

Exploring the Role of Pharmacy in Modern Healthcare

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ABSTRACT

Pharmacy has a long history of supporting what is now known as healthcare in the United States of America. The pharmacist profession has evolved from curing with compounds to counseling patients, managing chronic diseases, immunizing, and contributing to public health outcomes. Pharmacists are the drug experts of the healthcare team and can use their extensive knowledge to influence disease outcomes using preventative, therapeutic, and rehabilitative pharmaceutical care. While medication dispensing and managing the medication-use process are fundamental aspects of pharmacy, assessing what contributes to medication safety and efficacy is a complicated combination of socio-cultural and economic factors at the macro level, along with the healthcare system, patient, and environmental influences at the micro level. To better understand all the factors that affect pharmacy, you must be able to take a step-by-step approach in which pharmacy has a measurable impact. Measuring clinical outcomes can tell you what a pharmacist does and if it is done well, and the subsequent impact on the patients' medication.

KEYWORDS: pharmacy, healthcare.

1. Introduction

Pharmacy has a long history of supporting what is now known as healthcare in the United States of America. The pharmacist profession has evolved from curing with compounds to counseling patients, managing chronic diseases, immunizing, and

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contributing to public health outcomes. Pharmacists are the drug experts of the healthcare team and can use their extensive knowledge to influence disease outcomes using preventative, therapeutic, and rehabilitative pharmaceutical care. While medication dispensing and managing the medication-use process are fundamental aspects of pharmacy, assessing what contributes to medication safety and efficacy is a complicated combination of socio-cultural and economic factors at the macro level, along with the healthcare system, patient, and environmental influences at the micro level. To better understand all the factors that affect pharmacy, you must be able to take a step-by-step approach in which pharmacy has a measurable impact. Measuring clinical outcomes can tell you what a pharmacist does and if it is done well, and the subsequent impact on the patients' medication.

The pharmacy as a profession that continually has a personal and measurable contribution to overall health outcomes is the focus of this paper. A pharmacy education in the United States is currently a Doctor of Pharmacy, or Pharm.D., degree granted after six years of post-secondary education. This education is built on highly valued physical and biological sciences with the aim of creating a unique blend of evidence-based scientific principles and more readily transferable practical and clinical skills. The profession is broad, and pharmacists can typically select their practice setting based on their career interests. In addition, many pharmacists go on to complete specialized residency training and become board-certified in a specific practice or therapeutic area.

2. Historical Evolution of Pharmacy

Pharmacy has developed over millennia into the healthcare profession that we understand it to be today. Pharmacy practice and the role of pharmacists are subject to change due to healthcare system advancements and the current needs of society. The evolution of the practice has been very responsive to changing circumstances, and roles have evolved and adapted over time. The professionalization of the practice of pharmacy has become increasingly significant in the modern era. The development of pharmacy is the result of an intricate interrelationship between practice and advancements in science, technology, and professionalism. The evolution of Western civilization and its philosophy has been the driving force in pharmacy's historical development and influenced many civilizations around the world.

The development of pharmacy practice draws on the knowledge of cultures and civilizations that absorbed the art and science of the Egyptians, Chinese, Greeks, and Arabs. Modern pharmacy practice can be traced back to the late Middle Ages with the systematic recording of forms and the classification of drugs known as 'materia medica.' This section will consider how a number of historical events, movements, and concepts have contributed to the development of the practice of pharmacy and, hence, have influenced the expectations of society regarding pharmacy practice. Understanding pharmacy in historical context will allow us to establish a framework for understanding some of the fundamental professional responsibilities and duties of pharmacists today.

3. Pharmacy Education and Training

Pharmacy education and training are integral components in the molding of knowledgeable and proficient pharmacy practitioners. Depending on the country, there are various pathways to enrolling in a professional pharmacy degree. The greatest majority of pharmacists undertake a Bachelor's program in Pharmacy directly from high school and older. Alternatively, 6-year direct-entry undergraduate programs are offered so that graduates hold, in addition to a professional degree, a baccalaureate degree, e.g., Bachelor of Pharmacy (Hons). In many universities, Bachelor of Pharmacy - High Distinction is additionally offered.

In the United States, the degree is a doctorate-level professional and/or graduate status degree, equivalent to a Ph.D. Professional Pharm.D. programs are accredited by relevant organizations. Like many other professions, the professional entry-level degrees are relatively consistent across institutions and, as such, many employers view the completion of an appropriate degree as only a portion of the compulsory requirement for effective practice. Undergraduate programs emphasize scientific knowledge, clinical skills, and ethics. Professional organizations decree additional pre-registration standards prior to the conferment of the qualifying professional degree. Pharmacy programs must meet or be benchmarked against the standards of relevant documentation and guidelines of accreditation. Schools of Pharmacy develop and offer an experiential curriculum that demonstrates the application of laws, drug distribution systems, drug and natural medicines, and the reading and understanding of research. Ongoing training and professional development are fundamental requisites of effective pharmacy practice because today's situation is not only significantly more complex than that of 15 years ago, but it will certainly be significantly less complex shortly. Lifelong learning is not only a learning model for the profession of pharmacy, but it has evolved into a philosophy for many professions. Model pharmacy development programs will mirror this practice and hence model lifelong learning as a learning philosophy. Programs will:

- Train practitioners to be strong in natural medicine because other health care professionals will either add a natural medicine specialist to their group or refer patients. These groups, which include still minority and underserved patients, will need the services of a practitioner well-versed in ethical practice.
- Train practitioners to be effective, both scientifically and interpersonally, in communication with health care professionals as young as women in their first trimester.

4. Pharmacy Practice Settings

Pharmacy practice settings categorize the environment in which a pharmacist works. These include:

- Community practice - Hospital practice - Clinical pharmacy

Community pharmacies are the primary practice setting where pharmacists provide medication dispensing and health consultations to the public. Hospital pharmacists work as part of a multidisciplinary team and have clinical, technical, and administrative roles, while a clinical pharmacist will routinely engage in patient management and therapeutic decision-making. Pharmacists working in different

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practice settings require different skills and knowledge; each environment offers different opportunities and is encumbered by separate sets of challenges and difficulties. (Motulsky et al.2021)(Anderson & Sharma, 2020)(Aziz et al.2021)

Pharmacists in the community serve the general public, establishing relationships with generations from the same family and often have established themselves in a community for a long time. A community pharmacist is someone who works with members of the public on a daily basis. There are some variations in job roles and duties based upon the company and whether or not the community pharmacist is the owner of the business or an employee. Another variation would revolve around whether the community pharmacist is practicing in the independent sector or a chain. These roles require the pharmacist to take accountability for medicines that are supplied, provided, stored, and prescribed before being supplied. Within a community setting, people with different requirements, jobs, and illnesses present to the pharmacist. Also consider when attending our surgeries who people presenting to you might be buying 'over the counter' from a pharmacist or might be going there before or after seeing a health professional for advice.

4.1. Community Pharmacy

Community pharmacy, one of the principal points of access for the general population into the National Health Service, plays a major role in public health. A community pharmacist offers many services including, but not limited to, dispensing prescriptions, patient counseling, health screening services, emergency hormonal contraception, supervised consumption, and smoking cessation advice and services. As front-line health professionals, community pharmacists are also trained to recognize the symptoms of ill health, health deterioration, and wellness, while providing an invaluable link in public consultation, as they are often the first healthcare professional to be consulted in minor ailments.

Several bodies of evidence show that a good healthcare professional–patient relationship is the cornerstone for a successful health promotion activity, and good, effective communication is the basis for such a relationship. Pharmacist–patient relationships are built on continuity, communication, and trust. Since they usually work in the same neighborhood as their patients, community pharmacists have a unique opportunity to develop these attributes with their patients that may lead to individual behavioral changes. As public health advocates, community pharmacists can support and participate in public health initiatives, providing advice on adopting healthy lifestyles and helping with the identification of health goals. They can also provide professional support for the implementation of agreed policies and strategies, working within new partnerships. In these situations, communication should become multidisciplinary and must reflect social and community factors affecting lifestyle and behavior. Social graces and the prominent position of the pharmacy in the life of the community mean that health education, mixing of topics, and networking are already part of the service, so there must be evidence of excellence in these areas if the pharmacy is active and effective. It is important to distinguish between a mature and active pharmacy and a pharmacy in the stage of organizational change. A pharmacy developing its commitment to health and social care needs time for change

first and then growth and excellence. A new pharmacy will need development in different areas to distinguish it from others as it becomes more active. There are seven areas related to the new or developing action, and these will provide the core of the PPG. These are listed in a box. This box refers to the new section on PPG recognizing the different measures of a changing community pharmacy. There is guidance tailored for the pharmacy in developmental stages.

4.2. Hospital Pharmacy

Hospital pharmacists work as members of an interdisciplinary team to deliver drug, health, and patient care. They need state-of-the-art medication management systems and technologies to support their work. In addition, the role of a hospital pharmacist is increasingly oriented toward expanding clinical and patient-focused services. Hospital pharmacists are directly involved in the care of patients in a variety of clinical work settings, including medical and surgical floors, intensive care units, the emergency department, chronic care, and outpatient facilities. They support pharmacokinetic services and the safe use of medications through therapeutic drug monitoring, poison control, and therapeutic drug information center activities, as well as participation in multidisciplinary rounds. They also conduct drug formulary evaluations as part of prospective drug utilization evaluation surveillance and data analyses. From a drug formulary management perspective, hospital pharmacists work collaboratively with the hospital's pharmaceutical and therapeutic committee, drug utilization review board, and others to ensure safe, effective, and cost-effective medications. They are also involved in the development of evidence-based guidelines for safe drug use to help prevent adverse drug events and antimicrobial resistance. Furthermore, they work closely with the medical staff, nurses, and other licensed and unlicensed personnel to develop a culture of safety and medication safety processes. Nonetheless, in various settings, many hospital pharmacists have been moved from direct patient care to data analysis, clinical consulting, or management roles. The hospital pharmacist's standard job descriptions and roles may differ vastly, but they may also have common responsibilities that involve medication education. In some locations, the four-year Bachelor's degree in Pharmacy has been shifted to a Doctor of Pharmacy. The requirements are the same regardless of the path a pharmacist may elect to take. Modern hospital pharmacists are often highly skilled at telehealth services and other new information technologies. (Khan et al.2020)(Bragazzi et al., 2020)(Gurwitz et al.2021)

4.3. Clinical Pharmacy

Clinical pharmacy is a health science discipline that firmly establishes the role of the pharmacist in the context of a patient's health care team. The primary goal of clinical pharmacy is to optimize patient care by promoting the safe and effective use of medications. The clinical pharmacist becomes involved with medication therapy through a model called medication therapy management. MTM involves the patient and pharmacist working together in making treatment decisions, with a strong emphasis placed on medication counseling and patient education. Clinical pharmacists have come to practice in outpatient clinics at large academic institutions and community pharmacies that serve patients with chronic diseases. A major focus of this practice area includes the provision of care to patients with chronic, non-

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communicable diseases, such as diabetes, hypertension, dyslipidemia, or pain.

At its core, the typical model of care is still consultative. In this case, the clinical pharmacist will consult with the prescribing provider after the patient has been referred by a primary care team member. Patient care visits are largely outpatient or ambulatory; however, some clinical pharmacists practice within fast-paced inpatient settings providing comprehensive medication management. The clinical pharmacist relies heavily on clinical evidence from the medical literature to guide treatment decisions. Medication regimens are developed to be evidence-based, taking into account medication effectiveness, side effects, and cost. These practice settings usually incorporate a model of care referred to as a collaborative practice agreement or referring provider model, where the clinical pharmacist may assess, diagnose, and deliver pharmacotherapy interventions under the guidance of a collaborative agreement with one or more providers from varying fields of healthcare practice, including medicine, nursing, and others.

5. Pharmacy Services and Patient Care

One of the primary functions of pharmacists and pharmacy technicians in today's healthcare system is to ensure the delivery of comprehensive and high-quality care to patients and to promote patient safety. A pharmacist is responsible for ensuring that the medication used by each patient is safe, meets the desired health outcomes for the patient, and offers the best value for the money. These are complex tasks requiring a detailed knowledge of pharmacology, pharmacokinetics, pharmacodynamics, drug laws, and dosages. Community pharmacists often use specialized knowledge to counsel patients on how to use their medications most effectively. One of the roles of pharmacists in the premises is often to ensure that decanted medications are accurately weighed and measured and dispensed into appropriate containers. Community pharmacists can provide valuable services to patients that go beyond just dispensing medication. Because a pharmacist is a licensed healthcare provider with access to patient-specific medical history, allergies, medications, and laboratory results, almost all pharmacists offer medication therapy management in the form of patient counseling. They provide information so that the patient understands the drug and the directions for use. Various healthcare organizations are also implementing chronic disease management services that pharmacists provide to patients who have frequent treatment modifications, need multiple medications, and need hands-on management of their drugs. Pharmacists in community practice also help patients manage health problems, such as diabetes, asthma, hypertension, high cholesterol, hyperlipidemia, anticoagulant therapy, smoking cessation programs, migraine management, and infertility counseling.

5.1. Medication Therapy Management

Medication Therapy Management (MTM) is a comprehensive service or group of services that optimize therapeutic outcomes for individual patients. MTM aims to educate patients about their medications and to check the patients' understanding and adherence to those medications. The core components of MTM include a review of

an individual patient's medications, a medication therapy review including an assessment of the medication-related problems, a personal medication record, a medication-related action plan, and when necessary, coordination of care with other healthcare and social service providers. By reaching this level of patient care, everyone's medications are personal to them and approved after a discussion between the patient, their provider, and their pharmacist. This high-touch and personalized care would help most people at risk for adverse therapy when offered at first in their treatment, rather than waiting for the person to have an unwanted event first. By using MTM, a pharmacist ensures that any potential unwanted effects are discussed upfront.

Medication therapy management (MTM) is associated with medication adherence, fewer adverse drug events and hospital readmissions, and reductions in overall healthcare costs. Impact case studies show how MTM, especially through the payment model in a pharmacy network that encompasses MTM, can potentially impact the healthcare system through offering these services. The MTM-centered case studies presented illustrate different people who would benefit from MTM services and, with MTM services, have used medications safely and effectively. Pharmacists play an important role in ensuring that patients newly diagnosed with chronic conditions are beginning therapy effectively and are educated about the medications they are receiving and what to expect while on the medication.

5.2. Immunizations and Vaccinations

- Pharmacists play a key role in immunizing the public. Besides influenza, other vaccines, such as those associated with travel, shingles, and pneumococcal disease, are being carried by an ever-increasing number of pharmacists. In 2000, 73% of pharmacists were immunizing, an increase from 1997. The influenza vaccine is the vaccine most administered by pharmacists in the United States. Pharmacists have played a central role in delivering the H1N1 vaccination to the American public.

Vaccines Pharmacists are Authorized to Administer: - Influenza Vaccine - Pneumococcal Vaccine - Other Vaccines: - Influenza - Travel - Shingles - Up to one human papillomavirus vaccine in recommended age groups - Combined diphtheria, tetanus, and pertussis vaccines in patient populations 15 years of age or older.

Travel: Yellow fever and vaccines necessary for international travel. Pharmacists are authorized to administer Typhoid and Hepatitis A vaccines.

Training/Certification: Certified Registered Pharmacy Technician. Services are oftentimes offered by pharmacists year-round.

Convenient Access: - More than 9,317 community pharmacies, 345 mass merchants, 800-plus supermarkets, and 1,700 HMOs. - Many independent pharmacies work within local hospitals as well.

Educating Patients: There are safety concerns about Tamiflu. Besides special populations, healthy adults aged 19 to 49 years can receive the inactivated influenza vaccine, and only an unadjuvanted influenza vaccine should be used in pregnant women.

Pharmacists will speak to patients on the Day of Vaccination.

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Ongoing Community Outreach Initiatives: - 10th Anniversary National Influenza Vaccination Week - Collaborative pharmacies and National Influenza Vaccination Week.

Effect of Pharmacist-Administered Vaccinations on Total Vaccinations Given: - It is not known what the true impact is on the total amount of vaccinations administered by pharmacists. Not many surveys on this topic have been conducted. A survey found that 34.6% of patients completed their influenza vaccination during a pharmacy walk-in hour established in the fall of 2002.

In a survey of members of a pharmacists association, 49% of pharmacists are providing counseling on vaccines.

Key Findings: The sole reason for not administering vaccinations is that the majority of hospitals surveyed reported administrative and jurisdictional barriers to practice in the hospital. Safe and diligent practice access.

5.3. Chronic Disease Management

Chronic disease management comprises a significant aspect of what pharmacy contributes to healthcare. For example, a large body of literature supports the pharmacist who manages patients with chronic diseases such as diabetes, hypertension, and asthma across a multitude of care settings, as reviews and meta-analyses demonstrate significant benefits in patient outcomes through counseling, medication management, and general patient education. Pharmacist intervention comparisons underline the value; patients with typical care typically have hemoglobin A1c in the range of 8.2% to 8.7%, while with the appropriate medical intervention and counseling from a pharmacist, levels range from 7.6% to 8.2% on average. Part of the reason for the seemingly modest change in A1c is explained by the need to populate individual care plans that drive optimal outcomes and may not affect the mean value. Increased blood pressure and cholesterol levels on a per-patient basis can also be lowered by about half relative to baseline.

In addition, continuous chronic disease state monitoring is ensured with regular follow-up in the pharmacy to further evaluate patients' behavior, clinical outcomes, and satisfaction, as individual care plans are prone to change to reflect the changing state of a patient's life, comorbidities, and multiple risk factors. In turn, some patients are predisposed to nonadherence to an expected care plan, leading to suboptimal outcomes, which may eventually spur the pharmacist to expand and deliver highly individualized care, including medication management services, and thereby drive successful results. An inability to control chronic disease is typically more challenging than assisting in the practice of care for a patient who qualifies for a successful outcome due to lifestyle changes required of the patient and committed expertise and knowledge of their disease. Multiple factors drive chronic disease outcomes, including behavioral factors, health literacy, adverse effects on physical and emotional quality of life, and the cost of healthcare, both medication costs and opportunity costs. While it is important to select an individual care plan and medications that are relatively inexpensive and cause minimal adverse effects, in general, the specifics of economic considerations for patients and systems must be

defined. Known strategies for lowering medication costs include generic substitution, use of high potency/dose or combination agents, tolerance of changes to care plans to lower medication costs, and ordering longer supplies of chronic use medications. Recent concepts have surfaced to provoke thought about how pharmacy providers, in particular, can leverage emerging technologies to improve outcomes.

6. Pharmacy Technology and Automation

Pharmacy practice has evolved significantly over the past decade, with technology and automation now playing a significant role in managing safe and effective medication management. Technology has made a huge impact in pharmacy practice, including:

Weight/volumetric-based technology: There are many technologies that are utilized in pharmacies that, essentially, are operational devices for the pharmacists to perform their clinical duties electronically. Weight/volumetric-based automated dispensing systems, which are also known as ‘robotic filling systems’, are used in the packing and/or dispensing of medication. Other technologies include electronic medication management, which includes electronic health records and electronic prescribing. Benefits and MOAs: For the pharmacist in a community pharmacy, the utilization of technology allows more time to be spent in staff training and providing professional health care services. They can also deliver cost-saving measures from an efficiency production perspective while also improving patient safety. Technology can also reduce the risk of a medication error.

Telepharmacy: The use of technology has advanced rural and remote pharmacies’ capability in providing modern electronic medication management. Technologies such as telepharmacy provide professional care to rural and remote areas that may not have access to a pharmacist specifically. Telepharmacy also has room for future learning and may assist in increasing pharmacy services by doubling staff numbers through the implementation of patient outreach clinics.

Challenges: There are challenges that initially occur when incorporating brand new technology in the workplace. These include software malfunctions and the need for staff to be familiar with the correct use of these technologies. Also, company or pharmacy data may be at risk of being electronically distributed without the correct security methods. Ongoing monitoring and appropriate training of pharmacy staff are essential in preventing these challenges from worsening. Future advancements in technology that may arise include the use of automation in the preparation of sterile products and chemotherapy, the development of new systems incorporating automation, and the development of a new release for dispensing systems, which records images of medication barcodes. This will further improve service to patients residing in aged care facilities and will eliminate the need to re-enter patient data information on admission. Seven case studies are presented which demonstrate how various types of technology are used in pharmacies every day. Increased use of electronic medication management in pharmacies provides various new and challenging opportunities available for pharmacists and pharmacy owners. Pharmacy staff training and patient counseling are becoming more regularly performed, which ultimately provides better patient outcomes. Technology and automation are changing rapidly, and the incorporation of these technologies into everyday pharmacy practice is imperative. The strategies that are presented meet the current laws and legislation along with the

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approved clinical guidelines and principles as described by regulatory bodies. In the recent decade, new and innovative technology has taken pharmacy practice to the next level. The use of various new technology systems has shown to be promising for the use of improved patient safety measures, improved accuracy of patient data, simplified patient medicine records, and improvement of chronic disease states. In this paper, seven case studies are presented where technology has made a significant difference in those pharmacies and patient care. This has occurred because of the distance-learning opportunities pharmacists undergo and their willingness to give the public the opportunity to participate in new services to meet their health-related needs.

7. Pharmacy's Role in Public Health

Pharmacy's Role in Promoting Public Health

Pharmacists and pharmacies play a critical role in promoting public health. In some states, pharmacy practice acts explicitly list public health as a responsibility of the pharmacist. Beyond medication dispensing, many of today's pharmacists increase their focus on medication management, frequently provide health-related advice and short-term care to the public, and often participate in public health initiatives. The pharmacy has long been known as a convenient and low-cost provider of health screenings and vaccines. Pharmacies offer cholesterol and high blood pressure screenings and have done some limited research on the ability to pick up new cases of these conditions. Some pharmacies participated as testing centers for HIV during a public health initiative. More recently, independent pharmacies in Ohio promoted disease management and wellness with their diabetes and prediabetes screening program. The importance of public health engagement is likely to increase as states implement new healthcare policies.

Pharmacists and pharmacy technicians are trained to respond to public health crises and emergencies. This may involve their individual action as emergency responders or as part of a response team or health department-run clinic. Vaccines and some medications can be administered directly through collaborative practice agreements and standing orders, bypassing the public health assessment by a pharmacist or nurse. Pharmacists recognized as leaders in public health and pharmacy believe that immunization services will be sustained and continue to grow in the future. Pharmacists can fill a key gap in public health. Research has shown that a set of health status and behavior affects health. Almost all U.S. health dollars are spent treating and maintaining people who are already sick. Public health practice focuses on reducing the surge in preventable diseases by preventing them. It addresses the most pressing health concerns, promotes health and well-being, educates the population, and develops sound policy around health questions. In doing so, it extends the vision of healthcare to include factors that are the most important determinants of health—real-world living conditions and outcomes.

While health departments may have the responsibility for the health of the population, the role of healthcare providers as partners in this mission is often not

seen. Healthcare providers can be sources of health education and prevention, an important party in outbreak containment, trusted allies in safety net scenarios, and essential collaborators in chronic disease control. Specialty pharmacies sometimes use a continuum of care approach and extend services to the patient, such as health and wellness programs in tobacco cessation and cardiac rehabilitation. Other than that, pharmacies also conduct patient need assessments, offering chronic disease education and wellness information, provide in-store clinics, and encourage medication adherence programs. Throughout the wellness clinics held at various pharmacies, pharmacy students successfully contributed to educating the patients and the community about the importance of the wellness program. A pharmacy can also act as a repository for medicinal drugs. These damaged, unused, and expired medicines can then be properly managed and discarded. There are several challenges in improving the health of the public. If some contributors towards it bear the heaviest load, then the solutions to those challenges revolve around monitoring and preparing them to address those conditions. Recent reviews have shown a positive impact on enhancing a patient's life with their lifestyle. More patients have shown an improvement compared to stable conditions.

8. Challenges and Future Directions

It has been claimed that there is an unstoppable demand for professional pharmacy services. As such, staff shortages are the main challenge, which can also hamper service innovation. As a result, staff and development practices need to change and offer greater flexibility to adapt to the needs of the service and to the career aspirations of the individual practitioner. Many countries are redesigning their healthcare systems to include more self-care and illness prevention. Many of the new healthcare models recommended to achieve these goals require the involvement of a number of professionals, including the family physician. These models may offer new roles and opportunities for the pharmacist but, in return, may require some of the fundamental tenets of pharmaceutical care provision by retail pharmacists to be challenged. There are many areas of practice excellence across Europe that can be learned from and replicated widely, and ultimately this could contribute to a lowering of the health inequalities that exist within and between countries. Research and development into new tools and services is vital to keep the profession alive. Inconsistencies in the current training and practice standards offer threats to patient safety and confidence in the pharmacy profession. In the face of increasing demand for medicines, both in terms of volume and patient ignorance (and thus insecurity about their treatment), the industry is also processing solutions to problems. Community pharmacies are offering more professional services, and the trend is likely to increasingly turn toward self-medication. Advocacy for the above-mentioned tasks that community pharmacies are taking on should mean advocating a change in the law to authorize pharmacy with more roles. Advancements in technology, such as the development of diagnostic tests and home monitoring devices, vital signs and measures, and real-time video links to patients, will allow the pharmacist to remotely monitor and support patients in an even more personalized manner. In the growing and evolving world, there should be a way to easily collect and then harmonize data that reflects the added value provided by the pharmacy for

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the patient. There should be a process to convey the pharmacist's findings on patients' issues to a higher authority. Funders and decision-makers should be aware of all the added value to the patient that pharmacists aim to offer. The process to convey these findings should be set up in pharmacy so that the data outcomes remain current. New legislation would offer the expanded and ongoing role of community pharmacy into health management. As the pace of change accelerates, community pharmacy can be shaped by threats or viewed as opportunities to improve patient care. There are genuine threats such as corporate interest and regulatory or professional exclusions to be addressed, but international research confirms that much of the prototype services or projects would be broadly accepted and welcomed by communities as adding genuine value to their healthcare system.

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