHs by providing financial incentives, a learning collaborative, standards and certification, and transformation assistance. At the clinic level, the focus is on implementing effective clinical care systems and care coordination to improve patient access quality while reducing costs. Participation in the HCH Initiative is voluntary, but to become an HCH a clinic must pass a rigorous review and be certified as an HCH by the Minnesota Department of Health.

The primary care clinic role comes from the Minnesota HCH rule that states HCH clinics must provide primary care, where "primary care means overall and ongoing medical responsibility for a patient's comprehensive care for preventive care and a full range of acute and chronic conditions, including end-of-life care when appropriate."<sup>2</sup> The focus on primary care is based in research demonstrating the effectiveness of primary care in improving care.<sup>27,28</sup> In this initial evaluation phase, the evaluation of the HCH Initiative at the clinic level is accomplished by comparing clinics certified as HCHs with HCH eligible clinics that are not certified as HCHs. The relationship between specific HCH certification components and access, quality, and cost will be examined in future reports.

### HCH EVALUATION APPROACH: QUESTIONS AND LEVELS OF ANALYSIS

HCHs provide patient centered integrated care (PCIC) which is believed to mediate between the care system and patient and caregiver outcomes. PCIC focuses on providing support to both the patient and their caregivers within the context of their lives and the goals. PCIC focuses on patients and caregivers holistically, taking into account not only their medical condition but patient and caregiver lives, preferences, needs, culture, circumstances, and community supports. In PCIC, providers, patients, and caregivers work collaboratively through shared decision-making. Care and care systems are designed so that they fit provider, patient and caregivers needs and schedules, and engage patients and caregivers in their health care. Rather than being separate concepts, patient centered care and integrated care are integrated because PCIC provides patient and caregivers a seamless experience of care that is integrated with their lives and situation.

Research suggests that while HCHs can improve PCIC and care quality and promote responsible resource use, their effectiveness "depends on which approach is used, how well it is implemented, and on features of the environment in which a provider is operating, including the financing system."<sup>29</sup> In other

words, a comprehensive understanding of the HCH initiative requires the examination of both the efficacy and the effectiveness of the HCH Initiative.

Efficacy refers to whether the HCH Initiative had the desired effects. At the state level, an efficacy evaluation assesses whether the HCH Initiative is associated with clinics becoming certified as HCHs. At the clinic level, an efficacy evaluation helps determine whether HCH certification is associated with better access, quality, and costs for Minnesota health care plan enrollees. The efficacy evaluation is called a summative evaluation, which addresses the question, “What effects does the intervention have?”

Effectiveness refers to the ways in which the effect of the HCH Initiative varies across specific configurations of health systems, clinics, and patient populations and why it varies. At the state level, an effectiveness evaluation assesses how and why health systems and clinics vary in their response to HCH payment or learning collaboratives in becoming certified as HCH clinics. At the clinic level, an effectiveness evaluation assesses how and why care coordination implementation varies across clinic types, such as those serving enrollees with severe disabilities, disadvantaged enrollees, or rural enrollees, and how the relationship between care coordination and enrollee outcomes varies across clinic types. The effectiveness evaluation is called realistic evaluation,<sup>30-32</sup> which addresses the question, “What works for whom in what circumstances and why?”<sup>33</sup>

An adequate evaluation should answer the questions (a) Did the initiative work (summative), (b) How did the HCH initiative work and why (realistic), and (c) For whom does the HCH Initiative work and why (realistic)? This report focuses on the summative evaluation and some components of the realistic evaluation. It will be followed by a second evaluation report in 2015, which will include a more complete analysis using a realistic evaluation approach.

There are two levels at which analysis needs to occur for conducting either the summative or the realistic evaluation: the state and the clinic (Table 1).

TABLE 1: EVALUATION LEVELS AND QUESTIONS		
Analysis Level	Efficacy / Summative Evaluation: <i>“What effects does the intervention have?”</i>	Effectiveness / Realistic Evaluation: <i>“What works for whom in what circumstances and why?”</i> <sup>+</sup>
<b>State</b>	<ul style="list-style-type: none"> <li>• Is the HCH Initiative associated with clinics becoming certified as HCHs?</li> <li>• Is the HCH Initiative budget neutral?</li> </ul>	<ul style="list-style-type: none"> <li>• What affects health system and clinic participation in the HCH Initiative?</li> <li>• How does payment affect participation in the HCH Initiative?</li> <li>• What affects transformation to becoming certified as an HCH?</li> </ul>
<b>Clinics</b>	<ul style="list-style-type: none"> <li>• What is the impact of HCH certification of my clinic on access, quality, and costs?</li> <li>• Is HCH certification cost effective in my clinic?</li> <li>• Is there a clinic level business case for a HCH certification?</li> <li>• Is PCIC effectively implemented? Is PCIC related to access, quality, and cost?</li> </ul>	<ul style="list-style-type: none"> <li>• How do patient populations affect the functioning of HCH certification (e.g., is the effect different in Federally Qualified Health Centers or rural clinics)?</li> <li>• How does affiliation with a health system affect the functioning of HCH certified clinics?</li> <li>• How do the components of a HCH relate to effective implementation of PCIC?</li> </ul>

The state level of analysis addresses questions related to health systems and clinics participating in the HCH initiative. This level of analysis focuses on state level policy initiatives, such as the level of care coordination payment, development of HCH learning collaboratives, and certification standards. This leads to questions such as: how do care coordination payments and learning collaboratives facilitate participation in the HCH initiative, and how does the cost of meeting certification standards affect participation in the HCH initiative?

The clinic level of analysis focuses on the impact of HCH care system structure and process standards, and addresses questions such as: how are population based health care, care coordination, and electronic health records related to access, quality, and care in primary care clinics?

In summary, a full evaluation of the HCH initiative requires answers to the following questions:

- 1) Is there evidence the HCH initiative produces what is intended (efficacy)?
  - a) Is it associated with better quality of care provided to enrollees?
  - b) Is it associated with better continuity of care?
  - c) Is it associated with lower costs of care? If it is associated with lower costs of care, is the difference in care costs less than the costs associated with compensating providers for care coordination (budget neutrality)?
  - d) Does it benefit medically complex or disadvantaged enrollees more than less disadvantaged enrollees?
- 2) If the program is efficacious, is there evidence that the HCH initiative produces what is intended in the Minnesota context (effectiveness)?
  - a) If the analysis of efficacy shows that HCHs improve quality and access while reducing costs, do these results generalize to clinics that have not yet become HCHs? Or are the

efficacy results due to clinics with good care systems with strong management becoming HCH certified clinics?

In other words: 1) Does the HCH initiative work as intended and implemented (efficacy), and 2) Will the results of implementing the HCH model be likely to generalize to either the community of primary care clinics in Minnesota, some subset of primary care clinics in Minnesota, or specific patient populations in Minnesota (effectiveness)?

This report examines the first question regarding efficacy: What is the relationship between clinic certification as a HCH and access, quality, and cost? Analyses in the evaluation's second phase, to be completed in 2015, will examine the second set of questions, such as the effect of transformation to being a HCH and the relationship between specific HCH certification components and access, quality, and cost.

## UNDERSTANDING THE HCH INITIATIVE: COMPLEXITY AND FIDELITY AND A LOGIC MODEL

HCHs are complex organizations with clinical structures and processes that are designed to produce patient-centered, coordinated care for all enrollees, particularly those with complex needs. HCHs have to be prepared to respond to new patient circumstances, either by providing services themselves or by supporting and coordinating services provided by other organizations and providers in their community, such as mental health, social services, or physical health providers. HCHs need to be learning organizations to stay current with evolution of evidence-based practice in medicine and the continuing development of technologies such as electronic health records. Finally, HCHs are accountable for the care they deliver, for instance by reporting care quality in the Minnesota Statewide Quality Reporting & Measurement System (SQRMS). Evaluating the effect of certified HCHs on access, quality, and cost is challenging. A key challenge is the ability to know whether an HCH eligible clinic has truly implemented the HCH model. Not being able to assess whether a HCH was really implemented is a shortcoming in research and evaluations related to HCHs. A recent review of the literature on Patient Centered Medical Homes (PCMHs), which is the generic name for HCHs, found that "multiple organizations and enrollees have notable variations in their definitions of the medical home"<sup>34</sup>. Another recent review of PCMHs concluded that:

*"The early PCMH research appears to reflect both the wide variation in how medical homes are being designed and implemented in practice and in how researchers are choosing to evaluate PCMH design and implementation. While it is reasonable to expect these issues to sort themselves out as the PCMH model of care spreads, it should not be seen as a given that they will. As such, this review raises red flags that suggest asking harder questions about what 'patient-centered medical home care' really should consist of in practice, and what the minimum quality and procedural standards should be in terms of judging its effectiveness. This variation suggests that research on PCMHs may be difficult to accumulate because researchers are not studying the same intervention".<sup>35</sup>*

Similarly, another study concluded that:

*“A second measurement issue in PCMH effectiveness evaluations is that PCMH is not measured at all but rather assumed to operate under the auspices of a demonstration programme, practising reported conformity to the PCMH model or use of proxy indicators. Besides the obvious limitation of such an approach (absence of a direct, independent measure of PCMH), we do not know the degree to which PCMH has been implemented in the ‘treatment’ sites, nor can we be sure how comparable the PCMH intervention is across evaluations. This makes comparative assessments of PCMH studies problematic.”<sup>36</sup>*

If it is unknown whether an HCH was really implemented in a clinic then the evaluation of the effect of HCHs in clinics is questionable.

This problem is addressed in Minnesota’s HCH Initiative by a certification process that assesses whether HCH eligible clinics have transformed to being an HCH by assessing whether a clinic has met specific HCH criteria.<sup>2</sup> The evaluation literature calls this process assessing the fidelity of the implementation to an accepted fidelity standard.<sup>3</sup> Fidelity standards are comprehensive, measurable standards that measure how well a clinic implemented a HCH. Assessing fidelity relative to fidelity standards measures how well a complex intervention was implemented. Fidelity standards, assessment, and certification are important for a number of reasons. First, in an evaluation it assures that the intervention, such as transforming to a HCH, was actually implemented in all participating clinics and the HCH evaluation does not compare dissimilar care delivery models. Second, the publishing of the standards, which MDH provides to HCH eligible clinics,<sup>2</sup> supports HCH eligible clinics in planning for their transformation because the clinic knows what it must accomplish. Third, the availability of standards supports the implementation of learning collaboratives and coaching to assist HCH eligible clinics in learning how to transform into HCH certified clinics. In sum, fidelity standards, fidelity assessment, and certification are critical components of effectively implementing and evaluating the HCH Initiative.

Evaluation researchers recommend three methods to identify and develop fidelity standards. The first is studying and using existing implementations of initiatives similar to HCHs, such as patient centered medical homes. The second is using expert opinions, such as those from experts who had implemented patient centered medical homes or from literature reviews about patient centered medical homes. The third involves qualitative research involving practitioners and advocates about what works best.<sup>3</sup> A strength of the HCH Initiative is that it used all of these approaches to develop fidelity and certification standards. For example, the HCH Initiative built on earlier work of the chronic care model,<sup>37-40</sup> Minnesota work on primary care coordination (PCC),<sup>41</sup> and collaboration with other states that were developing initiatives similar to Minnesota’s. The HCH Initiative also obtained expert opinions and commissioned a thorough systematic review of the medical homes literature to develop a consensus statement on HCH standards.<sup>42</sup> Finally, the HCH Initiative systematically engaged practitioners and advocates in understanding which outcomes were desired from HCHs and what worked best to achieve those

outcomes. The result was fidelity standards that were used to assess HCH implementation quality at the clinic level and to certify clinics. A further strength of the approach was the use of site visits to assess HCH implementation accurately and reliably.<sup>4</sup>

In addition to ensuring comparability between HCHs, fidelity standards are also useful because they give providers a goal and standards to work toward in implementing HCHs. In Minnesota, a fidelity standard for HCHs was developed based on a thorough review of the PCMH literature<sup>42</sup>. This fidelity standard includes both standards for initial certification and standards measuring organization learning for continuing certification. The evaluation of clinics for meeting HCH fidelity standards occurs in site visits at HCH certification and recertification. Site visits and direct observations are necessary methods for accurate assessment that HCH fidelity standards are implemented.

The goal of HCH certification is encouraging clinic transformation. This includes a variety of components which are believed to be associated with improved PCIC, access, quality, and lower costs that are covered in HCH certification, including:

- Availability of HCH to all enrollees, particularly those who have or are at risk for complex or chronic conditions
- Population health management focus
- Team based care with a primary care provider and care coordinator
- Electronic searchable registries and tools to support care coordination, monitor patient health, and screen enrollees
- Care plans
- Continuous access to staff through on-call providers or triage staff who have access to the enrollees' medical information
- Coordinating care processes: Inpatient admissions, referrals, laboratory and imaging, and hospital-to-home
- Measure, monitor, and feedback population health
- Demonstrate continuous engagement and improvement
- Integrating care throughout the community
- Quality improvement teams including care team members, patients, caregivers, and relevant community members.

## UNDERSTANDING THE HCH INITIATIVE: A LOGIC MODEL

Figure 1 (shown below) presents the HCH initiative logic model. The context for the HCH initiative includes a variety of Minnesota and health system efforts that provide a strong foundation for HCHs. The text that follows describes specific components of the logic model in greater detail.

### *HCH CONTEXT*

At the state level, three mandates provide critical infrastructure for HCHs. First is e-prescribing which required “prescribers, pharmacies, and pharmacy benefit managers to implement e-prescribing by January 1, 2011”.<sup>43</sup> Second is the Minnesota Statewide Quality Reporting & Measurement System (SQRMS)<sup>44</sup> which provides a common, consistent measurement of clinical care quality for public

reporting. This allows clinics to benchmark their performance relative to other clinics and can provide an incentive to improve their performance by improving clinical care systems<sup>45</sup>. Third is the Interoperable Electronic Health Record (EHR) Mandate<sup>46</sup> which requires hospitals and clinics to have interoperable electronic health systems implemented by 2015. The EHR is a critical component of HCHs, supporting population health management, registries, performance measurement, reminders, audit, and provider feedback.

Two programs associated with National Health Reform indirectly support HCHs. The Centers for Medicare & Medicaid Services Multi-Payer Advanced Primary Care (MAPCP) initiative provides care coordination payments for eligible HCHs Medicare enrollees, potentially increasing the revenue clinics can receive for care coordination.

The insurer and provider context in Minnesota present both facilitators and barriers to the effective implementation of the HCH initiative. The presence of a few large insurers can facilitate coordination of implementing HCHs across their participating provider practices. However, insurers and self-insured employers under the Employee Retirement Income Security Act (ERISA), who can choose not to compensate HCHs for care coordination, could decrease the number of enrollees for which a clinic receives compensation. This may weaken the clinic's business case for becoming HCH certified and, further, may result in confusion among enrollees who are billed for care coordination that is not covered by their insurance. Differences across insurers in rules and processes for paying care coordination claims could also increase the clinic burden associated with receiving payment.

CONTEXT
<u>Minnesota Health Reform</u> <sup>47</sup> <ul style="list-style-type: none"> <li>• Health Care Home Initiative<sup>48</sup></li> <li>• Minnesota Statewide Quality Reporting &amp; Measurement System (SQRMS)<sup>44</sup></li> <li>• Interoperable Electronic Health Record (EHR) Mandate<sup>46</sup></li> </ul>
<u>National Health Reform</u> <ul style="list-style-type: none"> <li>• Multi-Payer Advanced Primary Care (MAPCP) site</li> </ul>
<u>Minnesota Provider Context</u> <ul style="list-style-type: none"> <li>• Many large integrated health systems</li> <li>• Few large health insurers dominate market</li> <li>• ERISA Employers</li> <li>• Institute for Clinical Systems Improvement (ICSI) Development of Accountable Care Organizations and total cost of care contracts</li> <li>• High EHR development</li> <li>• Pediatric medical homes</li> </ul>
<u>Minnesota Community Context</u> <p>Shifting demographics with growth of Asian, African, and Latino populations</p>



FIGURE 1: HEALTH CARE HOME LOGIC MODEL

CONTEXT	HCH IMPLEMENTATION	CLINIC TRANSFORMATION	CARE PROCESS OUTCOMES	HCH INITIATIVE OUTCOMES
<p><u>Minnesota Health Reform</u> <sup>47</sup></p> <ul style="list-style-type: none"> <li>Health Care Home Initiative<sup>48</sup></li> <li>Minnesota Statewide Quality Reporting &amp; Measurement System (SQRMS)<sup>44</sup></li> <li>Interoperable Electronic Health Record (EHR) Mandate<sup>46</sup></li> </ul> <p><u>National Health Reform</u></p> <ul style="list-style-type: none"> <li>Multi-Payer Advanced Primary Care (MAPCP) site</li> </ul> <p><u>Minnesota Provider Context</u></p> <ul style="list-style-type: none"> <li>Many large integrated health systems</li> <li>Few large health insurers dominate market</li> <li>ERISA Employers</li> <li>Institute for Clinical Systems Improvement (ICSI) Development of Accountable Care Organizations and total cost of care contracts</li> <li>High EHR development</li> <li>Pediatric medical homes</li> </ul> <p><u>Minnesota Community Context</u></p> <ul style="list-style-type: none"> <li>Shifting demographics with growth of Asian, African, and Latino populations</li> </ul>	<ul style="list-style-type: none"> <li>Fidelity standards for HCHs that guide clinics in implementing HCH and allow the assessment of whether a clinic is a HCH</li> <li>Certification and annual re-certification</li> <li>HCH Learning Collaboratives</li> <li>MDH Coaching</li> <li>Care Coordination Payment Incentives<sup>49</sup></li> </ul>	<ul style="list-style-type: none"> <li>Offer HCH to all enrollees who have or are at risk for complex or chronic conditions</li> <li>Population health management focus</li> <li>Team based care with a primary care provider and care coordinator</li> <li>EHR registries and tools to support care coordination, monitor patient health, screen enrollees</li> <li>Care plans</li> <li>24/7 access to staff through on-call providers or triage</li> <li>Coordinating care processes: Inpatient admissions, referrals, laboratory and imaging, hospital-to-home,</li> <li>Measure, monitor, and feedback population health</li> <li>Continuous improvement engagement and demonstrate improvement</li> <li>Integrating care with community resources</li> </ul>	<p><u>Patient centered integrated care</u></p> <p><u>Primary Care</u><sup>28,50</sup></p> <ul style="list-style-type: none"> <li>Longitudinal care</li> <li>Continuity of care</li> <li>First contact care</li> <li>Comprehensive care</li> <li>Integrated and coordinated care</li> </ul> <p><u>Care Processes</u></p> <ul style="list-style-type: none"> <li>Situational awareness</li> <li>Implementation assistance for enrollees<sup>51</sup></li> </ul>	<p><u>Short term</u></p> <ul style="list-style-type: none"> <li>Increased patient satisfaction</li> <li>Improved health outcomes</li> <li>Appropriate use of high cost services</li> <li>Increased quality of care</li> <li>Increased provider satisfaction</li> </ul> <p><u>Medium term</u></p> <ul style="list-style-type: none"> <li>Lower overall cost of health care, especially for those with complex conditions</li> <li>Reduction in health care disparities</li> </ul> <p><u>Long term</u></p> <ul style="list-style-type: none"> <li>System change resulting in new ways to provide care with spillover effects to the broader population of enrollees and provider settings, decreased system health care costs and increased health care quality</li> </ul>

Similarly, the presence of large health systems is both a facilitator and barrier. Large health systems could act as a facilitator to HCH implementation by providing clinics EHRs, systematizing the provision of care and the patient experience, and by providing feedback on patient outcomes, quality, and cost. Large health systems could be a barrier if health system policies and procedures increase the cost of clinics becoming HCH certified or create barriers to information exchange.

*HCH IMPLEMENTATION*

Clinic HCH certification is supported by a number of components of the HCH Initiative. First, there are learning collaboratives where Minnesota state representatives can communicate HCH standards and clinics can share best practice examples and discuss HCH implementation and transformation strategies. Second, Minnesota Department of Health representatives offer coaching and review services to assist clinics in assessing what they need to do to become certified. Third, care coordination payments have been implemented to help clinics cover the costs associated with becoming certified, such as recruiting care coordinators or strengthening EHRs.

HCH IMPLEMENTATION
<ul style="list-style-type: none"> <li>• Fidelity standards for HCHs that guide clinics in implementing HCH and allow the assessment of whether a clinic is a HCH</li> <li>• Certification and annual re-certification</li> <li>• HCH Learning Collaboratives</li> <li>• MDH Coaching</li> <li>• Care Coordination Payment Incentives<sup>49</sup></li> </ul>

*CLINIC TRANSFORMATION AND CARE PROCESS OUTCOMES*

Clinic transformation to a HCH is predicted to improve patient centered integrated care, and it is expected that these factors can improve access to care and quality of care while reducing cost of care. HCH is the evolutionary improvement in primary care. Research shows that well implemented primary care affects patient outcomes through factors such as situational awareness,<sup>52</sup> implementation assistance,<sup>51,53</sup> and patient centered care.<sup>54</sup> Situational awareness is defined as knowing the patient’s medical, behavioral, and social condition and context well enough to understand how care coordination may influence patient outcomes and to notice potential changes in a patient’s condition or context to proactively coordinate care. Implementation assistance involves assisting enrollees in a) becoming aware of a problem and acknowledging that a behavior is important enough to address, (b) committing to a behavior change and implementing the change, (c) implementing desired changes, and (c) sustaining the desired behavior.<sup>55</sup> Patient centered care focuses on understanding how enrollees experience their illness, the patient as a whole person, sharing decision-making about care processes, prevention, and

CLINIC TRANSFORMATION
<ul style="list-style-type: none"> <li>• Offer HCH to all enrollees who have or are at risk for complex or chronic conditions</li> <li>• Population health management focus</li> <li>• Team based care with a primary care provider and care coordinator</li> <li>• EHR registries and tools to support care coordination, monitor patient health, screen enrollees</li> <li>• Care plans</li> <li>• 24/7 access to staff through on-call providers or triage</li> <li>• Coordinating care processes: Inpatient admissions, referrals, laboratory and imaging, hospital-to-home,</li> <li>• Measure, monitor, and feedback population health</li> <li>• Continuous improvement engagement and demonstrate improvement</li> <li>• Community resource integration</li> </ul>

relationship building.<sup>54</sup>

*HCH INITIATIVE OUTCOMES*

CARE PROCESS OUTCOMES
<p>Patient centered integrated care Primary Care<sup>28,50</sup></p> <ul style="list-style-type: none"> <li>• Longitudinal care</li> <li>• Continuity of care</li> <li>• First contact care</li> <li>• Comprehensive care</li> <li>• Integrated and coordinated care</li> </ul> <p>Care Processes</p> <ul style="list-style-type: none"> <li>• Situational awareness</li> <li>• Implementation assistance for enrollees<sup>51</sup></li> </ul>

The expected primary care process outcomes of HCH certification are that a clinic will provide a patient first contact for care, comprehensive care and integrated and coordinated care,<sup>28,50</sup> and a strong, trusting primary care relationship over an extended period of time, which includes having information about all the care the patient receives, the care the patient needs, and the enrollees'

personal and social environment.<sup>56</sup> The expected HCH Initiative short term outcomes are improved access and quality and lower costs. The HCH Initiative long term outcome is health care system transformation.

HCH INITIATIVE OUTCOMES
<p><u>Short term</u></p> <ul style="list-style-type: none"> <li>• Increased patient satisfaction</li> <li>• Improved health outcomes</li> <li>• Appropriate use of high cost services</li> <li>• Increased quality of care</li> <li>• Increased provider satisfaction</li> </ul> <p><u>Medium term</u></p> <ul style="list-style-type: none"> <li>• Lower overall cost of health care, especially for those with complex conditions</li> <li>• Reduction in health care disparities</li> </ul> <p><u>Long term</u></p> <ul style="list-style-type: none"> <li>• System change resulting in new ways to provide care with spillover effects to the broader population of enrollees and provider settings, decreased system health care costs and increased health care quality</li> </ul>

**SUMMARY**

This report on the HCH initiative primarily focuses on evaluating summative questions related to the efficacy of the Health Care Home initiative, and describing the association of HCHs with access to, quality of, and costs of health care. It also addresses the realistic evaluation question of the effect of payment policies on HCH adoption and provides a review of HCH certification. A second report, to be completed in 2015, will continue the summative evaluation to identify the effect of the HCH initiative on different patient populations, such as disadvantaged enrollees or enrollees with behavioral health conditions, and examine the contribution of the HCH initiative to the HCH effects identified in this initial analysis. The second report will examine HCH transformation processes, conducting an in-depth, realistic evaluation of the functioning of HCHs at the clinical level.

## CHAPTER 8: EVALUATION DATA AND METHODS

The HCH evaluation is a retrospective observational study using both quantitative and qualitative data. This chapter describes the data used in the evaluation and common methods to all analyses. The description of the methods specific to an analysis is presented in the chapter with the analysis. This chapter introduces the goals and framework of the HCH evaluation analysis, describes the population and sample examined in the analysis, the data sources used to inform the analysis, and key methods used to analyze the data including attribution and reimbursement analyses. Further details on methods and data descriptions are provided in Appendices C, D, and E.

### INTRODUCTION

The primary goal of the HCH evaluation analysis is to understand differences in access, cost, and quality between clinics certified as HCHs and eligible clinics not certified as HCHs. The secondary goal is to understand the impact of Minnesota's HCH initiative on the implementation of HCHs. This requires we employ two different units of analyses in the evaluation:

1. Enrollees, nested within clinics, make up the first set of analyses, which are used to examine the effect of HCH certification on the triple aim of access, cost, and quality/enrollee experience outcomes among enrollees
2. Clinics are the focus of the second set of analyses and are aimed at understanding the relationship between clinic characteristics, the decision to become certified as a HCH, and differences in implementing HCH practices, such as care coordination, registries, and other required HCH components among clinics.

These evaluation methods are designed to address methodological problems that have been identified in evaluations of enrollee centered medical homes, including:<sup>36,57</sup>

1. not assessing triple aim outcomes,
2. not using rigorous methods, such as not having appropriate comparison clinics nor controlling for high-performing clinics who choose to become PCMHs through self-selection, and
3. a limited number of clinics participating in select programs, which reduces statistical power and limits generalizability.

In this report the Triple Aim goals are initially assessed using access, cost, and care quality measures. Enrollee experience will be addressed when enrollee experience data are available in early 2014.

The sample of clinics for appropriate comparisons includes both HCH certified and eligible but non-certified clinics. HCH eligible clinics are clinics that provide primary care, where "primary care means overall and ongoing medical responsibility for a enrollee's comprehensive care for preventive care and a

full range of acute and chronic conditions, including end-of-life care when appropriate.”<sup>2</sup> HCH eligible clinics started being certified in July of 2010. HCH eligible clinics that have not become certified serve as comparison clinics for HCH certified clinics. Since the analysis categorizes a HCH eligible clinic as certified for an observation if it becomes certified at any point during a year, the first year a clinic appears as an HCH certified clinic it measures both the part of the year the clinic was transforming and the part that it was certified. Clinics that are transforming but not certified are categorized as not certified. Future analyses will investigate the effect of the transformation period more extensively. Since many Minnesota clinics have been HCH eligible and have had the opportunity to participate in the HCH program, with over 200 being certified by the end of 2012, statistical power is strong for 2012, the most recent year of available data.

## POPULATION AND SAMPLE

The population of interest consists of Minnesota clinics that are eligible to be certified as HCHs and enrollees attributed to these clinics.

A clinic is an operational entity through which personal clinicians or local trade area clinicians deliver health care services under a common set of operating policies and procedures using shared staff for administration and support.<sup>2</sup> The operational entity may be a department or unit of a larger organization as long as it is a recognizable subgroup. The enabling statutes use the term “clinic.” Minnesota Statutes, section 256B.0751, subdivision 3, spells out the requirements for clinicians certified as health care homes: (a) A personal clinician or a primary care clinic may be certified as a health care home. If a primary care clinic is certified, all of the primary care clinic’s clinicians must meet the criteria of a health care home.”<sup>58</sup> Minnesota Community Measurement (MNCM), which collects clinic care quality measures under a contract to the Minnesota Statewide Quality Reporting and Measurement System (SQRMS)<sup>44</sup>, similarly defines a clinic as “A clinic site location is a building, separate space, or an entity with a street address. It should be a functional unit that is easily understood by enrollees/consumers. The goal of reporting by clinic site is to provide enrollees/consumers with information about the entity with which they are most familiar and to provide information to clinics that is actionable for quality improvement purposes.”<sup>59</sup>

The sample frame consists of all HCH clinics and all eligible but not certified clinics identified through Minnesota Department of Health (MDH) and Minnesota Community Measurement (MNCM) registries of clinics participating in the SQRMS quality measurement program and enrollees attributed to these clinics. These clinics include both HCH certified and non-HCH certified clinics. The sample frame was chosen because a common identifier for clinics and information on provider identifiers (NPI) from HCH Certification and SQRMS quality measurement data supports the linking of providers to clinics (see Appendix D for a full description of the attribution method).

The measurement period for this analysis was calendar years 2010 through 2012. HCH certified clinics included in the population of interest are those certified between July of 2010 and December 31<sup>st</sup> of 2012.

## DATA SOURCES

The following section describes the quantitative and qualitative data sources used to inform the HCH evaluation analysis, including the Minnesota Department of Health's HCH Certification Database, the State Quality Reporting and Measurement System (SQRMS) database of Minnesota clinics, Medical claims data, SQRMS quality data, and qualitative documentary and survey data.

### *QUANTITATIVE DATA*

#### *HCH Certification Database*

The HCH Certification database provides information on certified clinics and clinics interested in becoming certified. The data includes clinic contact information, the dates clinics became certified, and the certified providers associated with those clinics.

#### *MDH/SQRMS Database of Minnesota Clinics*

The MDH/SQRMS Database of Minnesota Clinics lists clinics in Minnesota participating in SQRMS or MDH measurement processes. There are 862 clinics identified from the MDH/SQRMS Database of Minnesota Clinics integrated with the HCH Certification Database. Clinics that are not eligible to be HCH certified clinics, such as specialty clinics or clinics that are not located in Minnesota were excluded from the sample frame and the evaluation. There were 224 HCH certified clinics and 559 HCH eligible clinics in the sample frame (783 clinics). The number of clinics in each particular analysis varies due to ability to associate any Medicaid enrollees with the clinic identifier or the data for a clinic were not available, however we attempted to maintain the full population of interest in every analysis where possible.

Four HCH certified clinics were excluded from the analysis because at the time of this analysis they did not have the required SQRMS identifiers. They are obtaining SQRMS identifiers and will be included in future analyses. Although they were certified in a site visit in December of 2012, they did not receive their certification letter until January of 2013. Three clinics were excluded from the payment survey analysis because they ceased operations and were not available to contact in 2013 during the survey period. One clinic was not included in claims data analyses because it predominantly cared for individuals who were outside the age range of SQRMS quality measures.

Individual providers were linked to clinics using the SQRMS enrollee level data (described below), which included a provider's National Provider Identity (NPI) and a clinic's identifier.

### *Medical Claims Data*

Health care claims data for Minnesota Medicaid programs were provided by the Minnesota Department of Human Services to the University of Minnesota evaluation team. The data contained encrypted identifiers and was stored on a secure server for analysis purposes. Access was limited to research team members with appropriate human subjects training and Institutional Review Board approval. This secondary data analysis is considered human subjects research and as such was reviewed and approved by the University of Minnesota's Institutional Review Board (study number 1212S25902). The evaluation team's data manager and co-principal investigators reviewed all analytical output to make it sure was aggregated and de-identified before it was transmitted to analysts.

The Medicaid claims data examined in this report include the years 2009 to 2012. These data include information on:

- Enrollees – identifies gender, race, ethnicity, county of residence, type of coverage (e.g., community dwelling), dual eligibility for Medicare and Medicaid, and months enrolled in Medicaid.
- Inpatient services (swing bed, inpatient, regional treatment center, nursing facility, and Medicare crossover), including diagnoses, and procedures.
- Professional services (professional services, dental, and Medicare crossovers), including diagnoses, and procedures.
- Outpatient services (federally qualified health center [FQHC], renal dialysis, outpatient, ambulatory surgery, rural health, hospice, Medicare crossover), including diagnoses and procedures.
- Pharmacy
- Dental (professional services, dental, and Medicare crossovers).

The Medicaid enrollee file was used to identify age, gender, ethnicity (Y = Hispanic or Latino; N = Not Hispanic or Latino; blank space = not entered/unknown), race (up to five race codes are present: A = Asian; B = Black or African American; N = American Indian/Alaskan Native; P = Pacific Islander/Native Hawaiian; U = Unable to Determine; W = White; Blank = Not entered; indicators were coded for each race entered); dual eligibility with Medicare; and continuous enrollment for purposes of HEDIS quality measurement. Continuous enrollment is defined as: *“continuous medical enrollment for the measurement year and the year prior to the measurement year and continuous pharmacy benefit enrollment for the measurement year, with no more than one gap in enrollment of up to 45 days during each year of continuous enrollment. To determine continuous enrollment for a Medicaid enrollee for whom enrollment is verified monthly, there may not be more than a 1-month gap in coverage. The enrollee must be enrolled as of December 31 of the measurement year.”*<sup>60</sup> All costs from inpatient, outpatient, and professional services with multiple claim types were aggregated separately by claim type.

Medicare claims data: While we did have access to some data on enrollees in the Medicare population, we did not use these data for analysis. We had access to Medicare data only for 2009 through

2011 and not 2012. This did not cover the full 3 years of the evaluation period (2010 to 2012). Because of this and the low number of attributed Medicare enrollees in 2010 and 2011, the evaluation team felt the data to be of questionable value and possibly misleading. Thus there is no separate analysis of Medicare enrollees included in this report.

#### *Minnesota Statewide Quality Reporting and Measurement System*

The Statewide Quality Reporting and Measurement System (SQRMS) data include Vascular Care for 2009 to 2012,<sup>61-63</sup> Diabetes Care for 2009 to 2012,<sup>64-66</sup> Colorectal Cancer Screening for 2011 and 2011,<sup>67</sup> Depression Remission for 2011 and 2012,<sup>68</sup> and Asthma Care for 2011 and 2012.<sup>69,70</sup> Asthma and Colorectal Cancer Screening data were for dates of service from July 1<sup>st</sup> to June 30 of the following year. Diabetes, Vascular, and Depression data were for dates for services of the prior year.

The data were collected through direct data submission of enrollee level data by Minnesota Community Measurement under contract to Minnesota's Statewide Quality Reporting & Measurement System (SQRMS) initiative. Clinics were provided with instructions for identifying enrollees with a specific condition (the denominator), attributing enrollees to clinics and providers, instructions for measuring care quality (the numerator), and instructions for submitting data at the enrollee level. Clinics can choose to submit a random sample of enrollees, enrollees selected from a list that generates a representative sample of enrollees, or the total population of the clinic's enrollees. SQRMS requires that clinics with less than 60 enrollees must submit data for all enrollees. Clinics are encouraged to submit data for the total population to increase measurement reliability and precision. Data submission satisfies Minnesota Department of Health requirements for the Statewide Quality Reporting System (SQRMS) and HCH program requirements for reporting. Many clinics provide an enrollee's primary care provider National Provider Identifier as a field in the enrollee level data.

Appendix C describes the measure and sample characteristics of the Minnesota Statewide Quality Reporting and Measurement System (SQRMS) Measures used for this evaluation.

#### *QUALITATIVE DATA*

A variety of qualitative data sources were used to inform the analysis. These included:

- (a) HCH program documentation, such as descriptions and process documentation for certification;
- (b) selected committee reports;
- (c) meetings with key informants who have been active in HCH implementation during evaluation team meetings (e.g., MDH and DHS staff participating in evaluation team meetings) ;
- (d) web-based resources documenting HCH processes and meetings;
- (e) participation in learning collaborative meetings;



- (f) textual fields in the HCH certification database, such as those describing certification variances and questions the certification site visit team feel should be explored; and
- (g) responses from a survey of HCH clinics about care coordination payment processes and tiering (described fully in Appendix F).

The key use of qualitative data was (a) documenting the certification process (see Appendix B) and (b) documenting clinic and health system response to the payment methodology (see Chapter 4 and Appendix F).

The payment survey was from certified HCHs operating during the evaluation period (July 2010 – December 31, 2013). These data included information on financial practices and decision making related to HCH, billing practices, and enrollee tiering practices related to HCH. Survey data were collected between September and December of 2013. Mixed qualitative and quantitative analyses were conducted using the data depending on the individual question and related data type. For open-ended comment or essay questions, qualitative thematic content analysis was used to distill and understand the main ideas expressed. For closed-ended multiple choice or yes/no questions, quantitative analysis was used to determine simple rates and percentages of responses within the survey response population. A full description of payment survey data collection and analysis is provided in Appendix F.

## METHODS

### ATTRIBUTION

In order to measure costs and quality enrollees need to be attributed to clinics. For SQRMS data the attribution is accomplished by clinics reporting enrollee level data for their own enrollees (patients are identified with a random number generated in each clinic for each condition that cannot be used to identify an enrollee). A strength of the evaluation of care quality using SQRMS data is the direct attribution of enrollees to clinics by the clinics that care for the enrollee. The attribution of the patient to a clinic does not have to be inferred in less direct ways.

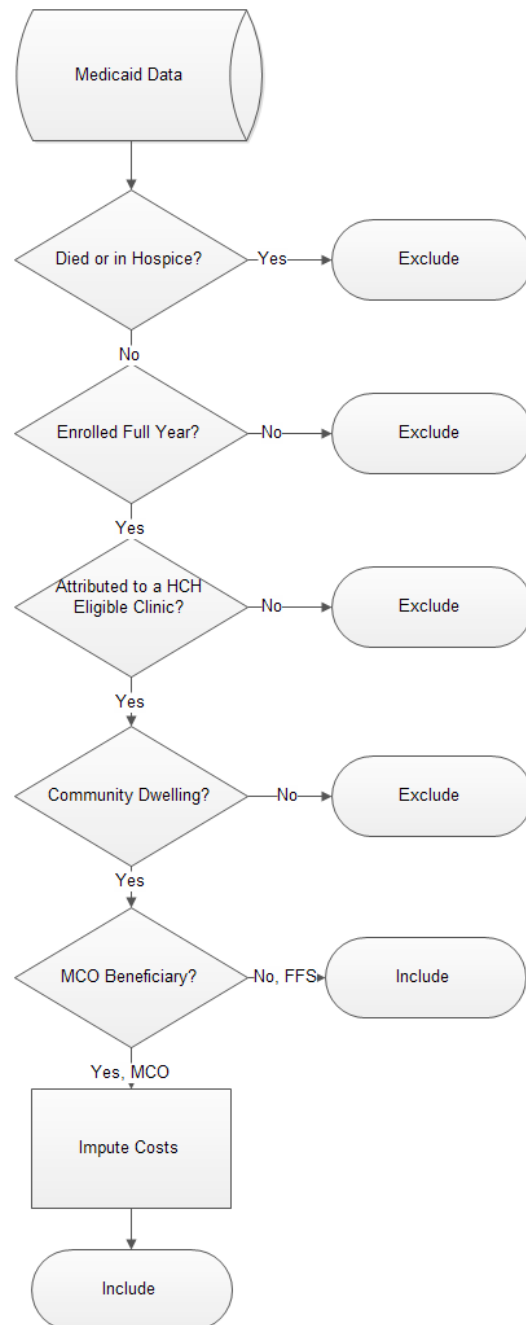
For medical claims, attribution is more difficult because enrollees can visit multiple clinics and for evaluation purposes they have to be attributed to a single clinic. The attribution of a patient to a clinic is inferred by (a) attributing a provider to a clinic and (b) attributing an enrollee to a provider. Then enrollees are attributed to clinics through their relationship with a provider. For analysis purposes, the attribution algorithm attributes a provider to one clinic for a complete year. Appendix D describes the attribution methodology.

### *Attribution and Number of Enrollees in Analyses*

Figure 1 shows the inclusion rules for Medicaid enrollees included as the patient population in the evaluation. Because quality and cost measures require a full year of observation, enrollees without a full year of enrollment are excluded. Because the study compares access, quality, and cost for clinics that are eligible to participate in the HCH program, enrollees who cannot be attributed to a HCH eligible clinic are excluded.

Figure 2 shows the number of enrollees included and excluded by year. Two major sources of exclusion are enrollees not being enrolled the full year, which is necessary for accurate quality and cost measurement, and enrollees not being attributable to HCH eligible clinics (although there is a significant increase in the attribution of enrollees to HCH clinics in 2012). The exclusion of enrollees due to not being

Figure 1: Exclusion and Inclusion Selection Process



enrolled a full year is, at least partially, a function of the Medicaid program design where because of Medicaid eligibility criteria, enrollees commonly cycle in and out of the program or stay in the program for relatively short periods. The exclusion of enrollees because of not being attributable to a HCH eligible clinic may be a function of the specific provider identifiers that are included in claims, the availability of a clinic registry, and information associating providers with specific clinics.

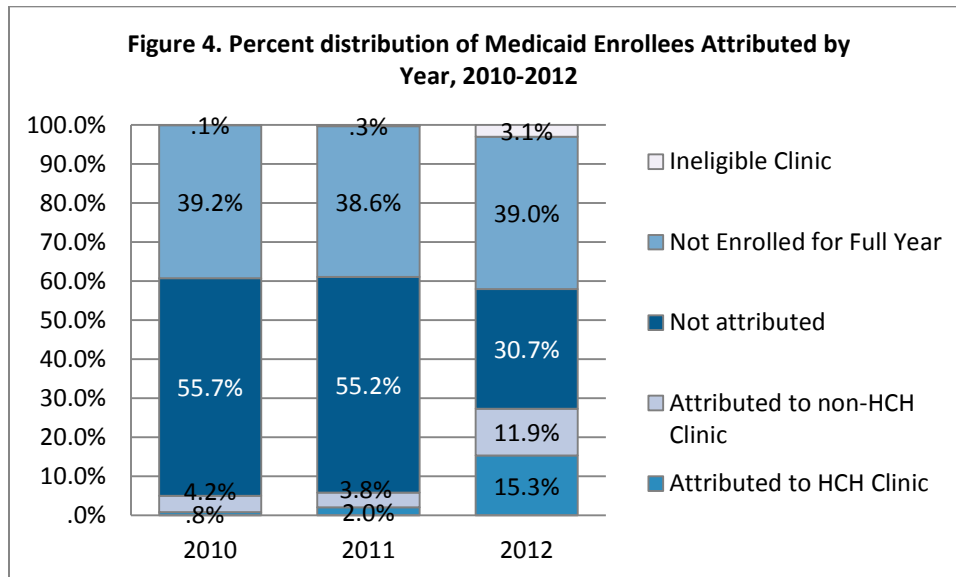
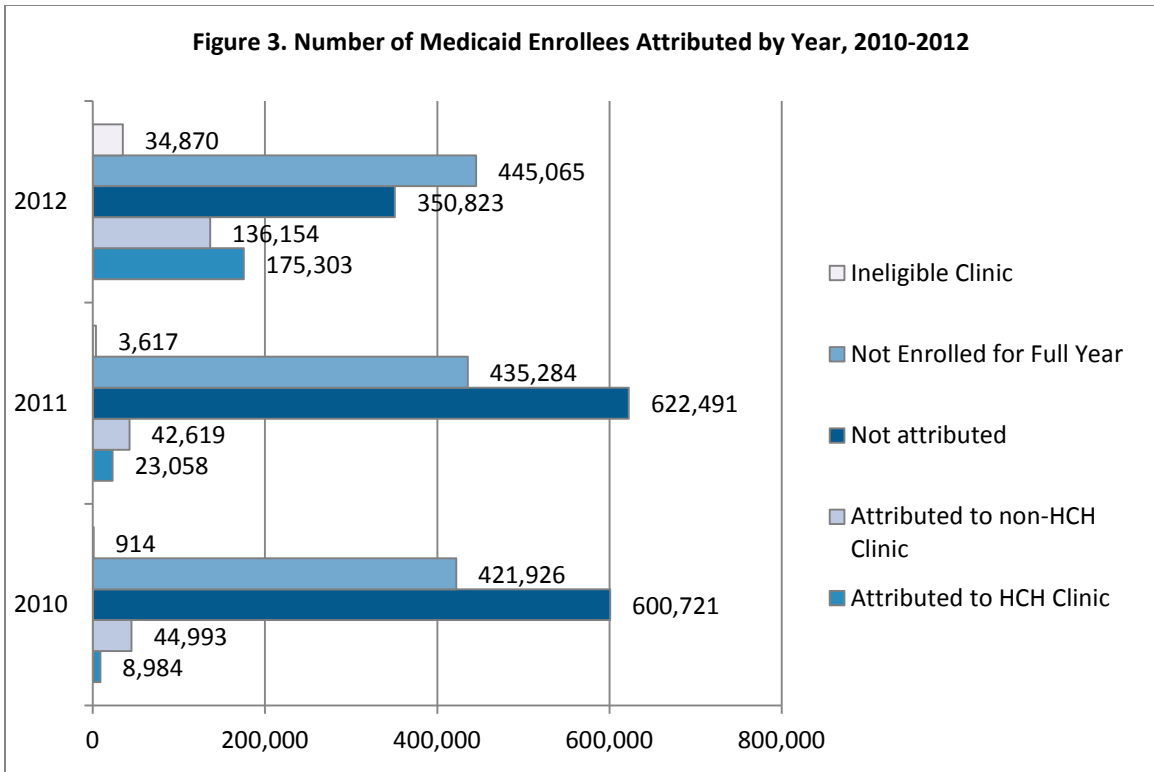
While the number of enrollees excluded is high, their exclusion assures that the analyses are based on clearly identifiable groups of enrollees with fairly complete and comparable data.

**Figure 2: Excluded and Included Observations by Year (Number / Percent of Year Total)**

<b>Exclusion Reason</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>All</b>
<b>Death or Hospice</b>	13,147	13,385	13,523	13,572	53,627
	1.30	1.24	1.20	1.19	1.23
<b>Not Enrolled full Year</b>	397,896	411,213	424,346	434,374	1,667,829
	39.47	38.16	37.65	38.03	38.30
<b>Not Attributed to HCH Eligible Clinic</b>	547,152	599,022	623,587	383,550	2,153,311
	54.28	55.59	55.33	33.58	49.45
<b>Not Community Dwelling</b>	1,239	1,324	1,617	7,320	11,500
	0.12	0.12	0.14	0.64	0.26
<b>MCO - Expenses Imputed, Included</b>	23,386	25,798	30,608	282,931	362,723
	2.32	2.39	2.72	24.77	8.33
<b>FFS - Included</b>	25,243	26,796	33,388	20,469	105,896
	2.50	2.49	2.96	1.79	2.43
<b>All</b>	1,008,063	1,077,538	1,127,069	1,142,216	4,354,886
	100.00	100.00	100.00	100.00	100.00

Figure 3 shows the number of Medicaid enrollees attributed to certified Health Care Homes (HCH) and non-certified Health Care Homes (non-HCH) for 2010 through 2012. Clinics began to be certified in mid-2010, so the patterns shown in these figures represent the Medicaid enrollee population before and after the implementation of HCH. Figure 3 also shows by year the number of enrollees that could not be attributed to a specific clinic, the number of enrollees that did not have a full year of enrollment of Medicaid, and a handful that received care in ineligible clinics. Enrollees typically could not be attributed because an enrollee did not receive the preponderance of their care at a single clinic, and/or had no E&M/office visit in a professional setting.

Figure 4 shows the percentage (%) distribution of these populations over the same years. Figures 3 and 4 illustrate that while a relatively small proportion of Medicaid enrollees can be attributed to HCH clinics, this proportion is increasing over time. Figure 4 also illustrates that the ability to attribute enrollees to HCH or non-HCH clinics is increasing over time, with the non-attributable population being halved in 2012 as compared to previous years.



It is important to note that the number of enrollees we were able to attribute to HCH and non-HCHs was small in 2010 (53,977 total attributed enrollees) and increased through 2012 (311,807 total attributed enrollees, see Figure 3). This change in the size of the population of analysis may affect measured trends in demographics, cost, and quality. Differences over time shown in the results may be confounded by the varying power of the attribution methodology.

The steps used to associate enrollees to providers and providers to clinics for attribution are further detailed in Appendix D.

#### *ANALYSIS OF COMORBIDITY*

Some analyses examined the co-morbidity of enrollees. Co-morbidity was measured in three ways, a modified Charlson index, verifiable, expensive, predictive (VEP), and ACG© resource utilization bands (the ACG measures were provided as part of the Medicaid data). The diagnoses associated with inpatient, professional, and outpatient services were used to construct a modified Charlson index which measures comorbidity,<sup>71,72</sup> the number of major medical conditions a enrollee has,<sup>73</sup> and number of and indicators for verifiable, expensive, predictive (VEP) conditions that are associated with higher health care expenditures.<sup>74</sup> VEPs are based on the argument that a significant amount of expenditures are associated with a relatively small set of conditions. These conditions were based on “verifiability, relative expense, and chronicity. Verifiability was judged by whether the diagnosis is typically based on specific clinical criteria, such as a review of pathologic specimens for cancer or the absence of blood proteins for hemophilia. Relative expense and chronic conditions were defined by the likelihood of creating ongoing expenditures through the course of the current year and subsequent periods. Expensive, acute conditions that do not require long-term expenditures (e.g., cholecystitis) were not included in the VEP100.” The number of VEPs and indicators for specific VEPs are used to describe morbidity and comorbidity in Chapter 4 of this report. Other measures used for assessing co-morbidity included the enrollee’s resource utilization band as measured by the Johns Hopkins Adjusted Clinical Groups (ACGs) software<sup>75</sup> for Medicaid enrollees.

#### *REGIONAL ANALYSIS*

For geographic analyses of Minnesota regions, counties are assigned to regional development commissions as determined by the State Community Health Services Advisory Committee (SCHSAC)<sup>62</sup> which reflect area partnerships to integrate regional development in Minnesota.<sup>76</sup> We chose this categorization to support consistency with other MDH regional analyses. For geographic analyses of urban-rural differences we used 2013 urban influence codes.<sup>77</sup> Urban influence codes distinguish “metropolitan counties by population size of their metro area, and nonmetropolitan counties by size of the largest city or town and proximity to metro and micropolitan areas. The standard Office of Management and Budget (OMB) metro and non-metro categories have been subdivided into two metro and 10 non-metro categories, resulting in a 12-part county classification.”<sup>77</sup>

#### *ASSESSING REIMBURSEMENT FOR SERVICES*

Reimbursement for services was calculated from Medicaid paid claims for the years 2010, 2011, and 2012. Prior to 2012 Medicaid managed care (MCO) reimbursement amounts were not included in the claims data but were imputed. In 2012, MCO reimbursement was reported but to make comparisons over time consistent MCO reimbursement was imputed as in prior years. Imputation was accomplished by

calculating the ratio of total reimbursements to total charges for each service category for each pay-to-provider in fee-for-service (FFS) claims. This ratio was multiplied times the MCO charged amount.

The reimbursement analysis shows differences in reimbursement between certified Health Care Home clinics and comparison clinics not certified during the reporting period. Care should be taken in interpreting these results, as there may be differences in the completeness of claims across clinics and across services provided in those clinics. However, the results do reflect the dollars the Medicaid program paid to these clinics (FFS is actual, MCO is estimated) during these times for the fee-for-service enrollees, but the amounts for MHCP Managed Care enrollees were based on imputed paid amounts rather than actual paid amounts. As such, we do not report statistical significance in the differences between reimbursement for certified and non-certified clinics, as it is the dollar difference in reimbursement that is of interest, not the probability that differences may be due to chance.

## ADDITIONAL METHODOLOGICAL ISSUES

This section discusses additional methodological issues which are important to the evaluation of Health Care Homes, such as assessing the effect of HCH certification.

### *ASSESSING THE EFFECT OF HCH CERTIFICATION*

While this report examines the effect of HCH certification on access, cost, and quality, this section describes issues that all analyses must consider and some overarching issues associated with this analysis. Specific measures and analytic methods used for examining the effects of HCH certification will be described in the chapter for each analysis. Two key issues are the comparison groups used for assessing the effect of HCH certification and the measurement of HCH Certification. Other methodological issues are discussed in Appendix E.

#### *Comparison Groups*

An essential component of any evaluation is the presence of a suitable comparison group, in this case eligible clinics that have not chosen to become HCH Certified compared to clinics that have become HCH certified. This approach is strong for two reasons: First, because the HCH program is a statewide program, there are many clinics in both the certified and non-certified groups. Second, because clinics choose to become certified at different times, clinics that have not yet become certified and are becoming certified serve as comparisons for certified clinics. The presence of a comparison group for HCH certified clinics significantly strengthens the evaluation.<sup>57</sup>

#### *Measuring HCH Certification Status*

HCH program implementation does pose some evaluation challenges. The first is measuring HCH status. Clinics start the process of becoming a certified HCH by entering a transformation process, which includes clinic system evaluation and redesign where necessary. This transformation process is

supported by the availability of learning collaboratives and coaching. During the transformation process when a clinic's assesses that they are ready for certification, the clinic submits documents for review to determine if the clinic is ready for a site visit. This is followed by a certification site review and in most cases recommendation for certification, perhaps with variances for under-performing areas. During the transformation process the clinic is not fully comparable to a clinic that has not chosen to become a certified HCH nor is it fully comparable to a certified HCH. Following certification, HCHs become recertified by meeting additional standards at year one recertification. This means that HCH status can be viewed as: (a) Not pursuing HCH certification; (b) Transforming; (c) Certified, (d) Re-certified, first year. This is followed by continuing years of improvement and recertification. Ideally, each stage of the process should be evaluated.

Evaluating each stage of the process is difficult because measurement of access, cost and quality occur on an annual basis – Per Member Per Year (PMPY) costs for enrollees and care quality for a condition during the prior year. HCH status in a given year will always be out of synchronization with outcome measurement because HCHs become certified at some point during a year, so in the year that an HCH is certified, it is both transforming and certified. In the following year it is certified for the first year and recertified for the second year. Because the HCH certification status does not perfectly map to the outcome measurement period, it is difficult to clearly assess the effect of HCH status. Taking into consider this issue, for the initial set of analyses we measure HCH status in two ways. First, to measure the overall effect of the HCH certification we use an indicator of whether the HCH is certified in any form during the year (certified, recertified, first year, second year). Second, for this evaluation we use whether a clinic was certified at any point during the year. Future analyses will examine differences in certification stages.

## CHAPTER 9: SUMMARY, LIMITATIONS, AND NEXT STEPS

### INTRODUCTION

This report is a preliminary evaluation of the Health Care Home (HCH) initiative. The evaluation includes an assessment of demographic trends, including demographics of HCH enrollees and HCH providers, quality of care provided by HCHs and non-HCH clinics, health care home payment arrangements and interactions with payment policies, the relation of HCHs to health disparities, and costs and use of health care services related to HCHs.

### KEY FINDINGS

- **HCH Model:** A strength of the HCH Initiative is that the HCH model is based on a well-defined HCH fidelity standard and certification process, which uses direct observation in site visits. This follows recommended standards for evaluating complex programs such as HCHs<sup>3,4</sup> and assures evaluation reliability because HCHs are implemented as specified.
- **Enrollee Demographics:** The number and percent of Medicaid enrollees in HCH certified clinics increases over time. HCH clinics tend to care for patients who are persons of color, speak a primary language other than English, and have lower levels of educational attainment than patients in non-HCH clinics. HCH clinics and non-HCH clinics care for patients with similar levels of medical comorbidity. Medical comorbidity does not measure care coordination needs due to psychosocial factors that affect enrollee complexity for which there is not a direct measure in this evaluation.

Enrollees in higher HCH payment tiers, with higher expenses, who speak a primary language other than English, who are not institutionalized (are community-dwelling), and who have less than a high school education were more likely to be served by HCHs than non-HCHs. Enrollees who are children (less than 5 years old), older (greater than 75 years old), and from populations of color (Asians, Blacks, and/or Hispanic) are also more likely to be served by HCHs. Dual-eligible enrollees and American Indians were less likely to be served by HCHs. These findings suggest that HCHs are serving populations targeted by the HCH initiative, including enrollees with more severe medical conditions and medical need, and enrollees from disadvantaged populations.

- **Provider Demographics:** HCHs certified by December of 2012 were located largely in the Minneapolis-St. Paul metropolitan area, but were also represented in all areas of Minnesota. Approximately 40% of HCH organizations were Integrated Medical Groups and 30% were



Independent Medical Groups, while the majority of clinics certified as HCHs were part of Integrated Medical Groups. Other organizational types such as Federally Qualified Health Centers and Hospital based organizations were also represented in the HCH population. HCH providers were largely Family Medicine providers, with Internal Medicine and Pediatric specialties also represented. Nearly half of the certified Family Medicine and Pediatrics providers in the state were providing care within HCHs.

Among HCH eligible clinics the higher a clinic's percent of Minnesota Health Care Program (MHCP) enrollees, the higher the percentage of a clinic's enrollees who were black, the higher the percentage of a clinic's enrollees in a higher payment tier, the larger the clinic, and the higher the clinic's quality was, the more likely the clinic was to become a certified HCH. Clinics with a high percent of Self-pay/Uninsured or Medicare enrollees and HCH eligible clinics in micropolitan and isolated frontier towns were less likely to become a certified HCH. The likelihood of HCH eligible clinics becoming certified increases over time, suggesting that interest in participating in the HCH Initiative is increasing over time.

- **Care Quality:** Comparison of key Statewide Quality Reporting and Measurement System (SQRMS) care quality measures for Minnesota HCH eligible clinics showed that HCHs had better Colorectal Cancer Screening, Asthma Care, Diabetes Care, Vascular Care, and Depression Follow-up than non-HCH clinics. The quality of care provided by clinics certified as HCHs was higher than non-certified primary care clinics for most assessed quality measures.
- **Payment:** A majority of HCH certified clinics have adopted important aspects of the State of Minnesota's payment method, including widespread use of the Minnesota State Care Coordination Tier assignment tool for billing and/or clinical management purposes, and use of monthly billing for care coordination reimbursement. HCH clinics believe that payment for HCH care coordination services is important and are attempting to access payment by billing multiple payers for these services. Clinics are still working out the details of how to efficiently bill for and access payments for HCH services: they may particularly be impacted by administrative challenges to billing multiple payers who may use differing payment arrangements for care coordination. HCH clinics have experienced some cost increases, which may be due to start-up costs of program implementation. While HCHs did note specific modifications that might be made to the patient tiering tool, such as greater ability to account for psychosocial factors, most appear to view the tool as a good starting place for assessing patient tier and cost.

- **Disparities in Care:** Analysis indicates that HCHs appear to be focusing on providing access to care and coordination of care to patients with greater health care needs and from historically underserved populations.
  - Compared to populations of color in non-certified clinics, populations of color cared for by HCHs used fewer emergency department and ambulatory care services, had fewer evaluation and management visits, and used more professional services and hospital outpatient services. Compared to White enrollees in HCH clinics, populations of color cared for in HCHs had more HCH care coordination encounters, used more emergency department services, but otherwise used fewer health care services overall.
  - Enrollees in higher HCH payment tiers, with higher expenses, who speak a primary language other than English, who are not institutionalized (are community-dwelling), and who have less than a high school education were more likely to be served by HCHs than non-certified primary care clinics. Enrollees who are children (less than 5 years old), older (greater than 75 years old), and from populations of color (Asians, Blacks, and/or Hispanic) are also more likely to be served by HCHs. Dual-eligible enrollees and American Indians were less likely to be served by HCHs. These findings suggest that HCHs are serving populations targeted by the HCH initiative, including enrollees with more severe medical conditions and medical need, and enrollees from disadvantaged populations.
- **Estimated Costs and Cost Savings:** Medicaid enrollees attributed to HCH clinics were more expensive than those attributed to non-HCH clinics in 2010, the startup year for the HCH Initiative. These differences became smaller in 2011, and by 2012 enrollees attributed to HCHs were less expensive than those attributed to non-HCH clinics. In 2010 reimbursement for professional services was the dominant factor in enrollees attributed to HCHs being more expensive. Although enrollees attributed to HCHs had higher costs and use during 2010 and 2011, their lower costs by 2012 resulted in enrollees attributed to HCHs having overall Medicaid expenditures of 9.2% less than enrollees attributed to non-HCH clinics.

## LIMITATIONS

There are a number of limitations associated with this initial evaluation of the HCH initiative. First, the evaluation is of the HCH Initiative in its initial phases. The first clinic was certified as a HCH in July of 2010. While the probability of clinics that are not certified as HCHs becoming certified has increased over time, the number of clinics and the number of enrollees attributed to clinics are still not as high as they may be in the coming years. The lower clinic and population numbers in 2010 and 2011 make evaluation

more difficult in terms of ascertaining statistical significance in differences and simply having sufficient sample size in the population to see patterns or trends.

During the initial phases of implementing a substantial organizational intervention at the state and clinic levels, such as the HCH Initiative, a significant amount of organizational learning occurs. During the transformation process at state and clinic levels, new routines and processes are implemented and during their implementation they are refined and improved. Similarly, relationships have to be rebuilt with enrollees to include new care coordination and care assistance. This indicates that the ability to observe the effect of HCH certification may be delayed over time. But, the strong early development of the HCH Initiative means that the outcomes for clinics that have participated in HCH long enough to pass the transformation hurdle with both clinic processes and patient relationships can be examined. In this initial evaluation, the lags associated with implementing clinic processes and patient relationships may be the source of the higher HCH costs in 2010 and 2011 and lower HCH costs in 2012.

A related limitation is measuring HCH certification status and relating HCH certification to access, quality, and costs. One metaphor for assessing the effects of HCH Certification is a light bill. On the day before a clinic is certified the light is off, and the day after it is on. We would like to assess the difference between access, quality, and cost before and after this day. However, this metaphor is faulty. HCH transformation takes time. During the year a clinic transforms, it begins learning and using new care coordination processes and clinical systems. After the clinic is certified it continues to refine those processes and systems. During the year a clinic is certified, it is difficult to characterize as fully dark or as fully light. HCH Certification is a transformation, not a switch. In this first phase evaluation, we treated this initial year as being certified. Another reason for this decision is that analyses of access, quality, and cost and attribution of enrollees to clinics require continuous enrollment for a year for measurement purposes. For quality, this occurs because some quality processes are based on annual processes. It is also based on the way that SQRMS data is collected, which is an annual basis. For costs, this occurs because movement between health plans, such as managed care and fee-for-service, is influenced by health status and resource use.<sup>78</sup> It is also difficult to extrapolate from partial year enrollment to full year costs. An individual who enters Medicaid may have pent-up demand which results in high short term use and does not generalize to the full year. For attribution, a full year of enrollment was used because attribution is done based on clinic encounters. Decreasing the length of time a patient is enrolled decreases the ability to attribute on the basis of encounters because the number of encounters decreases as enrollment length decreases. In sum, because of annual measurement and attribution issues and because of the HCH transformation process we measured clinics as HCH certified if they were certified in any part of the year. In future evaluations we can analyze the sensitivity of our results to this decision because the HCH initiative will be beyond its initial phase.

A third limitation is attribution. As was shown in Chapter 8, a large percent of the Medicaid enrollees could not be included in the analysis because they could not be attributed to a HCH eligible clinic. It is likely that this issue is due to data limitations. One limitation is in the coding of claims data,

where the pay to provider national provider identifier (NPI) includes a number of clinics. In this case, an enrollee and provider cannot be directly attributed to a clinic for measurement purposes, which means that this claim provides no useful information for attributing patients to clinics. This occurs because the Centers for Medicare & Medicaid Services (CMS) National Plan and Provider Enumeration System (NPPES) requires health systems to assign their clinics unique NPIs only if the clinic processes information covered by HIPAA (Health Insurance Portability and Accountability Act) regulations outside of the health systems information systems. However, health systems can assign clinics distinct NPIs as sub-parts of the health system. If all clinics, as defined by SQRMS/MDH standards, were required to have a unique NPI that was used as pay to provider on medical claims, particularly professional services, attribution of patients to clinics would be significantly improved. This could be facilitated by requiring claims to have valid clinic level pay to providers for claim payment. This would likely result in a large improvement in the state's ability to evaluate initiatives such as HCH or SIM (State Innovation Model). An alternative, although not as strong, would be to have a Minnesota clinic registry with providers associated with that clinic identified. The preliminary version of this alternative based on SQRMS patient level reporting and HCH certification database was a significant component of this initial evaluation. Minnesota may wish to refer this issue to its Administrative Uniformity Committee in order to streamline health care administrative processes to facilitate initiative evaluation.

A fourth limitation is measuring costs and resource use. While paid amounts were available for FFS, paid amounts were imputed for Managed Care Organizations (MCOs). The MCOs charged amount was discounted by the ratio of the average fee-for-service paid amount to charged amount for each category of service for each provider. The Health Partners Total Cost of Care (TCOC) tool<sup>79-81</sup> avoids these cost related issues by measuring resource use with a standardized methodology that can include both FFS and MCO enrollees enrolled a full year. This tool will be used in future evaluation phases to more accurately compare the effect of HCH certification on resource use. But, costs will continue to be used to assess budget neutrality and savings.

A fifth issue is related to the percent of enrollees who could not be included in the analysis because they were not enrolled in Medicaid for a full year. This is less a limitation than a reflection of the design of the Medicaid program. But, the fact that they were not enrolled a full year means that they could not be included in the analyses. This issue is potentially addressable through the use of the MDH's All Payer Claims Database (APCD) that could allow observation of a full year of claims data for part-year Medicaid enrollees who had other insurance for the remainder of the year. The APCD would not address the situation of part-year Medicaid enrollees who were uninsured in other parts of the year.

The final issue is that this evaluation report does not include an assessment of the effect of the HCH initiative on HCH transformation. The focus of this evaluation report is on HCH efficacy, i.e. do HCH's have the effect they are expected to have? The certification of HCHs using HCH fidelity standards allows this analysis to be done because HCH certification signifies the presence of core clinical systems and care coordination processes. The assessment of efficacy is an important first step in assessing HCH

initiative effects. This first evaluation phase suggests that HCHs are associated with the results they are intended to produce – improved quality and reduced or equivocal costs while serving those with high medical need. Future evaluation phases will examine the effect of the HCH Initiative on this transformation process.

## NEXT STEPS

The next steps for the evaluation build on the work completed in the first phase and focus on three broad areas: Data, Methods, and Substantive. Data focuses on extending the evaluation data beyond 2012. Because of the diffusion of HCHs, this will allow the examination of HCH effects beyond the initial HCH Initiative implementation phase and provide a more reliable measure of the performance of established HCHs. Methods focus on extending the analysis beyond an evaluation of HCH efficacy to examining the effect of the HCH Initiative on HCH development, risk adjusting for patient differences, and improving attribution methods. Substantive focuses on issues such as examining HCH transformation and subgroup effects.

### *DATA AND REPLICATION*

This initial evaluation is based on Medicaid claims through 2012. This evaluation will be extended in future evaluative work by including 2013 Medicaid claims, which should be available in mid-2014, 2014 Medicaid claims, which should be available in mid-2015, and Medicare claims from 2009 to 2013 (and possibly 2014). Because Medicare has more stable enrollment than Medicaid, we expect that including Medicare could significantly increase the population studied. The addition of Medicare enrollees will also strengthen the analysis by adding enrollees with co-morbidities who may be more likely to benefit from HCHs. The addition of the claims data and continued HCH diffusion will allow for assessment of the stability of the initial analyses and will also support analyses of the effect of HCHs for clinics and enrollees who have shared a continuous HCH relationship longitudinally. These enrollees may be most likely to benefit from HCH.

In the circumstance that the State of Minnesota's All Payer Claims data is made available for HCH Initiative evaluation purposes, the evaluation could be further extended by examining HCH effects in different insurance populations and by examining HCH effects for individuals who transition across health plans (e.g., Medicaid to Commercial or Commercial to Medicaid).

### *METHODS*

The first methodological objective is to estimate the degree to which the HCH transformation caused the positive HCH effects observed in this initial evaluation. This is necessary to understand the impact of state level efforts to implement HCHs. There are three broad explanations for the development of HCHs. First, the diffusion of HCHs could be due to a historical effect. Over time, health care practice improves through the diffusion of best practices. Over the past few years, patient centered medical

homes, which are the broad description of HCHs, and how to implement them, have been widely promoted in the health care literature and through public policy. The historical effect is controlled for in this initial analysis by the inclusion of HCH-eligible clinics that are not HCH certified as comparisons. The second explanation is that clinics that have already implemented most of the features of HCHs and have higher quality and lower costs are more likely to become HCH certified. This could be caused by Minnesota's health systems and clinics actively improving clinic systems and care coordination using what has been learned by medical homes. This alternative explanation is supported by our analyses of which clinics become certified as HCHs, which shows that larger clinics that report higher diabetes and vascular care quality in SQRMS data are more likely to become certified. But, this alternative is opposed by the finding that the average PMPY (per-member per-year) costs for a clinic's enrollees are not related to clinics becoming certified as HCHs. The final explanation is that the HCH initiative caused the effects observed in this initial evaluation. The next steps in the evaluation will assess the degree to which the HCH initiative caused the HCH effects by using propensity-score modeling or instrumental variables.<sup>82</sup>

The second methodological issue that will be explored is the sensitivity of the HCH initiative evaluation to the attribution methods. The attribution methods used in this initial phase was based on current practices in health services research.<sup>83</sup> The attribution methods may affect the evaluation inferences in three ways. First, it can affect the completeness of the attribution, the proportion of enrollees who are attributed to a clinic. We expect that attribution will improve in 2013 and 2014 because of increasing participation in SQRMS, which provides patient level data that links providers to clinics, and the HCH Initiative, which links HCH certified providers to HCH certified clinics, will provide more information associating providers with specific clinics. This may affect HCH Initiative evaluation inferences.

The second attribution issue is associated with whether the sensitivity and specificity of the attribution methods influences the inferences from the HCH Initiative evaluation. Sensitivity is the proportion of actual primary care relationships identified by the attribution methods and specificity is the proportion of not having a primary care relationship correctly identified by the attribution methods. Increasing sensitivity usually results in attributing more enrollees to clinics even though the enrollees may not all actually be patients at the clinic they are attributed to. Increasing specificity results in attributing fewer enrollees to clinics while increasing the likelihood that the enrollees are actually patients in the clinic they are attributed to. While sensitivity decreases attribution accuracy and increases the number of enrollees attributed, specificity increases attribution accuracy and decreases the number of enrollees attributed. The evaluation of the HCH Initiative may be affected by this sensitivity/specificity tradeoff. This initial evaluation increased specificity by requiring that 20% of an enrollee's professional encounters occur at the clinic where they were attributed. This assumption will be explored in the next evaluation phase. We will also explore alternative approaches to attribution that are more strongly grounded in the definition of primary care as longitudinal, first contact, comprehensive care.<sup>50</sup>

The third attribution issue is whether certification as a HCHs affects attribution. If HCHs provide more coordinated and effective care for enrollees, enrollees may be less likely to have clinic visits that can be used for attribution. This could result in attribution errors due to the changing mix of clinic professional encounters a patient has.

This initial evaluation examined the relationship between HCHs and estimated costs using averages. The next phase will incorporate subgroup analyses, risk adjustment, and different methods for addressing outliers. Health care cost and resource use is highly skewed with a long tail. Health care costs vary significantly across subgroups, with some groups such as children having much lower average costs than adults. Most individuals do not have very high health care costs while relatively few individuals with very high health care costs are the source of a significant amount of health care expenses and resource use. These subgroup differences and presence of outliers means that the comparison between HCH certified clinics and non-HCH certified clinics could be due differences in patient mix. In the next evaluation phase, comparisons of HCH effects will be adjusted for subgroups and risk adjusted for differences in medical conditions that affect health care use. Additionally, the next phase of the evaluation will also examine the sensitivity of the analyses to different statistical methods used to account for the outliers.

This evaluation included only SQRMS quality measures. The strength of these measures is that they enhance the strength of the attribution of patients to clinics. As part of reporting SQRMS measures, clinics report only on their own patients. Because of this and because SQRMS data is based on clinic information systems, the SQRMS measures could be considered to be a relative gold-standard for quality measurement. In the next evaluation phase, quality measures based on claims, such as Healthcare Effectiveness Data and Information Set (HEDIS) measures<sup>60</sup>, will also be calculated to evaluate the effect of HCH certification. The usage of HEDIS measures will extend the quality analysis over a larger area than is currently supported by SQRMS at this time.

#### *SUBSTANTIVE*

The first substantive issue is examining the “causal mechanisms” underlying the effect of HCHs on patient outcomes. HCHs are arguably effective because they improve patient centered integrated care (PCIC) and the primary care relationship. By improving PCIC and the primary care relationship, they reduce use of resources such as emergency departments and hospital. This evaluation contained a preliminary evaluation of these mechanisms, examining the relationship between HCH certification and Evaluation & Management encounters and number of providers seen. The next analysis phase will extend these initial analyses by developing a more sophisticated model of the paths relating HCH certification to outcomes (e.g., HCH certification improves PCIC and the primary care relationship, which reduces inpatient use) and examining how the length and strength of the HCH’s relationship with an enrollee influences the effect of HCHs on enrollee outcomes.

The second substantive issue is examining how HCH effects differ across enrollee populations. Arguably, HCH and care coordination should have the strongest effects on those who have the greatest care coordination needs. Care coordination needs are caused by multi-morbidity,<sup>84</sup> socio-economic status, race, and ethnicity. A limitation in this earlier analysis was the relatively small size of subgroups which made the analysis of subgroup differences difficult. As more data become available in 2013 and 2014, and as HCH becomes more widely adopted, the size of the subgroups should increase, which will facilitate a more detailed examination of HCH effects by subgroups and support a better understanding of the effect of HCHs on disparities.

The third substantive issue involves understanding the transformation of clinics to HCHs<sup>85</sup> and how the HCH components affect HCHs performance. A strength of the HCH Initiative is the development of HCH fidelity standards and certification of clinics using those standards. But, those standards include a number of important features, such as registries, EHRs, performance measurement, reminders, care coordination, care plans, and team work. An unanswered question is how those components relate to HCH performance and which should be implemented first.<sup>86</sup> Are all components equally necessary? Or, for example, is an EHR with population registry management capabilities necessary for effective care coordination? In the next phase of the evaluation, we will extend the work completed by the HCH initiative to develop a better understanding of transformation. There is extensive knowledge upon which an approach to understanding transformation can be built, such as Minnesota's HCH certification database, research that identifies key features of HCHs,<sup>34,42,87</sup> research on assessing primary care practice and care coordination<sup>29,88-90</sup>, research on patient centered health care,<sup>91-93</sup> research developing validated surveys to measure team work in chronic care teams,<sup>94</sup> and qualitative research on caring for patients with multi-morbidity.<sup>95</sup> We will extend the current HCH fidelity measures to fit a theory underlying care provision and coordination<sup>4</sup> for multi-morbid individuals.<sup>84</sup> This research will focus on understanding the transformation process, by understanding how HCH components are configured for specific enrollee populations to achieve improved access and care while reducing costs.

## SUMMARY

This initial evaluation of the HCH Initiative showed that the HCH model improves access and quality while reducing costs. These are more positive results than may otherwise have been expected due to several factors. During this evaluation period, the HCH Initiative was in its initial stages of development, clinics were just transforming to HCHs and learning how to make new clinic systems and care coordination processes work effectively, and there was difficulty in attributing enrollees to clinics for the purpose of evaluating the HCH Initiative. Even with these difficulties, this initial evaluation finds that HCHs are a promising avenue to reaching the triple aim.

The next phase of the HCH evaluation will be able to significantly extend this early work. Limitations associated with data will be addressed as 2013 and 2014 data are incorporated into the analysis. As the HCH Initiative is refined and moves to a more mature development stage, and as HCH



certified clinics and enrollees have more experience with the HCH clinical systems and care coordination, a much better understanding of the effects of strongly functioning HCHs can be developed. The initial evaluation also provides a strong foundation for conducting future analyses examining the effect of the HCH initiative on HCH transformation, improving attribution, and resource use. Finally, the initial evaluation provides a strong foundation for understanding how HCHs work for different enrollee populations and a basis for developing ideas for the next phases of advancement of the HCH model and HCH initiative.

## APPENDIX A: INDEX OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Definition</u>
AAFP	American Academy of Family Physicians
AAP	American Academy of Pediatrics
ACA	Affordable Care Act
ACG	Adjusted Clinical Groups
ACP	American College of Physicians
APC	All Payer Claims (database)
CC	Care Coordination
CMOc	Context-Mechanism-Outcome configuration
CMS	Centers for Medicare and Medicaid Services
CoC	Cost of Care
DHS	Minnesota Department of Human Services
DiD	Difference in Differences
E&M	Evaluation & Management
ED	Emergency Department
EHR	Interoperable Electronic Health Record
ERISA	Employee Retirement Income Security Act
FFS	Fee-for-Service
HbA1c	Hemoglobin A1c
HCFA	Health Care Financing Administration
HCH	Health Care Home
HCPCS	Health Care Common Procedure Coding System
HEDIS	Healthcare Effectiveness Data and Information Set
HIPAA	Health Insurance Portability and Accountability Act
HIT	Health Information Technology
ICSI	Institute for Clinical Systems Improvement
IID	independent and identically distributed
LDL	Low-density lipoprotein
MAPCP	Multi-payer Advanced Primary Care Practice
MCO	Managed Care Organization
MDH	Minnesota Department of Health
MHCP	Minnesota Health Care Plans
MNCM	Minnesota Community Measurement
MNsure	Minnesota health insurance exchange
NCQA	National Committee for Quality Assurance
NPI	National Provider Identifier
NPPES	National Plan and Provider Enumeration System
OMB	Office of Management and Budget
OVC	Optimal Vascular Care
PCIC	Patient Centered Integrated Care

<b><u>Abbreviation</u></b>	<b><u>Definition</u></b>
PCMH	Patient-Centered Medical Home
PHQ-9	Patient Health Questionnaire 9 item depression scale
PMAP	Prepaid Medical Assistance Program
PMPM	Per member per month
PMPY	Per member per year
PPACA	Patient Protection and Affordable Care Act
PQRS	Physician Quality Reporting System
SCHSAC	State Community Health Services Advisory Committee
SHIP	Statewide Health Improvement Plan
SIM	State Innovation Model
SPMI	Serious and persistent mental illness
SQRMS	Statewide Quality Reporting & Measurement System
TCOC	Total Cost of Care (HealthPartners tool)
VEP	Verifiable, Expensive, Predictive

## APPENDIX B: HEALTH CARE HOME STANDARDS AND CERTIFICATION

### INTRODUCTION

Minnesota's approach to Health Care Homes is built on a private-public collaboration and broad health system engagement with patients and families. The HCH rules, developed based on the 2008 Minnesota Health Reform legislation, created a set of expectations for Health Care Homes that made Minnesota unique among states across the U.S.

Early in the process of laying the foundation for Minnesota's Health Care Homes initiative, the Minnesota Department of Health and Department of Human Services developed a set of essential program components designed to guide the work of clinics and providers interested in becoming Health Care Homes.

As reported in the December 2009 Health Care Homes Annual Report to the Minnesota Legislature<sup>11</sup>, six elements were developed over the first year and one-half:

1. Capacity assessment
2. Certification standards
3. Certification process
4. Learning collaboratives
5. Outcome measures
6. Payment method

These six elements provided a structure for the work of transforming primary care practices throughout the state. These efforts were shaped by an initial capacity assessment designed to inform the HCH initiative of the readiness and capacity of clinics in the state for transformation. Based on this assessment, certification standards and processes, as well as a series of learning modules, were developed to assist clinics with the whole-practice work redesign required to become a Health Care Home. On a parallel track, payment methods were being designed by a Payment Methods Workgroup with representatives from key stakeholder groups (described in Chapter 4 of this report).

In particular, the certification standards and implementation of the certification process for ensuring fidelity to the standards through recertification over time are distinctive features of Minnesota's approach to Health Care Homes.

Although many clinics had begun preparation for the team-based, patient- and family-centered care approaches and the population-based health outcomes framework of a practicing Health Care Home, some found the scope of change more challenging than originally anticipated. Nevertheless, from July 2010 to December 2012 (the cutoff dates for this evaluation), 217 clinics in Minnesota successfully completed the requirements for certification as Health Care Home clinics.

## CERTIFICATION STANDARDS

The standards for certifying Health Care Homes in Minnesota are based on evidence from the research literature and practical experience garnered from those that have incorporated chronic care delivery models, teams, patient-centered care, population health management expertise into their care delivery models. A facilitated community engagement process was used to create a set of Health Care Home standards, which are used as both a self-guide for clinic and provider preparation for certification and as a tool for gauging the performance of clinic transformation in Health Care Homes. The standards development process is described in the 2009 report to the legislature.<sup>11</sup>

The standards for certification were incorporated into the Health Care Home rule and focus on six components, each of which has demonstrated increased performance :

1. Access and communication
2. Process to track participant registry and care activity
3. Care coordination
4. Care plan
5. Performance reporting and quality improvement
6. Patient and family centered care

Within each of these standards are multiple criteria that must be met for HCH certification; some are required at initial certification, others at recertification.

## CERTIFICATION PROCESS

One of the distinctive features of Minnesota's approach to developing Health Care Homes is its systematic approach to implementation of the HCH certification process. Tools created for applicants include a Certification Application Process Checklist and the Certification Guide.<sup>96</sup> These provide a set of detailed instructions on the process for certification as a Health Care Home.

The certification process involves a series of steps conducted by both the applicant clinic and the Minnesota Department of Health. These steps include pre-application activities, clinic submission of a letter of intent and application, MDH review of the application, site visit by MDH to the clinic, MDH review and certification decision, and recertification. Figure 1 summarizes this stepwise certification process.

Figure 1. Health Care Home Certification Process

<b>Pre-application</b>	Applicant completes optional pre-application preparation activities, such as attending a pre-certification workshop, joining the HCH learning collaborative, and/or conducting a clinic self-assessment to determine readiness to apply.	Applicant
<b>Letter of Intent</b>	Applicant submits letter of intent for certification to the Minnesota Department of Health. Letter of intent includes information on who is applying for certification (individual clinician/s, clinic/s, or practice system); primary practice type; clinic organizational information such as address and annual visit volume; list of clinicians who will apply for certification at the site; information on how the applicant plans to implement the HCH model; and information on contact personnel at the site.	Applicant
<b>Application and Certification Assessment</b>	Applicant completes an online application and certification assessment form intended to verify that the applicant meets HCH standards and criteria. The application for certification includes: applicant demographic information; additional clinic information (numbers of people who are members of health care home team, providers and services available at clinic site, clinic days and hours of operation, clinic information systems such as EMR/EHR and information system capabilities, years working on system redesign); and clinic patient panel information (number of patients by gender, age, ethnicity, and race; percentage of patients by primary language and insurer). The certification assessment tool prompts applicants to provide detailed information on how their clinic meets the standards for certification. If needed, applicants submit a request for variance to meet one of the standards or sub-standards.	Applicant
	MDH completes a review of application and certification assessment documents, requests more documentation as needed, and determines applicant readiness for site visit. MDH prepares for site visit including scheduling site visits and evaluators, preparing materials for the visit tailored to the applicant.	MDH
<b>Site Visit</b>	Applicant prepares for site visit with MDH and arranges presentations and interviews with patients, staff, and providers. After MDH site visit review, if an HCH standard or subpart is not met, the clinic may decide if they would like to request a variance to meet the standard.	Applicant
	MDH completes pre-site assessment and comments to determine questions that need to be asked during site visit. MDH visits the applicant site. The site visit includes introductions and a clinic tour; applicant presentation on how HCH has been implemented in the clinic; MDH interviews with providers, staff, and patients; applicant presentation on quality plan and outcomes; MDH team review of documents and criteria; and a debrief and next steps session with MDH and the applicant. After the site visit, the MDH team reviews all submitted application materials and information from site visit to determine which HCH standards have been met or not met.	MDH
<b>Review and Certification Decision</b>	After the site visit and any additional required materials are submitted by the clinic to make a complete application, MDH completes its review of materials. A debrief team at MDH determines if the applicant meets the certification standards and develops a recommendation for certification. They then write a report to the Certification Committee that contains no identifying information about the applicant presenting a recommendation on certification. Recommendations for certification or denial of certification are reviewed by the 12-person Certification Committee. The Certification Committee makes a recommendation that is reviewed with the Commissioner of Health. The Commissioner of Health then signs an approval or denial letter which is sent to the HCH applicant.	MDH
	Applicants who have met all of the HCH standards and been approved by the Certification Committee and Commissioner receive a certification notice and a report on their application and may begin operating as an HCH. Applicants who are denied approval also receive a report identifying which standards are met and not met. For those standards which are not met, the clinic can request a variance, request support for technical assistance, develop a plan for remedy and reapply certification in the areas not met, or file an appeal.	Applicant
<b>Re-certification</b>	HCHs are recertified annually. HCHs submit a letter of intent for recertification 60 days before the end of their annual certification. HCHs then submit a recertification assessment, updated application, and list of clinicians.	HCH
	MDH reviews the material and requests additional information and schedules a meeting with the HCH as needed for clarification, then presents a final report to the Certification Committee to make a recommendation to the Commissioner. If recertification is approved by the Certification Committee and Commissioner, the HCH receives a signed recertification letter and list of recertified clinicians.	MDH

A certification guide, with detailed instructions for application, is provided for clinics that submit a letter of intent.<sup>96</sup> The Health Care Homes Certification Assessment Tool that is submitted with the application gives examples of how a clinic can fulfill each criterion and provides information on what documentation is needed to verify completion of each of the criteria. For these self-assessments, MDH relies on both the supporting documentation provided by applicants and brief descriptions of how clinics meet the requirements. Based on each clinic's self-assessment and application, a certification site

evaluation plan is designed for the clinic certification site visit, which includes observation, document review, and interviews to verify the information provided in the application. MDH conducts a site visit in addition to document review and includes interviews with patients as well as providers and clinic staff during the site visits to ensure that HCH processes are fully implemented and integrated into clinic culture.

## CERTIFICATION DATABASE

As of July 2010, when the first clinic in Minnesota was certified as a Health Care Home, MDH has retained all records pertaining to certification in a HCH certification database. The evaluation team reviewed the database contents for record retention, completeness of documentation, evidence of verification of standards at site visit, final disposition notes, and follow-up actions. Findings from the review of these documents indicate that a comprehensive systematic approach was developed for maintaining records that document each individual application and its ultimate disposition. Examples of database entries that demonstrate how these standard verifications are documented across clinics include the following:

From HCH Administrative Adopted Rule 4764.0040, subpart 1<sup>13</sup>: The clinic provides care delivery using a team of staff members (clinician, care coordinator, and other staff as defined by the patient's needs and clinic's resources) to engage with participants in providing whole person care delivery.

*“The organizational leadership demonstrated a commitment to patient-centered care through practice redesign. Primary care teams were restructured as care teamlets that consisted of three PCPs, three medical assistants, one nurse, a scheduler, and in some teams a mid-level provider. Teams received extensive training centered on team building and quality improvement ... Patients are integrated in quality teams at both the clinic and organizational leadership levels. MDH conducted site visits at nine clinics. A total of 42 patients and 103 clinic staff were interviewed. An understanding of the basic principles of Health Care Homes and a commitment to the model was consistent across all clinics.”*

*“The applicant is two family medicine providers and one internal medicine provider at a rural clinic. The clinic provides primary care, specialty, and hospice/home care services as well as inpatient care. It is part of a larger health system that includes primary and specialty clinics and hospitals. The core primary care team consists of one provider and one licensed practical nurse (LPN)...One patient provided a clear picture of how the team model made a difference in her health. Prior to receiving care coordination the patient had been in the emergency department or was hospitalized every two to three weeks. She stated that she was on the verge of suicide when her provider invited her to participate in the Health Care Home pilot. Now that she has a team that*

*she can contact whenever she needs them and knows that they support her she feels like her life is worth living.”*

From HCH Administrative Adopted Rule 4764.0040, subpart 10<sup>13</sup>: The HCH systematically organizes patient information and uses the information for population management to support care coordination.

*“Applicant utilizes AllScripts Professional EMR. Clinic site leadership staff generates reports from chronic disease registries on a monthly basis. These reports are utilized for all of their patients who receive panel management and are provided to the Care Coordinators for care coordination of HCH patients. A workflow was submitted. Patient registries for diabetes, vascular care, asthma, colon cancer screening and HCH are used. They have standard processes for support staff to identify gaps in care such as needed or missing lab work, calling patients and scheduling lab appointments. The care coordinator reviews the HCH registry at scheduled quarterly patient meetings and tracks numerous data fields for gaps in care.”*

*“MDH recommends further development and streamlining of decision support tools and registries, with training for Health Coaches on how to use the tools. MDH recommends that the applicant add a pediatric registry of data elements that will help track for gaps in care with pediatric patients.”*

From HCH Administrative Adopted Rule 4764.0040, subpart 27<sup>13</sup>: Quality improvement planning is critical to the success of the HCH.

*“The first words on the Health System's Annual Performance Improvement Plan are: “The Health Systems Way guides our philosophy of continuous improvement to be: 1) Patient Centered defining value through the Voice of the Customer, 2) Inclusive of the people involved in and affected by the process and 3) Data Driven with use of intelligent metrics and evidence based improvements.” Numerous examples of quality improvement projects were presented including increasing LDL level compliance and improving patient experience by 1 point on the Press Ganey survey. A hand-washing PDSA was presented and involved patients completing brief questionnaire cards to monitor the hand-washing practices of their providers.”*

*“Criteria Met Recommendation: MDH recommends that the organization implement an organization wide approach to sharing patient experience data and having clinic work teams focus their improvement activities on areas identified by patients to improve patient experience. MDH also recommends that this approach more broadly focus on patient experience as a goal of*



*the team and not a goal of the provider only. While this is not a requirement of certification, it is a requirement for recertification.”*

## CONCLUSION

Minnesota’s Health Care Home model takes a unique and rigorous approach to certification, ensuring that established Health Care Home standards are met by all participating clinics. The certification and re-certification processes further serve to require and support clinic continuous care and quality improvement.

## APPENDIX C: MINNESOTA STATEWIDE QUALITY REPORTING AND MEASUREMENT SYSTEM (SQRMS) MEASURES

In this appendix we describe the Minnesota Statewide Quality Reporting and Measurement System (SQRMS) measures which are collected by Minnesota Community Measurement and used to examine care quality. The measures used for the 2012 SQRMS data submission and sample characteristics are described below.

### STANDARD SQRMS MEASURES

#### *ADULT ASTHMA CARE*

The Optimal Asthma Care measure is intended to determine the percentage of enrollees with Asthma who are optimally managed to reduce risk.<sup>22</sup> At the start of the measurement period, clinics report data to SQRMS on enrollees aged 5 to 50 recently seen by an eligible provider and diagnosed with Asthma. Within this population, enrollees are considered to have Optimal Asthma Care when they meet ALL of the following targets: (1) well-controlled asthma (based on applicable Asthma Control Tests or Questionnaires), (2) not at elevated risk of exacerbation (based on number of patient-reported hospital and emergency department visits), and (3) educated about Asthma self-management and has a written Asthma management plan present in medical chart.<sup>22</sup>

#### *COLORECTAL CANCER SCREENING*

The SQRMS Colorectal Cancer Screening measure is intended to determine the proportion of patients who are up to date with regular colorectal cancer screenings.<sup>20</sup> Clinics report data to SQRMS on patients aged 51 to 75 seen in person by eligible providers at least twice during the two years previous to and including the measurement period, and seen in person by eligible providers at least once during the annual measurement period. Within this clinic population, patients are considered up to date with appropriate colorectal cancer screening exams if they have received either a colonoscopy within the measurement period or previous 9 years, a sigmoidoscopy within the measurement period or previous 4 years, or a stool blood test within the measurement period.<sup>20</sup> The population is enrollees aged 50 to 75 with dates of service between July 1, 2011 and June 30, 2012 who did not previously have colorectal cancer or a total colectomy, as represented in individual patient data submitted by Minnesota clinics.<sup>97</sup>

#### *DEPRESSION REMISSION AT SIX MONTHS*

Depression Remission at Six Months measures whether enrollees had depression remission at six months after being identified as having a diagnosis of depression by an elevated Patient Health Questionnaire (PHQ) score (PHQ-9). The PHQ-9 is a low to high scoring system which measures a patient's depression status. The scale can be stratified into broad categories; 0 to 4 is no depression, 5 to 9 mild depression, 10 to 14 moderate depression, 15 to 19 moderately severe depression, and 20 to 27

severe depression. It has been validated for both screening purposes and measuring change in depression severity.<sup>98-101</sup> Enrollees who receive an initial PHQ nine item depression scale (PHQ-9) score of greater than 9 and who receive a subsequent PHQ-9 score of less than five at six months (+/- 30 days) from the initial score are considered to have reached remission.<sup>68</sup> The population is adults aged 18 and older with an initial PHQ score of greater than 9 or a diagnosis of major depression or dysthymia during 2011 dates of service as represented in individual data submitted by Minnesota clinics.<sup>102</sup>

Data are reported to SQRMS on patients aged 18 or older at the index visit who had an initial PHQ-9 score greater than 9 or who had a diagnosis of Major Depression or Dysthymia and visited an eligible provider during the measurement period. Of this population, the numerator is the number of patients who receive a PHQ-9 score less than 5 within six months (plus or minus 30 days) from the index identification of Depression.<sup>21</sup>

We measured Depression Remission at Six Months at the individual patient level for HCH and non-HCH clinics. The denominator for Depression Remission was the number of patients who were followed up at six months after an index identification of depression, and the numerator was the number of patients who reached remission (PHQ-9 score less than 5) at six months (plus or minus 30 days) from identification.

#### *OPTIMAL DIABETES CARE*

Optimal Diabetes Care (ODC) measures management of adult enrollees with diabetes mellitus. Care is considered optimal when enrollees meet all of the following targets: 1) HbA1c level (<8.0), 2) LDL level (<100 mg/dL), 3) blood pressure (<140/90 mmHg), 4) no tobacco use, and 5) if the patient has a co-morbidity of ischemic vascular disease, aspirin use, or documentation of an accepted contraindication to aspirin use, is also required. The population is enrollees with diabetes aged 18 to 75.<sup>103</sup>

#### *OPTIMAL VASCULAR CARE*

Optimal Vascular Care measures management of Ischemic Vascular Disease. Care is considered optimal when enrollees meet all of the following targets: 1) LDL level (<100 mg/dL), 2) blood pressure (<140/90 mmHg), 3) no tobacco use, and 4) aspirin use or documentation of an accepted contraindication for aspirin use. The population is vascular disease enrollees aged 18 to 75.<sup>104</sup>

### **ADDITIONAL QUALITY MEASURES**

We supplemented the use of the standard SQRMS measures with Depression Follow-up, Average Asthma Care, Average Diabetes Care, and Average Vascular Care analyses.

#### *DEPRESSION FOLLOW-UP AT SIX MONTHS*

The denominator for this measure is the number of patients who were assessed as having Depression at the index visit. The numerator is the number of patients who had a follow-up visit with an

eligible provider within six months (plus or minus 30 days) from the index identification of Depression. Depression Follow-up is a good measure of continuity of care, because it shows whether patients diagnosed with depression receive follow-up care to continually assess and care for their condition. The small population in the sample for Depression Remission led comparisons between HCH and non-HCH to not be statistically significant for this measure. There is a slightly larger population to assess in the Depression Follow-up measure, which gives us more statistical confidence in our results.

#### *COMPOSITE AVERAGE MEASURES FOR ASTHMA, DIABETES, AND VASCULAR CARE*

Two types of measures are constructed for conditions with multiple measures (Asthma, Diabetes, and Vascular). The first is an optimal, all-or-none, grand slam measure which occurs when an enrollee reaches all the measurement items (e.g., a diabetic enrollee would have controlled blood pressure, controlled cholesterol, controlled blood sugar, and would not smoke). The second is a composite average measure which is constructed as the average number of condition care goals met. A composite average is used because it is a more reliable measure than the optimal measure<sup>105</sup> that has been used in similar evaluations of HCHs.<sup>106</sup>

The SQRMS optimal measure considers optimal care to have been reached when all of the measurement sub-parts are achieved. For example, in the Optimal Diabetes Care measure, a patient must meet all of 5 goals to have optimal care: (1) HbA1c <8.0, (2) LDL test <100, (3) Blood Pressure with a systolic value <140 and a diastolic value <90, (4) documentation of being a non-tobacco user, and (5) documentation that the patient is on daily aspirin or has an accepted contraindication if a co-morbidity of Ischemic Vascular Disease exists.

The composite average measure calculates the average (mean) number of care goals met for a condition. For example, for Average Diabetes Care we would measure the mean number of the 5 care goals met. The composite average measure allows for a more detailed look at quality measurement for these conditions, wherein we can see approximately what percentage of the care goals have been met instead of looking at an 'all-or-none' measure where all of the goals must be met to achieve optimal care.

Average Asthma Care is the mean percentage of individual asthma targets met, based on the following targets: (1) well-controlled asthma (based on applicable Asthma Control Tests or Questionnaires), (2) not at elevated risk of exacerbation (based on number of patient-reported hospital and emergency department visits), and (3) educated about Asthma self-management and has a written Asthma management plan present in medical chart.

Average Diabetes Care is the mean percentage of individual asthma targets met, based on the following targets: 1) HbA1c level (<8.0), 2) LDL level (<100 mg/dL), 3) blood pressure (<140/90 mmHg), and 4) no tobacco use. If the patient has a co-morbidity of ischemic vascular disease, aspirin use or documentation of an accepted contraindication to aspirin use is also required. The population is enrollees with diabetes aged 18 to 75.

Average Vascular Care is the mean percentage of individual asthma targets met, based on the following targets: 1) LDL level (<100 mg/dL), 2) blood pressure (<140/90 mmHg), 3) no tobacco use, and 4) aspirin use or documentation of an accepted contraindication for aspirin use. The population is vascular disease enrollees aged 18 to 75.

## APPENDIX D: ATTRIBUTION METHODS

This appendix describes the methods used to attribute enrollees to health care provider entities for this HCH evaluation report. Attribution is a term used to describe methods of assigning enrollees and their associated costs and quality measurements to health care providers, clinics, groups, or systems. For the HCH evaluation, enrollees are attributed to clinics. This is done by attributing care providers to clinics and then attributing enrollees to clinics through their relationship with a provider.

Attribution methods are fairly technical, either involving well-developed administrative policies or advanced data analysis. The key variables in any attribution method include prospective/retrospective, period of service, attributed measure, group attributed to, attribution to a single provider or multiple providers, threshold, indicator, and exclusions.

*Prospective/Retrospective:* Attribution is either prospective or retrospective. In prospective attribution, an enrollee population is assigned to a provider at the beginning of the quality or cost measurement period. The provider knows which enrollees are included in the assigned population at the beginning of the time period. In retrospective attribution, administrative data is used to assign an enrollee population to a provider at the end of the measurement period, after services have been delivered.

*Period of service:* This is the measurement period for attribution. In retrospective attribution this can be any amount of time, but is usually a one year 'look-back'.

*Attributed measure:* The attributed measure is the measure of interest that is associated with a given enrollee and attributed to a provider based on that enrollee's attribution to the provider. The most common attributed measures are cost and quality measures.

*Group attributed to:* Enrollees and their associated quality and cost measures can be attributed to many groups or entities within the health care provider system. These include individual physicians or providers, primary or specialty care clinics, medical groups, hospitals, and care systems. For the HCH evaluation, enrollees are attributed to clinics.

*Attribution to a single provider or multiple providers:* Enrollees and measures can be attributed to just one of these groups or to multiples of these groups. For example, 100% of a enrollee's costs of care can be attributed to the primary care physician the enrollee sees most frequently, or 75% of a enrollee's costs can be attributed to this physician and the remaining 25% can be attributed to a physician the enrollee sees occasionally. For the HCH evaluation, 100% of the attributed measures (cost or quality) for enrollees are attributed to a single clinic.

*Threshold:* The threshold is the level of the indicator at which an enrollee is assigned to a provider. A majority threshold assigns an enrollee to a provider when that provider is responsible for 50% or more of that enrollee's primary care visits (or other indicator). A plurality threshold assigns an

enrollee to a provider when that provider is responsible for a given percent of care which is less than 50% but still indicates that the provider is the most frequently used provider for that enrollee. For the HCH evaluation, a plurality threshold of 20% or more is used.

*Indicator:* The indicator is the measure that is used to attribute providers to clinics and to attribute enrollees to providers. For the HCH evaluation, the indicators used to attribute providers to a clinic are assignment of a provider to a clinic in the HCH certification database, the number of times a provider is reported in the SQRMS data as providing care to a enrollee, the Minnesota Multi-payer Advanced Primary Care Practice (MAPCP) data associating a provider with a clinic, and professional service encounters for the physician in the clinic. The indicators used to attribute enrollees to clinics are the number of primary care office visits, evaluation and management (E&M) visits, HCH care coordination encounters, and costs. The provider-clinic indicators are used to attribute providers to clinics. Then enrollees are attributed to clinics by assigning the enrollees to the clinics where the provider is attributed.

*Exclusions:* Exclusions are enrollees or services that are excluded from calculation as part of an attribution method. Exclusion can occur for a variety of reasons. For instance, an enrollee may be excluded if she/he has not seen a provider in the designated look-back period.

For attribution in the HCH evaluation we used a number of indicators (see below) with a threshold of 20% and excluded anyone without continuous enrollment in the retrospective period.

## ATTRIBUTING PROVIDERS TO CLINICS

This nature of claims data affects the design of the algorithm to attribute enrollees to providers, providers to clinics, and enrollee to clinics through providers. Each professional service claim (e.g., physician, physician assistant or nurse practitioner) for services in a clinic includes an enrollee identifier, a 'treating' provider national provider identifier (NPI), and a 'pay to' provider NPI. While the enrollee identifier is consistently coded, the same is not true for the 'treating' provider and the 'pay to' provider. The 'treating' provider NPI can include either the NPI of an individual provider (e.g., physician, nurse practitioner, psychologist or a clinic or organizational NPI. The 'pay to' provider NPI can include a clinic NPI, where the definition of clinic matches the definitions used by MDH in defining which clinics are eligible to become an HCH and SQRMS, or a NPI referring to a health system or number of primary care clinics within a health system. This creates difficulty in attributing enrollees to clinics because there are situations where the same 'pay to' provider NPI is used by a number of clinics and thus we cannot attribute an enrollee to a specific clinic.

Fortunately, HCH and SQRMS provide information for attributing providers to clinics that is better than simply using medical claims data. Once providers are attributed to clinics then enrollees can be attributed to clinics through their encounters with providers. The HCH legislation requires individual providers to be certified and their clinics become certified through the certification of their providers. As a

consequence the HCH certification database links individual providers to specific clinics. One difficulty is that, even in the HCH certification database, a provider can be linked to multiple clinics, because they practice at several locations or because they relocate during a year. SQRMS enrollee level data submission complements the HCH Certification database because it provides information on the strength of a provider's relationship with a clinic. In SQRMS, clinics submit the treating provider NPI for each enrollee a provider cares for. We use the number of enrollees a provider sees within a clinic as a measure of the strength of the provider's practice at that clinic, and attribute providers to the clinic where they see the most enrollees.

There are two other sources for linking providers to clinics. First, Medicaid medical claims data that has a 'treating provider' NPI that is a person rather than an organization and a pay-to-provider NPI that uniquely links to a HCH clinic are used to measure the strength of a providers' association with a clinic by counting the number of encounters a provider had with enrollees at a specific clinic. Second, the DHS HCH evaluation project team provided links of Minnesota Multi-payer Advanced Primary Care Practice (MAPCP) provider NPIs to clinic NPIs.

The algorithm for attribution of providers to clinics which uses the HCH, SQRMS, Medicaid claims, and MAPCP data is:

- 1) Calculate a score for the degree to which a provider links to a clinic. This score is (sum all criteria met):
  - a) If the provider is reported by HCH as linked to a clinic, 2 points divided by the number of clinics HCH reports the provider as linked to (most providers are linked to a single clinic)
  - b) If a provider is reported by SQRMS as seeing enrollees at a clinic, 1 point
  - c) If a provider number of enrollees reported by SQRMS at a clinic is the maximum for a provider, 1 point
  - d) If MAPCP reports the provider as linked to a clinic, 2 points
  - e) If the provider is counted as having most of their enrollee encounters in a clinic using Medicaid claims data, 2 points.
- 2) Attribute the provider to the clinic where they have the most points.
- 3) In the case of ties, select the clinic where a provider is HCH certified. If there are still ties, select the clinic with most SQRMS enrollees. If there are still ties, select the clinic with most Medicaid claims.



<b>TABLE 1: INFORMATION SOURCE FOR ASSOCIATING PROVIDERS WITH CLINICS (FREQUENCY / COLUMN PERCENT)</b>				
<b>SOURCE</b>	<b>YEAR</b>			
	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>HCH</b>	0 0.00	40 0.50	66 0.62	404 3.79
<b>SQRMS</b>	3132 37.69	2735 34.36	4038 37.81	3020 28.32
<b>HCH, SQRMS</b>	0 0.00	276 3.47	575 5.38	784 7.35
<b>MEDICAID</b>	3978 47.87	3549 44.59	3644 34.12	4519 42.37
<b>HCH, MEDICAID</b>	0 0.00	15 0.19	57 0.53	67 0.63
<b>SQRMS, MEDICAID</b>	1200 14.44	1256 15.78	1338 12.53	1064 9.98
<b>HCH, SQRMS, MEDICAID</b>	0 0.00	5 0.06	346 3.24	175 1.64
<b>MAPCP</b>	0 0.00	0 0.00	14 0.13	2 0.02
<b>HCH, MAPCP</b>	0 0.00	3 0.04	7 0.07	25 0.23
<b>SQRMS, MAPCP</b>	0 0.00	0 0.00	21 0.20	0 0.00
<b>HCH, SQRMS, MAPCP</b>	0 0.00	0 0.00	19 0.18	40 0.38
<b>MEDICAID, MAPCP</b>	0 0.00	0 0.00	33 0.31	15 0.14
<b>HCH, CAID,</b>	0 0.00	24 0.30	28 0.26	84 0.79
<b>SQRMS, MEDICAID, MAPCP</b>	0 0.00	0 0.00	151 1.41	38 0.36
<b>HCH, SQRMS, MEDICAID, MAPCP</b>	0 0.00	56 0.70	343 3.21	428 4.01
<b>Total</b>	8310	7959	10680	10645
<b>HCH = Health Care Home Certification Database;  SQRMS = Statewide Quality Reporting And Measurement System ;  MEDICAID = Medicaid Claims;  MAPCP = Multi-payer Advanced Primary Care Practice  Demonstration Project.</b>				

Table 1 shows the number of providers associated with a clinic and the source of information used to associate a provider with a clinic. The count in a cell shows the number of enrollees attributed by a specific combination of indicators. For example, the 428 in the bottom right of the table means that there were 428 providers for whom HCH, SQRMS, Medicaid claims, and MAPCP all indicated should be attributed to a specific clinic. The table shows that Medicaid claims data that has an individual provider NPI as ‘treating’ provider and a clinic NPI as ‘pay to’ provider and SQRMS information linking providers to clinics are important sources of information for attributing enrollees to clinics. Table 1 also reveals an important trend – the number of providers associated with clinics, because of more complete information

associating providers to clinics in the HCH certification database, is becoming increasingly important in attributing providers to clinics. The table also shows that SQRMS information about an enrollee's SQRMS provider is important for associating providers with clinics. This is strength for three reasons:

- 1) The HCH and SQRMS data specifically links a specific provider to a specific clinic. In contrast, such a relationship is only inferred from Medicaid claims data.
- 2) The HCH and SQRMS data link providers with specific clinics even when health systems or medical groups use one NPI to refer to multiple clinics. This is important because it allows the measurement of clinic performance even for health systems using a common NPI for many clinics.
- 3) The use of multiple sources, such as HCH and SQRMS and Medicaid claims, to associate a provider with a clinic increases the reliability of associating a provider with a clinic.

Year	HCH Certified Provider					
	Non-HCH Clinic			HCH Clinic		
	N	Average	Std	N	Average	Std
<b>2009</b>	630	13.19	20.73	.	.	.
<b>2010</b>	615	12.74	19.62	44	19.11	20.65
<b>2011</b>	782	13.53	23.53	142	21.90	21.69
<b>2012</b>	687	14.87	28.32	206	21.67	29.95

Table 2 shows the number of clinics and the average and standard deviation of the number of providers by clinic for HCH certified clinics and non-HCH certified clinics. HCH certified clinics tend to have more providers that can be attributed to a clinic.

## ATTRIBUTING ENROLLEES TO CLINICS

The second step in attribution is attributing enrollees to clinics. This step uses the professional encounter data (typically physician office visits) because the goal is to identify clinics to which the enrollee will be attributed. The algorithm for this attribution is:

1. For each professional encounter, use the enrollee ID and treating provider NPI and the provider-clinic link to associate an enrollee professional encounter with a clinic.
  - a. If the treating provider ID on the professional encounter is an individual provider (e.g., physician) use the provider NPI and the provider-clinic link table.
  - b. If the treating provider ID on the professional encounter is a clinic NPI that distinctly identifies a HCH clinic, then link the enrollee to the clinic using that distinct link.
2. Count the number of encounters in a clinic that are
  - a. Care coordination encounters (procedure codes S0280 or S0281)

- b. Evaluation and Management Encounters (procedure codes between 99201 and 99205, between 99211 and 99215 between 99381 and 99387, between 99391 and 99397, or equal to G0402, G0438, S0280, S0281)
- 3. Determine the date of the last visit to the clinic
- 4. Attribute a enrollee to a clinic:
  - a. Where the maximum number of care coordination encounters occurred (the number must be greater than 0)
  - b. If there is a tie in care coordination encounters, where the maximum number of evaluation and management encounters occurred (the number must be greater than 0)
  - c. If there is a tie in care coordination encounters and in evaluation and management encounters, attribute the enrollee to the clinic where she had her last visit.

To increase specificity (accuracy of attribution of enrollee to a clinic), an enrollee was only attributed to a clinic if at least 20% of the enrollee's professional services encounters occurred at the clinic.

Table 3 shows the relationship between information source and attribution of an enrollee to a clinic. Each cell measures the number of enrollees who were attributed using all the indicators mentioned in the row title. For example, the 901 in the lower right cell means that in 2012, 901 enrollees were attributed to a clinic because of all the indicators of care coordination encounters, evaluation & management encounters, professional service encounters, and expenses (which was used primarily as tie breaker – a very low percent of enrollees are attributed solely on expenses). The decrease in the percentage of enrollees who were not attributed to a clinic in 2012 Medicaid data, or an increase in the percentage of enrollees who were attributed to a clinic, is likely related to the increasing number of providers who are attributed to a clinic because of HCH and SQRMS data and the presence of Evaluation & Management (E&M) encounters. The percentage of enrollees attributed to a Medicaid clinic because of E&M and professional visits increased between 2011 and 2012. Care Coordination (CC) encounters/claims are not strongly associated with attribution. This may be due to the HCH program being in its initial implementation stages and not all HCH clinics billing for CC. The latter topic is examined in the chapter examining how clinics responded to HCH program payment mechanisms.

<b>TABLE 3: INFORMATION SOURCE FOR ATTRIBUTING ENROLLEES TO CLINICS (NUMBER / COLUMN PERCENT)</b>				
<b>Source / Reason</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>Not Attributed to a Clinic</b>	890519 88.34	965177 89.57	979725 86.93	601063 52.62
<b>CC</b>	0 0.00	0 0.00	14 0.00	106 0.01
<b>E&amp;M</b>	1724 0.17	1378 0.13	1823 0.16	6628 0.58
<b>CC, E&amp;M</b>	0 0.00	0 0.00	1 0.00	17 0.00
<b>Visit</b>	4497 0.45	3759 0.35	6677 0.59	38919 3.41
<b>CC, Visit</b>	0 0.00	6 0.00	45 0.00	165 0.01
<b>E&amp;M, Visit</b>	2623 0.26	2071 0.19	2438 0.22	7609 0.67
<b>CC, E&amp;M, Visit</b>	0 0.00	2 0.00	13 0.00	45 0.00
<b>Exp</b>	4357 0.43	3741 0.35	6848 0.61	45546 3.99
<b>CC, Exp</b>	0 0.00	1 0.00	39 0.00	247 0.02
<b>E&amp;M, Exp</b>	2441 0.24	2031 0.19	4321 0.38	24157 2.11
<b>CC, E&amp;M, Exp</b>	0 0.00	1 0.00	19 0.00	67 0.01
<b>Visit, Exp</b>	34785 3.45	31740 2.95	46082 4.09	148876 13.03
<b>CC, Visit, Exp</b>	0 0.00	28 0.00	214 0.02	924 0.08
<b>E&amp;M, Visit, Exp</b>	67117 6.66	67485 6.26	78507 6.97	266945 23.37
<b>CC, E&amp;M, Visit, Exp</b>	0 0.00	118 0.01	303 0.03	901 0.08
<b>Total</b>	1008063	1077538	1127069	1142215
<b>CC = Care Coordination Professional Service Encounters.</b> <b>E&amp;M = Evaluation &amp; Management Professional service Encounters;</b> <b>Visit = Number of Professional Service Encounters;</b> <b>Exp = Total Professional Services Expenses.</b>				

## APPENDIX E: ASSESSING THE EFFECT OF HCH CERTIFICATION: ISSUES AND NEXT STEPS

This appendix describes issues and next steps associated with assessing the effect of HCH certification, including self-selection, observation nesting and clustering, levels and differences, and tiering and subgroups.

### ASSESSING THE HCH PROGRAM EFFECT: SELF-SELECTION

A difficulty with assessing the HCH program effect is the issue of self-selection. This evaluation focuses on the question: Do HCH certified clinics have better outcomes than non-HCH certified clinics? The results of these analyses generalize only to the HCH certified clinics that are included in this analysis.

The next question that arises is whether the HCH certification effects generalize to non-HCH certified clinics. Or, would the effects that are reported in this report be observed in future cases of non-HCH certified clinic becoming certified? In order to answer this question, clinic self-selection into HCH certification must be controlled for when analyzing HCH effects.<sup>57</sup>

An example illustrates the issue. Assume that only clinics that have better outcomes because of some unobservable clinic level factors, such as patient mix or clinic systems, choose to pursue HCH certification. Then the positive effect of HCH certification on clinic outcomes could be attributed to these unobservable factors rather than being attributed to HCH certification.

There are a number of ways to address this issue econometrically. One way to address the self-selection issue is to use propensity score modeling to find non-HCH certified clinics that are similar to HCH certified clinics for HCH comparison purposes (e.g., they both had good outcomes and similar patient mixes prior to implementation of the HCH program). The clinic propensity score model can be developed to reflect the factors that have been documented in the literature and those with good face validity that are likely to influence a clinic to pursue certification. Examples of these measures are the distribution of enrollees by co-morbidity and insurance status, quality of care as documented by Minnesota Statewide Quality Reporting & Measurement System (SQRMS), and controls such as clinic type (family practice, internal medicine), clinic size, rurality, presence of competing clinics offering a HCH, and health system support. We expect that the greater the number of high severity enrollees the more likely clinics will be to participate in the HCH program. We will also expect to observe clinics with higher care quality being more likely to pursue certification.

These approaches to address self-selection will be employed in the second evaluation report.

### OBSERVATION NESTING AND CLUSTERING

While clinics are the focus of analysis for the HCH evaluation, the nesting of enrollees within clinics and the nesting of clinics within health systems also pose statistical difficulties. In some analyses, clinic effects will be estimated using patient level data. This allows the inclusion of patient characteristics in the models as controls. For example, in analyses of SQRMS quality measurement, patient level characteristics such as age, gender, and insurance type can be used as controls. This controls for

different patient mixes across HCHs and allows the examination of HCH effects without being confounded by different patient mixes. The statistical issue with the nesting of enrollees within clinics and clinics with health systems is that tests for significance, such as testing for a HCH effect, assumes the errors for each observation are independent and identically distributed (the IID assumption). Violating this assumption results in errors for testing statistical significance, with the error being that significant effects are more likely to be observed when clustering and nesting of observations are not accounted for. Whenever enrollees or clinics are nested it is very likely that the IID assumption is violated either because a clinic has common systems for all enrollees in its clinic that leads to their outcomes being correlated or a health system has a common infrastructure or system that leads to correlated outcomes for all the clinics in the health system. The clustering or nesting of observations will be addressed with statistical procedures that adjust for the clustering, such as the inclusion of random effects for either clinics or health systems and by allowing the errors between the observations within a clinic to be correlated.

## LEVELS AND DIFFERENCES

There are two approaches to examining the effect of HCH certifications, analyzing the effect of HCH certification on the clinic performance level and using a Difference in Differences approach (DiD) where a clinic's performance prior to becoming certified is compared to the clinic's performance after becoming certified. For example, a DiD approach to examining the differences in inpatient, outpatient, and ED associated with being certified could be done by calculating the difference between the clinic's resource use before and after certification. In general, analyzing the effect of HCHs on performance level has greater power, which supports the measurement of no HCH effect, and reduces the loss of observations which do not have both pre and post HCH certification measures.

The strength of a DiD approach is that it uses a clinic as its own control and examines changes in resource use, which is a key target for the HCH program. The weakness of a DiD approach is that it often reduces statistical power, because differences measures may be more variable than measures of levels, and it removes observations, and information, from the analysis where pre and post observations are not available. Furthermore, if the DiD analysis was conducted at the clinic level, rather than the patient level, there would be a significant loss of power. This would be particularly true in 2010 and 2011 when few clinics were certified. This low power would make drawing inferences about no HCH effect very difficult. The increase in the number of HCH certified clinics in 2012 and 2013 will increase the feasibility of using a DiD approach in future evaluation work. Unfortunately, implementing a DiD approach at this time is not feasible because sufficient data from adjoining years that are used calculate differences was unavailable.

Because of the greater power associated with the performance level analysis and the lower instance of lost data due to a clinic not having both pre and post observations, this evaluation analysis focuses on performance levels. As the HCH program matures and more clinics are certified, a DiD approach will be tested.

## TIERING AND SUBGROUPS

The initial analyses focus on the average effect of HCHs across all patient tiers. For some data sources, such as SQRMS data, this is done because the patient level data does not include a reliable patient tier level for all enrollees. For the Medicaid claims data, the modifier code for a care coordination encounter can be used to determine the patient complexity tier. The difficulty here is that clinics may not code the tier in a consistent manner across all clinics, care coordination encounter transactions are only available for a subset of enrollees, and some HCH certified clinics have chosen not to bill for care coordination encounters. These factors make care coordination claims an unreliable source of patient tier information for analytic purposes.

In future analyses, patient tiering information that is available for all enrollees and is consistently measured across clinics will be used to examine how HCH effects differ across patient tiers.

## APPENDIX F: PAYMENT SURVEY DESCRIPTION AND ANALYSIS METHODS

While many of the questions the evaluation team were asked to address could be answered using existing claims data, understanding *how* the state of Minnesota's HCH payment methodology was implemented in the HCH certified clinics required collecting primary data. This was accomplished through a set of three surveys administered to all HCH clinics certified during the analysis period.

In the survey we asked specific, detailed questions about how payment methods were implemented (for example, what tiering tools were used by HCHs, and for what payers were HCHs billing for monthly care coordination payments). To learn how HCH organizations and clinics have implemented the state payment method, and their experiences with payment of care coordination fees and the clinic costs related to implementation, we surveyed all clinics certified as HCHs as of December 31<sup>st</sup> 2012 (n=217 clinics, 35 organizations).

There are three main areas related to the payment methodology: finance, billing, and patient tiering. While all three areas are inter-related, they deal with unique day-to-day and decision-making processes within clinic operations. To reflect this, we designed three different surveys intended to be answered by individuals knowledgeable with each of these areas and decision making related to that aspect of their HCH clinic operation.

- The **billing practices survey** asked HCHs about decisions and preparations made for clinic billing for monthly care coordination services, about how the process works, about if they had to make changes to their billing system as part of HCH certification, and about additional feedback on billing.
- The **financial practices survey** asked HCHs about any financial analyses conducted prior to becoming certified as a HCH as well as if and how these affected the decision to become a HCH; about financial monitoring processes; about any impact on cost structure for operating as a HCH; about which types of payers they collect care coordination payments from; about the importance of care coordination payments; and about additional comments on HCH certification and financial processes.
- The **patient tiering practices survey** asked HCHs about the tools and processes used to complete the tiering process; about if or how patient tiering connects with the billing process; about how effective they feel their current tiering process is; and about any additional feedback they have on patient tiering. Taken together, these three surveys provided the information required to examine in detail the implementation of the main aspects of the payment methodology and to understand HCH processes related to implementation.

The full text of each of the surveys is provided at the end of this Appendix.



## SURVEY METHODS

University of Minnesota evaluation team members developed a draft survey beginning in May, 2013. Input into survey goals and questions was provided iteratively by Minnesota Department of Health and Minnesota Department of Human Services staff. Multiple revisions to the survey were completed to incorporate MDH and DHS input and survey best practices. Draft final versions of the surveys were produced and questions were cognitively tested with three HCH key informants to determine completeness of the line of questioning and to test the wording interpretation of the survey questions.

Following review by MDH and DHS, final versions of each of the surveys were approved in early September, 2013. A notification regarding the surveys, including instructions for completing the surveys and internet links to each of the surveys, was sent to HCH respondents on September 11<sup>th</sup>, 2013. The survey was administered online through Survey Monkey®. HCHs were also given the option of completing paper or on-line versions of the surveys. A small number of surveys were completed on paper and the data were entered into the Survey Monkey database by a member of the University of Minnesota evaluation team.

After the survey notification email was sent, representatives from HCHs with more than one certified clinic site (multi-site HCHs) were contacted to discuss how they could administer surveys in their multi-clinic sites. Two weeks after survey notification (on September 24, 2013), non-respondents were emailed a reminder asking them to complete the surveys. After an additional week (on October 2-4, 2013), non-respondents were called to remind them of the survey, and to check if they needed any assistance or had questions regarding the survey. Additional follow-up contacts were made to non-respondents, including phone calls and personal visits to clinics from members of the University of Minnesota evaluation team, and a reminder email was sent from the Minnesota Department of Health. This extensive follow-up allowed us to increase survey responses to represent a large proportion of the HCH clinic population.

The survey was originally designed for a unit of analysis consisting of the individual certified HCH clinic, whether independent or within a larger HCH organization. However, the majority of the multi-site HCH organizations noted that the practices addressed in each of the surveys (billing, finance, and tiering) were largely standardized and many functions, such as billing, were centralized within their HCH organizations. Since individual clinics would not be knowledgeable of all of the procedures and processes involved, representatives from these multi-clinic HCH organizations completed the surveys for all clinics certified within their organization. Given this information, the HCH evaluation team shifted its unit of analysis from the HCH clinic to the HCH organization, as reflected in the analysis below.

The survey sample was all Minnesota Health Care Home clinics certified between July 2010 and December 31, 2012. The surveyed population was 35 HCH organizations which included 217 HCH certified clinics. Survey response rates are shown in Figure 1, and the organization types that responded are shown in Figure 2 (as reported by survey respondents).

Survey	# of organizations responding	% of total organizations	# of clinics represented	% of total clinics represented
Finance	30	85.7%	211	97.2%
Billing	27	77.1%	199	91.7%
Tiering	26	74.3%	198	91.2%
Total sample	35	100%	217	100%

	Academic practice	Community health center	FQHC	Hospital based clinic	Independent medical group	Integrated delivery system	Rural health center	Other
Finance	10.0%	13.3%	13.3%	23.3%	30.0%	33.3%	3.3%	3.3%
Billing	11.1%	14.8%	14.8%	25.9%	25.9%	37.0%	3.7%	7.4%
Tiering	19.2%	7.7%	11.5%	15.4%	30.8%	38.5%	3.8%	3.8%

\*Respondents identified the type of organization they represented. Respondents could choose multiple designations to describe their organization.

#### SURVEY DATA ANALYSIS

Survey responses were analyzed using quantitative and qualitative methods depending on the type of survey question. For multiple choice or scaled questions, the evaluation team produced descriptive statistics for each question, including response frequency and distribution. Open-ended or essay questions were analyzed using qualitative methods to distill comments into broad content themes. Quotes are used to illustrate examples of themes where needed.

Responses that did not include a HCH organization or HCH clinic identifier or that were substantially incomplete (only the first 1-3 questions were answered) were excluded from analysis. Some HCH organizations submitted multiple responses to the same survey. In this case, survey responses were grouped by organization. When there were multiple surveys for one HCH organization with differing responses, the response marked most often for that organization was used. For open-ended questions, comments from multiple surveys for one HCH organization were grouped and analyzed as a single comment response. For questions where there were multiple surveys for one HCH organization, but only one of the organizational respondents provided an answer or comment for that question, that response was used.

**SURVEY F:**  
HCH PAYMENT PRACTICES FINANCIAL SURVEY

**Clinic Information**

F Q1. Please tell us about you and your clinic. (Please note that we ask for your contact information in case we need to ask any follow-up questions and to remove your e-mail from survey reminder notifications. Your name and contact information are confidential and are only available to the research team for this HCH evaluation.)

Name of Clinic:

Your Name:

Position:

E-mail:

Telephone:

F Q2. What type of clinic is your HCH clinic? (Check all that apply)

- Academic practice
- Community health center
- Federally qualified health center
- Hospital-based clinic
- Independent medical group
- An integrated delivery system medical group
- Rural health center
- Other (please describe)

F Q3. What is the payer mix of your clinic's patient population? Please indicate the approximate percent of your clinic's patients with each type of insurance below.

Medicaid:

Medicare:

Commercial insurance:

Uninsured:

Self-pay:

**Decisions Regarding HCH Implementation**

F Q4. As your clinic considered becoming a HCH, were any financial analyses performed to assess the financial impact of becoming a HCH?

- No (skip to question 7)
- Don't know (skip to question 7)
- Yes (please briefly describe analysis)

F Q5. Were the results of the financial analysis you conducted:

- Financially favorable to your clinic
- Financially neutral to your clinic
- Financially unfavorable to your clinic

Don't know

F Q6. How much did the financial analysis influence your decision to become a certified HCH?

- Not at all
- A little
- Somewhat
- A lot
- Don't know

### **Financial Monitoring for HCH**

F Q7. Are you currently monitoring financial performance associated with being a HCH clinic?

- Yes
- No, but we plan to (skip to question 12)
- No, and we do not plan to (skip to question 12)
- Don't know (skip to question 12)
- Other (please describe)

F Q8. Who prepares financial monitoring assessments associated with your clinic HCH?

- Clinic staff
- Parent organization staff
- Contractor or third party
- Don't know
- Other (please describe)

F Q9. What aspects of Health Care Home clinic financial performance do you regularly monitor?  
(Check all that apply)

- Total revenues associated with HCH services
- Total expenditures associated with HCH services
- Ongoing financial performance against budget projections for HCH care coordination
- Do not track revenues/expenses related specifically to HCH care coordination services
- Don't know
- Other (please describe)

F Q10. What impact has operating as a Health Care Home clinic had on your cost structure? We have experienced:

- Significant cost savings
- Some cost savings
- Neither cost savings nor cost increases
- Some cost increases
- Significant cost increases
- Don't know

If you have experienced cost increases, please describe and explain why:

F Q11. What formal mechanisms do you use in your clinic to communicate the financial performance of your HCH care coordination services? (For example, in committee reports, or at clinic meetings) Please briefly describe.

**Financial Reimbursement for HCH Care Coordination**

F Q12. Through which payer sources and payment arrangements is your clinic currently paying for HCH care coordination (through Medicaid, Medicare, and commercial payers)? (Check all that apply)

	Medicaid DHS administered	Medicaid Managed Care (PMAP)	Medicare FFS	Medicare Advantage	Managed Care (Non-Medicaid)	Commercial
Total cost of care arrangement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Grant arrangement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Per member per month claims	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fee-for-service claims	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

F Q13. Does your clinic participate in the Medicare Multi-Payer Advanced Primary Care Practice demonstration project?

- ( ) Yes
- ( ) No
- ( ) Don't know

F Q14. Please indicate how much you agree or disagree with the following statement for each type of insurance: It is important to collect reimbursement for care coordination provided for my clinic's HCH patients in \_\_\_\_\_.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Medicaid (DHS administered)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medicaid (PMAP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medicare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managed Care (non-Medicaid)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial insurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

F Q15. Please indicate how much you agree or disagree with the following statement for each type of insurance: My clinic captures HCH care coordination payments due to us for HCH patients in \_\_\_\_\_.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Medicaid (DHS administered)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medicaid (PMAP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medicare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managed Care (non-Medicaid)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial insurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

**Medicaid Reimbursement for HCH**

F Q16. To your knowledge, for what percentage of your HCH clinic's patients are you currently receiving Medicaid reimbursement for HCH care coordination services? (Approximate percentage)

F Q17. In your estimation, what percentage of your HCH clinic's patients do you believe are eligible for Medicaid HCH care coordination services base fee payment? (Approximate percentage)

F Q18. Do you intend to take steps to increase the percentage of HCH enrollees for whom you receive Medicaid HCH care coordination service payments within your clinic?

- No
- Don't know
- Yes (please describe)

**Additional HCH Feedback**

F Q19. Do you have any other comments about financial matters related to HCH?

**SURVEY B:**  
HCH PAYMENT PRACTICES BILLING SURVEY

**Clinic Information**

B Q1. Please tell us about you and your clinic. (Please note that we ask for your contact information in case we need to ask any follow-up questions and to remove your e-mail from survey reminder notifications. Your name and contact information are confidential and are only available to the research team for this HCH evaluation.)

Name of Clinic:  
Your Name:  
Position:  
E-mail:  
Telephone:

B Q2. What type of clinic is your HCH clinic? (Check all that apply)

- Academic practice
- Community health center
- Federally qualified health center
- Hospital-based clinic
- Independent medical group
- An integrated delivery system medical group
- Rural health center
- Other (please describe)

B Q3. What is the payer mix of your clinic's patient population? Please indicate the approximate percent of your clinic's patients with each type of insurance below.

Medicaid:  
Medicare:  
Commercial insurance:  
Uninsured:  
Self-pay:

**Billing Process Decisions and Implementation**

B Q4. What were the top three decisions about the billing workflow process that had to be made in order for your clinic to become a HCH? Please list these. (Note: You will rate each of these in importance to you in the next question.)

- 1.)
- 2.)
- 3.)

B Q5. For each of the three decisions you listed above about the billing workflow processes in your clinic, how much did it factor into your clinic's decision to become a HCH?

	Not at all	A little	Some	A lot	Don't Know
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B Q6. Have you made any changes to your billing workflow processes related to being a HCH clinic?

- No (skip to question 8)
- Don't know (skip to question 8)
- Yes (please briefly describe)

B Q7. Approximately how long did it take to implement these changes in your billing workflow processes?

- < 1 month
- 1 – 3 months
- 3 – 6 months
- 6 months – 1 year
- > 1 year
- Changes not yet fully implemented

B Q8. Please list the top three lessons learned in implementing your billing processes for HCH coordination in your clinic or organization.

- 1.)
- 2.)
- 3.)

B Q9. Please list the top three challenges you faced in implementing your billing processes for HCH coordination in your clinic or organization.

- 1.)
- 2.)
- 3.)

B Q10. How satisfied are you that your current workflow process for submitting claims for HCH coordination is effective in your clinic?

- Highly satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Highly dissatisfied
- Don't know

### **Current Billing Practices for HCH Payments**

B Q11. Do you submit HCH care coordination claims? (Check all that apply)

- Yes
- No, we do not submit HCH care coordination claims and do not receive care coordination payment from other sources (skip to question 20)



No, we do not submit claims; care coordination payment is included in a grant arrangement (skip to question 20)

No, we do not submit claims; care coordination payment is included in a total cost of care contract (skip to question 20)

If you do not submit claims, please briefly explain why.

B Q12. To which payers do you submit HCH care coordination claims? (Check all that apply)

- Medicaid (DHS administered)
- Medicaid Managed Care (PMAP)
- Medicare
- Managed Care (Non-Medicaid)
- Commercial
- Other

Comments:

B Q13. Where is billing done for HCH coordination claims for your clinic?

- In-house clinic billing
- Outside third party billing service
- Parent organization billing service
- Don't know
- Other

B Q14. After submitting claims for HCH care coordination payment, have you received any denials?

- No
- Don't know
- Yes (please describe)

#### **Patient Tiering and Billing Medicaid for HCH Care Coordination**

B Q15. What patient tiering tools are you using to inform your billing process of patient tier for HCH care coordination payments? Check all tools that are used in your clinic.

- State of Minnesota Care Coordination Tier Assignment tool
- Minnesota Complexity Assessment Tool
- Pediatric CAHMI Assessment Tool
- Other tier assignment tool designed for use in my clinic
- Don't know
- Other (please describe)

B Q16. In what form is patient tiering information provided for billing purposes in your clinic or organization? (Check all that apply)

- Electronic

- Manual
- Other (please describe)

B Q17. What information is provided from clinical staff to billing staff to help with the processing of HCH claims in your clinic or organization? Check all that apply.

- Initial & management care coordination HCPCS codes
- Care coordination modifiers
- Diagnosis codes/DRG clusters for tiering level
- Don't know
- Other (please describe)

B Q18. How would you rate the usefulness of the Minnesota State Care Coordination Tier Assignment Tool for billing purposes for HCH Medicaid patient care coordination payments in your clinic?

- Do not use this tool
- Very useful
- Useful
- Neutral
- Not very useful
- Not at all useful

Please comment as needed.

B Q19. How would you rate the usefulness of other tiering tools you use for billing for HCH care coordination (other than the Minnesota State Care Coordination Tier Assignment Tool for Medicaid HCH patients)?

- Do not use other tools
- Very useful
- Useful
- Neutral
- Not very useful
- Not at all useful

Please comment as needed.

### **Additional HCH Feedback**

B Q20. Is there anything else you would like to share with us about billing for HCH care coordination in your clinic?

**SURVEY PT:**  
**HCH PAYMENT PRACTICES PATIENT TIERING SURVEY**

**Clinic Information**

PT Q1. Please tell us about you and your clinic. (Please note that we ask for your contact information in case we need to ask any follow-up questions and to remove your e-mail from survey reminder notifications. Your name and contact information are confidential and are only available to the research team for this HCH evaluation.)

Name of Clinic:

Your Name:

Position:

E-mail:

Telephone:

PT Q2. What type of clinic is your HCH clinic? (Check all that apply)

- Academic practice
- Community health center
- Federally qualified health center
- Hospital-based clinic
- Independent medical group
- An integrated delivery system medical group
- Rural health center
- Other (please describe)

PT Q3. What is the payer mix of your clinic's patient population? Please indicate the approximate percent of your clinic's patients with each type of insurance below.

Medicaid:

Medicare:

Commercial insurance:

Uninsured:

Self-pay:

**Implementing Tiering Practices for HCH Patients**

PT Q4. Before becoming a HCH clinic, did you use a patient tier assignment tool for clinical or financial planning purposes? (For example, as an indicator of patient complexity or to predict intensity of resource use.)

- No
- Don't know
- Yes (please describe)

PT Q5. As part of becoming a HCH clinic, did you implement any new patient tier assignment tool(s)?

- No (skip to question 7)

- Don't know (skip to question 7)
- Yes (please describe)

PT Q6. Approximately how long did it take you to implement the patient tier assignment tool?

**Use of MN State HCH Care Coordination Tier Assignment Tool for HCH Patients**

PT Q7. Do you currently use the MN State HCH Care Coordination Tier Assignment Tool?

- Yes, for clinical purposes only
- Yes, for billing purposes only
- Yes, for both clinical and billing purposes
- No, we do not use this tool (skip to question 14)
- Don't know (skip to question 14)

PT Q8. What staff in your HCH clinic uses the MN State HCH Care Coordination Tier Assignment tool to determine what tier should be assigned for a given patient? (Check all that apply)

- Clinic HCH care coordinator
- Clinic nurse (other than care coordinator)
- Nursing assistant
- Primary care provider
- Billing staff
- Admissions staff
- Social worker
- Other (please describe)

PT Q9. Briefly describe your process for using the MN State HCH Care Coordination Tier Assignment Tool. (For example, when tool is completed, how tiering results are collected and then communicated to other clinic staff)

PT Q10. How effective do you feel the MN State HCH Care Coordination Tier Assignment Tool is at categorizing patients for clinical purposes?

- Very effective
- Effective
- Neither effective nor ineffective
- Ineffective
- Very ineffective
- Don't know

If ineffective or very ineffective, please explain:

PT Q11. Do you use any tiering or complexity assessment tools other than the MN State HCH Care Coordination Tier Assignment Tool to categorize patients for clinical purposes?

- No
- Don't know
- Yes (please describe)

PT Q12. How effective do you feel the MN State HCH Care Coordination Tier Assignment Tool is at categorizing patients for HCH care coordination billing purposes?

- Very effective
- Effective
- Neither effective nor ineffective
- Ineffective
- Very ineffective
- Don't know

If ineffective or very ineffective, please explain:

PT Q13. Do you use any tiering or complexity assessment tools other than the MN State HCH Care Coordination Tier Assignment Tool to categorize patients for HCH care coordination billing purposes?

- No
- Don't know
- Yes (please describe)

#### **HCH Tiering Practices**

PT Q14. What information related to tier assignment is provided from clinical to billing staff for billing purposes? (Check all that apply)

- Care coordination HCPCS codes
- Care coordination modifiers
- Diagnosis codes/DRG clusters for tiering level
- Don't know
- Other (please describe)

PT Q15. How is HCH patient tiering information transferred from clinical to billing staff?

- Electronically
- Manually
- Don't know
- Other (please describe)

PT Q16. Approximately what percent of your clinic's patients are identified as eligible for HCH care coordination services?

PT Q17. Of those who are eligible, approximately what percent of your clinic's patients are receiving HCH care coordination services?

#### **Additional HCH Feedback**

PT Q18. Is there anything else you would like to tell us about patient tiering within your HCH clinic?

## APPENDIX G: REFERENCES

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