By Bruce E. Landon, James M. Gill, Richard C. Antonelli, and Eugene C. Rich

Prospects For Rebuilding Primary Care Using The Patient-Centered Medical Home

DOI: 10.1377/hlthaff.2010.0016
HEALTH AFFAIRS 29,
NO. 5 (2010): –

ABSTRACT **Existing research suggests that models of enhanced primary care lead to health care systems with better performance. What the research does not show is whether such an approach is feasible or likely to be effective within the U.S. health care system. Many commentators have adopted the model of the patient-centered medical home as policy shorthand to address the reinvention of primary care in the United States. We analyze potential barriers to implementing the medical home model for policy makers and practitioners. Among others, these include developing new payment models, as well as the need for up-front funding to assemble the personnel and infrastructure required by an enhanced non-visit-based primary care practice and methods to facilitate transformation of existing practices to functioning medical homes.**

Bruce E. Landon (landon@hcp.med.harvard.edu) is an associate professor in the Department of Health Care Policy, Harvard Medical School, in Boston, Massachusetts.

James M. Gill is president of the Delaware Valley Outcomes Research Institute in Newark, Delaware.

Richard C. Antonelli is an associate professor of general pediatrics at Harvard Medical School.

Eugene C. Rich is a senior fellow at Mathematica Policy Research in Washington, D.C.

There is near-unanimity that a truly reformed U.S. health care system will require at its foundation a robust system of primary care.[1] Other health care systems throughout the developed world are based on a strong primary care foundation and deliver health care services at an average of half the per capita costs of the U.S. system at the same or higher levels of quality. In contrast, the specialist-dominated U.S. health care system produces care of mediocre quality, with excessive use of costly services that have little marginal health benefit.[2]

Within this context, the patient-centered medical home has become policy shorthand for rebuilding U.S. primary care capacity. It incorporates not only enduring primary care principles such as access, coordination, and comprehensiveness, but also twenty-first-century approaches using new tools such as electronic health records; asynchronous communications independent of time or location, such as e-mail; and informed decision making.

The core principles of the medical home were endorsed by the major primary care associations in 2007 and serve as a general guide.[3] However, questions remain about how to best put these principles into operation and close the gap between the current primary care system and that envisioned under the medical home model. For instance, the principles do not specify an optimal reimbursement strategy with regard to the level or structure of payment, or the concrete steps that a practice should take to improve access to care. In this paper we highlight these and other policy challenges for implementing the patient-centered medical home.

Policy Options For Defining The Patient-Centered Medical Home

The joint principles of the major primary care associations define the patient-centered medical home.[3] It is described as a blend of the basic principles of primary care; new ways of organizing and delivering care to improve quality and safety; and changes in reimbursement that support this model.

Economic theory suggests that implementing appropriate incentives through payment reform will result in primary care practices' evolving over time toward the medical home ideal as

the practices compete for patients. Policy makers and purchasers, however, remain concerned that practices might merely pocket the additional payments without changing how they deliver care. Thus, it is critical that patient-centered medical home adoption be measured so that payment can be linked to achievement.

Several tools have been developed to measure achievement of the medical home. Perhaps the most well-known and widely used is the Physician Practice Connections–Patient-Centered Medical Home tool from the National Committee for Quality Assurance (NCQA).[4] This practice self-report measure is being used by nearly all current medical home pilot projects.[5] The tool assesses nine standards, which are detailed in Exhibit 1. However, these nine standards do not necessarily directly correspond to the seven "joint principles" that define the patient-centered medical home.[3]

For example, almost half of the tool's items assess functions that require health information technology (IT). Few items, however, measure core primary care components such as continuity of care and whole-person orientation, which requires that a personal provider take responsibility for providing for all of a patient's health care needs or arranging for care from other qualified providers as needed.

Although the NCQA is revising the tool, there

EXHIBIT 1

Current Scoring System For Patient-Centered Medical Home Assessment Using The Physician Practice Connections—Patient-Centered Medical Home (PPC-PCMH) Tool, And Relationship To The "Joint Principles" Of The Patient-Centered Medical Home

	Core principles of the patient-centered medical home covered in the tool				
PPC-PCMH domain	**Physician directed practice**	**Whole-person orientation**	**Care coordinated or integrated**	**Quality and safety**	**Enhanced access**
Access and communication					Setting and measuring access standards (9 pts)
Patient tracking and registry functions			Clinical data systems, paper or electronic charting tools to organize clinical information (14 pts)	Registries for population management and identification of main conditions in practice (7 pts)	
Care management	Use of nonphysician staff to manage care (3 pts)	Care management (5 pts)	Coordinating care and follow-up (5 pts)	Implementing evidence-based guidelines for 3 conditions and generating preventive service reminders for clinicians (7 pts)	
Patient self-management support		Supporting self-management (4 pts)			Assessment of communication barriers (2 pts)
Electronic prescribing				E-prescribing and cost and safety check functions (8 pts)	
Test tracking				Electronic systems to order, retrieve, and track tests (13 pts)	
Referral tracking				Automated system (4 pts)	
Performance reporting and improvement				Performance measurement and reporting, quality improvement, and seeking patient feedback (15 pts)	
Advanced electronic communications			E-communication to communicate with DM or CM managers (1 pt)	E-communication to identify patients due for care (2 pts)	Interactive Web site that facilitates access (1 pt)
Total	**3 pts**	**9 pts**	**20 pts**	**56 pts**	**12 pts**

SOURCE Authors' interpretation of the National Committee for Quality Assurance (NCQA) PPC-PCMH tool and the core principles of the patient-centered medical home.
NOTES No aspects of the tool assess the domains of "payment reform" and "personal physician," which are two of the seven "joint principles." DM is disease management. CM is case management.

Fixing the reimbursement system is seen as a crucial component of primary care reform.

is concern that having the current tool as the de facto standard can be detrimental to the achievement of the patient-centered medical home. Many fear that if the current tool scores are used to pay providers, the result will be the situation reportedly described by the management consultant Peter Drucker: "What gets measured gets managed."[6] Practices may focus on aspects highlighted by the tool, to the detriment of truly transforming primary care.

The challenge is that many of the patient-centered medical home principles are difficult to measure. However, other available tools may fill some of these gaps. Tools that were developed to measure core features of primary care as defined by the Institute of Medicine include the Primary Care Assessment Survey,[7] the Primary Care Assessment Tool,[8] and the Components of Primary Care Instrument.[9] Tools that measure patient-centered features include the Patient Enablement Instrument,[10] the Consultation and Relational Empathy measure,[11] and the Consultation Quality Index.[12] However, these measures have not yet been combined into a comprehensive measure of the medical home. Moreover, many of them require patient surveys, which are costly to implement on a large scale.

A more comprehensive tool is the Medical Home Intelligence Quotient[13] from the TransforMED National Demonstration Project. This tool is simpler to implement than the Physician Practice Connections–Patient-Centered Medical Home and is available for free. However, it has not been tested as extensively as the NCQA tool has been.

Thus, there are no ideal, readily available ways to measure achievement of the medical home model that are widely accepted as valid and feasible to implement on a large scale. One policy option would be to first implement a new payment system for the patient-centered medical home, requiring that practices achieve certification at some later date. Such a policy would provide practices with the resources and the administrative rationale to implement needed changes prior to being certified, and would provide funding for the certification process.

Payment Policy

Broad attention has already been paid to the relatively meager fee-for-service payments for U.S. primary care clinicians, as well as to the resulting negative effects on income, work life, career satisfaction, and specialty choice.[14] Accordingly, fixing the reimbursement system is seen as a crucial component of primary care reform.

FEE-FOR-SERVICE Fee-for-service payment has never been a particularly efficient way to reward care that is comprehensive, coordinated, and accountable for the whole patient.[15] These limitations are now profoundly in evidence in a "connected" world in which unreimbursed activities such as e-mail or text messaging, electronic decision aids, and remote monitoring may all play important roles in managing the rapidly growing population of patients with chronic conditions.

FIXED UP-FRONT PAYMENT Capitation, the other basic payment option available in the United States, reimburses primary care practices a fixed up-front fee for all of the services they deliver to an individual patient. Capitation has been problematic because the same payment is received regardless of the services delivered; as such, it presents incentives to stint on care.[15] In addition, capitation and other "bundled" payments also present challenges related to adjusting payment levels for individual patients' underlying illness burdens. Finally, the multiplicity of payers adds complexity, and the methods for measuring quality within primary care and rewarding high-quality primary care practice are rudimentary and need further development.[16,17]

HYBRID MODELS Because fee-for-service and capitation are imperfect ways to reward primary care, so-called hybrid payment models have been proposed. Such combinations of payments for face-to-face encounters and additional monthly payments for medical home services have a theoretical appeal. These models often include additional incentive payments based on measures of quality of care, patients' experiences, or shared savings.

Hybrid payment models containing these three components have been endorsed by major primary care professional associations,[18] as well as by the Patient-Centered Primary Care Collaborative.[19] Hybrid payment is also the predominant approach being used in medical home demonstrations throughout the country.[5] Unfortunately, even this approach offers no guarantee that the incentives will be reliably understood

and predictably acted upon by the relevant professionals. There are also challenges related to assigning patients to specific practices for purposes of paying the fixed monthly payment, particularly when patients are not required by their health plan to register with a primary care clinician.

IMPORTANCE OF PAYMENT LEVELS A key determinant of the success of the medical home is the establishment of payment levels. These fixed payments have to be sufficient to support the personnel and infrastructure required by an enhanced non-visit-based patient-centered medical home, while also increasing relative pay for primary care clinicians. Getting the payments right is vital if the medical home model is to attract adequate numbers of new physicians and other clinicians to the field.

Whether these fixed payments should be entirely directed to the primary care practice or shared with a community-based organization that works with multiple practices is another unsettled policy conundrum. For instance, the community support model being implemented in North Carolina and Vermont might be an attractive option for small practices serving less densely populated communities.[20] In this model, some of the periodic patient-centered medical home payments are invested in a community-based organization that provides infrastructure, such as care coordination services, that can be shared among several primary care offices.

Transforming Primary Care Practice

The process of rebuilding primary care into medical homes may require many years, particularly because primary care has already sunk to a low level in many areas. A variety of policy strategies are available to facilitate the rebuilding. Indeed, it is likely that there cannot be a single transformative approach, because practices will differ in their own capabilities as well as the community resources available to them. The transformation process is likely to require not only payment policy reform but also local expertise and human resources to translate implementation into practical reality.

Almost all active medical home demonstration programs include strategies to accelerate the transformation of current primary care practices into patient-centered medical homes. It is unlikely that most practices, including those participating in patient-centered medical home demonstration projects, will be able to make such a transition in a short time period without substantial assistance and resources. There are a number of different approaches for speeding up such transformation, but the optimal methods

The process of rebuilding primary care into medical homes may require many years.

are not well understood.

LEARNING COLLABORATIVES Many current demonstrations establish "learning collaboratives," through which primary care practices can communicate insights and share best practices.[5] Typically, these collaboratives teach quality improvement techniques and offer tools to implement the Chronic Care Model.[21] Developed by Ed Wagner, this model outlines the basic elements required for improving chronic illness care, including supporting self-management for patients and providing decision support for clinicians.[22]

These quality improvement techniques typically call for small improvements to be tested, implemented, and refined in an iterative process. Transforming the typical generalist physicians' office into a high-functioning medical home, however, may demand more fundamental real-time restructuring, an exercise some have likened to changing clothes while jogging. The early experiences from the recently completed TransforMED national pilot project, which demonstrated that even highly committed practices had a difficult time transforming over a short period of time, highlight such challenges.[23]

PRACTICE CONSULTANTS Consequently, some medical home projects have decided to employ expert practice consultants to facilitate change.[5] Generally, such consultants have been hired by demonstration projects or by large networks of practices, rather than by individual practices, which usually lack the resources to hire them on their own.

Accordingly, to make such resources broadly available to primary care practices throughout the country, some have proposed a publicly funded model comparable to the agricultural extension service that helped transform American farming.[24] These local resources could advise primary care clinicians in their community, not only on the latest applications of information technology, but also on strategies that more effectively use the expertise of each member of the primary care team. The goal would be to achieve

Medical homes will ultimately benefit from the functionality of a electronic health record.

maximal patient and public health value from every medical home investment.

INFORMATION EXCHANGES Other options that are available to resource-poor practices are information exchanges such as TransforMED's Delta Exchange, in which practices can share information on successful transformation strategies.[25]

FUNDING OPTIONS Another key decision that must be made at the outset of every medical home transformation process is whether upfront funds beyond payment reform will be needed for practices to begin the process of transforming into medical homes. For instance, some practices will lack basic capabilities such as an electronic health record or patient portal that will likely be required of a highly functioning medical home.

Beginning in 2011, federal funding made available through the American Recovery and Reinvestment Act (ARRA) will support the implementation of electronic health records for those providers who demonstrate "meaningful use." Although some might argue that implementing electronic health records and the patient-centered medical home should not happen simultaneously, it is nonetheless true that medical homes will ultimately benefit from the functionality of a electronic health record. These functionalities include the records' basic tools —such as chronic disease registries, point-of-care reminders, and medication reconciliation —as well as sophisticated applications, such as enhanced patient monitoring and communication, and patient and physician decision support.

BEING PATIENT-CENTERED Achieving "patient-centeredness" is another challenge to primary care transformation that is not consistently addressed in the practice redesign of most medical home demonstrations. There may even be a lack of shared understanding about what "patient centered" or "family centered" means. Consequently, better models may be needed for involving patients and disparate populations in patient-centered medical home redesign.

The National Partnership for Women and Families has produced an expanded set of principles for the patient-centered medical home that build upon the seven core "joint principles" to address some of these issues.[26] Among these are that the care team "knows" its patients and "takes into consideration the patient's life situation, including family and caregiver circumstances, his or her values and preferences, age, and home environment when making recommendations about the patient's health care and treatment plan."

The 'Medical Neighborhood'

The record to date suggests that primary care providers cannot transform patients' experiences of care across the health care system. Therefore, one must consider the ways in which the medical home model relates to the rest of the health care system.

COST AND QUALITY Most observers agree that opportunities to improve quality while also controlling cost exist, especially with regard to unplanned hospital readmissions, emergency department use for nonemergent health problems, and overuse of subspecialists. However, the incentives of other health care providers are not aligned with these goals. Thus, as primary care settings develop the ability to attack these cost drivers, which are high-yield opportunities, subspecialists and allied care providers will need to have explicitly defined roles and appropriate incentives that support financially sustainable, collaborative links between providers.

High-quality, cost-efficient outcomes result when systems of care delivery are coordinated across the entire continuum, from primary care to subspecialty-based, tertiary settings such as hospitals, and at multiple points between. Coordinated care requires that information be available among providers so that the right care can be delivered at the right time and in the most cost-effective location. Coordination will support shared accountability for patient-related outcomes, including costs of care. Thus, increasing capacity to coordinate care across the continuum will be integral to ensuring that the strengths of the medical home model are realized.

ACCOUNTABLE CARE ORGANIZATIONS To achieve a broad sense of shared commitment to patient and financial outcomes of care, the creation of so-called accountable care organizations has been proposed, with a medical home as the foundation.[27–29] Policy makers envision the accountable care organization as a provider-led organization whose mission is to manage the full

continuum of care and be accountable for the overall costs and quality of care for a defined population.[27]

Capitated payment models that embed medical homes within accountable care organizations could ensure responsibility for costs and quality across the continuum of care, thus creating incentives for improved sharing of information and coordination across multiple care settings. Such a model could also ensure adequate resources for enhanced primary care as envisioned under the patient-centered medical home.

Yet more than 50 percent of primary care practices are small, and many lack electronic connectivity.[30] Even many large provider organizations lack care management infrastructure, and others lack a strong primary care orientation.[31] Thus, for many communities, well-integrated, primary care–oriented accountable care organizations may be slow to develop. In other communities, the development of such powerful provider groups may have complex effects because of their ability to command higher prices.[32]

As a result, incentives will be needed to support the creation of local infrastructure to facilitate coordinated care. Local virtual organizations might consist of networks of small independent practices or of practices affiliated with a hospital. They could be linked through sharing of care management health IT or human resources for case management or care coordination.

Efficiency And Cost Savings: Not The Only Goals

Controlling escalating health care costs is a major goal for U.S. policy makers because of a general belief that current rates of growth are unsustainable.[33] Thus, the implementation of the patient-centered medical home must be viewed within the context of health reform overall. The medical home must be seen as a means to attaining broader goals of a reformed system.

FINANCING IMPLEMENTATION The overriding policy concern related to the medical home model in the short term is determining the optimal way to finance its implementation. All versions of the model envision shifting significant additional resources to primary care for several reasons: first, to compensate primary care practices for the extra services required of a patient-centered medical home; second, to support investments in needed infrastructure (including health IT); and third, to narrow the payment gap between primary and specialty care services so as to encourage more physicians and other providers to enter primary care specialties.

Some medical home programs have demonstrated cost savings that could pay for these investments. For example, the Community Care of North Carolina project has shown a projected $125 million annual net savings after paying for patient-centered medical home investments.[20] Similar levels of cost savings have been demonstrated at both Geisinger Health System in Pennsylvania and Group Health in Washington State.[34,35] However, because most initiatives are relatively new and ongoing, savings have not yet been demonstrated to the degree that they can be scored by the Congressional Budget Office.

The medical home must be seen as a means to attaining broader goals of a reformed system.

In addition, there is also a lack of evidence about the direct connection between specific components of the medical home model and potential cost savings. For instance, there is uncertainty regarding the benefits of care coordinators, improved access with phone and electronic encounters, and tracking chronic care with disease registries. Although it is anticipated that such medical home components will save money—by improving transitions in care and discharge management, while discouraging overuse of specialists, redundant testing, and unnecessary high-cost diagnostic testing—these relationships are not well proven empirically. Payers and policy makers are reluctant to invest resources in the medical home model without more evidence that there will be cost savings in the future.

Most providers and patients, however, see the benefits of the patient-centered medical home as obvious. Some of this belief comes from evidence that primary care–oriented health care achieves better health outcomes at lower levels of spending.[36,37] Some also comes from experimental and observational data showing that improved continuity and coordination of care lead to improved outcomes and reduced use of high-cost services.[38,39] Finally, some comes from the simple intuitive knowledge that simply having a clinician who knows your name is a better method of providing primary health care.

IMPROVING THE PATIENT EXPERIENCE Physi-

cians and patients don't believe that the primary purpose of the patient-centered medical home is to achieve savings. Primary care physicians see the medical home as a mechanism for improving quality of care while reducing their administrative burden. Patients envision a system of care that will improve access and better match their needs and preferences.

From a societal perspective, enhanced access and better preventive services might result in a healthier and more productive workforce with fewer sick days. These savings must also be incorporated into societal estimates of the costs and benefits of adopting the patient-centered medical home.

So while payers and policy makers might be waiting for more evidence of cost savings, physicians and patients feel that there is no need to wait for this evidence. There are precedents for this more "intuitive" approach to health policy, including the recent large investments in health IT through the Health Information Technology for Economic and Clinical Health (HITECH) Act, enacted as part of ARRA, which could provide as much as $29 billion through 2016 for investments in health IT. The evidence for primary care is no less and is probably greater than that for health IT.

Moreover, because of their short time horizon, diverse designs, and—in some cases—lack of well-formulated evaluations, it is not likely that existing patient-centered medical home demonstration projects will provide definitive answers. More likely, as with much implementation research, the interventions will evolve over time based on data that emerge from these evaluations. There is concern among physician and patient groups that waiting for more empirical evidence will only result in a further eroded primary care system that will be beyond repair.[40]

Conclusion

There is wide agreement that the current U.S. primary care system is failing, and that a revitalized primary care system will be needed if we are to realize the goal of improving quality and patients' experiences while also controlling cost growth. The patient-centered medical home shows promise as the policy strategy for the long-overdue reinvigoration of U.S. primary care.

The patient-centered medical home can provide a financing platform for traditional primary care that fee-for-service payment has failed to support. It can also provide the infrastructure for primary care services enabled by twenty-first-century IT and measurement tools. Another advantage of the medical home concept is that it replaces long-standing debates about which disciplinary tradition—for example, family medicine, general internal medicine, or advanced-practice nursing—is most deserving of primary care payment augmentation. The strategy is to reward practices, regardless of their clinicians' training tradition, that actually deliver high-quality primary care services to their local community.

For all of this promise, however, implementing the medical home model poses major challenges. Tension exists between payers and policy makers who seek evidence that the medical home will result in significant cost savings and others who believe that an enhanced primary care base will be required of a reformed health care system.

The success of the patient-centered medical home as a strategy to reestablish robust U.S. primary care capacity will require effective policies in payment reform, in certification of medical homes, in facilitating transformation of existing practices, and in identifying the appropriate linkages of the medical home to the rest of the delivery system. These challenges highlight the importance of careful use of available evidence and evaluations to modernize and revitalize the delivery of primary care services in the United States. ■

This work was supported in part by a grant from the Agency for Healthcare Research and Quality (no. 1R13HS017995-01).

NOTES

1 Ginsburg JA, Doherty RB, Ralston JF Jr, Senkeeto N, Cooke M, Cutler C, et al. Achieving a high-performance health care system with universal access: what the United States can learn from other countries. Ann Intern Med. 2008;148(1):55–75.

2 McGlynn EA, Asch SM, Adams J, Keesey J, Hicks J, DeCristofaro A, et al. The quality of health care delivered to adults in the United States. N Engl J Med. 2003;348(26):2635–45.

3 Patient-Centered Primary Care Collaborative. Joint principles of the patient-centered medical home [Internet]. Washington (DC): PCPCC; [cited 2010 Mar 30]. Available from: http://www.pcpcc.net/node/14

4 National Committee for Quality Assurance. Physician Practice Connections–Patient-Centered Medical Home [Internet]. Washington (DC): NCQA; 2009 [cited 2010 Mar 30]. Available from: http://www.ncqa.org/tabid/631/Default.aspx

5 Bitton A, Martin C, Landon BE. A

nationwide survey of patient centered medical home demonstration projects. J Gen Intern Med. Forthcoming.
6 Quotes on management [Internet]; [cited 2010 Mar 30]. Available from: http://www.quotationcollection.com/tag/management/quotes
7 Safran DG, Kosinski M, Tarlov AR, Rogers WH, Taira DH, Lieberman N, et al. The Primary Care Assessment Survey: tests of data quality and measurement performance. Med Care. 1998;36(5):728–39.
8 Shi L, Starfield B, Xu J. Validating the adult primary care assessment tool. J Fam Pract. 2001;50(2):161W–75W.
9 Flocke SA. Measuring attributes of primary care: development of a new instrument. J Fam Pract. 1997;45(1):64–74.
10 Howie JG, Heaney DJ, Maxwell M, Walker JJ. A comparison of a patient enablement instrument (PEI) against two established satisfaction scales as an outcome measure of primary care consultations. Fam Pract. 1998;15(2):165–71.
11 Mercer SW, Maxwell M, Heaney D, Watt GC. The development and preliminary validation of the consultation and relational empathy (CARE) measure: an empathy-based consultation process measure. Fam Pract. 2004;21(6):699–705.
12 Mercer SW, Howie JG. CQI-2—a new measure of holistic interpersonal care in primary care consultations. Br J Gen Pract. 2006;56(525):262–8.
13 TransforMED [home page on the Internet]. Leawood (KS): TransforMED; 2009 [cited 2010 Mar 30]. Available from: http://www.transformed.com/mhiq/welcome.cfm
14 Bodenheimer T, Berenson RA, Rudolf P. The primary care–specialty income gap: why it matters. Ann Intern Med. 2007;146(12):895–6.
15 Berenson RA, Rich EC. U.S. approaches to physician payment: the deconstruction of primary care. J Gen Intern Med. Forthcoming.
16 Landon BE, Normand SL. Performance measurement in the small office practice: challenges and potential solutions. Ann Intern Med. 2008;148(5):353–7.
17 Landon BE, Normand SL, Blumenthal D, Daley J. Physician clinical performance assessment. JAMA. 2003;290(9):1183–9.
18 See, for example, American College of Physicians [home page on the Internet]. Philadelphia (PA): ACP; 2009 [cited 2010 Mar 30]. Available from: http://www.acponline.org/
19 Patient-Centered Primary Care Collaborative [home page on the Internet]. Washington (DC): PCPCC; 2009 [cited 2010 Mar 30]. Available from: http://pcpcc.net/
20 Community Care of North Carolina [home page on the Internet]. Durham (NC): CCNC; 2009 [cited 2010 Mar 30]. Available from: http://www.communitycarenc.com
21 Landon BE, Hicks LS, O'Malley AJ, Lieu TA, Keegan T, McNeil BJ, et al. Improving the management of chronic disease at community health centers. N Engl J Med. 2007;356(9):821–34.
22 Coleman K, Austin BT, Brach C, Wagner EH. Evidence on the Chronic Care Model in the new millennium. Health Aff (Millwood). 2009;28(1):75–85.
23 Nutting PA. Journey to the future of family medicine. Ann Fam Med. 2008;6:270–2.
24 Gawande A. The cost conundrum: what a Texas town can teach us about health care. New Yorker [serial on the Internet]. 2009 Jun 1 [cited 2010 Mar 30]. Available from: http://www.newyorker.com/reporting/2009/06/01/090601fa_fact_gawande
25 TransforMED. TransforMED's Delta-Exchange [home page on the Internet]. Leawood (KS): TransforMED; 2010 [cited 2010 Apr 13]. Available from: http://www.transformed.com/Delta-Exchange/index.cfm
26 Patient-Centered Primary Care Collaborative. National Partnership for Women and Families medical home principles [Internet]. Washington (DC): PCPCC; 2009 [cited 2010 Apr 14]. Available from: http://www.nationalpartnership.org/site/DocServer/Advocate_Toolkit-Consumer_Principles_3-30-09.pdf?docID=4821
27 Rittenhouse DR, Shortell SM, Fisher ES. Primary care and accountable care—two essential elements of delivery-system reform. N Engl J Med. 2009;361(24):2301–3.
28 Fisher ES. Building a medical neighborhood for the medical home. N Engl J Med. 2008;359(12):1202–5.
29 Shortell SM, Casalino LP. Health care reform requires accountable care systems. JAMA. 2008;300(12):95–97.
30 DesRoches CM, Campbell EG, Rao SR, Donelan K, Ferris TG, Jha A, et al. Electronic health records in ambulatory care—a national survey of physicians. N Engl J Med. 2008;359(1):50–60.
31 Shortell SM, Gillies R, Siddique J, Casalino LP, Rittenhouse D, Robinson JC, et al. Improving chronic illness care: a longitudinal cohort analysis of large physician organizations. Med Care. 2009;47(9):932–9.
32 Nichols LM, Ginsburg PB, Berenson RA, Christianson J, Hurley RE. Are market forces strong enough to deliver efficient health care systems? Confidence is waning. Health Aff (Millwood). 2004;23(2):8–21.
33 Kellerman AL, Lewin LS. The consequences of "no." N Engl J Med. 2009;361(25):2399–401.
34 Paulus RA, Davis K, Steele GD. Continuous innovation in health care: implications of the Geisinger experience. Health Aff (Millwood). 2008;27(5):1235–45.
35 Reid RJ, Fishman PA, Yu O, Ross TR, Tufano JT, Soman MP, et al. Patient-centered medical home demonstration: a prospective, quasi-experimental, before and after evaluation. Am J Manag Care. 2009;15(9):e71–87.
36 Starfield B. Primary care and health: a cross-national comparison. JAMA. 1991;266(16):2268–71.
37 Starfield B, Powe NR, Weiner JR, Stuart M, Steinwachs D, Scholle SH, et al. Costs vs. quality in different types of primary care settings. JAMA. 1994;272(24):1903–8.
38 Gill JM. Can hospitalizations be avoided by having a regular source of care? Fam Med. 1997;29(3):166–71.
39 Gill JM, Mainous AG. The role of provider continuity in preventing hospitalizations. Arch Fam Med. 1998;7(4):352–7.
40 Lee TH, Bodenheimer T, Goroll AH, Starfield B, Treadway K. Redesigning primary care. N Engl J Med. 2008;359(20):e24.