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# ASSESSMENT OF MEDICATION DISPENSING AND EXTENDED COMMUNITY PHARMACY SERVICES

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## INTRODUCTION

Pharmacists serve individual, community, and societal needs. Brodie (1981) proposed that pharmacists' basic role has to expand based on advancements in technology and knowledge. In the past, pharmacists' main purpose was to prepare medicines and to ensure their availability. However, pharmacists can now react to external forces (e.g., economic, epidemiological, demographic, and technological) that are reshaping the profession by positioning themselves within the medication use system and being in control of the process. Helper (1988) suggested that pharmacists be more knowledgeable and focus on their fundamental pharmacist–society relationship to improve public health.

## WHAT IS HEALTH, PUBLIC HEALTH, AND PRIMARY HEALTHCARE?

In 1946, WHO defined health in its constitution:

Health is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity.

WHO (2002)

This is the most quoted definition of health, which clearly stresses “well-being.” Four decades later, WHO (1984) revised its definition as follows:

Health is the extent to which an individual or group is able, on the one hand, to realize aspirations and satisfy needs; and, on the other hand, to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not an object of living; it is a positive concept emphasizing social and personal resources, as well as physical capacities.

In developing countries, healthcare needs are more pressing than those in developed nations. Unfortunately, for various reasons, the provision of care is inadequate, particularly in the public sector; it is even worse in the private sector.

WHO (2005) has highlighted the importance of improving, monitoring, and evaluating people’s wellness and quality of life, which, as a public health concern, should be the goals in a country’s national development. In 1920, Winslow defined public health as follows:

[Public health is] the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals.

(Winslow, 1920)

Public health is an organized effort to maintain the health of the people and to prevent illness, injury, and premature death by focusing on prevention and health protection services (The Association of Faculties of Medicines of Canada, n.d.).

Another relevant community-related concept is primary healthcare. Primary healthcare was the core concept of WHO’s goal in health for all, which was based on the Alma Ata declaration in 1978 (WHO, 1978). Due to high healthcare expenditures, moving some of the healthcare focus from the tertiary level to the primary level is perhaps justifiable. Primary care also aims to decrease the public’s reliance on hospitals to fill drug prescriptions. According to WHO, to achieve health for all, people must be put at the center of healthcare (WHO, 2007). People-centered care is focused and organized around the health needs and expectations of people and communities rather than on disease itself (WHO, 2015).

If people and society are the core of the “health for all” mission, then where do community pharmacists belong as healthcare providers? Do the pharmacy and community pharmacists fit within the system?

In this chapter, an assessment of community pharmacy practices in developing countries is particularly interesting in terms of medication dispensing and extended pharmacy services. The chapter also seeks to examine the significant societal contributions of community pharmacists, including the challenges and gaps in practice. This chapter will also focus and discuss the expected role, function, and responsibilities of community pharmacists in developing countries. This is based on the aforementioned concepts of “health,” “public health,” and “primary healthcare.”

## EXPECTED ROLE AND FUNCTION OF COMMUNITY PHARMACISTS

A community pharmacy is a healthcare facility that provides pharmaceutical and cognitive services to a specific community. From independently owned pharmacies to corporately owned chain pharmacies, a variety of pharmacies are in operation. In some developing countries in Africa and Asia, the terms “drug outlets,” “retail drug outlets,” “retail drug shops,” and “private pharmacies” are commonly used. Community pharmacists must strategically position themselves in the community to serve the public health. Community pharmacies can be found on main streets, in malls and supermarkets, at the heart of the most rural villages, and in the center of the most deprived communities. In some countries, many community pharmacies are opened early and closed late when other healthcare professionals are unavailable (CPNI, no date). According to WHO (1994), among healthcare providers, community pharmacists are the most accessible to the public. In practice, a pharmacy provides medications and other healthcare products and services and helps people and society make the best use of them (Wiedenmayer et al., 2006). Community pharmacists supply, dispense, and sell medications according to the law. A proper dispensing practice will interpret and evaluate a prescription; select and manipulate or compound a pharmaceutical product; and label and supply the product in an appropriate container according to legal and regulatory requirements (WHO, 1994). In addition, pharmacy activities include a pharmacist’s provision of information and instructions to patients, and, under a pharmacist’s supervision, practices will ensure the patient’s safe and effective use of the medicines.

In some countries, pharmaceutical services go beyond these basic services. These services or functions (e.g., counseling, drug information, blood pressure monitoring, immunizations, and diabetic self-management) will require professional knowledge and skills beyond those required to dispense prescription medications (Wiedenmayer et al., 2006). These services include all those delivered by pharmacy personnel to support the delivery of pharmaceutical care. Beyond the supply of pharmaceutical products, pharmaceutical services include information, education, and communication to promote public health; the provision of drug information and counseling; regulatory services; and staff education and training (Wiedenmayer et al., 2006).

Hepler and Strand (1990) coined the term “pharmaceutical care,” which they defined as “the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve (or maintain) a patient’s quality of life.”

This collaborative process aims to prevent or identify and solve pharmaceutical and health-related problems—a continuous quality improvement process regarding the use of medicines (Wiedenmayer et al., 2006). The philosophy of pharmaceutical care promoted in the early 1990s is no longer new. Many studies, initiatives, and interventions, especially in developed countries, have been conducted to improve patient care and health outcomes. In an attempt to provide health and pharmaceutical care to patients and society, the healthcare and pharmaceutical sectors in developing countries, particularly low- and middle-income countries (LMICs), are facing challenges. These challenges include the shortage of human resources in the pharmacy workforce; inefficient health systems; the rising costs of medicines and healthcare; limited financial resources; the huge burden of disease; and changing social, epidemiological, technological, economic, and political situations (Mohamed Ibrahim, Palaian, Al-Sulaiti, & El-Shami, 2016).

In general, pharmacists play an important role in the healthcare system through the provision of medicines and information (ACCP, no date). Pharmacists are drug experts who focus on patients’

health and wellness. The Competency Standards for Pharmacists in Australia (SHPA, 2003) mentioned several important functional areas that community pharmacists could assume: dispensing medication; preparing pharmaceutical products; promoting and contributing to the quality use of medication; providing primary healthcare; and supplying information and instructions related to health and medication.

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## THE EXTENT OF THE COMMUNITY PHARMACY'S CONTRIBUTION

What kind of value and benefits does the public really gain from community pharmacy practice? Despite the widely acknowledged potential of community pharmacies in developing countries to respond to public healthcare needs, related developments have been limited (Smith, 2004). In addition, the quality of community pharmacy practices has also been questioned. In many countries, especially in LMICs, community pharmacists have only performed the basic or traditional role (i.e., as a drug dispenser), and they have sometimes indulged in unethical practices. Studies have reported mixed findings: community pharmacies make a contribution to society, but they are also problematic (i.e., they do not meet expectations and provide low-quality services).

## THE TWO SIDES OF COMMUNITY PHARMACISTS' SERVICES

In Estonia, since the restoration of independence in 1991, community pharmacies have become more patient-oriented, even though the government has not pressured pharmacies to offer extended services. In addition to dispensing, pharmacies still compound extemporaneous products and sell herbal medicines. Community pharmacists continue to perform their traditional roles (Volmer, Vendla, Vetka, Bell, & Hamilton, 2008). Prior to 2007, clinical pharmacy was never practiced in community pharmacy settings in Peru. However, the pharmaceutical care initiative has been reported to be growing and well supported by the law. Peruvian pharmacists are encouraged to take this opportunity to expand their services (Alvarez-Risco & van Mil, 2007). In China, pharmaceutical care services are underdeveloped but, with the improvement of the Chinese Pharmacist Law, they will become an important part of the pharmacist's professional role (Fang, Yang, Zhou, Jiang, & Liu, 2013).

Pharmacists in Vietnam are encouraged to expand their role—from drug sellers to client counselors, drug treatment managers, adherence counselors, and advisors on illness prevention. Pharmacies are often the first place that people visit to seek medical help, and they serve as a source of health information and services. The intervention that has empowered pharmacists to serve as client advocates and client counselors has identified a few improvements, such as knowledge, behavior, increased client satisfaction, and pharmacist–healthcare provider relationships. Pharmacists can move beyond the traditional role of selling drugs to be more effective healthcare professionals, and they need continuing professional development (CPD) (Minh, Huong, Byrkit, & Murray, 2013).

From another perspective, evidence has shown that community pharmacists perform far below public expectations. Patients have encountered several problems and challenges related to community pharmacy practice, which can be discussed according to pharmacy, pharmacist, prescription, service, and system factors.

Studies have reported that community pharmacists in developing countries, especially LMICs, do not provide quality services. A quick look at 19 developing countries (Fathelrahman, Mohamed

Ibrahim, & Wertheimer, 2016) shows that the community pharmacy practice setting is regarded as popular. Unfortunately, this practice setting also presents some concerns. For example, some countries allow nonpharmacists to operate pharmacies and to handle medicines. In some countries, the practice of community pharmacy is not well regulated, with little to no minimum standard of practice (Hussain, Mohamed Ibrahim, & Zaheer, 2012d). Many pharmacy personnel who dispense medicines are unqualified, with no college/university diploma or professional degree in pharmacy (Lenjisa, Mosisa, Woldu, & Negassa, 2015). A study in Turkish Republic of Northern Cyprus (Gokcekus, Toklu, Demirdamar, & Gumusel, 2012) reported that the pharmacy employees have no pharmacy-based training and that pharmacists believed that their employees are capable to handle the prescriptions. Studies in Qatar, Pakistan, Malaysian, and Sudan have indicated that dispensing and labeling practices and provider–patient interactions are poor (Alamin Hassan, Mohamed Ibrahim, & Hassali, 2014; Hussain & Mohamed Ibrahim, 2011; Hussain et al., 2012d; Mohamed Ibrahim et al., 2014; Mohamed Ibrahim et al., 2016; Osman, Ahmed Hassan, & Mohamed Ibrahim, 2012). In addition, a few dispensing errors have been identified (Lenjisa et al., 2015). According to Basak, Arunkumar, and Masilamani (2009), community pharmacy services in India are quite problematic, and the pharmacy's role in healthcare remains unrecognized. These authors have called for reform to meet societal needs. A study in Nigeria found that some community pharmacists often administer injections for customers—in some cases, without a prescription. The number of prescriptions that community pharmacists receive is low. They suffer from the limited availability of some resources, which has a serious impact on their practice (Adje & Oli, 2013). A review of community pharmacy practices showed that, in some countries, pharmacy outlets were run by nonpharmacists; dispensing practices were unsatisfactory; drug sellers' level of knowledge regarding diseases and medicines was poor; medicines were used irrationally; pharmacies were not meeting the government's licensing requirements; medication storage conditions were improper; and customers could hardly meet with pharmacists (Hussain, Mohamed Ibrahim, & Babar, 2012a, 2012b, 2012d; Hussain & Mohamed Ibrahim, 2012). A study on over-the-counter (OTC) counseling in Brazil (Halila, Junior, Otuki, & Correr, 2015) concluded that even though the most important factors taken into account when counseling an OTC medicine were drug's efficacy and adverse effects, but only few pharmacists knew the meaning of terms related to evidence-based health. Poudel, Subish, Mishra, Mohamed Ibrahim, and Jayasekera (2010) reported that unregistered fixed-dose combinations of pharmaceutical products (e.g., antimicrobial combinations, nonsteroidal antiinflammatory drug combinations, and antimotility combinations) have been found in Nepali healthcare facilities, including drug outlets. Regarding prescription behavior, even in rural areas of India, the proportion of brand name prescriptions was high (Aravamuthan, Arputhavanan, Subramaniam, & Chander, 2017).

Other common prescription problems include the lack of information, illegible handwriting, and various errors (e.g., prescription errors, dispensing errors, and improper labeling related to particular standards or requirements) (Hussain & Mohamed Ibrahim, 2011; Syhakhang, Stenson, Wahlström, & Tomson, 2001).

Pharmacy hours vary: typically, some pharmacies are open for approximately 10h (e.g., in Malaysia), while others offer 24-h services (e.g., in Qatar). In some countries (e.g., Nepal and Sudan), pharmacy hours and operations can be affected by the availability of reliable electrical power supply. Some countries do not have conveniently located pharmacy outlets, and customers might have to walk for hours to reach one. Some pharmacies lack proper facilities (e.g., a private room for patient counseling), space, reference resources (e.g., drug information), and/or quality medication (e.g., substandard

and counterfeit and irrational fixed-dose combinations); have a poor layout, impractically arranged products, and/or disorganization issues; and/or keep and sell expired or almost expired items.

Developing countries also suffer from an insufficient number of pharmacists. In addition, for economic reasons, pharmacists prefer to work or set up their pharmacies in urban areas rather than in rural areas (Smith, 2001, 2004). In addition, some pharmacists are hard to find in pharmacies (“the invisible pharmacist”), and patients/customers have to rely on pharmacy assistants/technicians (Amin & Chewing, 2016). Most of the time, these staff have no proper professional qualifications and lack important skills and knowledge. Even worse, some community pharmacists lack particular competencies and communication skills, have no or few business skills, and do not have up-to-date knowledge. In some cases, pharmacists do not comply with regulations (e.g., selling antibiotics or psychotropic drugs without a prescription), and they often fail to assume responsibility for pharmaceutical care. In the eyes of the consumers, community pharmacists are always regarded as businesspeople rather than as healthcare professionals. Community pharmacists must strike a balance between professional and business responsibilities. Having both qualities, i.e., having a high level of professionalism and an excellent business sense, should not be so difficult. How these two aspects influence the health and well-being of individuals and society is what matters.

The services provided by community pharmacists have been reported to focus more on their distributive function (e.g., basic medication dispensing and sales), not the expected proper medication dispensing practice mentioned above (Wiedenmayer et al., 2006). Most of the time, pharmacists provide no advice/counseling; rarely interact with patients and physicians; make no referrals; lack or have few medicines due to poor planning and estimation/quantification; have no records of patients/clients or the medicines dispensed; use little to no technology; mix and prepare medications in the pharmacy rather than according to standards, for example, US or British Pharmacopeia (compounding or extemporaneous dispensing); and do not provide drug information that could help reduce medication misadventures.

In 2003, the Malaysian Pharmaceutical Society introduced its benchmarking guidelines for community pharmacies. The society sought to raise the standards of practice. Unfortunately, a study reported that the level of awareness of these guidelines was low and that only around 60% of the pharmacies complied with them (Siang, Kee, Gee, Richard, & See Hui, 2008).

The quality of the pharmacy education system has been affected. Some countries lack colleges with pharmacy degrees. Even if adequate, these colleges often lack quality curricula; the syllabi are out of date and do not cater to the present needs of the healthcare system. In addition, colleges lack staff; even if they have enough staff, they lack quality staff/faculty with appropriate qualifications or expertise. The pharmacy workforce is not carefully planned according to the country’s needs. Some countries do not have pharmacy associations, which could provide professional leadership, and some even are unable to provide continuing education for pharmacy staff. Another critical problem is that there are very few policy makers and regulators who understand the system, who are committed and motivated, and who have sufficient technical know-how to solve the problems. In addition, many countries have a corrupt system and authorities; a weak and unstable government and economy; problems with bureaucracy, middlemen, profits, etc. that affect the final retail price, potentially making it too high for consumers; no or few effective price containment strategies/policies, which have resulted in unaffordable prices (Khatib et al., 2016), especially for the poor and others in need. Due to the lack of an attractive salary and benefits, pharmacists have migrated to other countries for better life and career opportunities. As such, nonpharmacists are allowed to own and operate pharmacies in developing countries.

The image of the pharmacist and the profession very much depends on customer satisfaction. A study conducted in Nigeria showed that customers experienced moderate service satisfaction. Customers were mostly dissatisfied with healthcare services that related to pharmaceutical care activities (Oparah & Kikanme, 2006). In a patient satisfaction survey conducted in the United Arab Emirates (UAE), scores were significantly lower than published data, suggesting that patients' expectations of community pharmacy services have not been met there (Hasan et al., 2013). Dhote, Mahajan, and Mishra (2013) mentioned that the rise of pharmaceutical care services must be accelerated based on the rapid changes in consumers' expectations.

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## WHAT CAN WE LEARN FROM OTHERS?

Best practices can be adopted and adapted according to a country's needs and conditions. Does "one size" really fit all? Is "comparing apples and oranges" difficult? Adopting 100% of one country's practices in another country is unwise. Many factors need to be considered. No country has a perfect system; however, community pharmacists in developing countries can definitely learn from at least one practice or service.

According to Brodie (1981), the traditional role of dispensing medications has been expanded. Pharmacists should be both health generalists and health specialists, which will have an impact on public health. Even the American Public Health Association (1981) supports the pharmacists' role in public health. Should community pharmacists move beyond their traditional role? Even when dispensing medicines through paper-based prescription services, pharmacists should comply with some fundamental standards. Safety issues must be considered when dispensing medications. The Pharmacy Board of Australia published guidelines for medication dispensing (i.e., guidelines for scanned and faxed prescriptions and steps to take when handling Internet or mail-order dispensing); guidelines for dispensing extemporaneous medications; guidelines when handling errors (e.g., dispensing errors); guidelines for appropriate medication labeling; guidelines for patient counseling, privacy, and confidentiality; and pharmacy technicians' functions, responsibilities, and competencies (Pharmacy Board of Australia, n.d.). In addition, for pharmacies that use electronic and computer systems, the Royal Pharmaceutical Society of Great Britain (n.d.) has provided several guidelines and principles for good dispensing and appropriate dispensing procedures (e.g., professional checking, medication substitution, and labeling). Malaysia, a developing country, has also developed *Guide to Good Dispensing Practice* (Malaysian Pharmaceutical Services Division, 2016). These guidelines aim to have both public and private facilities dispensing medications according to the law and guidelines, which may ensure that patients receive the correct medications, adherence is improved, adverse effects are minimized, and errors are avoided. The document's contents relate to processing prescriptions, preparing medications, labeling, recoding, and issuing medications to the patient. In geographical areas where no pharmacists are available, a guide about managing medicines would be a handy document indeed (Andersson & Snell, 2010).

In some countries, community pharmacists are ready to provide extended services (or cognitive pharmaceutical services). According to Cipolle, Strand, and Morley (1998), cognitive pharmaceutical services entail the pharmacist's use of specialized knowledge to help patients or health professionals and promote effective and safe drug therapy. These services are simply "clinically oriented activities intended to improve medication prescribing and use" (Farris, Kumbera, Halterman, & Fang, 2002).



Why are pharmacy practices still outdated in some countries? What are the barriers to quality community pharmacy services? Are pharmacists reluctant to move forward? The lack of time, reimbursement, recognition, cooperation with general practitioners, documentation, networking; the location of services within the pharmacy premises; the attitudes of customers and pharmacists; the pharmacy owner's involvement (or lack thereof); the daily organization of services; and customer recruitment for such services are among the barriers to the successful implementation of extended services (cognitive services) (Garrett & Martin, 2003; Gastelurrutia et al., 2009; Hopp, Sørensen, Herborg, & Roberts, 2005; Rossing, Hansen, & Krass, 2002).

In some countries, pharmacists have moved away from product-oriented services toward service-oriented and then patient-oriented services, increasingly emphasizing the patient's health outcomes (the economic, clinical, and humanistic outcomes model) (Drabinski, 2000; Kozma, Reeder, & Schulz, 1993). Outcomes refer to the consequences (results) of interventions that are made to achieve therapeutic goals. Outcomes can have economic, social/behavioral, or physiological characteristics. When community pharmacists are serving the public, in addition to health outcomes, at least four important parameters should be monitored: accessibility, availability, affordability, and acceptability. When patients benefit from the medications that they take, their health improves, which ultimately reduces costs (Wiedenmayer et al., 2006).

The scope of pharmacy practice now includes patient-centered care—with all the cognitive functions of counseling, providing drug information, and monitoring drug therapy—and the technical aspects of pharmaceutical services, including medication supply management, as well as people- or public-centered care. Community pharmacies can offer comprehensive healthcare services, including advanced and enhanced services. Such services include the rational use of medicines; medication adherence; self-management clinics for group of patients with chronic diseases (e.g., diabetes mellitus, hypertension, and asthma); medication therapy management; screening and monitoring; education for enhancing medication adherence; encouraging and educating patients to receive their recommended immunizations and those for infants; home healthcare services; partnership in palliative care teams; drive-through facilities; mail and Internet orders of medicines; rural and remote area services; mobile pharmacy; helping patients with special needs; public health and primary healthcare services (e.g., HIV/AIDS and drug abuse treatment); distributing literature and educating regarding life style change for stress reduction, proper nutrition, and exercising; collaboration with other healthcare professionals during disease outbreaks (e.g., Ebola virus disease, severe acute respiratory syndrome, middle-east respiratory syndrome, and Zika virus disease); involvement in an unwanted medicines program; health promotion (the process of enabling people to increase their control over—and to improve—their health, e.g., smoking cessation, obesity management, and diabetic self-management); drug therapy problems (defined as “[a]n undesirable event, a patient experience that involves, or is suspected to involve drug therapy, and that actually or potentially, interferes with a desired patient outcome” (Cipolle et al., 1998; Strand, Cipolle, Morley, Ramsey, & Lamsam, 1990)); and pharmaceutical public health services. Pharmaceutical public health has been defined as follows:

The application of pharmaceutical knowledge, skills and resources to the science and art of preventing disease, prolonging life, promoting, protecting and improving health for all through the organized efforts of society.

Walker (2000)

Pharmacists could also provide public services, such as local guidelines and treatment protocols, medication use review and evaluation, national medicine policies and essential medicine lists, pharmacovigilance, needs assessment, and pharmacoepidemiology (Wiedenmayer et al., 2006). Pharmacists

should be at the front line to promote safe sex, birth control education, advice on nursing babies, and caring for elderly parents and relatives. In addition, pharmacists could work with local authorities in the direction of a cleaner and safer environment (air, water, and ground) and for safe food handling. Pharmacists should only carry in stock and sell products with proven medical value, not selling tobacco products, and not supplements and homeopathic medicines that have no clear scientific evidence of safety and effectiveness.

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## ACHIEVEMENTS

The literature has shown that community pharmacists in some countries have had a positive impact on public health. First, training and education programs have been able to enhance the knowledge and practices of pharmacists. Continuing education programs, especially if mandatory, also play a significant role. Second, pharmacy colleges have improved by incorporating relevant courses and topics into the syllabi for undergraduate pharmacy programs. Third, strong, motivated, and uncorrupted pharmacy authorities/regulatory agencies have been able to improve community pharmacy practices because of their concern, motivation, and effort to make necessary improvements.

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## CHALLENGES

To progress and gain society's acceptance, community pharmacists must acknowledge the following challenges in healthcare systems:

1. One-third of the world's population is known to lack regular access to essential medicines. For many people, the cost of medication is a major constraint. Those hardest hit are patients in developing and transitional economies, where 50% to 90% of medicines are out-of-pocket expenses (WHO, 1998). The burden falls most heavily on the poor, who are not adequately protected by current policies or by health insurance.
2. Healthcare workers, including community pharmacist, are in short supply, especially in LMICs (WHO, 2016).
3. Some countries are eager to introduce and establish a Doctor of Pharmacy (PharmD) degree in pharmacy colleges, but due to several reasons, they have failed to produce competent graduates who can apply clinical knowledge in practice or who can distance the practice from its traditional role.
4. The logistical aspects of distribution, often seen as the pharmacist's traditional role (i.e., the "count and pour, lick and stick pharmacy"), represent another challenge.
5. In terms of medication quality, studied medication samples have failed quality control tests (MSH, 2012), and substandard and counterfeit medications are highly likely to be on pharmacy shelves.
6. Another major challenge is ensuring that medicines are used as advised or instructed; more than half of all prescriptions are incorrect, and more than half of the people who are prescribed with medications fail to take them correctly. Medication adherence can be affected if the medication is unavailable or unaffordable or if the instructions given are not understood or remembered. Furthermore, a patient's confidence or trust in the pharmacist or the medications prescribed may also affect adherence.

7. Especially in economically deprived communities, self-medication with either modern or traditional medicines is becoming common practice. Individuals resort to self-medication when healthcare services become more unaffordable and inaccessible (Hughes, McElnay, & Fleming, 2001). The situation deteriorates when prescription medicines can be easily obtained over the counter. Community pharmacists could play a role in mitigating the risks of self-medication (Bennadi, 2013).

Given the list of pharmacist-, pharmacy-, and practice-related issues above, are pharmacists still needed in the community and in the healthcare system? If community pharmacists still perform the basic function of medication dispensing or if a country lacks pharmacists, could we simply have medicine vending machines (i.e., a self-service technology) across the country (Adams, 2014; Poulter, 2010)? These machines could provide customers access to OTC drugs, nondrug items, and information, thereby supporting the self-care concept (Steinfirst, Cowell, Presley, & Reifler, 1985). This technology could be argued to have an adverse effect on customers. For example, the buying and selling process lacks the “human touch,” or customers leave the pharmacy without information or take medication incorrectly due to a lack of quality information. However, what is the difference when the same customers visit pharmacies with “invisible pharmacists”? Do pharmacists just count pills? If community pharmacists are hesitant or refuse to change, these vending machines will put them out of business. For countries searching for cost-cutting strategies, this technology might be a solution.

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## RECOMMENDATIONS: THE WAY FORWARD

To be effective healthcare team members, community pharmacists need skills and abilities that will enable them to assume many different functions. WHO introduced the concept of the “seven/eight-star pharmacist,” which the International Pharmaceutical Federation (FIP) adopted in 2000 in its policy statement on Good Pharmacy Education Practice to outline the caregiver, decision-maker, communicator, manager, lifelong learner, teacher, and leader roles of the pharmacist. The pharmacist’s function as a researcher has since evolved, and all these roles have been addressed in the competence standards (WHO, 1997, pp. 27–29). Community pharmacists have to make efforts to move from being drug compounders and dispensers to being pharmaceutical care providers and medication experts; their role and function should focus on patient-centered care rather than products and profits. Community pharmacists must equip themselves with adequate knowledge and skills and be responsible for ensuring that, irrespective of the medications provided and used, quality products are selected, procured, stored, distributed, dispensed, and administered to enhance patients’ health and do them no harm. Relevant pharmacy authorities should provide more support, training, and development for community pharmacies to help their pharmacists deliver high-quality services. Pharmacy associations could organize programs in collaboration with pharmacy colleges and could involve regional or international experts if affordable. Nonprofit international organizations, such as WHO and Management Sciences for Health (MSH), could assist LMICs in this matter. In addition, some chain pharmacies could implement monthly programs. Community pharmacists must be involved in CPD; individual pharmacists are responsible for the systematic maintenance, development, and broadening of their knowledge, skills, and attitudes to ensure their continued competence as professionals throughout their careers. Community pharmacists (with the help of academics from pharmacy colleges, if required) must

conduct research to document outcomes and impacts (e.g., accessibility, effectiveness, and positive perceptions of the experience); research must be conducted to assess the minimum standards and quality of community pharmacies and to provide evidence-based practice information. The numbers of published studies from developing countries are very low compared with those from developed countries. Managerial and educational interventions are needed to improve the practice. Community pharmacists could obtain inputs/ideas and explore the perceptions of community pharmacy staff—in addition to customers and patients—regarding aspects of service quality. These inputs could then perhaps be used to improve the services offered to customers. Some pharmacists are able to use information technology to enhance pharmacy and pharmaceutical services; pharmacists in some other countries find doing it so problematic—due to a very basic infrastructure or the lack of basic competencies, among others. Finally, WHO ([Wiedenmayer et al., 2006](#)) and other sources have provided a guide and systematic approach for delivering pharmacy patient-centered care and good pharmacy and dispensing practice.

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## CONCLUSIONS

Public health pharmacy interventions, patient-centered care, rational medication use, and effective medication supply management are key components of an accessible, sustainable, affordable, and equitable healthcare system that ensures the efficacy, safety, and quality of medications. The customer's (patient's) expectations are rapidly changing; customers are becoming more aware of their healthcare needs. Customers now demand better quality care and more attention to maintain or improve their overall health. Evidence has shown that challenges and gaps exist in community pharmacy practice. In developing countries, the functions of community pharmacists must be redefined and reoriented. A paradigm shift in the mind-set and practices of pharmacists is urgently needed.

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## LESSONS LEARNED

- Although the overall level of community pharmacy services provided in developing countries does not meet the public's expectations, gradual progress has been observed.
- The number of trained community pharmacists is inadequate; their distribution is unbalanced; and, in some countries, individuals without the professional pharmacy degrees are allowed to work in pharmacies. Thus, pharmacy authorities, policy makers, and educators must collaborate to fix these problems and make improvements.
- Due to the high prevalence of chronic diseases and the need to improve public health and well-being, community pharmacists must continue to be competent in their professional and business roles; pharmacists should expand the role in delivering wellness services (e.g., disease-oriented pharmaceutical care) that go beyond filling prescriptions.
- Many developing nations do not have effective and efficient regulations, guidelines, policies, governmental support, or electronic patient records and databases in community pharmacies to help establish and implement clinical, cognitive, and extended pharmacy services.
- Community pharmacists should establish benchmark best practices—at the very least among countries with similar economies and levels of development.

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## FURTHER READING

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