EDITORIAL AND COMMENT

Understanding the Costs of Patient-Centered Medical Homes

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J Gen Intern Med 31(7):705–6

DOI: 10.1007/s11606-016-3682-6

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The United States spends far more on health care than other developed countries, but receives less health value for its expenditures.^{1,2} Since this is due in significant part to our market-based fee-for-service method of paying for health care services, moving to more value-based methods of payment is an integral part of current health care reform strategies.^{3–6} Multiple models of value-based payment are currently being tested, including various forms of pay for performance, episode of care bundled payment, accountable care organizations, and patient centered medical homes.

The patient-centered medical home (PCMH) is considered one of the most promising models of value-based payment for primary care, as well as a potential vehicle for revitalizing the primary care foundation of the health care delivery system. While the basic concept of the *medical home* was popularized in pediatrics in the 1960s, the current model of the primary care medical home is little more than a decade old and is still evolving.

PCMHs are primary care practices that have been redesigned according to a set of principles aimed especially at promoting optimal health, improving the quality of care, reducing unnecessary care, and ensuring timely and coordinated care, particularly for persons with chronic conditions.^{7–9} Multiple professional associations and other organizations have variously defined the PCMH, and while there is no single universally agreed upon definition, the operational and functional characteristics associated with National Committee for Quality Assurance accreditation have become the de facto PCMH standard.¹⁰ Central elements of the primary care medical home model include patients having a close ongoing relationship with a specific clinician and caregiver team, care management to coordinate and integrate services across the continuum of care, a ‘whole person’ and population health orientation to care, extensive use of advanced information and communication technologies to identify patient needs and enhance access and patient engagement, and use of standardized processes for improving quality and safety.

Hundreds of PCMH projects have been launched over the past decade and numerous outcome studies have been published. These studies have provided generally encouraging but inconsistent and sometimes conflicting results linking this new model of care to improved clinical and financial performance.^{11–13} Some of the variability in results can be attributed to differences in how medical homes have been defined and operationalized, as well as to differences in length of patient follow-up, which outcome variables have been assessed, and other study design features, but, overall, the evidence tying PCMHs to improved health care value remains inconclusive.

Notwithstanding the intuitive logic and apparent face validity of the conceptual underpinnings of the PCMH model, the widespread adoption and mandatory inclusion of medical homes in some state Medicaid programs¹⁴ is curious, given the ambiguous evidence of the model’s superiority. Such mandates seem even more incongruous considering how poorly quantified are the costs of transforming a typical primary care practice to a medical home. Creating an infrastructure to successfully achieve the functionalities of a medical home clearly entails start-up and ongoing operational costs, but the magnitude of these costs has been imprecisely detailed.⁸

In this issue of *JGIM*, Martsof and colleagues from RAND and Harvard provide important insights into the costs associated with implementing medical homes.¹⁵ They report on the initial transformation and ongoing operational costs associated with implementing medical homes at 12 primary care practices participating in the Pennsylvania Chronic Care Initiative (PACCI), a state-wide multi-payer medical home pilot program including both commercial and Medicaid managed care plans. The costs of medical home transformation were determined by conducting semi-structured interviews with practice managers and other practice representatives to identify the structural and functional changes directly related to medical home transformation, and then calculating the costs corresponding with the changes.

These investigators found the investment costs to establish the requisite information technology and care management infrastructure were substantial but varied widely depending on the baseline characteristics and capabilities of the practice.¹⁵ One-time start-up costs to transform to medical home practice ranged from \$7,694 to \$117,810, with a median of \$30,991, while ongoing annual operating costs ranged from

\$83,829 to \$346,683, with a median of \$147,573. These equated to per clinician median start-up and annual ongoing costs of \$9,814 and \$64,768, respectively, and per patient start-up and ongoing costs of \$8 and \$30, respectively. Funding these costs was especially challenging for small and independent practices.

The conclusions that can be extrapolated from this study are limited insofar as it evaluated the costs of only one PCMH initiative in a single state and the results may have been affected by variable respondent recall; nonetheless, the study is important for three main reasons.

First, the cost data are important in and of themselves. Transforming to a PCMH typically requires, among other things, implementing new electronic health record and other IT systems to identify, stratify, and track patients with specific health and social service needs; extending office hours and otherwise enhancing access, often through advanced information and communication technologies; and hiring new personnel to function as care managers, navigators, and health coaches, and to conduct home visits and provide phone and internet contact. Martsolf et al. found that hiring care managers to help coordinate care was the single greatest ongoing cost associated with the medical home.¹⁵ Knowing how much the various infrastructure elements cost, and then linking them to clinical outcomes, is necessary to determine how the model affects health care value, as well to fashion appropriate financial assistance mechanisms and payment policies that will facilitate successful transformation and sustain the ongoing operation of medical homes.

Second, the data may help explain some of the discrepant outcomes found in medical home intervention studies. While quality and utilization outcomes achieved by PCMHs have produced divergent and conflicting results, the results are more consistent when comparing fully implemented medical homes to traditional primary care practices, instead of comparing participants and non-participants in practices striving to become medical homes.¹⁵ The divergent outcomes may result, at least in part, from medical home intervention participants simply being unable to afford the costs of fully transforming to a medical home, and therefore never being able to achieve the desired outcomes.

Third, these data provide a cautionary note for Medicaid and other publicly funded health care programs that have embraced the medical home model.¹⁴ Many of the primary care practices that would be candidates for medical home transformation in Medicaid reform initiatives are small and independent practices having little capacity to absorb the potentially substantial costs associated with transforming to a medical home. These costs are a particular concern in view of Medicaid's typically meager operating margins. Inadequate financial support for the medical home infrastructure could prove to be a major barrier to the success of Medicaid PCMH initiatives.

Transforming traditional primary care practices to medical homes entails non-trivial effort and financial investment. As described by Martsolf and colleagues in this issue of *JGIM*, the initial and ongoing costs of transforming to medical homes are significant, but vary according to the nature and baseline characteristics of a practice. Further studies are needed to better understand the nature of these costs and, importantly, what they buy. Understanding them and their return on investment will be critical to the ultimate success and scalability of this new model of care.

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Compliance with Ethical Standards:

Conflict of Interest: The author declares that he does not have a conflict of interest.

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