

# Adoption of the Medical Home in Connecticut

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**ABSTRACT**—*Objective:* To examine the implementation of key features of the medical home concept, with its emphasis on chronic care and disease management, care coordination, case management and timely access to care in Connecticut primary-care practices, and to examine predictors of its implementation in Connecticut. *Methods:* Primary care physicians affiliated with the Connecticut Chapter of the American College of Physicians (n = 1088), the Connecticut Chapter of the American Academy of Pediatrics (n = 699), and the Connecticut Academy of Family Physicians (n = 376) were invited to participate in a brief online survey. Participation was limited to physicians who were actively engaged in primary-care medicine as determined by the respondent based on information provided as part of the survey. *Results:* Four hundred ninety-eight primary-care physicians practicing in Connecticut completed the survey resulting in an overall response rate of 23%. In general, many of the core components of the medical home concept were not widely implemented yet in Connecticut. Most common were registries of patients with chronic diseases (33% of sample) and open or advanced access scheduling (57% of sample). Electronic medical records (EMR) systems were currently used by 39%

of primary care physicians. Substantial differences by specialty were observed, with chronic disease registries and advanced/open access scheduling significantly less common among internists, and EMR systems significantly less common among pediatricians. The only factor consistently associated with increased likelihood of implementing the medical home concept was larger practice size (number of practicing physicians within the medical practice). Open or advanced access scheduling resulted in significantly shorter appointment wait times for patients. *Conclusion:* These results reveal that the adoption of the medical home model among Connecticut primary-care physicians remains in its infancy and suggests possible approaches to removing barriers to the implementation of the medical home model in Connecticut.

## Introduction

“MEDICAL HOME” is a term that refers to a health care setting in which medical providers, most commonly primary-care physicians, partner with other medical and health care professionals, patients and their families to provide coordinated, patient-centered care that attempts to optimize health outcomes. Originating with the American Academy of Pediatrics more than 40 years ago and supported today by both the American College of Physicians and the American Academy of Family Physicians, it is a concept that has achieved a great deal of attention in current health reform initiatives both in Connecticut and nationally. Delivery of health care in such settings is characterized by coordinated patient care utilizing teams of diverse health care professionals, including nurse care managers; an emphasis on empowering and educating patients to better manage their health and chronic conditions;

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employment of evidence-based practices; use of advanced health information technology (e.g., electronic medical records systems; patient registries; disease registries); improved availability of clinicians through open access scheduling<sup>1</sup>; group visits for patients with chronic conditions; after-hours scheduling, telephone and/or email contact to provide more contact for patients. Because the medical home is seen as an important vehicle to controlling costs, improving quality, improving health status and reducing racial and ethnic health disparities, it is a central component of the State of Connecticut's Sustinet health care reform plan (PA 09-148). Federal support for the medical home concept in the recently enacted Patient Protection and Affordable Care Act (Public Law 111-148) includes grants, pilots and demonstration projects, as well as funding for associated tools and resources such as health information technology for physician practices and other care sites.

Despite mounting evidence of the ability of medical homes to provide cost-effective care that fosters improved patient outcomes,<sup>1,2</sup> access to a primary-care practice that meets the definition of a medical home remains very limited across the country. Recent studies indicate that only 50% of children with special health-care needs, a constituency for whom the medical home concept originated, have access to a medical home.<sup>3</sup> It is estimated that only a quarter of adults in the U.S. have access to primary-care practices which include some, but not necessarily all, of the key features of a medical home.<sup>4</sup> In January 2008, the National Committee for Quality Assurance (NCQA) released standards for recognition of medical practices which function as Patient-Centered Medical Homes. To date, few practices have qualified for this designation.

As a result of the interest in the medical home as a critical component of health reform, the Connecticut State Medical Society (CSMS), with financial support and assistance from the Universal Health Care Foundation of Connecticut (UHCF), included a number of questions related to the medical home concept in its 2009 study of Connecticut's primary-care physicians. Specifically, we sought to examine the implementation of key features of the medical home, with its emphasis on chronic care and disease management, care coordination and case management, and improved access to appointments in Connecticut primary-care practices, and to examine predictors of its implementation.

## Methods

### *Sample and Study Design*

CSMS conducted a statewide survey of primary-care physicians in three primary-care specialty areas (family practice, internal medicine and pediatrics) from Octo-

ber to December of 2009. CSMS was chartered by the Connecticut General Assembly in 1792 as a federation of eight component county medical associations. Today, CSMS has a total membership exceeding 7,000 physicians and medical students and is intensely interested in the perceptions and interests of Connecticut physicians regarding their respective practices and the medical care provided to Connecticut citizens. The mission of CSMS is to serve both its physician members and their patients, the citizens of the state, by advancing the medical knowledge of all physicians and protecting the public health.

Members of the Connecticut Chapter of the American College of Physicians (n = 1088), the Connecticut Chapter of the American Academy of Pediatrics (n = 699), and the Connecticut Academy of Family Physicians (n = 376) with email addresses on file (constituting approximately 80-85% of each society's total membership) were invited to participate in a brief online survey hosted at [www.surveymonkey.com](http://www.surveymonkey.com). Participation was limited to physicians who were actively engaged in primary-care medicine, thereby eliminating some pediatric surgical and medical subspecialists, as well as residents and fellows. Three email solicitations from the presidents of each society and the president of CSMS were sent over a six-week period in November and December 2009. A total of 498 physicians completed the survey, resulting in an overall response rate of 23%. Response rates varied considerably across the specialties, with 39% of family physicians, 29% of pediatricians, and 14% of internists participating in the survey. Estimates presented in the analysis below were weighted to reflect the relative numbers of physicians in the state in each specialty area according to the combined membership of the participating specialty societies and further validated by the CSMS membership database.

### *Survey Instrument*

Using recent surveys developed by the Massachusetts Medical Society and CSMS as a frame of reference, we developed and pilot-tested a self-administered online survey. Data for the analysis presented below were limited to questions related to (a) implementation of the medical home concept; and (b) demographic information concerning physicians and their practices in Connecticut, including age, gender and practice setting.

Five questions regarding implementation of the medical home concept were adapted from the National Survey of Physician Organizations and the Management of Chronic Illness II survey.<sup>5</sup> Physicians were asked whether they had in place or planned to implement over the next twelve months in their main practice the following: 1) nurse care managers whose primary job is to coordinate and improve the quality of care for patients with chronic diseases; 2) a list or registry of patients with chronic

diseases; 3) primary care teams (a group of physicians and staff who meet regularly to discuss care for a defined group of patients and share responsibility for their care); 4) “advanced access” or “open access” scheduling (whereby regular appointment times are reserved daily in a physician’s schedule to accommodate patients with acute needs); 5) visits in which multiple patients with chronic illness meet together with a trained clinician. In addition, physicians were asked a yes/no question as to whether they were currently using an electronic medical record (EMR) system in their (main) office.

### Results

Data were analyzed using SPSS 16.0. Table 1 presents a basic demographic profile of the physicians in the sample, separately by specialty. The sample was 57% male and 85% White. Pediatricians were more likely to be female (53%) than internists or family physicians. The most common employment arrangement was self-employed (42%), with 24% in medical groups and 17% employed by a hospital, although significant differences by specialty were observed in employment. Practices largely contained fewer than five physicians, with internists significantly more likely to be in larger practices than the other primary-care specialties. Seventy-five percent of family physicians practiced in groups of four or fewer.

Among those responding to the survey were a number of physicians (N =42) who did not identify themselves as primary-care physicians or who provided primary care-services to less than 20% of their patients (data not shown). Because this study was focused on characteristics and concerns of Connecticut physicians providing mostly, but not exclusively, primary-care services, these physician respondents were omitted from the analyses presented below based on their own reporting of their medical practice.

The degree to which Connecticut primary-care physician practices have implemented or plan to implement key components of the medical home concept are presented in Table 2. In general, many of the core components of the medical home were not widely implemented in Connecticut by this group of primary-care physicians. Respondents most commonly utilized registries of patients with chronic diseases (33% of total sample) and open or advanced access scheduling (57% of total sample), while use of nurse care managers for patients with chronic diseases, primary care teams, and visits for multiple patients with chronic illnesses to meet together were relatively rare and not likely to be implemented in the next year. Electronic medical records systems were in use by 39% of primary-care physicians. Substantial differences by specialty were observed however, with

Table 1.—Demographics by Specialty

	Family physicians (N = 147)	Internists (N = 151)	Pediatricians (N = 200)	Total (N=498)
<b>Gender*</b>				
Male	63.8%	63.3%	47.1%	58.5%
Female	36.2%	36.7%	52.9%	41.5%
<b>Employment*</b>				
Self	45.1%	39.7%	41.7%	41.5%
Hospital	16.9%	24.6%	11.4%	18.7%
Medical School	2.8%	10.3%	6.6%	7.7%
Group	21.1%	17.5%	31.9%	22.7%
Other	14.1%	7.9%	8.4%	9.4%
<b>Race</b>				
White	85.3%	83.6%	86.4%	84.6%
Black	1.5%	1.7%	2.6%	1.8%
Asian	9.6%	13.8%	7.8%	11.3%
Hispanic	3.7%	0.9%	3.2%	2.3%
<b>Practice Size</b>				
Solo	22.4%	16.4%	10.8%	16.2%
2–4 Physicians	52.4%	39.3%	52.1%	48.6%
5–19 Physicians	17.5%	29.5%	33.5%	27.1%
20+ Physicians	7.7%	14.8%	3.6%	8.1%

Table 2.—Medical Home Characteristics by Specialty

	Family physicians	Internists	Pediatricians	Total
<b>Q 25a) Does your practice have nurse care managers?</b>				
Currently have	8.8%	15.3%	10.3%	11.1%
Plan in next year	10.2%	11.2%	6.9%	9.2%
No Plans	81.0%	73.5%	82.8%	79.7%
<b>Q 25b) Does your practice have registry of patients with chronic diseases?*</b>				
Currently have	35.8%	17.3%	41.1%	33.1%
Plan in next year	27.7%	31.6%	19.2%	25.5%
No Plans	36.5%	51.0%	39.7%	41.5%
<b>Q 25c) Does your practice have primary care teams?*</b>				
Currently have	15.2%	16.5%	21.8%	18.1%
Plan in next year	8.0%	12.4%	2.0%	6.8%
No Plans	76.8%	71.1%	76.2%	75.1%
<b>Q 25d) Does your practice have advanced or open access scheduling?*</b>				
Currently have	56.5%	43.3%	65.3%	56.5%
Plan in next year	8.0%	11.3%	3.4%	7.1%
No Plans	35.5%	45.4%	31.3%	36.4%
<b>Q 25e) Does your practice have visits in which multiple patients with chronic illness meet together?*</b>				
Currently have	8.0%	2.0%	2.7%	4.5%
Plan in next year	16.1%	10.2%	7.5%	11.3%
No Plans	75.9%	87.8%	89.7%	84.3%
<b>Q 20 Are you currently using an EMR?*</b>				
Yes	52.2%	42.7%	24.7%	39.0%
No	47.8%	57.3%	75.3%	61.0%
<b>Q 24 Involvement in quality improvement work as a criterion for board recertification of primary care physicians?</b>				
Yes	62.5%	51.5%	56.9%	57.6%
No	37.5%	48.5%	43.1%	42.4%

\*Differences by primary-care specialty significant at .05 level.

chronic disease registries and advanced/open access scheduling significantly less common among internists, and electronic medical record systems significantly less common among pediatricians.

Factors associated with the implementation of critical elements of the medical home are presented in Table 3. Results in this table were derived from a series of logistic regression analyses in which adoption of medical home elements were regressed on practice size and employment status, controlling for specialty. In this analysis the “currently have” and “plan to implement in next year” responses were combined and contrasted with “Do not have plans to implement.” Overall, the more physicians within the medical practice, the more likely physicians were to report adopting or planning to adopt elements of the medical home. For example, those in larger practices were significantly more likely to report that they had or planned to have nurse care managers “whose primary

job is to coordinate and improve the quality of care for patients with chronic diseases” ( $B = .804$ ,  $SE = .186$ ), a trend similarly observed for the use of primary care teams, visits for multiple patients with chronic illnesses, and EMR use. In addition, those in hospital-based practices were significantly less likely to have open access scheduling than were self-employed physicians ( $B = -.831$ ,  $SE = .344$ ), but were more likely to support visits with multiple patients with chronic illnesses meeting together ( $B = 1.052$ ,  $SE = .426$ ). An additional analysis revealed that implementation of elements of the medical home was unrelated to years in practice, gender and county (data not shown).

Finally, we performed a series of analyses to examine the association between implementation of the medical home and patient access to care. The 2009 CSMS Primary Care Survey identified a number of problems related to the supply of physicians in the state and patient

Table 3.—Factors Associated with Adoption of Elements of the Medical Home.

	Practice has nurse care managers?		Practice has registry of patients with chronic diseases?		Practice has primary care teams?		Practice has advanced or open access scheduling?		Practice has visits in which patients with chronic illness meet together?		Currently using an EMR?							
	B	S.E.	B	S.E.	B	S.E.	B	S.E.	B	S.E.	B	S.E.						
Family Medicine	.041	.334	.903	.251	.258	.330	.001	.299	.998	-.167	.261	.524	.909	.355	.011	1.501	.277	.000
Internal Medicine	.272	.348	.436	-.377	.280	.178	.051	.323	.875	-.449	.286	.116	-.120	.434	.783	.795	.303	.009
Pediatrics	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Self Employed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hospital	.639	.408	.117	-.321	.342	.348	.103	.384	.788	-.831	.344	.016	1.052	.426	.013	.249	.341	.466
Medical School	.370	.603	.540	.153	.543	.778	.260	.565	.646	-.954	.534	.074	.924	.650	.155	.879	.586	.134
Medical Group	.056	.378	.882	.472	.288	.101	-.324	.338	.337	-.275	.290	.343	-.045	.431	.918	.120	.302	.691
Other Employment	1.183	.438	.007	.579	.401	.149	.175	.428	.682	.228	.414	.582	.678	.486	.163	-.011	.408	.978
Practice Size	.804	.186	.000	.285	.150	.058	.876	.174	.000	.059	.150	.693	.464	.200	.020	.575	.158	.000

Note.—Gray shaded rows indicate statistically significant effects ( $P < .05$ ).

access to care.<sup>6</sup> Thirty percent of primary-care physicians indicated that their ability to retain their existing physician staff has worsened, with physicians also reporting difficulty in filling vacancies in their specialty. In addition, the wait time for routine office visits for existing patients averaged 13.4 days. We hypothesized that adoption of the medical home concept might prove attractive in physician recruitment and retention, with some elements, particularly open access scheduling, resulting in improved patient access to care. Although we found no association between implementation of medical home elements and difficulties in recruitment and retention (data not shown), the use of open access scheduling was associated with significantly shorter wait times for existing patients to obtain an appointment for a routine office visit. Physicians currently using open access scheduling reported an average wait time of 9.9 days, in contrast to 15.3 days for those not using open access scheduling, a rather significant reduction in delays in access to medical care.

### Discussion

These results reveal that the adoption of the medical home among Connecticut primary-care physicians remains in its infancy. Some key elements, such as open access scheduling, patient registries, and EMRs, are commonly used by primary-care physicians in the state, although it is important to note that the latter two have not yet been adopted by a majority of physicians. Other elements of the medical home that focus on the more challenging aspects of care coordination and team-based care have not been widely adopted by Connecticut physicians. Furthermore, implementation of the medical home varies greatly by specialty, with internists lagging other primary-care specialties in the use of disease registries and open access scheduling, and pediatricians lagging family physicians and internists in the use of EMRs. Practice size also appears to be a major limiting factor, with smaller practices significantly less likely to have adopted the more costly and complex elements of the medical home (e.g., nurse care managers, primary care teams, EMRs).

Addressing barriers to implementation of the medical home among smaller practices is critical in Connecticut, where more than half of the practices have fewer than five physicians. Smaller practices face inherent challenges to implementing the medical home, including little access to investment capital and therefore, an inability to financially support team-based care. To overcome these barriers, physicians may look to other models of practice that combine existing resources, including staff, or look to shared staffing models. Ultimately, such other models could result in some consolidation of practices or the further development of physician hospital organizations (PHOs) or independent practice associations (IPAs).

An examination of the specific support structures that would be helpful in assisting small practices with medical home adoption in Connecticut could help policy-makers adjust their decisions in shaping the future health care landscape in this state. In the interim, Connecticut physicians are participating in other programs that may serve as examples of how the concept can become successful reality in our state's unique practice environment.<sup>7</sup> For example, health plans serving state employees have agreed to provide financial support for medical home services through a pilot program involving a large multi-site primary care group with more than 50 locations in Connecticut. An additional project initiated in 2010 by the CSMS IPA, a network of physician members of CSMS, involves a unique primary care network specific to medical home services for use by Medicare Advantage plans that contract with the IPA. Other experts suggest a more innovative structure, such as the Connecticut Care Coordination Centers [C<sup>4</sup>] described by Dr. Victor Villagra in the HealthFirst Connecticut Authority 2009 report to the legislature,<sup>8</sup> which proposed a public-utility model aimed at eliminating the conflicts between payers and providers inherent in the current fee-for-service system.

Efforts to provide financial incentives to adopt features of the medical home have met with mixed results. Connecticut's Primary Care Case Management (PCCM) pilot program, which began in February 2009, provides reimbursement of \$7.50 per member per month above traditional fee-for-service state Medicaid (HUSKY) rates for care coordination and other medical home services. The program remains small, with enrollment at 403 patients as of June 1, 2010.<sup>7</sup> The slow growth of PCCM illustrates that enhanced reimbursement alone may not be sufficient to encourage physicians to embrace the medical home concept, particularly for state programs, where low fee-for-service rates already limit physician participation. However, supporters of the PCCM program argue that a lack of marketing and administrative support and limits on the geographic areas covered by the program contribute to its failure to enroll more Medicaid recipients, let alone providers.

Other barriers to implementation include health insurance practices. An increasing number of insurers in Connecticut are directing certain diagnostic and laboratory testing to locations outside of the practice's medical home, or are listing physicians within the same practice in different provider network tiers, which severely limits—and even directly prevents—a medical home approach within a particular practice. Furthermore, most insurers are not providing additional payments to physicians for services provided under the medical home concept or structure. To the contrary, insurers commonly provide

payment incentives based on whether physicians meet or exceed certain “performance standards” generated through complicated algorithms which may have no relationship to the level or quality of medical care being provided by physicians. Very few physicians in Connecticut or elsewhere are being paid for the additional physician and medical staff work associated with the coordination of activities encompassed in the medical home concept.

Our data also indicate that successful expansion of the medical home concept may improve access to care in Connecticut. In public discussion of patient access to medical care in the state, long patient wait times for office visits have been identified as an ongoing barrier to care. These delays are not unique to the primary care arena: the CSMS 2008 Physician Workforce Survey indicated that existing patients of a practice wait an average of 11 days to see a physician, and as long as 18 days to see some specialists.<sup>10</sup> The use of open/advanced access scheduling produces significantly shorter wait times for existing patients to receive the care they need, with patients of practices using such scheduling receiving care 35% faster than other patients. Broader implementation of such scheduling innovations may offer significant improvement in access to timely medical care, particularly for chronically ill patients in Connecticut.

### **Conclusion**

This study explores the adoption of key medical home features as well as barriers preventing their adoption in Connecticut. Given the importance of the medical home model to both federal and state health reform efforts, the information in this study can assist policy-makers and physicians as well as other medical and health care professionals in overcoming barriers to its implementation. Like its predecessor, the CSMS 2008 Physician Workforce Survey, the CSMS 2009 Primary Care Survey also provides important, previously unknown benchmarks related to patient access to care in Connecticut. Its findings provide some initial guideposts for areas where further study is warranted so that lawmakers and others invested in public policy can help improve Connecticut patients' access to primary care and other medical services and explore other models of medical care.

### **Limitations**

This study is based entirely on self-report measures which, although used previously in surveys of Massachusetts and Connecticut physicians, have not been subjected to rigorous quantitative tests of their validity and reliability. The response rate of 23% presents a challenge to our efforts to generalize our findings to the Connecticut physician population. In particular, the low response rate raises concerns that our data were biased, perhaps reflect-

ing the views and experiences of those most affected by recruitment and retention problems, or those who are more involved in medical associations. However, it is also likely that some portion of the nonresponse could be due to ineligibility, with physicians in administrative or teaching positions or not providing much if any primary care not participating, as the information disseminated about the survey strongly suggested that this study was focused on actively practicing primary-care physicians in certain medical settings. It is important to note that comparisons with Connecticut data provided by the NCAHD offered some comfort concerning the representativeness of this sample.<sup>6</sup>

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