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Implementation of Practice Transformation: Patient Experience According to Practice Leaders

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Objective: Examine practice leaders' perceptions and experiences of how patient-centered medical home (PCMH) transformation improves patient experience. **Subjects:** Thirty-six interviews with lead physicians (n = 13), site clinic administrators (n = 13), and nurse supervisors (n = 10). **Methods:** Semi-structured interviews at 14 primary care practices within a large urban Federally Qualified Health Center (FQHC) delivery system to identify critical patient experience domains and mechanisms of change. Identified patient experience domains were compared with Consumer Assessment of Healthcare Providers and Systems (CAHPS) items. **Results:** We identified 28 patient experience domains improved by PCMH transformation, of which 22 are measured by CAHPS, and identified 24 mechanisms of change commonly reported by practice leaders during PCMH transformation. **Conclusions:** PCMH practice transformation can improve patient experience. Most patient experience domains reported as improved during PCMH efforts are measured by CAHPS items. Practices would benefit from collecting specific information on staff behaviors related to teamwork, team-based communication, scheduling, emergency and inpatient follow-up, and referrals. All 3 types of practice leaders reported 4 main mechanisms of PCMH change that improved patient experience. Our findings provide guidance for practice leaders on which strategies of PCMH practice transformation lead to specific improvements in patient experience measures. Further research is needed on the relationship between PCMH changes and changes in CAHPS patient experience scores.

Key words: CAHPS, patient experience, PCMH, performance improvement

The patient-centered medical home (PCMH) has the potential to contain costs and improve quality and patient outcomes in primary care practices.[1-3] PCMH demonstration projects have been funded through the Patient Protection and Affordable Care Act, and PCMH implementation has been evaluated in various settings.[4-8] A comprehensive PCMH primarily involves (1) delivery of coordinated, holistic care, centered on patient needs; (2) emphasis on clinician-patient relationships; (3) team-based care; and (4) use of information technology to manage and deliver care. (For NCQA PCMH requirements for 2014 refer to http://www.ncqa.org/Programs/Recognition/Practices/PatientCenteredMedicalHomePCMH.aspx;

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PCMH transformation has additional requirements that are non-NCQA.)

PCMH implementation requires a comprehensive change in clinical care organization, management, and delivery[9-12] that is assumed to improve patient experience.[13-16] PCMH recognition is only the beginning of a continuous improvement process to become patient centered, as full PCMH transformation takes time and effort and often relies on a sequential approach, with an early focus on foundational changes that include use of a robust quality improvement (QI) strategy before changes to delivery of and access to care.[17] PCMH implementation has been found to result in positive changes in patient-physician communication,[15,18] scheduling appointments and choice of providers,[16] care coordination, and access to specialty care.[13] However, little is known about the perceptions of practice leaders about the impact of PCMH transformation on patients' care experiences.

This article examines a multisite Federally Qualified Health Center (FQHC) delivery system in a large metropolitan area and its corporate-wide effort to transform into a PCMH. It explores how practice leaders perceived and experienced changes in care related to PCMH transformation.

BACKGROUND

PCMH aims to shift primary care toward a whole-person approach with patients and their families involved in a care plan and to enhance provider understanding about and respect for their patients' cultural preferences, values, and linguistic needs. This interaction between providers and patients may reduce

patient anxiety and improve patient well-being and adherence to care.[19]

To ascertain patients' experience of care, practices may collect patient experience survey data such as Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey items.[20-22] CAHPS surveys have standardized core questions allowing comparability across users and standardized reporting and benchmarking. CAHPS surveys also can include supplemental items added by users. Tracking patient experience data can provide practice leaders with important information about provider performance and identify areas for improvement.[22]

Providers' perspectives on how PCMH transformation efforts influence their patients' experiences are informative. Yet, these perspectives have been rarely explored. Fontaine et al[23] observed that most of the practice leaders they interviewed credited PCMH with improvements in patient experience, clinic care processes, and their job satisfaction, but no literature has explored what leaders think led to these improvements.

We examined how practice leaders perceive PCMH improving patient experience and elicited their opinions about the mechanism of change. We identify and describe *what* aspects of patient experience improved because of PCMH efforts; *how* these aspects are measured; and *how* improvement in patient experience domains occurred.

METHODS

We used semi-structured interviews to elicit in-depth perspectives on how PCMH transformation influences patient experience.

Setting
The study was conducted in a large, multisite FQHC with 26 practices employing more than 100 providers and receiving nearly 1 million patient visits annually. Four years prior to the study, the FQHC's chief medical officer introduced 2 improvement initiatives: implementing a quality monitoring and feedback system (including CG-CAHPS patient experience surveys, as a component of interpersonal quality) and transforming the 14 primary care practices into PCMHs.

Quality monitoring system
The quality monitoring system marked a shift from focusing on volume (eg, patients seen) to quality performance. In June 2012, the FQHC adopted the CG-CAHPS visit survey 2.0[24,25] with several supplemental questions, administering it to random samples selected on an ongoing basis.

Accountability was based on quarterly and annual goals and targets, largely determined by national benchmarks.

PCMH transformation program
All 14 primary care sites attained NCQA's PCMH level 3 recognition in 2012 (as based on the 2011 standards).

Each site prepared its application separately, but the corporate staff managed the submission process. (Refer to Table 1 for practice site characteristics.)

Design
Our convenience sample included the 3 main practice leaders in the 14 primary care sites within the FQHC, comprising 13 medical directors (MDs), 10 nursing supervisors (NSs), and 13 site clinic administrators (SCAs) (excluding 6 MD, NS or SCA positions that were vacant at the time of the interviews). We conducted semi-structured individual interviews in October-November 2014, using different protocols for each type of practice leader. We first asked participants about their understanding of the PCMH model and then about their experiences with implementing PCMH at their practice, how they monitor and collect data, and lessons learned.

Interviews were conducted by phone, recorded, and transcribed verbatim. We provided a $50 honorarium to nonphysicians and $100 to physicians. Each interview lasted approximately 50 minutes. We also conducted follow-up phone interviews lasting 10 to 20 minutes with site clinic administrators and lead physicians in July and August 2015, confirming changes made at the site since 2011, verifying their dates and sequence, and, in some cases, reconfirming their rationale.

Analysis
We entered transcripts into Atlas.ti, a software package for organizing, coding, and managing qualitative data. Three researchers conducted content analysis of the transcripts, with at least 2 reviewing and coding each transcript. We developed a code structure using systematic, inductive procedures to generate insights from participant responses[26] using grounded theory to develop themes that emerged from responses to the open-ended questions.[27,28] We coded early transcripts independently, noting topics and PCMH changes. Content, categories, and emerging themes were identified, and team meetings explored the data to reach consensus on topics, identify discrepancies, refine concepts, and define codes for analysis.[29] Coders suggested new codes for the codebook; the full analysis team discussed codebook changes and resolved discrepancies by consensus. The first round of coding was done on a random sample of 4 transcripts. One person (A.I.P.) created code definitions and coded the transcripts. A total of 210 instances of coding resulted from 4 transcripts. Then, the code list was provided to a second coder (D.D.Q.) and she independently coded the transcripts, adding new codes as necessary. Agreement between the 2 coders for the final 383 instances of coding was 55%, with a κ of 0.62. After reconciliation, coding was done on the remaining 32 transcripts, with κ of 0.83. We used immersion analysis to understand and identify the mechanisms of changes.[30-32] We mapped the coded list of patient experience changes to the content of the CG-CAHPS core survey (version 2.0), CAHPS PCMH items (version 2.0), and CAHPS supplemental items. We then analyzed the reported PCMH changes and

Table 1. Practice Site Characteristics[a]

	Clinic			Services		
Letter ID	County	Staff Interviewed	PCMH Score	Pharmacy on Site	Urgent Care	Extended Hours
A	LA	MD, SCA	89.75	No	No	Yes
B	LA	MD, SCA, NS	90.75	Yes	No	No
C	LA	MD, SCA, NS	90.75	Yes	No	Yes
D	LA	MD, SCA, NS	87.00	Yes	Yes	Yes
E	Orange	MD, SCA, NS	90.75	Yes	Yes	Yes
F	Orange	MD, SCA, NS	89.75	No	No	Yes
G	Orange	MD, SCA	88.75	No	No	Yes
H	Orange	MD, NS	88.75	No	No	No
I	LA	MD, SCA, NS	87.75	No	Yes	No
J	LA	MD, SCA, NS	88.75	No	Yes	Yes
K	LA	SCA	Missing	Yes	No	No
L	LA	MD, SCA, NS	89.75	No	No	No
M	Orange	MD, SCA, NS	Missing	No	No	Yes
N	Orange	MD, SCA	90.75	Yes	Yes	Yes

Abbreviations: LA, Los Angeles; MD, lead physician who is the medical director at the site; NS, nurse supervisor; Orange, Orange County; PCMH, patient-centered medical home; SCA, site clinic administrator.

[a]PCMH score is the score a site receives from NCQA during the PCMH recognition process. There are 3 levels of NCQA PCMH recognition; each level reflects the degree to which a practice meets the requirements of the elements and factors that compose the standards. For each element's requirements, NCQA provides examples and requires specific documentation. The NCQA recognition levels allow practices with a range of capabilities and sophistication to meet the standards' requirements successfully. The point allocation for the 3 levels is as follows: level 1: 35-59 points and all 6 must-pass elements; level 2: 60-84 points and all 6 must-pass elements; and level 3: 85-100 points and all 6 must-pass elements. The scoring summary for the 2011 PCMH standards can be found at: http://www.ncqa.org/portals/0/programs/recognition/PCMH_2011_Scoring_Summary.pdf. The observed range across sites was 87.00-90.75, with a median of 89.75. Missing indicates the data were not provided for this site location.

mechanisms for co-occurrence and common themes. The project was approved by RAND Corporation's institutional review board (IRB approval no. FWA00003425). This work was supported by a cooperative agreement from the Agency for Healthcare Research and Quality (contract no. U18 HS016980).

RESULTS

Table 2 shows patient characteristics by site. Table 3 reports aspects of patient experience that practice leaders said improved during PCMH transformation. It also lists the 28 patient experience areas that most of the practice leaders felt PCMH transformation improved, organized by best source for that information and by the clinical role of respondents. Thirteen of these patient experience domains are measured by CG-CAHPS data, 8 are measured by CAHPS PCMH items, 1 is measured by a CAHPS supplemental item, and 6 are not measured by CAHPS. Definitions of codes for patient experience domains by how they are measured are provided in Table A.1 as Supplemental Digital Content (available at: http://links.lww.com/QMH/A6).

Patient experience areas measured by CG-CAHPS
Most MDs, NSs, and SCAs indicated 2 patient experience areas influenced or improved by PCMH efforts at 12 sites: answer phone inquiries on the same day and access to routine care (see footnote b in

Table 3). MDs across all sites noted that PCMH influences provider knowledge of patients' medical history, a core CAHPS item.

Most MDs and NSs said that PCMH changes led to clerks and receptionists being more helpful, courteous, and respectful at 9 and 10 sites, respectively. Most NSs and SCAs said PCMH efforts improved access to urgent care (9 sites), easy-to-understand provider communication (12 sites), and answering phone enquiries the same day (12 sites). Most NSs at 9 sites also said that PCMH implementation improved follow-up on test results, provider time with patient, and providers listening carefully. Most SCAs at 11 sites talked about 2 other experience domains: continuity of care and overall rating of the provider.

Patient experience areas measured by CAHPS PCMH items
Leaders also noted improvements in several areas measured by CAHPS PCMH items (see https://www.ahrq.gov/cahps/surveys-guidance/item-sets/PCMH/index.html for more on these items). Majorities of MDs, NSs, and SCAs at all sites said that PCMH improved care management (see footnote b in Table 3). Most NSs and SCAs at 9 sites also suggested improvements in holistic care, discussion and management of medications, and access to health education. Most NSs also mentioned improvements in hours of operation (7 sites) and health management support

Table 2. Practice Site Patient Characteristics[a]

Clinic, Letter ID	Patient Characteristics				
	Total Unique Patients	Adult Patients	Pediatric Patients	% Latino	% Second Most Common Race
A	9 000	7 500	1 500	90	Mix
B	9 000	DK	DK	90	Mix
C	16 000	DK	DK	90	Mix
D	15 000	7 500	7 500	80	White—10
E	10 465	6 845	3 620	70	White—15
F	8 000	DK	DK	45	White—25
G	2 950	1 450	1 500	95	Mix
H	Missing	Missing	Missing	Missing	Missing
I	10 000	8 500	1 500	80	Filipino—12
J	16 000	12 000	4 000	85	White—10
K	8 436	DK	DK	65	Asian—10
L	3 000	DK	DK	90	Mix
M	11 500	9 000	2 500	98	Mix
N	12 000	6 200	5 800	75	Asian—10
Median	10 000	. . .	. . .	85%	

[a]Mix refers to a mix of Asian, African American, whites, and other without specific percentages known. DK indicates that the interviewee did not know the answer. Missing indicates the data are missing because an interview was not conducted to ask these questions.

(9 sites) resulting from PCMH. The majority of SCAs (9 sites) noted improvements in shared decision-making.

Patient experience areas measured by CAHPS supplemental items
Beyond the aforementioned items, one supplemental CAHPS item assesses greater access to specialty services. Most NSs at 10 sites identified improvement in this area as a PCMH result.

Patient experience areas not measured by CAHPS items
Interviewees talked about 2 areas of improved patient experience not measured by a CAHPS item (see footnote b in Table 3): service colocation and office teamwork at 12 and 13 sites, respectively. Patients are not the best source for either of these aspects of care, so they are not potential candidates for CAHPS survey items.[33]

MDs and NSs at 12 sites also mentioned that PCMH changes influenced team-based communication. NSs and SCAs at 11 sites noted that scheduling follow-up appointments improved. SCAs also noted 2 areas not measured by CAHPS survey items examined here: emergency department and inpatient follow up (There is a CAHPS emergency department survey. https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/CAHPS/ed.html.) and speed of referrals at 12 and 9 sites, respectively. For these areas of patient experi-

ence, health care providers or staff (and not patients) are the best source of the information.

Our findings indicated that the perceived impact of PCMH varies by role: the closer practice leaders are to the applied changes, the more detail and practical information they offer on improvements from PCMH changes. For example, MDs discussed care management and coordination in general terms, whereas NSs and SCAs focused on very specific aspects of care management.

Mechanisms of changes that practice leaders indicate improved patient experiences
Table 4 shows the 24 reported mechanisms of change commonly reported by practice leaders as a PCMH transformation strategy. Majorities of all 3 types of practice leaders noted 4 mechanisms of change (see footnote b in Table 4): assess performance related to targets and outcomes (within practice), use of electronic medical records (EMRs), daily huddle (at all 14 sites), and adding or restructuring staff to allow physicians to work at the top of their license at 13 sites. Definitions of codes for mechanisms of change are provided in Table A.2 as Supplemental Digital Content (available at: http://links.lww.com/QMH/A7).

MDs and NSs said that maintaining stable teams at 13 sites and planning and coordinating with the health education and behavioral health team at 10 sites were the mechanisms for improving patient experience. NSs and SCAs noted that previsit planning at 13 sites improved patient experience. MDs were alone at 11 sites

Table 3. Reported Areas of Improved Patient Experience, by Measurement Tool, Overall by Site, by Person, by Role[a]

Area of Patient Experience	Best Source of Information	Total Unique Site Counts (N = 14)	Total Unique Person Counts (N = 36)	Unique Counts by MD (N = 13)	Unique Counts by NS (N = 10)	Unique Counts by SCA (N = 13)
CG-CAHPS core items (version 2.0)						
Answer to phone enquiry same day[b]	Patient	12	21	7	6	8
Access to routine care[b]	Patient	12	19	6	6	7
Clerks and receptionists are helpful	Patient	9	15	6	6	
Clerks and receptionists are courteous and respectful	Patient	10	17	6	6	
Access to urgent care	Patient	9	18		6	7
Provider communication: Easy to understand	Patient	12	16		6	7
Answer to phone enquiry as soon as needed	Patient	9	16		6	8
Provider knows patient's medical history	Patient	13	13	13		
Provider communication: Listens carefully	Patient	9	15		6	
Follow-up on test results	Patient	9	13		6	
Provider communication: Spends enough time	Patient	9	11		6	
Provider rating	Patient	11	14			9
Continuity of provider	Patient	11	15			6
CAHPS PCMH items (version 2.0)						
Care management—general[b]	Patient	14	30	9	9	12
Care management: Care coordination	Patient	12	22	6		11
Care management: Access to health education	Patient	10	17		7	8
Care management: Holistic care	Patient	9	16		6	6
Discuss and manage medications	Patient	9	14		6	7
Care management: Health management support	Patient	9	14		6	
Hours of operation	Patient	7	11		6	
Shared decision-making	Patient	9	8			8
CAHPS supplemental items						
More access to specialty services	Patient	10	16		7	
Areas not covered by CAHPS survey items examined above						
Teamwork front and back office[b]	Office staff	13	30	7	7	7
More services in one place (excl. specialty)[b]	Office staff	12	19	6	6	7
Team-based communication	Office staff	12	24	11	7	
Schedule follow-up appointments	Office staff	11	17		6	6
ED and inpatient follow-up	ED/hospital staff	12	15			10
Speed of referrals	Office staff	9	12			6

Abbreviations: CG-CAHPS, Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CAHPS) ED, emergency department; MD, lead physician who is the medical director at the site; NS, nurse supervisor. CAHPS PCMH, CAHPS patient-centered medical home; SCA, site clinic administrator.
[a]Counts represent the number of unique individuals who reported a patient experience domain. Numbers by role reported by if counts are 6 or larger (which is 50% or more of a given practice leader group), so counts by role fewer than 6 are not shown; therefore, columns of unique counts by MD, by NS, and by SCA might not equal the total unique count.
[b]Commonly reported area of patient experience by all clinical leaders (MD, NS, and SCA).

Table 4. Reported Mechanisms of PCMH Change, Overall by Site, by Person, and by Role[a]

Mechanism of Change	Total Unique Site Counts (N = 14)	Total Unique Person Counts (N = 36)	Unique Counts by MD (N = 13)	Unique Counts by NS (N = 10)	Unique Counts by SCA (N = 13)
Assess performance (within practice)[b]	14	33	12	9	12
Use of EMR—general[b]	14	31	12	6	13
Huddle daily[b]	14	31	11	10	10
Add or restructure staff[b]	13	24	8	6	10
Maintain stable teams	13	17	8	6	
Plan and coordinate with team	10	17	7	5	
Receive support from corporate office	14	23	10		10
Prioritize complex cases	12	19	7		8
Use of EMR: Patient portal	10	16	7		8
Previsit planning	13	19		8	7
Reward and recognize people who do well	11	14	8		
Focus on how patient gets care	9	13	6		
Focus on customer service, eg, AIDET	12	15		6	
Use of EMR: Referrals	11	12			11
Use of EMR: Reminders	10	10			10
Use of EMR: Scheduling	8	12			8
Share best practices (across practices)	10	12			8
Colocate team members	9	12			8
Use of EMR: Lab or radiology results	8	11			7
Use of EMR: e-Prescribing	8	8			7
Move staff to corporate office	9	13			7
Use of EMR: Patient summaries	6	7			6
Shift the focus to patient needs	9	11			6
Train staff	9	12			6

Abbreviations: AIDET, acknowledge, introduce, duration, explain, and thank you; EMR, electronic medical record; MD, lead physician who is the medical director at the site; PCMH, patient-centered medical home; SCA, site clinic administrator; NS, nurse supervisor.

[a]Counts represent the number of unique individuals who reported a mechanism of change. Numbers by role reported by if counts are 6 or larger (which is 50% or more of a given practice leader group), so counts by role fewer than 6 are not shown; therefore, columns of unique counts by MD, by NS, and by SCA might not equal the total unique count. We do not report counts fewer than 5.

[b]Commonly reported mechanism of change reported by all clinical leaders (MD, NS, and SCA).

in noting rewarding and recognizing people who do well and at 9 sites focusing discussions on *how* patients get care as mechanisms of change. NSs were alone across 12 sites in focusing on customer service such as AIDET (acknowledge, introduce, duration, explain, and thank you) as a change mechanism. SCAs were alone (across 6-11 sites) in mentioning 11 mechanisms of change, 6 of which were specific to using the EMR.

Areas of improved patient experience with co-occurring mechanism of change

Table 5 lists the areas of improved patient experience that practice leaders described as a result of a specified mechanism of change (eg, co-occurrence of *what* patient experience domain improved by *how* the change came about). The table can guide practice leaders on which strategies of change may be connected with improvements in specific areas of patient experience that can be measured by CAHPS items or by tracking office staff behaviors.

Patient experience areas measured by CG-CAHPS items

A patient's experience of having an answer to a phone inquiry on the same day, which most MDs, NSs, and SCAs commonly reported to have improved via their site's PCMH efforts, was also reported to have improved primarily through the use of the EMRs. One doctor explained:

I've got 3 terminally ill patients. They have my cell phone. I give my patients my e-mail. Many now

Table 5. Reported Areas of Improved Patient Experience with Co-occurring Mechanism of Change[a]

Area of Patient Experience	Percentage of Reported Co-occurrence	Co-occurring Mechanisms of Change
Core CG-CAHPS (version 2.0)		
Answer to phone inquiry same day[b]	0.52 (11/21)	Use of EMR (9):
		Use of EMR: Patient portal (2)
		Use of EMR: e-Prescribing (1)
		Use of EMR: Referrals (1)
		Use of EMR: Reminders (1)
		Use of EMR: Scheduling (1)
		Use of EMR: Patient visit summaries (1)
		Assess performance related to targets and outcomes (within practice) (1)
		Add/restructure staff to allow physicians to work at the top of their license (1)
Access to routine care[b]	0.21 (4/19)	Use of EMR (3):
		Use of EMR: Patient portal (1)
		Use of EMR: Scheduling (1)
		Share best practices with providers and staff (across practices) (1)
Clerks and receptionists are helpful	0.20 (3/15)	Focus on customer service such as AIDET (3)
Clerks and receptionists are courteous and respectful	0.18 (3/17)	Focus on customer service such as AIDET (3)
Access to urgent care	0.44 (8/18)	Prioritize complex cases (2)
		Add/restructure staff to allow physicians to work at the top of their license (2)
		Assess performance related to targets and outcomes (within practice) (1)
		Share best practices with providers and staff (across practices) (1)
		Plan and coordinate with team (1)
		Focus discussion on HOW patient gets care (not how to treat or what type of care) (1)
Provider communication: Easy to understand	0.88 (14/16)	Assess performance related to targets and outcomes (within practice) (4)
		Focus on customer service such as AIDET (4)
		Use of EMR: (3)
		Use of EMR: Patient portal (1)
		Use of EMR: Referrals (1)
		Shift the focus to patient needs (cultural shift, through meetings) (1)
		Add/restructure staff to allow physicians to work at the top of their license (1)
Follow-up on test results	0.77 (10/13)	Use of EMR (8):
		Use of EMR: Patient portal (1)
		Use of EMR: Scheduling (1)
		Use of EMR: Referrals (1)
		Use of EMR: Reminders (1)
		Use of EMR: Laboratory/radiology results (1)
		Use of EMR: Patient visit summaries (1)
		Focus on customer service such as AIDET (1)
		Receive support from corporate office (1)

(*continues*)

Table 5. Reported Areas of Improved Patient Experience with Co-occurring Mechanism of Change[a] (*Continued*)

Area of Patient Experience	Percentage of Reported Co-occurrence	Co-occurring Mechanisms of Change
Provider rating	0.43 (6/14)	Assess performance related to targets and outcomes (within practice) (3)
		Share best practices with providers and staff (across practices) (1)
		Focus on customer service such as AIDET (1)
		Receive support from corporate office (1)
Continuity of provider	0.40 (6/15)	Assess performance related to targets and outcomes (within practice) (1)
		Prioritize complex cases (1)
		Plan and coordinate with team (1)
		Maintain stable teams (1)
		Shift the focus to patient needs (cultural shift, through meetings) (1)
		Use of EMR: General (1)
Core CG-CAHPS (version 2.0)		
Care management—general[b]	0.63 (19/30)	Plan and coordinate with team (6)
		Prioritize complex cases (3)
		Add or restructure staff to allow physicians to work at the top of their license (2)
		Daily huddle (2)
		Receive support from corporate office (2)
		Previsit planning (1)
		Focus discussion on HOW patient gets care (not how to treat or what type of care) (1)
		Train staff (1)
		Move staff to corporate office (1)
Care management: Care coordination	0.27 (6/22)	Add or restructure staff to allow physicians to work at the top of their license (2)
		Daily huddle (2)
		Previsit planning (1)
		Receive support from corporate office (1)
Care management: Better access to health education	0.35 (6/17)	Plan and coordinate with team (2)
		Add or restructure staff to allow physicians to work at the top of their license (2)
		Daily huddle (1)
		Receive support from corporate office (1)
Care management: Holistic care	0.38 (6/16)	Plan and coordinate with team (2)
		Add or restructure staff to allow physicians to work at the top of their license (2)
		Receive support from corporate office (2)
Discuss and manage medications (clinically, for adherence)	0.21 (3/14)	Plan and coordinate with team (2)
		Daily huddle (1)
Areas not covered by CAHPS survey items examined above		
Teamwork front and back office[b]	0.57 (17/30)	Daily huddle (5)
		Previsit planning (2)
		Assess performance related to targets and outcomes (within practice) (2)

(*continues*)

Table 5. Reported Areas of Improved Patient Experience with Co-occurring Mechanism of Change[a] (Continued)

Area of Patient Experience	Percentage of Reported Co-occurrence	Co-occurring Mechanisms of Change
		Plan and coordinate with team (2)
		Add or restructure staff to allow physicians to work at the top of their license (2)
		Shift the focus to patient needs (cultural shift, through meetings) (1)
		Focus discussion on HOW patient gets care (1)
		Receive support from corporate office (1)
		Colocate team member (1)
Team-based communication	0.63 (15/24)	Daily huddle (3)
		Colocate team member (2)
		Focus discussion on HOW patient gets care (2)
		Plan and coordinate with team (2)
		Previsit planning (1)
		Assess performance related to targets and outcomes (within practice) (1)
		Add or restructure staff to allow physicians to work at the top of their license (1)
		Train staff (1)
		Focus on customer service such as AIDET (1)
		Receive support from corporate office (1)
Schedule follow-up appointments	0.24 (4/17)	Daily huddle (2)
		Use of EMR (2):
		Use of EMR: Patient portal (1)
		Use of EMR: Lab or radiology results (1)
ED and inpatient follow-up	0.47 (7/15)	Daily huddle (2)
		Previsit planning (2)
		Assess performance related to targets and outcomes (within practice) (1)
		Prioritize complex cases (1)
		Receive support from corporate office (1)
Speed of referrals	0.33 (4/12)	Use of EMR (4):
		Use of EMR: Patient portal (1)
		Use of EMR: Referrals (1)
		Use of EMR: Reminders (1)
		Use of EMR: Lab or radiology results (1)

Abbreviations: AIDET, acknowledge, introduce, duration, explain, and thank you; CG-CAHPS, Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CAHPS); ED, emergency department; EMR, electronic medical record; CAHPS PCMH, CAHPS patient-centered medical home.
[a]Counts of co-occurrence represent the number of unique individuals who reported a patient experience domain that co-occurs in the same quotation with a reported mechanism of change. Percent calculates the percentage of uniquely reported patient experience domains with a reported co-occurring mechanism of change. Percentages of co-occurrence of less than 20% are not shown. Co-occuring mechanism of change for each patient experience domain is ordered by frequency.
[b]Commonly reported area of patient experience by all clinical leaders (MD, NS and SCA).

use the patient portal. Some call the clinic and leave a message. I take care of those as efficiently as possible . . . . Communication is essential so I make time for that. (MD, site J)

Clinic leaders also attributed improvement in an-swering phone inquiries on the same day to their de-liberate QI efforts to assess performance related to targets and outcomes or to adding or restructuring staff to allow physicians to work at the top of their license.

Improving access to routine care, which most MDs, NSs, and SCAs reported to have improved via their site's PCMH efforts, was also reported to have

improved primarily through the use of the scheduling function and patient portal within the EMR. One NS indicated:

> They (patients) are able to make appointments online. Our call center as well. It was just implemented this year to help with the volume of phone calls that we have for routine care (NS, site L).

Most MDs and NSs mentioned that PCMH changes improved the helpfulness, courtesy, and respectfulness of clerks and receptionists, citing a focus on customer service training supported by the Studer Group called AIDET, which stands for acknowledge, introduction, duration, explain, and thank you (refer to https://www.studergroup.com), and persistent tracking of site-level performance for these outcomes. One MD said:

> [Patients] are acknowledged when they come in. We no longer yell out a patient's name and then take them to the back. Rather, we note when Mrs. Smith comes in, she is wearing a red blouse with a flower on it, so we are able to walk directly up to her and say Mrs. Smith, we are ready to take you to the back. (MD, site N)

NSs and SCAs described the improvement in provider communication as a result of their sites' tracking of site-level and provider-level performance and the cultural shift they experienced by focusing on patient needs and customer service (AIDET). One NS said:

> We're working on the accessibility of medical care. We also are working on patient portal so the patients can email me. Before, they would have to call the main line and leave a message and expect a physician to call back, but of course, being as busy as a physician is, he has no time and doesn't call back. Now I will get emails from the patient popping up on my NextGen, so I can quickly answer the question with some standardized answers. So there will be some kind of remote triage of the patient, which is an element of access. (Lead clinician, site B)

Patient experience areas measured by CAHPS PCMH items

MDs and SCAs noted the influence of PCMH changes on patient care management and its improvement through team planning, coordination, and focus on how patients receive care. An SCA said:

> For me, the shift was providing more local resources for patient management. We weren't doing a lot of care plans. That is really where for me the PCMH team allows the patient to come to one location and get all of their care. That is how we took it and so if a provider had a pa-

tient that needed case management, the case manager would step in and they would follow through with the patient via phone calls and making sure all their referrals are in place and when they get to the specialist or are being admitted to the hospital, we are tracking their discharge dates and the reason for the admission and any follow ups that are needed. (SCA comment, site B)

An NS at another site added:

> For me it's an integrated service for the patients where they can get service in one site. For example, here we have a referral department, a clinical pharmacy department, health education, behavioral health for mental health issues. It's a one-stop shop for the patients. They don't have to be referred out to anyone else, which is good because most of the time they don't end up going. (NS, site J)

Another NS indicated:

> We have an interdisciplinary team that works with our providers, a nurse, our health educator, and maybe a specialty provider . . . . That coordination of care is an excellent way to look at how patients are being filtered through from the beginning to the end because their care is now coordinated by a team that sees different aspects of their care and can provide all of that care at once. (NS comment, site E).

NSs and SCAs noted improvements in their patients' experience in holistic care, discussion and management of medications (clinically and for adherence), and better access to health education. All 3 domains were facilitated by adding or restructuring staff to allow physicians to work at the top of their license along with more planning and coordinating with the team that includes a health educator, a behavioral health specialist, and/or a health educator.

An NS described this by saying:

> So if the patient comes in to see a provider and say the patient has a problem with diabetes, he will definitely refer the patient to the health educator and she would do all of the education on nutrition and how to use AccuCheck or any of the equipment that needs to be used and also educate them on the need to follow their regimen to a T. Then once the health educator is done with the patient, if there are any other things that the patient needs, we refer the patient to case management. If it comes out to be a medication, the case manager will work closely with the pharmacist to sort that out . . . they communicate with one another as a team on what is going on with the patient. (NS comment, site E)

***Patient experience areas not measured
by CAHPS items mapped in this study***

MDs and NSs mentioned that PCMH changes influenced team-based communication, which was achieved through team planning and coordination, daily huddles, and focusing on customer service (AIDET). One doctor described the change in teamwork by saying:

> We started PCMH really with the huddles . . . .
> And the biggest impact is the provider now has the referral results, the hospital results—the types of things that weren't available at the time of the visit when the patient showed up. Now a lot of those things are happening before the patient shows up so when the care givers go into a room, they have the results and can do the education, have the conversations that are necessary, start planning and making decisions with the patients. From my perspective, that is huge; to have that there most of the time . . . . The care team will look at the chart to see if the patient followed up with the specialist; if they don't see anything in the chart they talk to the referral clerk, the health educator or the health information technology team who will reach out to the specialist to make sure we have the most recent records. It's a total team effort. (SCA, site A)

DISCUSSION

Practice leaders we interviewed commonly indicated that PCMH improved patient access and care management. Most patient experience domains reported as improved during the PCMH process are measured by a CAHPS survey item, allowing for standardized measurement of change during transformation. The areas of patient experience not measured by the content of the CG-CAHPS core survey (version 2.0), CAHPS PCMH items (version 2.0), and CAHPS supplemental items (the set of CAHPS items mapped in this study) had the office staff as the best source of information, indicating that practices would benefit from collecting data from the office staff about specific behaviors related to teamwork, staff or team communication, coordination, huddles, and referrals. These strategies are commonly audited by tracking office staff behavior (eg, daily huddle logs).

Majorities of all 3 types of practice leaders identified 4 main mechanisms of change: assessing performance related to targets and outcomes; use of the EMR via the patient portal; daily huddles; and restructuring staff. These findings point to important processes for practices to focus on during PCMH transformation. Many mechanisms of change were specifically tied to a patient experience domain or a particular vantage point of a given practice leader.

Within the patient experience domains of care management, the commonly identified mechanism for change is planning and coordinating with team. It is somewhat surprising that there is no mention of the use of the EMR associated with care management, as the EMR was fundamental in the concept of the term "medical home" that was first used by the American Academy of Pediatrics in 1967 to describe the concept of a single centralized source of care and medical record for children with special health needs.[34,35] This may be because EMR systems differ across sites,[36] with care management and coordination falling to the daily huddle and the communication of the office staff. The use of an EMR is a common mechanism of change across several patient experience domains (answer to phone inquiry same day, access to routine care, provider communication easy to understand, and follow-up on test results).

Our study has several limitations. The findings are not generalizable to all US practices but may be generalizable to other FQHCs of similar size, urban setting, corporate support of PCMH, and a quality monitoring process. The intent of our study was to seek insights from experienced practice leaders in successfully transformed PCMH practices on the process of change related to a rich range of patient experiences. As our data suggest, there was a strong consensus among these practice leaders regarding the perceived changes in patient experience at their sites and through which mechanisms the improvements came about. Some participants' longevity in their practices was useful in supplying convincing before and after comparisons and highlighting the benefits of PCMH transformation for themselves and for their patients.

Our study has several important implications for QI and PMCH transformation efforts. We identified 28 patient experience domains commonly reported by practice leaders as improved by their site's PCMH transformation process, 22 of which are measurable by a CAHPS survey and 6 that could be measured by surveying or tracking specific behaviors of the office staff. This indicates that the CG-CAHPS survey and the CAHPS PCMH items have the content to assess changes, provide feedback, and compare change across primary care practices during the PCMH process.

Five areas of patient experience were commonly reported by all 3 types of practice leaders as improved by the PCMH transformation process: answer to phone inquiry same day; access to routine care; care management; teamwork of the front and back office staff; and having more services in one place. This underscores that PCMH can improve patient access to care and care management.

Many mechanisms of change described by practice leaders were specific to a patient experience domain that improved, or a particular vantage point of a given practice leader, providing insights into the multifaceted workings of the change process during PCMH transformation, offering guidance on which strategies of change practice leaders indicated influenced specific areas of patient experience, and suggesting how the domain can be measured by CG-CAHPS, PCMH item or CAHPS supplemental item, or tracking office staff behaviors. Further research is needed for examining

the relationship between reported PCMH changes and changes in CAHPS patient experience scores.

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