The U.S. healthcare system has been plagued by rising costs while achieving relatively poor-quality outcomes, and the situation continues to worsen. One solution is the patient-centered medical home (PCMH) model of primary care. This model focuses on care coordination and development of long-term physician–patient relationships that are expected to lead to better quality care and higher rates of patient satisfaction than have previously been achieved. Although the PCMH features a number of core principles, significant differences are seen across models.

Three of the most prevalent models are those offered by the American Academy of Family Physicians, National Demonstration Project, and National Committee for Quality Assurance (NCQA). After analysis, the NCQA approach emerged as the recommended model due to its specificity and comprehensiveness. Research suggests that the PCMH, and specifically the NCQA model, can achieve both increases in quality and reductions in cost. However, this finding is tempered by the challenges inherent in implementation.

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INTRODUCTION
The problem of increasing costs accompanied by merely average quality care in the U.S. healthcare system is well documented. As of 2012, according to the Kaiser Family Foundation (KFF, 2012), healthcare expenditures in the United States comprised 17.9% of gross domestic product, equating to $8,402 spent on healthcare per person. The same report projects that by 2020, healthcare expenditures will be nearly one fifth of the U.S. economy, at 19.8%. Furthermore, not only is the U.S. healthcare system the most expensive in the world but it is 48% more costly per capita than the system ranked second in healthcare expenditures, that of Switzerland (KFF, 2012).

However, the extensive spending on the U.S. healthcare system does not yield outstanding quality. Instead, by most measures, healthcare in the United States is at best average compared to other countries. The World Health Organization (WHO, 2011) ranks the U.S. system 37th in the world, behind some countries considered to be less developed, such as Cyprus and Costa Rica. Moreover, while the United States is the world leader in medical research, it lags the other Organisation for Economic Co-operation and Development (OECD, 2011) nations in terms of life expectancy and infant mortality.

These findings have given rise over the past 40 years to many solutions to improve quality of care in the United States while lowering costs. The remainder of this essay analyzes a key element emerging from health reform—the patient-centered medical home (PCMH)—as a potential solution to this conundrum.

BACKGROUND
The concept of the medical home was first introduced into the practice of pediatrics by the American Academy of Pediatrics in the 1960s. At that time, the term referred to a primary care practice that partnered with families in caring for children. As the model grew, it began to take on many of the principles now associated with the PCMH, such as coordinated and comprehensive care. In 1978, WHO met to discuss the medical home, specifically endorsing primary care’s role in carrying the medical home forward. WHO believed that primary care was integral to maintaining an individual’s health and identified specific functions that primary care providers should perform toward that end. These included the following (Robert Graham Center, 2007):

- Address the prevailing health needs of the community
- Educate the public about health issues
- Provide preventive services

The broad scope of primary care makes pediatrics ideal for accomplishing these tasks and participating in the medical home. But while WHO detailed the benefits of primary care in the late 1970s, it was not until the 1990s that the principles of primary care and the PCMH were linked (Robert Graham Center, 2007).

At that time, the Institute of Medicine (IOM, 1996) mentioned the medical home in conjunction with supporting the tenets of primary care, and in its 2001 report Crossing the Quality Chasm, IOM declared patient-centered care to be a main goal of the
U.S. healthcare system. This report had a major impact on family medicine (Steiger and Balog, 2010). In response, in an effort to better understand how to transform primary care practices into medical homes, several family medicine organizations, including the American Academy of Family Physicians (AAFP), American Academy of Family Physicians Foundation, American Board of Family Medicine, Association of Departments of Family Medicine, Association of Family Medicine Residency Directors, North American Primary Care Research Group, and Society of Teachers of Family Medicine, formed the Future of Family Medicine Project. The group declared that every individual should have a medical home to receive needed services, and organizations such as those involved in the Project, as well as quality organizations such as NCQA, began to develop models to implement their versions of the PCMH (Robert Graham Center, 2007).

The chronic care model also influenced the development of the PCMH concept. This model was developed by the MacColl Center for Health Care Innovation in the early 1990s and was published in 1998 (ICIC, n.d.). The case management principles of this approach to chronic care have been demonstrated to lower costs and provide higher-quality healthcare to patients with chronic diseases (RWJF, 2012). For example, TEAMcare, a chronic care model intervention, was shown to result in better outcomes for patients who suffered from depression and other chronic diseases (Katon et al., 2010). Given that 50% of U.S. residents have at least one chronic disease, care coordination and other principles championed by the chronic care model are important applications to incorporate into PCMH models (Robert Graham Center, 2007).

Another profound influence on the PCMH was the overall movement toward patient safety. As physicians and hospitals were hit with decreased Medicare reimbursements in the 1990s, they were forced to adapt to remain profitable and maintain their income. Much of this adaptation occurred through decreased nurse staffing, and many hospitals began to see patients only in terms of their diagnosis and the corresponding payment for treating it through diagnosis-related groups (Simpson, 2003). More recently, this approach has been rejected by many practitioners in favor of patient-centered care (Porter, 2009), which was largely brought about by IOM’s groundbreaking reports To Err Is Human (1999) and Crossing the Quality Chasm (2001).

In To Err Is Human, IOM paints a grim picture of patient safety in the United States. The study found that between 44,000 and 98,000 individuals die each year from hospital errors (IOM, 1999). This statistic sparked a strong movement toward better patient safety practices and improved quality.

IOM followed To Err Is Human with Crossing the Quality Chasm (IOM, 2001), which sets out specific steps for healthcare organizations to follow toward delivering improved patient care. It recommends six goals for improvement, among them the practice of patient-centered care. IOM defines patient-centered care as “providing care that is respectful of and responsive to individual patient preferences, needs, and
values, and ensuring that patient values guide all clinical decisions.” To achieve this goal, organizations are encouraged to ensure that patients have autonomy in deciding their care and that physicians partner with their patients in making decisions. Physicians were thus charged with providing patients with adequate knowledge and transparency to make their own informed decisions (IOM, 2001).

SOLUTIONS
As solutions to the conundrum of high cost and below-average quality in healthcare, a number of PCMH models have emerged. This section focuses on three of the most prevalent models of the PCMH: those promulgated by AAFP, the National Demonstration Project (NDP), and the National Committee for Quality Assurance (NCQA).

American Academy of Family Physicians
AAFP, in conjunction with the American Academy of Pediatrics, the American Osteopathic Association, and the American College of Physicians, released its model of the PCMH in 2007. The model features the following seven components of a patient’s medical home (Robert Graham Center, 2007), each of which is described in more detail below:

- Personal physician
- Physician-directed medical practice
- Whole-person orientation
- Coordinated care
- Quality and safety
- Enhanced access
- Payment reform

Having a personal physician implies a strong personal relationship between physician and patient. This relationship must be continually developed over time as the physician provides acute and chronic care. An important precursor to fulfilling this expectation is that the patient has chosen a usual source of care, providing the basis for developing what IOM refers to as a “continuous healing relationship.” Establishing this relationship is integral to the PCMH, as it allows primary care physicians to provide high-quality, coordinated care over an extended period.

A physician-directed medical practice adheres to a team-based approach to primary care headed by the physician or another clinician. A key characteristic of this concept is that the team places the patient first, meaning care should be coordinated between primary care and specialty physicians as well as that between physicians and their care teams. It also stresses the importance of feedback from the patient in promoting continuous improvement (Porter, 2009).

The whole-person orientation of the PCMH entails treating the patient through a comprehensive approach as a complex being in the context of illness. That is, the patient’s physical, mental, and social health needs must be considered in the course of diagnosis and treatment. Thus, the physician must oversee all of these aspects of the patient or be able to refer the patient to an appropriate specialist.

Coordinated care is a highly organized care delivery approach. For this component, the primary care physician manages a patient’s care by coordinating with other health professionals, usually...
In creating its PCMH model, AAFP and its partner organizations sought to enumerate the basic medical home principles so that other models may be similarly built.

**National Demonstration Project**

The NDP was a two-year pilot program initiated in 2006 by TransforMED, a division of AAFP. The project was designed to determine the impact of TransforMED intervention on a physician practice’s ability to adopt the PCMH model of care. A total of 337 practices applied to participate; of those, 36 were chosen for the project. The practices were randomly split into an intervention group and a self-directed group. TransforMED provided guidance to the intervention group on implementing PCMH over two years, and the self-directed group was largely left to implement the model without assistance (Nutting et al., 2009).

Over the course of the study, TransforMED used the intervention group to implement its model of the PCMH. This model was similar to the AAFP model but featured some fundamental differences, especially as implemented at the beginning of the project. The most fundamental aspect that differentiates the NDP model from the AAFP model is the NDP’s greater emphasis on information technology to assist in patient access and open scheduling. Whereas AAFP built its model on the pillars of primary care, the NDP model was built on technology. The NDP model is also physician centered; it does not use other clinicians for PCMH activities. It lacks provisions for mental healthcare (Stewart et al., 2010) and does not call subspecialists. One important aspect of this feature is the use of health information technology to seamlessly integrate care (Porter, 2009) to ensure that accurate information is shared between care teams and that the patient receives the right care at the right time.

Quality and safety are fundamental to the PCMH approach. Quality improvements are inherent within the other principles of the PCMH, but the pursuit of quality brings voluntary participation in scientific quality measurements. It also implies that care is provided on the basis of widely accepted national practice guidelines established by scientific research.

Improved access in the PCMH refers to an environment that features open scheduling and the provision of non-traditional care by care teams through Internet or telephone conferencing. It is important that the patient have access to his or her medical home in some fashion 24 hours a day, every day.

In the PCMH, payment must be tied to the delivery of higher-quality care; specifically, it should be connected to value-adding steps of the healthcare process. Important steps to creating a better payment system include adding incentives for coordinating care and providing care in nontraditional ways, such as through e-mail or phone consultations. It is also important to motivate physicians to enter primary care practice to alleviate the shortage of those physicians. As primary care is the foundation of the PCMH, it is important to create incentives to entice new doctors to the primary care arena and to make sure reimbursement is adequate to keep them there.
for payment reform, one of the seven components of the AAFP model (Stange et al., 2010b).

By the end of the study, the NDP model grew to be more similar to the AAFP model and the nationally accepted guidelines for the PCMH. Its current version is based on three pillars: patient-centered care, a whole-person orientation, and a continuous patient–physician relationship. It seeks to provide the patient with greater access and coordination through information technology, suggesting that a PCMH’s website should enhance patients’ access to lab results and other necessary information pertinent to the PCMH’s patients. Patients in practices that adopt the NDP model should be able to receive an appointment the same day they request it. In addition, the PCMH should optimize its space for efficient workflow and patient visit spaces. The practice should employ coordinated, multidisciplinary care to improve quality by developing relationships between the practice and other health professionals, such as pharmacists and therapists. Finally, the PCMH should be a comprehensive practice, providing or coordinating all of a patient’s needs, including acute and chronic care management, promotion of wellness, and preventive services (Stewart et al., 2010).

The NDP model advanced the application of the AAFP model by carrying it into implementation at primary care practices.

National Committee for Quality Assurance
The final model considered is that developed by NCQA. The organization proposed this model, based on its Physician Practice Connections (PPC) evaluation system, to give ambulatory practices a guidebook for instituting the PCMH (NCQA, 2011).

In 2008, NCQA created the PPC-PCMH Recognition Program, which evaluates practices on the PPC criteria as they relate to medical homes. These criteria were updated in 2011 to include additional requirements related to healthcare IT meaningful use (NCQA, 2011).

The NCQA model for PCMHs is reflected in the evaluation’s requirements. Each practice is graded on aspects of care delivery in six recognition categories:

- Enhancing access
- Identifying and managing populations
- Planning and managing care
- Providing self-care support and community resources
- Tracking and coordinating care
- Measuring and improving performance

Enhanced access and continuity are defined as the extent to which the practice accommodates patients during and after office hours using team-based care. Identification and management of patient populations refers to collecting data on each patient. Planning and managing care includes using evidence-based practices to improve the treatment of patients’ maladies. Tracking and coordinating care involves detailing referrals and coordinating treatment for patients and sets the practice up to achieve high marks in the final category, measuring and improving performance (NCQA, 2011).
An environment of continuous improvement is integral to PCMH (NCQA, 2011). The NCQA model focuses on enhancing organization and data collection to inform how higher-quality care is delivered. Allowing for more seamless administration of care and better tracking of patient outcomes provides for an atmosphere of quality. Care is focused on the patient, and better information infrastructure promotes the monitoring of chronic diseases and preventive care (NCQA, 2012).

RECOMMENDATION

Of the three models examined, this analysis finds that the NCQA model is preferred for practices, mostly because of the significant amount of research into it (much of it supportive) and the paucity of research into other models. A study involving Community Care of North Carolina saw a 23% decrease in emergency department utilization and costs over 7 years. A different study involving Oklahoma Medicaid demonstrated a $29 reduction in per capita member costs over the course of 2 years. A study of NCQA model–based PCMHs involving the Intermountain Healthcare Medical Group demonstrated a marked decrease in emergency room utilization and better chronic disease management (PCPCC, 2009).

The NCQA model provides for not only healthier patients but more satisfied patients compared to those in a typical primary care practice structure. In a study involving a Humana PCMH program, patient satisfaction improved or stayed the same, compared to patients’ experience before the PCMH intervention, in 45 out of 61 cases (categories used to measure patient satisfaction) (Grumbach & Grundy, 2010). Taken together, the findings from these studies suggest that practices operating under an NCQA-model PCMH achieve better patient outcomes at a lower cost than can be achieved using other PCMH models.

Studies have also revealed that physician practice staff members are happier in the PCMH. One group health study found that only 10% of staff in PCMH pilot programs felt high levels of exhaustion compared to 30% in control practices. The same study also found better retention and satisfaction among primary care physicians compared to non-PCMH practices (Grumbach & Grundy, 2010). This is an important outcome, as the primary care physician shortage is a notable problem—this model helps ensure in a competitive market that practices can recruit and retain the physicians they need by affording them a satisfying work experience.

One main reason for the success of the NCQA approach to PCMHs is that a practice’s designation as an NCQA-recognized home can lead to opportunities to new bonuses and payments. As a national committee, NCQA can determine a practice’s eligibility for new incentives for achieving quality care outcomes (NCQA, 2011). Another benefit of the NCQA model is that it incorporates information technology, which aligns with the framework of meaningful use. By adopting NCQA’s model for PCMHs, practices can take advantage of the incentives offered by the U.S. Department of Health and Human Services for adopting electronic medical records (EMRs) as outlined in the Health Information Technology for Economic and Clinical Health Act.
Even though the PCMH has demonstrated better outcomes and lower costs, operating under this care delivery model is a big commitment for a practice to undertake. The PCMH is more of a transformation than a simple project. Evidence from the NDP details the time and effort it takes to implement the PCMH model. As shown by that project, after 2 years, several of the practices that were seeking to implement the PCMH were still trying to do so, and many were fatigued with the process. Even highly motivated practices were susceptible to burnout from the arduous process of incorporating new technology into the practice (Stewart et al., 2010). These findings serve as a caution that only highly motivated physicians and practices should attempt to implement a PCMH, with the understanding that implementation should not be undertaken step-by-step. Instead, evidence suggests that practices have greater success when they completely revamp at one time (Stange et al., 2010b). The often impractical nature of a complete overhaul is one reason explaining the difficulty practices experience in installing the PCMH model.

Another reason is the direct costs involved. EMRs are notoriously expensive and difficult to implement. They can cost $100,000 or more, not including the cost of training. Furthermore, many practices have difficulty transferring data to an EMR, and practices can experience slowdowns in production due to this process. Another economic cost of implementation is the uncertainty of payment reform. Billing remains tied to traditional care structures, even though reimbursement is slowly changing. The fact that reimbursement schedules are lagging advancements in new forms of care leads to uncertainties about how new forms of care, such as group consultation and telemedicine, will be reimbursed (Stange et al., 2010a). Overall, a number of costs and uncertainties accompany the PCMH, but once applied, its principles are sound, as demonstrated by numerous studies.

**CONCLUSION**

The NCQA model of the patient medical home has proven its effectiveness, a factor that separates it from the other two models analyzed in this essay. All PCMH models have been shown to provide improved patient quality at a decreased cost compared to traditional primary care practice; however, implementing the PCMH is complicated by a number of factors. The cost and effort involved and the need to choose among a number of different models can make executing this primary care model difficult. Even with this difficulty, however, the PCMH model represents an exciting movement for primary care. Its incorporation of technology and its dedication to coordination of care provide the basis for an improved system. This option emerges at a time that change is crucial to keep the U.S. healthcare system solvent. Healthcare expenditures in the United States now account for a greater percentage of the economy than ever before, and if no measures are taken to stem those expenditures, the current system will continue to provide below-average care at an extraordinary cost.
REFERENCES


