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Pharmacists' Contributions to Primary Care in the United States Collaborating to Address Unmet Patient Care Needs: The Emerging Role for Pharmacists to Address the Shortage of Primary Care Providers*

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INTRODUCTION

Primary care is the foundation of the U.S. healthcare system. The Institute of Medicine (IOM) defines primary care as “the provision of 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”.¹ When optimally delivered, primary care fosters wellness and prevention of chronic diseases and problems. Primary care often serves as the point of entry for patients who require medical care and attention. In addition to the diagnosis and treatment of acute and chronic illness, primary care practice encompasses activities such as health promotion, disease prevention, health maintenance, counseling, and patient education. Medications play a critical role in primary care and their effective management is essential to patient safety and quality care. Primary care activities occur across a variety of health care settings.²

Patient involvement and empowerment are key components of primary care practice – which require effective two-way communication and the recognition of the patient as a partner in their own health care. IOM defines patient-centered care as “providing care that is respectful of and responsive to individual patient preferences, needs, values, and ensures that patient values guide all clinical decisions”. The American Academy of Family Physicians asserts that primary care practices should be located in “the community of patients”, thereby facilitating access to health care.

Unmet Chronic and Preventive Public Health Needs

Nearly half of all Americans—and over three-fourths of adults aged 65 and older—live with at least one chronic condition that requires medication therapy.³ Chronic diseases are appearing with increasing frequency in younger adults and even children, likely a direct result of societal trends including unhealthy diets, oversized serving portions, and inactivity, which collectively contribute to early

development of type 2 diabetes, dyslipidemias, and obesity. Likewise, preventable complications from each of these conditions are also on the rise. As a result, 75 percent of our nation’s \$2 trillion in annual health expenditures are attributable to management of problems associated with chronic diseases.⁴

While chronic diseases are common and costly, many are also preventable—through strategies such as healthy eating, being physically active, avoiding tobacco use, and using medications safely and appropriately. The current Presidential Administration is committed to reforming the U.S. healthcare system and has proposed the largest federal investment in promoting and providing preventive care. It is clear that preventive care is one of the best ways to keep people healthy and reduce the costs of healthcare. Wellness and prevention are hallmarks of primary care and offer expanded opportunities for improving access to care for millions of U.S. citizens, many of whom have been disproportionately affected by the lack of care including the elderly, low income, minority populations, and those located in areas with little or no access to primary care providers.

Medication Use Problems in Primary Care

Medications play a significant role in the management and prevention of chronic diseases in primary care, and they are being taken by a greater proportion of the population than ever before. Predictably, medication use among older adults is high—accounting for more than a third of all prescriptions. In addition, 28 percent of patients aged 65 and older take five or more chronic medications each month.⁵ Medication use among younger adults and children is also increasing steadily. A recent evaluation of prescription data from 2.5 million Americans conducted by Medco Health Solutions shows that 30 percent of children (i.e., age less than 19 years) take at least one chronic medication for conditions such as asthma, allergies, attention-deficit hyperactivity disorder, diabetes, or depression.⁶

There are serious shortcomings within our current healthcare system related to the provision of safe and

effective medication management in primary care. In 2000, the costs of drug-related illness and death in ambulatory care settings alone were estimated at more than \$177 billion.⁷ More recently, the persistent and critical unmet medication use support needs have been underscored through efforts by the Institute for Safe Medication Practices (ISMP)⁸ and the Institute of Medicine (IOM).⁹ These primary care medication management needs are expected to rise over the coming decades.

The increasing complexity of patients and their treatment regimens in primary care requires access to providers who can manage patients' medication therapy, identify adverse events, and manage drug-related problems. Factors such as increased outpatient surgery, shorter hospital stays and decreased recovery time have contributed to patients accessing the primary care system with more serious health care needs that require more treatment resources and more complicated medication therapy. This demand for more intensive primary care, combined with the role that medications play in quality prevention and primary care treatment, has created an increased demand for accessible healthcare professionals who can fill needed primary care roles. Pharmacists are trained and qualified to help fill these documented gaps in care around medication management in the primary care setting.

In addition, patients' primary care needs also encompass coordination, management, and integration of their chronic disease care following acute episodes, in an effort to prevent disease progression and to optimize outcomes. Several tested models of such care which effectively integrate the competencies of pharmacists serving the role of medication use specialist are described within this paper.

Case Study: U.S. Department of Veterans Affairs Environment and Patient Access

The Department of Veterans Affairs (VA) is the largest integrated health care provider in the United States. With 600 health care facilities throughout the country, the VA treats more than half a million veterans on an inpatient basis and manages nearly 40 million outpatients each year. The VA has 157 hospitals and over 860 community-based clinics. Each year more than 50 million outpatient visits are made through VA hospitals and clinics, and the VA fills over 100 million prescriptions.

Roles of the Pharmacist

The VA utilizes pharmacists for traditional dispensing and quality assurance roles as well as roles that reflect the value that a pharmacist's clinical expertise can bring to a patient's health care team. These roles include:

- Provide recommendations to prescribers
- Collaborate with health care teams (inpatient and ambulatory care settings)

- Prescribe under protocol (e.g., anticoagulation, hypertension, dyslipidemia, diabetes, heart failure, pain, psychiatry, transplantation) and assist patients in achieving the goals set by their physician
- Provide preventive medicine in the areas of immunizations, smoking cessation, polypharmacy assessment, and medication reconciliation
- Participate in the VA's home-based primary care/geriatric care program
- Play a critical role in health information technology by establishing file structure, clinical guidelines and pathways, and prescribing templates to assist providers in being more efficient and improving medication safety
- Manage the VA Drug Formulary

Outcomes of Care

When provided the opportunity to offer their clinical expertise, pharmacists can improve care and reduce costs. Examples of outcomes delivered by VA pharmacists include:

- The economic benefit of clinical pharmacy services far exceeds the costs of providing the service, regardless of practice setting. **For every \$1 invested in clinical pharmacy services, more than \$4 in benefit is seen.** By extrapolating the average salary data for pharmacists, VA expects to see a **\$368,000 savings benefit from providing clinical pharmacy services for each clinical pharmacist.** (Patel RJ et al. *Am J Managed Care*. 1999; 5:465-74.)
- A review of 600 pharmacist recommendations in the outpatient, inpatient, and nursing home settings found that 92 percent of recommendations were accepted by providers. This led to improved clinical outcomes in over 30 percent of the patients in each setting and **avoided harm in 90 percent of the cases.** Overall mean cost avoidance for all 600 recommendations was \$700 each, with a **total savings of \$420,155.** (Lee et al. *Am J Health-Syst Pharm*. 2002; 59:2070-7.)
- At the San Diego VA facility where pharmacists actively help manage medication therapy, **patient outcomes are better than those reported for patients covered by Medicaid, Medicare, or commercial plans.** In 2007, 62 percent of VA patients met goal for low-density lipoprotein cholesterol (LDL-C) as compared to Medicaid-reported measures of only 36 percent in 2006. Sixteen percent of VA patients with diabetes exhibited poor control of their HbA1c versus 49 percent of patients reported by Medicaid in 2006.

Sixty-four percent of patients with diabetes in the VA system had controlled cholesterol, as compared to 31 percent in Medicaid. Of VA patients, 76 percent had controlled blood pressure, versus 53 percent of Medicaid patients, 47 percent of Medicare patients, and 60 percent of patients in commercial plans, according to 2006 HEDIS data. (Morreale AP. Role and impact of VA pharmacists in creating a cost effective healthcare system. Presentation to the U.S. Senate Health Education Labor & Pensions Committee; March 31, 2009.)

- Estimates of a 2007 pharmacist-run smoking cessation program show a 16 percent quit rate with **annual savings of \$691,200 and a net cost benefit to VA of \$551,200.**

Understanding the Current Primary Care Workforce Challenges

Currently, physicians are the cornerstone of the primary health care system, with support from other providers such as nurse practitioners (NPs) and physician assistants (PAs). Physicians practicing in primary care comprise one-third of the U.S. physician workforce yet are responsible for more than half of all patient visits. During the past decade, the number of generalist physician graduates has fallen by 22 percent, and this decline continues as medical school graduates increasingly enter more lucrative specialties and subspecialties. The proportion of newly graduated U.S. medical students who choose primary care as a career has declined by 50 percent since 1997¹⁰ and a recent study of 1,200 graduating medical students found that only 2 percent planned to work in Internal Medicine.¹¹ Fueling the shortage of physicians in primary care are medical training and education programs that remain primarily hospital-focused with minimal exposure to ambulatory, rural, and primary outpatient care settings. This lack of exposure contributes to diminished interest in primary care practice among recent medical school graduates.¹²

At the same time there are decreasing numbers of physicians entering primary care, the U.S. population is increasing by one percent each year, with the aging baby boomer generation set to double the number of Americans 65 years and older by 2025.¹³ With these population growth trends, the shortage of primary care providers is even more critical and is projected to exceed 44,000 by 2025.¹⁴ Currently, it is estimated that over 56 million Americans lack adequate access to primary health care because of shortages of primary care physicians in their communities.¹⁵

In the mid-1960s physician assistant and nurse practitioner education programs were established to address

the primary care physician shortage identified at that time. However, the demand for primary healthcare services is outpacing the available supply of all primary care providers. The existing supply is insufficient and providers are not evenly distributed, resulting in areas throughout the U.S. where patients have no access to a primary care provider.¹⁵ These realities have resulted in emergency rooms being overwhelmed with patients requiring crisis health management for largely preventable problems because they are without regular preventive, primary care.

The need for expanded access to primary care forces us to look more broadly within the healthcare system to identify opportunities to expand capacity to provide quality primary and preventive care services. Solutions will require creative ways of looking at the healthcare system that are inclusive of all licensed primary care providers and focus on providing the highest quality of care to all patients. This care must be delivered by interprofessional teams, utilizing advanced informatics, and positioned on a base of quality improvement. Key questions must be answered. Where in the U.S. healthcare system do untapped resources exist? How can health professionals-in-training be recruited into primary care? Are there other health care professionals within our system who can provide some of these primary care services to increase access to quality care, improve outcomes, and decrease costs?

Expanding Capacity to Meet Demand: Pharmacists Can Help Solve the Primary Care Crisis

The public health problems caused by the expanding gap between the supply of primary care providers and the demand generated through unmet patient needs are formidable and will not be solved by a single profession. The issues are complex and will require concerted, collaborative efforts to identify solutions and provide high quality, team-delivered primary care. Each profession must do their part. In assessing the functions and areas of deficiency in primary care practice, and thinking critically about untapped resources, pharmacists emerge as a potential resource to increase access to primary care and address one of the most challenging aspects of patient care—appropriate medication management.

An important discussion published in *JAMA* focuses on the importance of primary care teams in improving public health. The article states:

The IOM has called for A New Health System for the 21st Century for primary health care teams to play a central role in the care of patients. The quantum leap in the complexity of tasks prevents physicians alone from coping with the scope of practice. The imperative of cost containment leads provider organizations to favor lower paid clinicians over physicians. The

demand for quality encourages primary care to add caregivers with skills that physicians may not possess.¹

Each health professional on the healthcare team brings a core set of skills and training to provide primary care services that directly impact quality and costs of care for patients. This care must be coupled with improved communication and collaboration among all members of the healthcare team. Studies have demonstrated that in settings where physicians and non-physician professionals work together as teams, patients have improved outcomes.¹⁶

Case Study: Kaiser Permanente Colorado Environment and Access to Patients

Kaiser Permanente Colorado is an integrated non-profit health care delivery system caring for approximately 480,000 members in the Denver/Boulder metropolitan area. The pharmacy department operates approximately 26 outpatient, specialty, and satellite pharmacies.

Roles of the Pharmacist

The Kaiser Permanente Colorado Region Pharmacy Department is recognized nationally for expanding the roles of pharmacists. The pharmacy department comprises services which are integrated to provide comprehensive care through the appropriate use of medications. Roles of these pharmacists include:

- Collaborate with health care teams and provide medication-related recommendations to prescribers
- Assist patients in achieving the goals set by their physician with specialized pharmacy services in infectious disease, mental health, oncology, palliative care, solid organ transplant, cardiovascular disease, and anticoagulation
- Provide preventive care in the areas of immunizations, smoking cessation, and medication therapy management
- Provide up-to-date drug information to health care providers in the medical offices and provide feedback regarding cost-effective prescribing
- Participate with physicians in regional guideline development and work with other Kaiser Permanente regions to develop interregional guidelines for appropriate drug use

Outcomes of Care

Examples of outcomes delivered by pharmacists in Kaiser include:

- Kaiser Permanente Colorado Region manages the largest anticoagulation service in the nation, providing care to more than 6,500 patients. Physician-approved guidelines and telepharmacy are used to provide care to this large volume of

patients. Pharmacists provide comprehensive anticoagulation services, including outpatient management of approximately 300 episodes of deep vein thrombosis (DVT) each year; prevention and treatment of venous thromboembolism in roughly 12 high-risk pregnancies annually; prevention of DVT following orthopedic surgery; management of anticoagulation therapy in more than 100 patients residing in 50-plus nursing homes; management of excessive anticoagulation; and interruption of anticoagulation therapy for invasive procedures. These programs have **saved over 300 lives** since its inception in 1996 through reduced bleeding complications and adverse events. (Helling et al. *J Am Pharm Assoc.* 2006;46:67-76.)

- The Kaiser Clinical Pharmacy Cardiac Risk Service (CPCRS) provides care to patients with coronary artery disease (CAD). The focus of the service is the long-term management of patients to ensure that appropriate lipid-lowering and antihypertensive medications are initiated, doses adjusted, and follow-up laboratory tests are completed to achieve low-density lipoprotein cholesterol (LDL-C) and blood pressure goals. The service is delivered to approximately 11,000 patients annually. A retrospective evaluation of lipid control in 8,014 patients showed that lipid screening had been completed in 97 percent of patients in this study. Of those patients screened, 92 percent had LDL-C levels less than 130 mg/dL, and 73 percent had LDL-C levels less than 100 mg/dL. Based on the results of published clinical trials, these outcomes translate into a **30 percent reduction in the recurrence of CAD complications** for the Kaiser Permanente Colorado Region, **saving more than \$9 million in hospitalizations and procedures over a 6-year period.** (Helling et al. *J Am Pharm Assoc.* 2006;46:67-76.)
- A patient-focused Clinical Pharmacy International Travel Clinic (CPITC) advises patients traveling to international destinations. Approximately **9,500 telephone consultations are provided to members traveling abroad each year.** Clinical pharmacists discuss personal behavior measures that can help avoid traveler's diarrhea and mosquito-borne diseases such as malaria. In addition, detailed information is provided on vaccines that may be needed to protect travelers. Pharmacists also schedule necessary travel-related vaccination appointments for members in the Colorado Region. (Helling et al. *J Am Pharm Assoc.* 2006;46:67-76.)

Current Preparedness

All health professionals are shifting to embrace the core educational competencies outlined by IOM in *Health Professions Education: A Bridge to Quality*.¹⁷ These competencies state that all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics.¹⁷

Efforts to incorporate a core set of competencies across all professions are underway, yet are complex and will require further alignment in training, accreditation, licensing, and certification processes. Under current systems, it is not possible for traditional education to deliver the number of health professionals in all disciplines to provide required care. Cooperation and collaboration must occur on the national, state, and local levels to support required expansion of access. These efforts must be pursued in a collaborative, non-competitive manner that places the needs of the patient as the primary focus and enables the provision of true team delivered care.

Physician assistants (PA) and nurse practitioners (NP) are formally recognized primary care providers and in many primary care practices work collaboratively with physicians. These professionals have significantly expanded the primary care capacity and access in the U.S over the past 40 years. PAs practice in collaboration with and under physician supervision, although many exercise autonomy in clinical decision making.¹⁸ NPs also practice through collaborative practice agreements or under some level of physician supervision in most states. In 22 percent of states, NPs have authority to practice independent of physician involvement.¹⁹

Pharmacists are the most accessible and frequently visited members of the healthcare team. Many pharmacists have established practices in primary and ambulatory care settings, working in teams to provide medication therapy management and chronic and preventive care to patients. Pharmacists are clinically trained at the doctoral level, educated in pathophysiology, pharmacology, therapeutics, clinical problem solving, medication use, and laboratory monitoring. They contribute skills as strong patient educators, patient coaches, and the most extensive knowledge and training in medication use, management, and problem-solving of any member of the healthcare team. Furthermore, pharmacist experiential training is comprised of significant practice experiences rooted in primary and ambulatory care, community health, and long-term care.

In 2004, the American Association of Colleges of Pharmacy revised and released the *CAPE Educational Outcomes* which outlined target areas toward which the evolving pharmacy curriculum should be aimed. The CAPE

Outcomes have since been incorporated into the ACPE *Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree*. These educational outcomes include:

- Provide pharmaceutical care in cooperation with patients, prescribers, and other members of an interprofessional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, economic, and professional issues, emerging technologies, and evolving pharmaceutical, biomedical, sociobehavioral, and clinical sciences that may impact therapeutic outcomes.
- Manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use.
- Promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an interprofessional team of health care providers.

The result of these processes ensures that pharmacists are trained and qualified to:

- Manage complex drug therapy and make recommendations for initiation, modification and termination of therapy
- Obtain medical histories
- Perform health screening and prevention assessments and evaluations
- Perform and interpret diagnostic and laboratory studies
- Counsel and teach health and nutrition
- Screen and refer patients to specialists and other health care providers
- Provide education to allow patients to make decisions about their own health
- Pharmacists are increasingly being integrated into these primary care teams, in family practice settings, ambulatory care clinics and community-based locations.

A comparison of the educational competencies of NPs, PAs, and PharmDs reveals much commonality, with more intensity in therapeutics for pharmacists and more emphasis on diagnostic skills for the NPs and PAs. This creates a solid foundation for building integrated, team-oriented approaches to patient care.

A recent article in the *Canadian Family Physician* examined the perspectives of family physicians to the

inclusion of a pharmacist in their collaborative practice. Although operational and practice integration challenges were recognized, the clinical benefits cited included access to colleagues with reliable drug information, fresh perspectives, and increased security in medication prescribing.²⁰

Patients with a broad range of diseases and conditions are managed by pharmacists practicing in primary care. Many of these conditions coexist and thus require complicated medication therapy and other interventions. To effectively care for these complex patients and take responsibility for achieving intended therapeutic outcomes, pharmacists rely on a strong knowledge and experience base. Numerous scientific publications have conclusively demonstrated dramatic reductions in morbidity and mortality that pharmacists practicing in primary care can have on patient populations afflicted with chronic diseases such as asthma, diabetes, hepatitis C, hyperlipidemia, hypertension, chronic kidney disease, and HIV, among others.²¹⁻²⁸

Regulatory Barriers for Pharmacists

We do not assert that all pharmacists will be motivated to seek proficiency in the skills required to become a primary care provider, nor could the health care system afford a global shift away from the role that many pharmacists play in the provision of medications. However, some pharmacists will look to expand their care role, and their background provides a strong foundation from which to build competence in physical assessment and diagnostic skills that will complement their expertise in managing complex medication therapies for their patients. A significant barrier to the ability to deliver this care is imbedded in pharmacist practice laws and regulations.

Scope of Practice

State laws regulate the professional practice of NPs, PAs, and pharmacists. Levels of authority and autonomy and practice roles vary from state to state. Physician assistants in all states work in collaboration with and under supervision of a physician. The requirements for collaboration and supervision might be met in one state by being accessible by phone, yet in another state the physician would have to be on-site. State laws also differ in the latitude provided for physician delegation of responsibility and authority to PAs.²⁹ [Note: According to the February 2010 Pearson Report in the *American Journal for Nurse Practitioners*, there are 15 states including the District of Columbia that allow NPs to prescribe, including controlled substances, without any physician involvement. There are 23 states that allow NPs to diagnose without any physician involvement.]

State laws regulating nurse practitioner practices vary more widely than those for PAs. Some states require NPs to be in collaborative practices with physicians and/or provide care under physician supervision for practice and prescribing authority. State practice acts in eleven states permit NPs to practice as fully independent primary care providers, independent of physician collaboration or supervision.¹⁹

In forty-five states and the territory of Guam, pharmacists are authorized to enter into collaborative drug therapy management (CDTM) with physicians. In a few states, pharmacists have varying degrees of prescriptive authority. CDTM is a team approach to healthcare delivery that seeks to maximize the expertise of the pharmacist and the physician in order to achieve optimal outcomes through appropriate medication use and enhanced patient-care services. CDTM is most commonly provided under mutually agreed upon practice protocols and guidelines. CDTM activities include, but are not limited to, the following pharmacist activities³⁰:

- Initiating, modifying, and monitoring a patient's drug therapy
- Ordering and performing laboratory and related tests
- Assessing patient response to therapy
- Counseling and educating patients about their medications
- Administering medications

A successful example of how changes in scope of practice can impact the care of patients is the provision of immunizations. In 2009, more than 40,000 pharmacists have received formal training and recognition as providers of a wide range of immunization services; 49 states have adopted laws and regulations that permit pharmacists to administer vaccines. This has resulted in millions of patients receiving pharmacist-delivered immunizations each year. State-based scope of practice laws and regulations must be updated to allow CDTM and immunizations in all U.S. states and territories.

Access to Health Information

To provide quality, comprehensive primary care, all members of the healthcare team must have access to complete patient information, medical and medication histories, lab studies, results of diagnostic evaluations, and other relevant data. Currently, effective systems do not exist to share patient records and information between different healthcare sites and/or healthcare professionals. As e-prescribing, electronic medical records, and other technological advances are implemented and integrated, patients will have increased access to primary health care providers for diagnosis, monitoring, and triage. In addition, telemedicine applications can be used to increase access

to care for underserved populations, particularly in the short term while geographic access remains unresolved. Some of the patient benefits of telemedicine include:

- Increased access to healthcare when care cannot be provided locally
- Reduced patient costs for travel
- Reduced absences from school and work to go to medical appointments
- Health system efficiencies and potential cost savings from improved care management and coordination
- Local economic gains as residents remain in the community for care
- On-site delivery of health education for schools, community centers, and clinics

State regulations must be structured to permit and easily adapt to changes in technology that can improve the care of patients and the communication between health care providers.

Case Study: Ukrop's Pharmacies Environment and Access to Patients

Ukrop's Pharmacy and Wellness Centers offer health care screenings, medication therapy management services, disease management, and patient education programs in the community grocery-store setting. Ukrop's maintains 24 pharmacies and 21 Wellness Centers throughout the greater Richmond, Virginia area, most of which serve a suburban population.

Roles of the Pharmacist

Ukrop's Pharmacy utilizes pharmacists for traditional dispensing roles as well as practice roles that reflect the value of accessible clinical services to patients. Ukrop's pharmacists serve in the following roles:

- Provide recommendations to prescribers
- Develop and manage clinical practice programs and collaborate with the patient's healthcare team to manage hypertension, dyslipidemia, asthma, diabetes, osteoporosis, and support patient in their smoking cessation efforts
- Provide preventive care by administering vaccines and conducting pre-travel health programs that include vaccinations
- Provide in-depth patient education for patients with chronic diseases, including appropriate use of their medications and how to engage in wellness and prevention activities
- Deliver medication therapy management services

Outcomes of Care

Examples of outcomes delivered by Ukrop's pharmacists include:

- In 2008, Ukrop's Pharmacy Immunization Program was recognized by the American Pharmacists

Association (APhA) Foundation with the Pinnacle Award Group Practice-Health System-Corporation Award. This award recognizes and celebrates significant contributions to the medication use process. The Ukrop's Pharmacy immunization program was started in 1998 and has grown from the provision of influenza and pneumococcal vaccines for adult patients to immunizations across the lifespan and a comprehensive pre-travel medicine program. Since starting the program, Ukrop's **pharmacists have administered over 200,000 immunizations** including a program called *Shots for Tots* that has **provided immunizations to 2,500 children, of whom 90-95 percent are uninsured.**

- In patient populations at risk for osteoporosis, pharmacists identify, educate, and refer patients through pharmacy-based bone mineral density screening. Pharmacy-based osteoporosis screening with referral and follow-up is provided to consumers who respond to screening promotions. Initial screening is followed by provision of collaborative community health management services focused on osteoporosis monitoring and management. In one published study, Ukrop's pharmacists screened 532 patients and were able to contact 305 of these patients for follow-up interviews 3 to 6 months later. The stratification for risk of fracture was 37 percent, high risk; 33 percent, moderate risk; and 30 percent, low risk. A total of **78 percent of patients indicated that they had no prior knowledge of their risk for future fracture.** In the moderate- and high-risk categories, 37 percent of patients scheduled and completed a physician visit, 19 percent had a diagnostic scan, and **24 percent of those patients were initiated on osteoporosis therapy subsequent to the screening.** (Goode J et al. *J Am Pharm Assoc.* 2004; 44; 2:152-60.)

Implications, Questions, and Conclusions

The increasing complexity of patients and their treatment regimens in primary care requires access to providers who can manage patients' medication therapy, identify adverse events, and manage drug-related problems. Pharmacists are trained and qualified to provide the required care around medication management in the primary care setting and have clearly demonstrated their abilities to improve outcomes. An effort to open avenues for pharmacists to assume primary care provider roles would have implications to a wide variety of stakeholders.

Pharmacists would have new opportunities to acquire additional skills and apply their knowledge and expertise through the direct delivery of primary care services to their patients. Some in the profession might not embrace this expanded role. Consideration should be given to market-driven pressures and possible influence on employer demands for pharmacists with added credentials in primary care. How would such a change affect the current pharmacist shortage? What role might certified pharmacy technicians have in expanding capacity for pharmacists to engage in primary care provider (PCP) functions?

Other PCPs may perceive such a move by pharmacists as threatening. Communication efforts must include messaging that pharmacist PCPs would work in collaboration to help solve the primary care shortage and add needed drug therapy expertise and ready accessibility to the team. Pharmacy's efforts would be complementary to those of other health professions, not competitive.

Pharmacy educators and academic administrators must determine the core elements of education and training to fill gaps for pharmacists to serve as PCPs. As providers of entry-level and post-graduate degree programs, academic pharmacy needs to determine whether and how additional training would be integrated into doctor of pharmacy programs (e.g., via required course content, electives, extended dual degree/certificate options). Implementation would also provide opportunities for conducting practice-based education programs or offering graduate coursework to practicing pharmacists. The impact on faculty resources, where many shortages already exist, would also require assessment.

Questions: How would entry-level education and/or post-graduate training adapt to prepare pharmacists to assume these additional responsibilities? What partnerships with other health professions education programs might be forged to collectively meet the educational needs and demands amidst faculty shortages in health professional education programs?

State and Federal Legislators and State Boards of Pharmacy. State pharmacy practice acts require amendments to expand the scope of practice for pharmacists or a subset of pharmacists. In addition, parameters for licensure must also be defined and regulated.

Examination Boards. Possible implications to the National Association of Boards of Pharmacy and Board of Pharmaceutical Specialties (BPS) would revolve around any potential respective roles in testing and evaluating pharmacist competence related to primary care services. What would this credential be and how would competence be measured? How would it relate to current licensure exams, BPS specialties and/or specialty exams?

The healthcare system would benefit through expansion of the primary care workforce, greater access, and improved public health. Mechanisms are already in place for pharmacist recognition as providers; pharmacists are recognized through payer systems as providers through billing for Medicare Part D Medication Therapy Management, Part B, and other programs. How would payment systems have to change to support this practice model?

In the context of healthcare reform, federal legislators should consider funding education of pharmacists to rapidly and effectively expand the workforce and distribution of PCPs. In addition, collaborative demonstration projects aimed at preparing practicing pharmacists to assume PCP functions should also be funded. In supporting legislation, regulation, and/or demonstration projects that address patient-centered primary care, consideration should be given to primary care projects that give special attention to the support of providers who provide care for patients who would not otherwise have access to care and which allow all licensed PCPs to serve in this role.

The primary care inadequacies in the U.S. have reached crisis proportions and are steadily intensifying. A multifaceted, interprofessional effort will be required to meet the primary care needs of all Americans now and over the coming decades. Today, pharmacists can contribute immediate solutions through efforts to enhance management of medications, identify and solve drug-related problems and ADEs, and help patients achieve intended outcomes. As a profession, pharmacy must do its part in helping to address the primary care shortage and expand geographic distribution to improve access to quality healthcare for all Americans. A comprehensive and concerted effort should be undertaken to explore strategies and tactics for preparing pharmacists to assume primary care provider roles to effectively, safely, and rapidly help to meet the increasing, unmet public health needs of society.

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