From Journal of the American Pharmacists Association

Integration of Pharmacists into a Patient-centered Medical Home

Mollie Ashe Scott, PharmD, BCPS, CPP; Bill Hitch, PharmD, BCPS, CPP; Lisa Ray, MD; Gaye Colvin, MLIS

Posted: 03/09/2011; J Am Pharm Assoc. 2011;51(2):161-166.

At a Glance

Synopsis: Mountain Area Health Education Family Health Center in North Carolina is recognized as a level III patient-centered medical home (PCMH) by the National Committee for Quality Assurance and provides care according to the seven joint principles of PCMH. Clinical pharmacist practitioners provide medication therapy management services in a pharmacotherapy clinic, anticoagulation clinics, and a osteoporosis clinic and via an inpatient family medicine service, and student pharmacists and pharmacy residents rotate through the various pharmacy clinics to learn about pharmacotherapeutic principles and pharmacists' roles in PCMH.

Analysis: *PCMH is a comprehensive approach to population management in the primary care setting, and pharmacists make fundamental contributions to patient care across settings in PCMH. The authors have learned that communication with all team members, including schedulers, laboratory staff, nurses, coders, billing staff, and physicians, is important to ensuring that everyone understands the purpose and scope of pharmacy services. Payment reform is needed before for the PCMH model can be truly successful nationwide. The joint principles of PCMH provide novel opportunities for practice reform that could allow reimbursement to be based on fee for service as well as the quality of care provided for patient populations.*

Abstract

Objectives: To define the joint principles of the patient-centered medical home (PCMH) and describe the integration of pharmacists into a PCMH. **Setting:** Family medicine residency training program in North Carolina from 2001 to 2011. **Practice description:** Mountain Area Health Education Family Health Center is a family medicine residency training program that is part of the North Carolina Area Health Education Center system. The goal of the organization is to train and retain health care students and residents. The practice is recognized as a level III PCMH by the National Committee for Quality Assurance (NCQA) and seeks to provide quality, safe, patient-centered care according to the joint principles of PCMH. Pharmacists, nurses, nutritionists, care managers, Spanish translators, and behavioral medicine specialists work collaboratively with physicians to provide seamless, comprehensive care. **Practice innovation:** The Department of Pharmacotherapy is embedded in the family medicine clinic. Three pharmacists and two pharmacy residents are involved in providing direct patient care services, ensuring access to community resources, assisting patients with transitions of care, providing interprofessional education, and participating in continuous quality improvement initiatives. The pharmacists serve as clinical pharmacist practitioners and provide medication therapy management services in a pharmacotherapy clinic, anticoagulation clinics, and an osteoporosis clinic and via an inpatient family medicine service. Multiple learners such as student pharmacists, pharmacy residents, and family medicine residents rotate through the various pharmacy clinics to learn about pharmacotherapeutic principles and the role of the pharmacist in PCMH. **Conclusion:** PCMH is a comprehensive, patient-centered, team-based approach to population management in the primary care setting. Pharmacists play a vital role in PCMH and make fundamental contributions to patient care across health care settings. Such innovations in the ambulatory care setting create a unique niche for pharmacists to use their skills.

Introduction

The concept of the patient-centered medical home (PCMH) was first introduced in 1967 by the American Academy of Pediatrics (AAP) as a method for archiving medical records for children with special needs.[1] Since that time, the American Academy of Family Physicians (AAFP) and the American College of Physicians (ACP) developed their own models of medical homes that focus on improving patient care.[1] In 2007, AAFP, AAP, ACP, and the American Osteopathic Association agreed on seven joint principles of PCMH (Table 1).[1]

The first principle is that each patient has a *personal physician* who provides continuous, comprehensive care. The medical home is a *physician-directed medical practice* in which the physician leads a team within the practice that has collective responsibility for the ongoing care of the patient. The personal physician is responsible for maintaining a *whole-person orientation* by providing all of the patient's health care needs or coordinating care with other qualified professionals. *Care is coordinated and integrated across all elements of the complex health care community*. This may be achieved through use of registries, information technology, and health information exchanges. The medical home is characterized by *quality and safety*. Decision-making is evidence based, and clinical decision support tools are used, often through use of electronic medical records (EMRs). Physicians in a medical home accept accountability and voluntarily engage in performance measurement and improvement. *Enhanced access to care* is a hallmark of PCMH. These systems may use open scheduling, expanded office hours, and new communication paths between patients and their personal physician and practice staff. Ultimately, *payment should appropriately recognize the added value provided to patients who have PCMH*. Ideally, additional reimbursement would be received for providing quality care, and the practice would receive rebates for decreasing hospitalization rates or be compensated for care management.

PCMH has several distinct features compared with traditional models of patient care. Whereas traditional models focus on the care of the patient during office visits, medical home practices proactively manage the health care needs of all registered patients and take responsibility for care of patients after they leave the office. This requires a unique organizational structure that engages care managers, systematically follows up on patients after hospitalizations, ensures that consultants receive critical patient information, tracks outside tests and referrals, and informs the personal physician if these steps fail to happen. Coordination of care of the whole person requires integration of key professionals with complementary skill sets such as pharmacists and behavioral medicine providers into the practice. Multiple demonstration projects are under way to examine the clinical and economic outcomes of PCMH, and the full benefit of PCMH on health care outcomes has not been realized.[2]

Objectives

We describe the key components of a family medicine teaching program that is recognized by the National Committee for Quality Assurance (NCQA) as a PCMH and describe the integration of pharmacists into PCMH.

Description of PCMH Practice

Mountain Area Health Education Center (MAHEC) has a tradition of commitment to patient-centered care as described in the joint principles for PCMH. MAHEC is part of the North Carolina Area Health Education Center system, the mission of which is to educate health care learners and professionals. As part of the educational mission, MAHEC seeks to train primary care physicians and other health professionals, including pharmacists, and retain providers in the western North Carolina region. MAHEC offers postgraduate training programs for family physicians, obstetrics and gynecology physicians, dentists, geriatricians, and pharmacists. In addition, MAHEC provides experiential education for multiple types of students, including medical students, physician assistant students, nursing students, student pharmacists, and social work interns. Patient care service provision is led by primary care physicians, and team members (e.g., pharmacists, nurses, behavioral medicine providers, physician assistants, nutritionists, Spanish interpreters, Community Care of North Carolina case managers) are integrated into the clinic to extend the care provided by physicians and increase access to services. MAHEC serves patients of all ages from the greater Asheville area and has a wide

payer mix, including Medicare, Medicaid, private insurance, Project Access, and self-pay. A pharmacy is not available on site; therefore, most patients obtain prescriptions at the community pharmacy of their choice.

MAHEC Family Health Center (FHC) was recognized by NCQA as a level III PCMH in 2010. NCQA is a nonprofit organization committed to improving quality and safety in health care.[3] NCQA evaluates physician practices using nine standards: access and communication, patient tracking and registry functions, care management, patient self-management, electronic prescribing, test tracking, referral tracking, performance reporting and improvement, and advanced electronic communications.[3] Currently, NCQA is the only national organization that designates physician practices as PCMHs. The level of PCMH recognition depends on the number of points that are awarded for meeting the nine standards. For instance, a practice that receives 25–49 (of 100 possible) points is awarded level I PCMH recognition, 50–74 points level II recognition, and 75–100 points level III recognition.[3]

MAHEC emphasizes quality and safety through documentation and reporting of quality indicators through use of EMRs. As part of the physicians' voluntary engagement in performance measurement and improvement activities, they participate in interprofessional continuous quality improvement (CQI) teams that meet regularly to discuss strategies for improving the quality of care for populations of patients. Specific teams focus on the care for patients with asthma, chronic heart failure, osteoporosis, diabetes, hypertension, and obesity. MAHEC regularly reports quality data to a variety of outside entities, including the state-based, nationally led quality improvement initiative Improving Performance in Practice. In addition, data are reported to the I-3 PCMH Collaborative, which involves collaboration among 25 primary care teaching practices in North Carolina, Virginia, and South Carolina, and to the Carolinas Center for Medical Excellence. Examples of quality indicators that are documented include use of angiotensinconverting enzyme inhibitors and beta blockers for patients with congestive heart failure, use of inhaled corticosteroids for persistent asthma, screening rates for women at risk for osteoporosis, and immunization rates.

Role of Pharmacists in PCMH

The potential roles of pharmacists in PCMH were described recently in *Health Affairs*.[4] Pharmacists are skilled in medication therapy management (MTM), which includes providing patient care services such as comprehensive medication reviews; identifying and solving complex drug-related problems; ensuring use of evidence-based, cost-effective therapies; and educating patients about appropriate medication use.[4] Moreover, many pharmacists in ambulatory care settings provide collaborative drug therapy management and work alongside physician team members to initiate, titrate, and discontinue therapy and monitor drug therapy outcomes,[5,6] The North Carolina Board of Pharmacy credentials pharmacists as clinical pharmacist practitioners (CPPs), enabling pharmacists to initiate and adjust drug therapy in collaboration with a physician.[7]

MAHEC's Department of Pharmacotherapy has been an integral part of the PCMH model for almost a decade. Three pharmacists and two pharmacy residents are involved in providing direct patient care services, ensuring access to community resources, assisting patients with transitions of care, providing interprofessional education, and participating in CQI initiatives. Specific examples of how pharmacist activities fulfill the joint principles of PCMH are described in Table 1.

Patient Care Services

Pharmacists in the practice manage drug therapy in several clinics embedded in MAHEC FHC, including pharmacotherapy, osteoporosis, and anticoagulation clinics. All clinics serve as teaching clinics for multiple types of learners, including student pharmacists, postgraduate year 1 pharmacy residents, family medicine residents, and geriatric fellows. The pharmacists are recognized as CPPs by the North Carolina Board of Pharmacy and practice collaboratively with the physicians in the practice. By serving as part of the physician-led team and as integral members of the groups who collectively assume responsibility for ongoing patient care needs within the clinic, pharmacists contribute to the joint principles of PCMH.

Pharmacotherapy Clinic

The pharmacotherapy clinic serves as the primary MTM clinic. Patients are seen by referral, and any team member can refer patients for a wide variety of drug therapy issues. The most common

referrals are for complete medication reviews for patients with complex medication regimens, diabetes management, and medication assistance. Pharmacists may serve as consultants, immunizing pharmacists, or CPPs in the clinic depending on the individual needs of patients. In many instances, pharmacists serve an important role in ensuring access to community resources (e.g., food pantries, local charities) because patients who are unable to afford medications are also often without basic necessities such as adequate food and heating. In addition, pharmacists collaborate closely with case managers and behavioral medicine faculty to ensure that whole-person care is provided and that needs outside the realm of MTM are met. Patients are seen longitudinally until drug therapy issues are resolved, and complex patients may return one to two times a year for a medication checkup visit to prevent additional drug-related problems from arising. EMRs are used to document encounters, communicate with team members about patient goals and progress, and document quality indicators for chronic illnesses.

Anticoagulation Clinics

Anticoagulation management services are provided by the pharmacists at three separate anticoagulation clinics, including MAHEC FHC and two community-based continuing care facilities affiliated with the geriatric fellowship program. The pharmacists provide comprehensive face-to-face anticoagulation services for all ambulatory patients in the practice and lead a CQI task force that focuses on ensuring quality anticoagulation care for the entire practice, including home health patients and long-term care patients who are managed through a triage nurse phone system. The responsibilities of the pharmacists include patient education, procurement and interpretation of international normalized ratio results, creation of patient-specific anticoagulation plans, initiation and adjustment of therapy, and coordination of care for patients undergoing surgical and dental procedures. Physicians are readily available to see patients who present with bleeding complications or have other acute care needs that are beyond the scope of pharmacist practice. In addition to providing patient care, the clinic teaches a variety of learners about pharmacotherapeutic principles of anticoagulation management. Student pharmacists, pharmacy residents, and medical residents rotate regularly through the anticoagulation clinics to gain experience with managing individual patients and developing systems of care for an anticoagulation population.

Osteoporosis Clinic

A quality improvement project conducted in 2003 indicated that patients in the practice who receive dual-energy X-ray absorptiometry (DEXA) scans to screen for osteoporosis were undertreated for osteoporosis. Moreover, screening rates were low despite the availability of a DEXA scanner in the practice. An interdisciplinary osteoporosis CQI team was formed with the goals of increasing screening rates for women older than 65 years and increasing use of therapies recommended by the National Osteoporosis Foundation.

The Osteoporosis CQI team implemented a new screening process that includes prospective chart review of women older than 65 years by the radiology technician to determine whether a DEXA scan has been documented in the previous 2 years. If a DEXA scan is not documented, the patient's record is flagged so that the nurse can inquire about whether a DEXA scan had been completed at another facility. If DEXA was completed elsewhere, the radiology technician will obtain results and update quality indicators in the EMR. If DEXA has not been completed, the physician orders one. During the course of 2 years, screening rates for women older than 65 years increased from 20% at baseline to 75%.

To increase use of appropriate medications for osteoporosis treatment, an interdisciplinary osteoporosis consult clinic was formed. The clinic is staffed by a nurse, pharmacist, and physician, and all patients with an abnormal DEXA scan are referred to osteoporosis clinic. The nurse is responsible for updating the medication list, completing a "Get-Up-and-Go" test and orthostatic blood pressure measurements to screen for fall risk, and assisting the patient with paperwork that documents risk factors for osteoporosis and falls. The physician is responsible for interpretation of the DEXA scan, evaluating secondary causes of osteoporosis, completing the FRAX score to determine whether patients with low bone mass should be treated, and determining initial treatment. The pharmacist ensures that patients are able to afford their medications; provides education about osteoporosis, smoking cessation, and reducing falls; completes a dietary and over-the-counter history to determine

calcium and vitamin D intake; initiates a calcium and vitamin D regimen; and provides recommendations about adjusting medications that increase risk for falls. Systems for administration of intravenous bisphosphonates were developed by the nursing team, and patient education packets were organized by student pharmacists. After the first year of the osteoporosis clinic, appropriate use of calcium and vitamin D use increased from 30% at baseline to 99%.

Community Collaboration

MAHEC FHC's Department of Pharmacotherapy has developed strong relationships with other pharmacists throughout the community. Because the city of Asheville has many pharmacists practicing in the community and ambulatory setting, it has become increasingly important for local pharmacists to partner across organizations and health systems in order to avoid duplication of services. Instead of offering competing services, the community has worked together to achieve synergy in the services that are provided by focusing on transitions of care and solid communication about shared patients. Several of these initiatives include collaboration with a community pharmacy, a medication assistance program, and an aging council. Community collaboration is an important aspect of the joint principles and seeks to improve coordination of care across different health care systems.

Collaborative Vaccination Program

Although the shingles vaccine has been available for several years, reimbursement and storage issues often limit its use in physician offices. MAHEC FHC developed a collaborative relationship with a local community pharmacy that offers immunization services. When the shingles vaccine is ordered, the patient is referred to the community pharmacy. The community pharmacist determines eligibility for the vaccine with the patient's insurance company, administers the vaccine, and sends a fax to the practice documenting immunization. MAHEC nursing staff then add shingles administration to the immunization quality indicators in the EMR. This patient-centered approach to immunizations helped the practice work around reimbursement issues while collaborating with community pharmacy colleagues to improve immunization rates.

Collaboration with Medication Assistance Program, Free Clinic, and Aging Council

Many referrals to the pharmacotherapy clinic are related to patients having difficulties affording medications. During the pharmacotherapy clinic visit, the pharmacist performs a complete medication review to provide recommendations regarding drug therapy problems to the referring team member, changes brandname medications to generics when possible, and evaluates insurance plans. Patients who are completely uninsured are referred to a pharmacist at a free clinic to assist with urgent medication needs and enrollment in appropriate medication assistance programs. Medicare recipients who do not have a Medicare Part D plan or who have never applied for low-income subsidy are referred to an aging council for assistance with choosing a Part D plan and applying for extra help. Finally, patients in the Part D coverage gap are referred to a local medication assistance program for comprehensive MTM services and enrollment in medication assistance programs. MAHEC's Department of Pharmacotherapy participated in the HRSA Patient Safety and Clinical Pharmacy Services Collaborative 2.0, and this project focused on improving transitions of care for Medicare recipients in the community who are navigating these agencies. MAHEC pharmacists have focused on developing pharmacotherapy services to enhance care provided at other agencies rather than duplicating services, and they serve a triage role for patients who are unable to afford medications. As a result, physician team members do not have to remember the differences among the many agencies in town that provide assistance and potentially refer patients to the wrong place, resulting in delayed access to needed medications.

Transitions of Care for Hospitalized Patients

Older adults who receive inappropriate medications are at risk for hospitalization.[8] Moreover, medication errors can occur during transitions of care.[9] MAHEC patients who require hospitalization are admitted to an inpatient family medicine service at a community hospital. The service manages a wide variety of patients and branches of medicine, including adults, pediatrics, geriatrics, and obstetrics. The pharmacist is an integral part of the physician-led team, which consists of a family

medicine physician, two medical residents, and a pharmacist. Because all providers on the inpatient service are employed by MAHEC, continuity between the outpatient and inpatient setting is well maintained. The admitting medical resident reviews the medication list with the patient and/or caregiver and compares this to the list in the EMR, which can be accessed in the hospital. The pharmacist evaluates the medication regimen for appropriateness, assesses outcomes of drug therapy, and makes recommendations for medication optimization on daily rounds. The pharmacist focuses on evidence-based principles to enhance safety and quality of the care provided. Upon discharge, the pharmacist reviews discharge medications with the medical team to ensure medication safety during care transition. A discharge summary from the hospital is scanned into the EMR, and the triage nurse ensures that all medication changes that occurred in the hospital are appropriately updated in the EMR. All hospitalized patients are seen by their primary care provider in clinic within a week of discharge, and the final reconciliation of the outpatient medication list is performed at this visit. The inpatient pharmacist refers patients to the pharmacist-managed clinics for additional drug therapy management or consultation, depending on individual patient needs.

Reimbursement

Clinic pharmacists use the "incident to" billing model for a private physician office in the pharmacotherapy and anticoagulation clinics. Typically the 99211 level 1 visit is used, and *International Statistical Classification of Diseases and Related Health Problems,9th Revision* codes for the disease being managed are coded. The visit is billed under the name of the consulting physician. If the consultant physician sees the patient with the pharmacist, he/she documents the encounter in the EMR and a higher billing level (i.e., 99212, 99213, 99214) is used. Because a physician staffs the osteoporosis clinic with a pharmacist, higher codes are always used. Pharmacists bill approximately $70,000 annually for MTM services. The joint principles emphasize the use of systematic, patient-centered, coordinated care management processes that include appropriate reimbursement for services provided and care coordination outside of patient visits. Currently, some but not all payers are reimbursing for care coordination and quality care.

Pharmacy Services in PCMH: Fulfilling Joint Principles

Pharmacy services at MAHEC FHC embody the joint principles of PCMH. Every patient has a primary care provider (joint principle 1) who leads a team of health professionals who work together to meet health care needs (joint principle 2). Pharmacists are considered "other qualified professionals" in joint principle 3; moreover, MTM services are integrated into all stages of life, including acute care, chronic care, preventive services, and end-of-life care. Medication regimens for all patients admitted to the family medicine service are reviewed by a pharmacist, improving continuity of care across complex health systems (joint principle 4). In addition, the clinic pharmacists work closely with other clinics, agencies, and professionals throughout the community to coordinate medication-related issues (joint principle 4). Health information is exchanged between pharmacists and physicians through the use of EMRs (joint principle 4). Pharmacists enhance quality and safety for the practice through application of evidenced-based principles, participation in CQI teams, use of patient satisfaction surveys, and collaboration with information technology experts to design pharmacotherapy-specific templates in EMRs (joint principle 5). The availability of pharmacy clinics enhance the access to care that is available in the practice (joint principle 6), and reimbursement for pharmacy services through the "incident-to" model provides some recognition of the value of PCMH (joint principle 7).

Barriers to Providing Pharmacy Services in PCMH

Despite the successful integration of pharmacists into the MAHEC PCMH model, barriers have surfaced along the way. To ensure success of MTM services in PCMH, communication with all team members, including schedulers, laboratory staff, nurses, coders, billing staff, and physicians, is important to ensuring that everyone understands the purpose and scope of pharmacy services. Identifying a physician champion who supports the concept of PCMH and models integration of pharmacy services into the provision of patient care services is critical. Completing a needs assessment that focuses on quality indicators can help pharmacist interventions focus on patient

populations with the most needs. For instance, if the practice has demonstrated success with managing diabetes and the vast majority of patients with diabetes have a glycosylated hemoglobin (A1C) value at goal, then that population of patients is less likely to benefit from pharmacy services compared with a practice whose mean A1C is greater than 8%. Considering the no-show rate for populations of patients is important when designing interventions. For example, the lack of availability of transportation for low-income patients with asthma affected efforts to improve care for asthma patients at FHC. Reimbursement for services is the greatest barrier to success, and the continued lack of recognition of pharmacists as providers can make administrators uneasy about billing for cognitive services. A complete guide to developing pharmacy services in physician practices has been published previously.[6]

Future of PCMH

PCMH is a comprehensive approach to population management in the primary care setting. Pharmacists play a vital role in PCMH and make fundamental contributions to patient care across health care settings. In this new era of the PCMH model and in the wake of national health care reform, the profession of pharmacy must seize opportunities to demonstrate the value of the provision of MTM services within physician practices. Payment strategies, as outlined in the joint principles of PCMH, provide novel opportunities for practice reform so that reimbursement is based not only on fee for service but also on the quality of care provided for patient populations. Clearly, payment reform remains necessary to fully implement the PCMH model across the country. If more physician-led practices demonstrate their commitment to the joint principles of PCMH and integrate pharmacists into ambulatory care practices, then the face of pharmacy practice would be forever changed.

References

1. American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, American Osteopathic Association. Joint principles of the patient-centered medical home. Accessed at www.pcpcc.net/node/14, October 15, 2010.
2. Nutting PA, Miller WL, Crabtree BF, et al. Initial lessons from the first national demonstration project on practice transformation to a patient-centered medical home. Ann Fam Med. 2009;7:254–60.
3. National Committee for Quality Assurance. Homepage. Accessed at www.ncqa.org, October 15, 2010.
4. Smith M, Bates DW, Bodenheimer T, Cleary TD. Why pharmacists belong in the medical home. Health Aff (Millwood). 2010;29:906–13.
5. Knapp KK, Okamoto MP, Black BL. ASHP survey of ambulatory care pharmacy practice in health systems–2004. Am J Health Syst Pharm. 2005;62:273–84.
6. Snella KA, Sachdev GP. A primer for developing pharmacistmanaged clinics in the outpatient setting. Pharmacotherapy. 2003;23:1153–66.
7. North Carolina Board of Pharmacy. Clinical pharmacist practitioners. Accessed at www.ncbop.org/pharmacists_cpp.htm, October 15, 2010.
8. Albert SM, Colombi A, Hanlon J. Potentially inappropriate medications and risk of hospitalization in retirees: analysis of a US retiree health claims database. Drugs Aging. 2010;27:407–15.

Institute of Medicine. Crossing the quality chasm: a new health system for the 21st century. Washington, DC: National Academies Press; 2001.