

Evaluating the Tools Used To Assess the Medical Home

Nine instruments were reviewed based on the extent that they measured the four attributes of primary care. Only one fully met the recommended criteria.

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INTRODUCTION

The origin and evolution of the medical home

The term medical home originated in pediatrics and originally referred to a place that contains centralized medical records of children who have special health care needs (Sia 2004).

The term evolved with expanded definitions in state child health plans in North Carolina and Hawaii. In 1992, the American Academy of Pediatrics (AAP) published a policy statement defining the medical home as “accessible, continuous, comprehensive, family-centered, coordinated, and compassionate care . . . delivered or directed by well-trained physicians who are able to manage or facilitate all aspects of pediatric care” (Sia 2004).

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ABSTRACT

Purpose: The patient-centered medical home is evolving as an approach to providing primary care. Primary care is defined by four main characteristics: comprehensive, coordinated, continuous, and accessible care, all of which are measurable. This analysis identifies tools for determining whether a patient-centered medical home achieves high level primary care.

Design: Instruments for measuring primary care were reviewed.

Method: Tools were reviewed for population coverage, format, testing of validity and reliability, and inclusion of the attributes of primary care.

Principal findings: Only one tool, the Primary Care Assessment Tool (PCAT), scored highly on primary care features, as it was designed to assess both structural and process features of primary care and is available in multiple user formats.

Conclusion: Based on the evidence supporting the relationship between primary care, improved population health, and reduced health care costs, measurement of primary care transformation approaches such as the medical home can and should include specific measurement of the services associated with the four core attributes of primary care.

Physicians (AAFP) recognized a personal medical home as a characteristic of the new model of family medicine in the 2004 Future of Family Medicine publication, which stated that “the practice serves as a personal medical home for each patient, ensuring access to comprehensive, integrated care through an ongoing relationship” and provides “care that is not only accessible but also accountable, comprehensive, integrated, patient-centered, safe, scientifically valid, and satisfying to both patients and their families,” i.e., the features of primary care (Martin 2004).

In March 2007, the AAFP, the AAP, the American College of Physicians (ACP), and the American Osteo-

pathic Association (AOA) endorsed the Joint Principles of the Patient-Centered Medical Home, which describes characteristics of a patient-centered medical home (PCMH) as including a personal physician, physician-directed medical practice, whole-person orientation, coordinated and integrated care, quality and safety, enhanced access to care, and payment that “appropriately recognizes the added value provided to patients” (Patient Centered Primary Care Collaborative 2007).

Elements such as clinical decision support tools, an integrated coherent plan for ongoing medical care in partnership with patients and their families, key quality indicators to

demonstrate improvement in health status indicators for individuals and populations, and methods of receiving feedback on the overall performance of the practice and its physicians were also incorporated.

Following the announcement of the Joint Principles of the Patient-Centered Medical Home, several insurers and multi-stakeholder organizations developed reimbursement programs for practices recognized or certified as a PCMH.

These include UnitedHealthcare, Blue Cross Blue Shield, Capital District Physicians' Health Plan, Cigna, EmblemHealth, Geisinger Health Plan, Humana, and Wellstar Health System as well as at least 17 states and Medicare (Patient Centered Primary Care Collaborative 2008). All of these initiatives or demonstration projects use different standards for performance of the PCMH.

The adult medical home literature provides few insights on measurement of medical home attributes or outcomes since demonstration projects are currently in progress and only descriptive information is generally available (Patient Centered Primary Care Collaborative 2008).

It is only in the last year that a standard measurement tool was created by the National Committee for Quality Assurance (NCQA) in response to requests from primary care physician organizations.

Many of the adult medical home experiments are employing the NCQA's new Physician Practice Connections—Patient-Centered Medical Home standards for defining the level of medical home structure and capability of participating practices (NCQA 2008).

Defining and measuring primary care

As the medical home concept is justified on the basis of evidence regarding the benefits of primary care on effectiveness, efficiency, and equity in health (Rosenthal 2008), at-

tempts to assess its adequacy require tools to measure the attributes of primary care in a valid and robust way.

In 1978, a report by the Institute of Medicine (IOM) described five attributes essential to primary care — accessibility, comprehensiveness, coordination, continuity, and accountability (IOM 1978). In addition to providing definitions of each of the attributes, the report also provided a primary care checklist as guidance on the intent of many of the described attributes (Institute of Medicine 1978). For example, the first question in the section on comprehensiveness of services asks, "Within the patient population served, and realizing that this might be restricted to a certain age or sex, is the practice unit willing to handle, without referral, the great majority (over 90 percent) of the problems arising in this population?"

A 1996 IOM report defined primary care as "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of fam-

ily and community" (IOM 1996). The report provided succinct definitions for each of the attributes of primary care, including comprehensiveness, coordination, continuity, and accessibility (see Table 1) (IOM 1996). However, the report did not provide guidance on how to measure these attributes.

Achieving each of these characteristics requires that a clinical facility have certain organizational aspects (structures) that it employs to facilitate behaviors (processes) (Starfield 1979; Starfield 1992). The key structural features are: mechanisms to facilitate access, a roster of eligible patients who identify the practice as their primary care source and for whom the practice maintains ongoing responsibility, mechanisms to facilitate transfer and use of information regarding patients' health-related problems and needs, and availability of a broad range of services to meet all but uncommon population needs in the population served (Starfield, 1992).

Actually achieving the attributes of primary care requires ongoing use of the facility by the designated pop-

TABLE 1
Attributes of primary care

Comprehensive. Comprehensive care addresses any health problem at any given stage of a patient's life.

Coordinated. Coordination ensures the provision of a combination of health services and information that meets a patient's needs. It also refers to the connection between, or the rational ordering of, those services, including the resources of the community.

Continuous. Continuity is a characteristic that refers to care over time by a single individual or team of health care professionals ("clinician continuity") and to effective and timely communication of health information such as events, risks, advice, and patient preferences ("record continuity").

Accessible. Accessible refers to the ease with which a patient can initiate an interaction for any health problem with a clinician (e.g., by phone or at a treatment location) and includes efforts to eliminate barriers such as those posed by geography, administrative hurdles, financing, culture, and language.

Adapted from "Box 2-1 Definition of Primary Care" on page 32 of the IOM publication *Primary Care: America's Health in a New Era*.
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ulation and recognition and fulfillment of all health-related needs as they arise and persist in that population (Starfield 1998).

METHODS

To better understand the tools available to, or in use by, medical home projects, a review of instruments was conducted. Instruments were selected for inclusion based on a literature review using Pubmed and a review of tools in use in the PCMH pilot projects. Instruments were selected for review if the stated purpose of the tool was to measure patient experience with primary care, or to measure the provision of primary care or provision of a medical home by a provider or practice. Tools were excluded if they were designed to measure the adequacy of experiences with care for only special populations, such as children with special health care needs or patients with specific preselected illnesses.

Tools were then reviewed to assess whether they included items that measure the four evidence- and consensus-based attributes of primary care. If a tool contained a domain or set

of questions related to one of the attributes, it was designated by an X mark in the table (see Table 3). If the domain had been tested to measure the attribute, through factor analysis and tests of reliability and validity, then the tool received a plus sign. If the tool included only one item or one component addressing the attribute, the tool received a minus sign for the feature. Finally, if the instrument did not include any questions related to a particular attribute of primary care, then the box for that attribute was left blank.

RESULTS

The tools that were reviewed are the Consumer Assessment of Healthcare Providers and Systems (CAHPS) (Solomon 2005), the Components of Primary Care Instrument (CPCI) (Flocke 1997), the Medical Home Family Survey (MHFS) (University of Illinois 2008), the Medical Home Index Adult Version 1.1 (MHI) (Cooley 2008), the Medical Home IQ (MHIQ) (Skoch 2008), the Parents' Perception of Primary Care (P3C) (Seid 2001), the Physicians Practice Connections—Patient-Centered Medical Home (PPC-PCMH) (NCQA,

2008), the Primary Care Assessment Survey (PCAS) (Safran 1998), and the Primary Care Assessment Tools (PCAT)(Shi 2001). The purposes of these tools are listed in Table 2 below.

Table 3 summarizes the content of the instruments. The tools have undergone varying levels of testing for reliability and validity.

Only one tool, the PCAT, received a check for all categories of features because it was specifically designed and tested for primary care features in adults and children. The CPCI, P3C, and PCAS met the criteria for five of the categories, but are only available in a format for completion by patients or families. Only three of the nine instruments are currently available in multiple formats for multiple users. For example, CAHPS has a suite of tools to gauge patient satisfaction with health plans, hospitals, nursing homes, and providers, and now includes both an adult and child primary care questionnaire for those who have used health plan services. The PCAT consists of questionnaires for adult and child patients, providers, and administrators of primary care practices.

TABLE 2
A description of the instruments

Instrument	Reference	Purpose
CAHPS*	Solomon 2005	To assess consumer experience with respect to multiple dimensions of care
CPCI	Flocke 1997	To evaluate domains of primary care
MHFS	UIC 2008	To measure the delivery of primary care for all children and youth including those with special health care needs
MHI**	CMHI 2008	To translate the broad indicators defining the medical home into observable, tangible behaviors and processes of care in any office setting
MHIQ	Skoch 2008	To assess practices in the "model of care" continuum
P3C	Seid 2001	To develop a brief parent report of each child's primary care
PPC-PCMH	NCQA 2008	To assess many of the ways in which the practices function as a patient-centered medical home
PCAS	Safran 1998	To operationalize formal definitions of primary care, including the definition by the Institute of Medicine
PCAT	Shi 2001	To assess the attainment of primary care attributes

* Refers to specific instrument "Clinician and Group Survey Adult Primary Care Questionnaire 1.0"

** Refers to the specific instrument "Medical Home Index Adult Version 1.1"

TABLE 3
Features of the instruments

Instrument	Multiple formats (e.g. provider, patient)	Rigorous testing of validity and reliability	Includes measure of first contact and accessibility	Includes measure of person-focus and ongoing care	Includes measure of comprehensiveness	Includes measure of coordination
CAHPS	x	x	+	x		-
CPCI		x	-	+	+	+
MHFS	x		x	x	x	x
MHI				x	x	x
MHIQ			x		x	x
P3C		x	+	+	+	+
PPC-PCMH			x	-		x
PCAS		x	+	+	-	+
PCAT	x	x	+	+	+	+

An 'X' designation indicates the instrument has the given attribute; a plus sign (+) indicates the tool has been tested to measure the attribute; a minus sign (-) indicates the tool only had one component of the attribute; and a space was left blank if the tool did not include questions related to the attribute.
Source: Malouin, 2009

Only five of the instruments have reported the results of cognitive testing and psychometric properties of reliability and validity.

DISCUSSION

The association between strong primary care, improved health of individuals and populations, and reduced health care expenditures is well established. Population health measures, including all-cause mortality, mortality from heart disease, cancer, stroke, infant mortality, low birth weight, and poor self-reported health are better in areas with more primary care physicians, even after controlling for a variety of other influences on population health (Macinko 2003; Shi 2005; Shi 2003).

Individuals using primary care physicians rather than specialists as a regular source of care are healthier even after controlling for baseline health status (Starfield 2005). Such

relationships have been demonstrated in international comparisons as well as national, regional, and local studies (Shi 2005; Shi 2004). Furthermore, areas with higher ratios of primary care physicians to the population have much lower total health care costs (Starfield 2005).

Based on this evidence, measurement of primary care transformation approaches, such as the medical home, should include specific measurement of the services associated with the four core attributes of primary care. The current assessment indicates that the CPCI, PCAS, and PCAT are best for accomplishing this objective. However, only the PCAT includes psychometrically tested domains for all of the core attributes, and is currently available in multiple and comparable formats covering both providers as well as patients, thus making it possible to compare patients' experiences with their providers' judgments.

The NCQA PPC-PCMH instrument currently lacks focus on some of the key features of primary care, notably comprehensiveness and person-focus. The limited discriminating capability of the NCQA instrument on the core primary care attributes reflects differences in design objectives compared to the PCAT, PCAS, and CPCI. Awareness of these differences is key to decisions regarding measurement in primary care delivery structures such as the medical home.

To ascertain whether the medical home or other models for primary care achieve the health and financial outcomes associated with comprehensive primary care, it is imperative that all four core primary care attributes be built into the models and all four attributes be measured by psychometrically-sound instruments.

Large investments are being made by physician practices, the Centers for Medicare and Medicaid Services,

the private sector, and health plans to test medical homes for adult primary care (Patient Centered Primary Care Collaborative 2008). Most use the NCQA assessment instrument, which is a good start but inadequate for assessing whether the attributes that drive health outcomes are being exhibited and to what degree.

The NCQA instrument is directed primarily at structures of services and includes minimal measures of behaviors or processes of care. Furthermore, it lacks any attention to a key function of primary care: comprehensiveness. The fact that health facilities are queried about the management of defined chronic illnesses only distorts the principles and values of primary care (which is person-focused rather than disease-focused).

If particular diagnoses must be used to measure quality, facilities should at the least be required to choose a variety of types of health conditions and not only a selected subset of chronic conditions. Mental health problems, as well as diagnosis and management of undifferentiated signs and symptoms, should be included along with a variety of other types of diagnoses. Moreover, any system of evaluating quality of primary care in the medical home should include a measurement of patient-experienced health improvement and outcomes.

Understanding how adequately medical homes incorporate important structural attributes and how well they achieve the critical provider behaviors is needed for medical homes to achieve their intended purposes. Such understanding will also facilitate prioritization of the many changes that practices are being required to undertake in medical home projects to make effective use of the limited funds available. Without a firm foundation in all four core attributes of primary care, the medical home may achieve short-term economic savings from reduced utilization of facilities, but it is at risk of failing to achieve the goals of healthier populations, sustained long-term cost

efficiency, and value for patients, providers, employers, and communities.

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