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Evaluation Report: NH Multi-Stakeholder Medical Home Pilot



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Executive Summary

The New Hampshire Multi-Stakeholder Medical Home Pilot was initiated in 2008 by the New Hampshire Citizens Health Initiative as a collaborative effort of its Medical Home workgroup, the Center for Medical Home Improvement and the four private New Hampshire Health Plans: Harvard Pilgrim Health Care, CIGNA, Anthem, and MVP Healthcare, as well as NH Medicaid. The goal of the pilot was to value, prescribe, and reward medical care that is tightly coordinated and of superior quality and efficiency.

Nine pilot sites were selected for the project in a competitive process and represented the full spectrum of practice types and sizes, with geographic distribution covering nearly the entire state in both urban and rural settings. The practices selected provided services for more than 39,000 commercially insured members, with almost 130,000 unique patient visits per year (greater than 10% of the state population). Each of the pilot practices received an individually negotiated Per Member Per Month (PMPM) payments from the participating commercial payers to support the Medical Home activities, in addition to the reimbursement for actual services provided.

Planning for the project began in January of 2008, with sites selected through a competitive process in December 2008. Payment to the pilot sites for the pilot began on June 1, 2009 and ended on December 31, 2011. Some payment arrangements between sites and insurers continued after the project but were no longer considered part of the pilot .

During the pilot, the sites participated in regular meetings to share and review progress on practice transformation and share learning. The Center for Medical Home Improvement provided consultation to guide practice transformation, and a learning collaborative among the sites was developed to facilitate inter-site sharing.

The pilot included preliminary analysis of claims data using the NH Comprehensive Health Information System (NHCHIS), the State's All-Payer Claims Database, to review site performance through claims data. This provided the sites with a proof-of-concept for the utility of claims data analysis as a practice transformation feedback tool. The sites were able to see blinded comparisons of utilization and cost measure against all other practices in the state for a subset of their population that was attributed to the practices and had claims history. This preliminary analysis indicated some possible positive trends for the pilot sites.

In addition to claims data, the pilot sites uploaded quarterly data from their Electronic Health Record (EHR) systems on more than thirty clinical quality measures developed by the Pilot Steering Committee. Data were collected via a web-based portal that was developed for the pilot.

A formal mixed methods, quasi-experimental evaluation study was conducted in 2012 and 2013, including site visits, interviews, self-assessments of medical homeness, surveys of relational coordination, claims data analysis, and pilot-only quality data analysis. This report presents the background, methods, and summary findings from the evaluation, focusing on Part I of the evaluation. Parts II and III Findings will be made available upon publication of papers in peer-reviewed journals. Part II of the findings will detail the nature of the medical home models

implemented as part of transformation in this pilot. Part III will present the utilization, quality, and cost analyses for both the medical home versus non-medical home sites, and also compare the results for the nine pilot sites with respect to levels of medical homeness.

Background

The New Hampshire Multi-Stakeholder Medical Home Pilot was initiated in 2008 by the New Hampshire Citizens Health Initiative as a collaborative effort of the Initiative's Medical Home workgroup, the Center for Medical Home Improvement and the four private New Hampshire Health Plans: Harvard Pilgrim Health Care, CIGNA, Anthem, and MVP Healthcare, as well as NH Medicaid. The goal of the pilot was to value, prescribe, and reward medical care that is tightly coordinated and of superior quality and efficiency.

Medical homes have been shown to improve health outcomes, reduce costs, and improve patient, family, physician and staff satisfaction (Cooley WC, 2004, 2009; Nutting et al., 2009; Rosenthal, 2008; Starfield B, 2004). The Patient-Centered Medical Home (PCMH) concept re-centers health care on the patient's needs and priorities by providing primary, preventive, and chronic condition care that is personalized for each patient. It emphasizes the use of care coordination and health information technology, including electronic health records, to help prevent and manage chronic disease. It also features consumer conveniences such as same-day scheduling and secure e-mail communications. The medical home strengthens the patient-physician relationship by allowing the doctor and team of health professionals to spend more time with each patient and to develop and follow through on an individualized plan of care.

The Pilot

Planning for the project began in January of 2008, with sites selected through a competitive process in December 2008. Payment to the pilot sites for the pilot began on June 1, 2009 and ended on December 31, 2011.

The nine pilot sites selected for the project represented the full spectrum of practice types and sizes with geographic distribution covering nearly the entire state, in both urban and rural settings. The practices selected provided services for more than 39,000 commercially insured members, and almost 130,000 unique patient visits per year, or greater than 10% of the state population. Each of the pilot practices received an individually negotiated Per Member Per Month (PMPM) payment from the participating commercial payers, in addition to fee-for-compensation, for the time and work physicians and their staff spend to provide comprehensive and coordinated services.

As a condition for pilot participation, each site was required to achieve, minimally, Level 1 Patient-Centered Medical Home Recognition by NCQA and was required to fully implement Medical Home practices and submit to NCQA for recognition by May 1, 2009 (New Hampshire Citizens Health Initiative, 2008). By the end of the first year of the pilot all sites were recognized as achieving Level 3 Recognition, including the first nurse-practitioner-led practice in the U.S. to be achieve recognition.

In other highlights, the NH Multi-Stakeholder Medical Home Pilot Project was:

- Selected by the National Governor's Association Center for Best Practices to present on Multi-Stakeholder Medical Home development at their Medical Home Summit.

- Selected by the National Association of State Health Plans as one of the Medicaid Medical Home pilots to receive resources and support from the Commonwealth Fund, the Center for Health System Change and CMS.

On the policy and health care purchasing front, the pilot was instrumental in

- Achieving the engagement by the NH Purchasers Group on Health, representing 120,000 members in the state with solid geographic diversity and representation across all the participating carriers;
- Creating the climate that for a legislative rule requiring the inclusion of a Medical Home for the NH HealthFirst population, the first mandated small group benefit plan.
- Subsequent adoption of Patient-Centered Medical Home concepts being included in private and public payer reimbursement models in New Hampshire.

Implementation and Monitoring

During the pilot, the sites participated in regular meeting to share and review progress on practice transformation and share learning. Insight on practice transformation was aided by staff of the Center for Medical Home Improvement, as well as the pilot staff and participants.

Other highlights achieved during the NH Multi-Stakeholder Medical Home Pilot sites include:

- 100% of the sites had an electronic medical record in place.
- 100% of the sites were actively using ePrescribing.
- Nearly all sites electronically imported hospital, radiology and laboratory data directly into the medical record, helping to avoid duplicate testing and visits.
- Seven out of the nine sites implemented an electronic care plan.
- Nearly all sites used standing orders to allow treatment for common conditions, such as urinary tract infections, pharyngitis, or diabetes that help to prevent unnecessary visits and improve overall access to care.
- 100% of the sites actively surveyed patients on satisfaction.
- One-third of the sites reported assessing provider satisfaction.
- Most of the sites invested 100 to 200 hours of clinical staff time for the purposes of obtaining NCQA Patient Centered Medical Home recognition, after already meeting a high threshold of patient-centeredness.
- Five sites reported using a daily team huddle to coordinate the plans for the day and prospectively address any patient needs.
- All of the sites reported standing quality improvement meetings to review their program results.

Data and Measurement

The pilot included preliminary analysis of claims data using the NH Comprehensive Health Information System (NHCHIS), the State's All-Payer Claims Database, to review site performance through claims data. This provided the sites with a proof-of-concept for the utility

of claims data analysis as a practice transformation feedback tool. The sites were able to see blinded comparisons of utilization and cost measure against all other practices in the state for a subset of their population that was attributed to the practices and had claims history. This preliminary analysis indicated some possible positive trends for the pilot sites.

As a preliminary analysis, pilot sites were able to review cost and utilization data based on a selected cohort of members that were attributed to the medical home sites for a continuous period, in a pre-pilot period (01/2008-06/2009) and during the pilot (07/2009-09/2010). The analysis was based on medical claims only and pharmacy claims were excluded; high-cost outlier cases were not removed in this analysis nor was risk adjustment applied. Overall, the analysis results appeared promising and warranted further study. In addition, published analysis by of Anthem claims data also indicated positive results (Raskas et al., 2012).

In addition to claims data, the pilot sites uploaded quarterly data from their Electronic Health Record (EHR) systems on more than thirty clinical quality measures developed by the Pilot Steering Committee. Data were collected via a web-based portal that was developed for the pilot. The portal allowed sites to both upload their site quality basis and view their own and other sites' performance as a benchmark. Not all sites were able to report on all quality measures for all measures. One site was not able to complete any of the quality reporting.

NH CHI engaged Brandeis University doctoral student, Signe Peterson Flieger, to develop and implement a more formal evaluation of the pilot. The description of that evaluation and Part I Findings follows. Parts II and III Findings are in process of publication.

Evaluation of the NH Citizens Health Initiative Multi-Stakeholder Medical Home Pilot:

Part I Findings

Signe Peterson Flieger, PhD, MSW

The purpose of this study was to evaluate the NH Citizens Health Initiative Multi-Stakeholder Medical Home Pilot in nine family practices in New Hampshire to better understand the nature of the PCMH model implemented and if and how the PCMH model improved quality and reduce costs. In the context of growing interest in the PCMH model, this evaluation contributes to our understanding of the PCMH models underway in New Hampshire, how the PCMH can be adapted in different contexts, the lessons learned for implementing practice redesign, and the potential for the model to impact health care utilization, cost, and quality outcomes. This section presents the background and set-up of the evaluation, the methods used, and Part I of the findings from the evaluation. Parts II and III will be made available upon peer-reviewed publication.

Context

This study explored the specific nature of the PCMH models implemented across the nine pilot sites as well as the process of change enacted at these sites. The nine practices participating in the pilot varied with respect to their size, ownership, and history. The duration of payments to the pilot sites was July 2009 through December 2011. The pilot included community health centers, hospital and/or health system-affiliated practices, an independent physician practice, and an independent nurse practitioner (NP) owned practice. All of the sites achieved NCQA PPC-PCMH Level 3 recognition. The pilot sites are located across the state of New Hampshire, and vary in terms of the number of providers and the patient population served. The four major commercial insurers in New Hampshire—Anthem WellPoint, Cigna Healthcare, Harvard Pilgrim Health Plan, and MVP Health Care—contributed an average of \$4 per member per month (PMPM) payment based on their membership (New Hampshire Citizens Health Initiative, 2008).

Methods

Study Design

This study was a mixed methods, quasi-experimental study including site visits, interviews, self-assessments of medical homeness, surveys of relational coordination, claims data, and pilot-only quality data. Site visits were conducted at the nine pilot sites in November and December 2011. Interviews were completed with 79 participants across a range of roles (e.g., family physician, medical assistant, front desk staff, quality improvement manager, medical director, CEO) at each site. In addition, three payers and one convener of the pilot initiative were interviewed. At the time of the site visits, organizational documents were gathered on background of the practice, history, organizational structures, and medical home related documentation. Each site completed a Medical Home Index at the time of the site visit, a self-assessment tool by the Center for Medical Home Improvement which measures the site across six domains: organizational capacity, chronic condition management, care coordination, community outreach, data management and quality, and quality improvement/change (Center for

Medical Home Improvement, 2006). In addition, participants at the pilot completed surveys of relational coordination, which measures relational and communication dynamics around a focal work process of interest, in this case, “the delivery of primary care to patients in your practice.” Relational coordination is assessed between roles through seven dimensions: frequently, timely, accurate, and problem-solving communication, and relationships of shared goals, shared knowledge, and mutual respect. Previous studies of relational coordination have found that higher levels of relational coordination are associated with greater efficiency and better quality (Gittell, 2010).

Interviews were transcribed and coded by the author using QSR NVivo Qualitative Analysis Software based on a priori categories and emergent themes in the grounded theory tradition. Site reports were written for each of the nine sites and provided to each site for review and comment. Site level scores were tabulated for medical homeness, with a range of scores out of 200. Site-level scores for relational coordination were conducted with a total possible score ranging from one to five. This study used the New Hampshire Comprehensive Healthcare Information System (NH CHIS) dataset, a multi-payer claims dataset with data from the commercial payers in the state, to assess if there was an impact of the PCMH pilot on utilization, cost, and quality measures. In addition, a pilot-site only quality database was available including up to 32 measures with between three and seven sites reporting for each of the measures. Due to the incomplete data and lack of a comparison group, analyses of these data were limited. Furthermore, the study assessed whether within the nine pilot sites, practices with higher levels of medical homeness or relational coordination yielded better utilization, cost, and quality outcomes.

Intervention

The intervention was defined as practices participating in the pilot, which entailed PMPM payments from four commercial payers in the state between July 2009 and December 2011, and at least Level 1 recognition as a PCMH by the NCQA 2008 PPC-PCMH guidelines. All of the sites achieved Level 3 recognition from NCQA. The comparison group excluded any other NCQA recognized practice, defined as any practice in the state that also achieved recognition from NCQA at any level at any point in the study period, prior to the end of 2011.

Measures

Figure 1 details the utilization and cost quality measures used in the claims-based difference-in-differences analyses. Figure 2 displays all the quality variables collected for the purposes of the pilot, with an asterisk indicating those analyzed with the claims data.

Figure 1. Utilization and Cost Dependent Variables

Category	Measure	Source Specification
Utilization	Total acute hospital admissions	HEDIS 2012: Inpatient Utilization – General Hospital/Acute Care
Utilization	Ambulatory care sensitive hospital admissions	AHRQ Prevention Quality Indicators (PQI)
Utilization	Readmissions within 30 days	HEDIS 2012: Plan All-Cause Readmissions (PCR)
Utilization	Total emergency department visits	HEDIS 2012: Ambulatory Care ED Visits
Utilization	Ambulatory care sensitive emergency department visits	NYU ED Algorithm (emergent – ED care needed – preventable/avoidable)

Utilization	Primary care visits	As specified in Rosenthal et al., (2010).
Utilization	Specialty care visits	As specified in Rosenthal et al., (2010).
Utilization	Outpatient visits overall	HEDIS 2012: Ambulatory Care Outpatient Visits
Costs*	Total costs, including outpatient, inpatient, and emergency department.	As defined above.
Costs*	Total costs for high utilizer population	Population with two or more chronic conditions based on ACG risk adjustment tool.

**The cost variables are based on actual amount paid, and thus will reflect variation in price or payer mix across practices, rather than only utilization differences. Pharmacy utilization analyses are not provided here due to concerns about the reliability of the data and member identifiers.*

Figure 2. Quality Measures for PCMH Pilot Sites from EHR Extraction and Claims Data

Measure Category	Measure	Type	Source of Data
PATIENTS WITH DIABETES			
Glucose control	*1. HbA1c testing (past 12 months)	Process	Claims/ EMR
	2. HbA1c < 7%	Outcome	EMR
	3. HbA1c < 8%	Outcome	EMR
	4. HbA1c > 9%	Outcome	EMR
Blood pressure (BP) control	5. BP recorded (past 12 months)	Process	EMR
	6. BP > 140/90 (or no BP measure in past 12 months)	Outcome	EMR
	7. BP < 130/80	Outcome	EMR
	8. BP < 140/80	Outcome	EMR
Lipid control	*9. LDL testing (past 12 months)	Process	Claims/ EMR
	10. LDL < 100	Outcome	EMR
	11. LDL > 130 (or no LDL measure in past 12 months)	Outcome	EMR
Nephropathy screening	*12. Nephropathy screening (past 12 months)	Process	Claims/ EMR
Dilated retinal eye exam	*13. Dilated retinal eye exam (past 12 or 24 months depending on prior diagnosis)	Process	Claims/ EMR
Comprehensive foot exam	14. Comprehensive foot exam (past 12 months)	Process	EMR
Smoking status	15. Smoking status assessed and treatment or cessation counseling offered (past 12 months)	Process	EMR
PATIENTS WITH CARDIOVASCULAR DISEASE			
Blood pressure (BP) control	16. BP recorded (past 12 months)	Process	EMR
	17. BP < 140/90	Outcome	EMR
Lipid control	*18. Complete lipid profile testing (past 12 months)	Process	Claims/ EMR
	19. LDL < 100	Outcome	EMR
Use of aspirin	20. Use of aspirin or other antithrombotic (past 12 months)	Process	EMR

Smoking status	21. Smoking status assessed and treatment or cessation counseling offered (past 12 months)	Process	EMR
PATIENTS WITH HYPERTENSION			
Blood pressure (BP) control	22. BP recorded (past 12 months)	Process	EMR
	23. BP < 140/90	Outcome	EMR
PREVENTIVE CARE			
Immunization	24. Influenza immunization (≥ 50 years, past 12 months)	Process	EMR
	25. Pneumococcal immunization (≥ 65 years, ever)	Process	EMR
Cancer screening	*26. Breast cancer screening (women, 50-69 years, past 24 months)	Process	Claims/ EMR
	27. Cervical cancer screening (women 21-64 years, past 36 months)	Process	EMR
	28. Colon cancer screening (50-75 years, within appropriate time interval for screening method)	Process	EMR
BEHAVIORAL HEALTH			
Depression	29. Depression screening (patients with diabetes or cardiovascular disease, past 12 months)	Process	EMR
ADDITIONAL MEASURES			
Body Mass Index (BMI)	30. BMI calculation documented and if outside parameters, follow-up plan is documented (patients aged 18 years and older, past six months)	Process	EMR Not Enough Sites Reporting
Tobacco Use	31. Tobacco use query (patients aged 18 years and older, with at least two office visits, past 24 months)	Process	EMR Not Enough Sites Reporting
Smoking Cessation	32. Receipt of cessation intervention (patients aged 18 years and older, identified as tobacco users, with at least two office visit, past 24 months). and have been seen for at least two office visits, who received cessation intervention	Process	EMR Not Enough Sites Reporting

**Indicates six HEDIS 2012 measures that were also analyzed using health care claims data.*

Claims-Data Analysis Plan

Providers were attributed to practices based on a thorough process combining a New Hampshire primary care provider practice list generated from the Anthem provider website, a thorough and methodical internet search of practice mailing addresses and practice websites, best available provider lists from practice websites, and National Provider Identifiers (NPI) from the web-based NPI directory. The claims associated with these providers were then attributed to practices based on these and other associated provider identifiers. Patients were attributed to practices based on the practice with the plurality of primary care use in the pre-period, 2007 through mid-2009. This effectively limits the analysis to patients who sought primary care in the pre-period, and does not reflect the whole population seen by the primary care practice throughout the full study period. However, this approach does reflect the idea that care continuity is part of the PCMH model, and thus aims to look at the same group of people at a set of practices over time. Furthermore, since this approach was used to attribute both the pilot and comparison groups, and empirical evidence suggests that those who are censored due to lack of

enrollment in the post-period are not systematically different when comparing the pilot group and propensity-score matched comparison group, we would expect the magnitude and direction of the bias introduced through this approach to be consistent, and thus should not change the direction or significance of the difference-in-difference results.

All utilization and cost analyses were risk adjusted using Johns Hopkins ACG 10.0 to control for variations in age, gender, and risk score of patients attributed to each practice. To create a comparable comparison group, propensity-score matching was used with a two to one match, nearest neighbor, greedy algorithm, without replacement at the individual level. To account for clustering associated with patients attributed to the same practices sharing unobservable characteristics, random effects analyses were conducted to ensure appropriate statistical testing. For all analyses using a comparison group, difference-in-differences analyses were conducted to assess the difference between the pilot and the comparison group in the pre-period, and the difference in the pilot and the comparison group in the post-period. The difference in those differences can then be attributed to the intervention. For the sub-analyses of relational coordination and medical homeness with only the pilot sites, a simple pre-post, no comparison group analysis was conducted.

Generalized Estimating Equations was used for the utilization variables with a random effect for site to account for clustering, and a negative binomial distribution to account for the large number of zeroes. For the quality measures, conducted at the individual level, logistic regression with a random effect for site was conducted to model the likelihood of having a certain quality outcome (1/0). Lastly, Ordinary Least Squares, with a random effect for site, was used for the cost analyses. In addition, all of these analyses were run for a subpopulation of patients with two or more chronic conditions to assess if the impact of the intervention varied based on the population under study.

Part I Findings

Summary Data on the Nine Practices and the Process of Change

Part I of this evaluation presents the summary data from the Medical Home Index (MHI) (i.e. “medical homeness”) and relational coordination survey and also explores the process of change at these nine pilot sites through the lens of complex adaptive systems theory and relationship-centered organizations. Specifically, the process of change enacted, and some of the challenges encountered will be presented.

Results

Summary Medical Homeness Data

The nine sites completed the Medical Home Index (MHI) at the time of the site visit. The possible scores for the total MHI ranges from 25 to 200 and is created by the sum of scores across six underlying domains: organizational capacity, chronic condition management, care coordination, community outreach, data management, and quality improvement. Summary data for the Medical Home Index are presented in Table 1.

Summary Relational Coordination Data

In total, 241 participants responded to the relational coordination survey at their respective practice, resulting in an overall response rate of 60 percent. The average response rate across practices was very similar at 59.6 percent. Site response rates varied from 34.8 to 82 percent. Overall, 91 percent of participants completed the survey once started, with a range of 79 to 100 percent across the practices. Data from incomplete surveys were included in the final

analysis. Ten respondents across five sites identified “other” as a role. These respondents were excluded from the analyses, as they did not fall into a clear workgroup.

To test the reliability of aggregating relational coordination into a single index, Cronbach’s alpha was calculated, resulting in alpha level equal to 0.89 for site level relational coordination among all internal workgroups in this study. From factor analysis, the eigenvalue for factor 1 was 3.79, and the eigenvalue for factor 2 was 0.32. No items were dropped due to weak factor loading. All of the factor loadings on factor 1 were 0.57 and above, with six of the seven factors having factor loadings greater than 0.60. These results indicate good reliability for the relational coordination survey used in this study. In addition, three levels of aggregation for the relational coordination survey were constructed to compare similar workgroups across practices (e.g., clinical core, staff core, and clinical plus). Note that the reliability statistics do not vary significantly across the four groupings of site-level RC scores presented. Summary site-level RC scores and the MHI scores are presented in Table 1.

Table 1. Summary Relational Coordination and Medical Home Index Scores Across Nine Sites

	RC – All Surveyed	RC – Clinical Core	RC – Staff Core	RC – Clinical Plus	Medical Home Index
Low	3.77	3.82	3.79	3.78	96
High	4.41	4.47	4.44	4.42	167
Average	4.03	4.08	4.05	4.01	145.22
Median	4.03	4.12	4.10	4.02	148.00

Relationships between Medical Home Index and Relational Coordination

Conducting Pearson’s correlation for all four levels of aggregation (i.e., all surveyed, plus three subgroups) for the site level RC scores, the MHI total, and the six dimensions of the MHI, yielded no significant results. No site-level RC scores are significantly correlated with the MHI total, or individual MHI dimensions, suggesting these constructs are in fact distinct.

Supporting the Medical Home Transformation Change Process

The practices varied with respect to how much they already resembled a medical home prior to joining the pilot and the changes made throughout the duration of the pilot. There were several approaches used by the sites to identify, target, and enact medical home transformation.

NCQA Recognition Process. The NCQA Recognition process was seen as a tool to facilitate reflection and action in the process of medical home transformation. While the documentation and effort required to achieve NCQA recognition was consistently acknowledged as “months of process and work” and in some cases “grueling,” it was also described as worthwhile. Despite the significant time investment, several respondents suggested that it was a very useful process that offered the practice an opportunity to slow down and reflect on what they were actually doing, established a “framework to accomplish goals,” and provided a gap analysis of existing capacity and processes. The process allowed practices to hone in on specific areas that are targeted as part of the NCQA medical home. An administrator at one site noted that the NCQA application process encouraged them to closely examine their EMR capacities and think more critically about how to pull out data in a useful format. In addition, it forced them to consider whether patients have good access to the practice. Lastly, according to one nurse practitioner, it gave members of the practice a new language to describe what they were already doing, “I didn’t have the words to put to it until we went through all of this process, but we were

certainly patient-centered because of the philosophy that brought us to where we are.” The process of NCQA recognition allowed for self-reflection as well as more targeted transformation and improvement efforts.

All the pilot sites ultimately achieved Level 3 recognition from NCQA, which validated the view that they already had in place many features of a medical home. However, several participants also made a distinction between what they see as a medical home for the purposes of NCQA—at least according to the 2008 guidelines—and the medical home concept more holistically. For example, one administrator admitted:

...we became a Level 3, but in my opinion it was mostly because we had the infrastructure in place to be a medical home. I don't think philosophically we were there for another six months.

Similarly, an administrator at another practice commented:

But having that recognition doesn't make you a medical home. It just says you do certain things a certain way. So, now what we're trying to do is make people a true medical home or more like the future of family medicine in terms of the real team-based care – access, continuity, all those things.

This sentiment was common across many practices, as the NCQA recognition process was consistently seen as related to but distinct from the delivery of care as a medical home. When thinking about the process of change in these complex adaptive systems, it seems that participants distinguished between two aspects—the technical components of the medical home (e.g., EMR, disease registries, and referral tracking) and the cultural aspects (e.g., implementing team-based care, changing mental models of primary care practice, and transforming organizational culture) and tended to view the NCQA recognition process as requiring the former more than the latter.

Meetings to facilitate change. One strategy identified as successful by practices that underwent more comprehensive transformation, was setting aside designated time for people to meet and plan changes. These meetings ranged in focus, included discussions about role definition, construction of teams, process flow, specific quality improvement projects, and standardization of care. The variation in topics across practices often reflected the unique and specific areas targeted for change at a given practice. For example, at one practice, all the family physicians set aside time each week early in the transformation process to review guidelines for evidence-based care, and decide on a common plan for treating patients with a given diagnosis. Relatedly, another practice already had designated time set aside once a week for staff meetings and was able to take advantage of that allotted time for medical home transformation. Many of the sites had some form of quality improvement team, which went by a variety of names, and met regularly to choose and plan quality improvement projects, evaluate data on current efforts, and provide guidance to the practice as a whole. While this process was seen as integral to the medical home model, these efforts often existed prior to becoming a medical home. The consistent thread across these different types of meetings was that there was time set aside to focus on change and improvement that otherwise would not be achieved.

Experimentation and testing. Experimentation with different staff models was common across the practices. One administrator explained, “it was a lot of trial and error, let’s try having four teams, let’s try having two teams. Can you handle two docs or should we do it differently?” Another practice contained this trial and error process within one team before rolling out the successes to the broader practice. This site designated one team as the medical home pilot team.

This team would try out new approaches to patient care in an effort to test different methods with the goal of taking what works best and rolling it out to the other teams.

Engaging patients in the change process. One practice engaged patients in their process of change. Specifically, the practice sought patient input to identify areas in need of improvement through a patient focus group. This approach has now been used in other practices across this system to identify areas for improvement.

Challenges of Changing Roles

Staff engagement. While all of the practices report positive feedback from many providers and staff about the medical home concepts and team-based care, there have been some hold-outs that are more difficult to get on board. This was particularly emphasized at the practices that were undergoing more comprehensive transformation. One physician leader described:

...there's still 10 percent that aren't engaged. Or, they're reluctant warriors to change what they do...we talk about drinking the Kool-Aid here, not everybody has had the sip of Kool-Aid. There's still some docs that say this is the way I'm going to do it.

This continues to be a challenge as sites deal with turnover, and new providers and staff join the practice and have to learn a new way to practice. This suggests that the traditional mental models of primary care delivery are at odds with the mental models required in the medical home.

Workload. Many participants, particularly physicians, remarked on the increased workload required of this new approach to care delivery. A family physician described:

You have more on your plate now. So, now not only do you have to manage everything that was coming to you before, but now you have the population health management issues to address, and no additional time to do it.

The changing role of the patient has also contributed to this increased physician workload. The same family physician explains:

...the experience of being a patient has changed, because you're worried about so many more things, cost has been shifted to you to such an extent that things are coming into the office with a much greater need to debate and be informed, and patients are more proactive and want to engage folks in discussion. Paternalism is essentially dead, which is great – it's just harder for the provider.

At the same time, participants at other practices noted that workloads were being redistributed as new roles were defined in team-based care. Thus, the direction of workload distribution as a result of these changes varied across practices along with the change in roles and functions.

Coordination with Other Providers. Commonly, participants remarked on the challenge of establishing relationships and information sharing with service providers beyond the walls of the practice. In some cases this was due to a shortage of particular services in the area such as psychiatry. In other cases this challenge was about effectively sharing information with specialists given an EMR that is not connected, which necessitates scanning in paper documents, and results in leaving discrete data fields in electronic health record systems empty. Developing these inter-organizational relationships continues to be a work in progress.

Sustainability. The process of change particularly with time-limited pilot projects, often brings with it the challenge of sustaining the changes at the end of the pilot period. Maintaining momentum for continual improvement remains a challenge for all of the sites. An administrator remarked that “there would be times of high change and then we'd kind of plateau for a while.” Similarly, once one evidence-based care process was developed and implemented, providers felt like it was difficult to take more time away from direct patient care and continually move on to

the next care process. All of the other challenges experienced by the practices (e.g., staff turnover, technology, and budget cuts) exacerbated the challenges associated with moving forward and maintaining momentum.

With the pilot money ending and no significant funding stream or payment reform in sight, several participants expressed concern and disappointment about their ability to sustain these changes. One administrator lamented:

...it makes me just sick to think that as far as we've come, and I seriously believe we have improved care, and I believe we've improved the health of our patients or we will over a period of time, to see all that just spiral right back to where it was, sickens me.

Yet, consistently among the sites that underwent change as part of the pilot, the sites expressed commitment to maintain the changes as much as possible, and continue to be creative with funding streams. As one administrator remarked,

I think we've decided that it is the way we're going to deliver care, and I don't think you can go back. I just don't. It's the right thing to do. It's the right thing for patients, I think it's going to be the right thing for the healthcare providers, and as we get more and more cutbacks and things that are going to happen, we're going to have teams built around these physicians so that they can do their work, and they don't have to do it all.

This was a common theme across practices that invested in significant change as part of this pilot—you cannot simply go back to the way care was provided before, nor would you want to.

Several participants remarked on the need for “buy-in”, “engagement”, and “flexibility” from all levels of the organization—senior leadership, physicians, and staff—in order to make this model successful. Buy-in from senior leadership can yield additional resources and help support the change process during financially challenging times, while buy-in from physicians and staff can foster momentum, new ideas, and a smoother transformation process. Facilitative leadership, engagement in the process of change, and continual learning were seen as critical. The medical home transformation was described as an opportunity for continuous improvement, and the work is not done. As the practices move forward they may move on to new initiatives, but all of these types of delivery and payment reform activities move in similar directions as part of fostering a culture of continuous learning, reflection, and action of which the medical home is just one part.

Responding to the Dynamic Local Ecology

Budget cuts and staffing. Nearly all of the sites mentioned some form of budget cuts, reduction in force, lost grant money, or other financial challenge that forced them to do more with fewer resources. Some sites had plans for program expansions but have had to hold back, either maintaining current efforts or in some cases reducing services. Sites have lost critical staff and on-site services – such as a staff person responsible for report management, nurse educators, an on-site Coumadin clinic, and substance abuse services. Thus, these change processes are operating within a larger context that affects the functioning of the project.

Reimbursement. The theme of reimbursement was repeatedly raised as a critical barrier to seeing lasting and meaningful change as a result of investment in the medical home model. Several participants across all sites—both clinical and administrative—noted that the current emphasis on productivity through face-to-face visits was at odds with the goals of the medical home – including more care coordination through emails, phone calls, and other team-based care outside of the traditional visit. One medical director illustrated the dilemma:

We're expending tremendous resources to get the quality piece there, and ... we can do it in a way that we don't have to have the patient coming in the door....[but] we're starving

and we've got all these people in place, and they're doing all this stuff, and yet, our finance people and me as medical director too... are saying please people, get the patients in for visits – visits, visits, visits, we need visits. We're running at a loss right now this year, and we just told everybody to get people in for care, because that's how we get paid. So, we're dying for the payment reform piece to come.

In addition, several physicians lamented the fact that their productivity had decreased as a result of participating in the medical home, which meant lower reimbursement despite what they perceived as more work. One administrator reported:

It does take extra time for the physician to do this sort of work, and we see this in their numbers. You know, they can't see the same number of patients in this model that they could see before we started down this road. And we watch that. I mean, I can show you year by year, watch the stats, and you can see the number of visits per day, and how that's gone down and it's because they're spending more time with their patients and more time in the background looking at the lab reports and sending those out to the patients and offering them suggestions - you know, they're doing what they ought to be doing! But it takes more time. So, their productivity's down, and ultimately, when all this extra money goes away, if they continue to do that, their salaries are going to go down.

Consistently, more comprehensive changes in reimbursement were seen as essential steps to continue to transform the way care was delivered.

Discussion

The practices vary with respect to level of medical homeness reported at the end of the pilot period, despite all achieving Level 3 recognition by NCQA. Consistent with other studies of medical home transformation, the traditional physician-centric primary care practice and corresponding mental models, do not align well with the emerging medical home model (Meyer, 2010; Nutting, Crabtree, & McDaniel, 2012; Nutting et al., 2010). The process of change experienced by the nine practices participating in this pilot offer many insights for medical home transformation going forward.

- 1) Recognize that becoming a medical home is a process and identifying a path for transformation, current gaps in care delivery, and opportunities for improvement help to provide a model for change.
- 2) There are technical/infrastructure changes (e.g., EMRs, disease registries, and referral tracking) and changes in culture and mental models (e.g., team-based care; new roles; patient-centeredness; and communicating with fellow providers about the way care is delivered to provide consistent, evidence-based care). While the 2008 NCQA guidelines emphasized the former more, the latter is harder, and gets more at the essence of the medical home model. This type of change can be made easier by inquiry-centered leadership, buy-in at all levels of the organization (leadership, providers, other clinical and non-clinical staff), and continual action and reflection cycles to learn and improve throughout the process. Furthermore, through this process these practices can develop stories of change to continue to improve and change going forward.
- 3) Dedicating resources to the change process is critical. This may include time for physicians to meet to discuss evidence-based guidelines for care; opportunities for all staff to participate in quality improvement projects; or allowing practices or subgroups

within practices to try new approaches, learn from them, and make changes to improve them on the next try.

- 4) Lastly, reimbursement that is aligned with this process and recognizes the unique changes required and challenges associated with medical home transformation can support both the implementation and sustainability of these models.

Limitations

This study is a pilot, composed of practices that were already moving toward the medical home model even without the existence of this pilot. Thus, they are likely further along the spectrum than the average primary care practice. Therefore, these lessons may not be generalizable to all practices undergoing medical home transformation. With that said, however, one would expect that a typical primary care practice may experience these same processes, but the challenges may be more difficult to overcome given their different starting points on the level of medical homeness. In addition, the consistent medical home model shared across these practices was the 2008 NCQA guidelines. However, the practices were not provided with in-depth practice transformation support, and were instead tasked with determining what a medical home looked like to undergo transformation more independently. While there were opportunities for sharing across practices through monthly phone calls organized by the pilot convener, each practice enacted transformation differently. Thus, this study offers significant diversity in the types of transformation that practices engaged in, which may offer a broad application of lessons, but also does not allow for specific, targeted recommendations associated with a particular model for medical home transformation.

The site visits and interviews were only conducted at one point in time, namely at the end of the two and a half year pilot period. Thus, the reporting on the process of change by participants was retrospective, and did not allow the author to observe the changes enacted based on the starting point of the practices at the outset of the pilot. At the same time, interviewing multiple people across diverse roles helped to triangulate the data collection process and provide a more comprehensive story of the change process, despite the potential issue of recall bias by individual participants. Furthermore, the process of medical home transformation does not occur inside a controlled environment, and given the constantly evolving nature of the health care system, participants were likely reporting on their experience of change more broadly with delivery system reforms over the past couple years, rather than changes exclusively associated with the medical home. For example, some of the processes of change reported may be more associated with the implementation of meaningful use requirements, rather than the medical home, and thus all of these change experiences cannot fully be attributed to medical home transformation. With that said, these retellings by participants likely do reflect, at least in part, the process of medical home transformation situated within this point in time in health care transformation, and thus do offer lessons for practice transformation and the process of change in a diverse set of primary care practices.

Additional Findings, Parts II and III

Additional findings will be made available upon publication of papers in peer-reviewed journals. Specifically, Part II of the findings will detail the nature of the medical home models

implemented as part of transformation in this pilot. Part III will present the utilization, quality, and cost analyses for both the medical home versus non-medical home sites, and also compare the results for the nine pilot sites with respect to levels of medical homeness.

List of Presentations to Date Based on the Pilot Evaluation

Flieger, S.P. (November 5, 2013). *Impact of a patient-centered medical home pilot on quality and costs: Lessons for implementation and dissemination*. (Poster Presentation). 2013 American Public Health Association Annual Meeting. Boston, Massachusetts.

Flieger, S.P. (June 23, 2013). *If you've seen one medical home, you've seen one medical home: Lessons learned from medical home transformation*. (Poster Presentation). 2013 AcademyHealth Annual Research Meeting. Baltimore, Maryland.

Flieger, S.P., Gittell, J.H. (June 23, 2013). *Team composition, medical homeness, and relational coordination in the patient-centered medical home*. (Poster Presentation). 2013 AcademyHealth Annual Research Meeting. Baltimore, Maryland.

Flieger, S.P. (May 29, 2013). *Measuring relational coordination in diverse family practice sites*. Relational Coordination Research Collaborative Research Colloquium. Waltham, MA.

Flieger, S.P. (May 21, 2013). *Evaluation of a patient-centered medical home pilot [pilot only quality data]*. (Poster Presentation). Healthcare Transformation Learning Symposium. Durham, New Hampshire.

Flieger, S.P. (May 21, 2013). *The nature of the patient-centered medical home: Experience from the NH Citizens Health Initiative Multi-Stakeholder Medical Home Pilot*. Healthcare Transformation Learning Symposium. Durham, New Hampshire.

Flieger, S.P. (November 14, 2012). *Patient-centered medical home transformation: An opportunity for continuous quality improvement*. New Hampshire Local Government Center 71st Annual Conference, Manchester, New Hampshire.

Flieger, S.P. (June 23, 2012). *Patient-centered medical home transformation: An opportunity for continuous quality improvement*. 18th Annual National Research Service Award Trainees Research Conference. Orlando, Florida.

Flieger, S.P. (May 1, 2012). *The process of medical home transformation: Lessons from the NH Citizens Health Initiative Multistakeholder Medical Home Pilot*. (Webinar). Presentation to pilot sites, Initiative, and steering committee.

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