The Medical Home at 50: Are Children With Medical Complexity the Key to Proving Its Value?

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ABSTRACT

The medical home has been widely promoted as a model of primary care with the potential to transform the health care delivery system. Although this model was initially focused on children with chronic conditions, the American Academy of Pediatrics has endorsed a generalization of the model, promoting the statement, "Every child deserves a medical home." Recently, other major professional and governmental organizations have embraced this more inclusive vision, and the medical home concept has been promoted in provisions of the Affordable Care Act. Yet, rigorous evaluations of the value of the medical home, within pediatrics and beyond, have been limited, and the results have been mixed. Early results from large demonstration projects in adults have generally noted modest improvements in quality without accompanying reductions in cost. At this critical period in health care, with widespread interest in health care delivery and payment reform, these results present a potential threat to the medical home. Understanding possible reasons for these early findings is crucial to sustaining the spread of the medical home beyond its first 50 years. With this aim, we review the history of the medical home and trends in child health, and we explore the concepts of value and complexity as they pertain to pediatric health care delivery. We propose that, because of the demographic characteristics and economics of child health and current policy imperatives with regard to health care, a strong value proposition for the medical home in pediatrics involves children with medical complexity.

KEYWORDS: children with medical complexity; medical home; value

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FIFTY YEARS AGO, the American Academy of Pediatrics (AAP) introduced the concept of the medical home. The initial formulation focused on a central location for archiving a child's medical records, particularly for "children with chronic diseases or disabling conditions."[1] In the late 1970s, through the efforts of Dr Calvin Sia,[2] Hawaii adopted the phrase "Every child deserves a medical home" into the state's Child Health Plan. Dr Sia's successful advocacy efforts represent the birth of the medical home concept as we know it today.[3] In a 2002 policy statement, the AAP codified the definition of the Pediatric Medical Home.[4] Since that time, multiple primary care organizations, including the American College of Physicians, The American Academy of Family Physicians, and The American Osteopathic Association, have embraced this model as the patient-centered medical home (PCMH).[5] In recent years, the National Committee for Quality Assurance has developed a recognition process for the PCMH,[6] as have other national organizations.

The medical home model has been widely promoted as a promising approach to transforming the health care delivery system. In its basic conception, the medical home incorporates the pillars of primary care articulated by Barbara Starfield—comprehensive, coordinated, continuous, and accessible.[7] It also shares features with other early models of pediatric primary care, such as the comprehensive pediatric care described by Joel Alpert and Robert Haggerty and colleagues, which included first contact, longitudinal, family-centered, team-based care.[8,9] Accordingly, the medical home principles can accommodate a wide variety of approaches to care delivery.

The 2010 Affordable Care Act (ACA) included various provisions to support implementation of the medical home, including the establishment of demonstration projects.[10] However, there is a paucity of rigorous evaluations of the effects of the medical home, within pediatrics and beyond, and the results have been mixed.[11–14] In some settings the medical home, or measures of "medical homeness," have been associated with benefits such as reductions in hospitalizations[15,16] and emergency department (ED) visits,[17,18] increased patient satisfaction,[19] and decreased unmet needs.[20,21] Yet, other

studies have failed to prove significant effects on overall quality or resource utilization.[14,22–24]

Only a few studies, which largely focused on adult patients, have used rigorous methods to evaluate implementation of the several components of the medical home concept across multiple practices. A review of the "earliest evidence" on the effectiveness of the PCMH by the Agency for Healthcare Research and Quality found only 12 studies that 1) analyzed primary care practice-based interventions incorporating at least 3 PCMH elements as well as 2) used quantitative evaluation of cost, patient experience, and quality of care.[25] The review noted mostly "inconclusive" results, with some positive effects on quality of care, health care utilization, and patient experience, and a few unfavorable effects on cost. The reviewers noted that most interventions entailed adding a case manager to primary care practices. Similarly, another review found only 4 studies that rigorously evaluated the effect of medical home implementation on costs of care, and of those, only 1 found any evidence of savings, which was limited to the high-risk subgroup of patients.[14]

In an analysis of a large multipayer medical home program for adults in southeastern Pennsylvania, in which the 32 intervention practices achieved National Committee for Quality Assurance medical home recognition, significant performance improvement in only 1 of 11 quality measures and no significant changes in utilization or costs of care compared with 29 control practices were reported.[24] The same group evaluated a northeastern Pennsylvania intervention with 27 pilot practices and 29 comparison practices, in this case correlating medical home implementation with improvements in some quality metrics and reduced resource utilization, without reporting on total costs of care.[24] In the Comprehensive Primary Care Initiative, a large demonstration project following the ACA mandates, 497 adult practices in 7 regions of the United States implemented delivery changes aligned with medical home principles and payment changes including care management fees and shared savings incentives. A report, published midway through the 4-year initiative, indicated no savings in expenditures after accounting for care management fees and only minor improvement in quality of care and patient experience.[23]

Several factors likely account for the mixed results of early evaluations of the medical home, some of which we explore in more detail:

1. Early studies did not test robust practice transformation, but more narrow interventions such as the addition of a case manager.[25]
2. Studies are a mix of patient-level evaluations of the "medical homeness" of the care a patient receives and practice-level intervention studies that analyze implementation of a medical home model. The studies correlating "medical homeness" with outcomes might in part reflect patient behavior rather than provide direct evidence to support implementation of a medical home.[26]
3. The heterogeneity and lack of specificity of what constitutes a medical home has complicated efforts to assess whether it "works."[11]
4. Evaluations of the medical home have been hampered by a lack of focus on outcomes of interest and short time horizons, as well as a paucity of standardized outcome measures for medical home components.[14]
5. The diversity of needs in primary care results in a diversity of relevant outcomes, complicating the task to define and measure these outcomes.[27]

The medical home remains a prominent organizing model for transformation of primary care, one that has been invoked in a wide range national and state initiative, from safety net settings to commercial health plans.[28] In our estimation, because of the continued concern about escalating health care costs, it appears unlikely that policymakers and health plans will continue to support reforms that are not cost-neutral or cost-reducing, particularly if the improvements in outcomes are unimpressive. Thus, the initial wave of mixed or negative results in large, highly visible studies brings a sense of urgency to determining the most promising applications of the medical home model.

VALUE IN HEALTH CARE AND CHILDREN WITH MEDICAL COMPLEXITY

Current health care reform efforts, including many medical home pilots, are focused on increasing value, defined by the value equation as health outcomes achieved per dollar spent.[10,29] Although the measurement of value in health care remains in its infancy for all forms of medical care, value has been particularly challenging to measure in primary care. Michael Porter and colleagues argue that the diversity of needs of primary care patients "creates the fundamental value conundrum in primary care and is the root cause of the difficulty in measuring that value."[27] The diversity of needs implies a diversity of relevant outcomes, complicating the task to define and measure these outcomes. Porter et al propose that the way forward is to organize primary care around groups of patients with similar needs. Children with medical complexity present one such group. We posit that applying the concepts of the medical home to this group is likely to establish a particularly compelling value case for medical home adoption. To support this contention, we turn to an overview of the expansion of this population of children, followed by an examination of both elements of the value equation in the context of child health.

THE GROWING CHALLENGE OF CARING FOR CHILDREN WITH MEDICAL COMPLEXITY

Over the past several decades, as the medical home concept has evolved, rapid advancements in science and technology have produced astonishing medical breakthroughs. With the explosion of innovations, the distribution of diseases affecting the pediatric population has changed in important ways. Advances in neonatology, cardiology, surgery, critical care, and many other areas of pediatric