

PRN OPINION PAPER

Clinical Pharmacists as Key Members of the Patient-Centered Medical Home: An Opinion Statement of the Ambulatory Care Practice and Research Network of the American College of Clinical Pharmacy

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The American College of Clinical Pharmacy (ACCP) Ambulatory Care Practice Research Network (PRN) considers the role of clinical pharmacists to be fundamental to the success of the Patient-Centered Medical Home (PCMH) model. Within the PCMH, pharmacists can improve the health of populations by participating in activities that optimize medication management. Multiple published articles support clinical pharmacist involvement in the PCMH with regard to promotion of team-based care, enhanced access, care coordination, and improved quality and safety of care. A survey of clinical pharmacist members of ACCP who operate in such a model depict a variety of activities, with some members pioneering new and innovative ways to practice clinical pharmacy. Although this is a significant opportunity for pharmacists in the primary care setting, a unified vision of pharmacy services is needed. It is our hope that with continued efforts focused on obtaining national provider status, clinical pharmacy can use the PCMH model to solidify the future of primary care pharmacy. The following is an opinion statement of the ACCP Ambulatory Care PRN regarding the vital role of clinical pharmacists in the PCMH.

KEY WORDS patient-centered medical home, ambulatory care, primary care reform, clinical pharmacist. (*Pharmacotherapy* 2014;34(1):96–108) doi: 10.1002/phar.1357

This paper represents the opinion of the Ambulatory Care Practice and Research Network of the American College of Clinical Pharmacy. It does not necessarily represent an official ACCP commentary, guideline, or statement of policy or position.

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The current delivery of primary care services in the United States has been described as fragmented, inefficient, and a major factor in the escalating costs of health care in this country. New models of reimbursement for clinical services that move away from past models of episodic care toward payment for enhanced performance or quality of care are taking shape and continue to progress. Practice models

proposed to improve primary care in the United States are evolving, and the model currently leading this evolution is the patient-centered medical home (PCMH). If this model is the way in which primary care will be delivered in the future, the pharmacy profession must be ready to implement clinical pharmacy services within it. The components of the PCMH and the role of pharmacists within the PCMH have been well described elsewhere¹⁻³ and will be briefly discussed. The main objective of this paper is to serve as a “call to arms” to ultimately ensure pharmacy and pharmacists’ involvement within the PCMH and obtain provider recognition by policy makers, providers, third party payers, and patients during this transformation of primary care.

The essence of the PCMH was derived over four decades ago as the result of a need to improve the care of pediatric patients with multiple chronic conditions.⁴ The recent emergence of the PCMH as a means to improve primary care outcomes came about in the mid-2000s, as a result of large health care purchasers’ dissatisfaction with the way primary care was being financed. Key professional physician groups further embraced the PCMH as a way to improve the quality and delivery of primary care.⁵

In its most simplistic definition, the PCMH is the coordinated and comprehensive delivery of primary care to all age groups. According to the Agency for Healthcare Research and Quality, the medical home revolves around five main attributes and functions,⁶ it is patient centered, making patients and their families an active part of their health care decisions and management; it is comprehensive in that it meets the demands of most patients’ primary care health needs; it is coordinated such that care needed in all avenues of the health care system can be employed with open communication between providers and systems; it is intended to provide enhanced access to care; and it should also provide improved quality and safety using system-based approaches while incorporating evidence-based therapeutics and tools that make decisions easier and more transparent to patients across the health care system.

To meet these attributes and functions, the PCMH proposes the use of team-based care for the prevention and treatment of chronic conditions. This team-based care is expected to be directed most often by the patient’s primary care physician. The composition of the team of health care providers may vary by need and

includes, but is not limited to, pharmacists, physicians, nurses, advanced practice nurses, physician assistants, social workers, patient educators, and case managers. The specific use of pharmacists as part of this team approach to care has not been mandated by any specific policy or regulation.

Clinical Pharmacy Practice in the PCMH Model

Primary care is challenged by a rising demand for services and a decreasing supply of the primary care workforce.⁷ This threatens quality of care, especially for chronic diseases managed in primary care settings. The Macy Foundation, in collaboration with the New England Healthcare Institute, is one organization that has advocated for changes in health care delivery as solutions for this dilemma.⁸ These changes include service delivery improvements, site of care changes, and workforce improvements. They redefine primary care as a team activity led by physicians and acknowledge that pharmacists also provide services within primary care settings. In their *Primary Care 2025: A Scenario Exploration* project, The Institute for Alternative Futures considered several opportunities shaping primary care in the United States and included pharmacists as members of the integrated and interprofessional primary care team.⁹ The launch of Accountable Care Organizations is one of the first delivery-reform initiatives to be implemented under the Affordable Care Act (ACA) and will foster change to accelerate progress toward better care for individuals, better health for populations, and slower growth in costs through improvements in care. Proposed measures for Accountable Care Organization standards include specific drug therapy improvements, many of which target patients with diabetes and cardiovascular disease.¹⁰

Clinical pharmacy is defined by the American College of Clinical Pharmacy (ACCP) as the “area of pharmacy concerned with the science and practice of rational medication use.”¹¹ Within the scope of any pharmacist practicing clinical pharmacy is the ability to provide patient care that optimizes medication management. The U.S. Surgeon General published a report in 2011 that focused on improving patient outcomes through advanced pharmacy practice.¹² This report attests that pharmacists’ education appropriately prepares them to successfully perform clinical services related to the prevention and control of disease through

medications. It highlights pharmacists as being well positioned to play a larger primary care role in the U.S. health care system through collaborative practice agreements with physicians or within coordinated patient care models such as the PCMH. In May of 2012, Christine K. Cassel, M.D., MACP, President and Chief Executive Officer, American Board of Internal Medicine stated that pharmacists' skills are underutilized if limited to filling prescriptions. She advocated for effective health care teams on which pharmacists could work with physicians to provide better management of complex chronic illnesses.¹³

Ambulatory care clinical pharmacists practice in a wide variety of settings, including specialty and primary care settings. Within primary care, many pharmacists are integrated into multidisciplinary practices.¹⁴ These various models have traditionally included clinical pharmacists practicing in health systems, which include government systems (Indian Health Services, federally qualified health centers, Veterans Affairs Medical Centers); hospital-based outpatient clinics; and managed care clinics. However, other models exist in physician-based offices (e.g., medical residency programs, private practices). Pharmacists optimize medication management within many of these models, whether practicing under collaborative drug therapy management protocols or other types of workflows (e.g., collaborative care practice models) that result in modifications of drug therapy.

The benefits of including pharmacists as team members in collaborative care models have been clearly identified.^{15, 16} In a systematic review and meta-analysis, 298 published studies were identified that evaluated the effect of U.S. pharmacists.¹⁵ Direct patient care provided by pharmacists in disease state management programs had favorable effects across many patient outcomes and diseases, including improvements in medication adherence, glycemic control and reductions in blood pressure and low-density lipoprotein (LDL). Other systematic reviews focusing exclusively on cardiovascular disease in outpatients further confirm that control of hypertension and dyslipidemia are significantly improved when pharmacists direct care or collaborate with medical providers.^{16, 17}

The inclusion of pharmacists into the PCMH has been widely recommended.^{3, 18} Within PCMH models, pharmacists can improve the health of populations by participating in activities that optimize medication management.

Assessing medication effectiveness, optimizing costs of drug therapy and providing interventions to improve medication adherence for patients with chronic medical conditions are needed services that can be provided by pharmacists within a PCMH model. The increasing availability and utility of health information technology including, but not limited to, electronic health records (EHR) and other computerized systems continue to potentially increase the effectiveness and efficiency of pharmacists within PCMH models.³

Pharmacists can perform comprehensive medication reviews; identify, prevent and resolve medication-related problems; optimize complex regimens; design adherence programs; and recommend cost-effective therapies.³ The PCMH models that include a pharmacist across a group of general medicine health centers for patients with chronic diseases such as diabetes, dyslipidemia, and hypertension have been shown to improve care.² This was particularly pronounced among patients with diabetes in a University of Michigan model.² Activities performed by the pharmacist included evaluation and optimization of therapeutic regimens to achieve treatment goals for diabetes, hypertension, hyperlipidemia, and polypharmacy. Specific services provided included medication reconciliation, medication initiation and dosage adjustment, medication adherence assessment, self-management and goal setting, patient education, physical assessment, orders for diagnostic tests or medical equipment, and referrals to other health care providers. These activities and services encompass the five quality measures identified by ACCP for ambulatory clinical pharmacy services—comprehensive, accountable, scientifically sound, feasible, and usable.¹⁹

ACCP and the PCMH

The ACCP has a strong commitment to the development and positioning of clinical pharmacists and advancing their practices in an evolving health care system, including primary care practice.^{19, 20} Promotion of clinical pharmacy practice in primary care by ACCP and other stakeholder organizations occurred before passage of the ACA in 2010. Since passage of this legislation, there has been an increased emphasis across the entire health care system on the need for, and value of, a more comprehensive and coordinated primary care system in the United States.¹⁸

In 2009, ACCP joined the Patient Centered Primary Care Collaborative (PCPCC), a coalition of more than 1000 member organizations that includes professional health societies, health plans, employer groups, patient care quality organizations, hospitals, and others.²¹ The coalition worked actively and successfully during the congressional health care reform debate to explain and promote the PCMH and to secure substantial changes in the way primary care services are structured, delivered, and financed within the new law. The PCPCC continues to expand its reach well beyond the initial legislative efforts to provide leadership and resources to facilitate the full development of PCMH practices as the foundation of the nation's primary care delivery system going forward.

In shaping its initial efforts in this endeavor, ACCP called on its members to identify examples of interprofessional practices that would provide guidance in developing recommendations to the PCPCC. In March 2009, a statement of principles was developed by ACCP and supported by several other national pharmacy organizations. Entitled *Integration of Pharmacists' Clinical Services in the Patient-Centered Primary Care Medical Home*, the statement was released and shared with the PCPCC, the two U.S. Senate committees overseeing development of the ACA, and other policy makers.^{18, 22} This document established the framework for subsequent discussions and ongoing work to highlight the opportunity to enhance health care quality and improve patient outcomes through inclusion of comprehensive medication management and clinical pharmacist participation in PCMH practices.²²

Since that initial engagement, ACCP has continued to expand its involvement with both the PCPCC and individual physician organizations that are part of PCPCC, such as the American College of Physicians, to promote and explain the value of team-based comprehensive medication management by clinical pharmacists in the PCMH setting.²² Most recently, ACCP has served as part of the leadership of the PCPCC Medication Management Task Force, a group of more than 50 individuals and organizations that helped to develop a resource guide entitled *The Patient-Centered Medical Home: Integrating Comprehensive Medication Management to Optimize Patient Outcomes*.²³ This resource guide describes both a policy and clinical framework for the delivery of comprehensive medication management services in a team-based manner

within the PCMH, and it positions clinical pharmacists, practicing collaboratively and at the "top of their licenses," to assist patients and the health care team in providing these services.

Finally, as of August 2012, ACCP holds a seat on the 70-member PCPCC Executive Committee. In that position, ACCP has enhanced access and input into PCPCC programming, policy decisions, publication information, and advocacy activities that seek to promote the PCMH and its commitment to patient-centered, team-delivered care at the national level.

Development of the PCMH has been an evolving process since its inception in the pediatric medical community more than 3 decades ago.⁴ With an increased commitment to this practice structure by ACCP and clinical pharmacists across the nation—whether through educational programming at ACCP annual meetings, national policy and advocacy activities, or practice structure development and transformation at the patient care and community levels—the incorporation of comprehensive medication management services by clinical pharmacists into the PCMH now has substantial momentum and broad health system support.

Pharmacists in Action: A Review of Published Best Practices

The following innovative practice models demonstrate a commitment to quality improvement and are consistent with the five tenets for measuring quality in primary care settings.¹⁹ These pharmacist-provided services are also compatible with many of the fundamental elements of the PCMH.

Team-Based Care

One study has demonstrated that collaboration between pharmacists and physicians improves blood pressure control rates and depicts how pharmacist and physician teams can improve hypertension outcomes.²⁴ In this multiclinic, prospective, randomized, controlled trial, 402 adults with uncontrolled hypertension were randomized to either a control or intervention group, which included clinical support by a pharmacist. Intervention pharmacists were responsible for assessing drug regimens and blood pressure control, providing targeted physician education and optimizing drug regimens through patient specific recommendations. At the conclusion of the study, blood pressure con-

trol rates were better in the intervention group (63.9%) compared with the control group (29.9%, $p < 0.001$) and the mean blood pressure was reduced by 6.8/4.5 mm Hg in the control group versus 20.7/9.7 mm Hg in the intervention group ($p < 0.05$). Intervention pharmacists made a total of 771 recommendations, of which more than 96% were accepted by the responsible primary care physician. Because the pharmacists were employed with partial funding from a local college of pharmacy, it is possible that the physician acceptance rate was reflective of the academic climate. Nevertheless, this study highlights the impact pharmacist-physician collaborations can have on measured outcomes.

Coordinated Care

To evaluate the coordination of diabetes care and the overall impact of clinical pharmacy services within a PCMH model, another group performed a single center, retrospective, cross-sectional analysis of patients with poorly controlled diabetes that were managed by a clinical pharmacy specialist (CPS).²⁵ The CPS had independent prescriptive authority under a scope of practice agreement to provide comprehensive medication management support to their PCMH team. Care was coordinated through a referral by the primary care provider (PCP) to the CPS. One hundred-ninety-seven patients met the inclusion criteria of having a hemoglobin A1c (A1c) above 7% and having been seen by the CPS face-to-face more than two times. The primary end points included the percentage of patients who met the individual American Diabetes Association goal for an A1c of less than 7%, blood pressure of less than 130/80 mm Hg and LDL of less than 100 mg/dl after 6 months of CPS intervention. At the conclusion of the study, a total of 43% of patients met the A1c goal, 55% achieved the goal LDL, and 45% and 51% met the systolic blood pressure and diastolic blood pressure goals, respectively. Although this retrospective report only evaluated short-term reductions in diabetes metrics, the results add to the growing body of evidence demonstrating the comprehensive and coordinated care that pharmacists provide in primary care settings.

Enhanced Access

Another study demonstrated that routine, face-to-face contact with pharmacists between

provider visits improved drug use, continuity of care, and enhanced access to primary care services.²⁶ In a prospective, multicenter analysis, nine pharmacists were independently contracted to provide ongoing drug management services to adult Medicaid beneficiaries at five primary care centers in Connecticut. Approximately 90% of the participants had more than five medical conditions, taking an average of 15.7 drugs/day. Pharmacists, embedded within a PCP's office, met face-to-face with patients to conduct a comprehensive drug history, identify and resolve drug-related problems, and then communicate and document care plans. Eighty-eight Medicaid beneficiaries participated in 401 patient-pharmacist encounters during the 1-year study period. A total of 3248 drug discrepancies and 917 drug-related problems (10.4 problems/patient) were identified by the pharmacists. More than 80% of the drug-related problems were resolved within four patient visits. Of note, 78% of the problems were resolved without the need for the patient to make an additional appointment with his or her PCP and 82% of the prescribers reported making at least one change based on the recommendations of the pharmacist. It was estimated that the services provided resulted in a \$1123 savings/patient on medical claims. With an estimated savings of \$472/patient on medical, hospital, and emergency services, these results help justify the hiring of pharmacists within primary care settings as a means to enhance access to primary care services.

Use of Health Information Technology

A nonrandomized, parallel, control group study demonstrated that a pharmacist-led program utilizing Care Coordination Home Telehealth (CCHT) monitoring helped to improve the coordination of care among patients with poorly controlled type 2 diabetes.²⁷ Coupled with telephonic nursing follow-up and clinical decision support by pharmacists, the CCHT program utilized a messaging device that communicated pertinent medical information from patients at home to clinic providers by the EHR. Operating under a collaborative practice agreement, clinical pharmacists assessed the transmitted health information (e.g., at home glucose readings, drug adherence, dietary intake) and if needed, used their independent prescriptive authority to make patient-specific care plan changes. The primary objective of the program was the change in A1c from baseline to

6 months. One hundred and three patients were enrolled during the study period. Patients who received CCHT support had a significantly lower A1c after 6 months compared with those who had no CCHT support (6.9% in the CCHT group vs 7.5% in the nonCCHT group, $p=0.0006$). Overall reduction in A1c from baseline was 2.1% and 1.6% in the CCHT and non-CCHT groups, respectively ($p=0.1987$). These findings may not be easily extrapolated, as telehealth monitors are not universally available in primary care settings. However, the compatibility between the monitor and the patient's EHR highlights the importance of timely communication, care coordination and documentation between pharmacists and other team members.

Improved Quality and Safety

Published results from a 2009 study described several strategies used within a multispecialty, integrated community-based practice to help optimize drug use, improve quality, and reduce health care costs.²⁸ Two clinical pharmacists collaborated with physicians and clinic administrators to enhance patient care using four key metrics, use of evidence-based medicine; implementation of a pharmacy and therapeutics committee; encouragement of therapeutic interchange; and academic detailing. Implementation of programs such as using generic drugs for hypertension management resulted in a direct cost savings of 28%. Indirect costs savings were seen after the pharmacists introduced hypertension and deep vein thrombosis disease management programs. An increased proportion (15%) of patients in the hypertension disease management registry had an improvement in blood pressure control after 3 years. In addition, the outpatient management of deep vein thrombosis helped avoid 150 hospital admissions each year and saved an annual \$450,000 in hospital costs. Although the pharmacists did not participate in direct patient-care activities, this descriptive report demonstrated improved quality metrics and cost savings at a population-based level. Such outcomes may be of interest to outside and third party payers.

PCMH Practices among ACCP Members

In August 2012, a group of seven ACCP members developed, tested and administered a 14-item survey to assess the current state of the PCMH in ACCP member's practice sites

(Appendix 1). All ACCP members received a request to complete the electronic survey, which was available for approximately 2 weeks. A total of 330 members completed the survey. Among the respondents, 46% of their practice sites were focused in family or internal medicine offices with most also affiliated with a school or college of pharmacy (85%). The presence of pharmacists at individual practice sites was well established, with 37% of respondents having more than 10 years of clinical experience.

The survey responses portray diversity of involvement in the PCMH by practice sites and pharmacists. Table 1 illustrates the different levels of certification by practice sites. Of note, PCMH certification is held by nearly half of the respondent sites with most holding level 3 National Committee for Quality Assurance (NCQA) certification. Surprisingly, only one-fourth answered they were either unaware of their sites' involvement or their site was not considering PCMH certification. Those certified through other programs mostly noted certification through Minnesota and Oklahoma state-based programs.

Table 2 depicts the variety of pharmacist involvement with PCMH activities. Interestingly, the largest number of pharmacists were aware of current clinical initiatives but had no formal role within the medical home. A similar number of pharmacists reported they were a key team member or served as the lead for drug-specific initiatives but not heavily involved with other

Table 1. Certification of Practice Sites

Current site certification (n=312)	No., (%)
NCQA certified	83 (27)
PCMH model but other certification	22 (7)
PCMH model but unable to pursue certification	34 (11)
Working toward certification	57 (18)
PCMH model but not pursuing certification	35 (11)
PCMH not currently under consideration	36 (12)
Unaware of PCMH involvement	45 (14)
Level of NCQA certification ^a (n=76)	No., (%)
Level 3	43 (56)
Level 2	2 (4)
Level 1	9 (12)
Unsure	22 (29)

NCQA = National Committee for Quality Assurance; PCMH = patient-centered medical home.

^aCertification awarded based on performance against standard categories and "must pass" elements. Level 1 is the lowest level with compliance of at least half of the "must pass" elements. Levels 2 and 3 comply with all "must pass" elements; Level 3 is the highest and most desired recognition.

activities. The majority of respondents reported being engaged in frequent activity related to collaborative drug therapy management and medication reconciliation. Some other drug-specific areas proved to have less frequent pharmacist presence. For example, adherence measuring and tracking was ranked as frequent activity by only 34% of pharmacists compared with 66% who ranked their involvement as none or limited. A similar number was seen with tracking outcomes, with 54% ranking their involvement as none or limited compared with 46% of pharmacists ranking it as an area of frequent involvement. These numbers are particularly troubling because of the known need for reporting

outcomes of pharmacist impact.²³ Pharmacists also ranked their involvement rather low for immunizations (despite recent legislative advancement in this area) and implementing continuous quality improvement projects. Pharmacists were also split on compensation, with more than half not pursuing reimbursement for cognitive services. Few pharmacists had been denied reimbursement, but only a small number of pharmacists had either obtained reimbursement or been paid as part of a bundle payment.

Other survey findings revealed that few pharmacists are currently providing comprehensive medication management services as outlined in the PCPCC resource guide.²³ A total of 38% were not familiar with the guide and 34% stated that they followed some but not all of the outlined recommendations. Operationally, more than 50% of pharmacists were measuring and tracking clinical outcomes related to diabetes, hypertension, and lipid management. When asked about access to patient care experiences and outcomes (e.g. quality metrics), pharmacists had varied responses. Approximately one-third noted access was easy, another 30% responded they had access but it was difficult to obtain, and 38% were not aware of how they could obtain access to metrics such as Healthcare Effectiveness Data and Information Set for their practice site. Pharmacists saw the impact of their own efforts with reports of improved patient satisfaction, provider satisfaction, and surrogate disease markers such as LDL and A1c. Fewer pharmacists responded that their clinical efforts decreased hospitalizations and readmissions (Table 2).

The summary of responses represents a snapshot in time of where pharmacists are with implementation of PCMH in their practice sites and medical neighborhoods. Although few have published outcomes from their sites, important steps have been taken in optimizing patient outcomes by involving the pharmacists in the PCMH. The results of this survey, though, do show a discordance of involvement and roles of pharmacists throughout the country regarding PCMH initiatives. The role of the pharmacist in the PCMH continues to evolve with early innovators who have the highest level of certification, receive payment for their role, and are documenting positive patient outcomes. However, a gold standard for what the pharmacist in the PCMH should look like has yet to be established and may be useful to organizations working to build their PCMH.

Table 2. Pharmacist involvement with PCMH activities

Role in PCMH (n=221)	No., (%)		
Key team member	71 (32)		
Lead for drug-specific initiatives only	65 (29)		
Aware of clinical initiatives but no formal role	85 (39)		
	No., (%)		
Level of involvement with various activities (n=219)	None	Limited	Frequent
Collaborative Medication Therapy Management	25 (11)	39 (18)	155 (71)
Medication Reconciliation	16 (7)	66 (30)	137 (63)
Adherence measuring and tracking	50 (23)	94 (43)	75 (34)
Tracking outcomes	32 (15)	86 (39)	101 (46)
Immunizations	126 (58)	64 (29)	29 (13)
Implementing quality improvement projects	32 (15)	116 (53)	71 (32)
	No., (%)		
Current outcomes through pharmacist involvement (n=215)	No., (%)		
Improved patient satisfaction	105 (49)		
Improved physician and staff satisfaction	105 (49)		
Improved surrogate disease markers	94 (44)		
Improvement in HEDIS measures	55 (26)		
Decreased resource utilization	49 (23)		
Decrease readmissions	44 (21)		
Reduced hospitalizations	40 (19)		
Increase CMS star rating	25 (12)		
None of the above	31 (14)		
	No., (%)		
Pursue reimbursement for clinical pharmacist services (n=212)	No., (%)		
No	119 (56)		
Yes, denied	12 (6)		
Yes, obtained	58 (27)		
Only as bundle	23 (11)		

PCMH = patient-centered medical home; HEDIS = Healthcare Effectiveness Data and Information Set; CMS = Centers for Medicare & Medicaid Services.

New and Upcoming PCMH Practice Models

Additional survey results revealed innovative practice models among members of ACCP. These members were contacted and requested to participate in an interview that was conducted by e-mail or telephone, depending on interviewee preference. Selection criteria included participation in a PCMH or in a setting working toward certification. Furthermore, practice settings were chosen based on originality with the common theme of expanding pharmacists' roles in the PCMH setting. Those with published outcomes or manuscripts in progress were given preference. The following practice models were chosen to inspire continued pharmacist integration and emphasize increased pharmacist involvement in PCMHs.

Pharmacists in PCMHs Demonstrate Significant Savings

Shirley Reitz is the Director of Pharmacy Clinical Services for Group Health, which has contracts with more than 25 hospitals and provides medical coverage and care to more than 600,000 residents in Washington State and North Idaho. (Shirley Reitz, written communication, November 2, 2012; oral communication, November 5, 2012). There are a total of 25 PCMH clinics all certified by NCQA within the integrated health system. Pharmacy services at each of these clinics are fully supported by the pharmacy department. Initiatives such as pharmacist postdischarge medication reconciliation and care transition of high-risk patients was reported to have saved over 1 million dollars in hospital readmissions for 2011. Cost savings were determined by comparing the new process of medication reconciliation provided by pharmacists to that provided by nurses. Pharmacists significantly decreased hospital readmissions on days 7 and 14 postdischarge. Pharmacist's efforts have contributed to excellence in Star Ratings and improved Healthcare Effectiveness Data and Information Set measures. Additional medication reconciliation initiatives are in progress and will likely continue to improve care and provide significant cost savings. A publication is currently in progress describing another innovative medication reconciliation process, which resulted in the avoidance of 480 potentially lethal drug discrepancies in 2011, and estimated a cost savings of more than 1 million dollars for 2012.

Creation of an Innovative Pharmacy Position

Peggy Yam is a Clinical Supervisor, PGY1 Pharmacy Practice Residency Director at Providence St. Mary's Medical Center in Walla Walla, Washington, and Adjunct Faculty at the College of Pharmacy at Washington State University (Peggy Yam, written communication, October 28, 2012). Dr. Yam is affiliated with a family medicine clinic that is currently in the process of working toward obtaining PCMH certification. She created an innovative pharmacist position that involves one full-time (40 hrs) clinical pharmacist spending half of the time in the PCMH setting and the other half in a transition of care inpatient setting. The business plan for this position was driven by utilizing inpatient savings as "...ambulatory care services can be hard to capture monetarily." Funding of the position is split between the clinic and the inpatient pharmacy department. Dr. Yam believes that "... in order to succeed, inpatient and outpatient services need to be bridged and continuous" and "...there is no other practitioner better positioned to do this than a pharmacist who has both inpatient and outpatient reach and skill sets." A manuscript describing this innovative position is currently in progress.

Development of New Pharmacy Positions Funded by a Medical Clinic

Ben Gross was a Clinical Assistant Professor at the University of Tennessee Health Science Center College of Pharmacy (Ben Gross, written communication, October 30, 2012). He was the key team member involved in most of the PCMH initiatives in a Family Medicine clinic that has been NCQA certified for 3 years. His involvement with the pharmacy team led to the medical group providing 100% funding of three full-time pharmacist positions without any university funding. Pharmacy services were expanded in less than 6 months. Dr. Gross believes "...visibility was key in the implementation process" and that "...appropriate documentation and continuous review of data was important." Dr. Gross has since taken his expertise and enthusiasm to another position, where he hopes to facilitate the PCMH process. Two publications are currently in progress highlighting the outcomes mentioned above.

Improved Satisfaction with Community Pharmacist Integration into a PCMH

Melissa McGivney is an Associate Professor of Pharmacy and Therapeutics and the Director of the Community Pharmacy Residency Program at the University of Pittsburgh School of Pharmacy (Melissa McGivney, written communication, November 1, 2012). Dr. McGivney is affiliated with family medicine clinics that are functioning as medical homes and working toward being certified as PCMHs. There are currently two community pharmacists integrated into four family medicine practices. The funding for these positions is provided by the University of Pittsburgh Medical Center St. Margaret. These pharmacists provide comprehensive medication management services, discharge medication reconciliation, and any other drug-related services required by the practices and patients. A qualitative study was conducted to assess the acceptance and attitudes of family medicine physicians, clinical and nonclinical staff, pharmacists, and patients during the first 6 months of the pharmacist integration into the medical home setting.²⁹ The study demonstrated that pharmacists improved quality of patient care, empowered patients, and proved to be a valuable resource for all providers and staff. These physicians are seeking increased pharmacist time and expansion of services, with funding expected to be from the same source. A quantitative analysis is currently in progress.

Adapting to Change by Evolving the Role of the Pharmacist

Becky Armor is a Clinical Associate Professor at the University of Oklahoma College of Pharmacy (Becky Armor, oral communication, October 23, 2012). Along with five other faculty members and one clinical pharmacist, Dr. Armor practices in a PCMH that is certified through Oklahoma Medicaid. In anticipation of warfarin being replaced by newer anticoagulants, they conducted a pilot project focusing on both medication reconciliation of all patient-related drugs as well as transitions of care.³⁰ On discharge, clinic patients considered to be at high risk for readmission were contacted to attend a visit with a member of the pharmacy team before their PCP follow-up visit. Pharmacists provided medication reconciliation, ordered labs, and gathered any other pertinent information in order to make their hospital follow-up visit with the PCP

more efficient. Among the 36 participants, there was an average of two potential adverse drug events and five discrepancies/patient that were resolved by the pharmacist. A new Current Procedural Terminology code is on the horizon for care transitions; Dr. Armor is hopeful this will enhance pharmacist opportunities.

These interviews exemplify the fact that pharmacist involvement in a PCMH setting not only improves surrogate disease markers but also provides significant cost saving, improves quality measures, and enhances provider and patient satisfaction. Innovative ways to integrate pharmacists into these roles continue to evolve, as does the funding for these positions. The most significant observation moving forward is the common desire to increase the breadth and depth of clinical pharmacy services in the PCMH setting.

Securing Room for Pharmacists in the PCMH: A Call to Arms

Team-based delivery of comprehensive medication management, with clinical pharmacists as accountable members, is an essential component in achieving the level of care and goals outlined by the PCMH model. Improving patient health by providing drug management services is directly in line with the knowledge and skill sets of trained clinical pharmacists (e.g., Pharm.D. with residency training or equivalent experience). Despite potential barriers to standardizing services and practice models, it is essential for clinical pharmacy practice to create a common approach to drug management services within the PCMH to consistently influence positive patient outcomes. Establishing a minimum set of standards for pharmacists practicing in a PCMH would help ensure consistency among practices and practitioners. These minimum standards could be used for patient care interactions, documentation, and billing for services.

Consistent Terminology and Practice

The PCPCC document on comprehensive medication management supports the role of a clinical pharmacist in the PCMH.²³ The document specifically calls for pharmacist participation in drug management services and provides guidance for clinical pharmacy involvement to ensure patient safety and effective drug use.

The document offers five core elements that serve as the foundation for pharmacist involvement in the PCMH (Table 3). These elements

are offered to all patients within the medical home and are coordinated by the pharmacist with other members of the medical home team. The document also defines the “medication management” terminology used for clinical services. Specifically, it details how the practice of comprehensive medication management is a global application of clinical pharmacy services, whereas medication therapy management (MTM) is a service outlined and implemented by the Center for Medicare & Medicaid Services (CMS) to delineate the drug-related services of Medicare Part D. The term MTM has become loosely interpreted outside of the Medicare Part D and CMS requirements for professional services to include any outpatient clinical service offered by a pharmacist, regardless of patient or service. It has become a term that describes a pharmacist-patient interaction, but does not necessarily provide guidance on the structure or quality of care provided to an entire practice or population. The separation between comprehensive medication management services and MTM lies in the five core elements previously mentioned. Specifically, the core elements call for care to be coordinated with other members of the PCMH. In addition, the PCMH is in place for all patients, regardless of age or third party

payor status whereas true MTM is available only to patients with insurance coverage via Medicare Part D. As the PCMH progresses, it will be imperative that the pharmacy profession maintains the integrity of the definition of comprehensive medication management, as defined by the PCPCC, in order to avoid future ambiguity and maintain consistent, quality patient care.

In order to keep the definition, criteria, and practice of comprehensive medication management in the PCMH consistent, best practices and best practice criteria for pharmacists should be established and readily available for review and implementation. Currently, there are good practice models available though the Veteran’s Affairs medical practices, state programs, and university-based health systems, but the need to create a best practice model that can be followed by all practice types (private or public, small or large) is key. Identification of practices that exemplify a “best practice” and promote services that adhere to the five core elements identified by the PCPCC is critical.

Health Care & Professional Advocacy Organizations

In addition, the PCPCC published a resource guide for practices that wish to transform into a PCMH.³¹ The document lists numerous government and private organizations that are available for consultation during the implementation process. Unfortunately, only one of the many listed resources mentions pharmacy services or employs a pharmacist as part of its consultation team. As more pharmacists begin to participate in the PCMH model, the goal should be to incorporate a pharmacist or to provide education to these consultant teams about the roles, responsibilities, and potential asset of clinical pharmacy services in ensuring and maintaining positive patient outcomes.

In order to better fuel the participation of pharmacists in the PCMH, organizations and advocates must be able to show evidence that pharmacists’ involvement will improve patient outcomes and quality indicators.

Payment Services and Structures

Once the best practice models for pharmacy and other practitioners in the PCMH are established, it will be necessary to create payment models that will sustain these practices and

Table 3. Core Elements for a Comprehensive Medication Management Service

1. The service needs to be delivered to a specific patient.
2. The service includes (1) an assessment of a specific patient’s medication-related needs and/or concerns and (2) a plan of care consisting of:
 - A. A description of the patient’s medication experience including, but not limited to a complete medication history, assessment of adherence and development of a comprehensive, up-to-date drug list
 - B. A (prioritized) list of drug-related problems that need to be addressed, including an assessment of how such problems can interfere with the patient’s intended goals and outcomes of therapy
 - C. Patient-specific goals of therapy that consider evidence-based medicine, national guidelines and individual patient characteristics and preference when appropriate
 - D. Patient education, goal setting, and other interventions and referrals as needed
 - E. Routine follow-up of actual drug-related outcomes to determine if appropriate progress is being made
3. The care must be comprehensive because drugs impact all other medications and all medical conditions.
4. The care needs to be coordinated and agreed on with other team members in the PCMH.
5. The service is expected to add unique value to the care of the patient.

PCMH = patient-centered medical home.
Adapted from source.²³

other practices that follow. For pharmacy, reliance on colleges of pharmacy and other health care training programs to provide clinical services in exchange for access to patient care opportunities and clinical resources should *not* be the model for sustainability. Payor models need to be structured such that each PCMH practice can financially support clinical pharmacy services.

The PCPCC has released two documents that highlight current payment models across the United States and discuss payment reform models both in practice and on the horizon.^{32, 33} In North Carolina, a medical home program was implemented in 1998 that focused on women, children, and elderly patients, all of whom were enrolled in Medicaid programs. In 2008, the program was expanded to include blind and disabled patients. The payment structure for clinical services included two arms. The first arm was a practice-based payment for services rendered by physician care. The second was a network-based, per-patient payment model for “local care management activities performed by nurse care managers and pharmaceutical consultation performed by clinical pharmacists.”

A second potential model for payment is a risk-adjusted comprehensive payment and bonus model that appears to be well designed and inclusive of income allocation to clinical pharmacy services.³³ In this model, practices would receive a set dollar amount that would then be allocated to all practice resources such as physician payment, mid-level services, staff, and fixed overhead costs. A pharmacist would be allocated a 0.25 full-time equivalent per physician (assuming 1250–1500 patients per physician in the practice).

Both the North Carolina Medicaid model and the risk-adjusted comprehensive payment and bonus model are exceptional in that they include recognition and inclusion of clinical pharmacy services. However, more investigation is needed regarding the benefit of pharmacists in the medical home model and the relative value a pharmacist can provide. Dollar amounts or relative value units should be assigned for preventing hospital admissions, monitoring adverse drug events, identifying unnecessary drugs as well as avoiding negative clinical outcomes, among others. Although the argument that saved dollars are “soft dollars” and cannot be spent may be relevant in some practice settings, saved dollars are indeed relevant in primary care as primary care services are paid for so that costly acute

care needs can be avoided. The role of a pharmacist in this model is consistent with all other physician and mid-level practitioners that are included in the reimbursement model.

Conclusion

The changing landscape of primary care promises to enhance quality and reduce health care costs through implementation of the PCMH model. Although this marks significant progress for primary care practice, it marks a pivotal opportunity for pharmacists practicing in such settings. Pharmacists have long demonstrated that they can improve patient outcomes, enhance quality and reduce health care spending through various pilot programs and demonstration projects. Despite the method employed, optimizing drug use has been the unifying theme to help ensure the safe and effective use of drugs. With today’s fragmented health care system, drug management is far too critical and complex to leave to any one person or profession.³⁴ Therefore, it is reasonable to conclude that the success of the PCMH model is enhanced with the continuous, active involvement of pharmacists as integral members of care teams. Although barriers and challenges continue to impede the widespread integration of pharmacists within the PCMH, it is clear that coordinated efforts are needed to develop a unified vision of pharmacy services. Unless pharmacists work to sustain visibility through ongoing quality improvement and development of best practice models, there is little chance that key stakeholders will recognize the added value of such services through payment reform and provider recognition. Pharmacists must therefore be the force to elicit this change in an effort to ensure that all patients receive the quality of care that comprehensive medication management can provide.

Acknowledgments

The authors wish to acknowledge the following individuals for their work in developing the PCMH survey: Erica F. Pearce, St. Louis College of Pharmacy, St. Louis, MO, Saint Louis University Department of Family and Community Medicine, St. Louis, MO; G. Robert DeYoung, Advantage Health Physician Network and Saint Mary’s Health Care, Grand Rapids, MI; Kathleen Pincus, University of Maryland, School of Pharmacy, Baltimore, MD, Department of Family

and Community Medicine, Baltimore, MD; Christie Schumacher, Midwestern University, Chicago College of Pharmacy, Downers Grove, IL; Advocate Health Care, Oak Brook, IL; Craig Logemann, Iowa Health Physicians and Clinics, Urbandale and West Des Moines, IA; Jonathon D. Ference, Wilkes University, Nesbitt College of Pharmacy & Nursing, Wilkes-Barre, PA. The authors also wish to acknowledge Kim Thrasher, University of North Carolina, Eshleman School of Pharmacy, Chapel Hill, NC, Community Care of the Lower Cape Fear, Wilmington, NC, for her input and feedback regarding the development of the manuscript.

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Appendix 1. Medical Home Survey to ACCP Members

Demographic questions

1. What is your primary practice site?
2. Are you affiliated with a university? If yes, please describe your affiliation.
3. Number of years you have been a pharmacist at the primary practice site indicated in Q#1?
4. What is/are your ACCP PRN affiliation(s)?

Medical Home Questions

1. What is your practice site's current engagement with the Patient Centered Medical Home (PCMH) model? (Select all that apply).

- Currently National Committee for Quality Alliance (NCQA) certified. How long? What level?
- Currently certified through other organization
- Working toward becoming a certified PCMH
- Currently have PCMH model in place however, clinic not pursuing PCMH certification
- In a system that supports PCMH model but not designed for certification (i.e., VA system)
- Currently not on my clinic's radar—Thank you. Survey finished.
- I do not know anything about PCMH—Thank you. Survey finished.

2. Which of the following statements best describes your role in the PCMH model of care at your site?

- Designated as key team member active with all or most of PCMH initiatives
- Taking lead for medication components but not heavily involved with other initiatives at my site
- Aware of clinical initiatives but no formal role in PCMH

3. Rank your current level of involvement with various medical home initiatives

No activity – Limited Activity – Frequent Activity

- Collaborative Drug Therapy Management
- Medication reconciliation
- Monitor population registries for potential pharmacotherapy interventions
- Assist with accreditation of the practice as a PCMH
- Implementation of continuous quality improvement projects
- Administer or order immunizations
- Measure and track clinical outcomes of your patients
 - Check the clinical services for which you track outcomes (anticoagulation, diabetes, hypertension, cholesterol, asthma/COPD, psych, pain, list other)
- Measure and track medication adherence
- Other

4. Are you currently providing Comprehensive Medication Management Services as outlined in the Patient-Centered Primary Care Collaborative (PCPCC) Medication Resource Guide?

5. Do you have access to clinical outcomes (HEDIS measures, CMS star ratings, etc.) for your practice site?

6. What current outcomes have your PCMH activities contributed to at your site?

7. Have you published any outcomes from your site's PCMH success?

8. Have you pursued reimbursement for services?

9. Please share one or more PCMH success from your clinic.

10. Please list contact information if willing to share more information regarding PCMH at your site.