ORIGINAL ARTICLE

Patient Centered Medical Home transformation at an academic medical center

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Received: August 27, 2015 **Accepted:** October 15, 2015 **Online Published:** October 23, 2015
DOI: 10.5430/jha.v5n1p34 **URL:** http://dx.doi.org/10.5430/jha.v5n1p34

ABSTRACT

Background: Primary care is playing an ever increasing role in the design and implementation of new models of healthcare focused on achieving policy ends as put forth by government at both the state and federal level. The Patient Centered Medical Home (PCMH) model is a leading design in this endeavor.
Objective: We sought to transform family medicine offices at an academic medical center into the PCMH model of care with improvements in patient outcomes as the end result.
Results: Transformation to the PCMH model of care resulted in improved rates of control of diabetes and hypertension and improved prevention measures such as smoking cessation, mammograms, Pneumovax administration, and Tdap vaccination. Readmission rates also improved using a care coordination model.
Conclusions: It is possible to transform family medicine offices at academic medical centers in methods consistent with newer models of care such as the PCMH model and to improve patient outcomes. Lessons learned along the way are useful to any practice or system seeking to undertake such transformation.

Key Words: Academic medical center, Patient Centered Medical Home, Transformation

1. INTRODUCTION

1.1 Primary care health outcomes

Primary Care Physicians (PCP) provide four critical functions in the delivery of health care: 1) first contact access for each new medical need; 2) long-term person-focused (not disease-focused) care; 3) comprehensive care for the majority of a person's health-related needs; and 4) coordination of care when it must be sought elsewhere.[1] As such, PCPs deliver patient-centered, integrated, accessible healthcare that addresses the large majority of patients' needs in the context of a sustained partnership with the patient.[2] Such comprehensive and coordinated care has been shown to produce improvement in health-related outcomes at reduced expense.[3] This understanding has helped shape health care policy, particularly the Affordable Care Act, to ensure increased primary care support and access.

The late Barbara Starfield and colleagues were among the first to demonstrate that primary care services reduce morbidity and mortality, whether primary care is characterized by PCP supply, by source of primary care, or by which components of primary care are utilized.[3] Further, they found that primary care (in comparison to specialty care) is more often associated with equitable distribution of health resources as well as improved outcomes at reduced cost.[3] For example an increase of one primary care physician per 10,000 population is associated with an average mortality reduction of

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5.3% (49 per 100,000 per year) as well as a reduction in cost, particularly in patients with Medicare coverage.[4,5]

Even with such clear benefits, leading primary care organizations sought to further improve the primary care model of healthcare delivery. They unanimously concluded that the Patient Centered Medical Home (PCMH) model of care was the approach through which continued transformation to a value-based health model could be accomplished.

1.2 PCMH

The PCMH was first described by the American Academy of Pediatrics in 1967.[6] In the mid 2000's, the PCMH model of care began receiving renewed attention from major national primary care membership organizations. In 2007, this renewed interest resulted in a unified statement supported by the American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and American Osteopathic Association.[7] PCMH principles are: 1) every patient should have a personal physician; 2) physicians direct and lead the medical practice; 3) care is coordinated and integrated; 4) quality and safety are hallmarks of the PCMH; 5) patient access to care is enhanced; and 6) the payment system is reformed to reflect the value of primary care services.[7]

There is robust evidence that implementation of the PCMH principles leads to improved outcomes at reduced cost.[8,9] The Florida Medicaid Provider Service Networks realized $153 per-member per-month (PMPM) reduction for Medicaid enrollees who were disabled.[10] The Veterans Health Administration Patient Aligned Care team found that patients with a PCP had a 45% lower emergency department ED utilization rate.[11] WESTMED Medical Group who participated in the Aetna PCMH Program earned over $300,000 in incentive payments in the first year with 35% reduction in hospitalization.[12]

Although a number of organizations recognize PCMH status, the National Committee for Quality Assurance (NCQA) is the recognition most often used.[13] This is particularly true in Ohio, where there are 455 practices recognized by the NCQA, 7 recognized by the Accreditation Association for Ambulatory Health Care, and 51 sites recognized by the Joint Commission on Accreditation of Hospitals.[14] There are 3 levels of NCQA recognition based on a scoring system from 0-100. Level 1 recognition reflects scores between 35-59 points, Level 2 recognition reflects scores between 60-84 points, and Level 3 recognition reflects scores between 85-100 points. Each practice must also achieve a score of 50% or higher on the 6 must pass elements.[15] Those elements include: 1) patient-centered appointment access; 2) development of a practice team; 3) use of data for population management; 4) care planning and the provisions of patient self-management support materials; 5) referral tracking and follow up; and 6) continuous quality improvement.[15]

The success of the PCMH model of care has maintained the influence of primary care on health policy, particularly at the state level. Currently, there are 19 states with PCMH multipayer initiatives and 31 States with some form of PCMH financial support.[16]

1.3 Academic medical center-based primary care

Academic medical centers (AMCs) serve as the cornerstone for healthcare professional training and are critical to the development of the primary care workforce through resident and medical student education. As such, it is incumbent on AMC-based departments of family medicine to lead in healthcare redesign and to train all current and future physicians in the precepts of newer models of care, such as PCMH, for which the focus is team-based care rather than care provided by individual physicians.

The Department of Family Medicine at the Ohio State University Wexner Medical Center consists of nine offices including two residency sites – one site serves as the home of the urban track residency program and one site serves as the home of the academic track of the residency program. The department employs 63 physicians, each of whom practice in one of the seven offices. Team support for clinical care includes nine registered nurse (RN) care coordinators, two clerical assistant care coordinators, two dietitians, two clinical pharmacists, and two social workers. In addition, there is one clinical psychologist based at each of the residency sites.

1.4 Electronic medical record (EMR)

In February of 2008, the department was the first at its institution to go live with an ambulatory EMR. The institution partnered with Epic to support: 1) secure communication with patients with the opportunity for e-visits; 2) secure requests for refill of medications; 3) secure timely communication among multiple physicians of varying specialty; and 4) physician access to all personal health information within a designated health system.[17] This EMR functionality served as the foundation for PCMH transformation.

Many providers have concerns when converting from paper-based medical records to an EMR. However, with a reasonable timeline and training to support change, the problems encountered during migration to the EMR can be mitigated. Prior to conversion, all providers and staff were required to attend class, were provided a pocket guide for most frequently used workflows, and were expected to spend time

abstracting paper charts into the EMR system to prepare for the go live date. Abstraction was of utmost importance so that necessary data was already loaded into the EMR in advance of the patient visit. Providers who adhered to these expectations were minimally affected by the conversion. Because the health system already electronically captured labs and imaging those records were accessible to the user in the EMR at go live.

Strong data and analytic support is essential. A dedicated information technology (IT) analyst was focused specifically on PCMH data reporting needs. For those working in an integrated health system, an IT analyst who is not fully dedicated to the PCMH venture can be pulled away to other high priority projects, which can inhibit the progress of the PCMH enterprise. The PCMH-dedicated analyst designed detailed patient-, provider-, and practice-level reports to measure improvement and analyze processes in order to identify problems in areas in which measure targets were not met.

2. PCMH TRANSFORMATION METHODS

2.1 Initiating PCMH transformation

In the fall of 2009, Access Health Columbus (now the Healthcare Collaborative of Greater Columbus) began convening work groups comprised of physicians, health systems, payers, and government agencies to discuss increasing the provision and support for primary care. In its support of primary care transformation, Access Health Columbus provided financial support of up to $10,000 each for local practices to transition to the PCMH model of care. Four offices in the department volunteered to start the process, and these offices were chosen to participate in the first cohort . With the funds provided, a consultant certified by the NCQA as a PCMH content expert was contracted to provide guidance in completing the NCQA application. In addition, the department was able to secure additional financial support from the health system to hire a part-time pharmacist, a part-time registered dietitian, a part-time social worker and a full-time IT analyst to support analysis and reporting.

Although the NCQA recognition requirements were available online at no cost, the documentation process to receive recognition was lengthy and specific. A small team from the department met with the consultant on a regular basis and developed the framework necessary to meet NCQA recognition. During these meetings, the team evaluated NCQA requirements and compared these requirements to existing procedures. Procedures were revised, re-evaluated, and then further revised. Initially, few physicians were interested in the transition process. Lack of physician engagement resulted in transformation that was slower and more cumbersome than it otherwise would have been. Procedures developed by the central team often required revision during implementation in individual offices in order to account for the unique characteristics of each office. After 18 months of transformation the application was submitted to NCQA under the 2008 guidelines and Level 3 recognition was achieved. Although significant human resources were devoted to the transformation process, it would not have been possible without a robust EMR.

2.2 Payers

When the department began the transition to PCMH there was financial support from some stakeholders; however, financial support had not yet been secured from insurance payers. After achieving PCMH recognition under the 2008 guidelines department leadership, in conjunction with the Faculty Group Practice leadership, initiated discussions with major payers regarding additional financial support for the PCMH care model. Those negotiations resulted in PMPM payments in addition to fee-for-service reimbursement. As a result of this additional revenue, the department undertook the development of a care coordination team to help deliver PCMH care.

2.3 Care coordination

Care coordination requires a focused and thoughtful approach to patient-centered care that leads to increased satisfaction, reduced hospitalization rates, and improved outcomes.[18, 19]

With the funding received for PCMH care, the department hired a core team of care coordinators. The care coordination team includes an RN manager who provides oversight to the care coordinator team, which consists of RNs, and business staff. The function of the care coordinators is three fold: 1) chronic care coordination (coordination of care for chronic conditions, such as diabetes); 2) coordination of preventive care (such as mammograms, colonoscopies, and immunizations); and 3) transitions of care from one health care location to another (such as transition from the hospital back to the outpatient setting).

Over the last three years, the care coordination team has grown from four individuals at a central location to a team of RN care coordinators embedded at individual offices with support from the core team located centrally. This model has been sustainable with additional PMPM support from local payers as PCMH transformation and recognition continues.

2.4 Ongoing transformation

Although NCQA status is recognized for three years, preparation for recognition under the 2011 guidelines began shortly after the initial recognition was received with the support of

the previous consultant. The team driving the transformation for the new guidelines, however, was different.

A PCMH steering committee, comprised of at least one physician and the manager from each office as well as the core team of care coordinators, the IT Analyst, and the administrative lead for the primary care practices, met monthly for two hours and focused on the requirements to achieve recognition under the 2011 guidelines. Unlike the preparation for the initial NCQA submission, the combined group of practices worked together to refine and standardize processes, share best practices, and maximize operational efficiency.

Each meeting began with a status review of each NCQA Standard in dashboard form using the standard traffic light pattern of red, yellow, or green status coloring for each component. All aspects were tracked over time at the office level so that offices could efficiently focus time and interventions on areas that were deficient. Although the 2011 guidelines were more stringent and required higher scores to achieve than the 2008 guidelines, the high functioning team driving the transformation led to successful recognition at Level 3.

Over the course of PCMH transformation an infrastructure has been built which includes clinical pharmacists, registered dietitians, social workers, and nurse practitioners. At the center of this transformative process is a team of care coordinators, who perform transitional care management for hospital and ED discharges and who utilize population health tools to better manage patients with chronic disease. This team is funded in part by PMPM payments now negotiated with private payers for providing PCMH care.

3. RESULTS

A primary element of PCMH transformation is improved patient care and outcomes. The department elected to focus efforts on diabetes and hypertension control and prevention measurements for smoking cessation, mammograms, Pneumovax administration, and Tdap vaccination. Diabetes, hypertension, and tobacco use were chosen given their overall prevalence and contribution to chronic disease morbidity and mortality (see Figure 1). The department focused on Tdap vaccination, Pneumovax administration, and mammogram rates for preventive measures in order to encompass a broad range of patient population needs.

The results described below and summarized in Figure 1 include all patients from all offices of the department. Diabetes measures were significantly positively impacted. Hemoglobin A_1C controlled to < 8% improved from 68.99% to 74.31% (n = 4,194) and blood pressure control (< 140/90 mmHg) rose from 68.24% to 73.33% (n = 4,101). Overall hypertension control rate improved from 66.18% to 68.05% (n = 10,566). Tobacco use screening never assessed decreased almost 12.4% from a starting rate of 0 (0.59%) (n = 345).

Regarding prevention measures, patients (age > 65) due for a Pneumovax vaccine dropped from 43.3% to 11.95% (n = 797), overdue Tdap vaccination rates (age 19-64) dropped from 43.05% to 27.67% (n = 12,179), and patients with an outstanding mammogram need (age 40-74) dropped 60.71% to 42.08% (n = 6,702).

The department also focused on care transitions employing a team of care coordinators who contacted all patients discharged from the hospital within 48 hours. The RN Care Coordinator reviews the hospitalization record with the patient, reconciles the medication list, ensures that all necessary follow up appointments and home health needs are arranged, and then communicates the compiled information electronically to the primary care provider. Questions that need to be addressed prior to the outpatient follow up are addressed immediately, and all patients are seen within seven to fourteen days of discharge depending on severity from the hospital. As a result of care coordination efforts, which at the time was focused on hospital and ED discharges, department 30-day readmission rate dropped from 18.2% to 12.9% over the last 12 months.

4. DISCUSSION

4.1 Lessons learned

(1) Practice transition is a marathon. It effectively took 18 months to prepare the first NCQA submission under the 2008 guidelines and 12 months to prepare for resubmission under the 2011 procedures. Although at times the experience led to frustration, much was learned. However, to paraphrase a quote by Thomas Edison, “we did not fail; we simply found many ways how not to” provide PCMH model care.

(2) Health system buy-in is essential. The needs of family medicine within an academic medical center are often low on the list of priorities. The department was fortunate to have a health system CEO who valued primary care enough to provide seed funding for hiring key personnel and to support the provision of pharmacist and dietitian services. Without continued support of the health system, it will be very difficult for any primary group affiliated with the system to maintain an ongoing PCMH enterprise.

(3) Strong IT support is essential. The IT analyst was dedicated specifically to the needs of the PCMH enterprise and prepared and analyzed detailed reports. For those working in an integrated health system, an IT analyst who is not fully dedicated to the PCMH venture will

not provide the necessary support.

(4) The most important lesson learned was that it takes full team involvement for a successful transformation, and inclusion of all the staff is critical. During the initial submission clerical and clinical staff were not consulted in the preparation process. This approach resulted in delays and false starts and effectively alienated the most important people – the staff who schedule, meet with, room, call, and interact with patients before, during, and after the physician visit with patients. For recognition in 2011, staff at all levels were engaged in the planning and implementation phase. This led to a smoother transition, helped build the team mentality, and gave staff a sense of control.

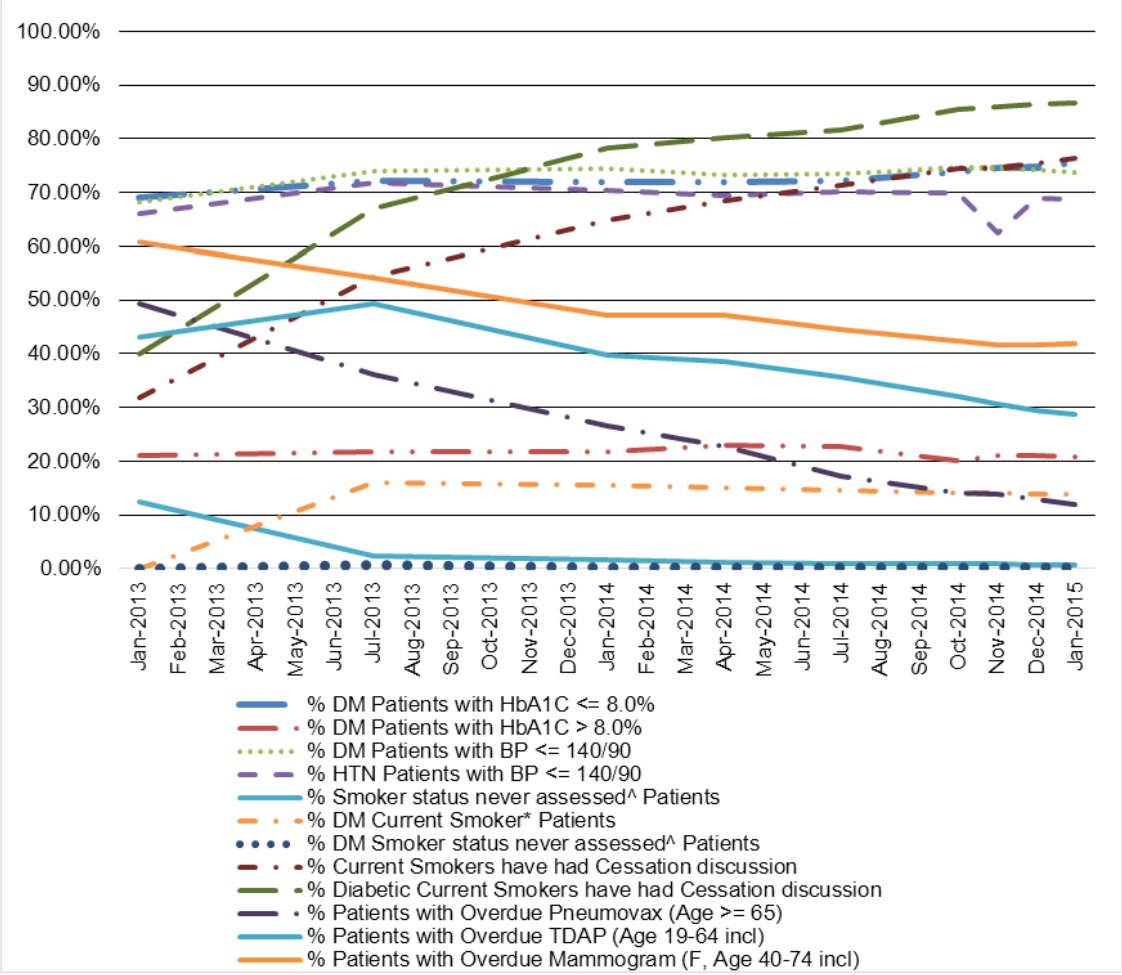

Figure 1. Changes in biometrics and screening following PCMH initiation

4.2 Future directions

(1) Soon after the 2011 guideline recognition was achieved the NCQA 2014 guidelines were released. A major focus of the updated guidelines is the integration of behavioral health into the PCMH model. There are a variety of ways to accomplish this goal, including coordinated, co-located, and integrated[20] approaches. The department already has the infrastructure to begin this process of behavioral health integration with embedded clinical psychologists, and a physician board certified in both family medicine and psychiatry. To expand behavioral health services, which are critical for patient care, we are actively recruiting additional psychologists to embed within the offices. Physicians are accustomed to collaboration with medical specialists, but making the transitions to collaborating with mental health professionals as well as others is essential.[21] The department recently invested in Epic's population health modules to track disease and wellness measures and to display patient specific data in real time. These modules allow for greater efficiency in providing necessary care and allow the IT analyst to expand support to the PCMH enterprise. This also allows clinical staff to support providers in addressing an ever-expanding

ISSN 1927-6990 E-ISSN 1927-7008

need for chronic disease as well as wellness management.

(2) We are currently developing a patient advisory council. This group will help to guide our evolution as well as help to design interventions that better incorporate family into a patient's care plan.

(3) We are actively enaged with specialists to increase system wide use of the health maintenance list and are having specialists, as appropriate, update that information.

(4) Patient-centered care is not limited to the primary care domain. While primary care led the way in demonstrating this model, the institution has one of the first specialty divisions to obtain NCQA Patient-Centered Specialty Practice Recognition. The department is actively engaged with the divisions of cardiology and endocrinology to increase integration of patient care and is participating in a multi-disciplinary program to engage in "hot-spotting"[22] to counsel high cost, high utilization patients.

Transforming health care delivery is a continuously evolving process. There are successes and failures along the way and amidst transition it can be challenging to appreciate the progress made, but continued forward movement will yield positive results. Expanded transformation leads to enhanced patient-centered care provided with better outcomes to more highly satisfied patients. Despite the effort required and challenges experienced during transformation, the payoff can be significant for the healthcare team and patients.

5. Conclusions

PCMH transformation at an academic medical center can lead to improved patient outcomes across a wide variety of parameters. Health system support is essential, and physician champions who support this team-based model are critical.

Conflicts of Interest Disclosure

The authors report no conflicts of interest.

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