Research paper

Implementing quality improvement in small, autonomous primary care practices: implications for the patient-centred medical home

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ABSTRACT

Background Implementing improvement programmes to enhance quality of care in primary care clinics is complex. Understanding how improvement strategies can be implemented in primary care is timely given the recent national movement towards transforming primary care into patient-centred medical homes (PCMH). This study examined practice members' perceptions of the opportunities and challenges associated with implementing changes in their practice.

Methods Semi-structured interviews were conducted with a sample of 56 individuals working in 16 small, community based primary care practices. The interviews consisted of open-ended questions focused on participants' perceptions of: (1) practice vision, (2) perceived need for practice improvement and (3) barriers that hinder practice improvement.

The interviews were conducted at the participating clinics and were tape-recorded, transcribed, and content analysed.

Results Content analysis identified two main domains for practice improvement related to: (1) the process of care, and (2) patients' involvement in their disease management. Examples of desired process of care changes included improvement in patient tracking and follow-up, standardisation of processes of care and overall clinic documentation. Changes related to patients' involvement in their care included improving (a) health education, and (b) self-care management. Among the internal barriers were: staff readiness for change, poor communication and relationship difficulties among team members. External barriers were insurance regulations, finances and patient health literacy.

Conclusions Transforming practices to more patient-centred models of care will be a priority for primary care providers. Identifying opportunities and challenges associated with implementing change is critical for successful improvement programmes. Successful strategies for enhancing the adoption and uptake of PCMH elements should leverage areas of concordance between practice members' perceived needs and planned improvement efforts.

Keywords: barriers to change, patient-centred medical home, primary care, qualitative analysis, quality improvement

How this fits in with quality in primary care

What do we know?

Implementing improvement programmes in primary care clinics is complex. There has been a national trend towards developing the concept of the patient-centred medical home (PCMH) in primary care.

What does this paper add?

This study examined practice members' perceptions of the opportunities and challenges associated with implementing changes in their practice. The main domains for practice improvement included processes of care such as patient tracking and follow-up, standardisation and documentation; and patient involvement in their disease management, including health education and self-care. Barriers to improvement included internal barriers, such as staff readiness for change, poor communication and relationship difficulties among team members or external barriers, including insurance regulations, patient finances and patient health literacy.

Introduction

'Change is not made without inconvenience, even from worse to better.'

Richard Hooker, 1554–1600

Practice improvement or redesign refers to intentional efforts to improve practice processes and outcomes.[1] Implementing such transformation within primary care settings is complex, in spite of the availability of clear practical guidance to help small clinical practices during the process.[2] For example, the Improving Chronic Illness Care programme has developed and validated tools to help primary care offices redesign care for chronic illness (www.improvingchroniccare. org). However, a critical gap continues to exist in the uptake and adoption of best practice and evidence-based medicine.[3] To address this gap, several studies have been conducted across a broad range of settings to conceptualise improvement in primary care practice.[4–9] Findings from these studies suggest that the guiding principles for sustainable change include a clear understanding of practices' vision and mission, opportunities for enhanced learning and reflection and diverse perspectives among team members to foster adaptability and uptake.

Cohen *et al*[10] highlighted the potential role of several complex interactions of internal and external factors on implementing improvement strategies. They identified practice characteristics such as the individual and aggregate motivations of practice members, the resources that members recognise within and outside the practice, the external forces that shape improvement options and practice members' perceptions of opportunities for improvement. Similarly, other studies suggest that transforming primary care practice depends on a number of factors including time, financial support, payment reform, health policy support and physician support.[11,12] These factors are all highly interconnected and affect a practice's ability to implement suitable and sustainable improvement.[13]

Understanding the process of practice improvement is especially important with the recent national efforts to implement the patient-centered medical home (PCMH).[14] The PCMH model is a patient-driven, team-based approach that delivers efficient, comprehensive and continuous care through active communication and coordination of healthcare services (Table 1)[11–15]. Studies on the implementation and uptake of the PCMH model in primary care setting are limited. Emerging evidence suggests that larger organisation size is associated with a greater presence of PCMH features, but even among large groups, adoption of core PCMH features is low.[14,16] To close the gap in our understanding of how primary care clinics implement efforts at redesign, it is important to examine and understand contextual factors that influence the implementation of new procedures in real world settings.[6,17] Exploring these factors further and testing their association with changes in healthcare delivery

Table 1 Core features of the patient-centred medical home (PCMH)

Core features	Definition
Coordinated care	Care that is facilitated through information exchange across the healthcare system
Enhanced access	Care that is available via expanded hours and open communication between healthcare employees and patients
Payment reform	A payment structure that supports coordination of care, use and implementation of new technologies, and enhanced access
Personal physician	Individualised, continuous and comprehensive patient care emphasised and overseen via a personal physician
Physician-led team	Physician-led medical teams that collectively take responsibility for caring for patients
Quality and safety	Partnerships between physicians and patients that include active patient decision making, self-care management, evidence-based medicine and quality improvement activities
Whole-person orientation	Care overseen by a personal physician and coordinates acute care, chronic care, preventative services and end-of-life care

will provide insights that foster implementation of new models of primary care.

Primary care practices are clinical microsystems, or small organised units with a specific clinical purpose, set of patients, technologies and practitioners who work directly with patients. Clinical microsystems are themselves complex adaptive systems (CAS), comprised of individuals who learn, interrelate and self-organise to complete tasks. They also co-evolve with their environment, responding to internal and external forces in ways that in turn reshape their external environment. A CAS is characterised by non-linear interactions that lead to outputs, or 'emergent' properties, that are not totally expected.[18–21] In this study, we approach understanding primary care clinic re-design from a CAS approach.

Conceptualising improvement in primary care using CAS theory has important implications. A CAS perspective emphasises the importance of context and organisational history, as each clinical microsystem has experienced a unique trajectory of development and organisation within its environment. Recognising this context and environment has important implications for success.[22] Additionally, the CAS framework stresses the importance of non-linear relationships and interdependencies among practice members which can either enhance or inhibit sense-making and learning as members of the practice team attempt to implement change.[23,24] Thus, the ability of practices to improve will be greatly influenced by the relationships among individuals in the clinic.[20] By focusing on multiple interactions, history and context rather than

on single cause–effect mechanisms, a CAS approach to practice redesign supports development of tailored interventions. Identifying essential functional tasks or processes and monitoring their implementation offers a means of assessing intervention fidelity, recreating programmes successfully in other settings and understanding conditions under which positive deviance or desirable variation arises.[21]

In this paper, we report practice members' perception of opportunities and challenges to implementing improvement strategies derived from a study to improve care delivery and chronic disease outcomes in small autonomous primary care practices. Using the CAS framework, we focus on issues related to context and relationships, and their potential influence on practice improvement efforts. This work is timely given the recent national trend towards transforming primary care practices closer to a medical home model which will require significant practice improvement.

Methods

Participants in this study were staff and clinicians working in small autonomous primary care clinics. All participants were enrolled in a group randomised study of primary care practices (Internal Medicine and Family Medicine) in San Antonio and the surrounding areas. The study design and background have been previously reported.[25] Briefly, the ABC study was a randomised trial with a delayed intervention group

whose aim was to improve outcomes of diabetes care. The approach employed was to use CAS principles to help practices better implement elements of the chronic care model (CCM), using a practice facilitator who functioned as an external facilitator to assist practices with change efforts.

As part of the baseline evaluation of each clinic before the facilitation intervention, we conducted direct observations at the participating clinics and semi-structured interviews with the clinic providers and staff. The Practice Observations Form was used to notate information on (1) clinic location/environment (e.g. physical address, office setting, space) and (2) office operations (e.g. computer use, billing and medical records). Semi-structured interviews elicited clinic members' perceptions of their practice vision and the kinds of changes they would like to make to improve the quality of care for patients with chronic diseases (e.g. diabetes) during the study.

Semi-structured interview development

A panel of experts in practice improvement and health services research created a series of open-ended questions regarding practice improvement. The initial questions were guided by concepts derived from a CAS approach and included a special focus on practice members' communication, relationships and learning. This panel consisted of professionals with multidisciplinary experience including an anthropologist, a health service scientist, a psychologist, family physicians and a statistician. The revised questions were pretested with practice members (n=5) working in three different clinics in order to evaluate the questions for clarity and to identify any additional themes not addressed by the initial questions. These themes were then used to develop additional questions and finalise the guide for the semi-structured interview.

Semi-structured interview administration

All clinic members (n=56) working in 16 clinics were invited to participate in the semi-structured interviews. No specific criteria were employed for selecting individuals for interviews. The goal of the interviews was to elicit a variety of responses about members' perception of opportunities and challenges for improvement. Interview participants included both clinical and administrative staff to provide different perspectives, prevent sampling bias and identify possible discordance. An interview with at least one physician, one back office staff member and one front office staff member was included for each clinic. The semi-structured interviews elicited information on practice

setting, leadership and practice characteristics. The interview consisted of open-ended questions that focused on three main domains. These domains included practice members' perception of: (1) practice vision, (2) needs for practice improvement and (3) barriers that hindered practice improvement (see Table 1 for PCMH definitions). Some selected examples of the open-ended questions are presented in Table 2.

The semi-structured interviews lasted for about one hour and were all conducted by a person experienced in qualitative techniques in order to avoid leading questions and biased answers. The semi-structured interviews were conducted at the clinics where participants worked, and were tape-recorded, transcribed and content analysed. Considerable flexibility during the interviews allowed participants to discuss issues that were most important to them. We used the software NVIVO to perform the content analysis. The Institutional Review Board at the University of Texas Health Science Center at San Antonio approved the study protocol. All participants signed a copy of the informed consent form.

Data analysis

Content analysis was performed on the transcriptions of the semi-structured interviews. Based on participants' responses regarding practice improvement, we constructed and defined a series of temporary categories and established a filing and retrieval system for these categories. An integrated approach[26,27] to qualitative data analysis was used that incorporated both inductive and deductive codes. Initial deductive codes were developed using empiric sources from the literature about practice improvement and CAS approach. Examples of these codes are practice members' relationship and communication and the interdependencies among members in the practice. Inductive codes were based on responses (free or semi-guided) provided by participants during the semi-structured interviews. Examples of these codes are internal and external barriers to improvement and patients' health education.

Content analysis was conducted in three steps. First, for each subject, we built an initial matrix that consisted of cells presenting staff and providers' responses extracted from the interviews. The text of these cells was either direct quotation or summation of responses. Second, we examined the initial matrices in order to identify patterns across the 56 cases. Patterns recognised in this analysis formed the basis of additional categorisation to construct higher-level matrices. These higher-level matrices were summarised into tables representing participants' responses. All matrices were checked and evaluated to assure consistency in

Table 2 Selected example of open-ended questions related to practice change

Theme	Open-ended question
Practice vision/goals	What are this clinic's goals, values or mission? How does this clinic differ from other clinics you've worked in previously? How the clinic staff (i.e. physicians, nurse practitioners or physician assistants, medical assistants, receptionists) share this vision, what do they do to achieve clinic's goals?
Needs assessment at the clinics	How do you assess your clinic's needs for change? What have you as a clinic tried to change in the past? Was it successful? Why or why not? Can you tell me about a recent change in this clinic such as hiring a new staff member, changing your medical records in some way or the patient appointment system or staff responsibilities?
Changes hope to make	Are there any changes that you have thought about or that you and the staff have met about that might improve the health of your patients, why? Do you have any idea on how this will happen or who will make it happen?
Facilitators to practice change	Probe: How did the clinic deal with this event/these events? Did the ways in which staff related to each other/interact with each other change? If so, how did they change? How did staff in the practice figure out how to handle the new situation? What happened afterwards? What facilitated your changes?
Barriers to practice change	Changing the way a clinic like this operates is often difficult. Probe: Are there specific internal barriers to changes that effect how patients are seen in this clinic (i.e. specific factors with the physicians or clinicians that make change difficult or specific factors with the clinic staff that make change difficult)? Are there external barriers that make change difficult (i.e. regulations, insurance, hospital system, other clinic)?

coding and classification procedures. The analysis was primarily conducted by one researcher, experienced in qualitative methods, while another researcher independently examined 50% of the materials (e.g. transcripts, initial matrices) to confirm the integrity of the emerging themes and concepts. Inter-coder reliability was assured through a coding comparison method by another research staff member. Once development of the coding tree was advanced, the researchers and the assistants involved in this project recoded 20% of the transcribed materials selected at random. Agreement was acceptable (Kappa coefficients=0.75). An iterative process was used in the analysis to revise and refine all emerged patterns regarding practice improvement. The presentation of qualitative results and themes from interviews is reflected in terms of frequency and percentage. We used this approach not to generalise our findings but to reflect the occurrence of the identified themes across cases.

Results

Overall description of the clinics

Sixteen clinics who participated in the ABC Intervention Study were included in this analysis. These were small clinics with one to three physicians and from zero to three physician assistants or nurse practitioners. The mean total number of staff and clinicians across all clinics was 7.2. A total of 56 (3–4 per clinic) individuals were interviewed, including physicians (n=16) and nurses and staff members (n=40). The majority (11.7%) of the enrolled clinics were located in a commercial/medical setting in San Antonio, Texas. Ten clinics (62%) used software to organise patient scheduling, while six clinics (38%) used handwritten paper-based files and 57% of clinics used an electronic medical record (EMR). About 14 (88%) of the participating clinics handled patient enquiries through front office staff and all clinics had an answering machine to record messages. Most of the clinics (15, 9%) allowed walk-in patient scheduling (Table 3).

Table 3 Practice characteristics

Practice characteristics	Frequency	Percent
Size		
Primary care physicians	16	17
Nurses, medical assistants	37	40
Managers, receptionists	41	43
Urban	12	75
Suburban	2	12.5
Rural/outside SA	2	12.5
Numbers of interviewees participating		
Primary care physicians	16	28
Nurses/medical assistants	25	44
Managers, receptionists	15	28
Used computer/software to organise patient scheduling	10	62
Use handwritten, paper-based files to organise patient scheduling	6	38
Used electronic medical record (EMR)		
Yes	9	57
No	7	43
Patients' walk-in		
Yes	15	94
No	1	06

Opportunities and challenges associated with implementing practice improvement

In the following section, we report on our findings regarding practice members' perceptions of opportunities and challenges associated with implementing practice improvement. The findings describe practice members' responses to their practice vision, perceived needs and barriers to practice improvement.

Clinic vision

In general, staff and providers described the office setting as a 'family' like environment. A total of 43 individuals of the 56 provided information about their perception of their clinic's practice vision representing the final analytical study sample (see Table 4). All respondents who commented on their practice vision indicated that the clinic staff and providers shared a similar vision of what was important to their practice. The majority (36.8%) from 14 clinics reported that patient care and patient satisfaction were central components or features of their main vision. One nurse indicated:

'Patients come first. That's all there is to it.'

while another physician similarly stated:

'The most important thing is improving patient care. That is the bottom line.'

While in general most respondents described their office setting as a 'family' like environment, six individuals (11%) from five clinics specifically expressed that this concept and patient care/satisfaction was central to their practice vision. Only one person indicated that the most important goal of the practice was making money.

Perceived needs for practice improvement

Staff and clinicians (*n*=38) reflected on areas for potential improvement in their clinic. Content analysis identified two main domains: (1) improvements related to the process of care and (2) improvements related to patients' involvement in their care (Table 4). The most common suggestion pertaining to the process of care was improvements in patient tracking/follow-up systems (6, 16%). Several individuals mentioned improvements in standardising processes of care and reducing waiting times for patients in the clinic (5, 12%), along with comments regarding improving referral processes (1, 3%), responding to

Table 4 Staff and providers' responses to practice vision (*n*=16 clinics)

	Individuals	
	Frequency	Percent
Practice vision (*n*=43)		
Patient care/satisfaction	36	84
Patient care and family environment	6	14
Making money	1	2
Totals	43	100
Change hope to make: (*n=38*)		
Processes of care domain		
Patient tracking/follow up	6	16
Standardisation/waiting time	5	12
Referral	1	3
Patient complaints	1	3
Documentation	1	3
Patients' domain		
Education	11	29
Self-care management	9	24
Adherence to medication	2	7
Family involvement	1	3
Totals	38	100

patient complaints (1, 3%) and improving overall clinic documentation (1, 3%). One physician stated:

'Something about the flow of patients and the waiting time, how they feel about that. What things are you going to track down to prove at the end that whatever recommendations we need, right. So it's something at the end we can look at it and find it productive, not only for the study but for myself.'

Desired improvements related to the patients' domain most noticeably included recognising challenges pertaining to improvement in patient health education and activation around self-care activities (11, 29%). One nurse said:

'Like for the newly diagnosed diabetics. We send them over to a class at Methodist (Hospital). I don't have time. That's like a job in itself. You need a teaching nurse for that.'

Other improvements were related to improve patients' self-care management (9, 24%). A physician commented:

'I think a lot of diabetics are in denial. As long as they stay off insulin, they don't think taking care of the other factors, like their diet, staying compliant with their meds, or exercising is all that important. So they just let things slide.'

Participants also perceived a need to improve patients' adherence to medication (3, 7%), one medical assistant said:

'And it's like I can't be doing that. When I ask you to come in, I need you to come in; when I ask you to take certain insulin or a certain pill I need you to do that.'

Only one person (3%) perceived a need to engage family members in patients' disease management (1, 3%).

Staff and clinicians reflected on how their practices identified needs (or priorities for improvement), how improvement plans were implemented and how staff responded to improvement within their respective clinic. More than half of participants (32, 57%) from 11 clinics stated that staff members were expected to identify problems and implement improvement by working together as a group to find a common solution. One physician stated:

'The move over here was really as painless as a move such as ours could be and it was all because of my fantastic staff and how they volunteered their time to work on the weekend to get the move done.'

Fifteen (27%) of the respondents from six clinics stated that improvement is assessed and supervised by management. A medical transcriptionist reported

on how improvement is overseen by management, she stated:

'Dr X is working to get paper chart information completely into the electronic database ... but we're still waiting.'

Only nine (16%) individuals from 11 clinics stated that improvements were assessed and implemented in a silo with no coordination. For example, a receptionist in clinic C described how her new management is not effective in organising processes related to work flow, she stated:

'like with their times (old manager), one of us would open and one of us would close. The next week we rotate, whoever was closing that week, would open the next week, so we'd switch like that. With him, we're just like all over the place. No order.'

When asked about prior experiences with change efforts in the clinic, 36 of all 56 participants (64%) from 15 clinics stated that their response to improvement was positive. However, nine (17%) from four clinics stated that their response was neutral while 11 individuals (19%) from six clinics perceived that their response to improvement was negative.

Barriers to improvement

Of the 40 participants who identified internal barriers to implementing improvement in their clinic, 15 individuals (38%) from nine clinics noted differences among the staff in their clinic in accepting improvement (see Table 5). For example, a medical assistant stated:

'you know she likes things done a certain way, and that will you know and improvement means that you have to work on another way of doing it and you have to be comfortable with that ... some people aren't comfortable even if it's at the right way.'

Another internal barrier stated by 13 (32%) individuals in seven clinics was personality clashes and lack of relationships among team members. One receptionist said:

'When it's a new person coming in and they don't know our personalities and we really don't know their personalities, there are a lot of people that can't take it.'

A third internal barrier identified by three individuals (8%) in three clinics was lack of relationship. One nurse said:

Table 5 Participants' perception on change in the clinic (*n*=16 clinics)

	Frequency	Percent
Identifying/implementing problems (*n*=56)		
Staff members identify/implement change by working together	32	57
Change overseen by management	15	16
Silo	9	16
Total	56	
Response (*n*=56)		
Positive	36	64.2
Neutral	9	16.6
Negative	11	19.2
Total	56	
Internal barriers to change (*n*=40)		
Resist changes	15	37.5
Differences in staff readiness to change	13	32
Space	5	12.5
Power struggles	4	10.5
Lack of relationship/communication	3	7.5
Total	40	
External barriers to change (*n*=39)		
Insurance	17	44
Finances	14	36
Lack of patient education	8	20
Total	39	

'Yeah, some people get along very well and they can work better than others. I mean we have even staff – there's some staff in other offices that (x) cannot stand, cannot work together with. She doesn't tell me that, but I can tell.'

Additional internal barriers included power struggles (4, 11%) among clinic members. One nurse indicated:

'He has this really male chauvinist attitude ... and he still wants to have the majority of the control (of the practice) over (the owners).'

Lack of space was also mentioned as a barrier among some clinic members (5, 13%) from three clinics.

Additionally, nearly all of the staff and clinician respondents ($n=39$) identified several specific external barriers to improvement. Nearly half (17, 44%) from ten clinics stated that insurance regulations represent the main external barrier to improvement, while 14 (36%) from four clinics stated that finances were also important. Eight (20%) from nine clinics also perceived patient flow and education as significant external barriers to improvement (Table 5). An overall summary of the categories and major themes identified in this study is provided in Table 6.

Discussion

Understanding clinic member perceptions about the factors that might influence improvement efforts in primary care practice is essential for successful practice redesign to improve quality of care.[1] In fact, implementing practice redesign starts with a clear and shared vision among practice members to deliver the best care for their patients. Practice vision can become a motivating force behind practice improve-

ment attempts.[7] In our study, the majority of members identified a clear and shared vision for their practice in alignment with the PCMH. In addition, staff and providers identified several opportunities and challenges associated with implementing necessary and clinically beneficial improvement strategies in their practice (Figure 1). Some members reported the need for improvements in coordination of care, such as improvement in patients' referral processes. Others identified need for improvement in patient tracking (e.g. follow-up system), waiting times for patients in the clinic and handling patient complaints. Interestingly, these perceived needs correspond with several important elements of the PCMH and care provided via elements of the CCM, specifically in the domain related to improving processes of care (e.g. improvement in patient tracking) to deliver efficient, comprehensive and continuous care through active communication and coordination of healthcare services.[11,15] These synergetic findings between practice's members perceived needs for improvement and some elements of the PCMH may enhance practice members uptake and implementation of the PCMH (Figure 1). For example, work by Cohen and colleagues[10] demonstrated that interventions based on a clear understanding of staff perceptions of opportunities for practice improvement can facilitate changes that result in quality improvements within primary care practices.

To facilitate practice change, the CAS framework highlights the needs for local adaptation of processes to suit the needs of the practice members involved.[19] Any successful strategies for improvement should identify, map and leverage areas of concordance between practice members' perceived needs and the planned interventions (e.g. PCMH). A tailored approach to practice improvement will not only allow meaningful

Table 6 Commonly emerged themes regarding practice change

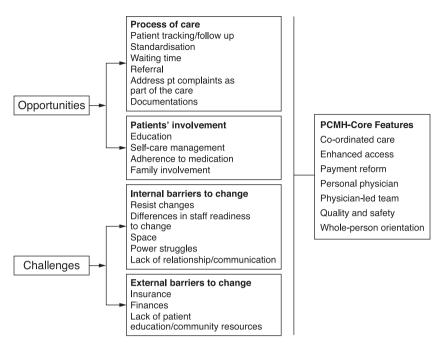|	Common themes
Practice vision	Patient care/satisfaction Patient care and family environment
Changes that clinic members hope to make	Processes of care domain: patient tracking/follow up, Standardisation/waiting time Referral/patient complaints, documentation Patients domain: education, self-care management, adherence to medication, family involvement
Barriers to change	Internal barriers to change: resist changes Differences in staff readiness to change, space, power struggles Lack of relationship/communication External barriers to change: insurance, finances, lack of patient education

Figure 1 Opportunities and challenges associated with practice improvement contrasted by key principles of the patient-centred medical home model

improvement but will also overcome barriers and ultimately lead to sustainable interventions.[9] Our findings on opportunities for practice improvement are timely, given the recent national movement towards transforming the primary care environment into settings more reflective of the PCMH model in order to improve healthcare delivery and quality of care.

Our findings identified several perceived internal and external barriers to implementing improvements in practice (Figure 1). Likewise, other studies highlighted the potential role of the interactions of internal and external factors on implementing improvement. For example, Cohen *et al*[10] identified practice characteristics such as the individual and aggregated motivation of practice members; the resources that members recognised within and outside the practice; the external forces that shaped improvement options; and practice members' perception of opportunities for improvement. In this study, external barriers were linked to insurance regulations, finances (return on investment) and adequate resources for patient health education and activation around self-care activities. In the same way, other researchers have suggested that transforming primary care practices depends upon a number of factors including time, financial support, payment reform, health policy support and physician support.[11,12] These factors are all highly interconnected and affect a practice's ability to implement suitable and sustainable improvement.[13] Therefore, it is important not only to identify these factors but also examine their interconnectivity and dependency.

Participants in our study recognised poor relationships and communication among team members as major internal barriers to implementing improvement. From a CAS perspective this is critical because sense-making and learning that leads to successful practice improvement activities are emergent properties of the relationship infrastructure within the clinic.[20,24] Investing in collaborative team development of clinicians and staff should enable the practice to be more adaptive and successful as it undertakes and attempts to sustain improvement efforts. There is also some evidence that leadership can enhance the success of practice improvement efforts by creating an environment that fosters trust and allows practice members to feel safe to speak up when they engage in problem-solving activities.[28]

Our findings illustrated variations in practice teams' perceptions of opportunities and challenges regarding improvement in their practices. This observation stresses the uniqueness of each practice and suggests that 'one size does not fit all'. As primary care practices tend to adopt some or all features of the PCMH, we expect that practices will implement elements that fit their practice's needs and will address barriers to implementation. It is interesting to note that similar barriers to change have been reported in primary care clinics in Canada[29] and New Zealand.[30] On 4 April 2011 the Agency for Health Care and Quality hosted a small conference on international lessons in primary care system design and development. Leading thinkers, researchers and implementers from Australia, Canada, Denmark, the Netherlands, New Zealand and the UK

joined a delegation from the USA to discuss models of care, system and community infrastructure, quality and safety, process of health system change and sustainability and financing and incentives (www.ahrq.gov/research/intlprimconf.htm).

The development of Canadian primary care has been shaped by a series of policy legacies that continue to affect the possibilities for change in primary care through their cumulative effects on the healthcare system. Hutchison and colleagues[29] noted the need to identify and select key performance measures for quality improvement in Canadian primary health care. Similarly, the implications of primary healthcare reform are significant for primary care in New Zealand. In facing these challenges, policy makers are calling for greater integration and collaboration, a shift from product to patient-centred medical care; a greater population health focus and the provision of enhanced cognitive services.

Recent evidence from the national TransforMed demonstration project has indicated initial positive results in terms of PCMH implementation success and quality improvements efforts.[31–34] A successful strategy for enhancing the adoption and uptake of PCMH elements should leverage areas of concordance between practice members' perceived needs and planned interventions. However, the real challenge is whether practices can sustain quality improvements efforts within a dynamic, co-evolving healthcare system.

Conclusion

Overall, several themes related to opportunities for implementing practice improvement strategies based on practice members' perceptions emerged. These opportunities include improvements in the process of care and patients' involvement in their disease management. Additionally, our findings suggest that both internal and external barriers may hinder practice improvement efforts. Leveraging these opportunities and addressing these challenges will be important for successful PCMH implementation strategies and the new healthcare reform measures.

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