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Rural Health Clinic Readiness for Patient-Centered Medical Home Recognition: Preparing for the Evolving Healthcare Marketplace [Working Paper]

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January 2015

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EXECUTIVE SUMMARY

The patient-centered medical home (PCMH) model reaffirms traditional primary care values such as continuity of care, connection with an identified personal clinician, provision of same day- and after-hours access and positions providers to participate in accountable care and other financing and delivery system models. Little is known about the readiness of the over 4,000 Rural Health Clinics (RHCs) to meet the PCMH Recognition standards established by the National Council for Quality Assurance (NCQA). This paper presents findings from a survey of RHCs that examined their capacity to meet the NCQA PCMH requirements, and discusses the implications of the findings for efforts to support RHC capacity development.

The data for this study were obtained from a random sample of 225 RHCs (47% response rate) using an instrument focused on the key features of the NCQA PCMH Recognition tool. Overall, our study suggests that RHCs perform best on the NCQA PCMH Recognition standards related to the use of the EHRs for recording patient demographic and clinical data; ordering and tracking medications; and ordering and tracking laboratory tests and imaging studies. They do less well on elements related to improving access to care; ensuring continuity of services from the patient's identified provider; supporting patient self-management skills; developing the practice team; tracking and monitoring referrals; exchanging clinical information; measuring performance; and implementing continuous quality improvement systems and documenting results. Given the barriers to implementation, our data suggest that RHCs are likely to struggle with PCMH recognition based on their performance on the six must pass elements and key factors in the recognition tool.

These results indicate that many RHCs need substantial support and technical assistance to build the capacity and systems to meet the standards for NCQA PCMH Recognition. Hence, it would be reasonable to target technical assistance to the must pass elements under the six PCMH standards areas that represent essential areas of activity to enhance the performance of primary care delivery systems. It would also be reasonable to target support to areas that directly impact RHC operational and clinical performance such as the implementation and meaningful use of EHRs, implementing provider relevant continuous quality improvement systems, and enhancing patient access. Targeted technical assistance would support RHCs in obtaining PCMH recognition, and enhance their clinical and operational performance.

PURPOSE

The patient centered medical home (PCMH) model both re-affirms traditional primary care values such as continuity of care, connection with an identified personal clinician, and provision of same day- and after-hours access and also prepares providers to succeed in the evolving health care system by focusing on accountability, continuous quality improvement, public reporting of quality data, data exchange, and patient satisfaction. However, little is known about the readiness of the over 4,000 Rural Health Clinics (RHCs) to meet the PCMH standards established by the National Center for Quality Assurance (NCQA). This working paper reports on a survey of RHCs that examined the capacity of RHCs to meet the NCQA requirements and discusses the implications of the findings for efforts to support RHC capacity development.

TRANSFORMATION OF PRIMARY CARE PRACTICES TO PATIENT CENTERED MEDICAL HOMES

While originally developed to renew the practice of family medicine by developing provider-led, integrated care delivery teams that engage patients and their families in their preventive, acute, and chronic care, the PCMH model has become a widely accepted strategy to prepare primary care practices to cope with the changing demands of the healthcare marketplace. As envisioned by some health reform experts, PCMHs are considered essential for the ability of health care organizations to meet financial savings and quality improvement targets.[1,2] As a result, there has been growing policy interest in promoting the transformation of primary care practices to PCMHs with the 2010 Patient Protection and Affordable Care Act providing financial incentives to encourage PCMH implementation.[3,4] The emerging literature on the transformation of primary care practices to the PCMH model suggests there are potential barriers to widespread adoption of the model, especially in smaller primary care practices, including: chronic shortages of primary care clinicians, limitations to primary care practice infrastructure, insufficient health information technology (HIT) capacity in primary care settings, and limited progress in revising reimbursement policies for primary care.[5,6] Our past work on RHC adoption and meaningful use of electronic health records (EHRs) strongly suggests that RHCs will face the same barriers, all of which typify the rural healthcare environment.[7]

HISTORY OF THE PATIENT CENTERED MEDICAL HOME

Although the concept of the PCMH gained traction in policy discussions beginning in the early 2000s, its roots date back to the American Academy of Pediatrics' 1967 Standards of Child Care, which called for a central medical record or "home" for children with complex health care needs in order to organize their care.[7-9] The 1990s brought a renewed emphasis on the importance of primary care with Barbara Starfield's work on the essential attributes of primary care for a high functioning health care system and the Institute of Medicine's call to make primary care available to all.[9-11] Starfield defined primary care as the "level of a health service system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time, provides care for all but very uncommon or unusual conditions, and co-ordinates or integrates care provided elsewhere by others."[12]

The 2002 Future of Family Medicine Project: A Collaborative Project of the Family Medicine Community sparked renewed interest in the medical home concept.[13] Participants from seven national family medicine programs developed strategies to prepare family medicine for the evolving health care system and proposed a new model with practices serving as personal medical homes and providing the full range of family medicine services. The Commonwealth Fund, the American College of Physicians, and other organizations subsequently joined the call for medical homes and patient-centered care.[1,14] In 2007, the American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American College of Physicians (ACP), and American Osteopathic Association (AOA) issued a joint statement on the PCMH model identifying the following core features:[7,15]

1. Personal physician;
2. Physician directed medical practice;
3. Whole person orientation;
4. Care is coordinated and integrated;
5. Quality and safety;
6. Enhanced access; and
7. Payment reform.

Private, Federal, and State Initiatives

Interest in PCMH moved well beyond the policy sphere as it was incorporated into a number of private, state, and federal demonstration programs and health reform initiatives.[3] Examples of private sector initiatives include the TransforMed National Demonstration Project[i] and the Group Health, Seattle, Geisinger Health System, and Maine Multi-payer PCMH pilots.[5] More than 31 states have adopted or are planning to implement PCMH programs in their Medicaid and/or Children's Health Insurance Programs. Examples include North Carolina, Colorado, and Michigan. At the federal level, the Patient Protection and Affordable Care Act provided funding for a number of medical home demonstrations, including the Multi-Payer Advanced Primary Care Practice demonstration and the Federally Qualified Health Centers Advanced Primary Care Practice demonstration. In addition, the Department of Veterans Affairs is actively implementing its own version of the PCMH model known as PACTs (Patient Aligned Care Teams) in all its primary care clinics (including 160 hospital-based primary care clinics and 783 Community Based Outpatient Clinics), with implementation expected by 2015.[16,17]

PCMH NATIONAL RECOGNITION STANDARDS

In 2008, the NCQA released its Physician Practice Connections Patient-Centered Medical Home Recognition tool, which laid out standards through which physician practices could be recognized as PCMHs.[5] As one of the early leaders in publishing PCMH Recognition standards, NCQA's PCMH tool has become the "de facto standard for recognition as a PCMH."[9,18]

NCQA's PCMH 2011 standards are based on the following six standards areas aligned with the principles identified in the AAFP, AAP, ACP, and AOA's 2007 joint statement:

1. PCMH 1 - Access and continuity;
2. PCMH 2 - Identify and manage patient populations;
3. PCMH 3 - Plan and manage care;
4. PCMH 4 - Self-management support;
5. PCMH 5 - Track and coordinate care; and
6. PCMH 6 - Performance measurement and quality improvement.

[i] The American Academy of Family Physicians, a participant in the Future of Family Medicine project, established TransforMed in 2005 to test the new model (https://www.transformed.com/whoweare.cfm). This led to the implementation of the National Demonstration Project, a two year (June 2006-June 2008) test and evaluation of the model (https://www.transformed.com/ndp.cfm).

The six standards include a total of 28 elements with multiple individually scored factors under each element for a total of 100 points.[19] Within each of the six standards areas, one element is designated as "must pass." Additionally, select factors within particular elements are designated as "critical factors" to meet the intent of the element. Practices must pass the requirements for the critical factor to receive more than minimal or, for some factors, any points for the element.

NCQA's Recognition framework provides for three PCMH recognition levels (i.e., Levels 1, 2 and 3) which reflect the extent to which an applicant achieves the requirements of the elements and factors under each of the six standards areas with the higher levels reflecting a greater range of capabilities and sophistication. Under all three levels, applicants must achieve a score of 50 percent or higher on each of the following six must-pass elements (one in each of the six standards areas) that are considered essential to the patient-centered medical home:

1. PCMH 1, Element A: Access during office hours;
2. PCMH 2, Element D: Use data for population management;
3. PCMH 3, Element C: Care management;
4. PCMH 4, Element A: Support self-care process;
5. PCMH 5, Element B: Referral tracking and follow-up; and
6. PCMH 6, Element C: Implement continuous quality improvement.

The point allocation for the three levels is as follows:

- Level 1: 35–59 points and all 6 must-pass elements
- Level 2: 60–84 points and all 6 must-pass elements
- Level 3: 85–100 points and all 6 must-pass elements

At the time of the survey and preparation of this report, NCQA's PCMH 2011 was the current version of NCQA's Recognition standards.[ii] PCMH 2011 was released on January 31, 2011.[20] PCMH 2011 was built on the foundation of the 2006 and 2008 NCQA Recognition Programs.[21] Major changes to PCMH 2011 compared to the earlier 2008 version included a reduction in the

[ii] NCQA released a new version of its standards (PCMH 2014) on March 24, 2014 with a phased transition period (March 24, 2014-March 31, 2015) during which either PCMH 2011 or 2014 can be submitted.22 Major changes include a greater emphasis on integration with behavioral health, care management for high-need populations, and team-based care; greater alignment of improvement efforts with the triple aim; closer alignment with Stage 1 meaningful use requirements; and requirements to document sustained transformation over time.

number of standards areas from nine to six; a requirement for practices to measure the patient experience of care; and a closer alignment with Stage 1 Meaningful Use criteria.[18]

The cost of the PCMH recognition process and the related costs to meet the standards (e.g., acquisition of an EHR, use of consultants to support the process, additional demands on providers and staff) are a concern for RHCs and other small practices.[23] As of February 2014, NCQA's PCMH Recognition fees ranged from approximately $150 to $210 per clinician per year with discounts available to practices undergoing recognition that are sponsored by payers, are part of a multi-site group, or have a greater number of clinicians. NCQA does not appear to offer specific accommodations for RHCs or smaller practices. Practices with fewer providers pay a slightly higher annual cost per clinician than those with greater numbers of clinicians.[23]

In addition to NCQA's PCMH Recognition Program, URAC (formerly known as the Utilization Review Accreditation Commission), the Joint Commission, and the Accreditation Association for Ambulatory Health Care each have developed their own PCMH recognition/accreditation programs. Although each of these national PCMH recognition processes approach the PCMH process from its own perspective and with varying levels of emphasis on the core components,[5] a review of each organization's process reveals consistent themes and strategies.

Given the common use of NCQA's framework to recognize PCMHs, we used it to conduct our analysis of RHC readiness to serve as PCMHs. We examined the characteristics and performance of RHCs in regards to NCQA's six PCMH standards areas. Given the complexity of the NCQA Recognition program and the need to maintain a reasonable survey length, we chose not to address every element and factor under the six standards areas. Instead, we chose to align our questions with the core concepts and characteristics of NCQA's PCMH model. As such, the results of this survey will provide insight into the extent to which RHCs are prepared to function as PCMHs based on the key characteristics.

RURAL HEALTH CLINICS AND PCMH RECOGNITION

RHCs are an important source of primary care services in rural areas with over 4,000 clinics operating nationwide.[24] To date, no national studies have been conducted on the extent to which RHCs comply with PCMH recognition standards. This study was conducted to identify the extent to which a national random sample of RHCs were positioned to achieve the different levels of PCMH Recognition using NCQA's 2011 PCMH Recognition Standards and

Guidelines. In light of the limited information on the extent to which RHCs are able to be recognized as PCMHs, we sought to answer the following research questions:

- To what extent are RHCs able to comply with core elements and factors under the six PCMH standards areas specified in the NCQA 2011 PCMH Recognition standards?
- Under which of the elements under the six standards areas are RHCs likely to perform relatively well? Under which of the elements are RHC likely to perform less well?
- What does the performance of RHCs on the different elements suggest in terms of the need for technical assistance and support to help them achieve PCMH recognition?

METHODS

This study is based on a web-survey of a random sample of 660 RHCs from the Centers for Medicare and Medicaid Services (CMS) Provider of Services file initially conducted during the spring and summer of 2011. Of the original 660 RHCs, 58 were excluded as the clinic had either closed, had a phone number that was not in service, had terminated participation in the RHC program, or had converted to another type of provider. Due to non-functional e-mail addresses for many of the sampled RHCs, early response to the survey was very low (67 completed surveys). Despite concerted efforts to update contact information for the remaining sample, we were unable to obtain email addresses for 114 clinics in our sample despite multiple attempts and contacts. Following this effort, the survey instrument was revised and released again in March of 2012 with extensive follow up activity through December 2012. Our final usable sample included 488 clinics; our response rate for completed surveys was 46.7 percent.[iii]

Drafts of the survey instrument were reviewed by the Executive Director of the National Association of Rural Health Clinics, the co-founder and past-president of the National Association of Rural Health Clinics, and a former clinic administrator and RHC consultant. Finally, the survey was pre-tested with a small sample of RHCs and revised based on their feedback. Based on our pre-test of the instrument, the survey took approximately 30 minutes to

[iii] Clinic administrator and/or owner contact information, including email address, is not available through public data sources such as the Provider of Services file or the public CMS RHC list. Instead, contact information was collected from state licensing and survey divisions, State Offices of Rural Health, state Rural Health Clinic associations, as well as through phone calls to individual clinics. In the end, we were unable to obtain contact information for 114 clinics from our sample.

complete for those with an electronic health record (EHR) and 20 minutes for those without an EHR.

Comparison of Survey Respondents to Overall RHC Population

Overall, survey respondents were similar to the overall population of RHCs based on key characteristics using the CMS Provider of Services file (Table 1). The major differences involved the geographic distribution of the survey respondents, with a somewhat higher percentage of survey respondents located in the Northeast, Midwest, and West, and somewhat fewer respondents located in the South than the distribution of the overall population of RHCs.

Study Limitations

It is possible that clinics participating in the survey differ in some meaningful way from non-responders. For example, the 114 clinics for which we were completely unable to obtain contact information may have been disproportionately small and less technologically advanced, and thus may also face greater than average challenges in PCMH readiness. Caution should also be exercised in interpreting these results due to the small number of clinics (225) in this survey. As we undertook the analysis of subsets of the responding clinics (e.g., clinics reporting implementation of an EHR or clinics reporting performance on different meaningful use measures), the number of clinics for any given question was substantially smaller. Though we present some descriptive comparisons (e.g., differences for clinics with and without electronic health records), results of these comparisons were not statistically significant and should be interpreted with caution. Nevertheless, the descriptive results provide important insights into the performance of RHCs on key elements of PCMH performance.

While a total of 225 clinics responded to the survey, they did not always respond to every question presented to them. As a result, the number of clinics responding varies from question to question. For the sake of clarity, we report the actual the number of clinics responding to each question. Given the complexity of the PCMH recognition criteria and comparatively small number of respondents, we are not able to analyze the responses by clinic size or type (i.e., independent vs. provider-based). Our results are based on the total number of responding clinics except as noted below.

Table 1. Comparison of Survey Respondents to Overall Population of RHCs

	Survey Respondents	All RHCs
Number of RHCs	225	3798
Independent RHCs	56.0%	54.3%
Provider-Based RHCs	44.0%	45.7%
Location in Census Region		
Northeast	6.2%	3.6%
Midwest	48.0%	39.0%
South	25.8%	39.5%
West	20.0%	17.9%
Ownership Type		
Government Owned	12.4%	16.7%
For Profit	45.8%	45.5%
Non-profit	41.8%	37.8%

Analysis of RHC Performance on Key Areas of PCMH Activity

As described in the background section of this paper, the criteria for PCMH recognition have evolved over time. One important aspect of this evolution is the greater emphasis on EHRs to manage patient care and the greater integration of the meaningful use measures, as defined by Office of the National Coordinator for Health Information Technology and CMS, into PCMH Recognition criteria. Our survey collected data on the meaningful use of EHRs, as well as the quality and patient management practices of RHCs that align with the core concepts of PCMH Recognition, rather than specific factors related to evolving recognition criteria.[25]

As the NCQA 2011 PCMH Recognition criteria are based on the use of EHRs to manage care, RHCs without an EHR are unlikely to meet the factors associated with certain elements (e.g., the ability to provide electronic access to health information). In those cases, we report factors only for those RHCs with an EHR in use. In other cases, meeting a factor is not dependent on the use of an EHR. In these cases, we report all RHCs that are meeting the specific factors. In other cases, RHCs without an EHR are able to meet the expectation of performance established by certain factors even though those factors are closely aligned with the Stage One Meaningful Use measures. In these cases, we report the performance of those RHCs with an EHR separately from those without an EHR. We identify the responding group as we discuss each element. At the same time, we identify the extent to which we can discuss compliance with specific factors as well as those factors that we cannot address.

PCMH Standard 1: Enhancing Access and Continuity *(See Table 2)*

Element A - Access During Office Hours (must pass)*:* This must pass element focuses on the extent to which the practice has a written process and defined standards for managing access to providers during office hours, and demonstrates that it monitors performance against these standards through four factors. These four factors include: providing same-day appointments (a critical factor); providing timely, as defined by the practice, clinical advice by telephone during office hours; providing timely clinical advice by secure electronic messages during office hours; and documenting clinical advice in the patient medical record. This element does not require the use of an EHR to meet the expectation of performance.

Among the factors associated with this element, RHCs perform best on the critical factor of providing same-day appointments with 63 percent of responding clinics reporting that they have a process to ensure same day appointments. RHCs do less well on providing telephone consultations/advice to patients, with 22 percent reporting that they do so, and providing timely clinical advice by secure electronic messages, with 5 percent reporting that they provide e-mail consultations and/or advice to patients. One other approach to improving access during normal business hours is the use of group visits for appropriate conditions such as chronic illness care, with 12 percent offering group visits to improve access.

In terms of monitoring and undertaking quality improvement initiatives to manage and enhance access, 48 percent of respondents evaluate wait times, 44 percent monitor timeliness of services, 26 percent evaluate accessibility for patients with special needs, and 21 percent evaluate barriers to receipt of care as part of their quality improvement activities. Our survey did not ask the extent to which RHCs document clinical advice in the medical record.

Element B - After-Hours Access: This element focuses on the extent to which the practice has a written process and defined standards, and demonstrates that it monitors performance against the standards for providing access to care outside of regular business hours through five factors: providing access to routine and urgent-care appointments outside regular business hours; providing continuity of medical record information for care and advice when the office is not open; providing timely (as defined by the practice) clinical advice by telephone when the office is not open (a critical factor); providing timely clinical advice using a secure, interactive electronic system when the office is not open; and documenting after hours clinical advice in

patient records. This element is not dependent on the use of an EHR to meet the standards of performance.

Among the factors associated with this element, 29 percent of all responding RHCs provide scheduled evening or weekend visits, 20 percent provide on-call evening or weekend visits, 22 percent provide telephone consultation/advice to patients, and 5 percent provide e-mail consultations/advice to patients. Our survey did not ask the extent to which RHCs provide continuity of medical record information for care and advice when office is not open or document after-hours clinical advice in patient records.

Element C - Electronic Access: This element assesses the extent to which the practice provides the following information and services to patients and families through a secure electronic system as measured by six factors associated with this element. Compliance with this element requires the use of an EHR. The six factors include: more than 50 percent of patients who request an electronic copy of their health information receive it within three business days; at least 10 percent of patients have electronic access to their current health information within four business days of when the information is available to the practice; clinical summaries are provided to patients for more than 50 percent of office visits within three business days; two-way communication between patients/families and the practice; request for appointments or prescription refills; and request for referrals or test results.

Among RHCs with an EHR, 58 percent report that patients requesting an electronic copy of their health information (e.g., problem lists, diagnoses, diagnostic test results, medication lists and allergies) receive it within three business days; 36 percent report that at least 10 percent of patients have electronic access to their current health information (including lab results, problem list, medication lists and allergies) within four business days of when the information is available to the practice; and 49 percent provide clinical summaries to patients for more than 50 percent of office visits within three business days. Our survey did not capture information on the extent to which RHCs have implemented electronic access to facilitate two-way communication between patients/families and the clinic, fill requests for appointments or prescription refills, or request for referrals or test results.

Element D - Continuity: Under this element, three factors are used to assess the extent to which the practice provides continuity of care for patients/families and the element does not require use

of an EHR to meet the standards of performance. The three factors include: expecting patients/families to select a personal clinician; documenting the patient's/family's choice of clinician; and monitoring the percentage of patient visits with selected clinician or team.

Thirty percent have implemented formal processes to ensure that patients/families can identify a personal clinician, document the patient's/family's choice of clinician, and to ensure access to that clinician. Although they do not have formal processes to ensure access to a patient's designated clinician, 47 percent have informal processes to ensure continuity of care. A small group of RHCs (4 percent) do not currently have a process in place but plan to do so in the future. Our survey did not capture information on the extent to which RHCs expect patients or families to select a personal clinician or monitor the percentage of patient visits with the selected clinician or team.

Element E - Medical Home Responsibilities: Under this element, four factors are used to assess the extent to which a practice has a process and materials that it provides to patients/families on the role of the medical home. This element does not require the use of an EHR to comply with this element. A key factor for this element involves the provision of access to evidence-based care and self-management support to patients and families. Other factors include: coordinating patient care across multiple settings; providing instructions on obtaining care and clinical advice during office hours and when the office is closed; collection of patients' complete medical history and information about care obtained outside of the practice; and providing the patient/family with access to evidence-based care and self-management support.

Sixty-five percent of all responding RHCs reported use of evidence-based guidelines relevant to providers' specialties or identified clinical priorities to care for patients. Clinics also reported offering programs or services to increase patient self-management skills for the following conditions: asthma (20 percent); congestive heart failure (11 percent); depression (13 percent); diabetes (43 percent); coronary artery disease (11 percent); and other conditions (6 percent). A substantial number of respondents (43 percent) either did not offer self-care programs or were not sure if their clinic offered such services. In terms of taking responsibility for coordinating patient care across multiple settings, 16 percent of clinics reported employing staff to engage in these activities including diabetic educators, care/case managers, and/or patient educators. Additionally, 12 percent of responding clinics report having written agreements with community

service organizations to support and manage patients with chronic conditions and 43 percent have informal agreements with community service organizations for the same purpose. Our survey did not collect data on the extent to which RHCs provide instructions on obtaining care and clinical advice during office hours and when the office is closed, or the extent to which patients are asked to provide a complete medical history and information for care obtained outside of the clinic.

Element F - Culturally and Linguistically Appropriate Services (CLAS): This element uses four factors to assess the extent to which the practice engages in activities to understand and meet the cultural and linguistic needs of its patients/families. These factors do not require an EHR for compliance with this element. The factors include: assessing the racial and ethnic diversity of the practice's population; assessing the language needs of its population; providing interpretation or bilingual services to meet the language needs of its population; and providing printed materials in the languages of its population.

Among all responding RHCs, 93 percent collect demographic information (i.e., preferred language, gender, race, ethnicity, and date of birth) from more than 50 percent of their patient population. Although our survey did not ask the extent to which RHCs use this information to assess the language needs of their patient populations, 72 percent reported that their clinics served non-English speaking patients. Respondents serving non-English speaking patients reported the use of internal staff (34 percent) to meet the linguistic needs of patients, outside services (26 percent), or some combination of internal staff and external resources (27 percent).

Element G - Practice Team: This element uses eight factors to assess the range of patient care services provided by the practice. An EHR is not necessary to comply with this element. The eight factors include: defining roles for clinical and nonclinical team members; holding regular team meetings and communication processes; using standing orders for services; training and assigning care teams to coordinate care for individual patients; training and assigning care teams to support patients and families in self-management, self-efficacy, and behavior change; training and assigning care teams for patient population management; training and designating care team members in communication skills; and involving care team staff in the practice's performance evaluation and quality improvement activities.

Fifty-three percent of responding RHCs provide written feedback reports to clinicians with 16 percent providing these feedback reports at least once per month and 36 percent providing these reports at least once per year. An additional 14 percent have plans to implement feedback reports in the future. Among respondents that have implemented a disease registry (n=70) 81 percent share data from the registry with providers and 53 percent share disease registry information with administrative and support staff. Our survey did not collect data on the extent to which RHCs define roles for clinical and nonclinical team members; hold regular team meetings and/or engage in other communication processes (a critical factor); use standing orders for services; train and assign care teams to coordinate care for individual patients; and support patients and families in self-management, self-efficacy, behavior change, and in communication skills.

Table 2. RHC Performance on PCMH 1: Enhance Access and Continuity

Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
A: Access During Office Hours (Must Pass)	Provides same-day appointments (n=225)	62.7		
	Provides telephone consultations (n=225)	21.8		
	Provides email consultations (n=225)	5.3		
	Offers group visits (n=225)	11.6		
B: After-Hours Access	Schedules evening or weekend visits (n=225)	28.9		
	Provides on-call evening or weekend visits (n=225)	19.6		
	Provides telephone consultations (n=225)	21.8		
	Provides email consultations (n=225)	5.3		
C: Electronic Access	More than 50% of patients requesting an electronic copy of their health information receive it within three business days (n=121)		57.9	
	At least 10% of patients are provided with electronic access to their health information within four business (n=121)		36.4	
	For more than 50% of office visits, patients receive a visit summary within three business days (n=121)		48.8	
D: Continuity	Formal processes to ensure that patients receive care from their personal provider (n=198)	30.3		
	Informal processes to ensure that patients receive care from their personal provider (n=198)	46.5		
	Plans to develop processes to ensure continuity of care in the future (n=198)	3.5		
E: Medical Home Responsibilities	Uses evidence-based guidelines to care for patients (n=203)	64.8		
	Supports increased self-management skills for asthma (n=225)	19.6		
	Supports increased self-management skills for congestive heart failure (n=225)	11.1		
	Supports increased self-management skills for depression (n=225)	13.3		
	Supports increased self-management skills for diabetes (n=225)	43.1		
	Supports increased self-management skills for coronary artery disease (n=225)	10.7		
	Supports increased self-management skills for other conditions (n=225)	5.8		
	Employs diabetic educators (n=225)	6.2		
	Employs care/case managers (n=225)	5.3		
	Employs patient educators (n=225)	4.9		
	Has formal or informal agreements with community service organizations for patients with chronic conditions (n=225)	54.3		
F: CLAS	Records demographics for more than 50% of patients as structured data (n=199)	93.0		
	Serves non-English speaking patients (n=198)	71.7		
	Uses internal staff, outside service, or mix of internal staff/outside service to provide linguistic services for the non-English speaking population (n=142)	86.7		
G: Practice Team	Provides written feedback reports at least once per month (n=195)	16.4		
	Provides written feedback reports at least once per year (n=195)	36.4		
	Has plans to provide written feedback reports in the future (n=195)	14.4		
	Shares data from disease registry with all providers (n=70)	81.4		
	Shares data from disease registry with administrative and support staff (n=70)	52.8		

PCMH 2: Identifying and Managing Patient Populations *(See Table 3)*

Element A - Patient Information: This element describes the extent to which RHCs use an electronic system, typically an EHR, that records twelve different data elements including: date of birth; gender; race; ethnicity; preferred language; telephone numbers; e-mail address; dates of previous clinical visits; legal guardian/health care proxy; primary caregiver; presence of advance directives (NA for pediatric practices); and health insurance information as structured (searchable) data for more than 50 percent of the patients.

Among the RHCs using an EHR, 92 percent report using their system to collect demographic information (i.e., preferred language, gender, race, ethnicity, and date of birth) for more than 50 percent of their patient population. Our survey did not collect data on the other factors listed under this element.

Element B - Clinical Data: This element describes the extent to which RHCs use an EHR to record nine different types of patient information as structured (searchable) data including: an up-to-date problem list with current and active diagnoses for more than 80 percent of patients; allergies, including medication allergies and adverse reactions for more than 80 percent of patients; blood pressure, with the date of update for more than 50 percent of patients 2 years and older; height for more than 50 percent of patients 2 years and older; weight for more than 50 percent of patients 2 years and older; system calculates and displays BMI (NA for pediatric practices); system plots and displays growth charts (length/height, weight and head circumference) (less than 2 years of age) and BMI percentile (2–20 years) (NA for adult practices); status of tobacco use for patients 13 years and older for more than 50 percent of patients; and list of prescription medications with date of updates for more than 80 percent of patients.

RHCs with an EHR do well on this element with 84 percent recording smoking status, 84 percent recording vital signs, 89 percent recording up-to-date problem lists, 93 percent recording active medication allergy lists, and 93 percent reporting active medication lists for the relevant population targets. It should be noted that the meaningful use measure (as used in our survey) differs from NCQA's factor related to medication allergies in that the meaningful use measure addresses only medication allergies, whereas NCQA's factor requires practices to use their EHRs to collect data on all allergies (including medication allergies).

Element C - Comprehensive Health Assessment: This element uses nine factors to understand the extent to which practices conduct and document a comprehensive health assessment to understand the health risks and information needs of patients/families. These factors include: documentation of age- and gender-appropriate immunizations and screenings; family/social/ cultural characteristics; communication needs; medical history of patient and family; advance care planning (NA for pediatric practices); behaviors affecting health; patient and family mental health/substance abuse; developmental screening using a standardized tool (NA for practices with no pediatric patients); and depression screening for adults and adolescents using a standardized tool. Our survey did not collect data on the factors under this element.

Element D - Use of Data for Population Management (must pass): This element uses four factors to assess the extent to which a practice uses patient information, clinical data and evidence-based guidelines to generate lists of patients (disease registries) and to proactively remind patients/families and clinicians of needed services. Achieving a full score for this section requires a clinic to generate lists addressing all four of the following: at least three different preventive care services; at least three different chronic or acute care services; patients not recently seen by the practice; and specific medications. These activities are facilitated and simplified by the use of an EHR, but they do not require an EHR for compliance. As a result, we report the performance of RHCs on these factors separately for those with and without an EHR.

Clinics with an EHR: The use of disease registries is more easily accomplished using an EHR. Among respondents with an EHR that responded to the question (n=121), 64 percent (n=77) use their EHRs to generate a patient registry for at least one condition. Among this group, 52 percent use an EHR-generated registry for asthma, 49 percent for congestive heart failure, 68 percent for hypertension, 29 percent for depression, 78 percent for diabetes, and 39 percent for coronary artery disease. These respondents report that they used their registry for both population health management (42 percent) and individual health management (47 percent).

Of the 51 clinics that reported how they use their registry data, 71 percent use the data to generate patient reminders, 75 percent to track quality of care, 55 percent to identify groups of patients for follow-up, and 63 percent to plan patient care. This group also uses their EHRs (46 percent) to generate patient reminders for at least 20 percent of their patients 65 and older or five years and younger for both preventive and follow up care.

Clinics without an EHR: Among respondents without an EHR that responded to this question (n=82), 31 percent (n=25) create reports or registries to manage patients with chronic conditions. Among this group, 28 percent use registries for asthma, 36 percent for congestive heart failure, 36 percent for hypertension, 12 percent for depression, 84 percent for diabetes, and 40 percent for coronary artery disease. These respondents report that they used their registry for population health management (44 percent) and individual health management (72 percent). Of the 19 clinics without an EHR that reported how they use their registry data, 53 percent generate patient reminders, 90 percent track quality of care, 68 percent identify groups of patients for follow-up, and 84 percent plan patient care.

Given the small number of respondents that answered these questions, caution should be exercised in comparing how clinics with and without EHRs use the data from their disease registries. Our survey does not allow us to identify the reasons behind these differences.

Table 3. RHC Performance on PCMH 2: Identify and Manage Patient Populations

Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
A: Patient Information	Records demographics for more than 50% of patients as structured data (n=120)		91.7	
B: Clinical Data	Maintains up to date problem list for more than 80% of patients (n=121)		89.3	
	Maintains active medication list for more than 80% of patients (n=121)		93.4	
	Maintains active medication allergy list for more than 80% of patients (n=121)		92.6	
	Records vital signs for more than 50% of patients age 2 and over (n=121)		84.3	
	Records smoking status for more than 50% of patients 13 and older (n=121)		84.3	
C: Comprehensive Health Assessment	Data not collected on this element.			
D: Use Data for Population Management (Must Pass)	Generates at least one patient list to manage patients with chronic conditions and/or other purposes (n=121; n=82)		63.6	30.5
	Uses disease registry for population health management (n=77; n=25)		41.6	44.0
	Uses disease registry for individual health management (n=77; n=25)		46.8	72.0
	Uses disease registry to generate patient reminders (n=51; n=19)		70.6	52.6
	Uses disease registry to track quality of care (n=51; n=19)		74.5	89.5
	Uses disease registry to identify groups of patients for follow-up (n=51; n=19)		54.9	68.4
	Uses disease registry to plan patient care (n=51; n=19)		62.7	84.3
	Sends preventive/follow up care reminders to more than 20% of patients 65 or older or 5 years or younger (n=121)		46.3	

PCMH 3: Planning and Managing Care *(See Table 4)*

Element A - Implement Evidence-Based Guidelines: This element describes the extent to which practices have implemented evidence-based guidelines through point of care reminders for specific patient's conditions, including high-risk or complex care needs and conditions related to health behaviors, mental health, or substance abuse problems. Of all RHCs responding to the survey, 56 percent reported that their clinicians use evidence-based guidelines in the provision of care. Our survey did not capture information on the extent to which clinics are using point of care reminders.

Element B - Identify High-Risk Patients: This element describes the extent to which practices have a process in place to identify high-risk or complex patients through two factors: establishing criteria and a systematic process to identify high-risk or complex patients, and determining the percentage of high-risk or complex patients in its patient population. Although our survey did not specifically capture information on this issue, it did address the use of disease registries to identify patients with chronic health conditions. Of the 70 clinics that reported on how they used the data from their disease registries, 59 percent used their registries to identify groups of patients with chronic health needs for specific follow up.

Element C - Care Management (must pass): This element describes the extent to which the care team performs the following for at least 75 percent of the patients identified in Elements A and B: conducts pre-visit preparations; collaborates with the patient/family to develop an individualized care plan, including treatment goals that are reviewed and updated at each relevant visit; gives the patient/family a written plan of care; assesses and addresses barriers when patient has not met treatment goals; provides patient/family a clinical summary at each relevant visit; identifies patients/families who might benefit from additional care management support; and follows up with patients/families who have not kept important appointments.

Although our survey did not capture data on the extent to which RHCs perform the care management activities described above and how they interact with patients on care management issues, we did collect data on select RHC characteristics and activities related to care management. A small percentage of responding clinics (5 percent) employ care/case managers as part of their staff. Almost 64 percent of clinics with an EHR provide a visit summary within three business days to some or all of their patients.

Element D - Medication Management: This element describes the ways in which the practice manages medications through six factors. These six factors focus on the extent to which the practice reviews and reconciles medications with patients/families for more than 50 percent (the CMS meaningful use standard) and 80 percent of care transitions (i.e., the movement of patients between health care providers and settings as their conditions and care needs change); provides information about new prescriptions to more than 80 percent of patients/families; assesses patient/family understanding of medications for more than 50 percent of patients; assesses patient response to medications and barriers to adherence for more than 50 percent of patients; and documents over-the-counter medications, herbal therapies, and supplements for more than 50 percent of patients/families including the date of updates. This element is facilitated by, but does not require, an EHR. In light of this, we report the results for all RHCs that responded to questions about medication management on the survey when appropriate.

Of all respondents that answered this question (n = 172), 63 percent perform medication reconciliations with patients/families for more than 50 percent of care transitions. Almost 75 percent of RHCs provided printed information on drug/medication therapies, disease management, and other patient education topics to patients and their families, although the responses do not allow us to estimate the percentage of patients receiving these materials. Among those clinics with an EHR, 93 percent use their EHRs to maintain active medication lists for more than 80 percent of patients. Our survey did not collect data on the extent to which clinics assess patient/family understanding of medications, assess patient response to medications and barriers to adherence, or the extent to which RHCs document over-the-counter medications, herbal therapies, and supplements.

Element E - Use Electronic Prescribing: This element describes the use of electronic prescribing practices by providers through six factors that focus on the extent to which practices: generate and transmit at least 40 percent of eligible prescriptions to pharmacies; generate at least 75 percent of eligible prescriptions electronically; enter electronic medication orders into the medical record for more than 30 percent of patients; perform checks for drug-drug and drug-allergy medications; alert prescribers to generic alternatives; and alert prescribers to formulary status. As electronic prescribing can be done through an EHR or a standalone electronic prescription system, we report data for both types of systems.

For those RHCs with an EHR, 78 percent are transmitting more than 40 percent of prescriptions using their EHRs, 89 percent are conducting drug-drug and drug-allergy checks, and 67 percent are conducting drug formulary checks. Close to 16 percent of respondents report using a standalone electronic prescribing system (n=32). Of this group, 6 percent are using the standalone system to transmit more than 40 percent of eligible prescriptions, less than 9 percent report that their systems provide drug-drug interaction warnings at the point of prescribing, 9 percent receive drug-allergy interaction alerts at the point of prescribing, and 3 percent receive patient-specific formulary information at the point of prescribing.

Table 4. RHC Performance on PCMH 3: Plan and Manage Care

Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
A: Implement Evidence-Based Guidelines	Uses evidence-based guidelines relevant to providers' specialties or identified clinical priorities to care for patients (n=203)	56.2		
B: Identify High-Risk Patients	Uses disease registry to identify groups of patients for specific follow-up (n=70)	58.6		
C: Care Management (Must Pass)	Employs care/case managers (n=225)	5.3		
	Patients receive a visit summary within three business days (n=121). (48.8% do this for more than 50% of patient visits; 14.1% for 50% or fewer of visits)		63.9	
	Uses disease registry to identify groups of patients for specific follow-up (n=70)	58.6		
	Uses disease registry to generate patient reminders (n=70)	65.7		
D: Medication Management	Performs medication reconciliations for more than 50% of patients transitioned from another source of care into the care of the eligible provider (n=172)	62.7		
	Provides printed information on drug therapies, disease management, diet, and other patient education topics to patients and their families (n=200)	74.5		
	Records active medication list as structured data for more than 80% of patients (n=121)		93.4	
E: Use of Electronic Prescribing	RHCs with an EHR			
	Transmits more than 40% of prescriptions using EHR (n=125)		78.4	
	Conducts drug-drug interaction and drug-allergy checks (n=125)		88.8	
	Conducts drug formulary checks and has access to at least one internal or external formulary (n=125)		67.2	
	RHCs using a Standalone Electronic Prescribing System (n=32)	15.6		
	Transmits more than 40% of prescriptions electronically (n=205)	6.3		
	Receives drug-drug interaction warnings at point of prescribing (n=120)	9.4		
	Receives drug-allergy interaction alerts at point of prescribing (n=120)	9.4		
	Receives patient-specific formulary information at point of prescribing (n=120)	3.1		

PCMH 4: Providing Self-Care Support and Community Resources *(See Table 5)*

Element A - Support Self-Care Process (must pass): This element describes the extent to which practices are conducting activities to support patients/families in self-management through six factors and, with one exception, do not require the use of an EHR. The six factors assess the extent to which practices: provide educational resources or refer at least 50 percent of patients/families to educational resources to assist in self-management; use an EHR to identify patient-specific education resources and provide these resources to more than 10 percent of patients if appropriate; develop and document self-management plans and goals in collaboration with at least of 50 percent of patients/families; document self-management abilities for at least 50 percent of patients/families; provide self-management tools to record self-care results for at least 50 percent of patients/families; and counsel at least 50 percent of patient/families to adopt healthy behaviors.

Responding clinics offer programs or services to increase patient self-management skills for the following conditions: asthma (20 percent); chronic heart failure (11 percent); depression (13 percent); diabetes (43 percent); coronary artery disease (11 percent); and other conditions (6 percent). For those with an EHR, 57 percent use their EHRs to provide patient-specific education resources to more than 10 percent of patients (including drug therapies, disease management, diet, and other patient education topics). For those without an EHR, 77 percent provide printed information on drug therapies, disease management, diet, and other patient education topics.

Although our survey did not collect data on the remaining factors under this element, it is important to note that a substantial portion of all survey respondents provide preventive (86 percent) and chronic illness (79 percent) care, both important areas of focus that stress patient responsibility and self-management. In addition, 6 percent employ diabetic educators and 5 percent employ patient educators. These types of staff can be used to provide patient self-care education.

Element B - Provide Referrals to Community Resources: This element describes practice activities to support patients/families in accessing needed services through four factors and does not require the use of an EHR. The four factors include maintaining a resource list on five topics or key community service areas chosen by the providers to best meet the needs of their practice population, tracking referrals provided to patients/families, arranging or providing treatment to

self-care results for at least 50 percent of patients/families, and offering opportunities for health education and peer support.

Although our survey questions did not specifically address these four factors, related questions provide some insight into the extent to which RHCs are tracking referrals provided to patients/families and managing referrals to community resources. In terms of tracking referrals provided to patients/families, 26.2 percent of all respondents monitor specialist referrals as part of their quality improvement activities. In terms of managing referrals to community resources, 12 percent have formal written agreements with external community service organizations (CSOs) to support patients with chronic health conditions, and 43 percent have informal agreements with community service organizations for these patients.

Table 5. RHC Performance on PCMH 4: Providing Self-Care Support and Community Resources

Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
A: Support Self-Care Process (Must Pass)	Supports increased self-management skills for asthma (n=225)	19.6		
	Supports increased self-management skills for congestive heart failure (n=225)	11.1		
	Supports increased self-management skills for depression (n=225)	13.3		
	Supports increased self-management skills for diabetes (n=225)	43.1		
	Supports increased self-management skills for coronary artery disease (n=225)	10.7		
	Supports increased self-management skills for other conditions (n=225)	5.8		
	Provides more than 10% of patients with patient-specific educational resources using EHR technology (n=121)		57.0	
	Provides printed educational resources on drug therapies, disease management, diet, and other topics to patients and their families (n=79)			77.2
	Employs diabetic educators (n=225)	6.2		
	Employs patient educators (n=225)	4.9		
B: Provide Referrals to Community Resources	Monitors specialist referrals for clinical quality improvement purposes (n=225)	26.2		
	Has formal written agreements with CSOs (e.g., senior centers, support groups, health department) for patients with chronic conditions (n=225)	11.6		
	Has informal agreements with CSOs (e.g., senior centers, support groups, health department) for patients with chronic conditions (n=225)	42.7		

PCMH 5: Tracking and Coordinating Care *(See Table 6)*

Element A - Test Tracking and Follow-Up: This element addresses the ability of a practice to track and follow up on lab tests through 10 factors: tracking lab results until results are available; tracking imaging results until results are available; flagging and following up on overdue results; flagging abnormal lab and imaging results and bringing them to the attention of the provider; notifying patients/families of normal and abnormal lab and imaging test results; following up

with inpatient facilities on newborn screening and bloodspot results; electronically communicating with labs to order tests and results; electronically communicating with facilities to order tests and retrieve results; electronically incorporating at least 40 percent of all clinical lab test results into structured files in medical records; and electronically incorporating imaging test results in medical records. The process of tracking and following up on test results is facilitated greatly by the use of an EHR and the factors are heavily weighted towards the use of this technology.

Although our survey did not focus specifically on the factors addressed under this element, it did capture related information for those practices using an EHR and a computerized physician order entry system to order medications, laboratory studies, and other tests. Among RHCs with an EHR, 95 percent are using a computerized physician order entry system to order medications, laboratory studies, and other tests. Of this group, 90 percent are using their EHRs to record clinical lab test results for at least some portion of their patients.

Element B - Referral Tracking and Follow-Up (must pass): This element focuses on practice systems and activities to coordinate referrals through seven factors: giving consultants or specialists the clinical reason for the referral and pertinent clinical information; tracking the status of referrals; following up to obtain a specialist's report; establishing and documenting agreements with specialists in the medical record if co-management is needed; asking patients/families about self-referrals and requesting reports from clinicians; documenting the capability for electronic exchange of key clinical information; and providing an electronic summary of the care record to another provider for more than 50 percent of patients transitioned to another provider or setting of care. This area is also greatly facilitated by the use of an EHR and the factors concentrate on the use of an EHR to accomplish these activities.

As with Element A under this standard, our survey did not focus specifically on the factors addressed under this element. However, it did capture related information for those practices using an EHR for certain factors. Among RHCs with an EHR, 53 percent have performed at least one test of their systems' capability to exchange key clinical information electronically. In addition, 68 percent provide a summary-of-care record for more than 50 percent of patients transitioned to another provider or setting of care and another 8 percent are providing summary-of-care records for 50 percent or fewer of patients transitioned to another setting of care. Further,

26 percent of all responding RHCs report that monitoring specialist referrals is an ongoing component of their quality improvement activities.

Element C - Coordinate with Facilities/Care Transitions: This element describes the extent to which a practice, on its own or in conjunction with external organizations, coordinates with other facilities during care transitions through eight factors: demonstrating its process for identifying patients with a hospital admission or emergency department visit; demonstrating its process for sharing clinical information with admitting hospitals and emergency departments; demonstrating its process for consistently obtaining patient discharge summaries from the hospital and other facilities; demonstrating its process for contacting patients/families for appropriate follow-up care within an appropriate period following a hospital admission or emergency department visit; demonstrating its process for exchanging patient information with the hospital during a patient's hospitalization; collaborating with the patient/family to develop a written care plan for patients transitioning from pediatric care to adult care (NA for adult-only practices); demonstrating the ability for electronic exchange of key clinical information with facilities; and providing an electronic summary-of-care record to another care facility for more than 50 percent of transitions of care. As with Elements A and B under this standard, these coordination activities are greatly facilitated by the use of an EHR and the related factors focus on use of this technology.

Our survey did not focus specifically on the factors addressed under this element, although it did capture related information for those practices using an EHR for certain factors. Among RHCs with an EHR, 53 percent have performed at least one test of their systems' capability to exchange key clinical information electronically and 76 percent provide a summary-of-care record for patients transferred or referred to another setting of care. Further, 26 percent of all RHCs report that monitoring specialist referrals is an ongoing component of their quality improvement activities.

Table 6. Rural Health Clinic Performance on PCMH 5: Track and Coordinate Care

Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
A: Test Tracking and Follow-Up	Completes mediation orders and/or prescriptions using a computerized physician order entry function (n=104)		95.2	
	Incorporates clinical lab test results ordered by RHC providers into EHR as structured/reportable data (n=124)		90.3	
B: Referral Tracking and Follow-Up (Must Pass)	Has performed at least one test of its capability to exchange key clinic information electronically (n=120)		52.5	
	Provides summary of care record for patients transitioned to another setting of care (n=120)		75.8	
	Monitors specialist referrals for clinical quality improvement purposes (n=225)	26.2		
C: Coordinate With Facilities /Care Transitions	Has performed at least one test of its capability to exchange key clinic information among providers of care and patient authorized entities electronically (n=120)		52.5	
	Provides summary of care record for patients transitioned to another setting of care (n=120)		75.8	

PCMH 6: Measuring and Improving Performance *(See Table 7)*

Element A - Measure Performance: This element measures the extent to which the practice measures or receives data on four factors involving: at least three preventive care measures;[iv] at least three chronic or acute care clinical measures;[v] at least two utilization measures affecting health care costs;[vi] and performance data stratified for vulnerable populations (to assess disparities in care).[vii] It does not require the use of an EHR for compliance.

Data from all responding RHCs are reported for this element. RHCs report a wide range of measurement activities to support quality improvement ranging from 15 percent for clinics that evaluate the initial assessment and treatment of urgent/emergency care cases to 49 percent of clinics that monitor immunization rates/schedules. Among RHCs that have created disease registries (n = 70), 78 percent used the registries to track the quality of care provided to those

[iv] Preventive measures may be drawn from: 1) services recommended by the U.S. Preventive Services Task Force; 2) immunizations recommended by the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention (CDC); 3) preventive care and screenings for children and for women as recommended by the Health Resources and Services Administration; or 4) other standardized preventive measures, including those identified in Bright Futures for pediatric patients.[20]

[v] Chronic or acute care measures may be associated with three important conditions or others tracked by the practice (e.g., diabetes, heart disease, asthma, depression, chronic back pain), based on evidence-based guidelines. [20] Measures of overuse of potentially ineffective interventions, such as overuse of antibiotics for bronchitis, may also be used.

[vi] Measures monitored for this factor are intended to help practices understand how efficiently they provide care and may include ER visits, potentially avoidable hospitalizations and hospital readmissions, redundant imaging or lab tests, prescribing generic medications vs. brand name medications, and number of specialist referrals. [20]

[vii] Data for one or more measures from factors 1–3 are stratified by race and ethnicity or other indicators of vulnerable groups reflecting the practice's population demographics, such as age, gender, language needs, education, income, type of insurance, disability or health status. [20]

with one or more chronic conditions. Additionally, 26 percent collect data to evaluate accessibility for patients with special needs.

Element B - Measure Patient/Family Experience: This element measures the extent to which practices obtain feedback from patients/families on their experiences with the practice and their care using four factors: conducting a survey (using any instrument) to evaluate patient/family experiences on at least three categories (i.e., access; communication; coordination; and/or whole person care/self-management support); using the PCMH version of the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Clinician & Group survey tool; obtaining feedback on experiences of vulnerable patient groups; and obtaining feedback from patients/families through qualitative means. This element does not require the use of an EHR.

Among all survey respondents, 67 percent assess patient/family satisfaction, 61 percent have implemented a patient satisfaction survey within the last year, and 17 percent implemented a patient satisfaction survey during the past two years. Over three-quarters (77 percent) of the clinics that have conducted a patient satisfaction survey have initiated changes in response to the results of their surveys. Our survey did not ask respondents to report the type of survey instrument used to measure patient and/or family experiences with the clinic, or whether feedback was obtained from patients and families through qualitative means.

Element C - Implement Continuous Quality Improvement (must pass): This element measures the extent to which practices have implemented an ongoing quality improvement process through the following four factors: set goals and act to improve on at least three measures from Element A; set goals and act to improve quality on at least one measure from Element B; set goals and address at least one identified disparity in care/service for vulnerable populations; and involve patients/families in quality improvement teams or on the practice's advisory council.

Of the responding clinics, 34 percent monitor clinical quality improvement results and 20 percent monitor outcome data for select conditions. Among RHCs that had implemented a patient/family satisfaction survey (Element B) (n=152), 32 percent initiated specific changes after each survey and 45 percent initiated specific changes after at least some of the surveys (total 77 percent). Responding RHCs report using internal quality improvement data to create benchmarks and clinical priorities (43 percent) and set goals around clinical guidelines (45 percent). Our survey

did not collect data on the extent to which RHCs involve patients/families in quality improvement teams or on the practice's advisory council.

Element D - Demonstrate Continuous Quality Improvement: Under this element, a practice must demonstrate ongoing monitoring of the effectiveness of its improvement process through four factors that include tracking results over time; assessing the effect of their actions; achieving improved performance on one measure; and achieving improved performance on a second measure. Although our survey did not capture information on these factors or on the results of RHC continuous quality improvement monitoring and evaluation activities, we did collect information on the resources allocated to ongoing continuous quality improvement (as reported in Table 7), as well as a range of RHC quality monitoring and evaluation activities as reflected in Elements A-C in this standards area (PCMH 6: Measure and Improve Performance).

Many responding RHCs (71 percent) report they have specific staff assigned to quality improvement. Staff most commonly responsible for continuous quality improvement activities include: the clinic manager, administrator, or director (44 percent): quality improvement director (12 percent); nurse (12 percent); medical director (12 percent); nurse practitioner (6 percent); and physician (4 percent). Additionally, 44 percent of RHCs involve external stakeholders in the quality improvement process. These stakeholders most commonly involve: hospital staff (65 percent); Quality Improvement Organization staff (39 percent); network staff (12 percent); paid consultants (9 percent); and state licensing agency staff (6 percent).

Element E - Report Performance: This element describes the extent to which practices share the performance results from Elements A and B through three factors: performance of individual clinicians shared within the practice; results aggregated across the practice shared within the practice; and practice or clinician performance results shared outside the practice to patients or publically.

As described earlier, many survey respondents report that they provide written feedback reports on provider performance at least once per month (16 percent) or at least once per year (36 percent). Additionally, 55 percent share clinical data from internal quality improvement projects internally with staff.

Element F - Report Data Externally: Reporting data externally is simplified by the use of an EHR although it is not absolutely necessary to do so. This element measures the extent to which practices are reporting data externally through four factors focused on reporting: ambulatory clinical quality data to CMS or states; ambulatory clinical quality data to other external entities; data to immunization registries or systems; or syndromic surveillance data to public health agencies. It should be noted that RHCs are not eligible to submit clinical quality data to the CMS Physician Quality Reporting System as RHCs submit Medicare claims as institutional providers to Medicare Part A Contractors.[25,viii]

Among RHCs with an EHR, 51 percent report clinical and quality data to state quality agencies or other public quality reporting systems. In comparison, 34 percent of RHCs without an EHR report data to state quality agencies or other outside organizations. Additionally, 39 percent of RHCs performed at least one test of their capacity to submit electronic immunization data to an immunization registry and follow up submissions if the test was successful, and 9 percent performed at least one test of their capacity to submit electronic syndromic surveillance data to public health agencies and follow up submissions if the test was successful.

Element G - Use Certified EHR Technology: RHCs can satisfy this element through two factors based on the federal core and menu meaningful use requirements: using an EHR system that has been certified and issued a Certified HIT Products List number and attesting to conducting a security risk analysis of the system; and implementing security updates as necessary and correcting any identified security deficiencies. By its nature, this element requires the use of an EHR.

Among survey respondents, 52 percent have an EHR in use for more than 90 percent of their practice, seven percent have an EHR in use for some providers and staff, and 16 percent have begun implementation but their EHR is not in use yet. More than 50 different EHR systems are represented among survey participants. Among this group, 67 percent have conducted a security risk analysis, implemented security updates as necessary, and corrected any security deficiencies.

[viii] Although reimbursed from the Medicare Part B trust fund, RHCs submit claims as institutional providers through Part A Medicare Administrative Contractors (MACs).[26-29] Under Medicare, RHCs are paid on a cost basis all-inclusive rate per covered visit for a defined set of core physician and non-physician outpatient services.[24] Claims for the defined set of RHC services are submitted to Medicare Part A in the Uniform Bill-04 (UB-04) format using a defined set of Revenue Codes while claims for non-RHC services are submitted to Medicare Part B on the CMS 1500 form using current procedural terminology codes.

Table 7. RHC Performance on PCMH 6: Measure and Improve Performance

Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
A: Measure Performance	Monitors immunization rates/schedules (n=225)	49.3		
	Monitors timeliness of services (n=225)	44.4		
	Monitors recall rates for pap smears/mammograms (n=225)	19.6		
	Evaluates wait times (n=225)	47.6		
	Monitors provision of preventive care (n=225)	43.1		
	Evaluates scope of preventive services (n=225)	28.9		
	Evaluates barriers to receipt of care (n=225)	20.9		
	Monitors specialist referrals (n=225)	26.2		
	Evaluates clinic's outreach efforts (n=225)	17.8		
	Evaluates initial assessment and treatment of urgent/emergency cases (n=225)	14.7		
	Evaluates accessibility for patients with special needs (n=225)	25.8		
	Uses disease registry to track the quality of care provided to patients with one or more chronic conditions (n=70)	77.5		
B: Measure Patient/ Family Experience	Assesses patient/family satisfaction (n=225)	66.7		
	Has administered patient satisfaction survey within last year (n=198)	60.6		
	Has administered patient satisfaction survey within last two years (n=198)	16.7		
C: Implement CQI (Must Pass)	Monitors clinical quality improvement (QI) project results (n=225)	33.8		
	Monitors outcome data for select conditions (n=225)	19.6		
	Has initiated appropriate changes after patient satisfaction survey (n=152)	77.0		
	Uses internal QI data to create benchmarks and clinical priorities (n=207)	42.5		
	Uses internal QI data to set goals around clinical guidelines (n=207)	44.9		
D. Demonstrate CQI Improvement	Employs staff with specific responsibility for overseeing QI (n=203)	71.4		
	Clinic manager, administrator, or director	44.1		
	QI director	12.4		
	Nurse	12.4		
	Medical Director	11.7		
	Nurse practitioner	6.2		
	Physician	4.1		
	Involves non-Clinic (external) staff in QI (n=201)	44.3		
	Hospital staff	65.2		
	Quality Improvement Organization staff	39.3		
	Network staff	12.4		
	Paid consultants	9.0		
	State licensing agency staff	5.6		
	Uses internal QI data to create benchmarks and clinical priorities (n=207)	44.6		
	Uses internal QI data to set goals around clinical guidelines (n=207)	44.9		
	Provides written feedback reports at least once per year (n=195)	36.4		
E. Report Performance	Provides written feedback reports at least once per month (n=195)	16.4		
	Provides written feedback reports at least once per year (n=195)	36.4		
	Shares QI data with staff (n=207)	54.6		

Table 7. (continued)

Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
F: Report Data Externally	Reports clinical and quality data to state quality agencies or other public quality reporting systems (n=121)		51.2	
	Submits quality data to CMS, state quality agencies, or other outside organizations (n=79)			34.2
	Has performed at least one test of capacity to submit electronic immunization data to immunization registry (n=120)		39.2	
	Has performed at least one test of capacity to submit electronic syndromic surveillance data to public health agencies (n=120)		9.2	
G. Use Certified EHR Technology	Uses EHR in more than 90% of practice (n=217)		59.0	
	Uses EHR in some percentage of providers and staff (n-217)		7.4	
	Has acquired an EHR or is in process of implementing but not in use (n=217)		16.1	
	Has conducted a security risk analysis, implemented security updates as necessary, and corrected security deficiencies (n=120)		66.7	

CONCLUSIONS

Overall, our study suggests that RHCs, as a group, perform best on the NCQA PCMH Recognition standards related to the use of the EHRs for recording patient demographic and clinical data; ordering and tracking medications; and ordering and tracking laboratory tests and imaging studies. They do less well on elements related to improving access to care; ensuring continuity of services from the patient's identified provider; supporting patient self-management skills; developing the practice team; tracking and monitoring referrals; exchanging clinical information, measuring performance, and implementing continuous quality improvement systems and documenting results. Given the barriers to implementation, our data suggest that RHCs, as a group, are likely to struggle with PCMH recognition based on their performance on the six must pass elements and key factors described in Table 8. This may be particularly true if our final sample was slightly biased toward higher performing clinics (assuming that ease of contact with clinics may be correlated with clinic size or capacity in some way).

From the results of this study, it is clear that many RHCs need substantial support and technical assistance to build the capacity and systems to meet the standards for NCQA Recognition as a PCMH. This should not be too surprising given that many RHCs, in terms of their staffing and resources, tend to resemble small, private physician practices[25] which, historically, have had difficulty in achieving PCMH Recognition without access to financial support, practical training, revised payment methodology, on-site practice redesign expertise, and on-site care

Table 8. RHC Performance on PCMH 2011 Must Pass Elements and Key Factors

Standards Area	Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
Enhance Access and Continuity	Access During Office Hours	Provides same-day appointments (n=225)	62.7		
		Provides telephone consultations (n=225)	21.8		
		Provides email consultations (n=225)	5.3		
		Offers group visits (n=225)	11.6		
Enhance Access and Continuity	After-Hours Access	Provides scheduled evening and weekend visits (n-225)	28.9		
		Provides on-call evening and weekend visits (n=225)	19.6		
		Provides telephone consultation/advice to patients (n=225)	21.8		
Enhance Access and Continuity	CLAS	Serves non-English speaking patients (n=198)	71.7		
		Uses internal staff to meet linguistic needs (n=142)	33.8		
		Uses outside services to meet linguistic needs (n=142)	26.1		
		Uses a combination of internal and outside resources (n=142)	26.8		
Identify and Manage Patient Populations	Use Data for Population Management	Generates at least one patient list to manage patients with chronic conditions or other purposes (n=121; n=82)		63.6	30.5
		Uses disease registry for population health management (n=77; n=25)		41.6	44.0
		Uses disease registry for individual health management (n=77; n=25)		46.8	72.0
		Uses disease registry to generate patient reminders (n=51; n=19)		70.6	52.6
		Uses disease registry to track quality of care (n=51; n=19)		74.5	89.5
		Uses disease registry to identify groups of patients for follow-up (n=51; n=19)		54.9	68.4
		Uses disease registry to plan patient care (n=51; n=19)		62.7	84.2
Plan and Manage Care	Care Management	Employs care/case managers (n=225)	5.3		
		Patients receive a visit summary within three business days (n=121). (48.8% for more than 50% of patient visits; 14.1% for 50% or fewer of visits)		63.9	
		Uses disease registry to identify groups of patients for specific follow-up (n=70)	58.6		
		Uses disease registry to generate patient reminders (n=70)	65.7		
Provide Self-Care Support and Community Resources	Support Self-Care Process	Supports increased self-management skills for asthma (n=225)	19.6		
		Supports increased self-management skills for congestive heart failure (n=225)	11.1		
		Supports increased self-management skills for depression (n=225)	13.3		
		Supports increased self-management skills for diabetes (n=225)	43.1		
		Supports increased self-management skills for coronary artery disease (n=225)	10.7		
		Supports increased self-management skills for other conditions (n=225)	5.8		
		Provides patient-specific educational resources to 10 or more of patients using EHR (n=121)		57.0	
Track and Coordinate Care	Referral Tracking and Follow-Up	Has performed at least one test of its capability to exchange key clinic information (n=120)		52.5	
		Provides summary of care record for 50% or more of patients transitioned to other settings (n=120)		68.3	
		Monitors specialist referrals for CQI (n=225)	26.2		

Table 8. (continued)

Standards Area	Element	Survey Measure	% All RHCs	% With EHR	% W/O EHR
Track and Coordinate Care	Test Tracking/ Follow-Up	Uses a computerized physician order entry system to order medications laboratory studies, and other tests (n=104)		95.2	
		Uses EHR to record clinical lab test results (n=124)		90.3	
Measure and Improve Performance	Implement CQI	Monitors CQI project results (n=225)	33.8		
		Monitors outcome data for select conditions (n=225)	19.6		
		Has initiated changes as appropriate after patient satisfaction surveys (n=152)	77.0		
		Uses disease registry to track quality of care for patients with chronic conditions (n=70)	78.6		

management personnel.[30-32] It should be noted that making the necessary changes will not be easy for RHCs, as many involve changing practice culture particularly for areas related to shared decision making, expanded practice hours, the expanded role of patients and families, and public reporting of quality performance data.

Hence, it would be reasonable to target technical support to the must pass elements under each of the six PCMH standards areas as these elements represent essential areas of activity to enhance the performance of primary care delivery systems. It would also be reasonable to target support to areas that directly impact RHC operational and clinical performance such as the implementation and meaningful use of EHRs, implementing provider relevant continuous quality improvement systems, enhancing patient access, improving team performance, improving internal use of data for clinical and operational performance improvement, and encouraging public reporting of quality data. Not only would such targeted technical assistance support RHCs in obtaining PCMH recognition, it is also likely to enhance their clinical and operational performance.

REFERENCES

1. Davis K, Schoenbaum SC, Audet AM. A 2020 Vision of Patient-Centered Primary Care. *J Gen Intern Med.* Oct 2005;20(10):953-957.

2. Longworth DL. Accountable Care Organizations, the Patient-Centered Medical Home, and Health Care Reform: What Does It All Mean? *Cleve Clin J Med.* Sep 2011;78(9):571-582.

3. American Hospital Association, Committee on Research. *Patient-Centered Medical Home: AHA Research Synthesis Report.* Chicago, IL: AHA; September, 2010.

4. Davis K, Abrams M, Stremikis K. How the Affordable Care Act Will Strengthen the Nation's Primary Care Foundation. *J Gen Intern Med.* Oct 2011;26(10):1201-1203.

5. Berenson RA, Devers KJ, Burton RA. *Will the Patient-Centered Medical Home Transform the Delivery of Health Care?* Washington, DC: Urban Institute; August, 2011. Timely Analysis of Immediate Health Policy Issues.

6. Nutting PA, Crabtree BF, Miller WL, Stange KC, Stewart E, Jaén C. Transforming Physician Practices to Patient-Centered Medical Homes: Lessons from the National Demonstration Project. *Health Aff (Millwood).* March 2011;30(3):439-445.

7. Robert Graham Center. *The Patient Centered Medical Home: History, Seven Core Features, Evidence and Transformational Change.* Washington, DC: Robert Graham Center, Policy Studies in Family Medicine and Primary Care; November, 2007.

8. Sia C, Tonniges TF, Osterhus E, Taba S. History of the Medical Home Concept. *Pediatrics.* May 2004;113(5 Suppl):1473-1478.

9. Stange KC, Miller WL, Nutting PA, Crabtree BF, Stewart EE, Jaen CR. Context for Understanding the National Demonstration Project and the Patient-Centered Medical Home. *Ann Fam Med.* 2010;8 Suppl 1:S2-8; s92.

10. Institute of Medicine (U.S.). Division of Health Care Services. Committee on the Future of Primary Care., Donaldson MS. *Primary Care: America's Health in a New Era.* Washington, D.C.: National Academy Press; 1996.

11. Starfield B. Is Primary Care Essential? *Lancet.* Oct 22 1994;344(8930):1129-1133.

12. Starfield B. *Primary Care: Balancing Health Needs, Services and Technology.* 2nd ed. New York: Oxford University Press; 1998.

13. Future of Family Medicine Project Leadership Committee. The Future of Family Medicine: A Collaborative Project of the Family Medicine Community. *The Annals of Family Medicine.* March 1, 2004 2004;2(suppl 1):S3-S32.

14. American College of Physicians. *The Advanced Medical Home: A Patient-Centered, Physician-Guided Model of Health Care.* Philadelphia, PA: American College of Physicians;2006. Policy Monograph.

15. American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American College of Physicians (ACP), American Osteopathic Association (AOA). *Joint Principles of the Patient-Centered Medical Home*. 2007, March. Available at: http://www.acponline.org/acp_policy/policies/joint_principles_pcmh_2007.pdf. Accessed June 9, 2014.

16. Cassidy A. *Health Policy Brief: Patient-Centered Medical Homes*. 2010, September 14. Available at: http://healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_25.pdf. Accessed April 16, 2014.

17. Rosland AM, Nelson K, Sun H, et al. The Patient-Centered Medical Home in the Veterans Health Administration. *Am J Manag Care.* Jul 2013;19(7):e263-272.

18. Burton RA, Devers KJ, Berenson RA. *Patient-Centered Medical Home Recognition Tools: A Comparison of Ten Surveys' Content and Operational Details.* Washington, DC: Urban Institute; March, 2012.

19. National Committee for Quality Assurance (NCQA). *NCQA PCMH 2011 Standards, Elements and Factors: Documentation Guideline/Data Sources*. 2012, June 5. Available at: http://www.ncqa.org/portals/0/Programs/Recognition/PCMH_2011_Data_Sources_6.6.12.pdf. Accessed June 9, 2014.

20. National Committee for Quality Assurance (NCQA). *New NCQA Standards Take Patient-Centered Medical Homes to the Next Level*. [Web Page]. 2011, January 28. Available at: http://www.ncqa.org/tabid/1300/Default.aspx. Accessed September 23, 2014.

21. National Center for Medical Home Implementation. *Medical Home Recognition & Accreditation Programs* n.d. Available at: http://www.medicalhomeinfo.org/national/recognition_programs.aspx. Accessed June 9, 2014.

22. National Committee for Quality Assurance (NCQA). *New NCQA Patient-Centered Medical Home Standards Raise the Bar*. 2014, March 24. Available at: http://www.ncqa.org/Newsroom/NewsArchive/2014NewsArchive/NewsReleaseMarch242014.aspx. Accessed June 9, 2014.

23. National Committee for Quality Assurance (NCQA). *The Future of Patient-Centered Medical Homes.* Washington, DC: NCQA;2014. White Paper.

24. Centers for Medicare and Medicaid Services. *Rural Health Clinic.* Baltimore, MD: U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, Medicare Learning Network; January, 2013. Rural Health Fact Sheet Series.

25. Gale JA, Hartley D, Croll Z. *Meaningful Use of Electronic Health Record by Rural Health Clinics.* Portland, ME: University of Southern Maine, Muskie School of Public Service, Maine Rural Health Research Center; February, 2014. Working Paper #52.

26. Office of Rural Health Policy. *Starting a Rural Health Clinic--a How-to Manual.* Washington, DC: Health Resources and Services Administration, ORHP;2004.

27. James CA. *Rural Health Clinics: A General Overview*. Presented at the 2012 Rural Health Conference: Improving for the Future; May 2, 2012; Columbia, MO.

28. Medica. *Rural Health Clinics, Federally Qualified Health Centers Frequently Asked Questions (FAQ): (0051 - Provider Specialty Number).* Minnetonka, MN: Medica; February 21, 2014.

29. Healthcare Billing Specialists. *RHC Billing Seminar*. Presented at the RHC Billing and Cost Reporting Seminars April 2, 2012; London, KY and Indianapolis, IN.

30. Fifield J, Forrest DD, Martin-Peele M, et al. A Randomized, Controlled Trial of Implementing the Patient-Centered Medical Home Model in Solo and Small Practices. *J Gen Intern Med.* Jun 2013;28(6):770-777.

31. Rittenhouse DR, Casalino LP, Shortell SM, et al. Small and Medium-Size Physician Practices Use Few Patient-Centered Medical Home Processes. *Health Aff (Millwood).* Aug 2011;30(8):1575-1584.

32. Scholle SH, Asche SE, Morton S, Solberg LI, Tirodkar MA, Jaen CR. Support and Strategies for Change among Small Patient-Centered Medical Home Practices. *Ann Fam Med.* May-Jun 2013;11 Suppl 1:S6-13.

33. URAC. *Accreditation Programs: Patient Centered Medical Home*. [Web Page]. 2014. Available at: https://www.urac.org/accreditation-and-measurement/accreditation-programs/all-programs/patient-centered-medical-home/. Accessed June 9, 2014.

34. The Joint Commission. *Prepublication Standards - Revisions to the Ambulatory Care Primary Care Medical Home (PCMH) Requirements*. [Web Page]. 2013, December 30. Available at: http://www.jointcommission.org/prepublication_standards_revisions_ambulatory_primary_care_medical_home_requirements/. Accessed June 9, 2014.

35. Accreditation Association for Ambulatory Health Care (AAAHC). *Accreditation Programs: Medical Home*. [Web page]. 2014. Available at: http://www.aaahc.org/accreditation/primary-care-medical-home/. Accessed June 9, 2014.

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