

Moving Forward with the Medical Home: Evidence, Expectations, and Insights from CCNC

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Abundant evidence suggests that the existing US health care system is not meeting the needs of the population. Half of Americans with diabetes do not receive recommended services; one-third of women for whom mammography would be recommended have not been screened; one in five children under the age of three have not received recommended immunizations.¹ Preventable hospitalizations for conditions like asthma, heart failure, and diabetes are more than twice as common among blacks compared to whites and among low-income Americans compared to the wealthy.² US per capita health care spending far exceeds that of other countries for care that is less equitable, less effective, less efficient, and less safe.³⁻⁵ While policy proposals frequently emphasize the need to address high uninsurance rates, it is clear that universal health care coverage alone would not remedy these issues. Even among commercially insured individuals, over one in three receive inadequate management of acute depression, inadequate cholesterol management after an acute cardiovascular event, and inadequate blood pressure treatment.⁶

Aging of the population, rising prevalence of chronic disease, and advances in medical diagnosis and treatment have changed the face of medicine. The predominant model of primary care delivery today, however, differs little from the design of primary care offices five decades ago when brief, isolated physician visits were well-suited to meet the need for well care or acute care of episodic infectious disease and injury.⁷ Now large numbers of patients are living for decades in the community with chronic medical conditions and/or chronic mental illness; conditions for which ongoing self-management support and care coordination are critical. Among Americans 65 and older, almost two-thirds have multiple chronic conditions.⁸ On average, family physicians now manage more than three problems per patient encounter.^{9,10} For a typical patient panel, it has been estimated that a primary care physician would

need to spend 7.4 hours per working day to provide all recommended preventive services, plus 10.6 hours per day to provide high quality care for chronic conditions.^{11,12} There is simply not enough time in the day. Medicare patients see a median of two primary care physicians and five specialists, among four different practice locations, over the course of a year,¹³ and the typical primary care physician must coordinate care with 229 other physicians working in 117 practices.¹⁴ Widespread failures in the coordination of care among multiple providers and across care settings are well documented.¹⁵⁻¹⁷ Payment mechanisms, primary care office

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systems, and communication mechanisms between providers and patients, and among providers across care settings, have largely failed to adapt to the changing needs of the population. Increasingly it is argued that improving the health of the population will require nothing less than a structural transformation of our health care delivery system.

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Is the Medical Home the Cure to What Ails Us?

The term “medical home” first came into use by the American Academy of Pediatrics (AAP) in 1967 to refer to a central location for archiving a child’s medical record.¹⁸ In 2002, the AAP described additional operational characteristics of the medical home: accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective.¹⁸ The American Academy of Family Physicians (AAFP) and the American College of Physicians (ACP) subsequently developed their own models for improving patient care. In 2007, these professional societies, along with the American Osteopathic Society, released the Joint Principles of the Patient-Centered Medical Home, which emphasize accessibility; continuity; care coordination across settings; comprehensive care that includes acute, chronic, preventive, and end-of-life care; physician-directed interdisciplinary team-based approaches with collective responsibility for ongoing care; measurement and continuous improvement of quality and safety; and use of information technology to support optimal patient care and communication.¹⁹

In these Joint Principles, payment system reform is considered a critical component of the patient-centered medical home. Current payment systems, particularly the fee-for-service arrangements that prevail in areas like North Carolina with little managed care penetration, reward greater volume but not better quality, and thus reinforce the status quo of fragmented, siloed care. Fee-for-service payments provide little incentive and no resources for providers to invest in improving chronic illness care and are insufficient to fund the implementation of core medical home components. Now a broad range of payers, including Medicare and Medicaid programs, United HealthCare, Aetna, and the Blue Cross Blue Shield Association, are piloting medical home initiatives.²⁰ Proposed mechanisms of financial support to the medical home include: 1) retaining fee for service payments for face-to-face services, while perhaps expanding reimbursable services to include email communication or telecommunication; 2) incorporating a monthly management fee for medical home services (proposed monthly payments range from \$3.00 for lower-risk North Carolina Medicaid recipients to \$100 in some Medicare demonstrations²¹); and 3) providing additional bonuses for reporting on performance goals.^{22,23} In this era of escalating health care costs, payers are placing a high priority on budget neutrality for medical home demonstration programs.²⁴

Desired Outcomes

Implementing the medical home model and assessing its effectiveness is complicated by the many outcomes anticipated by multiple stakeholders. Although definitions of the medical home continue to evolve, the core concept is a commitment on the part of a physician practice to organize and coordinate care across conditions, providers, and settings based on the comprehensive needs of the patient, in consultation with the

patient and family. Patient, family, and provider satisfaction, then, might logically be considered core outcomes of interest, but they receive little emphasis in the current literature or political dialogue. Public health advocates ascribe broader goals to the medical home: practices are to assure access and improve quality of care for a defined population which should lead to improvements in population health indicators and the elimination of health care disparities. As deliberation about medical home implementation matures among administrators and policymakers, we hear of additional goals including reducing unnecessary health care utilization, preventing the need for expensive medical services, controlling health care costs, and generating savings or profits for payers. Embedded in the desire for cost savings for public payers like Medicaid is the goal of maintaining patient enrollment and provider payment rates by generating budgetary savings elsewhere. Professional societies endorse the medical home concept with yet additional goals in mind: redirecting resources into primary care so as to make primary care practices financially viable again and resuscitating interest in primary care among health professionals in training.

Evidence in Support of a Medical Home Model

Availability of and receipt of primary care are associated with better health outcomes and lower mortality in cross-national studies²⁵ and in US communities.^{26,27} Patients with a continuous relationship with a personal care provider are more likely to receive recommended preventive services,^{28,29} achieve better care outcomes,³⁰ and benefit from provider awareness of psychosocial problems impacting health.³¹ Continuity is associated with fewer emergency room visits^{29,32,33} and lower costs in general.^{34,35} Greater availability of generalist physicians is associated with lesser likelihood of multiple specialist referrals and less overuse of diagnostic and therapeutic modalities.³⁶⁻³⁸

Evidence of effectiveness for each specific component of the medical home model is less consistent. Team-based models have produced good results for the focal disease in disease-specific initiatives but have been less successful with comorbidities.^{22,25} In a national survey of primary care physicians, however, 87% thought that an interdisciplinary team improves quality of care.³⁹ The majority of evidence for the benefit of electronic medical records (EMRs) comes from four large institutions with internally-developed information systems, and most positive outcomes in the outpatient setting involve the use of computer-generated clinical reminders or registries,⁴⁰⁻⁴² features that are not available in many commercially marketed EMRs.⁴³ Evidence of the effectiveness of commercial EMRs in primary care practices is mixed, and research on the quality and cost-effectiveness of email communication with patients, e-referral systems, and e-prescribing is still in its infancy.^{43,44} Two well-tested models have provided strong evidence that care coordination can reduce readmissions after a hospital discharge.^{45,46} Programs that intensively educate patients in how to self-manage

chronic conditions have also been shown to reduce hospitalizations.^{47,48}

Will We Know It When We See It?

To date, there is no perfect litmus test for when a medical practice becomes a medical home, or yardstick for measuring the extent to which a practice has put desired processes in place. The National Committee for Quality Assurance (NCQA) has developed a tool currently used in medical home demonstration programs to recognize practices that implement medical home capabilities.⁴⁹ The tool has nine standards: access and communication, patient tracking and registry functions, care management, patient self-management support, electronic prescribing, test tracking, referral tracking, performance reporting and improvement, and advanced electronic communication. These nine standards are reflected in a total of 166 measures within 30 elements, using a complex scoring algorithm. The tool has received criticism for placing too great a weight on information technology (IT) (addressed by 77 of the 166 measures), setting standards that smaller practices will be challenged to implement, without clear evidence of the relative importance of these IT components in such settings. The tool also requires extensive documentation of adherence to condition-specific treatment guidelines, an approach that incentivizes achieving condition-specific benchmarks but does not capture a more fundamental goal of the medical home: comprehensiveness and coordination of care across a patient's complex set of health conditions and needs.⁴³ Thus, the relationship between scoring well under the NCQA system and better outcomes for patients is not firmly established.

Indeed, some of the most important aspects of a medical home are the most difficult to evaluate, such as promoting patient self-management skills, addressing health literacy and quality of life issues, providing linkages to community resources, and developing skilled and cohesive interdisciplinary care teams. Other more "measurable" aspects may be difficult for a primary care practice to address in isolation. As an example, we are finding that while 93% of CCNC-enrolled Medicaid recipients with heart failure have had a paid claim for echocardiogram, the result of that test cannot be found in the primary care provider's chart for approximately one in five. Communication among providers involved in a patient's care cannot be the sole responsibility of the medical home.

Will It Work?

Despite a groundswell of energy and resources devoted to developing the medical home model and developing a measure of its implementation, relatively little empirical evidence exists to guide the move from theory to practice. Evidence of successful implementation, particularly outside of integrated health care delivery systems, is sparse to date. In the most comprehensive evaluation to date of programs designed to improve care coordination for Medicare beneficiaries, the

Medicare Coordinated Care Demonstration (MCCD) found that only two of the 12 largest programs had a statistically significant effect on hospital admissions, and no programs reduced overall expenditures. Effects on clinical quality of care were not consistent, and effects on health behaviors, functional status, and health-related quality of life were minimal or none.⁵⁰ Several features emerged as most influential on the effectiveness of care coordination: 1) targeting interventions to patients at substantial risk of hospitalization, but not necessarily those with the highest costs; 2) in-person contact between care coordinators and patients; 3) close interaction between care coordinators and primary care physicians; 4) access to timely information on hospital and emergency department admissions; 5) self-management coaching, particular around how to take medications properly; and 6) availability of social supports such as assistance with transportation and activities of daily living.^{51,52} Lessons learned from the MCCD will likely inform requirements for Medicare's forthcoming Patient-Centered Medical Home Demonstration.

Insights from the Community Care of North Carolina Program

Community Care of North Carolina (CCNC) evolved before the term "medical home" gained widespread use but provides a powerful real-world example of the fundamental promise of the medical home: redirecting health care resources in a way that supports and enhances our primary care infrastructure can indeed improve quality of care while reducing costs. Through community activism and physician leadership over the span of two decades, CCNC has transformed the relationship between the North Carolina Medicaid agency and North Carolina's primary care provider community from that of a traditional gatekeeper model to a thriving network of public-private partnerships equipped to leverage community resources toward local solutions for quality and cost issues. The CCNC experience offers several insights pertinent to the national discussion around development, implementation, and evaluation of the medical home model:

1. **Scope matters.** CCNC has over 1,250 participating primary care practices, caring for over 800,000 Medicaid recipients. A modest improvement in quality of care (blood pressure or glycemic control, for example) or a small percentage decrease in hospital or emergency department utilization across the CCNC program carries a far greater population impact than a more localized or selective intervention with isolated successes of greater magnitude.
2. **One size does not fit all.** The needs and resources of a rural solo practitioner differ from those of a primary care group within an urban integrated care system. Variability in practice infrastructure, motivation, resources, and readiness to change requires a flexible approach to quality improvement. The successful

movement of one practice from point A to point B is of as great a significance as another practice moving from point C to point D; no single threshold metric of “medical home capacity” can adequately capture those relative successes.

3. ***Small practices need not be left behind.*** Practices with five or fewer physicians constitute 95% of office-based medical practices in the US,⁵³ and the vast majority of North Carolina Medicaid recipients are seen in smaller practices. Many such practices lack the economies of scale to facilitate purchasing and maintaining core aspects of the medical home model. This is true not only for costly equipment such as electronic records and interoperable information systems, but also for employment of the full scope of medical home services (such as nutrition, social work, transportation, clinical pharmacy, behavioral health, and care coordination). Networking independent practices at the community level allows for the development of a shared care management infrastructure.
4. ***Flexibility complicates evaluation but may be necessary to optimize effectiveness.*** An intervention effect attributable to the CCNC program, or any other medical home initiative, cannot be easily isolated from key constituent factors, whose variability cannot be controlled in the real world. To name a few: the availability, commitment, and talents of local champions; fiscal and staffing stability of participating practices; accessibility and engagement of participating patients; availability of external resources and external data sources; strength of pre-existing interorganizational relationships; and symbiosis with concurrent initiatives with overlapping content. A tremendously successful intervention in one locality may readily fail elsewhere. CCNC has learned, then, the futility of being centrally prescriptive about specific intervention components. Standardization desirable for program evaluation and accountability must frequently be balanced by this need for flexibility in program design.
5. ***Evaluation is part of the intervention, and access to information is key.*** Data informs every phase of the continuous quality improvement process. The reporting of process and outcome measures identifies problem areas, motivates participants, and focuses further activity. Accurate, timely information is critical for efficient identification of patients in need of specific services and for optimal communication among all members of a patient’s care team. Many successful CCNC initiatives have been able to fill information voids across care settings, by bridging information available from administrative and pharmacy data, hospitals, primary care providers, specialists, community service providers, patients, and their caregivers; and then developing mechanisms to get that information into the right hands at the right time to improve patient care. Optimizing the efficient communication of patient care information in

the context of the local service area and customizing care management processes to make best use of locally available data is an ongoing effort.

6. ***Remember the long-term view.*** Cost savings have been achievable in a number of key CCNC program areas, such as emergency department and hospital utilization and pharmacy management. Those who work directly with patients, however, recognize many other critical areas in need of quality improvement that should not be expected to generate short-term cost savings. Childhood obesity, chronic pain management, depression screening, adult preventive services, and cardiovascular risk assessment are a few of many examples of local quality improvement initiatives that CCNC networks have been able to pursue at the request of participating providers for which the time horizon to payoff is much longer than the state fiscal year. A financing structure that allows local flexibility in applying resources to initiatives with both short-term and long-term benefits is critical for full engagement of the medical home.

What Is Needed to Improve the Effectiveness of the Medical Home?

Though consensus is growing that the US health care system is broken, and interest is building in the medical home model as a potential solution, many questions have yet to be answered. What is the right investment in the medical home? What is the most effective payment structure to deliver that investment? What is the critical mass of participating payer mix to motivate systematic changes in practices, and what is the responsibility of other payers to buy in? Who is responsible for financing practice redesign efforts that benefit the uninsured? How do we incentivize hospitals, specialists, mental health providers, pharmacies, and community service providers to develop optimal communication patterns with the medical home? Will the lessons learned from the early adapters who participate in demonstration programs convey accurately to the remaining majority of primary care practices? What’s the right period of follow-up to assess effectiveness? What weight is to be given to outcomes of cost, quality, and provider and patient satisfaction? How strictly should specified medical home standards be enforced without stronger evidence of their relevance and with the risk of further marginalizing the small practices who serve the majority of the patient population?

For primary care practices and partnering entities charged with implementation of the medical home model, still other critical questions remain. How do we move past the condition-specific disease management programs, which have been the focus of quality improvement efforts to date, toward a more comprehensive, generalist, evidence-based approach for patients with multiple complex chronic conditions? What are the key elements of practice redesign and information systems for a primary care setting to facilitate the best care of the typical patient population with a full array of acute, preventive, and chronic health care needs? How do we efficiently identify

patients who are most likely to benefit from targeted case management intervention or other medical home services? What mix of nurse-oriented interventions and social supports is most effective? What is the optimal staffing pattern for a primary care practice, and what are our workforce training needs to populate truly effective interdisciplinary health care teams in the medical home?

Finally, expectations must be realistic. Less than 3% of state Medicaid spending is spent in the primary care setting, but the state has looked to CCNC for progressively greater savings every year since 2000. Discussions among payers about funding for the medical home have typically started with the premise that any new payments for the medical home must be offset by cost savings, with little acknowledgement of the gross underfunding that has been crippling our primary care infrastructure for decades. In contrast, new developments in medical technology or pharmaceuticals are often reimbursed at much greater expense than prior care, with little scrutiny as

to incremental effectiveness. When advances in medical technology do receive scrutiny, treatments that improve the quality or longevity of patient lives are not expected to cost less but rather are considered worth paying for.

Our current US health care system is failing to meet the primary and preventive care needs of the population, and the risk of doing nothing is great. The medical home concept is attractive, even compelling, but earnest efforts to delineate, measure, and price medical home services based on evidence of effectiveness may be premature. In the pursuit of high quality, comprehensive, patient-centered care, cost savings and even budget neutrality may be unrealistic short-term expectations. Adequate investment must be made in research and development of medical home elements, systems, and structures. As the CCNC experience teaches, moving from theory to application will require flexibility, not conformity; adaptation rather than strict adherence to a prescribed model. **NCMJ**

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