Pediatric-Informed Facilitation of Patient-Centered Medical Home Transformation

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Abstract
Patient-centered medical home (PCMH) transformation has been challenging for pediatric practices, in part because of the National Committee for Quality Assurance (NCQA) PCMH focus on conditions and processes specific to adult patients. Realizing the potential challenges faced by pediatric practices, Vermont supported pediatric-informed facilitators to help practices during PCMH transformation. This study characterizes the impact of pediatric-informed facilitators; provides benchmark data on NCQA scores, number of facilitation meetings, and the time between facilitation start and end; and compares pediatric- and adult-serving practices. We found no difference between pediatric and matched adult-serving practices in NCQA score, number of facilitation meetings, or weeks to NCQA scoring. These results suggest that pediatric-informed facilitators can help pediatric practices achieve NCQA PCMH recognition on par with practices serving adult patients. Supporting primary care practices with specialty-informed facilitators can assist integration into health care reform efforts.

Keywords
pediatrics, patient-centered care, facilitation, health care reform, National Committee for Quality Assurance

The patient-centered medical home (PCMH) is defined by the American Academy of Pediatrics as a model of patient care that is “accessible, continuous, comprehensive, family-centered, coordinated, compassionate and culturally effective.”1(pp1) It is widely promoted in the United States by various medical organizations2 and governmental agencies3-5 as an optimal model for primary care. Numerous practices have, therefore, undergone the transformation process to become PCMHs. The most common guide for this process is the National Committee for Quality Assurance (NCQA) PCMH recognition program, with more than 6700 practices nationwide recognized as PCMHs under the 2011 standards.6

Statewide Health Care Reform
In Vermont, the Blueprint for Health (Blueprint) program works to integrate health care, improve health, and control health care costs for the state’s population.7-9 The Blueprint works toward this goal in part by encouraging practices to become advanced primary care practices, a process that includes achieving NCQA PCMH recognition.10 The Blueprint offers assistance to practices by funding facilitators who work within practices to promote systems-level changes.

The Blueprint piloted PCMH transformation from 2008 to 2010 among family medicine and internal medicine practices. In 2011, open enrollment to all Vermont practices, including pediatrics, began concurrently with a new practice facilitation program.11 Past research has shown that using practice facilitators can increase the adoption of evidence-based guidelines in primary care practices.12-15 Practice facilitation has also been shown to be a crucial component of the PCMH transformation processes. Analysis of the National Demonstration Project through the American Academy of Family Physicians demonstrated that facilitated practices adopted a proportionately greater...
number of the modules associated with that medical home model and had increased adaptive reserve compared with their matched controls.\textsuperscript{16} A survey of small (less than 5 practitioners) practices that had undergone NCQA PCMH recognition found that a higher proportion of practices that received level 1 recognition had received training specific to meeting the NCQA standards when compared with those practices that received level 3 recognition.\textsuperscript{17} Lane and Watkins\textsuperscript{18} have used college students to help rural primary care practices through the NCQA recognition process.

**Challenges Specific to Pediatric Practice Transformation**

Pediatric practices have faced challenges to NCQA recognition. The transformation process to achieve NCQA recognition has many known hurdles, most reported from the perspective of providers of adult care.\textsuperscript{19–23 Less is known about how pediatric practices fared in the recognition process. Though later modified in 2011 to be more relevant to pediatric practices,\textsuperscript{24} at the time of the Blueprint expansion, NCQA PCMH 2008 standards focused on conditions and processes less common in pediatric practice. This was evidenced by the inclusion of requirements around advance directives and chronic care initiatives that focused on diseases more commonly found in the adult population (ie, hypertension and diabetes) than in the pediatric population. Well-child visits were only accepted as a clinically important condition after Vermont proposed that the NCQA include it (Miriam Sheehy, personal communication, July 2014).

Pediatric practices also could not capitalize on some of the valuable lessons learned from the pilot. New family medicine and internal medicine practices that wanted to participate in the Blueprint could adopt procedures, best practices, and improvement techniques directly from pilot practices, whereas pediatric practices could not. For example, hypertension was chosen as an important condition by all the pilot practices, but because of the low prevalence of hypertension in the pediatric population, techniques developed during the pilot to navigate NCQA requirements using hypertension as a chronic condition could not be as quickly adopted by pediatric practices. Also, self-management goals for children frequently involve anticipatory guidance and active involvement of families in the care plans of children, whereas self-management for adults is focused on the individual.

**Pediatric-Informed Facilitators**

It became apparent to stakeholders that facilitating pediatric practices would be crucial to help them overcome challenges to translate NCQA PCMH standards to fit their practice and population. To meet this need, the Vermont Child Health Improvement Program (VCHIP) funded the first pediatric-informed facilitator to work exclusively with pediatric practices to help them meet the standards set forth by the Blueprint, including NCQA PCMH recognition. This facilitator was a pediatric nurse with experience in pediatric quality improvement initiatives who received facilitation training alongside other Blueprint personnel. The purpose of having a pediatric-informed facilitator was to help develop tools and techniques to guide practices through the recognition process that could later be shared with other facilitators to help them become pediatric informed through training and mentorship.

**Purpose**

This study examines the impact of pediatric-informed facilitators on the NCQA PCMH recognition process by testing for differences in NCQA score and recognition levels achieved by pediatric and adult-serving practices as well as duration and amount of contact with facilitators. Results of this study provide much needed benchmark data for future studies evaluating practice facilitation and transformation in this era of health care reform.

**Methods**

**Sample**

A total of 19 pediatric practices at 23 locations were facilitated since the start of open enrollment (January 2011; Figure 1). Three practices began the recognition process before the facilitation program began and were removed from subsequent analyses. An additional 3 practices had multiple office locations and were considered 1 practice because all the locations completed facilitation together and scored within 2 months of each other. One practice had multiple locations as a result of a merger just prior to facilitation; they did not complete the scoring process together and were counted as 2 separate practices. This left a total of 16 pediatric practices, 7 scoring under NCQA 2008 standards and 9 scoring under the 2011 standards (Figure 1).

We matched each of the 16 pediatric practices to 2 family medicine practices that also received practice facilitation to provide a comparison of adult-serving practices that also cared for children. Matching was based on the following criteria: (1) the family practice was working toward NCQA PCMH recognition for the first time; (2) it scored using the same standards year; and (3) it scored within 1 year of the pediatric practice.
Efforts were made to maintain similarity on practice affiliation (hospital, independent, and federally qualified health center), site type (single vs multisite), and practice physician size (Table 1).

**Measures**

The NCQA PCMH recognition process is publicly available with published standards and guidelines.²⁵ Practices are assigned a recognition level (3, the highest, 2, or 1) based on a total score from 0 to 100, summed from the scores of individual elements distributed across a variety of standards. These standards were updated from 2008 to 2011, and a comparison of the changes has been published.²⁴ Several elements are deemed “must pass,” meaning that a practice will not be granted a NCQA PCMH recognition level, regardless of its total score, if those elements are not satisfactorily met. Practices provide specific supporting documentation, categorized as documented processes (eg, written protocols or flow sheets), reports (eg, aggregate data used by the practice to manage operations), and patient files and materials (eg, handouts for patients) to document their standard of care. VCHIP, through a grant from the State of Vermont, develops an estimated score for practices by reviewing patient charts, practice policy documents, and other materials against NCQA PCMH standards. VCHIP then submits the documentation to NCQA and provides the state with an estimated score and recognition level designation for the practice.

In this study, the NCQA scores and the recognition levels are presented and analyzed. The state awards per-member, per-month payments to practices achieving recognition based on score, rather than level, as is the case with many other states making similar payments.²⁶ Multilocation practices considered as one practice achieved the same level for all practices, and for the purpose of these analyses, we averaged their individual scores.

**Practice Facilitation**

Practice facilitation was initially performed by a single facilitator (facilitator A) hired by VCHIP through funding from the Children’s Health Insurance Reauthorization Act. Facilitator A participated in the initial training of other new Blueprint facilitators. This training was a short, intensive process utilizing a combination of off-site trainings and on-site presentations by field experts.²⁷ Facilitator A did not receive any additional training specific to helping pediatric practices through the recognition process. Rather, she used her existing expertise as a pediatric nurse and drew on her track record of successful pediatric quality improvement work. After the initial year (2011-2012) and because of demand from pediatric practices to join the Blueprint, a second pediatric-dedicated facilitator

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**Table 1. Practice Characteristics for Pediatric and Matched Family Medicine Practices.**

<table>
<thead>
<tr>
<th>Practice affiliation, n (%)</th>
<th>Pediatrics</th>
<th>Family Medicine</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>9 (56)</td>
<td>16 (50)</td>
<td>.664</td>
</tr>
<tr>
<td>Hospital/Group</td>
<td>5 (31)</td>
<td>8 (25)</td>
<td></td>
</tr>
<tr>
<td>Federally Qualified Health Center</td>
<td>2 (13)</td>
<td>8 (25)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site type, n (%)</th>
<th>Pediatrics</th>
<th>Family Medicine</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single site</td>
<td>11 (69)</td>
<td>28 (88)</td>
<td>.121</td>
</tr>
<tr>
<td>Multisite</td>
<td>5 (31)</td>
<td>4 (13)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practice physician size, n (%)</th>
<th>Pediatrics</th>
<th>Family Medicine</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 (6)</td>
<td>8 (26)</td>
<td></td>
</tr>
<tr>
<td>2-4</td>
<td>8 (50)</td>
<td>12 (42)</td>
<td></td>
</tr>
<tr>
<td>5-9</td>
<td>5 (31)</td>
<td>10 (32)</td>
<td></td>
</tr>
<tr>
<td>10-24</td>
<td>2 (13)</td>
<td>0 (0)</td>
<td></td>
</tr>
</tbody>
</table>

*One family practice had an unknown provider size.
Table 2. NCQA Score, Number of Meetings, and Time to Submission for Pediatric and Matched Family Medicine Practices.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Year</th>
<th>Pediatrics</th>
<th>Family Medicine</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean (SD) Mean Rank</td>
<td>Mean (SD) Mean Rank</td>
<td></td>
</tr>
<tr>
<td>NCQA score(^b)</td>
<td>2008</td>
<td>7 77.21 (12.56) 8.86</td>
<td>14 83.23 (12.84) 12.07</td>
<td>.287</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>9 76.69 (9.79) 14.56</td>
<td>18 76.14 (11.97) 13.72</td>
<td>.820</td>
</tr>
<tr>
<td>Number of meetings (count)</td>
<td>2011</td>
<td>8 19.13 (11.86) 10</td>
<td>16 24.44 (10.99) 13.75</td>
<td>.238</td>
</tr>
<tr>
<td>Time to submission (days)</td>
<td>2011</td>
<td>8 51.88 (15.09) 13.12</td>
<td>16 54.25 (28.95) 12.19</td>
<td>.787</td>
</tr>
</tbody>
</table>

Abbreviation: NCQA, National Committee for Quality Assurance.
\(^a\)Mann-Whitney U test statistic.
\(^b\)Scores ranged between 0 and 100 for both standard years.

(facilitator B) was hired by VCHIP, and 3 Blueprint facilitators were trained by facilitator A to work with pediatric practices in addition to family and internal medicine practices. These 3 pediatric-informed facilitators were mentored by facilitator A on pediatric topics pertinent to NCQA PCMH recognition, such as how to use well-child visits as a clinically important condition and how to select and measure other important conditions (eg, asthma, attention-deficit hyperactivity disorder).

Formal meetings between facilitators and practices were assessed to establish a timeline of facilitation. Facilitators recorded formal meeting minutes, completed biweekly practice summary reports, and completed an online survey that captured weekly practice contact during the time they worked with practices. The number of meetings was computed by counting all the formal meetings (planned in-person, phone, or web conferences between facilitators and practice staff) between the facilitation start date and the score date. The start date of facilitation was operationalized as the first formal meeting that included goals, action items, and/or one in which planning took place (eg, choosing the important conditions) to meet NCQA recognition standards. Because Vermont chose to begin per-member, per-month payments to practices based on the VCHIP estimates of what the NCQA score would be, we have used the VCHIP score date in our analyses to mark the end of facilitation. The score date was scheduled at the start of the facilitation process to occur in approximately 1 year, though extensions were available.

Full meeting minutes were only available for 4 pediatric practices and 3 single family medicine practice scoring under the 2008 standards. Therefore, analyses examining the number of facilitation meetings and the time between facilitation start date and NCQA score date estimated by VCHIP as described above were confined to pediatric and matching family practices scoring under the 2011 standards. Out of 9 pediatric practices scoring in 2011, 8 had meeting minutes that indicated facilitation activities, and each of these practices was matched to 2 family medicine practices that also had full documentation (Figure 1).

Analytical Plan

Our first set of comparisons of NCQA scores and levels matched 16 pediatric with 32 family medicine practices. The mean score (0-100) and NCQA PCMH recognition level (1, 2, or 3) were obtained for each practice. The distribution of score and level were compared between practice types (pediatric vs family medicine) via the Mann-Whitney U test for score and Fisher’s exact test for levels. Our second set of comparisons of number of meetings and time elapsed (in weeks) from the facilitation start date to the VCHIP estimated score date, matched 8 pediatric with 16 family medicine practices, and were also compared between practice type (pediatric vs family medicine) via the Mann-Whitney U test. A P value <.05 on all tests was considered statistically significant.

Institutional Review Board Waiver

The University of Vermont Institutional Review Board determined our study to be “non–human subjects” research.

Results

Pediatric practices facilitated using the 2008 NCQA PPC-PCMH Recognition Standards were heterogeneous in practice affiliation, site type, and practice physician size (Table 1). Under the 2008 NCQA standard, there was 1 family medicine practice that attained the lowest NCQA level (1); so we combined this with all the practices that attained level 2. There were no differences in NCQA level attained by pediatric and matched family medicine practices (level 3: 43% vs 79%, respectively; level 2 or 1: 57% vs 21%, respectively; \( P = .156 \)). The range of pediatric NCQA scores was
narrower (range = 60.75-90.50) than the range of matched family medicine NCQA scores (48.50-95.00). Although the NCQA score (Table 2) also did not differ significantly between the pediatric and matched family medicine practices, the difference in score resulted in an extra 7 cents in per-member per-month payments for the family medicine practices ($2.00 vs $2.07).

Pediatric practices facilitated using the 2011 NCQA PCMH Recognition Standards were heterogeneous in affiliation, site type, and practice provider size (Table 1). Under the 2011 NCQA standard, there was again 1 family medicine practice that attained the lowest NCQA level (1), so that practice was combined with the practices that attained level 2. There were no differences in NCQA levels attained by pediatric and matched family medicine practices (level 3: 22% vs 22%, respectively; level 2 or 1: 78% vs 78%, respectively; \(P = 1.0\)). Similar to the 2008 findings above, the NCQA score (Table 2) did not differ significantly between pediatric practices and matched family medicine practices, and in fact, the pediatric practices were in per-member, per-month payment parity with the family medicine practices (each at $2.00).

Four facilitators worked with the 8 pediatric practices under the 2011 standards that had full facilitation meeting minutes. These pediatric practices had a large range in the number of meetings (6-42 meetings) occurring over a range of 32 to 72 weeks from initiation of facilitation to submission of the estimated score by VCHIP. Two pediatric practices and 2 family medicine practices requested an extension of their scheduled score date. The 16 matched family medicine practices had a slightly higher mean number of meetings (range = 12-57 meetings) and time to submission (range = 23-135 weeks), but these differences were not significant (Table 2).

Discussion

Unlike family medicine practices, which had the benefit of learning from the experience of other practices serving adult patients in the state in achieving NCQA PCMH recognition, pediatric practices began this process with less reliance on previous work. Our results suggest that pediatric-informed facilitation helped pediatric practices achieve comparable NCQA scores despite this initial knowledge and experience gap. Furthermore, there were no significant differences between the number of meetings and time from start of facilitation to submission of scores between pediatric and family medicine practices. Additionally, any difference in payment for pediatric practices scoring under the 2008 standards disappeared under the 2011 NCQA standards, with pediatric and family medicine practices included in this study both receiving $2.00 per member, per month. Given the slight fall in payments among the family medicine controls during the transition to the arguably harder new standards, it is encouraging to see that the pediatric practices were able to maintain their payment level.

There are contextual factors, such as facilitation methodologies, that deserve attention. Foremost is the collaborative nature of the facilitation process among the facilitators. The Blueprint facilitation program encourages sharing and collaboration between facilitators, and per Blueprint methodology, the first pediatric-informed facilitator mentored newer facilitators, providing guidance and suggestions. Sharing tools and templates between pediatric practices allowed practices to benefit from the experiences of those that scored under earlier standards, similar to the way family medicine and internal medicine practices previously benefited from the Blueprint pilot program. These connections between the pediatric-informed facilitators happened in addition to more general collaboration among all facilitators, creating a specialized peer group within the larger group of state facilitators. The need for this additional, pediatric-specific support should be considered by other states looking to include specialty practices in health care reform plans that center on NCQA recognition.

Another contextual factor relates to the fact that children are generally healthier than adults. Practices caring for children may, therefore, take longer to accumulate sufficient data on chronic care conditions for NCQA recognition, prolonging the entire documentation process. The ability of pediatric-informed facilitators to offer practices guidance on previously successful options was, therefore, quite useful. All the pediatric practices chose well-child visits as 1 of their 3 chronic care conditions, attesting to the value of its addition (Miriam Sheehey, personal communication, July 2014).

Building on lessons from prior demonstration projects, \(^{16,28}\) we found that pediatric-specific facilitation was a lengthy process. Despite the additional considerations of including well-child visits as a clinically important condition and the need to identify pediatric-appropriate chronic conditions, practice tools, and improvement strategies to help them succeed, pediatric practices were able to complete the NCQA PCMH recognition process in an amount of time similar to that of family practices. Prior studies have given an indication of how long the facilitation process took, \(^{18,29,30}\) but we were not able to find any that published specific time to scoring or number of facilitation meetings, and the NCQA does not currently track these data. Given the heterogeneity of facilitation techniques included in our study, we feel that our data may be useful as a benchmark to develop best-practice methodologies and
expectations for pediatric practices undergoing PCMH transformation.

We believe that our work is particularly timely given the continued support for NCQA PCMH recognition. In addition, as subspecialty field recognition becomes more widespread through the NCQA patient-centered specialty practice program, future research should consider the role of practice facilitation and what, if any, additional training facilitators need to respond to requirements within each field. The push for accountable care organizations at the national level will presumably only hasten this trend. Unfortunately, the data around the transformation process itself, particularly in regard to the pediatric population, remain sparse. Our study contributes to what we hope will be a growing literature on the pediatric practice facilitation process.

Study Limitations

Our study was not prospectively designed and suffered from the limitations of retrospective analyses. Though an ideal control group would have been pediatric practices that were not facilitated, the Blueprint offers facilitation support to all practices. Our ability to identify control practices undergoing the same recognition process with similarly trained facilitators, with some overlap in patient demographics, allowed us to increase the comparability of the 2 groups. It will be important to investigate our findings in a future prospective, controlled fashion. We did not have enough facilitators to account for interfacilitator or intrafacilitator effects, and differences in personal style of facilitation delivery may have contributed to the length of time it took for practices to submit and receive their NCQA scores. Another limitation was our inability to compare practices that were scored under different standards, which reduced our sample size in each of the calculations we conducted. The predominantly rural nature of Vermont limits the generalizability of our study to true urban centers, but the heterogeneity of the practices in terms of number of providers and organizational type suggests that the findings are broadly applicable. It will be important to study the impact of pediatric-informed facilitation on practices located in more urban and demographically diverse settings to see if our findings of parity with family practices continue to hold under different practice conditions.

Implications for Practice

Our study demonstrates that pediatric-informed practice facilitators can help pediatric practices achieve NCQA PCMH recognition on par with practices serving adult patients. Collaboration among facilitators and using a facilitator with a specialized knowledge base in pediatrics to train others is a promising avenue for spreading pediatric-informed techniques. Metrics around facilitation should be tracked in an effort to promote best practices. As the NCQA continues to improve the PCMH recognition process with future standards, it will become increasingly important to learn how best to support practice transformation by adopting policies and procedures to deliver the best possible care to all patients, including those in the pediatric population.

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Author Contributions

VSH and WEL conceived and designed the study and analytic plan, interpreted analyses, wrote sections of the manuscript, revised the manuscript, and approved the final version for publication. SEV contributed to study design, conducted analyses, wrote sections of the manuscript, revised the manuscript, and approved the final version for publication. JSS contributed to the conception of the study, revised the manuscript, and approved the final version for publication. JS wrote sections of the manuscript, revised the manuscript, and approved the final version for publication.

Declaration of Conflicting Interests

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