AACP REPORTS

Report of the 2009-2010 Professional Affairs Committee: Pharmacist Integration in Primary Care and the Role of Academic Pharmacy

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According to the Bylaws of the AACP, the Professional Affairs Committee is to study:

issues associated with professional practice as they relate to pharmaceutical education, and to establish and improve working relationships with all other organizations in the field of health affairs. The Committee is also encouraged to address related agenda items relevant to its Bylaws charge and to identify issues for consideration by subsequent committees, task forces, commissions, or other groups.

COMMITTEE CHARGE

President Jeffrey Baldwin charged the 2009-10 American Association of Colleges of Pharmacy (AACP) Standing Committees to consider the role of the pharmacist in primary healthcare and identify the public policy, workforce, education and advocacy issues associated with advancing pharmacists' contributions to systems of primary care. The Argus Commission, Advocacy and Professional Affairs standing committees focused on the pharmacist's role in primary care. How will/do pharmacists integrate their unique expertise as medication use specialists into primary care delivery to improve patients' lives? Their work is grounded in the Institute of Medicine definition for primary care and the Joint Commission of Pharmacy Practitioners (JCPP) Vision Statement for Pharmacy Practice 2015:

- "Primary care is the provision of integrated, accessible healthcare services by clinicians who are accountable for addressing a large majority of

personal healthcare needs, developing a sustained partnership with patients, and practicing in the context of family and community;"¹

- "Pharmacists will be the healthcare professionals responsible for providing patient care that ensures optimal medication therapy outcomes,"²

Specifically, the 2009-10 Professional Affairs Committee is charged to:

- Examine the evidence for pharmacists' integration in primary care practice in the community in the context of partnership with patients and healthcare service providers.
- Provide analysis of current and potential care delivery models.

BACKGROUND

Healthcare reform is a topic at the forefront of concern for Congress, the public and healthcare professionals. The primary care workforce is comprised of a diverse complement of health professionals with direct patient care provided by allopathic and osteopathic physicians, nurse practitioners, physician assistants, and registered nurses. Pharmacists are among the health professionals with growing responsibilities in the provision of patient care services within the primary care environment.³ Others include social workers, medical assistants, and nutritionists. An adequate supply of all healthcare professionals will be required to meet the future demand for services and many recent publications reflect a growing concern for the workforce supply fulfilling this

demand.⁴ It is important that pharmacists are considered in legislation related to the future of the health professions workforce and future healthcare policy. To determine how pharmacists may influence healthcare reform, a critical review of the evidence of pharmacists' involvement in primary care service delivery is necessary.

In the early 1990s, the concept of pharmaceutical care emerged and took hold.⁵ Healthcare reform, as pressing then as it is now, embraced pharmacists offering pharmaceutical care as the most vital contribution pharmacists could make in primary care to produce positive patient outcomes. Providing pharmaceutical care meant that pharmacists should enter into a partnership with patients, be accountable for drug therapy outcomes along with other healthcare providers, manage drug therapy, and coordinate the "continuum of drug therapy."⁶ Several barriers to providing pharmaceutical care were identified, including lack of continuity between institutional and community pharmacy practice settings, lack of technology allowing pharmacists to take a greater responsibility for drug therapy outcomes and the lack of reimbursement for provision of pharmaceutical care.⁶ AACP previously investigated the role of pharmacists in primary care in 1994.⁷ Following the outcomes of the committee's research, the following policies⁸ were adopted by the Association at that time, in addition to two previous related policies concerning ambulatory care:

- AACP believes that pharmacy faculty have a responsibility to use their experience to examine and document the effectiveness of pharmacist-provided pharmaceutical care as an essential element of primary care. (Source: Professional Affairs Committee, 1994)
- AACP supports the position that pharmaceutical care is pharmacy's most essential and integral contribution to the provision of primary care. (Source: Professional Affairs Committee, 1994)
- AACP encourages its member colleges and schools to develop or enhance relationships with other primary care professions and educational institutions in the areas of practice, professional education, research, and information sharing. (Source: Professional Affairs Committee, 1994)
- AACP supports the teaching and clinical application of core competencies in primary care health services delivery which are community-based and fully interdisciplinary. (Source: Professional Affairs Committee, 1994)
- Pharmacy education has the major responsibility to assist the profession to accomplish its mission for society. In keeping with the transition of healthcare from the acute care to the ambulatory

care environment, pharmacy education must continue its efforts to encourage and assist the profession to provide clinical pharmacy services in the ambulatory environment. (Source: Professional Affairs Committee, 1990)

- AACP supports residencies and certificate programs that develop advanced clinical and administrative knowledge and skills in the delivery of comprehensive pharmacy services in the ambulatory care setting. (Source: Professional Affairs Committee, 1989)

To foster the growth of pharmacists in primary care, AACP developed a number of policy statements supporting pharmaceutical care, recommending adaptation of curricula and instructional approaches for primary care, encouraging interdisciplinary education among colleges and schools of pharmacy, calling for more research documenting the effectiveness of pharmaceutical care and eliminating barriers in providing primary healthcare through the previously mentioned, Association-adopted policy statements.⁸

Pharmacists have a significant role in the delivery of primary care services. In 1996, the Institute of Medicine (IOM) defined primary care as the "provision of integrated, accessible healthcare services by clinicians who are accountable for addressing a large majority of personal healthcare needs, developing a sustained partnership with patients, and practicing in the context of family and community."⁹ Essential elements of this definition relate to the function of patient care, not necessarily who is the provider of such care. Pharmacists are trained to provide personalized patient-centered care for an array of patient-specific needs. Likewise, pharmacists may pursue credentialing to specialize in therapy for specific disease states, attain an advanced level of practice or participate in state-specific expansion of their scope of practice. Examples include recognition as a Certified Diabetes Educator (CDE),¹⁰ attainment of Board of Pharmacy Specialties (BPS) post-licensure certifications,¹¹ completion of the American Pharmacists Association (APhA) *Pharmacy-Based Immunization Delivery* certificate training program¹² and recognition as a Clinical Pharmacist Practitioner in North Carolina¹³ or as a Pharmacist Clinician in New Mexico.¹⁴ The scope of patient care services provided by pharmacists includes preventive care (e.g., immunizations), self-care, disease-state management, and medication therapy management (MTM).¹⁵ All of these services require some degree of sustained partnerships with patients. Arguably, community pharmacists are the most accessible healthcare professionals to the general public. Considering the core functions needed in primary care, pharmacists provide unique and complementary

aspects related to the optimal use of medications. Though not universally recognized formally as primary care providers for reimbursement purposes, the number of pharmacists interested in and actively pursuing a future as a pharmacist offering primary care services is increasing.¹⁶

A team of interdisciplinary health professionals, including pharmacists, is essential for the appropriate provision of primary care services. The IOM Committee on the Future of Primary Care recommended the use of interdisciplinary teams in an effort to enhance the quality, efficiency, and responsiveness of primary care.⁹ The Patient Centered Primary Care Collaborative (PCPCC) embraces this model of the Patient Centered Medical Home (PCMH) concept, where a physician-led team of patient care providers collaborate to utilize specialized knowledge and skills of each unique provider to provide optimal patient care. The PCPCC funds pilot programs to further demonstrate innovation in primary care and many programs integrate pharmacists and MTM in primary care practice.¹⁷

The targeted patient populations for the PCMH model are patients with chronic diseases. As expected, pharmacotherapy is a key treatment strategy for chronic diseases in primary care with 28% of patients age 65 years or older being prescribed five or more chronic medications.¹ Patient-specific medication burden, including number of medications per patient and cost of medications, for Americans is likely to continue to increase due to many factors (e.g., innovations in treatment, aging of the “Baby Boomer” population, increased life expectancy). Moreover, this increasing medication burden escalates the complexity of pharmacotherapy regimens, resulting in a greater potential for misuse of medications, adverse drug events (ADE), and medication-related problems (MRP).¹⁸ The ideal approach to patient care is an interdisciplinary model that includes a pharmacist who assures that patient-specific medication therapy-related needs are safely, efficiently, and accurately met in a cost-effective manner.

METHODOLOGY

In response to its charge, the Committee employed a three-pronged strategy to identify evidence regarding pharmacists’ integration in primary care practice: (1) conducting a PubMed® search of the published literature, (2) issuing a *Call for Successful Practices* to the AACP membership,¹⁹ and (3) reviewing an American Society of Health-System Pharmacists (ASHP) resource²⁰ addressing the value of pharmacists in ambulatory patient care settings. Once identified, the committee conducted an analysis of the literature to identify current models for primary care service delivery and the potential models for pharmacists’ integration in primary care in the future.

To begin the investigation, the Committee members conducted a PubMed® search, using MeSH® terms, and identified 275 articles related to pharmacists in primary care practice. The MeSH® strategy had four core components: “pharmacists,” “primary care practice in the community,” “examining evidence,” and “analyzing care delivery models.” “Pharmacists” is a MeSH® term, so including it in the search was straightforward. It was necessary, however, to identify MeSH® terms that captured the other components. For each, the Committee listed words/phrases that were relevant to it and then identified which were MeSH® terms, which map to other MeSH® terms, and which do not map. Through this process, the Committee developed a list of MeSH® terms that were used in the PubMed® search (Appendix 1). Committee members acknowledged that many examples of pharmacists in primary care may not be published in the literature, thus hindering discovery of the complete body of evidence. To address this gap and capture models specifically including academic pharmacy involvement that might otherwise have been missed, a *Call for Successful Practices* was released to the AACP membership. A total of 28 academic pharmacy-affiliated practices responded to the *Call* and submitted detailed practice reports. While the Committee’s work was underway, ASHP released a document²⁰ as part of its Pharmacy Practice Model Initiative. This document includes references that augmented results of the PubMed® search. In total, the three-pronged search strategy identified 368 reports (Table 1). Of these, 217 reports were excluded because they a) did not describe a model or present outcomes of pharmacist integration in primary care practice (n=115); b) were reports from a practice outside of the United States or Canada (n=64); c) predated 1993, the date of the 1994 Professional Affairs Committee work⁷ which included a literature search on this topic (n=20); or d) were not accessible to the Committee members in the time allocated for the study (n=18). In summation, 151 reports were included for the Committee’s consideration.

Table 1. Search Results

Source	Number of Reports		
	Identified	Excluded	Included
PubMed® Search	275	199	76
AACP <i>Call for Successful Practices</i>	28	0	28
ASHP <i>Value of Pharmacy in Patient Care</i> Document	65 ^a	18	47
Total	368	217	151

^a 22 articles that were also identified in the PubMed® search are not included in this count.

To analyze relevant reports and identify current practice models, criteria were developed to systematically code information presented in each report. A template was provided for committee members to standardize the coding practices and each article was coded by Committee members to tabulate key aspects of the practice environment, types of clinicians involved in the practice, academic partnerships, healthcare service(s) provided, evaluation methodology, and outcomes of the service(s). An abbreviated version of these findings is available in Appendix B of this report at the following link: <http://www.aacp.org/governance/COMMITTEES/professionalaaffairs/Documents/PAC2010Appendix.pdf>.

Limitations

Several limitations affect the evidence presented in this report. First, multiple investigators conducted the coding of the reports, therefore, inter-rater reliability, inter-rater agreement, or concordance among raters could affect the findings. Second, any search strategy, particularly a complex one such as this, is difficult and likely to produce irregularities in replicability. To combat this, the committee established a glossary (Appendix 1) to define terms used in this report as well as those used in the MeSH[®] strategy, identifying leading resources or the PubMed[®] definitions for each term. In this same vein, PubMed[®] MeSH[®] term searches are exploding searches, meaning the established hierarchy of terms and the subgroups for those terms are all scanned for related material.²¹ The hierarchy of these terms and subgroups is constantly evolving and can generate or eliminate different articles based on the order of the MeSH[®] terms and the date of the search. This may have excluded articles that should be included and included some articles that were not appropriate matches (these were eliminated during the review of the search strategy findings before coding). Third, articles were coded to identify whether the report included collaborative drug therapy management (CDTM) only if the authors explicitly stated such in the article. Fourth, unless explicitly stated in the article, an academic partnership may not be recognized in the coding of the reports. Fifth, additional registries of pharmacists in related practice settings were identified but were not included in the coding due to the project timeline and resources. Among those excluded from this study are: MTM Central through APhA,²² the National Association of Chain Drug Stores (NACDS) Foundation Patient Care Database²³ and the Patient Safety and Clinical Pharmacy Services Collaborative (PSPC).²⁴ Finally, the Committee members limited the search strategy to those articles published after the last AACP Professional Affairs Committee-led literature search on this topic in 1994.⁷ The majority of coded arti-

cles reflect published reports from 2000-2009 with a marginal number prior (2 in 1996 and 4 from 1999) and the *Call for Successful Practices*¹⁹ reflects information from 2009.

CURRENT MODELS

Evidence of the pharmacist's role in primary care services are summarized in Appendix B of the Committee's report, available at the following link: <http://www.aacp.org/governance/COMMITTEES/professionalaaffairs/Documents/PAC2010Appendix.pdf>. A total of 151 unique reports were identified. The majority include patient-centered care related to management of prevalent chronic primary care diseases (e.g., diabetes, hypertension, dyslipidemia). However, many involved patient-centered care related to other subspecialty areas of ambulatory care (e.g., oncology, hepatitis, tuberculosis). All reports were categorized by the practice environment in which the care occurred. These four categories are: ambulatory care/clinics, community pharmacy, integrated, and other models (e.g., long-term care setting, managed care, etc).

Defining Current Models

While dispensing functions were a common feature of community pharmacy sites, other patient care services consisted of MTM services, disease state management services (DSMS) and educational programs. Ambulatory care/clinics were predominantly multidisciplinary in nature. These clinics were affiliated with institutional health-systems, university-affiliated systems, integrated health-systems, the U.S. Department of Veterans Affairs system, community health centers, and also private outpatient clinics. Patient care activities included provision of direct patient care, DSMS, MTM services, and educational programs. Other sites included patient care models that were based out of managed care organizations, pharmacy benefits managers, long-term care settings, and home care settings. The patient care services provided at these sites were consistent with services already described.

Model frequency. In total, 81 models (~54%) were categorized as ambulatory care/clinic, 29 models (~19%) were categorized as community pharmacy, 33 models (~22%) were categorized as integrated and 8 (~5%) models were categorized as other. The majority of reports described varying degrees of collaboration between pharmacists and physicians and/or other healthcare professionals, while others alluded to utilizing standards of care, study protocols or other guidelines to guide clinical decisions. Models that provided clinical services under a CDTM protocol were located in urban, rural and suburban areas.

Study quality. The reports described in the literature that were evaluated have varying degrees of scientific rigor. Publications were primarily descriptive reports of a practice model involving pharmacists providing patient-centered care. A total of 63 of the reports used an experimental design. Of the 63 that used an experimental design, 34 were quasi-experimental and used a variety of study methodologies (i.e., retrospective pre- and post-comparisons, not randomized, no control group).

Academic contributions. Significant relationships between academia and the various models of patient-centered care were described. A total of 105 of the 151 reports identified had a college/school of pharmacy faculty member as an investigator. Likewise, a pharmacy faculty member was the provider of patient-centered care in 69 of these 151 reports. As would be expected, the majority of these models were sites for experiential training of student pharmacists. A total of 46 reports noted use as residency training or experiential education site with another 5 reporting connections to another health professions education school. Additionally, a minority of models described how student pharmacists are integrated into the provision of patient care.

Study outcomes. Clinical, humanistic, and economic outcomes were described within these practice models. Nearly every model described clinical outcomes as the key component of their results. Collectively, these reports strongly demonstrated that practice models of pharmacists providing patient care provided clinical benefits. Of the 137 reports evaluating clinical outcomes, over 60% of the reports demonstrated improved outcomes, either related to baseline parameters or when compared to a control group. A total of 66 reports evaluated humanistic outcomes and in general demonstrated improvements in patient satisfaction, quality of life and/or improved patient knowledge. Of the 33 reports evaluating economic outcomes, over 50% demonstrated reductions in medication costs, medical costs, or visits to the emergency department. Overall, evidence demonstrates that these models of patient care are beneficial through improving control of chronic diseases, appropriate use of pharmacotherapy, or promotion of health and wellness.

Study highlights. Systematic reviews of pharmacist involvement in diabetes care found a significant improvement in overall patient care in adults with type 1 or 2 diabetes mellitus.^{25,26} In the majority of studies, A1c decreased by at least 0.5% in the pharmacist intervention groups. Likewise, greater improvements were seen when pharmacists had broader authority to manage drug therapy as compared to providing drug regimen reviews and education alone. It was also noted that pharmacists with additional training were more likely to have the authority

to manage medications. Patient knowledge and adherence to medication therapy improved as a result of the intervention in some studies.²⁵ Cost savings were also projected relative to delaying or preventing diabetes complications by improving glycemic control.²⁶

Evaluations of pharmacist involvement in the care of patients with hypertension found a positive effect on patient care.^{25,27} Overall blood pressure was lower and more patients achieved blood pressure targets as determined by national guidelines when pharmacists were involved in the management of hypertension.^{25,27} Other interventions that were found to significantly decrease blood pressure include patient education and drug regimen review.²⁷ A significant increase in patient knowledge of their disease was also observed.²⁵

FUTURE MODELS

Benefits of Pharmacists in Primary Care

When clinical pharmacists perform medication review and intervene to improve drug therapy, patient care improves. Altavela and colleagues found a significant improvement in several medication-related problems, including adherence, indication for which no drug therapy was being prescribed, sub-optimal medication choice and lack of cost-effective medication through medication therapy reviews by the clinical pharmacist in a capitated system. There were net cost savings in patient care for the group as a result of these interventions.²⁸

Pharmacists have demonstrated clinical, humanistic and economic benefits in improving patient care for a number of chronic diseases. Pharmacists receive extensive education in identifying medication-related problems and therapeutic appropriateness (ensuring safety and efficacy) of medications. When pharmacists are a part of the healthcare team, more patients achieve treatment goals and adhere to prescribed medication regimens.^{27, 29} Additionally, fewer ADEs and medication errors occur when pharmacists are involved in the treatment decision-making process.^{30,31,32}

Drivers for a New Model of Patient Care

In transitioning to a new model of patient care, several factors should be considered to help redesign the current system into one that is more efficient and that can better meet the needs of our patients. These factors are highlighted below.

Access. Accessing healthcare is challenging for some patients because of barriers that currently exist, preventing or limiting patient access to providers. Common barriers to care may include: limited appointment availability or difficulty in navigating office telephone recordings to schedule appointments, escalating insurance premiums,

high deductibles, and the shortage of primary care providers. Furthermore, these barriers may be amplified if the patient trying to access care belongs to a minority group such as being mentally or physically disabled or non-English speaking, or if the patient is in need but has limited or no health insurance coverage. Grumbach has argued that ideally, in order to improve patient access to the healthcare system, providers and services should come directly to the patient in a manner that is “convenient, timely, reliable, and culturally appropriate.” This may include moving clinics closer to where patients reside or offering telephone or email visits (telemedicine) in place of face-to-face office appointments.³³

Aging population. As the “Baby Boomer” population ages, the need for patient care services will increase. Pharmacists need to be prepared to meet these demands. Colleges and schools of pharmacy must also structure their curricula to effectively educate and train graduates for the growing practice demands and provide leadership to advance our profession. As the practice of pharmacy advances and evolves, the profession must be unified with a strategic vision.^{34,35} In 2005, JCPP adopted a vision for the profession of pharmacy to engage stakeholders in pharmacy and focus efforts around a shared vision for pharmacist accountability for optimized medication use. This vision for practice is incorporated into the most recent revision of the AACP CAPE Educational Outcomes and the Accreditation Standards and Guidelines for Professional Programs in Pharmacy Leading to the Doctor of Pharmacy Degree, thereby influencing curricula. The individual member organizations of JCPP, including AACP, are working to implement that vision so that it becomes daily practice in service to patients.²

Healthcare reform. Our current healthcare system is one that mainly provides acute or episodic care to millions of Americans but fails to sufficiently address the needs of patients with chronic medical conditions who are in need of preventative services. Urgent care and emergency rooms also fail to provide adequate care to patients in need as these settings are often overcrowded and expensive. Medical care should be organized, integrated, and delivered by a multidisciplinary team of professionals including physicians, nurses, pharmacists, and medical assistants such as in a PCMH.³⁶

In a recent editorial, Lipton presented evidence from three studies to illustrate that interprofessional team-based care can enhance the quality of care and improve patient outcomes. However, whether interprofessional team-based care can reduce healthcare utilization and cost remains to be seen.³⁷ The PCMH, therefore, represents an extension of interprofessional care and the concept has been endorsed by 18 physician organizations

including the American Medical Association, the American College of Cardiology and the American College of Chest Physicians. Furthermore, legislation passed by Congress aimed at overhauling the country’s healthcare system incorporates the medical home concept and would allow for increased utilization of the service basing the PCMH on tested examples for patient self-management and pharmacists integration in primary care such as the Asheville Project,³⁸ the Diabetes 10 City Challenge³⁹ and the Veterans Administration models for patient care delivery.

Workforce capacity. The need for pharmacists providing primary care services will continue to grow particularly due to the aging of the population and the need for multiple medication therapy regimens to manage chronic medical conditions as previously discussed. Furthermore, the need for pharmacists providing direct dispensing activities has declined as the use of pharmacy technicians, automation, and information technology becomes more widely implemented and efficient over time thus allowing the pharmacist to transition away from this task while retaining the oversight responsibility.

In 2001, a workforce study estimated that approximately 30,000 full-time pharmacists were providing primary care services (defined as managing simple and complex medicine use in ambulatory patients) but that approximately 165,000 full-time pharmacists would be needed by the year 2020 to provide these services to roughly 325 million Americans.⁴⁰ Primary care services may be defined as providing patient assessment, patient and provider consultations regarding medication use, and therapeutic drug monitoring. While not all patients require primary care pharmacy services, those that require more intensive drug therapy management due to either multiple medications or more complex medication regimens will be in need of a pharmacist to provide such services as part of the care provided in a PCMH.

Experiential education. In order to help advance pharmacy practice and operate within a PCMH model, colleges and schools of pharmacy may need to incorporate modifications to their existing curricula that demonstrate how pharmacists can integrate themselves into this new healthcare setting and how to function within an interdisciplinary team of physicians, nurses, and other healthcare practitioners. Furthermore, experiential education coordinators and directors may need to identify and/or develop new practice sites and models for introductory and advanced pharmacy practice experiences that incorporate the pharmacist as a member of the PCMH or similar primary care setting. Participation from national associations and organizations will be necessary to address the training needs of the pharmacy profession.^{35,41}

Graduates from accredited colleges or schools of pharmacy must perform at their highest level of training to help ensure optimal patient care within this evolving model. Our graduates are able to provide patient-centered care, work in interdisciplinary teams, and employ evidenced-based practice, medical informatics, and quality improvement measures. This effort is strengthened by AACP through the adopted policy statement from the work of the 2007 Academic Affairs Committee:⁸

The mission of pharmacy education is to prepare graduates who provide patient-centered care that ensures optimal medication therapy outcomes and provides a foundation for specialization in specific areas of pharmacy practice; participation in the education of patients, other healthcare providers, and future pharmacists; conduct of research and other scholarly activity; and provision of service and leadership to the community.

According to Grumbach, pharmacists should therefore not focus solely on dispensing but, instead, they should be counseling patients on their medication regimens and leading initiatives to reduce medication errors.³³ The expansion of postgraduate year 1 and year 2 residency programs will also need to continue to increase to meet the expected demands for direct patient care.³⁵ Pharmacy graduates that elect to pursue postgraduate residency programs should train as members of an interprofessional, interdisciplinary team if not already doing so.

Quality measures. In order to achieve optimal outcomes, patients and their families/caregivers must become integral members and advocates for their own healthcare. In addition, having advanced access to health information and support will encourage effective participation in care and decision making.⁴² Patients should become involved in the planning, design, and the improvement of operations and their families/caregivers should be encouraged to participate at a level that they are comfortable with.^{33,42} As a new model of pharmacy develops in the future, continuous quality improvement and evaluation of that new model must occur so that refinements can be made and the model can be improved upon.⁴³

Visualizing the Future Model of Patient Care

There is a multitude of stakeholders in the advancement of the profession of pharmacy including patients, other health professionals, the federal government, private insurance plans, health maintenance organizations, and pharmacy benefit managers. Many factors appear likely to encourage an expanded professional role for pharmacists in primary care including: effecting drug therapy outcomes through collaborative practice disease state management programs, expanding use of technology and technicians in the dispensing process, increasing demand for drug information from other healthcare

providers and patients, creating pharmacogenomic designed drug regimens, and expanding practice roles and responsibilities in the community, ambulatory, long-term care, and home care settings.^{15,35} According to Erstad in a recently published opinion piece, “pharmacists must define their own destiny rather than wait for others to define it for them.”⁴³ Therefore, it is imperative that pharmacists take an active role in driving and shaping the envisioned future of the profession.²

With the passage of the recent health reform legislation, many of these variables come together in the prescribed PCMH model for patient care. One PCMH model that has gained widespread attention is the Bauhaus “Form Follows Function” Approach, so named from the guiding principle of the German Bauhaus school of crafts and architecture.³³ The guiding tenant of this model is that the structure of a program would follow logically from its intended purpose. The idea, as applied to healthcare, is that healthcare delivery would be designed around basic societal needs with several key principles in mind: (1) healthcare professionals would utilize their training and skill to the fullest extent, (2) each healthcare delivery system would be focused on its epidemiological makeup, (3) healthcare facilities would be designed to optimize efficiency and flow, (4) money would be spent to maximize the delivery of quality healthcare, (5) patients are active participants in their own healthcare, and (6) PCMHs serve as the foundation for this delivery model. This approach calls for pharmacists as an important component of PCMHs, engaging in direct patient care to utilize their skill and knowledge in educating patients and improving patient safety.³³

The future model of pharmacy practice is not likely to become one standard satisfying all areas of practice given the diversity within the profession (e.g. critical care, oncology, transplantation, community, etc). However, there should be several standardized core components within these individual practice models that are consistent with positive outcomes in the larger model of pharmacy practice. These core components should include: a focus on accountability, the medication use process, patient-centered outcomes and quality of life.⁴³ In addition to these core components, Davis and colleagues have proposed 7 characteristics to benefit the future of patient-centered primary care practice: 1) access to care, 2) patient engagement in care, 3) information systems that support high quality care, practice based learning, and quality improvement, 4) coordination of care, 5) integrated and comprehensive care, 6) routine patient feedback, and 7) publically available information on practices. While some of these components may be costly to implement for a given practice, a majority incorporate some of these components already while approximately 20% of practices incorporate most of these

components.⁴⁴ Regardless of the model of pharmacy practice of the future, the pharmacist is still a key provider for delivering patient-centered care as the medication expert.

Challenges and Barriers

Looking ahead, the largest challenges affecting pharmacists' integration in primary care practice center on a lack of payment for pharmacist-provided care and a lack of patient awareness of the benefit pharmacist-provided care can provide. Experience in the primary care setting has shown that pharmacist provision of patient care services may be underutilized unless the payment structure encourages collaboration.⁴⁵ Other providers, such as physicians, should not perceive a decline in reimbursement when referring patients to pharmacists. Literature also cites lost opportunities to improve patient care when there is a lack of compensation for pharmacist services or when providers and patients do not have a full understanding of the services pharmacists can provide.^{45, 46, 47} Additionally, not every state offers patients and pharmacists the benefits of CDTM agreements; 46 states currently have CDTM,⁴⁸ and, at this time, most pharmacists do not have access to patient medical records when providing a new medication to a patient.

One example of overcoming these barriers is demonstrated by the advancement of pharmacists and primary care providers for patients with diabetes. Though not accepted in all states, integrating pharmacists in diabetes management programs and clinics, using CDTM and allowing pharmacists to have access to patient medical records, is observed over and over again as providing a greater patient care experience and improving key health indicators and quality of life for the patient. Pharmacists with advanced practice training and education, like a CDE, are equipped to practice in this disease and drug therapy management role and received payment for providing patient care services. Pharmacists working directly with ambulatory clinics or in community pharmacies affiliated with, or in close proximity to, a physician office have greater success in patient recruitment and achieving positive clinical outcomes by practicing through CDTM agreements, accessing patient records and performing as an accountable member of an interprofessional, interdisciplinary patient care team.

Role for Pharmacists

In any future model of healthcare, pharmacist roles should include patient evaluation for identification and resolution of medication-related problems and working one-on-one with the patients to achieve guideline-driven goals of therapy. The benefits of pharmacist involvement in disease state management and improvement in patient

care outcomes are established in the literature as documented in this report. Pharmacists are vital members of the PCMH team managing medication therapy related to primary care. Academic pharmacy should continue to support and encourage student development and research in advancing pharmacists' role in primary care.

CONCLUSION

In consideration of the charge to the 2010 Professional Affairs Committee, the enacted AACP policy statements⁸ and the JCPP 2015 Vision Statement,² the Committee extends the following recommendations and suggestions in an effort to build upon the work from 1994⁷ and have the Academy serve as the leader for the research agenda for pharmacists in primary care. With the burgeoning effort in Congress to support healthcare professionals and drive the United States healthcare system toward one of improved access to quality and affordable patient care with improved health outcomes, pharmacists stand poised to expand their role in primary care and assist with these new efforts.

RECOMMENDATIONS OF THE COMMITTEE

- Recommendation 1. AACP should collaborate with health professions associations and other key stakeholders to facilitate and influence the expansion of pharmacists' contributions in primary care service delivery.
- Recommendation 2. AACP membership should assume leadership for articulating the research agenda for documenting and analyzing the integration of pharmacists in primary care practice.
- Recommendation 3. AACP should collaborate with pharmacy associations to adopt a common language used to describe pharmacists' involvement in primary care service delivery for documentation and analysis in reporting.
- Recommendation 4. AACP should partner to facilitate or support the development and maintenance of a registry that documents the clinical, humanistic, and economic outcomes of pharmacists practicing in primary care.
- Recommendation 5. AACP should advocate for the engagement and enhanced visibility of members and member institutions in primary care practice and showcase models through appropriate programming, products and services.
- Suggestion 1. Colleges and schools should design or expand experiential education in such a way as to permit students to train in practice environments consistent with a future model of interprofessional, interdisciplinary, patient-centered care.

- Suggestion 2. Colleges and schools should promote and support postgraduate residency training to further advance pharmacists in primary care practice.

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Appendix 1. While crafting this report, it was determined that several terms needed a base definition for both the discussion in the report and the search strategy parameters as the vocabulary surrounding these terms, some new and some established, varied between sources. Definitions for the terms pertaining to the report language and the search strategy are detailed below.

Glossary of Report Terms

Term	Definition	Reference
Clinical Pharmacy	Health science discipline in which pharmacists provide patient care that optimizes medication therapy and promotes health, wellness, and disease prevention	American College of Clinical Pharmacy. The definition of clinical pharmacy. <i>Pharmacotherapy</i> 2008;28: 816-817.
Medication Therapy Management	Medication therapy management is a distinct service or group of services that optimize therapeutic outcomes for individual patients	Bluml BM. Definition of medication therapy management: development of professionwide consensus. <i>J Am Pharm Assoc.</i> 2005;45:566-572.
Patient Centered Medical Home	Physician-led team of patient care providers collaborate to utilize specialized knowledge and skills of each unique provider to provide optimal patient care	Patient-Centered Primary Care Collaborative. Available at: http://www.pcpcc.net . Accessed November 22, 2009.
Pharmacist	A person licensed to engage in the practice of pharmacy.	Council on Credentialing in Pharmacy. Scope of Contemporary Pharmacy Practice: Roles, Responsibilities, and Functions of Pharmacists and Pharmacy Technicians. Available at: http://www.pharmacycredentialing.org/ccp/Contemporary_Pharmacy_Practice.pdf . Accessed April 20, 2010.
Preventive Care	Avoidance of disease in asymptomatic adults	Hayward RSA, Steinberg EP et al. Preventive care guidelines: 1991. <i>Ann Intern Med.</i> 1991;114:758-783.
Primary Care	Primary care is the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of patients, and practicing in the context of family and community	Donaldson MS, Yordt KD, Lohr KN, Vanselow NA, eds. <i>Primary care: America's Health in a New Era</i> . Washington, D.C., National Academy of Science. 1996:1-12.
Self-care	People being responsible for their own health and well-being through staying fit and healthy, physically, mentally and where desired, spiritually	Wilkinson A, Whitehead L. Evolution of the concept of self-care and implications for nurses: a literature review. <i>Int J Nurs Stud.</i> 2009;46: 1143-1147.

PubMed® Search Strategy Terminology (MeSH® Terms)

Term	Definition
Ambulatory Care	Health care services provided to patients on an ambulatory basis, rather than by admission to a hospital or other health care facility. The services may be a part of a hospital, augmenting its inpatient services, or may be provided at a free-standing facility
Ambulatory Care Facilities	Those facilities which administer health services to individuals who do not require hospitalization or institutionalization
Community Health Centers	Facilities which administer the delivery of health care services to people living in a community or neighborhood
Community Mental Health Centers	Facilities which administer the delivery of psychologic and psychiatric services to people living in a neighborhood or community
Community Pharmacy Services	Total pharmaceutical services provided to the public through community pharmacies
Continuity of Patient Care	Health care provided on a continuing basis from the initial contact, following the patient through all phases of medical care
Disease Management	A broad approach to appropriate coordination of the entire disease treatment process that often involves shifting away from more expensive inpatient and acute care to areas such as preventive medicine, patient counseling and education, and outpatient care. This concept includes implications of appropriate versus inappropriate therapy on the overall cost and clinical outcome of a particular disease
Evaluation Studies (Publication Type)	Works consisting of studies determining the effectiveness or utility of processes, personnel, and equipment
Medication Therapy Management	Assistance in managing and monitoring drug therapy for patients receiving treatment for cancer or chronic conditions such as asthma and diabetes, consulting with patients and their families on the proper use of medication; conducting wellness and disease prevention programs to improve public health; overseeing medication use in a variety of settings
Models, Organizational	Theoretical representations and constructs that describe or explain the structure and hierarchy of relationships and interactions within or between formal organizational entities or informal social groups
Outcome and Process Assessment	Evaluation procedures that focus on both the outcome or status (OUTCOMES ASSESSMENT) of the patient at the end of an episode of care - presence of symptoms, level of activity, and mortality; and the process (ASSESSMENT, PROCESS) - what is done for the patient diagnostically and therapeutically
Outpatient Clinics, Hospital	Organized services in a hospital which provide medical care on an outpatient basis
Patient-Centered Care	Design of patient care wherein institutional resources and personnel are organized around patients rather than around specialized departments
Pharmaceutical Services	Total pharmaceutical services provided by qualified pharmacists. In addition to the preparation and distribution of medical products, they may include consultative services provided to agencies and institutions which do not have a qualified pharmacist
Pharmacists	Those persons legally qualified by education and training to engage in the practice of pharmacy
Primary Health Care	Care which provides integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community
Professional Practice	The use of one's knowledge in a particular profession. It includes, in the case of the field of biomedicine, professional activities related to health care and the actual performance of the duties related to the provision of health care
Program Development	The process of formulating, improving, and expanding educational, managerial, or service-oriented work plans (excluding computer program development)
Program Evaluation	Studies designed to assess the efficacy of programs. They may include the evaluation of cost-effectiveness, the extent to which objectives are met, or impact