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Off the Hamster Wheel? Qualitative Evaluation of a Payment-Linked Patient-Centered Medical Home (PCMH) Pilot

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Context: Many primary care practices are moving toward the patient-centered medical home (PCMH) model and increasingly are offering payment incentives linked to PCMH changes. Despite widespread acceptance of general PCMH concepts, there is still a pressing need to examine carefully and critically what transformation means for primary care practices and their patients and the experience of undergoing such change in a practice.

Methods: We used a qualitative case study approach to explore the underlying dynamics of change at five practices participating in PCMH transformation efforts linked to payment reform. The evaluation consisted of structured site visits, interviews, observations, and artifact reviews followed by a structured review of transcripts and documents for patterns, themes, and insights related to PCMH implementation.

Findings: We describe both the detailed components of each practice's transformation efforts and a grounded taxonomy of eight insights stemming from the experiences of these medical homes. We identified specific contextual factors related to wide variations in change tactics. We also observed widely varying

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approaches to catalyzing change using (or not) external consultants, specific challenges regarding health information technology implementation, team and staff role restructuring, compensation, and change fatigue, and several unexpected potential confounders or alternative explanations for practice success.

Conclusions: Our evaluation affirms the value and necessity of qualitative methods for understanding primary care practice transformation, and it should encourage ongoing and future pilots to include assessments of the PCMH change process beyond clinical markers and claims data. The results raise insights into the heterogeneity of medical home transformation, the central but complex role of payment reform in creating a space for change, the ability of small practices to achieve substantial change in a short time period, and the challenges of sustaining it.

Keywords: patient-centered medical home, qualitative, primary care, payment reform, evaluation.

A GREATER UNDERSTANDING OF WAYS TO IMPROVE PRIMARY care is one of our nation's highest priorities for building a more humane and cost-effective health system (ACP 2006; Crabtree et al. 2011; Nutting et al. 2011; Rittenhouse, Shortell, and Fisher 2009). Primary care physicians often speak of a desire to "get off the hamster wheel"—the phenomenon of having to see more patients for shorter visits and less pay (Berenson and Rich 2010). Several hundred experiments currently under way are examining how primary care can be transformed from traditional episodic physician encounters into what has been termed the Patient-Centered Medical Home (PCMH), a model that emphasizes more comprehensive care coordination, care teams, and population health management (Bitton, Martin, and Landon 2010).

It is important that we closely examine what is actually occurring in these PCMH experiments. The quantitative data collected from the myriad PCMH projects, while critical, tell only part of the story (Crabtree et al. 2011; Gilfillan et al. 2010; Reid et al. 2010). Without an on-the-ground look at how these changes affect staff, patients, and work flow, we will lose the opportunity to understand how practices are being transformed (Berwick 2007).

Our evaluation is part of a larger assessment of PCMH implementation models tied to payment reform in five primary care practices in two

states in the northeastern United States. We sought to better understand the experiences of these practices as they transformed into medical homes aided by payment reform. Of particular interest was how they responded to a new reimbursement opportunity based on a new, comprehensive, risk-adjusted payment model (Goroll et al. 2007). This model, in which there is widespread interest, centers on fundamentally restructuring the reimbursement for comprehensive patient-centered primary care in a PCMH environment. It eliminates fee for service (FFS), instead paying the practice a risk-adjusted base payment per patient per month to support all the efforts by physicians and the team, plus the health information technology (HIT) necessary for PCMH. The base payment for the first year was based on historic FFS trends for the practice, multiplied by a risk-adjustment formula, with an additional one-time revenue boost. Physicians were paid a base salary using this monthly payment system, supplemented by a substantial (up to 25%) "bonus" for achievements in cost-effectiveness, efficiency, quality, and patients' experience. To better understand how the five practices approached this new PCMH payment and practice transformation model, we conducted a qualitative evaluation consisting of site visits, interviews, observations, and document reviews.

Methods

Study Design and Sample

This PCMH pilot project began in 2009 with a self-selected sample of five primary care practices, each composed of a single office with three to eight physicians. The pilot's design was based on the new payment model and a proposal under the auspices of the Massachusetts Coalition for Primary Care Reform (MACPR) initiative to test fundamental primary care payment reform in the context of PCMH practice change. The transformation of three practices in one state was affiliated with a regional payer, the insurer for a significant percentage of the patients. The other two practices were part of an integrated multispecialty group in another state. The design, length, and details of the pilot had been determined before the start of our analysis.

As part of a larger detailed evaluation, we designed our qualitative review to assess how the practices were actually carrying out the PCMH

transformation. Our core qualitative evaluation team was made up of three primary care physicians, a medical/public health student, and a registered nurse, all with expertise in primary care redesign. Guided by an experienced qualitative researcher with an extensive background in PCMH data collection and analysis, we spent several months refining our research questions and data collection methods (see table 1). We used a qualitative comparative case study approach to explore each practice's transformation efforts and also to compare the practices linked to the regional payer with those practices in the multispecialty group. We conducted the qualitative phase of the evaluation in 2010, after each pilot site had been engaged in transformation activities for at least twelve to eighteen months.

Data Collection

We began collecting primary data in late 2010 and early 2011. The Brigham and Women's Hospital Institutional Review Board (IRB) reviewed and approved the protocols for our primary data collection. Before our site visits, our team conducted semistructured interviews with the leadership of the five practices. Next, four or five clinical members of the evaluation team conducted a concentrated site visit at each practice. Each visit lasted four to six hours and followed a four-step process using each team member's notes to strive for data saturation (table 1). A minimum of a dozen staff members were interviewed at each site (three to six physicians or mid-level providers, two to five nurses, one to two practice managers or administrators, and three to eight support staff). Verbal consent was obtained from each individual interviewed on-site.

Data Analysis

The evaluation team first transcribed notes individually and then collated and reviewed them collectively. We iteratively coded themes that emerged from these notes over a series of weekly meetings, working with documentary and pictorial artifacts collected from the practice visits. Following the constant comparative method, we created grounded theory insights (Glaser 1967). Using selective coding, we systematically related the core category (transformational change) to emerging categories and insights related to change (Strauss 1990), for example, the genesis, challenges, successes, sustainability, and underlying

TABLE 1
Site Visit Methods

	Format	Purpose
Step 1	Large group meeting with senior staff and project leadership	Pose general questions to group to evoke overall issues, stories, time frame, and themes (60 min)
Step 2a	In-depth interviews with key informants[a]	Probe into change process to elicit granular details, illustrative vignettes, and maximum candor (60 min apiece)
Step 2b	Semistructured interviews of frontline staff[b]	Confirm, revise, or disconfirm data based on previous interviews; generate new data; triangulate to allow multiple perspectives (30 min apiece)
Step 3	Direct observation of patients' paths and work flow	Confirm or disconfirm interview data with observation; conduct observation in multiple areas of the practice by four observers to allow triangulation (90 min)
Step 4	Review of practice artifacts and documents[c]	Generate insight into practice self-perception, attributes, and implementation (ongoing)
Domains of Inquiry		Examples of In-Depth Interview Questions
• Basic model/plan for change: general goal and approaches • Practice transformation features: specific changes, why they were chosen, time frames • Team/cultural changes: role transitions, reconfiguration of staff models • Role of electronic health records, clinical decision support, and other health information technology changes		Think back to your perspective on this project in the beginning, and think about it now. What is different? [Followed by probe] Tell me more about the feeling that this was your last option? In thinking about the new payment model for your practice . . . how did the notion of incentives change behavior? [Probe] Tell me about the

Continued

TABLE 1—*Continued*

Domains of Inquiry	Examples of In-Depth Interview Questions
• Population management versus patient-by-patient care • Patient flow and case management changes • Overall experience and perspectives: successes, failures, challenges, unexpected lessons • Expansion of model to other practices; feasibility of sustainability • Protocols and perceptions of financial restructuring	reactions or behaviors of specific staff at various levels. Let's think about how roles in this practice may have changed over the course of the project. [Probe] You say it now seems like you're doing more work while others are doing less. Tell me more about that. What has been your experience thus far with team-based care? [Probe] You say you now see only the sicker patients while your nurse practitioner sees the healthier patients. What is that like?

Notes: [a]Physician leadership and other senior staff.
[b]Physicians, mid-level providers, nurses, care managers, medical assistants, and administrative staff.
[c]Internal practice transformation plans / performance metrics, QI goals, and care redesign protocols and instruments.

organizational framework of the practice. Our overall goal was to generate a series of grounded insights that would be generalizable to other practices undergoing transformation attempts and also be useful to payers and policymakers guiding medical home and primary care reform. Whenever possible, we attribute quotations to practice sites, but because of individual confidentiality agreements, we were not permitted to identify the particular person.

Results

Practice Descriptions and Changes Implemented

Table 2 describes the baseline practice characteristics and regional demographic information, and table 3 summarizes the genesis of practice change and the specific strategies used to implement the PCMH and payment reform models. The practices differ in the impetus of and

TABLE 2
Baseline Practice Characteristics

Practice	A	B	C	D	E
Organizational Structure	Private Practice within Large, Loosely Affiliated Multispecialty Group	Private Practice within Large, Loosely Affiliated Multispecialty Group	Private Practice within Small, More Closely Affiliated Multispecialty Group	Practice within a Highly Integrated Multispecialty Six-Group Practice Alliance (Including Practice E)	Practice within a Highly Integrated Multispecialty Six-Group Practice Alliance (Including Practice D)
Number of physicians in group	180	180	71	625	46
Number of physicians in practice	9	3	6	15	9
Number of nurse practitioners/physician assistants	3	4	3	7	4
Practice site location(s)	1	1	1	1	1
Relationship of PCMH initiative to local payer	Yes	Yes	Yes	No	No
Level of local health information exchange	Low	Low	Medium	High	High
Electronic health record use	Yes	Yes	Yes	Yes	Yes
Electronic prescribing	Yes	Yes	Yes	Yes	Yes
Registry function	Partial	Partial	Full	Full	Full
Region	Suburban area in large northeast state	Suburban area in large northeast state	Suburban area in large northeast state	Suburban area in small northeast state	Suburban area in small northeast state
Local town population	20,463	8,188	38,866	56,203	14,893
Median age (area)	37.5	38.8	36.7	37.4	37.3
Per capita income (1999$)	24,352	25,271	29,611	24,624	23,216

TABLE 3
Change Strategies Adopted by Practices Participating in Payment Reform PCMH

	Affiliated with Regional Payer			Integrated Multispecialty Group	
	Practice A	Practice B	Practice C	Practice D	Practice E
Genesis	Strategic initiative started in 2009 by large regional payer to test primary care payment model reform as a driver of practice transformation to medical homes. Payer selected three highly regarded practices that agreed to pilot the initiative and fundamentally change physicians' compensation model. Payer also offered external facilitation for PCMH transformation.			Initiative started in 2009 as outgrowth of long-standing groupwide improvement effort at a large multispecialty practice. Practice leadership interested in PCMH and experienced in practice improvement, given support by multispecialty practice group's central leadership. Pilot chosen by group leadership because of experience with practice improvement.	Executive team–led initiative started in 2009 to improve value and move away from fee-for-service (FFS) payment model. They saw the practice as a testing ground for developing strategy to eventually roll out PCMH to entire multispecialty group practice.
Practice leadership rationale for change	Physicians discouraged by misalignment of FFS (fee-for-service) incentives with desired primary care outcomes; wanted to improve quality. History in practice of innovation and of national family medicine leadership.	Physicians interested in improving the culture of primary care; wanted to become premier local practice and reform payment model. Also had practice leaders holding leadership roles with sponsoring payer.	Practice leadership recognized an early opportunity for the practice to be recognized and paid differently through a new model. Also had practice leaders holding leadership roles with sponsoring payer.	Multispecialty group's central leadership saw practice as ideal test site for medical home model. Practice leadership viewed medical home model as a catalyst for further organizational quality improvement.	Group opened new geographic site. Practice leaders saw opportunity to form an innovative practice at the spear point of change for the entire group. Practice leaders had roles in the central leadership team within the multispecialty group.

Continued

TABLE 3—*Continued*

	Affiliated with Regional Payer			Integrated Multispecialty Group	
	Practice A	Practice B	Practice C	Practice D	Practice E
Change approach	TransforMED (Medical Home Consulting Group) external facilitation (paid for by sponsoring regional payer).	TransforMED external facilitation (paid for by sponsoring regional payer).	Initially TransforMED but primarily internally defined and implemented.	LEAN quality improvement methods facilitated by "internal" consultants (provided and paid for by multispecialty group organization).	"Internal" model based on the Institute for Healthcare Improvement Triple Aim (IHI Triple Aim Initiative 2007) and LEAN methods. Led by practice leaders with management expertise.
Team care efforts	Created multidisciplinary teams tasked with improving specific areas (care coordination, team-based care, etc.). Expanded role of nurses (RNs) in providing care at patients' visits and in chronic disease management efforts. Particular effort made to improve transitions of care through better follow-up after hospital discharges.	Established multidisciplinary improvement efforts within three distinct interprofessional care teams at the practice. Assigned nurse practitioners (NPs) and physician assistants (PAs) their own panels of patients, whose care they shared with MDs.	Focused on integrating guideline-based care into daily practice. Expanded role of NPs, especially in frequent disease management follow-up contacts with patients, in person, and by telephone.	Extensively up-trained and increased use of medical assistants (MAs) in 1:1 "dyad teamlet" model with MDs. Used RNs and NPs to run chronic disease protocols.	Initiated biweekly practice meetings, with case presentations of challenging patients' management issues. Hired more MAs and expanded their role to participate in 1:1 MA: MD "dyad teamlet" model.

Continued

TABLE 3—*Continued*

	Affiliated with Regional Payer			Integrated Multispecialty Group	
	Practice A	Practice B	Practice C	Practice D	Practice E
Use of electronic health records (EHRs)	Used chronic disease registry and promoted patients' use of email "portal" for patients to communicate with practice. Limitation: changed EHR vendors just before transformation, complicating implementation and improvement efforts. Limitation: no electronic health information exchange with local hospitals.	Used EHR to enhance work flow through chronic disease process reminders (e.g., diabetes annual eye exams) and shared note writing by MAs and RNs. Limitation: Lack of electronic information exchange with local hospitals. Limitation: Cumbersome registry functionality. Limitations: EHR provided only modest decision support functionality.	Used electronic information exchange with local hospitals to manage transitions of care more easily. Benefited from integration with multispecialty group that kept detailed registries, which made patients' information available at point of care. Limitation: Planned to change to new EHR in 2011.	Had an advanced, multifunctional EHR. Developed detailed drug titration protocols for diabetes and hypertension, to be followed by nurses and managed through EHR. Complex disease registry allowed identification of undiagnosed HTN and early detection of lapses in management, as well as risk stratification of patients. Limitation: EHR provided some links to local hospitals, though imperfect.	Had an advanced multifunctional EHR system that included disease registry and other standard features. Limitation: Significant, though not complete, information exchange with hospitals.

Continued

TABLE 3—*Continued*

	Affiliated with Regional Payer			Integrated Multispecialty Group	
	Practice A	Practice B	Practice C	Practice D	Practice E
Practicewide changes	Initiated regular staff meetings. Performed previsit work, including populating medical record notes with patients' information before visit. Eliminated pharmaceutical-sponsored lunches to promote more cost-effective generic prescribing. Changed appointment scheduling templates to increase access. Empowered nurses to triage patients, run protocols for strep pharyngitis and urinary track infections, and manage anticoagulation clinic.	Retrained staff; no new staff hired. Moved one RN from frontline telephone triage work to do case management. Focused on postdischarge follow-up from the emergency department. Improved patients' access to care by opening an X-ray imaging center on-site, and allowed after-hours telephone calls to avoid unnecessary ED and specialist referrals.	Eliminated pharmaceutical-sponsored lunches. Improved coding in patients' records to better reflect actual disease severity. Made minimal other staffing changes or new hires.	Initiated daily team huddles (meetings), with focus on improving processes such as telephone call response rates. Actively solicited suggestions from all team members. Better job role descriptions and task assignment, with publicly displayed deadlines. Emphasized process redesign. Incorporated assiduous process measurement and visual display of results on walls of the clinic to openly track team progress.	Hired significant number of new medical assistants. Increased scope of care for RNs and hired new nurse practitioners. Convened rapid improvement sessions on patient flow and telephone triage.

Continued

TABLE 3—*Continued*

	Affiliated with Regional Payer			Integrated Multispecialty Group	
	Practice A	Practice B	Practice C	Practice D	Practice E
Point-of-care changes for providers	Created preliminary "populated" notes with information (such as problems, medications, allergies, etc.) before visit, to complete notes quickly. Focused on achieving chronic disease management targets through payer-provided chronic disease performance sheets.	Held daily "virtual mini-huddles" (i.e., brief meetings before starting the clinical session) of relevant care team members to address work-flow issues. Streamlined work flow by improving previsit preparation and postvisit processes (e.g., by populating preliminary notes before visit and providing end-of-visit handouts after visit).	Used chronic disease reminder and lab value sheets (provided by commercial vendor). Assigned case managers for diabetes care.	Emphasized smoothing of work flow and elimination of time waste. Developed highly integrated MA-MD "dyad team-let" that enhanced MA's pre- and postvisit roles in preparation for and follow-up after patient's visits. Held daily "huddles" around a white board in the hallway during patient-care session, to coordinate work flow for the day. Increased work between visits and telephone outreach to patients. Created systems to alert team to patients' needs early, such as undiagnosed HTN. Physician schedules shifted to address population management.	Instituted MA-MD "dyad team-let" model practicewide, with shared offices. Ensured that results of lab tests drawn before patient's visit would be available at point of care during visit. Assigned MAs to coordinate reminders of routine screening and other tests or follow-up appointments. Delegated to MAs the task of medication reconciliation (both before and after clinic visits), to reduce confusion and medication errors.
Quality improvement measures	Focused on 16 HEDIS measures, as well as antibiotic overuse, generic prescribing, and overuse of back-pain imaging.			Focused on a multitude of patient-flow and practice-process measures (e.g., telephone response times, visit wait times). Targeted DM and HTN for chronic disease management improvement. Monitored cost and efficiency trends.	Focused on HTN and DM composite scores. Evaluated the following metrics: obesity (BMI) tracking, smoking cessation interventions, patients' enrollment in personal health records, overall cost, ER visits; admissions, readmissions, drug costs.

Continued

TABLE 3—*Continued*

	Affiliated with Regional Payer			Integrated Multispecialty Group	
	Practice A	Practice B	Practice C	Practice D	Practice E
Specifics of payment plan to the practice	Provided practice with risk-adjusted monthly capitated rate for each patient attributed to the payer (though funds could be used for practicewide transformation). Costs for testing, imaging, pharmacy, hospital, and specialty care of patients still paid by fee for service. Practice received bonuses for quality and efficiency achievements met at level of practice, assuming a threshold level of patients' experience is achieved. Up-front transformation support available to practice through the comprehensive payments, along with revenue stream not dependent on fee-for-service visit billing.			Moved away from fee-for-service payments through establishing a salary for physicians based on highest of last 4 quarters' productivity targets achieved, with quality and efficiency performance bonus payments of ~$10,000 to 30,000 available.	Set physician salaries at 80% of previous productivity level with 20% bonus paid for meeting basic professional duties targets, with an additional 20% bonus available for quality and efficiency performance. Also paid an additional bonus of $250 quarterly to all practice staff based on QI process performance regarding DM, hypertension, lipids, and adolescent well-visits.

Notes:
BMI: body mass index
DM: diabetes mellitus
EHR: electronic health record
ED/R: emergency department/room
FTE: full-time equivalent
HEDIS: Healthcare Effectiveness Data and Information Set
HTN: hypertension
IHI: Institute for Healthcare Improvement
LEAN: quality improvement methodology
MA: medical assistant
NP: nurse practitioner
QI: quality improvement
PA: physician assistant
PCMH: patient-centered medical home
PHR: personal health record
PMPM: per member per month
RN: registered nurse
TransforMED: consulting arm of the American Academy of Family Physicians

organizational structure for the transformation. A large regional insurer sponsored the transformation of practices A, B, and C through a new payment model, and it also funded an external consultant to help them implement the changes. These practices were much less integrated than practices D and E, which underwent transformation using internal funding, in part based on their already high level of capitated contracts. As demonstration sites for a highly integrated multispecialty group, practices D and E used well-developed internal consultative and collaborative resources to inform their transitions. Despite the short time frame of twelve to eighteen months, all five practices made many and extensive changes. Table 3 illustrates the large variety of these different change processes and provides the context and background for each practice.

Grounded Taxonomy of Insights into Medical Home Transformation

In this section we present some of the insights from these practices' experiences in transforming to medical homes, which are based on interviews, observations, and analysis by our evaluation team. These insights were derived from eight key thematic areas that emerged from our field notes and discussions. While these overlap somewhat with recurring themes in PCMH design and literature, we chose as our starting point what we heard and saw rather than what others have written. We organized these insights and observations around representative quotations from our site visits, which we attribute to practice sites when possible.

The Context: Unique Circumstances Launched These PCMH Pilots. Because the genesis and generalizability of these medical home experiments were our main interest, we sought to understand their historical context and the impetus that led to them. Most of the practice leaders told us how they encountered what they dubbed "the Goroll model" (Goroll et al. 2007), which spoke to their concerns and needs. As one of the physician leaders in practice A stated,

> We were dying on the treadmill, trying to run faster and faster. I figured I could either become a dermatologist or buy a bowling alley. Then I saw the Goroll article, and we had him come out and we were ready to go; couldn't believe how perfect it was, but what we didn't realize was the depth of the change involved.

Meanwhile, and ironically, the coalition's plans for a larger, multisite test of the Goroll model encountered problems with its implementation. Mainly because of the multipayer nature of the U.S. health system, competing insurers who repeatedly voiced support for the medical home model and the needed financial reconfiguration were unable to agree with one another on the design of a multipayer pilot plan. As a result, plans for a larger pilot floundered, as interested practices could not see a way to build a medical home for just the few patients represented by any one insurer. Then a large regional payer and large integrated multispecialty group offered to invest in testing the model in five practices across two states. As the large payer funding the transformation of practices A, B, and C observed,

> Even though only 45 percent of the practices' patients were ours, we fully bonused the providers [for 100 percent of the patients] and did not prorate based on the number of our patients versus others.

Even though these two organizations supplied financial support to launch these ambitious medical home projects, according to interviewees at the practices, the investment came with expectations that results would be demonstrated fairly rapidly. The special nature of the events leading to the pilot's creation raises questions about how such projects could be initiated and sustained in the future without more unified and sustained approaches to payment reform.

Wide Variations in Implemented Changes. In just these few practices, we observed significant variations in the changes implemented in the name of "medical home" transformation. As table 3 shows, the changes and approaches overlapped only occasionally. A person at site B described how:

> We did not hire any new people specifically for this project. We looked at what are doctor things, nursing things, clerk things, and tried to make sure they were each just doing those types of things. . . .

Meanwhile, practice E reported that it had hired several new medical assistants (MAs) in order to completely reconfigure the practice's basic work team structure based on a model of one physician to one MA.

Furthermore, some practices concentrated on reengineering between-visit and population management activities (i.e., calling patients on disease registry lists), while others concentrated on changing the work flow and content of clinical encounters. Although this dichotomy was not absolute, the divergence was noteworthy. Yet both groups described these contrasting efforts as aiming toward converging ends. Some practices worked obsessively to drive out waste and create efficiencies to free up staff and resources for more chronic care and proactive population management. Others focused on outreach, seeking to avoid preventable clinical encounters, thereby allowing physicians to accept new patients or spend additional time with more complex patients. About the payer-sponsored initiative, one physician remarked:

> We thought good operations could create capacity, and we could then reinvest this for the non–face-to-face aspects of care, to reinvest this into better chronic care. But it turned out that there was a limitless amount of work, and we're not sure if we really made a dent in the amount of work by the efficiencies that were created.

For others, such as those in practice D, the process reengineering seemed to be beginning to show benefits by the time we visited, particularly in areas such as streamlining telephone triage and using nurse-led protocols to adjust hypertension and diabetes medications. By measuring and fine-tuning these processes, this practice reported that it was showing efficiency gains, thus enabling it to free up staff time for better between-visit wellness care.

> We call every patient, arrange for reliable follow-up appointments, and reconcile medications over the phone. Patients are very happy to hear from us, and we are able to identify and fix medication errors, which we found in roughly one in ten patients.

Catalyzing Change: Varied Use and Value of Consultants. Each practice that worked with consultants reported a different experience, even though most worked with the same consulting company, TransforMED, the Medical Home implementation consulting arm of the American Academy of Family Physicians (AAFP 2012). The LEAN method of reengineering process improvement, first popularized by the Toyota Production Systems (Chalice 2007), was also cited as integral to the transformation of sites D and E. In each practice, the consultants

were paid by the sponsoring regional payer or the overarching group entity.

> We could not have done this without the help of TransforMED. They had a huge hand in getting everyone around the table, teaching everyone to work through processes, start to finish. Their trainer was the voice of reason with MDs; she really helped us in building consensus. She taught us the language and kept us going. (Practice A)
>
> TransforMED stimulated this tremendously. We now think of patients whether or not they are physically here. This is a change for us. This, plus team building—that was another important change. They were like a parent. We loved and needed them, even though at times we didn't think we were ready for their advice. (Practice B)
>
> We disengaged from TransforMED. We're not a one-size-fits-all, not a cookie-cutter office. We did work with them for five to six months but concluded we already know how to manage our own office. We did not need their guidance, and they were wasting our time. TransforMED works with practices with major problems. We already have high satisfaction and were doing well financially. (Practice C)
>
> We invited a person from TransforMED in who spent three days with us, but [we] found it was not that helpful. He told us what we already knew. Instead, and by perfect coincidental timing with this project, we discovered LEAN. LEAN approaches allow us to make changes in a more structured way. By involving everyone in looking at the current state data, the mechanics of LEAN allowed us to build our primary care medical home. (Practice D)
>
> We started our PCMH project using a LEAN initiative approach from the beginning. We had some help from one of their consultant groups, but mostly we are not really relying on outside training and consultants. This is because we already had a fair amount of local expertise as well as organizational help from our central office who were experienced with LEAN. (Practice E)

Each of the practices commented on the role of and need for external facilitation and support to implement PCMH. All but one of the practices clearly recognized the need for a both well-formed and prespecified change model, as well as a road map to make the changes.

We found that some (but not all) practices funded by the large payer embraced using external consultants to drive internal change, whereas those in the multispecialty group were more interested

in nurturing internally driven culture change. The two multispecialty group practices stated that the LEAN process was essential to transformation:

> We could not have accomplished these changes without LEAN. Remanufacturing primary care required us to use a variety of LEAN concepts and tools, such as load leveling, detailed standardization of work [e.g., a nine-page hypertension management protocol], visualization for transparency via tools such as huddle boards and cue cards, "just in time" processing, and one-week rapid improvement team initiatives. (Practice D)

Health Information Technology: Ubiquitous but Challenging. The role and necessity of information technology (IT) and electronic health records (EHR) are areas of intense interest, development, and controversy in transforming primary care (Bates and Bitton 2010; Schiff and Bates 2010). In fact, IT systems and information interoperability topped the list of issues highlighted by staff during our site visits. We grouped our observations into four areas paralleling key IT functions and interventions: (1) enhanced EHR use for reengineering clinical encounters, (2) interoperability challenges in information flow across care transitions, (3) population management and chronic disease outreach initiatives, and (4) patient portals (online applications that allow patients to communicate with their health care providers). In each area, we documented examples of both great satisfaction and great frustration.

> Our MAs help start my notes before the visit. My notes are now done by the time I hit the parking lot. [Notably, another MD in the same practice described not being able to make this work for him.]
>
> By pairing each of us with a MA and standardizing tasks done by the MA before the physician enters the room [including updating the problem list, medication reconciliation, immunizations, starting the notes, reviewing/entering lab results, in addition to usual vital sign recording], we restructured each person's responsibilities to get the best flow.
>
> This EMR has better messaging, templates, and smart phrases than several of the others I have used. It's a mature EMR, and as a mature EMR user, I am able to take advantage of it to finish my notes so I don't have to do them at home.

A majority of the practices already had mature EHR implementation (more than five years), and we found evidence of a continuous learning process to push the functionality in using templates and teamwork collaboration (e.g., templates for the MA to update medications and family history). However, the majority of physicians we interviewed still spent up to two hours at home in the evening completing or preparing notes.

These physicians expressed their desire for PCMH transformation to ease their charting burden, which was a major quality-of-life and practice satisfaction issue in primary care.

Another recurring theme related to the practices' efforts to ensure the timely identification and collection of summaries from hospitalizations, emergency department visits, and rehabilitation hospital discharges. At site A, a large percentage of two nurses' time was devoted to rounding up hospital discharge summaries, necessitated by the lack of interoperable information exchanges between various hospitals and the practice's IT systems. Even automated notification of the discharges, which practices A, B, and C could have found in their insurer's billing reports, failed to overcome this need for more manual efforts because the reports were neither timely nor complete. Inpatient discharge summaries were particularly challenging, with patients spread over a half dozen neighboring hospitals.

Notably, practice C, with arguably the least developed information infrastructure, had one of the most effective systems for obtaining reports, partly because of an interoperable health record connection with the two main hospitals serving their inpatients. Practice C also relied on its affiliated group practice's central office, whose IT specialists collated billing and clinical data, which was formatted into useful chronic disease performance reports and fed back to the practice each day. By converting a relative weakness to a strength (delegating various IT functions to the central office), this practice provided an interesting model for overcoming its IT hurdles.

Although each practice had patient portals, their penetration varied only from zero to 17 percent of their patients. These portals were clearly more in the germinating than the fruit-bearing stage, even for those practices reporting fully functional portals:

> Our portal, based on our commercial EMR, has been tremendously useful and is a huge time saver. However, I find email is much quicker.

> I love being able to quickly communicate with patients via e-mail, as opposed to phone, which can really slow me down, as the patient would end up saying "oh, by the way," and raise many peripheral questions that I would have to answer when I was calling to give their lab test results. (Practice D)

While this statement raises further questions (what are all these unanswered questions and who should, and how best to, address them), it does point to the issues in using information technology to improve work-flow efficiency and quality. Efforts to deploy IT in medical home transformation are in their infancy and may be missing the mark in important and needed ways (Bates and Bitton 2010; Schiff and Bates 2010). This concern is illustrated by a quotation from one of the more IT-advanced of the three sites in the large payer-funded pilot:

> We were paperless when our PCMH project started. But now it's all paper, we're drowning in paper. We are now collecting previsit information on paper forms; billing used to be paperless, and now superbill is all on paper. We have boxes of paper piling up with backlogs of un-entered data.

Finally, we note the summary conclusion of one physician in practice D. Standing in marked contrast to depictions of physicians as resisters of new IT, he expressed the practice's desire for more and better systems:

> Our biggest frustration is with the technology; we find it can't keep up with our ideas.

Teams and Teamwork: Reengineering Roles and Care. Although we were not surprised that the issue of teams and teamwork was central to these practices' self-conception of PCMH, we observed that the meanings and uses of these seemingly simple words varied widely. To some, the term PCMH referred to the small working unit (or "teamlet") (Bodenheimer and Laing 2007), particularly in practices with teams consisting of one MA paired with one physician. The word *team* was also frequently used to refer to the overall practice that was forging a new culture embodying collective PCMH principles:

> This conference room where you are sitting is ground zero. Our team, which is comprised of all members of the practice, gathers here every

> two weeks to discuss and redesign our practice. Extraordinary things happen in these team meetings; last week my MA presented my three worst controlled hypertensives; it was embarrassing, revealing, and amazing that we could have such a candid discussion. (Practice E)

A third use of the word *team* was in reference to performance improvement teams. Practice A, which was described by the sponsoring health plan as the "poster child" of multidisciplinary teamwork, created a series of functional teams:

> We put together a series of six teams: a care coordination team, a communication team, a scheduling team, etc. These teams were very multidisciplinary, and we designed them to especially include support staff to make sure they broke down rather than increased silos.

The two practices in the multispecialty group (D and E) created a different series of teams, using LEAN strategies to perform formal "rapid improvement events" (RIEs):

> We have now completed four RIEs, where we take people off their job for an entire week to reengineer a specific work flow. We do these quarterly, and so far we have (or are planning) RIEs for the referral process and their cost-effectiveness, scheduling template reconfiguration, no-shows.

While the positive energy and a number of important measurable accomplishments were evident, we recorded other, more sobering comments about change improvement teams in both the less integrated and more integrated practices:

> By appointing all these functional teams early, we found it hard to get and keep them all going at once. This led to considerable disappointment and frustration for those on teams that did not meet or do much for the first year. (nurse, site A)

> The RIE related to scheduling and reconfiguring the schedules in the computer was not successful; it was actually a big mess. One person had all these good ideas, good in theory, but they just didn't work out. We couldn't quite get the templates to work, particularly around scheduling routine physicals; we kept getting way behind in our work. (physician, Site D)

Finally, rather than teams, one practice in the large payer group (practice C) evidenced a more top-down, traditional approach to change led by the practice's lead physician and owner:

> We didn't change a thing in the way we organized things.

This practice was noteworthy for its more hierarchical leadership approach and relative paucity of discrete teams, as well as its accomplishments. Remarkably, in early health plan data on efficiency and improvement, this practice stood out for its increased composite index efficiency score (whereas the two counterpart PCMH pilot practices showed little change, according to unpublished data collected by an insurer), raising several intriguing questions. Could more top-down approaches be more efficient and effective for short-term impacts? What effects would this have (or not have) on fostering the teamwork relationships needed for longer-term sustainability?

Compensation Reorganization: Centrality and Indifference. Compensation reorganization was the central focus for both these five pilots and our interest in understanding how compensation change would affect the PCMH transformation experience. Each group had an elaborate reimbursement reconfiguration plan based largely on the Goroll model (Goroll et al. 2007) and other established pay-for-performance schemes. Two recurring observations were evident in all five sites. The first is the physicians' self-stated indifference to and ignorance of the schemes and their details across all sites:

> They are studying this for economic reasons, but I am doing it for other reasons. Even though I am not making my bonuses or any more money, I am happier.
>
> I have heard about reimbursement changes but don't really know anything about what it is about. We know there is pressure to do better, but we don't really know much more about it than this.
>
> Whether I am paid more money or not matters little to me here. More motivating than any bonus is [my] ability to provide more rational, high-quality care.
>
> New compensation formulas? I never thought about it. Lifestyle is more important than paycheck. I would rather have control over my day.

While such statements may have been influenced by a social desirability bias (desire to sound less motivated by financial incentives), their consistency, sincerity, and depth were noteworthy. As one practice leader pointed out, "Maybe these physicians would be feeling differently if their incomes were declining." However, there were a number of examples of sticks (reimbursement hold-backs) in addition to the various carrots (base salary boosts, modest extra compensation for time spent on activities beyond face-to-face encounters) built into these pilot plans, suggesting that the real interest and focus was not just on their income.

We also noted some confusion between these new PCMH compensation schemes and the shifting landscapes of fee-for-service and capitation reimbursements. A number of these practices historically were part of staff model HMO groups before shifting back to fee for service; for these physicians, the "hamster wheel" was synonymous with fee-for-service medicine. Others had a more nonspecific appreciation that reconfigured reimbursement could somehow make shifting away from exclusive face-to-face encounters more financially viable:

> We have long experience with capitation. The payment world that we live in permits us to take risks. It allows us to take a risk to decrease reliance on encounter visit–based revenue.
>
> We welcomed the opportunity to get off the RVU [relative value unit] hamster wheel where we have to see more and more patients just to keep up our productivity.
>
> The hardest thing for us is that we have legs in two worlds, FFS [fee for service] and capitated. In the fee-for-service world, we don't get paid for these patients if we don't bring them in the office.

The payer sponsoring transformations in practices A, B, and C was clear that such jump-starting investments were required but also was anxious to show a return to its board to justify the investment:

> Our approach was different: we always were concerned with economics and its critical role driving practice reform versus the more prevalent model that posits that practice reform would in turn drive the dollars.

> We have a fair amount of money on the table. For our board, this is the centerpiece. They're expecting real deliverables. We invested heavily in increasing the nursing and other staff to MD ratios.

What about the nonphysician staff? We explored the ways that any financial rewards were structured to include, or exclude, them, as well as to learn their overall reactions. The five practices used five different approaches, with several turning out differently than planned.

> It wasn't just the MDs that were compensated, but [it] was tricky to figure out how, and thus we never really formally structured that part. It does somehow trickle down to rest of the staff, but they don't count on it or expect it.
>
> If we meet our four target goals across the organization, everyone will share in the bonus.
>
> At every level of staff, there was a level of bonusing. Each could get an extra 5 percent, but despite this, we couldn't get anybody's attention. It wasn't motivating at all—not at all effective.
>
> We wanted to include nurses in the bonus reward plan, but difficulties arose with the nurses' union—and there was a big cultural battle among the nurses. "That person doesn't deserve to get more than I am getting." Although the union eventually came around, the nurses themselves couldn't reach a consensus, and the plan was never implemented. As one of the nursing professionals working hard to make improvements, I resent that it couldn't be worked out so I could have gotten a bonus I feel I deserve.

Pace of Change; Effects on Staff. There was visible tension between going too slow and pushing too hard and fast. We observed the self-awareness and honest acknowledgment of this balance to move fast but to try to avoid change fatigue. This was particularly evident in efforts to push staff to work more at the "top of their training" skill level:

> We found we were going too slow and losing the staff's interest. Many of the people were excited to get appointed to the teams, yet it was hard to get all the teams mobilized early enough, and many got discouraged because they did not seem to be involved.
>
> We touched every point of the PCMH model. We now recognize that we tried to do too much too fast. Change is energy consuming, and we were trying to do a lot of things at the same time. At one

> point we witnessed twenty nurses and support staff driven to tears; our consultants said we had to stop for a while to catch our breath.
>
> Change fatigue was a big challenge for us—it was like an up-and-down roller coaster.
>
> We had to keep adjusting our pace along the way. But when [we] wavered in commitment, the nurses wouldn't let us stop.

One change featured in both the PCMH literature and the observed practice transformations involved using the skills and time of nurses and MAs to maximize what they and the practices could accomplish. This went beyond merely relieving physicians of clinical and clerical tasks, although some changes did entail shifting work away from them. To take on new tasks, they adjusted the quantity or quality of existing tasks on nurses' and MAs' plates. Most often, the practices and relevant staff made such adjustments effectively. But we also found examples in each practice in which this tension was not addressed to the staff's satisfaction. A dramatic example—one we almost missed (revealed to one member of our team only during the observation period and later confirmed by others)—was from a nurse in a practice that had seemed to be a model of collaboration and teamwork.

> There has been major pushing back all along; the support staff feels totally overloaded. RNs' roles have undergone a 180-degree change. We were hired as phone triage nurses. Now we are doing more chronic disease management and face-to-face triage—jobs we find more satisfying—but we still have to do much of the phone triage in addition to these new roles. This is not sustainable for us.

We uncovered another change fatigue variant: staff tiring of practice process transformation meetings that overrode more traditional continuing education, for which they still yearned. According to a physician in practice D,

> Now we only meet to discuss project activities, since there are so many of them. There is no time for medical speakers; there is no life of the mind any longer, just not enough time. We don't even have the time to talk with the specialists like we used to.

Hidden from View: Findings Confounding Interpretation of the PCMH Pilots. Our evaluation team observed a number of potentially confounding events and factors, including major concurrent EHR shifts, the opening of new offices, wholesale changeovers of staff, new non-PCMH improvement programs, changes in insurance coverage and plans, and coinciding economic recession. These factors may make it more difficult to attribute changes in outcomes simply to the payment-linked PCMH transformation.

For example, we learned from one practice's billing staff that many patients were refusing to come for tests and appointments because the area's largest employer had recently shifted many employees to a health plan with an annual deductible of several thousand dollars. Meanwhile, the pilot data showing large decreases in the utilization of expensive drugs and imaging tests had been largely attributed to new, more cost-effective ordering policies associated with PCMH-related staff education. In practice E, we found that the practice site had been recently founded with both self-selected and hand-picked staff, which roughly coincided with the launching of the PCMH initiative. While we were impressed at the special commitment of these staff, this practice's experience may be less generalizable for more established practices engaged in transformation.

A final surprising finding was seeing a Medicare patient being turned away at one practice after being told, "We no longer take new Medicare patients." Efforts to analyze risk-adjusted chronic disease management processes and outcomes in elderly patients surely will be confounded by such a policy, of which the research team was not previously aware. These examples help illustrate the difficulty of interpreting isolated clinical and claims data without any knowledge of unintended or concurrent changes that contextualize those data.

Discussion

We evaluated five practices participating in a coordinated PCMH demonstration project linked to payment reform using observational qualitative methods, and we found a rich variety of approaches, changes, successes, and frustrations. Our finding of complex (and, at times, contradictory) experiences affirms the need for qualitative evaluations to better understand where, whether, why, and how certain practices achieve PCMH-related change. Our data suggest that such evaluations are also

needed to identify potential confounders, as well as to understand the experiences of staff undergoing rapid change. Finally, our observations allowed us to spotlight more implicit tensions and questions, issues that must continue to be raised and addressed if PCMH is to be a viable health reform strategy.

As Berwick emphasized, these "stories beneath" open important windows into the "mechanisms" and "context" vital to understanding quality improvement efforts (Berwick 2007). Likewise, we believe our findings demonstrate that such stories are important to achieving the insights and accountability needed to carefully evaluate groundbreaking pilots.

The first noteworthy finding of large variations in starting points, approaches, and interventions, while hardly unique to these PCMH pilot practices, cannot be overemphasized (Nutting et al. 2011). Even with a well-defined model, external facilitation, and standardized PCMH criteria, there were large differences among the practices in the same network and even greater variations among the networks in our study. The varied application and mixed transformation successes observed in these pilots cannot be fully captured by check boxes on a medical home scorecard.

A fundamental question raised by these wide variations is: What is a medical home? Is it a smorgasbord of different change tactics under the general rubric of making primary care practices more patient centered, proactive, efficient, and cost-effective? Such a broad framework maximizes flexibility but presumes that any improvements in these general directions have value and ultimately will lead practices to more fully embody medical home principles and attributes. Or does PCMH transformation require more standardized models that systematically ensure that specific practice changes are made? Our observations suggest that the five practices worked more in the smorgasbord mode and are unlikely to emerge from the PCMH transformation with similar features in place. To the extent that this is also true for other medical home implementations, it raises questions about comparing and interpreting findings across the hundreds of projects currently under way. Nonetheless, if the evaluations do show gains in patients' experience, efficiency, and quality, this suggests that there may be many possible routes and models for improving primary care through the medical home model. Furthermore, it suggests that adaptive local variation and innovation with the means to achieve this change are both permissible and perhaps even laudatory.

At the very least, these variations can help inform *a priori* hypotheses for larger quantitative analysis, pointing to areas where we might expect and explain improvements (or the lack thereof) among these five practices. For example, practice A stood out for its focus on postdischarge follow-up efforts, dedicating two nurses to ensure that every discharged patient was called and given a follow-up appointment, an activity we will be evaluating as we measure and compare readmission rates.

A second important finding relates to staff perceptions and mechanisms regarding the new financial payment formulas, which was of particular interest in these five pilot sites. Unlike earlier demonstrations, these five projects were explicitly based on practice change linked to novel compensation reform, including an elaborate, risk-adjusted method for practice and practitioner reimbursement. To the extent that PCPs are—as has now been well documented—spending large portions of their day performing vital but un-reimbursed patient care management activities, more rational and outcomes-aligned models for reimbursement are essential (Bodenheimer 2008). The "hamster wheel" metaphor was frequently invoked by the physicians in our study to describe prepayment reform practice. But here, the reformed payment model was less an individual motivator for change and more a way of creating space to step back from fee-for-service volume imperatives and of freeing time for practicewide reengineering. Rather than motivating individual change, payment reform appeared to be related to the practice's quotient of "adaptive reserves" available for changes, echoing recent lessons learned about the primacy of payment reform (Miller et al. 2010).

Given our repeated finding that professional staff lacked a detailed knowledge of, and expressed indifference to, individual incentive formulas, policymakers and payers should concentrate more on ways in which reformed payment can provide additional support and space for practicewide transformation and less on individual staff members' financial incentives. It also raises questions as to whether new primary care models without payment changes will be able to make transformational changes; and whether those reforms that are in place in many PCMH demonstrations across the country will have sufficient support to build more effective and sustainable primary care (ACP 2006) or whether, as others have argued, it will be too little too late (Hoff 2010). The creation of several large multipayer primary care transformation initiatives at the

state and federal levels linked to robust payment reform will directly test and refine these concepts on a large scale, providing valuable lessons over the coming few years.

A third lesson is that challenges in effectively using information technology loomed large at each site. Computers and data were critical factors and frustrations for both reengineering clinical encounter work flow and carrying out proactive population management. Efforts to redeploy staff to support more efficient clinical documentation using teamlets, as well as efforts to integrate and work with fragmented data from hospitalizations and emergency visits, were recurring observations. We saw repeated examples of how suboptimal IT work-flow design and the lack of interoperability frustrated staff's transformation efforts. Creative work-arounds could often partially overcome these constraints, but rapid and systemic improvements were frustrated by the inability to quickly customize IT solutions. The next generation of EHRs and the infrastructure for data exchange will need to better support specific medical home needs in order for primary care transformation to flourish.

Finally, although space and the preservation of anonymity preclude a more detailed description of the staff energies that we observed unleashed, there were clearly noteworthy changes occurring. These included the nurse practitioner who created a brand new role of liaison hospitalist for the outpatient practice (despite still spending most of her time in the inpatient setting), the uniquely LEAN-knowledgeable leader of one practice, the more traditional physician practice owner who made remarkable changes in his ordering practices, and the front-desk staff who deftly improved bill-filing work flows (demonstrating why completed forms were difficult to find in the current system). Instead of stereotypically beleaguered physicians and other staff simply trying to get though each day, complaining bitterly about dysfunction in primary care, we witnessed a different dynamic and resulting set of activities around the daily work of improvement. The challenge of weaving together and sustaining these activities on a local practice level, in addition to an even greater challenge of coordinating efforts to overcome larger system dysfunction, looms large. The viability, sustainability, and generalizability of these internal transformations and the renewed joy in work that we witnessed are contingent on external reforms that take into account the staff concerns that we identified (Miller et al. 2010; Nutting et al. 2009, 2011).

Limitations and Strengths

Our qualitative inquiry was part of a larger evaluation plan with design aspects beyond our control, some of which may pose limitations to our findings. Although control practices will be included in the quantitative evaluation, this qualitative evaluation plan did not have the resources to employ a sampling strategy that would have allowed us to compare these atypical, highly motivated practices to control practices. Thus, we could compare only the practices with one another and draw generalizations based on their experiences. Owing to individual confidentiality agreements, we also could not identify each attributed quotation.

Our evaluations relied heavily on the subjective staff impressions, with obvious biases and recall limitations. We also had no baseline qualitative data, owing to the naturalistic timing of the demonstration project and the evaluation plan that followed. Our retrospective interviewing strategies attempted to reconstruct this chronology of change while on-site at the site visits, but we acknowledge the loss of longitudinal data captured in real time. Finally, a one-day site visit can hardly do justice to the enormous complexities of any primary care practice, especially one undergoing significant change efforts. We tried to maximize our limited time by using several evaluation team members to conduct the visits and following a four-step process of interviewing and observations that would enhance our efforts to triangulate the data.

We also made time for systematic group debriefings to "debug" and internally critique our varying insights and conclusion. The varied ages and professions among our team members (which included a student and nurse) could have either helped elicit the trust necessary for honest conversation with providers or inhibited other staff from candidly sharing experiences and concerns.

Conclusions

As the PCMH movement grows and gains experience, we must learn as much as possible (and in as many ways as possible) from the PCMH experiments currently under way. Given the emerging consensus that such delivery changes are needed, understanding how practices are implementing change may be as, or even more, important than simply demonstrating improved short-term outcomes—the primary goal of the initial wave of projects. Examining on-the-ground specifics of how five

pioneering pilots were implementing a model tied to payment reform provided eight linked insights into defining and measuring medical home transformation, as well as the primacy of payment reform for creating a space and structure for practices to work on rapidly reconfiguring themselves.

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