GUIDING TRANSFORMATION: HOW MEDICAL PRACTICES CAN BECOME PATIENT-CENTERED MEDICAL HOMES

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ABSTRACT: The patient-centered medical home has been proposed as a model for transforming primary care and improving efficiency and effectiveness in the health care system. This report outlines and describes the changes that most medical practices would need to make to become patient-centered medical homes. The broad "change concepts," as the report terms them, include: engaged leadership; a quality improvement strategy; empanelment or linking patients with specific providers to ensure the continuity of the patient–provider relationship; continuous and team-based healing relationships, including cross-training staff to allow team members to play various roles; organized, evidence-based care, including the use of decision support systems; patient-centered interactions to increase patients' involvement in their own care; enhanced access to ensure patients have access to care and their clinical information after office hours; and care coordination to reduce duplication of services and increased anxiety and financial costs for patients and their families.

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EXECUTIVE SUMMARY

A robust primary care sector is the foundation of a more effective and efficient health care system. However, achieving a robust primary care sector will require widespread practice transformation. A growing consensus supports the patient-centered medical home (PCMH) model, proposed as joint principles by the major primary care professional associations, as the blueprint for practice transformation. Under these principles, a PCMH would provide each person with a personal physician who leads a team that takes responsibility for ongoing care for all health issues and coordinates care with other service providers. Medical homes would also ensure the quality and safety of their care through performance measurement and continuous quality improvement and provide their patients with enhanced access. Finally, payment systems would reward the added value provided by medical homes. While these joint principles describe the general expectations of a PCMH, they do not make concrete suggestions for how primary care organizations can change their practices to become one.

As part of The Commonwealth Fund's Safety Net Medical Home Initiative (SNMHI), this report sought to develop a more detailed and concrete definition that describes the changes that most practices would need to make to become PCMHs. After reviewing the literature, the study team proposed eight characteristics of medical homes—called change concepts—which provide general directions for transforming a practice. We further identified more specific practice modifications called key changes for each change concept. A technical expert panel assembled for the SNMHI reviewed the change concepts and key changes and suggested alterations. A second panel, convened for another PCMH transformation project, also provided feedback.

Many, but not all, of the change concepts and key changes are supported by evidence of positive effects on important outcomes. Therefore, the following eight change concepts should be viewed as general guidance for transforming the practice as well as opportunities for innovation and adaptation.

Engaged Leadership
To become a PCMH, most practice organizations must undergo wrenching cultural and system changes. This requires visible leadership that can help staff envision a better organization and improved care, establish a quality improvement apparatus and culture, and ensure that staff have the time and training to work on system change.

Quality Improvement Strategy
Effective leadership ensures that the organization embraces an effective improvement strategy that relies on routine performance measurement to identify opportunities for improvement and uses rapid-cycle change methods to test ideas for change. Patient-centered organizations routinely obtain and use patient experience data to inform improvement efforts and involve patients as well as staff in efforts to make the practice more responsive to the needs and preferences of their clientele. Quality improvement is easier and more effective if practices put in place information systems that support critical functions such as performance measurement, provider alerts and reminders, computerized order entry, and population management.

Empanelment
Considerable evidence has demonstrated that positive outcomes such as improved health status and higher patient satisfaction result from care provided by the same clinician and care team over time. A deliberate effort by the practice to link each patient or family with a specific provider—a process known as empanelment—facilitates continuity of relationship. In addition, the creation of patient panels allows practice teams to monitor their panel to identify and reach out to patients needing more attention and services.

Continuous and Team-Based Healing Relationships
Robust and lasting clinician–patient relationships are at the heart of every medical home. The involvement of practice staff other than clinicians has been shown to improve care and outcomes. Team care begins with defining the critical roles and tasks involved, assigning them to the most appropriate members of the team, and ensuring they are appropriately trained to perform them well. Cross-training of staff for critical roles gives practices the capacity to better deal with staff absences and turnover.

Organized, Evidence-Based Care
Medical homes must be able to deliver high-quality care. Two critical components of the chronic care model are included in this change concept: planned care and decision support. Using information system tools like registries enables practices to identify gaps in care for patients before they visit, so practice teams can plan and organize care to ensure all patient needs are met. Decision support systems improve care by alerting providers when services are needed and helping them make evidence-based choices.

Patient-Centered Interactions
Patient-centered practices endeavor to increase their patients' involvement in decision-making, care, and self-management. They see effective health care as being respectful of

a patient's needs, preferences, and values, and work to ensure patients understand what is being communicated to them.

Enhanced Access
Providing patients with the ability to contact their care team, or at least someone with access to their clinical information, both during and after office hours is an essential feature of a medical home. Ensuring access also means helping patients attain and understand health insurance.

Care Coordination
Many patients benefit from services outside the medical home, from medical or behavioral specialists, community service agencies, hospitals, and emergency rooms, for example. But these handoffs and transitions, if not managed well, can lead to serious problems in care, duplication of services, and increased anxiety and financial costs for patients and their families. Effective care coordination involves helping patients find and access high-quality service providers, ensuring that appropriate information flows between the PCMH and the outside providers, and tracking and supporting patients through the process.

These eight change concepts and their associated key changes are being tested in 65 practices across the country as part of the Safety Net Medical Home Initiative. This experience will provide insight into what it takes for busy practices to implement these ideas and become medical homes.

GUIDING TRANSFORMATION: HOW MEDICAL PRACTICES CAN BECOME PATIENT-CENTERED MEDICAL HOMES

INTRODUCTION

International comparative studies consistently show strong correlations between population health and a robust primary care sector.[1] These studies have recently found policy relevance in the current debates about American health care reform. The Patient Protection and Affordable Care Act proposes a reinvigoration of primary care to improve quality and reduce costs. American primary care is underdeveloped and endangered by a declining workforce, perverse reimbursement policies, and mediocre quality. As such, major professional societies have proposed the joint principles of a new model of primary care, the patient-centered medical home (PCMH).[2] The model emphasizes the relationship between a patient and a clinician (and his or her team) and holding that relationship accountable to ensure accessibility, continuity of care, comprehensiveness of services, and care coordination. The model also assumes an improvement in care delivery based on the chronic care model, which helps practices transform care for patients with preventive care needs or chronic illnesses from acute and reactive to proactive, planned, and population-based. Care is improved through effective use of teams and redesigned care delivery, self-management support bolstered by more effective use of community resources, integrated decision support, and patient registries and other supportive information technology (IT).[3]

The joint principles describe basic attributes and expectations of a PCMH. A personal clinician guiding a practice team is accountable for meeting all of a person's health care needs and receives payment that recognizes the added value of the PCMH. The practice team uses advanced information technology, as well as appointment and after-hours coverage systems, to provide enhanced access to care that is coordinated, evidenced-based, and patient-centered. It assures quality and safety through performance measurement and continuous quality improvement. But the joint principles do not provide a definition or description of a PCMH that is sufficiently detailed to help interested practices and clinicians understand and implement the requisite changes in practice structure and function. To help guide health care organizations in becoming medical homes, we sought to identify the general directions for transforming the practice (i.e., change concepts) and more specific modifications to practice operations (i.e., key changes). Our goal was to develop more specific recommendations that would help practices become PCMHs.

The Commonwealth Fund, Qualis Health, and the MacColl Institute for Healthcare Innovation at the Group Health Research Institute launched the Safety Net Medical Home Initiative (SNMHI) in 2008 to help primary care safety-net clinics become high-performing PCMHs. The goal of the SNMHI is to develop a replicable and sustainable implementation model for medical home transformation and to help implement the PCMH in 10 to 15 community health centers or other safety-net practices in five states and evaluate impact. To define the characteristics of a PCMH for the SNMHI, project staff reviewed literature and other practice transformation initiatives to develop a preliminary set of change concepts that would define a PCMH.[4] We then convened a panel of experts and stakeholders in the delivery of primary care, as well as patient representatives, to review and edit the preliminary change concepts. A multi-stakeholder group advising the Washington State Department of Health's PCMH Collaborative also reviewed and endorsed the revised change concepts and key changes. In this paper, we describe the change concepts that emerged from this process. In addition, we illustrate how the care of patients would differ between a fully transformed PCMH and a more typical primary care practice as seen through the health care experiences of two fictitious sisters.

> Two sisters, Ms. G and Ms. H, live in different parts of a large city. Both are bilingual and more comfortable speaking Spanish, especially when addressing stressful issues like health concerns. Both chose to get medical care at community health centers (CHCs) with Spanish-speaking clinicians and staff. Ms. G's CHC used rapid-cycle quality improvement methods to transform into a PCMH. Ms. H's CHC has a good reputation in the community but has not gotten around to changing its system. Both sisters have diabetes and are prone to elevated blood pressure and periodic bouts of depression.

THE GOALS OF THE PATIENT-CENTERED MEDICAL HOME

We began the process by specifying the goals of the PCMH. Policymakers and professional organizations expect that a more robust primary care sector will reduce health care costs and significantly improve care, especially for those with chronic illness. Many PCMH demonstrations posit that a more robust primary care sector will also: reduce provider burnout and increase career satisfaction; attract a larger share of medical students; and provide accessible, coordinated, high-quality care.[5] For many health care organizations and primary care practices, payment reform that addresses the growing disparity between primary care and specialty incomes is the primary incentive for becoming a PCMH. We sought to identify the characteristics of primary care practices

that enable them to improve clinical outcomes, enhance patient experience, increase the work satisfaction of staff, and reduce overall health care costs.

PRELIMINARY CHARACTERIZATION OF A PATIENT-CENTERED MEDICAL HOME

The authors initially reviewed literature related to the definitions and characteristics of a PCMH including definitions of patient-centered care, descriptions of the pediatric medical home and chronic care models, the joint principles statement, and related topics. The purpose of the review was to develop a preliminary list of features of a PCMH and related change concepts. Based on the review, we proposed that practices should have the following features or change concepts in place to be considered fully developed medical homes:

- engaged leadership;

- quality improvement strategy;

- empanelment (linking each patient with a responsible primary care provider);

- continuous and team-based healing relationships;

- organized, evidence-based care;

- patient-centered interactions;

- enhanced access; and

- care coordination.

Within each of the eight concepts, we suggested two to six more specific practice modifications called key changes (Exhibit 1). Exhibit 1 also shows how the key changes are linked to the elements of the chronic care model. For example, we proposed the following key changes under organized, evidence-based care:

- use planned care according to patient need;

- identify high-risk patients and ensure they are receiving appropriate care and case management services;

- use point-of-care reminders based on clinical guidelines; and

- enable planned interactions with patients by making up-to-date information available to providers and the care team prior to the visit.

Table 1. Change Concepts, Key Changes, and Links to the Chronic Care Model

Change Concept	Key Changes	Chronic Care Model Elements
Engaged leadership	• Visible leadership for culture change and quality improvement • Ensure time and resources for transformation • Ensure protected time for quality improvement • Build PCMH values in staff hiring and training	Health care organization
Quality improvement strategy	• Use formal quality improvement model • Establish metrics to evaluate improvement • Involve patients, families, and staff in quality improvement • Optimize use of health information technology	Health care organization Information systems
Empanelment	• Assign all patients to a provider panel • Balance supply and demand • Use panel data to manage population	Information systems Proactive care
Continuous, team-based relationships	• Establish and support care delivery teams • Link patients to provider and care team • Assure patients see their provider • Distribute roles and tasks among team	Practice redesign (team care)
Organized, evidence-based care	• Use planned care according to patient need • Manage care for high-risk patients • Use point-of-care reminders • Use patient data to enable planned interactions	Practice redesign (planned care) Decision support Information systems
Patient-centered interactions	• Respect patient and family values and needs • Encourage patient involvement in health and care • Communicate so that patients understand • Provide self-management support at every encounter • Obtain patient and family feedback and use in quality improvement	Activate patients Self-management support
Enhanced access	• Ensure that patients have 24/7 access to care team • Provide appointment scheduling options • Help patient obtain health insurance	
Care coordination	• Link patients with community resources • Integrate specialty care through colocation or agreements • Track and support patients obtaining outside services • Follow up after emergency room visits or hospitalizations • Communicate test results and care plans to patients	Community resources Practice redesign (care management)

The Goals of PCMH Transformation

Among the experts, stakeholders, and patient representatives consulted in this report, there was broad agreement that effective PCMHs should improve patient experience, the quality of clinical care—especially for preventive services and chronic illnesses—and the career and day-to-day work satisfaction of physicians and other primary care staff. There was also agreement that sustaining the PCMH model and making the case for increased primary care payments hinge on success in reducing health care costs. Among health plan and payer representatives interviewed, there was discussion about the ways in which effective medical homes could contribute to reduced health care costs. Cost data and emerging evidence from pilot evaluations suggest that PCMH-like interventions have the potential to decrease total health care costs, principally by reducing emergency room use and hospitalizations for ambulatory care–sensitive conditions.[6]

CHANGE CONCEPTS AND KEY CHANGES FOR A PATIENT-CENTERED MEDICAL HOME

The recommended changes adhere to evidence as much as possible, however, the evidence supporting certain primary care features, such as after-hours coverage or care coordination, is limited. Therefore, recommendations embedded in the key changes should be considered provisional and subject to change as new evidence emerges.

Engaged Leadership

Leadership support of any initiative is obviously helpful, but it is critical when the initiative involves major changes in a practice's culture and usual ways of working.[7] Implementing the PCMH model involves major changes to a practice's culture, relationships and routines. In the face of such potentially disruptive change, visible involvement and support of senior and local leadership is essential.[8] Wang and colleagues asked experts in clinical system redesign what factors were most critical to success; the top answer was "direct involvement of top- and middle-level leaders."[9]

The "engaged" descriptor indicates that leaders must visibly promote transformation and a supportive culture, build staff and quality improvement (QI) capacity, secure resources, and help staff address barriers. The engagement of leaders at both senior and middle levels is essential; the former influences culture and strategy and the latter facilitates implementation. Leadership must also recognize that creating and sustaining PCMHs takes considerable staff time.

The following are the specific activities and changes recommended as part of engaged leadership:

- Provide visible and sustained leadership to lead overall cultural change, as well as specific strategies to improve quality and spread and sustain change.

- Ensure that the PCMH transformation effort has the time and resources needed to be successful.

- Ensure that providers and other care team members have protected time to conduct activities beyond direct patient care that are consistent with the medical home model.

- Instill medical home values into staff hiring and training processes.

A white paper from the Institute for Healthcare Improvement includes practical recommendations for supporting culture change (e.g., bringing the board along, involving patients and clinicians in improvement, using stories and data to gain support).[10] Effective clinical teams need to discuss patients and plan care, share ideas for improving care, and review progress. And they must have the time to do it.

> Ms. G's doctor's team huddles for 10 to 20 minutes before each clinic session to organize and plan the care activities for appointed patients, and meets again for five to 10 minutes after the session to discuss follow-up. During huddles, the team also looks for opportunities to improve care, which they discuss more fully at their lunch meeting every other week. The clinic medical director reduced the number of daily appointment slots to accommodate team meetings and huddles.

Culture change is sustained and enhanced by inculcating it in the hiring and training of staff. Establishing and supporting a QI team and infrastructure are essential to transformation, and are critical functions of effective leadership. Successful QI teams not only need protected time to do their work, but need to meet at regular intervals with leadership. QI teams that include key clinical and administrative staff may be important in guiding change in larger organizations, but experience suggests that there is great value in involving everyone on clinical teams in the improvement process.

Quality Improvement Strategy
Nutting and colleagues described lessons learned in the pilot implementation of TransforMED, a program that assists primary care practices in becoming medical homes.[11] They confirmed that the transformation to a PCMH was extremely challenging for many practices and that the more successful practices were those that used rapid-cycle change. Studies have found a link between high performance and an explicit quality

improvement strategy in health care organizations.[12] Essential elements of an effective strategy include:

- choosing and using a formal model for quality improvement;

- establishing and monitoring metrics to routinely evaluate improvement efforts and outcomes and ensuring all staff members understand the metrics for success;

- ensuring that patients, families, providers, and care team members are involved in quality improvement activities; and

- optimizing use of health information technology to meet meaningful use criteria.

A study of the challenges in practice redesign identified four success factors, including "systematically establish and maintain infrastructure, processes, and performance appraisal systems that support continuous improvement."[13] The elements included in the quality improvement strategy all point to building a sustainable continuous quality improvement program that relies on input and involvement from patients and staff, proven QI processes, and performance measurement. Most organizations that have improved their care quality have employed one of many variants of industrial quality improvement methods—the Model for Improvement, the Toyota Production System, Six Sigma, etc. All rely on ongoing measurement of performance, quality improvement teams, and rapid-cycle testing.

High-performing health care organizations typically use a valid and trusted performance measurement system to monitor and guide the improvement of organizational performance. Assessing practice performance and feeding the results back to the practice have been associated with improvements in practice performance.[14] The performance gains increase when audit and feedback are combined with other quality improvement resources and activities.

Including all team members in the improvement process enables the team to arrive at a richer understanding of current processes and to generate broader and perhaps more relevant ideas. In addition, inclusion in improvement planning often helps to promote greater acceptance of the recommended changes. This is particularly important when the recommended changes affect practice routines, job descriptions, and working relationships, as is often the case with PCMH implementation.

Finally, growing experience suggests that quality improvement efforts benefit from the involvement of patients and their families. Patient-centeredness depends on such input and involvement.

> Ms. G received a letter from her clinic asking her to participate in
> a focus group to improve care for clinic patients with diabetes. The
> purpose was to discuss the clinic's diabetes care and make
> recommendations for improvement. The group relished the opportunity to
> share their experience and insights with other diabetic patients and
> recommended that the clinic consider building more group experiences
> into their diabetes care. As a consequence, the clinic began testing the
> use of group diabetes visits.

Increasingly, practice organizations include patient representatives on quality improvement committees and teams or use patient and family focus groups to participate in the development and review of improvement plans.

The final key change—optimize use of information technology—has now been defined by the meaningful use criteria established by the Office of the National Coordinator of Information Technology.[15] The criteria define the data that should be included in an effective electronic medical record (EMR) and the functions the EMR should be able to perform. For example, for practices to qualify for incentive payments, EMRs must be able to provide patients with a summary of their office visits, order medications, check for drug–drug interactions or drug allergies, report clinical quality measures, provide decision support, and protect the privacy of patient information. Although the dissemination of EMRs has accelerated, many practices do not use them to their full capacity.[16]

Empanelment
The relationship between a patient and a provider and practice team is at the heart of the PCMH model. The additional benefits and related payment increases proposed for PCMH care assume such a relationship. But for many larger practices, especially in the fee-for-service environment, empanelment (i.e., the process of linking patients with specific providers, sometimes called rostering or paneling) has been challenging and not an organizational priority.

Empanelment must be an early change on the journey to becoming a PCMH because other key features such as continuous, team-based healing relationships; enhanced access; population-based care; and care coordination depend on the existence

of such linkages. To empanel a practice population and then use the resulting information to create and sustain a medical home, a practice should:

- assign all patients to a provider panel and confirm assignments with providers and patients;

- review and update panel assignments regularly;

- assess practice supply and demand, and balance patient load accordingly; and

- use panel data and registries to proactively contact and track patients by disease status, risk status, self-management status, and community and family need.

Primary care practices serve a wide variety of patients who use the practice in very different ways. The first step is to decide which patients to consider for empanelment; commonly, patients seen once or twice in a recent interval are considered. While the goal should be to empanel as many of the practice's patients as possible, patients who use the practice infrequently or do not seek comprehensive care are less likely candidates for empanelment. Like most decisions in a PCMH, the decision to form a patient–provider relationship should have input from both the patient and the practice. Many practices begin with utilization data to identify preexisting contacts between patients and providers.[17] One approach is to assign patients who are unassigned using an adaptation of the Mark Murray "4 cut" method:[18]

1. Assign all patients who have only ever seen one provider to that provider.

2. Develop a list of patients with their last three to five providers seen.

3. Assign patients who have seen a provider the majority of times to the majority provider.

4. Allow clinic teams to talk through the rest of the patients and where they belong.

Patients may be then tentatively linked with the provider who has been their predominate caregiver. These tentative links can then be reviewed by provider and patient and adjusted accordingly.

Information systems with registry functionality enable staff to examine their full panel of patients or selected subpopulations, such as people with diabetes or children who are obese, to identify patients in need of targeted attention. This allows practices to schedule and organize planned visits centering on these issues and other concerns and

more effectively use their outreach capabilities—such as case managers or community health workers—to identify and respond to patients' needs. Empanelment and panel-level data also facilitate the measurement of clinical performance and provision of feedback at the individual provider level.

> Ms. H's clinic didn't try to assign patients to specific providers. The common practice was to schedule patients with whichever physician had the next open appointment. Although she had a favorite physician, Ms. H often found it difficult to get appointments with her.
>
> Ms. G's clinic notified her that they were trying to link each patient with a particular doctor. Unless she had objections, she was being assigned to Dr. Flores, the doctor she had seen most often over the past two years. Dr. Flores was Ms G's preference, and from that point on, her appointments were with Dr. Flores. Dr. Flores' appointment clerk called Ms. G to set up an appointment to check on her various health problems and to see what she doing to keep them under control. She was also asked about recommended screenings. Ms. G was concerned at first that something must be wrong but was reassured that the clinic wanted to see her before she became ill.

The process of empanelment helps a practice better understand the demand for services overall and for services by provider. This information facilitates evaluation of provider workloads and affords opportunities to balance supply and demand. For example, such analyses at Group Health Cooperative made it clear that many provider panels were too large to provide high-quality, patient-centered care. As a result, the panels were "leveled" and many were reduced in size.[19] The leveling of panels led to many patients being reassigned to different primary care providers. But, because of careful management, this caused only limited dissatisfaction among the reassigned patients.[20]

Continuous and Team-Based Healing Relationships
All activities of an effective PCMH should strengthen the primary care provider–patient relationship. But, growing evidence makes clear that the best care is provided not by isolated clinicians, but by well-organized teams that collectively have the skill and time to meet the comprehensive needs of the healthiest and the sickest of patients. For example, the involvement of practice team members other than clinicians has been shown to be among the most efficacious interventions in caring for patients with diabetes and hypertension.[21] Such teams function best when each team member has clearly defined,

complementary roles that are made transparent to patients. To provide continuous team-based healing relationships, effective PCMHs:

- establish and provide organizational support for care delivery teams that are accountable for the patient population and panel;

- link patients to a provider and care team so both patients and teams recognize each other as partners in care;

- ensure that patients are able to see their provider or care team whenever possible;

- define roles and distribute tasks among care team members to reflect the skills, abilities, and credentials of team members.

Through empanelment, a medical home will try to link each member of its practice population to a specific primary care provider and team. The administrative and clinical systems of the PCMH then should help make the linkage visible and meaningful by having all clinical interactions and communications concerning a patient involve the primary care team. Seeing the same PCP over time leads to higher patient satisfaction, more complete preventive care, and better outcomes among those with chronic illnesses such as asthma or diabetes.[22] But, are the benefits of seeing the same provider jeopardized when a patient has an interaction with someone else on the team? One study suggests that there is no decrease in patient satisfaction when a patient sees someone else on the practice team if the patient perceives it to be a well-functioning team that communicates with each other.[23] Continuity and team care are not incompatible when a clinical team and its teamwork are visible to patients.[24]

Why is the involvement of all team members so important? Ostbye and colleagues estimated that it would take a primary care provider 18 hours each practice day to provide care to her panel consistent with consensus chronic disease and preventive care guidelines.[25] This exercise highlights the necessity of using team members and coordinated teamwork to meet the needs of any practice panel of sustainable size. But it is not just the volume of work that calls for team care. Many of the services patients need do not require physician involvement, and some, such as self-management counseling or care coordination, are often better performed by other team members.[26]

Involving all members of the clinical team in clinical care does not come naturally to many clinicians trained to be self-reliant and independent. It requires mutual trust, communication, and a deliberate process of matching patients' needs with the skills,

credentials, and interests of staff members, and then explicitly assigning those functions to staff members.

> Ms. H didn't have one doctor she saw regularly, and many of her visits were with people she had not seen before. Her clinic visits generally involved a brief check-in by a medical assistant and time with the doctor. The doctor, who was unfamiliar with Ms. H, spent much of the time looking for information in the chart and elsewhere.
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> In addition to Dr. Flores, Ms. G's practice team consists of: Evelyn, the receptionist who makes appointments, handles phone calls, and helps patients with referrals; Luis, a medical assistant, who provides self-management coaching in addition to rooming patients and doing assessments like foot exams; and Sally, a registered nurse shared by three doctors, who provides more intensive counseling and follow-up for sicker patients. Dr. Flores introduced Evelyn, Luis, and Sally to Ms. G. and explained their roles.

Many clinical tasks logically cluster together in larger roles. For example, reviewing registries to find patients missing preventive or chronic care services, contacting those individuals, ordering services, and making appointments for them to receive the services have been collectively labeled "population management" by many practices. Other roles appearing with increasing frequency in medical homes include self-management counselor or coach, case or care manager, and care coordinator or referral manager.[27] Whether assigning tasks or roles, practices should ensure staff is appropriately trained and certified, when appropriate. Given the turnover in staff positions, cross-training is prudent.

Organized, Evidence-Based Care
The underuse of proven preventive interventions, clinical assessments, and treatments continues be a major problem. Primary care providers often do not have ready access to data that would tell them when patients are in need of a given test or treatment or do not have the time in a rushed visit to provide the services. Provider reminder systems, especially when embedded in an EMR, have been shown to increase the likelihood that recommended services are delivered.[28] Since many of preventive care needs, as well as needs related to chronic illnesses, are predictable, they can be planned in advance. To routinely deliver organized, evidence-based care, PCMHs should:

- use planned care according to patient need;

- identify high-risk patients and ensure they are receiving appropriate care and case-management services;

- use point-of-care reminders based on clinical guidelines; and

- enable planned interactions with patients by making up-to-date information available to providers and the care team prior to the visit.

There has been limited formal study of planned care, except for group visits. However, experience suggests the value of organizing visits to ensure all needed services are delivered.[29] Such visits can be initiated by the practice expressly for that purpose or the practice team can prepare for a patient-initiated visit by meeting prior to the visit to review relevant patient data to see what services are needed and arrange for their delivery.

> Ms. G sees Dr. Flores regularly to manage her diabetes, blood pressure, and depressive symptoms. Whether it's an appointment made months in advance or just that morning, Dr. Flores and Luis huddle before seeing Ms. G to review her data and plan the visit. Data include: most recent measures, like hemoglobin and depression scores; dates of recommended preventive services; and self-management goals. During the visit, the team tries to optimize her chronic illness management and self-management and meet her preventive care needs.

Sicker individuals at high risk of morbidity or hospitalization often need additional clinical and self-management support, generally called care or case management, as well as help navigating the system. When nurse care managers are closely integrated with or embedded in primary care, they have been shown to improve outcomes and reduce costs for elderly and complex chronically ill populations.[30] Nurse care managers should focus on the segment of the practice panel at highest risk of major morbidity and should not be expected to meet all the care coordination needs of the practice.

Patient-Centered Interactions

The Institute of Medicine's report, *Crossing the Quality Chasm*, included patient-centeredness as one of the six aims of high-quality health care.[31] That report defined patient-centered care as patient involvement in decision-making and care to ensure care is compatible with the patient's preferences, values, and culture. Other definitions of patient-centered care include attention to: the patient as a whole person rather than a set

of separate diseases or risk factors; the patient's role in managing his or her health and illness; the social and emotional aspects of illness and care; and the provision of clear, comprehensible information.[32] Patient-centeredness is most often thought of in the context of physician–patient relationships. While interactions with clinical practitioners receive the most attention, patients also have interactions with nurses, receptionists, technicians, business office staff, and others in a health care system that can impact the quality of their experience and care. Taking the broader view of patient-centeredness, we recommend five changes to ensure patient-centered interactions:

- Respect patient and family values and expressed needs.

- Encourage patients to expand their role in decision-making, health-related behaviors, and self-management.

- Communicate with patients in a culturally appropriate manner, in a language and at a level that the patient understands.

- Provide self-management support at every visit through goal-setting and action planning.

- Obtain feedback from patients and families about their health care experiences and use this information for quality improvement.

Patient satisfaction with care is heavily influenced by the relationship between their needs, preferences, expectations, and actual experiences. Satisfaction generally occurs when care addresses important needs, is consistent with patient preferences, and meets or exceeds expectations. While it may seem obvious that patient needs, preferences, and expectations for care must be assessed, most practices do not do so routinely.

Both Ms. G and Ms. H are bilingual and prefer to have their health care information delivered in Spanish. Ms. G's clinic asked for her preference, but Ms. H's did not. All members of Dr. Flores' team communicate with Ms. G in Spanish and try to identify Spanish-speaking specialists when she needs a referral. Ms. H never knows if the provider she is about to see speaks Spanish. Ms. H has asked her daughter to come with her to medical appointments because she often doesn't understand or recollect what the doctor is telling her, even when delivered in Spanish. Ms. G was a bit insulted when Dr. Flores first asked her to recall what they had just gone over, but she began to see that it helped make sure that they were on the same page.

While a significant proportion of patients report that they prefer that doctors make decisions about their care, most want the opportunity to be listened to seriously and to discuss treatment options and share their preferences and concerns about treatment.[33] Such discussions are an essential element of patient-centered interactions. Evaluations of interventions to increase shared decision-making, primarily decision aids, have revealed some positive effects on patient satisfaction and adherence to treatment and have influenced treatment choices, especially related to discretionary surgery.[34] However, efforts to increase physicians' use of such aids have not been particularly successful.[35]

Roughly one-half of patients leaving medical encounters do not comprehend what was recommended;[36] such patients are less likely to adhere to recommended treatment and generally have worse outcomes than those who can recount the physician's advice.[37] Ensuring patients and providers understand each other is an essential goal of a patient-centered practice. This may involve obtaining reliable translation services for non-English speaking clientele or training staff to use tools to assess health literacy and employ communication techniques such as teach back, in which providers ask patients to recount the advice given to ensure comprehension of medical recommendations.[38]

Competent patient self-management is an important determinant of good outcomes in most major illnesses, and helping patients self-manage well is a critical aspect of effective and patient-centered care. Time-limited self-management group or individual programs have proven to be capable of improving disease control in patients with major chronic illnesses,[39] but the impact appears to diminish with time.[40] Since the challenges of self-managing most chronic illnesses change over time, self-management support should be continuous, responsive, and closely linked to clinical care. Most experts now recommend that self-management support be an integral component of all clinical interactions with patients with chronic health problems.[41] This requires the availability of practice team members trained to provide collaborative goal-setting, problem-solving, and action plans.

A crucial test of whether a practice is a PCMH is whether patients feel they are receiving care that better meets their needs. Many health care organizations routinely measure patient experience, but often the methods employed do not allow the practice to use the data to identify improvement opportunities and evaluate success. The use of valid instruments and thoughtful sampling adds an invaluable perspective on practice performance.[42]

Enhanced Access

Accessibility—that is, the ability to receive medical care whenever one needs it—is a defining element of primary care. Consumers and emergency room providers complain that fewer and fewer primary care physicians are available when needs arise, especially after office hours. These anecdotes were confirmed by the 2009 Commonwealth Fund International Health Policy Survey of primary care physicians in 11 developed countries. Fewer than one-third of American primary care doctors reported they provided after-hours care, the lowest rate of the countries surveyed.[43] A PCMH should:

- promote and expand access by ensuring that established patients have 24/7 continuous access to their care teams via phone, e-mail, or in-person visits;

- provide scheduling options that are patient and family-centered and accessible to all patients; and

- help patients attain and understand health insurance coverage.

Ideally, consumers should be able to communicate 24/7 with providers who know them and have access to their clinical information. But primary care practitioners also need a sustainable work and family life. Unfortunately, there is very little evidence to guide practices in finding a satisfactory balance between these conflicting needs. Various options include coverage networks, a telephone advice or triage line, and asynchronous e-mail communication. There is little evidence on the impact of these options on outcomes, but all may contribute to reducing use of the emergency room or unnecessary office visits.[44] For any of these options, access to up-to-date patient information is critical. Whatever the coverage arrangement, it should be carefully explained to medical home clients so that after-hours coverage meets expectations.

> There is no way for Ms. H to talk to someone who knows her history after clinic hours, and the hospital emergency room seems to be the only available option whenever she becomes ill when the clinic is closed. Ms. G's clinic provided her with a phone number that allows her to reach a nurse with access to her medical record after clinic hours. Ms. G and her family only use the ER when the nurse suggests they do so. Because her clinic instituted same-day appointments, she can be seen the next day if necessary.

Appointment systems must be flexible to ensure that patients can see their primary care team when they want to and have their needs met. Schedules should accommodate the needs of patients wishing to be seen that day, longer appointments for

more complex patients, and appointments made in advance for those needing preventive services or follow-up.[45] A critical step in implementing advanced access is to measure the demand for services and ensure that a practice has the capacity to meet that demand—an essential aspect of empanelment. If panel sizes are too large, access will suffer. Finally, medical homes, especially those serving lower-income populations, must develop the capacity to help their patients understand or obtain health insurance.

Care Coordination

Primary care patients, especially those with chronic illnesses, frequently receive specialized services from medical and behavioral health specialists and other community programs. Failures in communication and coordination between primary care and specialized service providers limit the effectiveness of these services and contribute to unnecessary or duplicative diagnostic testing, potentially dangerous changes to drug regimens, and gaps in follow-up care.[46] The transition of patients from the hospital back into their communities highlights the problem. Readmissions among recently discharged patients are often the result of inadequate post-hospital follow-up, but primary care physicians are frequently unaware of their role in follow-up care or even that their patients have been hospitalized.[47]

The PCMH must assume accountability for care coordination. It cannot coordinate care if hospitals do not notify them of admissions or emergency department visits or if specialists do not provide timely and useful consultation reports. This accountability includes identifying high-quality service providers in the community, clarifying expectations for care and communication with these providers, helping patients access services, and ensuring timely transfer of information. To better coordinate care, the PCMH should:

- link patients with community resources to facilitate referrals and respond to social service needs;

- integrate behavioral health and specialty care into care delivery through colocation or referral agreements;

- track and support patients when they obtain services outside the practice;

- follow up with patients within a few days of an emergency room visit or hospital discharge; and

- communicate test results and care plans to patients.

Identifying accessible medical specialty providers is a major challenge for many safety-net practices. Medical homes also need to find organizations and programs in their community that provide critical nonmedical services for patients and their families—transportation, patient education, peer support, physical activity, weight loss, financial assistance, child care, etc. For critical specialties such as behavioral health, it helps to have general working agreements in place with the providers and their organizations about guidelines for referral, testing to be accomplished prior to the consultation, financial and insurance requirements, and preferences for communication and post-consultation care. Agreements of this sort help prevent potentially embarrassing or even dangerous misunderstandings later.

Patients often need help with the referral process—making appointments, dealing with insurance, and other logistical issues. A designated care or referral coordinator on the practice team can provide this support to patients, ensure the timely flow of information to and from consultants, and track referrals and transitions (e.g., from hospital to home) to see if patient and practice needs have been met. Tracking should be as close to real time as possible so that remedial action can be taken if appointments are missed or there is a communication breakdown. Stand-alone or integrated e-referral systems can facilitate appointment making and referral tracking while helping to ensure the quality and timeliness of the communication.[48]

Both Ms. H and Ms. G suffer episodes of depression. During recent episodes, their PCPs referred them to a nearby community mental health center (CMHC). Dr. Flores' clerk, Evelyn, made the CMHC appointment with a Spanish-speaking behavioral health specialist for Ms. G before she left the clinic and called the day before her appointment to remind her. The behavioral specialist had her clinical information in front of him during their appointment. Ms. H was given a phone number to call for an appointment. Ms. H was too fatigued to call.

Care coordinator functions, as described above, can be performed by a nonclinical staff person with good interpersonal skills. Care coordination is especially critical for high-risk, multiproblem patients because of the greater array of specialized services they require.

Mounting evidence indicates that active management of patients recently discharged from the hospital reduces morbidity and prevents readmissions.[49] Ideally, such transition management activities would begin in the hospital. But they must be followed by effective follow-up care in the community, which requires that the PCMH be able to

identify and contact patients recently in the hospital or emergency department and be familiar with the treatment plan. Finally, an important element of care coordination is timely communication of test results and care plans with patients.

CONCLUSION

The patient-centered medical home is an amalgamation of two well-established models: the pediatric medical home model,[50] built on the core principles of primary care,[51] and the chronic care model.[52] Cooley and colleagues developed the former in response to the fragmentation and depersonalization of the care that children with major developmental issues and other chronic disorders were receiving from multiple specialty groups. The pediatric medical home model clearly places the accountability for ensuring care is comprehensive, continuous, accessible, coordinated, and patient and family-centered on the generalist physician.

The characteristics that define the pediatric medical home should be thought of as commitments made to patients and their families as partners in a continuous relationship and the changes that practice systems need to make to meet those commitments. The features of the chronic care model (CCM) comprise structural and functional enhancements to practice that support planned, proactive care and produce better patient outcomes.[53] CCM interventions have been found to improve outcomes in chronic illness, but those same practice changes and interventions also appear to be instrumental in improving preventive care.[54]

The PCMH model and CCM are complementary: one describes what patients should expect and how the practice can meet those expectations; the other describes how care should be structured and delivered. Both, however, emphasize the centrality of the primary care provider–patient (and family) relationship, and both advocate for the empowerment of patients and families and their greater role in every aspect of their health and health care.

The components of the PCMH identified through the work described here collectively capture the major features of the medical home and chronic care models. Our change concepts also correlate closely with other definitions of the PCMH,[55] as well as with the National Committee for Quality Assurance's (NCQA) PCMH recognition program criteria. The NCQA's criteria focus more attention to the availability of electronic data than do our change concepts, which give more emphasis to the functions of information systems (whether electronic or paper) in patient care, such as using patient data for outreach and care planning, performance measurement, and clinician reminders.

Having an effective electronic medical record system clearly facilitates implementation of most of the changes described in this report.

The change concepts outlined in this report are intended to guide the formulation and testing of specific practice changes, with an awareness of the unique needs, capabilities, and culture of each practice organization. But none are specific or concrete enough to implement without further guidance. In many cases they serve as the goals of practice change, not as specific methods to reach the goals. They provide opportunities for innovation and adaptation rather than prescriptions for implementation.

APPENDIX. SNMHI TECHNICAL EXPERT PANEL MEETING

This meeting was convened in August 2008 to help guide The Commonwealth Fund's Safety Net Medical Home Initiative (SNMHI). The panel comprised 17 individuals including: experts in quality improvement, measurement, and evaluation; safety-net clinical leaders and administrators; representatives of primary care professional organizations (e.g., American College of Physicians, American Academy of Family Practice); Medicaid policy experts and managed care leaders; researchers; and patient representatives. The goals of the expert panel meeting, change concepts, and key changes were sent to attendees for their review prior to the meeting. The panel first considered the goals of PCMH implementation in the SNMHI and whether the eight areas omitted any major characteristics of an effective PCMH or included superfluous ones. Following a detailed discussion of each area and the more specific changes under each change concept, the group endorsed the eight change concepts (Table 1).

The Washington State Department of Health (WDOH) adopted the SNMHI-developed change concepts to guide a legislatively mandated PCMH collaborative. WDOH leaders convened 22 Washington state quality improvement and primary care leaders and academics, health plan and Medicaid medical directors, medical group leaders, and others interested in the PCMH to review the proposed changes. The panel received the revised PCMH change concepts and key changes following the first panel's meeting. This group, which included health plan leaders, validated the findings of the SNMHI panel.

NOTES

[1] B. Starfield, L. Shi, and J. Macinko, "Contribution of Primary Care to Health Systems and Health," *Milbank Quarterly* 2005 83(3):457–502.

[2] American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians et al., "Joint Principles of the Patient-Centered Medical Home," 2007.

[3] E. H. Wagner, "Chronic Disease Management: What Will It Take to Improve Care for Chronic Illness?" [editorial]. *Effective Clinical Practice,* Aug.–Sept. 1998 1(1):2–4.

[4] E. H. Wagner, K. Coleman, R. J. Reid et al., "The Changes Involved in Patient-Centered Medical Home Transformation," *Primary Care: Clinics in Office Practice,* forthcoming 2012.

[5] T. Bodenheimer, K. Grumbach, and R. A. Berenson, "A Lifeline for Primary Care," *New England Journal of Medicine,* June 25, 2009 360(26):2693–96.

[6] R. J. Reid, K. Coleman, E. A. Johnson et al., "The Group Health Medical Home at Year Two: Cost Savings, Higher Patient Satisfaction, and Less Burnout for Providers," *Health Affairs,* May 2010 29(5):835–43; and R. J. Gilfillan, J. Tomcavage, M. B. Rosenthal et al., "Value and the Medical Home: Effects of Transformed Primary Care," *American Journal of Managed Care,* Aug. 2010 16(8):607–14.

[7] J. L. Reinertsen, "Physicians as Leaders in the Improvement of Health Care Systems," *Annals of Internal Medicine*, May 15, 1998 128(10):833–38.

[8] P. A. Nutting, W. L. Miller, B. F. Crabtree et al., "Initial Lessons from the First National Demonstration Project on Practice Transformation to a Patient-Centered Medical Home," *Annals of Family Medicine,* May–June 2009 7(3):254–60.

[9] M. C. Wang, J. K. Hyun, M. Harrison et al., "Redesigning Health Systems for Quality: Lessons from Emerging Practices," *Joint Commission Journal on Quality and Patient Safety,* Nov. 2006 32(11):599–611.

[10] J. L. Reinertsen, M. Bisognano, and M. D. Pugh, *Seven Leadership Leverage Points for Organization-Level Improvement in Health Care* (Second Edition) (Cambridge, Mass.: Institute for Healthcare Improvement, 2008).

[11] Nutting, Miller, Crabtree et al., "Initial Lessons from the First National Demonstration," 2009.

[12] S. M. Shortell, R. Gillies, J. Siddique et al., "Improving Chronic Illness Care: A Longitudinal Cohort Analysis of Large Physician Organizations," *Medical Care,* July 30, 2009 47(9):932–39.

[13] Wang, Hyun, Harrison et al., "Redesigning Health Systems for Quality," 2006.

[14] G. Jamtvedt, J. M. Young, D. T. Kristoffersen et al., "Audit and Feedback: Effects on Professional Practice and Health Care Outcomes," *Cochrane Database System Review,* 2003 (3):CD000259.

[15] Office of the National Coordinator for Health Information Technology, Department of Health Human Services, Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, Final Rule, *Federal Register,* July 28, 2010 75(144):44589–654.

[16] R. H. Miller and I. Sim, "Physicians' Use of Electronic Medical Records: Barriers and Solutions," *Health Affairs,* March–April 2004 23(2):116–26.

[17] R. Marx, M. J. Drennan, E. C. Johnson et al., "Creating a Medical Home in the San Francisco Department of Public Health: Establishing Patient Panels," *Journal of Public Health Management and Practice,* July–Aug. 2009 15(4):337–44.

[18] M. Murray, M. Davies, and B. Boushon, "Panel Size: How Many Patients Can One Doctor Manage?" *Family Practice Management,* April 2007 14(4):44–51.

[19] R. J. Reid, P. A. Fishman, O. Yu et al., "Patient-Centered Medical Home Demonstration: A Prospective, Quasi-Experimental, Before and After Evaluation," *American Journal of Managed Care,* Sept. 2009 15(9):e71–e87.

[20] K. Coleman, R. J. Reid, E. Johnson et al., "Implications of Reassigning Patients for the Medical Home: A Case Study," *Annals of Family Medicine,* Nov.–Dec. 2010 8(6):493–98.

[21] K. G. Shojania, S. R. Ranji, K. M. McDonald et al., "Effects of Quality Improvement Strategies for Type 2 Diabetes on Glycemic Control: A Meta-Regression Analysis," *Journal of the American Medical Association,* July 26, 2006 296(4):427–40; and J. M. Walsh, K. M. McDonald, K. G. Shojania et al., "Quality Improvement Strategies for Hypertension Management: A Systematic Review," *Medical Care,* July 2006 44(7):646–57.

[22] J. W. Saultz and J. Lochner, "Interpersonal Continuity of Care and Care Outcomes: A Critical Review," *Annals of Family Medicine,* March–April 2005 3(2):159–166.

[23] H. P. Rodriguez, W. H. Rogers, R. E. Marshall et al., "Multidisciplinary Primary Care Teams: Effects on the Quality of Clinician–Patient Interactions and Organizational Features of Care," *Medical Care,* Jan. 2007 45(1):19–27.

[24] E. H. Wagner and R. J. Reid, "Are Continuity of Care and Teamwork Incompatible?" *Medical Care,* Jan. 2007 45(1):6–7.

[25] T. Ostbye, K. S. Yarnall, K. M. Krause et al., "Is There Time for Management of Patients with Chronic Diseases in Primary Care?" *Annals of Family Medicine,* May–June 2005 3(3):209–14.

[26] E. H. Wagner, "The Role of Patient Care Teams in Chronic Disease Management," *BMJ*, Feb. 26, 2000 320(7234):569–72.

[27] T. Bodenheimer and B. Y. Laing, "The Teamlet Model of Primary Care," *Annals of Family Medicine,* Sept.–Oct. 2007 5(5):457–61.

[28] K. G. Shojania, A. Jennings, A. Mayhew et al., "The Effects of On-Screen, Point of Care Computer Reminders on Processes and Outcomes of Care," *Cochrane Database System Review,* 2009(3):CD001096.

[29] T. Bodenheimer, "Planned Visits to Help Patients Self-Manage Chronic Conditions," *American Family Physician,* Oct. 15, 2005 72(8):1454, 1456.

[30] Gilfillan, Tomcavage, Rosenthal et al., "Value and the Medical Home," 2010; Shojania, Ranji, McDonald et al., "Effects of Quality Improvement Strategies," 2006; Walsh, McDonald, Shojania et al. "Quality Improvement Strategies for Hypertension, " 2006; C. M. Boyd, L. Reider, K. Frey et al., "The Effects of Guided Care on the Perceived Quality of Health Care for Multi-Morbid Older Persons: 18-Month Outcomes from a Cluster-Randomized Controlled Trial," *Journal of General Internal Medicine,* March 2010 25(3):235–42; W. J. Katon, E. H. Lin, M. Von Korff et al., "Collaborative Care for Patients with Depression and Chronic Illnesses," *New England Journal of Medicine,* Dec. 30, 2010 363(27):2611–20.

[31] Institute of Medicine, *Crossing the Quality Chasm: A New Health System for the 21st Century*, (Washington, D.C.: National Academies Press, 2001).

[32] M. Stewart, "Towards a Global Definition of Patient-Centred Care," *BMJ*, Feb. 24, 2001 322(7284):444–45.

[33] W. Levinson, C. S. Lesser, and R. M. Epstein, "Developing Physician Communication Skills for Patient-Centered Care," *Health Affairs,* July 2010 29(7):1310–18.

[34] A. M. O'Connor, C. L. Bennett, D. Stacey et al., "Decision Aids for People Facing Health Treatment or Screening Decisions," *Cochrane Database System Review,* 2009(3):CD001431.

[35] F. Legare, S. Ratte, D. Stacey et al. "Interventions for Improving the Adoption of Shared Decision Making by Healthcare Professionals," *Cochrane Database System Review,* 2010(5):CD006732.

[36] T. Bodenheimer, K. MacGregor, C. Sharifi et al., *Helping Patients Manage Their Chronic Conditions* (Oakland, Calif.: California HealthCare Foundation, June 2005).

[37] D. Schillinger, "Improving Chronic Disease Care for Populations with Limited Health Literacy," in *Health Literacy: A Prescription to End Confusion* (L. Nielsen-Bohlman, A. M. Panzer, and D. A. Kindig, eds.) (Washington, D.C.: National Academies Press, 2004).

[38] D. Schillinger, J. Piette, K. Grumbach et al., "Closing the Loop: Physician Communication with Diabetic Patients Who Have Low Health Literacy," *Archives of Internal Medicine,* Jan. 13, 2003 163(1):83–90.

[39] S. L. Norris, M. M. Engelgau, and K. M. Narayan, "Effectiveness of Self-Management Training in Type 2 Diabetes: A Systematic Review of Randomized Controlled Trials," *Diabetes Care,* March 2001 24(3):561–87; J. Chodosh, S. C. Morton, W. Mojica et al., "Meta-Analysis: Chronic Disease Self-Management Programs for Older Adults," *Annals of Internal Medicine,* Sept. 20, 2005 143(6):427–38; and P. G. Gibson, H. Powell, J. Coughlan et al., "Self-Management Education and Regular Practitioner Review for Adults with Asthma," *Cochrane Database System Review,* 2007(1):CD001117.

[40] Norris, Engelgau, and Narayan, "Effectiveness of Self-Management Training," 2001.

[41] T. Bodenheimer, K. Lorig, H. Holman et al., "Patient Self-Management of Chronic Disease in Primary Care," *Journal of the American Medical Association,* Nov. 20, 2002 288(19):2469–75; and K. Browne, D. Roseman, D. Shaller et al., "Measuring Patient Experience as a Strategy for Improving Primary Care," *Health Affairs*, May 2010 29(5):921–25.

[42] Browne, Roseman, Shaller et al., "Measuring Patient Experience," 2010.

[43] C. Schoen, R. Osborn, M. M. Doty, D. Squires, J. Peugh, and S. Applebaum, "A Survey of Primary Care Physicians in 11 Countries, 2009: Perspectives on Care, Costs, and Experiences," *Health Affairs* Web Exclusive, Nov. 5, 2009, w1171–w1183.

[44] L. Huibers, P. Giesen, M. Wensing et al., "Out-of-Hours Care in Western Countries: Assessment of Different Organizational Models," *BMC Health Services Research,* 2009 9:105.

[45] M. Murray and D. M. Berwick, "Advanced Access: Reducing Waiting and Delays in Primary Care," *Journal of the American Medical Association,* Feb. 26, 2003 289(8):1035–40.

[46] T. Bodenheimer, "Coordinating Care: A Major (Unreimbursed) Task of Primary Care," *Annals of Internal Medicine,* Nov. 20, 2007 147(10):730–31.

[47] C. L. Roy, A. Kachalia, S. Woolf et al., "Hospital Readmissions: Physician Awareness and Communication Practices," *Journal of General Internal Medicine,* March 2009 24(3):374–80.

[48] A. S. O'Malley, A. Tynan, G. R. Cohen et al., *Coordination of Care by Primary Care Practices: Strategies, Lessons and Implications,* Research Brief no. 12 (Washington, D.C.: Center for Studying Health System Change, April 2009).

[49] E. A. Coleman and R. A. Berenson, "Lost in Transition: Challenges and Opportunities for Improving the Quality of Transitional Care," *Annals of Internal Medicine,* Oct. 5, 2004 141(7):533–36.

[50] W. C. Cooley and J. W. McAllister, "Building Medical Homes: Improvement Strategies in Primary Care for Children with Special Health Care Needs," *Pediatrics*, May 2004 113(5 Suppl):1499–1506.

[51] B. Starfield, ed., *Primary Care: Concept, Evaluation, and Policy* (New York: Oxford University Press, 1992); and Committee on the Future of Primary Care, Division of Health Care Services, Institute of Medicine, *Defining Primary Care: An Interim Report* (Washington, D.C.: National Academies Press, 1994).

[52] Wagner, "Chronic Disease Management," 1998.

[53] K. Coleman, B. T. Austin, C. Brach et al., "Evidence on the Chronic Care Model in the New Millennium," *Health Affairs,* Jan.–Feb. 2009 28(1):75–85.

[54] R. E. Glasgow, C. T. Orleans, and E. H. Wagner, "Does the Chronic Care Model Serve Also as a Template for Improving Prevention?" *Milbank Quarterly,* 2001 79(4):579–612, iv–v.

[55] AAFP, AAP, ACP et al., "Joint Principles," 2007; and Patient Centered Primary Care Collaborative, *The Patient-Centered Medical Home: A Purchaser Guide—Understanding the Model and Taking Action* (Washington, D.C.: PCPCC, 2008), available at: http://www.pcpcc.net/files/PurchasersGuide/PCPCC_Purchaser_Guide.pdf.