

Journey to the Patient-Centered Medical Home: A Qualitative Analysis of the Experiences of Practices in the National Demonstration Project

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ABSTRACT

PURPOSE We describe the experience of practices in transitioning toward patient-centered medical homes (PCMHs) in the National Demonstration Project (NDP).

METHODS The NDP was launched in June 2006 as the first national test of a model of the PCMH in a diverse sample of 36 family practices, randomized to facilitated and self-directed intervention groups. An independent evaluation team used a multimethod evaluation strategy, analyzing data from direct observation, depth interviews, e-mail streams, medical records, and patient and practice surveys. The evaluation team reviewed data from all practices as they became available and produced interim summaries. Four 2- to 3-day evaluation team retreats were held during which case summaries of all practices were discussed and patterns were described.

RESULTS The 6 themes that emerged from the data reflect major shifts in individual and practice roles and identities, as well as changes in practices' management strategies. The themes are (1) practice adaptive reserve is critical to managing change, (2) developmental pathways to success vary considerably by practice, (3) motivation of key practice members is critical, (4) the larger system can help or hinder, (5) practice transformation is more than a series of changes and requires shifts in roles and mental models, and (6) practice change is enabled by the multiple roles that facilitators play.

CONCLUSIONS Transformation to a PCMH requires more than a sequence of discrete changes. The practice transformation process may be fostered by promoting adaptive reserve and local control of the developmental pathway.

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INTRODUCTION

The concept of a patient-centered medical home (PCMH) has captured the imagination of many parties to the national debate on health care reform.¹⁻¹⁰ The National Demonstration Project (NDP) of the American Academy of Family Physicians (AAFP) was the nation's first large-scale demonstration of primary care practice redesign, based on the emerging principles of the PCMH.¹¹

This 2-year NDP was supported by the AAFP and included an independent, ongoing multimethod evaluation by the authors to examine the feasibility and effectiveness of implementing the principles of the PCMH. In an earlier publication, we described initial lessons from the NDP and emphasized that transformation to a PCMH was distinctly more than a series of changes and revealed the need for transformation to be a locally

driven effort.¹² In this article, we report on a qualitative analysis of the variation in time, strategy, and effort required among the NDP practices to implement the NDP model components. Other articles in this supplement describe quantitative patient-level outcomes¹³ and mixed-method practice-level outcomes.¹⁴

METHODS

Settings and Participants

The NDP was launched in June 2006 by TransformMED, a division of the AAFP,¹⁵ to test a model of the PCMH.¹⁶ The NDP model used in the study, which is described elsewhere in this supplement¹⁶ and depicted in the Supplemental Figure (available online, at http://www.annfammed.org/cgi/content/full/8/suppl_1/s45/DC1), consisted of 55 individual components within 8 domains. The 36 participating practices were selected from 337 practices that completed a detailed online application. Practices were chosen to maximize diversity of geography, size, age, and ownership arrangements. Practices were randomized into either a facilitated group or a self-directed group.

Facilitated practices received on-site and off-site assistance from an NDP change facilitator; ongoing consultation from a panel of experts in practice economics, health information technology (IT), practice management, and quality improvement; and discounted software technology, training, and support. They also participated in 4 learning sessions and regular group conference calls. Self-directed practices were given access to Web-based practice improvement tools and services but did not receive on-site assistance. They did self-organize their own retreat half-way through the 2-year project and participated in the final learning session with the facilitated practices. The facilitated and self-directed practices were similar on major characteristics at baseline.¹⁴

Further details of the intervention are described elsewhere in this supplement.¹⁶ The evaluation protocol was approved by the appropriate institutional review boards, including that of the AAFP and the academic institutions of each evaluation team member.

Evaluation Perspective and Investigator Preconceptions

As an evaluation team, we share a 15-year history of collaborative, multicenter research on understanding and improving primary care practice. We have found it useful to understand practices as complex adaptive systems, that is, as systems of agents linked by relationships that self-organize and change over time in nonlinear ways.¹⁷⁻²⁰ From our previous work we have created a model of practice change and development²¹

that includes motivation of key practice members and resources for change as internal characteristics, and external motivation and opportunities for change as critical characteristics of the practice environment. On the basis of our earlier analyses of the NDP data, we have refined the concept of the resources for change as consisting of core functions and adaptive reserve.^{12,22} Core functions include the ability to manage basic finances and general practice operations required for the clinical enterprise. The adaptive reserve represents a practice's relationship infrastructure, facilitative leadership, and aligned management model (described further below), which becomes more important when the practice organization undergoes rapid change. These concepts informed the design of the evaluation and analysis, although our analytic approach encouraged emergence of the new ideas described below.

Data Collection

The details of data collection are described elsewhere²³ and expanded in the Supplemental Appendix, available online at http://www.annfammed.org/cgi/content/full/8/suppl_1/s45/DC1. In summary, we had access to observational field notes from facilitator site visits and phone conversations; field notes generated by members of our evaluation team at learning sessions; texts of all e-mail communication between the facilitators and the practices in their panel, as well as with project consultants; and field notes from facilitated conference calls generated by an observer from our evaluation team. We also had access to agendas, Microsoft PowerPoint presentations, and handout materials from the NDP consultants. In addition, a member of our team (E.E.S.) interviewed the facilitators after many of their site visits and at other eventful times. She also visited each facilitated and self-directed practice to conduct interviews and make descriptive field notes from observations. During the year after the end of the NDP, she further conducted telephone interviews with each practice to fill in gaps in the data and explore practices' progress in the months after completing the NDP.

Data collected by the NDP facilitators may be subject to bias; however, the majority of the data used in these analyses were not directly collected by the facilitators, and data triangulation helped to minimize unintended bias. Additionally, before the actual initiation of the NDP in March 2006, the 3 facilitators were given training in participant observation and depth interviewing, with an emphasis on taking low-inference field notes. The training included an overview of the practice change and development model²¹ to provide familiarity with our conceptual framework.

Throughout the NDP, we participated in conference calls with the NDP facilitators. Sometimes these calls

were with individual facilitators and focused on specific practices, whereas at other times, all 3 facilitators participated as a group to address broader questions and concerns. During these calls, we asked for clarification or confirmation of insights emerging from ongoing analyses, capturing details in formal field notes. The extensive e-mail streams between the 3 facilitators and the facilitated practices also proved to be particularly useful in documenting the intense day-to-day communication of facilitators with practice participants.

Fewer data were collected on the experiences of self-directed practices; however, a member of our team (E.E.S.) attended a retreat initiated by the self-directed practices midway through the NDP, conducted 2- to 3-day site visits with extensive field notes, and completed a follow-up telephone interview after the 2 years of the NDP to fill in gaps in the data. Finally, at the fourth learning session, we made extensive field notes to capture observations and informal interviews with self-directed practice participants. The qualitative data collected on practices in each group are summarized in Table 1.

Data Analysis

Members of our team (P.A.N., B.F.C., C.R.J., and E.E.S.) were assigned specific practices and read data as they became available. Twice-monthly conference calls lasting approximately 1.5 hours were used to review overall progress of the NDP and focus discussion on specific practices. To clarify emerging questions, NDP facilitators were also invited to participate as appropriate. This ongoing analysis used a template approach²⁴ to identify data relevant to understand-

ing the process of practice change. Data selection and interpretation were influenced by the practice change and development model²¹ to facilitate ongoing, real-time analyses. These analyses led to quarterly reports that were shared with the NDP staff and board of directors, and posted on the NDP Web page.²⁵

In addition, a series of six 2-day evaluation team retreats were held for extended face-to-face analysis and summary. Before the retreats, we used a template to produce written summaries of each evaluator's panel of practices to characterize each facilitated practice in terms of baseline status and progress to date (Table 2). During the retreats, we generated a table for sorting practices according to their progress in the NDP and an assessment of their adaptive reserve. One of the retreats focused on emerging data from the self-directed practices. See the Supplemental Appendix for further details on data analysis.

RESULTS

The 36 participating practices were located in 25 states, with 11 situated in rural communities, 16 in suburban areas, and 9 in urban areas. Ten practices were solo physicians (some with midlevel clinicians), 8 were small practices (2-3 physicians), 10 were medium sized (4-6 physicians), and 8 were large (≥ 7 physicians). Twenty-two practices were owned by physicians, 1 was owned by a governing board, and 13 were owned by larger hospital or medical systems.

Six key themes emerged from the qualitative analysis. These themes, illustrated and then explained below, are (1) practice adaptive reserve is critical to managing

Table 1. Qualitative Data Collected From Practices and Participants

Collector and Source	Facilitated Practice Group	Self-Directed Practice Group
Collected by evaluation team from practice	Field notes from 2- to 3-day site visits with depth interviews and observation	Field notes from 2- to 3-day site visits with depth interviews and observation
	Full text of e-mails between facilitator and various members of practice	—
	Field notes from observation and informal interviews at 4 learning sessions	Field notes from observation and informal interviews at 1 learning session and 1 self-organized retreat
	Field notes by evaluation team observer from monthly conference calls (6 practices with their facilitator)	—
	Field notes from telephone interview at end of NDP to recap progress and challenges	Field notes from telephone interview at end of NDP to recap progress and challenges
Collected by evaluation team from facilitator	Access to practice listserv	Access to practice listserv
	Field notes from evaluation team interview with facilitator after site visits and other eventful times	—
Collected by the facilitators	Intermittent conference calls and in-person discussion with facilitators about specific practices at eventful times	—
	Field notes from initial site visits and selected follow-up site visits	—
Other material	Agendas, Microsoft PowerPoint material, and handouts from NDP consultants from 4 learning sessions	Agendas and handouts from 1 learning session and 1 self-organized retreat

NDP = National Demonstration Project.

Table 2. Evaluation Template for Ongoing Analysis

What are the unique organizing/distinguishing constructs for this practice (ie, images, features, metaphors)? What immediately comes to mind that is necessary for us to understand who these people are?

What are the initial conditions that are important in retrospect?

Describe the change process, particularly in relation to the practice change and development model.^a How has leadership facilitated/hindered the process? Describe any relationship patterns among key stakeholders. Describe the internal and external motivators relative to the NDP model (may be positive or negative).

Which components of the new model of care are in place in the practice? How did they get in place? Which components are not in place and why?

What are the key features of the facilitation process that have been used in this practice?

What is the evidence for a personal transformation among the physicians? How did this unfold?

What is the evidence for a transformation at the practice level? Did they move toward becoming a learning organization? How did this unfold?

What are the emerging/current issues that are likely to impact on the NDP?

What did the NDP do for the practice?

What does the emerging model look like in this practice at the end of NDP?

Lessons learned:

NDP = National Demonstration Project.

^a Model described by Cohen et al.²¹

change, (2) developmental pathways to success may vary by practice, (3) motivation of key practice members is critical, (4) the larger system can help or hinder, (5) transformation is more than a series of changes and requires shifts in roles and mental models, and (6) practices benefit from the multiple roles that facilitators play.

To introduce our results, we present 5 case summaries to illustrate the themes and some of the diversity of experience we observed among the more successful practices. Further details on variation among practices in implementing NDP components are described elsewhere in this supplement.¹⁴ A striking feature of the NDP was that even among the practices that were highly successful in implementing the NDP model components, the initial conditions and developmental pathways varied. Although the results presented in this report draw on analysis of all NDP practices, we selected 3 facilitated practices and 2 self-directed practices for illustration.

Illustrative Case Summaries

Practice A

Practice A was a relatively new solo physician facilitated practice whose physician leader was essentially building his new model practice from the ground up. The physician owner had broad experience in health plan management, academic family medicine, and quality improvement. Although randomized into the facilitated group, this practice was able to grow and move forward rapidly, needing little assistance to understand concepts and readily implement all the NDP components; in fact, the physician served as an important resource for other NDP practices. During the NDP,

this practice not only implemented all of the technological components, but also began to integrate them into office procedures for proactive care management of patients with complex needs, and to review clinical outcome data to target clinical issues for improvement. The physician leader noted the diffusion of responsibility:

We are small enough to make decisions quickly, and we can implement them quickly as well. The new billing person, who came on 3 months ago, is more interesting because she can do more things than she was able to do in her job before—there is a wide variety she can do here (physician, Practice A, facilitated).

His office manager wife further reinforced this flexibility, commenting, “[billing person] and I can make decisions on the spot without involving the doctor.” The practice also expanded the role of the medical assistants and added a nurse practitioner as part of an integrated team approach to care.

Practice B

Practice B was a medium-sized facilitated practice with several years' experience in effective use of an electronic medical record (EMR) and e-prescribing at baseline. Nonetheless, the practice had inconsistent motivation among the physicians, and many staff were concerned about “protecting their turf” and the implications for additional work. There was also a pattern of unproductive communication among the physicians and serious gaps in front-back office communication and cooperation. The NDP facilitator worked extensively with the practice at all levels, modeling effective communication during site visits and even facilitating practice meetings by telephone. Extensive use of e-mail (as many as 4 to 5 messages a day during peak times) promoted improved relationships and addressed tension and conflict when it surfaced.

The phone calls with [facilitator name] were lifelines. It was critical to have her there, in the beginning. At the meetings and one on one with me she helped me say things the right way and how to respond, it gave me confidence to speak up, it made such a difference, and she showed me how to do it (office manager, Practice B, facilitated).

By the end of the NDP, Practice B had both vastly improved their relationship infrastructure and imple-

mented most of the model components. During the NDP, the practice implemented a patient portal and used it for multiple purposes and greatly improved both their communication with patients and patients' access to their health data, more deeply engaging patients with their care. As the capabilities of their EMR grew, the practice expanded the roles of the medical assistants by protocol and standing orders. In conjunction with other changes, the practice moved substantially further toward a patient-centered (as opposed to physician-centric) approach to care.

Doing stuff in the context of a team is so much better than trying to do it all myself. It's just such a relief. All I can say is, everything is more doable and more enjoyable with a team (physician, Practice B, facilitated).

Practice C

Practice C was a small facilitated practice based almost entirely around the practice style of the senior physician, who had an intense dedication to his patients, even at the expense of his own quality of life and stress on his staff. On his NDP application, he reported working 1.5 full-time equivalents. The facilitator worked intensively with the physician to analyze his work patterns and beliefs about patient care. She helped him discover more efficient work patterns and strategies for incorporating others in the care team without compromising his high standards of physician-patient relationships. During the NDP, this practice implemented an EMR and a second system to pull data from the EMR to populate and maintain disease and prevention registries. The practice also reorganized staff responsibilities to capitalize on the registry potential by actively monitoring and contacting patients identified as needing services. By the end of the NDP, Practice C had not only implemented most of the model components, but had also started using them as a high-functioning practice with an emphasis on team-based care.

I think a medical home means, every time you see a patient, you address that whole patient. Technology can help you do that, but you need the team in place to really make it work (physician, Practice C, facilitated).

Practice D

Practice D was a relatively new self-directed practice owned by a larger physician organization. From the beginning, the senior physician and the office manager shared a vision of a practice based on the principles of the Future of Family Medicine report, and began to specifically recruit physicians and staff who would commit to the model.

This practice was different right from the beginning, that was the idea. [Dr name 1] had the vision, but so did [Dr name 2]. The intent was to be innovative. [We all] started

talking with [the health system]. The philosophy was to recruit doctors who shared the vision as well so we didn't have to waste energy on getting physician buy-in (office manager, Practice D, self-directed).

The physicians were committed to building the practice on a shared vision, and they met weekly for an hour specifically to plot their progress toward that vision. The shared leadership system put conscious effort into empowering staff, and tangible energy was felt in all parts of the practice. The experienced practice manager had a good understanding of system change and what it takes to pull a practice together as an effective organization.

Despite having many NDP components in place at baseline, Practice D implemented an additional 15 components during the 2 years of the NDP, including a full range of online patient services that more fully engaged the patients in their care and a closely integrated team-based care approach that involved both front and back office staff in activities to enhance proactive care and care management.

Practice E

Practice E was a relatively large self-directed practice that had been in the same location for more than 50 years. In 1995, the private practice group of 8 joined an integrated medical center and health system. The practice now consists of 5 teams (3 family medicine, 1 geriatrics, and 1 pediatrics); all have registered nurses, medical assistants, and midlevel clinicians as part of the team. They share a clinical pharmacist and have 3 rotating specialists. Being part of the larger system requires participating in organizational goals and quality improvement projects, which was initially new for a practice accustomed to being autonomous. The larger system also provides administrative, financial, and IT support, and systems for addressing quality and coordination of care, however. When the current medical director first came to work at Practice E, she joined seasoned male physicians in a practice that was very "old fashioned" and one in which the physicians valued their independence. The idea of evidence-based medicine and measuring disease outcomes frankly insulted many of the older physicians, who believed they knew best for each and every patient. The top physician and administrative leadership in the organization were very supportive of the changes she was proposing. She has done a lot of reading, networking, and self-education on change management, including a 15-month fellowship in Lean management^{26,27} through her organization. Since 2000, the practice has been intentionally recruiting younger and forward-thinking physicians and encouraging pilot teams to test new ideas, including

the NDP. Attrition of many of the original physicians was necessary, and encouraged, to be able to move the culture of the practice toward one of innovation and change. All-staff retreats have been a pivotal point in building teams and teamwork. In reflecting on the process, the medical director laughs, "I would say we're on the road...it's just a really long journey. At this point, I'd say we've got a map and were driving on the right route." Later she adds, "We have great microteams, but as one big team, it's tough. You have to lose your fear of change and embrace it. We'd rather be part of the change and future of medicine than sit back and wait."

Emergent Themes

Below we describe the 6 themes that emerged from analyses in more detail, using the cases above and additional quotations from other NDP practices to illustrate them.

1. Practice Adaptive Reserve Is Critical to Managing Change

The magnitude of stress and burden from the unrelenting, continual change required to implement components of the NDP model was immense. Nevertheless, data at baseline and over time revealed that practices varied widely on their initial characteristics and that this variation appeared to affect their ability to effectively deal with the ongoing demands of change, thus resulting in different developmental pathways. Many of the practices in both facilitated and self-directed groups had a solid core at baseline, manifested by the ability to manage basic finances and general practice operations required for the clinical enterprise. We observed that as pressures for multiple changes intensified, however, many practices struggled, and deficits became apparent in their ability to learn and develop. We labeled a practice's capacity for organizational learning and development as adaptive reserve^{12,22} and observed that it included a healthy relationship infrastructure, an aligned management model, and facilitative leadership. Deficits in one or more of these traits contributed to "change fatigue" for many practices, which often emerged in unexpected ways. Change fatigue resulted in faltering progress and reduced the practice's ability to make continual change over time. Symptoms often included unresolved tension and conflict, burnout and turnover, and both passive and active resistance to further change.

Importantly, none of the self-directed practices with limited adaptive reserve at baseline did well in implementing NDP model components. Another article in this supplement describes the quantitative relationship of adaptive reserve and a practice's success in implementing NDP model components.¹⁴

Healthy relationship infrastructure. The characteristics of a healthy relationship infrastructure that became immediately obvious included both effective communication and trust. A number of practices were well aware of the importance of communication and trust, and had initiated strategies to specifically enhance these attributes. For example, Practice D specifically hired physicians and staff who they felt would contribute to their vision of open communication, while Practice E convened an all-staff retreat for building teams and teamwork. Everyone in Practice E received a book on key principles for establishing common values, and the practice continued to use the model for empowering staff. Another of the facilitated practices, Practice F, articulated an explicit culture of quality improvement and change, and placed a high premium on communication and relationships. The physician leader in this practice had a degree in communication and regularly read books on leadership and management.

I learned early on that communication truly is important. As a physician, I've tried to take advantage of all leadership training that comes my way.... I think even if people are born leaders, they have to work to develop that skill so they are effective and reach goals. A lot of it is training, knowing how to direct people, how to delegate (physician, Practice F, facilitated).

She implemented monthly all-hands meetings and personally met with 1 staff member each week during most of the NDP. Staff members were also encouraged to provide input to change ideas championed by the lead physician or practice manager.

In most cases, practices appeared to be functioning well at baseline, and it was not until the intense pressures for constant change that relationship challenges became apparent. This was the case in both Practice B and Practice C, where the relationship infrastructure became a primary issue addressed by the facilitator. In another facilitated practice, Practice G, poor relationships and communication among key practice members created a very tense and conflicted workplace in which staff's opinions and perspectives were dismissed. One physician in particular was perceived as critical of staff members, creating a distinct lack of trust among staff, so they were reticent to speak up or share their opinions for fear of attracting attention. The practice was making very little progress in conducting meetings and struggled to implement any model components until the relationship system was addressed and improved through a facilitated retreat midway through the NDP. In yet another facilitated practice, Practice H, the lead physician had signed the practice up to participate in the NDP, but it was immediately obvious that other

physicians in the practice did not share his vision. It took almost 2 years and the eventual departure of 2 physicians before substantial progress could be made.

Aligned management model. Having an aligned management model in which clinical care, practice operations, and financial functions share and reflect a consistent vision seemed important in moving a practice in an unwavering direction when faced with making multiple decisions of the magnitude required by the NDP. This trait was apparent, for example, in Practice D, where these functions were distributed among several physicians and an effective office manager who shared a definite practice vision and communicated regularly, and in Practice A, where the solo physician met regularly with his office manager to discuss the range of office functions. Often, as in the case of Practice B, the practices initially had a weak management model that needed to be strengthened. In that practice, the facilitator helped the managing physician strengthen the office manager position, and together they gained critical new insights around team approach and the physicians' need to delegate administrative responsibility.

Facilitative leadership. In practices that were able to successfully implement many NDP model components, we often observed patterns of facilitative leadership. Although a charismatic lead physician who could effectively mobilize the team was an important characteristic, particularly in a small practice, it was often not sufficient in larger or more complex practices. Facilitative leaders were observed empowering staff to identify and suggest new ideas and to feel safe in raising concerns about the effect of changes. We saw several examples of facilitative leaders whose respect for all members of the practice was apparent, and this respect created energy, enthusiasm, and commitment that resonated throughout the practice.

What's been really fun, by meeting weekly with staff, is that they see we're not just paying lip service to the idea of staff empowerment, we truly are. And most staff aren't used to giving ideas or problem solving, they are used to management solving the problems. I think it's a lot harder than they thought it would be, and certainly a lot harder than I thought it would be. It's been the greatest challenge, coming up with various methods to get staff to provide input and start talking (office manager, Practice D, self-directed).

My hope is that we will become more and more efficient, that many processes normally done by an office manager will be done by staff and we'll have a sense of shared responsibility (physician, Practice J, facilitated).

In both Practices D and E, physician leaders used retreats and regular meetings to empower staff members to take on the intense challenge of the NDP.

Conversely, several practices were less successful, particularly when a physician champion held the vision but then adopted a "just do it" approach without gaining support or commitment from the rest of the physician group and staff. For example, it was not uncommon for salaried or part-time physicians not to share the motivation of the physician owner(s) to invest time and energy in the magnitude of change required. This was the case in 1 large facilitated practice where the NDP champion was unable to garner sufficient enthusiasm from his busy physician colleagues. He eventually became ambivalent himself and needed considerable encouragement from the facilitator and the learning sessions to remain fully engaged with the challenges of the NDP.

2. Developmental Pathways to Success May Vary by Practice

Practices followed very different developmental pathways, as illustrated by the 5 example practices. Practices A and D had well-developed adaptive reserve at baseline and were successful with little or no assistance from a facilitator. The intense pressure of change brought out deficiencies in baseline potential in others that were addressed in different ways. Practice B started low in adaptive reserve, improved at the midpoint with substantial help from the facilitator, and subsequently finished high through whole-practice transformation. Practice C also started relatively low in adaptive reserve, improved at midpoint, and finished high with assistance from the facilitator and personal transformation of the physician. Self-directed Practice E had only modest adaptive reserve at baseline, but acquired an innovative leader and developed an effective strategy for managing change.

Even in successful practices, progress was often made in fits and starts. The 2-steps-forward-1-step-back pattern was a recurring one that could often lead to frustration. There were, however, critical events when a practice would experience a breakthrough, where daily variation would be overtaken by an event that set the developmental pathway on a new slope. For example, Practice B experienced such a defining moment when the office manager took decisive action in a crisis situation while the lead physicians were at a learning session. Her decision was later supported and reinforced when the physicians returned, representing a watershed moment as a new management balance was achieved.

Nearly all the practices in both the facilitated and self-directed groups were able to implement at least some of the NDP model components, and many were able to implement most components. Nevertheless, the practices varied in the components addressed and the difficulty encountered in implementing them.¹⁴ Nearly all, however, concluded at the last learning session

that 2 years was simply not enough time. Implementing an EMR, for example, was a huge undertaking, and for those few practices without one at baseline, simply transitioning to an EMR required a lot of time and effort. Some practices discovered that their initial design or vision had to be revised as they went along. This became apparent in some practices, for example, as a needed modification of an innovative business model. Other practices simply required more time to develop sufficient adaptive reserve as the pace of change outran their ability to manage it. In some practices, this process led to substantial changes in personnel. Most practices continued to make progress during the year after completion of the NDP, and given time and adequate support, many are likely to be successful in implementing most if not all NDP model components.

3. Motivation of Key Practice Members Is Critical

The NDP included a wide range of new innovations, so maintaining a high level of motivation for change among key practice members became an obvious challenge. Although a major commitment from a physician champion required by the NDP application process ensured that every practice had at least 1 highly motivated individual, success in the 2-year process required substantial motivation among a range of practice staff. Practices that were immediately successful in generating motivation across the range of options often used team-building strategies such as that described in Practice E. It was clear from the data, however, that early in the NDP in most practices, the whole practice had not been consulted and that ambivalence or resistance was common as practice members were informed of the project. Addressing the depth of motivation and developing shared vision among staff was often an initial focus of the facilitators, and when successful, led to substantial progress and often strengthening of the relationship infrastructure. Several self-directed practices struggled with translating the initial motivation and enthusiasm from the physician champion to the rest of the practice, and some never did. Indeed, this hurdle caused several practices to get stuck, finding it difficult to move forward. In 1 practice, the physician champion simply could not capture the imagination of staff or the larger system, and after great effort, found himself burned out. In several self-directed practices, the physician champions, although energized for improvement, simply did not have sufficient grasp of the larger picture, how to get there from the current state of the practice, or both. Several of the self-directed practices expressed in follow-up that having a facilitator who checked in and kept them on track would have been helpful in maintaining and spreading enthusiasm and motivation for change.

4. The Larger System Can Help or Hinder

Thirteen NDP practices were owned by larger hospital or medical organizations. Just as the magnitude of change stressed the practice relationship systems, it also captured the attention of the larger system. In general, these practices had negotiated their involvement in the NDP with their system managers and, in some cases, received not only initial, but also ongoing support. Often, support came in the form of management and technological skill and expertise, and additional resources for expanding roles and scope of responsibilities. In several cases, the practices were provided with system-level activities, such as patient education, monitoring populations for needed preventive services, maintaining registries and care management activities, and effective integration of primary care, specialty care, and ancillary services. One facilitated practice was encouraged to pilot test their own new ideas for use by the larger system, an expectation that predated the NDP. The most helpful systems recognized the need for local practice-level control of the pace and sequence of implementing model components.

On the other hand, several practices believed at the beginning that they had sufficient latitude to make many of the changes needed to implement model components, only to find out that the scope and national attention of the NDP activated system-level control mechanisms that were not anticipated. One facilitated practice struggled before dropping out because of system-level institutional review board issues and concern about the loss of proprietary information. Two practices were unable to implement an EMR during the NDP because of an ongoing delay in the selection and implementation of an EMR by their system IT departments. In another practice, the larger system perspective saw some value in maintaining the status quo of a relatively inefficient primary care practice as a loss leader in a growing competitive environment.

5. Transformation Is More Than a Series of Changes and Requires Shifts in Roles and Mental Models

Although most practices made good progress in implementing NDP model components, not all were able to use them effectively. The brief 2-year time frame of the NDP made it difficult to both implement technology and reconfigure work flow to use it for new purposes. Changing the overall way the practice sees itself and how it operates in a new paradigm is a challenge in itself. We observed that transformation was much more than a series of successive implementations. Instead, transformation required substantial shifts in individual roles and personal identities, and practice-level change in shared values and vision that encompassed new approaches to individual- and population-based care.

At the individual level, this shift was perhaps most difficult for physicians, who had deeply held beliefs that primary care doctoring was based in a strong, trusting relationship between a patient and a physician. Permitting other practice staff members into meaningful patient interactions for team care meant expanding that special relationship, and for many physicians, doing so required a substantial change in their identity as a physician. This shift required not only a change in roles of both physicians and staff, but also substantial changes in the way physicians thought about themselves. Practice C is an excellent example of the importance of personal transformation, how it can block progress if not addressed, and the substantial progress that can be achieved when it is overcome.

At the level of the physician group, there also needed to be greater interaction and transparency among the physicians within a practice and more sharing of how they approach different clinical situations and different patient needs. It became clear that often a given physician could not describe how practice colleagues approached many acute or chronic conditions. The traditional loose federation of autonomous physicians was simply not consistent with the sharing and ongoing learning required for continually improving patient-centered care. Many physicians had operated in and valued an independent, autonomous style for so long that they resisted looking over others' shoulders as a means of improving patient care.

It's very, very hard for physicians to know that an investment of 30 minutes a week to a meeting will make them money—so hard for them to realize that, you must schedule time away from patients to focus, it just doesn't work any other way. I know this to be true. No matter what, we meet. It's very hard, and it doubles my work as a manager, but that's what makes us better (office manager, Practice D, self-directed).

Finally, transformation required a paradigm shift for the practice as an organization. Rather than seeing itself as an organization that processed patient visits for the convenience of the physician, the practice needed to see itself as primarily meeting the needs of patients and planning proactive population-based care for groups of patients. This shift involved substantial change in roles of staff members, time spent in new activities, and rethinking the overall practice processes, values, and mission.

I think it's more than managing your patients, it's managing your population of patients...with an EHR [electronic health record] and disease registry, you can. It's great. For the first time, you can really and truly manage your patients, proactively, not just reacting to whatever happens on the phone or whoever walks in the door that day. It's really tak-

ing...medicine to a whole new level (physician, Practice D, self-directed).

The new conceptualization of a PCMH required different skills, roles, and activities than were found in most practices at baseline. In small practices, transformation of a single physician appeared to provide adequate critical mass for practice transformation, whereas in larger practices, personal transformation needed to include a larger critical mass of physicians and staff members to support practice-level transformation and incorporation of new relationships and roles. Consequently, in many practices, progress was less than optimal until they could "get the right people on the bus." This mismatch of roles and expectations at times led to obvious tension and often to attrition of physicians, staff, or both. For example, Practice D handled this challenge by trying to hire the right people from the start, whereas Practice E intentionally replaced physicians who would not adapt to the new model and Practice B worked to change physicians and staff so the practice could adapt and begin to move forward in concert.

6. Practices Benefit From Multiple Facilitator Roles

In other articles in this supplement, we describe the NDP intervention¹⁶ and the effect of the intervention on practice outcomes.¹⁴

The centerpiece of the facilitated intervention was the 3 NDP facilitators who worked tirelessly with each of their 6 practices. All made 2 to 5 site visits as appropriate to the practice and were in nearly constant e-mail contact with 1 or more practice leaders. The NDP facilitators provided at least 5 different kinds of support to their practices, based on the apparent needs, wants, and baseline capability of each practice.

In the role of *consultant*, the facilitators approached change at the topic level, answering specific questions about a range of issues, such as practice management, work flow, and technology. Often they sought out answers from other facilitators or the NDP consultants and their networks, or on the Web. This assistance was critical for a busy practice that simply lacked time and resources to find answers.

Facilitators also acted as *coaches* in approaching change at the individual level. Many physicians and practice managers required substantial assistance in acquiring management and leadership skills and in the change in their personal and professional identity required to adapt to the NDP model (Practice C). Coaching required confidential assistance and often disclosure of personal matters to assist in personal transformation.

The facilitators also spent considerable effort as *negotiators*. Because the technological components of

the NDP model were not "plug-and-play," facilitators played a critical role at the interface of the practice and IT vendors, helping to work out interface bugs that impaired interoperability and at times simple stand-alone functionality. The facilitators on several occasions were able to negotiate the requirements of the NDP projects with the larger system of which the practice was a part.

The facilitators also served a critical role as *connectors*. As the NDP progressed, the practices began to depend more on each other as sources of wisdom and experience with transformation. The facilitators were continually sensitive to how a given practice might benefit from another and to facilitate that connection. The facilitators also created regular opportunities for their practices to support each other with monthly conference calls. These calls provided a useful venue for sharing experience and venting frustration between learning sessions.

Finally, in their important role as *change facilitators*, they approached change at the whole-practice level. They attempted to understand the strengths and weaknesses of the practice's relationship infrastructure and responded to strengthen components of the adaptive reserve, such as communication, trust, sense of team, and facilitative leadership. Maintenance of adaptive reserve was also a key function of the facilitator. Importantly, the facilitators were careful to emphasize that the practice must retain ownership of the change process, and that it was not the responsibility of the facilitator to come in and make the change for them.

DISCUSSION

From our analysis of the NDP practices' experience, 2 important new concepts emerged from among our 6 themes. First, we observed that transformation to a PCMH requires a substantial change in the mental models of individuals and practices. Individual clinicians must adopt a different approach to doctoring that moves from an individualistic clinical role to incorporation of other members of the practice to participate in the task of primary care. The practice must also embrace a different paradigm that moves it from an efficient assembly line that processes patients for the clinician's attention to one that meets the needs of individual patients, with proactive planning and population-based care for groups of patients. Unfortunately, the term *transformation* has become common parlance and often trivialized among the PCMH community to refer merely to a series of changes in the structures and processes of the practice. Without a substantial change in mental models, implementing the components of the NDP merely installs new technology in an old practice model.

Second, we observed that most practices have the basic core functions in place to manage their finances, practice operations, and the clinical enterprise during relatively stable times. Few practices entering the NDP, however, had a systematic strategy for change management. The frenetic pace and magnitude of the NDP quickly outran the practices' capability for change and required them to develop their capability for organizational learning and development. We labeled this capability the adaptive reserve and noted that it consists of a healthy relationship infrastructure, alignment of management systems, and facilitative leadership. We also observed that adaptive reserve is not a constant property of a practice and needs ongoing attention during times of rapid change and stress. Much of the attention of the facilitators was directed to strengthening adaptive reserve, and we noted that none of the self-directed practices having low adaptive reserve at baseline succeeded in implementing a large number of NDP model components.

An important implication of these findings is that different practices will follow different developmental pathways en route to successful transformation. The pathways are dependent on baseline conditions, the adaptive reserve of the practice, and the nature and timing of personal and organizational transformation. Developmental pathways also respond to events along the way and result in PCMH models that vary by practice. Practices and those helping them must realize that local control of the pace and sequence of change is essential and permits the journey to unfold, without overprescribing the strategy.

Practices that are part of larger systems often will find that they have access to resources and expertise that can be invaluable in the transformation. System leaders, however, must keep in mind that (1) each practice may follow a unique developmental pathway, and local control and ownership of the process is critical, (2) adaptive reserve is the practice's most precious resource during transformation and must be supported and strengthened, and (3) human resources of the system must be committed to supporting personal transformation of the physicians, willing to make other arrangements for them, or both.

Small independent practices will often need to expand the resources for change available to them. This expansion could be facilitated by local, state, or national policies that provide support for independent practices during the change process and possibly systematic support from state academies.²⁸

The challenges faced by the NDP practices will certainly be encountered frequently as thousands of primary care practices join this journey. The NDP has provided a valuable national experience with translat-

ing principles of the PCMH into real primary care practice. This project incorporated an intense intervention with on-site facilitation, 4 learning sessions, and discounted pricing on some technological components. The intervention was tailored to the needs of each facilitated practice and was not constrained by a rigid protocol. This approach provided an opportunity to see that progress toward the PCMH is possible over a 2-year time span. At the same time, it is important to recognize that practices in the NDP were not a representative sample of US practices, but rather represent a group of early adopters.²⁹ Even at baseline, most facilitated and self-directed practices had already implemented some of the basic technological innovations.¹⁴ They all had at least 1 highly motivated champion for change, although many did not have the adaptive reserve running deeply enough in their practice to progress without external facilitation. Finally, the NDP did not provide direct financial incentives to practices to simulate reimbursement reform, an important feature of some of the more recent demonstration projects.

The PCMH has become a powerful rallying force behind multiple health care reform efforts and deserves further evaluation and evolution. It is important that the many current and planned PCMH demonstration projects retain a balance of the fundamental features of the PCMH that melds the core principles of primary care, relationship-centered care, reimbursement reform, and the chronic care model, as well as the emerging IT that supports these elements. Simultaneously addressing change in all 5 areas proved to be a massive undertaking for the NDP practices, but to do less would inhibit the potentially transformative effect of the PCMH on US primary care. The experience of the NDP practices suggests that although the task is not easy, it is within reach.

To read or post commentaries in response to this article, see it online at http://www.annfammed.org/cgi/content/full/8/suppl_1/s45.

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