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# Implementation and Sequencing of Practice Transformation in Urban Practices with Underserved Patients

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**Background:** Patient-centered medical home (PCMH) has gained momentum as a model for primary-care health services reform. **Methods:** We conducted interviews at 14 primary care practices undergoing PCMH transformation in a large urban federally qualified health center in California and used grounded theory to identify common themes and patterns. **Results:** We found clinics pursued a common sequence of changes in PCMH transformation: Clinics began with National Committee for Quality Assurance (NCQA) level 3 recognition, adding care coordination staff, reorganizing data flow among teams, and integrating with a centralized quality improvement and accountability infrastructure. Next, they realigned to support continuity of care. Then, clinics improved access by adding urgent care, patient portals, or extending hours. Most then improved planning and management of patient visits. Only a handful worked explicitly on improving access with same day slots, scheduling processes, and test result communication. The clinics' changes align with specific NCQA PCMH standards but also include adding physicians and services, culture changes, and improved communication with patients. **Conclusions:** NCQA PCMH level 3 recognition is only the beginning of a continuous improvement process to become patient centered. Full PCMH transformation took time and effort and relied on a sequential approach, with an early focus on foundational changes that included use of a robust quality improvement strategy before changes to delivery of and access to care.

**Key words:** patient-centered care, primary care, quality improvement

Patient-centered medical home (PCMH) has gained momentum as a model for US primary care health services reform as a response to high costs and poor health-related outcomes.<sup>1,2</sup> Patient-centered medical home care is comprehensive, continuous, coordinated, accessible, and promotes quality and safety.<sup>3,4</sup> A comprehensive PCMH model strives to (1) deliver coordinated “whole-person” care; (2) emphasize the clinician-patient relationship and keep patients healthy between visits; (3) support “team-based care” freeing providers to work to their highest level of training; and (4) use information technology to help providers improve cost, quality, patient experience, and population health

(refer to <http://www.ncqa.org/Programs/Recognition/Practices/PatientCenteredMedicalHomePCMH.aspx>).

Patient-centered medical home implementation requires changes to clinical care, operations, administrative processes, quality measurement, and staff relationships.<sup>5,6</sup> There are 3 levels of PCMH recognition obtained from the National Committee for Quality Assurance,<sup>7,8</sup> each reflecting the degree to which a practice meets the requirements of 6 standards: (1) Enhance Access and Continuity; (2) Identify and Manage Patient Populations; (3) Plan and Manage Care; (4) Provide Self-Care Support and Community Resources; (5) Track and Coordinate Care; and (6) Measure and Improve Performance. National Committee for Quality Assurance (NCQA) provides examples and requires specific documentation (refer to [http://www.ncqa.org/portals/0/programs/recognition/PCMH\\_2011\\_Scoring\\_Summary.pdf](http://www.ncqa.org/portals/0/programs/recognition/PCMH_2011_Scoring_Summary.pdf)).

Full transformation may take years<sup>9-11</sup> and resources from leaders and staff.<sup>12</sup> For most primary care practices, fully adopting the PCMH model fundamentally shifts orientation and practice culture.<sup>2</sup>

Facilitators and barriers to PCMH practice transformation have been explored in a limited number of heterogeneous settings, including small practices, large group practices, high-performing practices, and safety net clinics.<sup>10,13-17</sup> Practices do not implement all PCMH aspects at once<sup>18</sup> and may differ in sequencing PCMH implementation. This article examines PCMH transformation in a large multisite federally qualified health center (FQHC) in a large metropolitan area with 14 traditional primary care sites out of 26 total practice sites. Its efforts for PCMH change included collecting

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Consumer Assessment of Healthcare Providers and Systems Clinician and Group (CG-CAHPS) 12-month patient experience survey data to explore how practices made changes.

## METHODS

### Setting

The FQHC had 26 NCQA PCMH–certified practices employing more than 100 providers and receiving nearly 1 million patient visits annually. Four years earlier, its chief medical officer introduced 2 improvement initiatives—implementing a robust quality-monitoring and feedback system and transforming the practices into PCMHs.

### Quality-monitoring system

The quality-monitoring system marked a corporate-wide shift from focusing on volume (eg, patients seen) to quality performance. In June 2012, the FQHC adopted the CG-CAHPS visit survey 2.0,<sup>19,20</sup> supplemented by several questions. The survey was administered monthly to a continuous random sample, seeking 30 completed surveys per physician per month, asking patients about their most recent visit. The instrument was administered in English and Spanish to adults (patient or parent respondent) across general medical and primary care sites (with no repeat surveys for a household within 6 months).

The Healthcare Effectiveness Data and Information Set and CAHPS data and productivity indicators were reported monthly by the corporate quality staff at site level and provider level, with a comparison to the previous 6 months' aggregated total. These reports were then reviewed in a series of monthly meetings, including at each site with corporate leadership and staff; in regional meetings of site medical directors to benchmark performance and share best practices; and in one-on-one meetings between site medical directors and individual providers.

Accountability was based on quarterly and annual goals and targets, largely determined by national benchmarks. Sites had relatively broad discretion on how to achieve targets and were able to identify additional areas of low performance or particular issues they wished to address. The FQHC provided financial incentives for attaining targets, with most weight for incentives given to Healthcare Effectiveness Data and Information Set or CAHPS measures.

### PCMH transformation program

All primary care sites studied attained NCQA's PCMH level 3 recognition in 2012 (as based on the 2011 standards). Each site prepared its application separately but corporate staff managed the submission process.

The corporate PCMH transformation program focused on changes related to specific PCMH components not directly addressed by existing QI programs but identified as general gaps in the PCMH model. These were daily huddles, care management, self-management support, referral tracking, and coordination. Daily huddles are team or cross-functional group

meetings focusing on process status and identification of issues. Physicians huddled with their nurses or medical assistants (MAs) (and broader team if necessary) to review the schedule and preparing for the day, identify patients and services for the given day, and discuss patient needs (eg, for laboratory tests) and care coordination. To address these components, corporate leadership provided resources and coordinated the use of new staff such as care managers, referral coordinators, and clinical pharmacists located in individual sites, between several sites, or based at corporate offices. Corporate leadership instituted a centralized call-scheduling function and provided resources to sites for extended office hours or certified urgent care services. Many sites implemented 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>).

The FQHC has continued to track particular functions of PCMH-related staff and periodically reviews the PCMH program. Most sites tracked "team huddle" implementation by having physicians and MAs initial their daily huddle logs. Some sites surveyed providers on preferences for scheduling and how to improve patient flow.

### Design

We conducted semistructured individual interviews in October and November 2014. We developed 4 interview guides using research based on PCMH, continuous QI, and primary care practice transformation. These were for each site's (1) lead physician, (2) clinic administrator, (3) nurse supervisor, and (4) corporate executive leadership. Participants were initially asked to describe their understanding of the PCMH model, followed by a semistructured interview regarding their experiences with implementing PCMH at their practice, how they monitor and collect data, and lessons learned.

We conducted all interviews by phone, recording and later transcribing them. We provided an honorarium of \$50 to nonphysicians and \$100 to physicians. Interviews lasted approximately 50 minutes each. Thirty-eight interviews were conducted with lead physicians ( $n = 13$ ), site clinic administrators ( $n = 13$ ), nurse supervisors ( $n = 10$ ), and executive leadership ( $n = 2$ ). 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 from 2011 through June 2015, verifying the dates and sequence of changes, and, in some cases, reconfirming the rationale for the change.

### Analysis

We entered transcripts in Atlas.ti, a software package for organizing, coding, and managing qualitative data. We developed a code structure using systematic, inductive procedures to generate insights from participant responses<sup>21</sup> using grounded theory.<sup>22</sup> Grounded theory develops themes that emerge from the "ground" or responses to open-ended questions.<sup>22,23</sup> Individual team members coded early transcripts

independently, noting topics and PCMH changes that emerged from the data. Team meetings explored the data to reach consensus on topics and codes, identify discrepancies, refine concepts, and define preliminary codes for analysis.<sup>24</sup> Coders suggested new codes for the codebook; the full analysis team discussed codebook changes and decided them by consensus. Summaries were created that listed specific changes at each site by month implemented. Immersion analysis was used to understand the interplay of factors within each setting and to identify the sequencing of changes.<sup>25-27</sup> The coded list of changes was mapped to the 6 PCMH standards and 28 specific elements of the 2011 NCQA PCMH program.

## RESULTS

### FQHC practice characteristics

Table 1 shows practice site characteristics and Table 2 lists staffing. Fourteen primary care practice sites for

**Table 1. Practice Site Characteristics<sup>a</sup>**

Letter ID	Clinic County	Staff		Staff Followed Up With (July/August 2015)
		Interviewed (November/ December 2014)	PCMH Score	
A	LA	MD, SCA	89.75	SCA
B	LA	MD, SCA, NS	90.75	N/A
C	LA	MD, SCA, NS	90.75	SCA
D	LA	MD, SCA, NS	87.00	N/A
E	Orange	MD, SCA, NS	90.75	SCA
F	Orange	MD, SCA, NS	89.75	SCA
G	Orange	MD, SCA	88.75	MD
H	Orange	MD, NS	88.75	MD
I	LA	MD, SCA, NS	87.75	N/A
J	LA	MD, SCA, NS	88.75	MD
K	LA	SCA	Missing	MD
L	LA	MD, SCA, NS	89.75	SCA
M	Orange	MD, SCA, NS	Missing	MD
N	Orange	MD, SCA	90.75	N/A

Abbreviations: LA, Los Angeles; MD, lead physician who is the medical director at the site; Missing, the data were not provided for this site location; N/A, follow-up was not able to be scheduled for the location; NS, nurse supervisor; Orange, Orange County; PCMH, patient-centered medical home; SCA, site clinic administrator.

<sup>a</sup>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.

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](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.

the FQHC participated in this study; 12 sites with targeted populations or not collecting the patient experience surveys were excluded. The 14 sites all achieved NCQA recognition by 2012 and are accredited as level 3 PCMHs. The median (range) NCQA PCMH score for the 14 sites was 89.65 (87.00-90.75). (Further information on scoring for the 2011 PCMH standards is available at [http://www.ncqa.org/portals/0/programs/recognition/PCMH\\_2011\\_Scoring\\_Summary.pdf](http://www.ncqa.org/portals/0/programs/recognition/PCMH_2011_Scoring_Summary.pdf).)

Six of these clinics are in 1 county and 8 in an adjacent one. Six have a pharmacy on-site, 5 provide urgent care services, and 9 offer extended hours. The clinics have a median number of 8 providers. Eight clinics have an on-site clinical pharmacist and 1 has a telepharmacist. Five have an on-site clinical care coordinator, 5 have 1 off-site, and 4 do not have one. Every clinic has an assigned referral coordinator and health information representative. Nearly all have a patient care coordinator and a health educator. Half employ at least 1 licensed vocational nurse. Total staff per clinic ranges from 8 to 55.

Detailed patient characteristics by site can be found in the study by Quigley et al.<sup>28</sup> The total number of unique patients per clinic ranges from 3000 to 16000; pediatric patients comprise 15% to 51% of visits across the sites. Patient populations range from 45% to 98% Latino patients.

### Changes implemented in practice transformation

Table 3 shows the number of sites implementing various PCMH changes identified in interviews. Among the most common changes were implementing a daily huddle, increasing use of CAHPS patient experience data, and adding referral coordinators, clinical care coordinators, health educators, and doctors, and using patient portals.

Most sites created PCMH teams and interdisciplinary teams, explicitly focused on creating a PCMH culture, added pharmacists, extended their practice hours, reconfigured their space, implemented AIDET (acknowledge, introduction, duration, explain, and thank you) customer service training, assigned medical assistants to specific doctors and established empanelment, and added reporting of laboratory and radiology results to patients.

Some sites added e-prescribing, referral functionality, and scheduling functions to their electronic medical record (EMR), a nutritionist/dietician, behavior health counselor/social worker, patient navigator, or health information representative/data manager, changed the patient flow and reworked previsit planning, or increased focus on chronic disease patients, such as adding a diabetes program. Changes made by only 1 or 2 sites (not shown in Table 3) included new staff uniforms and adding medical assistants and other services and programs such as prenatal services.

Most of these changes were aligned with the definitions and examples provided by NCQA for the 6 PCMH standards and their 28 elements but some (see footnote a in Table 4) were not, though they were made hand in hand with PCMH changes outlined for NCQA

**Table 2. Practice Site Staffing<sup>a</sup>**

Clinic Letter ID	Staffing							Total Staff
	MD	MA	Clinical Pharmacist	Clinical Care Coordinator	Referral Coordinator	Health Information Representative	Health Educator	
A	4	9	0	1—off-site, shared	1	2	1	20
B	8	22	1	1—off-site	2	3	1	41
C	13	27	0	1	1—off-site	7	1	55
D	8	29	1	1	2	3	1	47
E	8	21	0	1	1—off-site	3	1	35
F	11	19	2	1	1—off-site	3	1	38
G	3	4	Telepharmacist	1—off-site	1	1	1	11
H	5	11	1	1—off-site	1	1	1	22
I	8	18	1	1—off-site	1	1	1	30
J	6	26	1	1	1	4	1	40
K	2	4	1	1—off-site, shared	1	1	0	11
L	2	4	0	0—vacant	1—off-site	1—off-site	1	8
M	8	18	1	1—off-site	1—off-site	3	1	32
N	9	16	0	0	1	3	1	34
Median	8	18	...	...	...	...	...	30

Abbreviations: MA, medical assistant; MD, medical doctor.

<sup>a</sup>The off-site clinical care coordinators, referral coordinators, telepharmacist, or health information representatives listed here are not included in the count of total staff.

recognition. For example, the PCMH standards do not explicitly state the need for adding specialists or doctors, but most of these sites added OB-GYN specialists or family practice/internal medicine doctors. One medical director (Site I) said,

I would say adding specialists was partly related to PCMH. . . . There was a need for internal medicine at the site. . . . There was a large elderly population, like over age 60, so that's why we hired an internal-medicine doctor . . . because of the high-acuity patients.

Many sites reconfigured their clinic space or implemented customer service training using AIDET (11 sites) for PCMH recognition. One medical director (Site A) explained, "We established the culture of AIDET®—acknowledge, introduce, duration, explain, thank you. That has worked. When you see a patient who may be lost, you walk over and introduce yourself. That whole culture changed."

Most sites focused on creating a PCMH culture, which is not explicitly addressed in the PCMH standards. Other changes not explicitly part of PCMH standards made by some sites included changing patient flow and collocating PCMH team members.

#### **Pattern of changes implemented in practice transformation**

Table 4 shows the common pattern of sequenced changes. Clinics began transformation by obtaining

NCOA level 3 PCMH recognition thereby creating a basic PCMH foundation. This included adding care coordination staff and, in a few sites, a patient navigator or nutritionist/dietician or medical records person. With the new staff, PCMH teams were created. Clinics added family practice or internal medicine doctors and OB-GYN doctors as well as pharmacists (or access to clinical pharmacists). One lead clinician (Site D) summarized changes as,

Hiring a clinical care coordinator, who is a registered nurse, having her on-site for cases when patients need equipment or assistance with a referral. Part of the PCMH is having a link between the provider and the patient. The providers don't have time for this, so we assign that to [the clinical-care coordinator]. Otherwise these tasks may fall through the cracks.

With the new doctors, interdisciplinary teams were created. Practice site space was reconfigured. Clinics reorganized the data flow among teams, added regular meetings, and established robust QI and accountability infrastructure. A site clinic administrator (Site F) described the weekly interdisciplinary team meeting:

We have an interdisciplinary team, where people come together and present a patient with chronic conditions and then discuss the patient. Our site medical director runs those meetings, and they've been doing that since PCMH. They

**Table 3. Changes Implemented for Practice Transformation, by Frequency<sup>a</sup>**

Change Implemented	Number of Sites Who Implemented Change
Added daily huddle	14
Increased use of QI	14
Added a referral coordinator	13
Added a referral coordinator—off-site	7
Added a clinical care coordinator	12
Added a clinical care coordinator—off-site	8
Increased use of patient experience data	12
By adding review of patient experience data at meetings	4
By including patient experience data on bulletin boards	2
By having patient volunteers at meetings	2
Used patient portal in EMR	12
Added specialists—OB-GYN <sup>b</sup>	12
Added a health educator	11
Added extended hours	11
Reconfigured space <sup>b</sup>	11
Implemented customer service training using AIDET <sup>b</sup>	11
Assigned medical assistants to a doctor	10
Created a PCMH team	10
Added PCMH team meetings	10
Explicitly created a “PCMH culture” <sup>b</sup>	10
Added a pharmacist <sup>b</sup>	9
Added access to clinical pharmacist (including telepharmacist)	7
Empanelment	9
Added doctors (eg, family practice/internal medicine) <sup>b</sup>	9
Used reporting of laboratory/radiology results in EMR	8
Added interdisciplinary team	8
Added interdisciplinary team meetings	8
Created doctor teams	6
Changed practice’s process of communication of test results/laboratory results	6
Started communicating test results through EMR	6
Added same day slots/walk-ins	6
Used automated appointment reminders to EMR	6
Added urgent care	6
Used e-prescribing in EMR	5
Used referral functionality in EMR	5
Added a nutritionist/dietician	5
Added behavior health counselor/social worker	5

*(continues)***Table 3. Changes Implemented for Practice Transformation, by Frequency<sup>a</sup> (Continued)**

Change Implemented	Number of Sites Who Implemented Change
Changed patient flow <sup>b</sup>	5
Increased focus on patients with chronic disease	4
Collocated PCMH team <sup>b</sup>	4
Added specialty—pediatrics <sup>b</sup>	4
Added a patient navigator	3
Added/reworked previsit planning	3
Used scheduling functions in EMR	3
Added health information representative/data manager <sup>b</sup>	3
Added parking <sup>b</sup>	3
Added diabetes program <sup>b</sup>	3
Added mobile mammography <sup>b</sup>	3

Abbreviations: EMR, electronic medical record; PCMH, patient-centered medical home.

<sup>a</sup>Changes made at 1 or 2 sites are not listed.<sup>b</sup>Change not explicitly identified in 2011 NQCA PCMH 6 Standards and their 28 elements.

include the pharmacist, the MAs, the provider, clinical-care coordinator.

Next, clinics realigned to support continuity of care. Clinics assigned medical assistants to a doctor, created doctor teams and established empanelment, and assigned individual patients to individual primary care providers (PCPs) and care teams with sensitivity to patient and family preference. Empanelment is the basis for population health management and the key to continuity of care. One lead clinician (site A) noted, “The paneling is in the works now,” about 2 years after the clinic had received level 3 recognition. Another clinician (site M) said,

Our operational mind-set is that continuity of care is most important because we want the patients to see their primary provider. When they schedule an appointment, it should be scheduled with their PCP. If that’s not possible, we have float providers who will see the patient in an emergency or if the main PCP is on vacation, and then after that visit we will reschedule them with their PCP.

Also, clinics were explicit about creating a “PCMH culture” and were often proud of the environment they created. One nursing supervisor (site M) said,

Our type of culture is not something like most facilities or most corporations that implement something and it kind of goes to the wayside; PCMH is a whole change in culture and mind-set of why we are truly here and what we are doing.

**Table 4. Phases of Practice Transformation****Pattern of Changes Implemented in Practice Transformation**

Phase 1: Creating PCMH foundation
Added care coordination staff (clinical care coordinator, referral coordinator, health educator)
Created a PCMH team
Added interdisciplinary team
Added regular meetings with the PCMH team and with interdisciplinary team
Increased use of patient experience data and QI process
Added doctors (eg, family practice/internal medicine) <sup>a</sup>
Added OB-GYN specialists <sup>a</sup>
Added a pharmacist <sup>a</sup>
Added a clinical pharmacist (including telepharmacist)
Reconfigured space <sup>a</sup>
Phase 2: Realigning to support continuity of care
Assigned medical assistants to a doctor
Empanelment
Explicitly created a PCMH culture <sup>a</sup>
Phase 3: Increasing access to care by adding urgent care and/or extending hours
Added urgent care
Added extended hours
Changes to EMR—added patient portal
Phase 4: Planning and managing the patient visit
Added daily huddle
Implemented training called AIDET <sup>a</sup>
Optional phase: Focusing on scheduling, access, and communication of test results
Added same day slots/walk-ins
Changed practice's process of communication of test results/laboratory results
Changes to EMR—added reporting of laboratory/radiology results
Changes to EMR—added automated appointment reminders
Changes to EMR—added e-prescribing
Changes to EMR—added referral functionality

Abbreviations: EMR, electronic medical record; PCMH, patient-centered medical home.

<sup>a</sup>AIDET (acknowledge, introduce, duration, explain, thank you).

Then clinics added urgent care or extended hours. One nurse supervisor (Site F) described the timeline for when clinics obtained PCMH Level 3 Recognition:

In 2012 [when clinics obtained PCMH Level 3 Recognition], we had only one clinic in County [X] that had urgent care access. Now [late 2014] all [six] of our County [X] clinics have urgent-care access Monday through Friday until 9:00 p.m. and Saturday until 6:00 p.m.

During this phase, most clinics focused their efforts on adding a patient portal for increasing access to providers.

Most often, these changes were followed by improvements in planning and managing the patient visit. Corporate leadership—recommended sites institute a daily huddle with each physician and his or her MAs in “team-lets,” but at some clinics, physicians also huddled with their whole PCMH office team or even with all clinic staff present. Most physicians conducted a huddle at the beginning of the day, but a few also did so in the middle and at the end of the day. Most huddles were reported to be 5 to 10 minutes, but many reported that they were 15 minutes when first implemented. During this reworking of the patient visit phase, clinics also focused on implementing customer service training using AIDET.

Only 5 clinics worked explicitly on improving access, scheduling, and communication of test results. They added same day slots or walk-in appointments and changed their procedures for communicating test results and laboratory results, standardizing processes across physicians. One lead clinician (Site I) said,

Before PCMH, results used to be in the provider's inbox and they would call the patient. But we noticed we were getting a lot of complaints. For a normal lab now with PCMH [late 2014], the MAs use a letter template and send the results. This is mainly for the adult patients. For the pediatric patients, I call them. With abnormal results, most providers will call the patient or have the MA schedule an appointment.

## DISCUSSION

We found that obtaining NCQA PCMH level 3 recognition is the beginning (not the end) of becoming truly patient centered. All 14 clinics achieved level 3 recognition in 2012 but continued to make changes to fully function as a PCMH through 2015. Many clinics then still had a list of changes to make for their practice transformation goals. Change and making improvements takes time. Wagner et al<sup>6</sup> and Sugarman et al<sup>11</sup> found that even after achieving NCQA PCMH level 3 recognition, practices in the safety net medical home initiative continued to transform, with many practices requiring 3 to 4 years. The comprehensiveness of the PCMH model requires coordination among many care components as well as time and effort for thorough and systematic changes in delivering care as outlined by the PCMH program.

Sites implemented a common set of changes for PCMH transformation. All implemented a daily huddle. Most increased the review and use of their CAHPS patient experience data in the daily operation of the clinic and in regular meetings about performance; added staff, doctors, and specialists; and began using patient portals. Most also created PCMH teams; explicitly focused on creating a PCMH culture; created

interdisciplinary teams; added pharmacists; extended their practice hours; reconfigured their space; implemented customer service training using AIDET; assigned medical assistants to specific doctors and established empanelment; and added reporting of laboratory and radiology results to patients to the EMR.

Sites had a seemingly common pattern in approaching and implementing PCMH transformation. First, they applied for NCOA level 3 recognition, thereby creating a basic PCMH foundation. Next, clinics realigned to support continuity of care (by empanelment and creating doctor teams) and created a “PCMH culture.” Then clinics worked on improving access (by adding urgent care or extending hours) and adding a portal to increase access to providers. Most often, these PCMH practice changes were followed by improvements in planning and managing the patient visit (accomplished by instituting a daily huddle). Finally, some clinics worked explicitly on improving access through increased walk-in appointments, scheduling, and communication of test results.

This pattern emphasizes the importance of building a foundation and structure that prioritizes teams, QI, and flow of information. Few sites were able to additionally make improvements explicit to scheduling and communication of test results, areas key to the PCMH framework. This implies that improvements from PCMH transformation will be found more often (and earlier in the PCMH process) in measures specific to continuity of care, office hours/access, and provider communication and improvements specific to scheduling, communication of test results, and access seen later in PCMH transformation.

Obtaining NCOA PCMH level 3 recognition compelled practices to add care coordination staff and doctors and then to reconfigure space—moves not explicitly required to meet NCOA PCMH standards. These staffing and space changes were made to create and reorganize teams (eg, PCMH, interdisciplinary, or doctor teams) that met regularly to establish flow of communication and review patient information. Simple changes to staffing and having all staff attend regular meetings can change care delivery and improve care.<sup>29,30</sup> This early, foundational step of establishing staff and team structures to support data review, communication, and learning is similar to existing frameworks for quality improvement process change involving leadership, teams, communication, and a learning culture.<sup>31-34</sup> Team-based care was frequently described as foundational for effectively implementing and integrating other PCMH functions/practices. Several changes were not explicitly required for NCOA PCMH recognition but were necessary for full PCMH functionality.

Finally, full implementation of PCMH transformation relied on a sequential approach to transformation, with an early focus on foundational change that included a robust quality improvement strategy. We found that practices often took a sequential approach by building PCMH infrastructure that included care coordination staff, PCMH teams, interdisciplinary teams, and regular meetings to discuss goals, changes, data and improve-

ments. The strategy sometimes included adding a clinical pharmacist and doctors, or reconfiguring space. After building this PCMH infrastructure, practices supported continuity of care by assigning medical assistants to a doctor, empaneling patients, and working to promote a PCMH culture focused on meeting patient needs and providing whole person care. Once this realignment of staff and goals was completed, practices would often increase access to care by adding urgent care and extending hours. Some practices made changes to their EMR and added patient portal functions that increase communication with doctors and let patients see test results. Once these phases were implemented, practices most commonly focused on aspects of planning and managing the patient visit, and added daily huddles and customer service training. Some practices added same-day and walk in slots, changed the process for communicating test results or labs, and upgraded their EMR with features like automated appointment reminders, e-prescribing, referral functionality, and the reporting of lab and radiology results via the patient portal. Systematic and sequential change is a core aspect of robust quality improvement models, particularly in small office settings.<sup>35</sup> Wolfson et al<sup>35</sup> indicated that physicians in small practices (fewer than 25 physicians) do not rely on financial incentives for motivation; rather, leadership and teamwork are critical for improving quality and performance. With systematic and incremental QI changes, sites gain a sense of empowerment and a stronger sense of “team.” With QI and with PCMH, demonstrable success initially encourages additional activity and helps secure support of colleagues who may have resisted changes. The PCMH transformation requires thorough review and revisions of structures and processes and subsequent monitoring to ensure that new practices become institutionalized. Several site leaders emphasized that an effective medical home not only adopts but also integrates and coordinates PCMH practices. Site leaders noted that the degree of coordination among the PCMH practices determines whether improvements in patient-centered care are realized.

There were several limitations to the study. Our sample was purposive and included only 14 sites in a large FQHC in an urban, underserved area, so our results are suggestive rather than conclusive. They may only be applicable to similar FQHC sites in urban underserved areas with a centralized robust QI strategy. We did not interview leadership in sites without PCMH level 3 recognition, which could have provided a base of comparison for changes made prior to level 3 designation. Despite these limitations, this study raises several key areas for future PCMH research and provides an approach for moving toward full PCMH transformation on which others may build.

Obtaining NCOA PCMH level 3 recognition is the beginning, not the end, of becoming patient centered. Practice transformation takes time and effort. Team-based care appears to be foundational for effectively implementing and integrating other PCMH practices. Full



PCMH transformation relies on a sequential approach to transformation, with an early focus on foundational changes (such as structures that support teams, use of robust QI, and flow of information), before improving access to care through realigning to support continuity of care; improving access with extended hours, urgent care, and patient portals; or improving planning and management of the patient visit.

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