



From Dispensing to Direct Patient Care: A Review of Pharmacy's Expanding Responsibilities

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Abstract

Pharmacists are integral to modern healthcare, responsible for drug preparation, compounding, dispensing, and providing counsel to both healthcare professionals and the public. The scope of pharmacy practice has expanded to encompass advanced medical sciences, including innovation, life support, and research. This review examines the evolving role of pharmacists in today's dynamic health systems and pharmaceutical industry. Specifically, it analyzes current pharmacy roles, with a focus on community pharmacy's distinct characteristics, and identifies necessary policy adjustments for 2023 and beyond. A four-phase approach was employed: comprehensive literature review, business analysis of pharmacy roles, external stakeholder validation, and synthesis of findings relevant to the future of pharmacy. Data sources included literature databases, reports, and websites to identify existing roles, facilitators, and future policy directions. Disease profiles, service demand, and baseline data were analyzed to assess role relevance. Quantitative and qualitative data were collected to project future demand and resource utilization for chronic disease patients. Potential facilitators for pharmacy services, such as monitoring and predictive models, and enablers for future research were also explored.

Keywords: compounding, pharmacists, stakeholder, Potential, monitoring.

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Conclusion

In recent years, the role of pharmacy within modern healthcare has broadened significantly, evolving from traditional dispensing duties to encompass clinical, patient-centered, and public health perspectives. This expansion of responsibilities has been accompanied by increased professional recognition and improved media portrayal. This review examined published evidence regarding pharmacist-provided patient care

across diverse settings. While communities with expanded pharmacist roles generally benefited from these additional services, outcomes were not uniformly positive. Adverse events, including mismanagement of product distribution to patients with undiagnosed conditions, inappropriate management of non-responsive patients, antibiotic overuse, and improper drug utilization, were reported.

2. Historical Evolution of Pharmacy

For millennia, humans have cultivated, consumed, and utilized plants, minerals, and animal products for medicinal purposes. The healing properties of many substances were discovered through empirical observation, often involving trial and error, and sometimes by chance. Over time, effective substances and techniques were selected and shared. Pharmacy was practiced in ancient Mesopotamia and Egypt, as well as in Indo-European, Chinese, Greek, Roman, Islamic societies, and pre-Columbian America. Trade and exchange between Eastern and Western cultures played a crucial role in disseminating medical and pharmaceutical knowledge. In polytheistic religions and cultures, where deities were believed to influence health and well-being, a substantial spiritual and material infrastructure was established within temples. Expert priests and physicians, often the same individuals, served as practitioners, providing diagnoses and treatments. Sanctuaries included botanical gardens, fish and poultry farms, vineyards, and warehouses for medicinal remedies and other offerings. These locations provided lodging for patients and travelers, and served as centers of intellectual and spiritual pursuit for scholars and artists, contributing to the preservation and expansion of accumulated knowledge. Writings from this era frequently mention medical and pharmacological materials, notable diagnostic and therapeutic innovations, and prominent deities, physicians, and pharmacists.

3. Pharmacy Education and Training

Pharmacists are medication experts and valuable resources for information on drug use. Their education and training are designed to cultivate expertise in an increasingly complex healthcare environment. Pharmacy education in the United States aims to ensure the entire scope of practice supports medication use goals. The pharmacy curriculum embodies this principle, integrating advanced knowledge and practices specific to the profession. This foundation is built upon scientific knowledge and requires rigorous intellectual experiences focused on translating and personalizing knowledge for professional service delivery. Contemporary pharmacy education in the US has evolved from five- or six-year baccalaureate programs to the current model, which supplies new pharmacists holding Doctor of Pharmacy degrees. This evolution reflects a complex interplay of influences within healthcare and higher education, including accreditation, certification, licensure, legislation, and stakeholder expectations. These influences have facilitated key innovations in pharmacy and clinical practice, emphasized the importance of medication in healthcare, fostered professional growth for pharmacists and related professions, encouraged partnerships within linked healthcare systems, driven the development of biomedical and healthcare support companies, and generally advanced the profession's goals.

4. Pharmacy Practice Settings

Pharmacies are ubiquitous and recognized as the most accessible healthcare points for the public. This accessibility positions pharmacies as promising destinations for individuals seeking care for minor acute illnesses. Studies indicate that 54% of patients with minor acute conditions initially visit community pharmacies, while 46% consult physicians or other healthcare institutions. Alarming, 29% of these patients do not seek further consultation, leaving symptoms uncontrolled. This situation is exacerbated by declining access to primary care physicians, contributing to earlier problems in primary care. Evidence suggests that pharmacists are the first professionals to provide medication information in 32% of cases, compared to 30% for general practitioners and 23% for patients themselves. Pharmacists possess the capability to deliver low-cost and readily accessible primary healthcare in most communities. Given the significant role of community pharmacists in pharmacovigilance, building strong relationships between community pharmacists, patients, general practitioners, and hospitals is essential. Pharmacists' accessibility, patients' ability to report out-of-hospital adverse drug reactions, proximity to advice and information, counseling services, and enhanced teamwork with other healthcare professionals are

advantages of utilizing community pharmacists for pharmacovigilance. Community pharmacists can significantly improve pharmacovigilance through rapid identification and management of safety concerns. Information provided by community pharmacists should include details about the patient's reaction, medical history, all medications taken (including over-the-counter and homeopathic products), circumstances of use, and rationale for treatment initiation.

4.1. Community Pharmacy

Pharmacists have a long history, extending back to ancient Egypt, of being more than just dispensers of medicine. They have traditionally compounded and dispensed medications, and continue to play a vital role in patient care by providing counseling, monitoring progress, and promoting adherence to prescribed therapies. Today's community pharmacists offer an invaluable service, dispensing both prescription and over-the-counter medications, often without requiring an appointment. The role of community pharmacists is evolving rapidly, demanding broader knowledge and skills to provide competent patient care. Beyond traditional prescription processing and dispensing, community pharmacists are increasingly involved in direct patient care activities like drug utilization review, disease state management, and drug utilization consultation. Some community pharmacies have integrated screening services and community education programs as accessible in-store health services. Community pharmacists are excellent resources, addressing customer inquiries, intervening early when drug therapy may be inappropriate, and ensuring that patients with symptoms requiring treatment receive professional care.

4.2. Hospital Pharmacy

Hospital pharmacy is a specialized area integrated within the broader health system pharmacy framework. It operates within hospitals to deliver comprehensive, patient-centered pharmaceutical care in the most economically efficient manner, based on current medical hospital supply. It encompasses the professional responsibilities of all pharmacists practicing in hospital settings. Hospital pharmacists are recognized as key figures in multidisciplinary teamwork and administrative tasks. Their role has evolved in recent years, particularly regarding the increasing complexity and safety demands of their practice. The growth in pharmaceutical activities within hospitals has necessitated the development of a robust framework to manage risks related to patient safety. Quantifying the impact of hospital pharmacists on improved patient care is challenging due to limited data. However, medication reconciliation, an increasingly mandatory practice within a defined regulatory framework, stands out as a readily observable activity. Effective and documented communication between hospital and community pharmacists is crucial, facilitating daily coordination (e.g., counseling) and managing unexpected situations (e.g., drug stockouts).

4.3. Clinical Pharmacy

Historically, the first step in "clinical pharmacy" involved establishing a dedicated pharmacy and systems for ordering and delivering drug products to clinical units, along with the essential pharmacy shop functions and personnel. Inpatients are typically non-ambulatory, and a significant portion may rely on state-operated healthcare, lacking pharmacy plans or prescription drug coverage. Large hospital pharmacies often provide comprehensive therapy to these patients, with inpatient services exceeding those for ambulatory patients, reflecting differing needs and substantial costs for hospitals. Modern pharmacy practice acknowledges that effective medicine requires not only safety, efficacy, and cost-effectiveness, but also patient adherence. The current global increase in life expectancy has led to tremendous growth in annual pharmacy prescriptions. Hospital pharmacy has significantly changed in two key ways. These changes create a need for hospital pharmacies to expand services into non-traditional areas. First, providing medications for hospitalized inpatients differs considerably from dispensing prescriptions to outpatients. A retail pharmacy analogy might be dividing it into three functions: Professional Service, Pharmacy Store, and Pharmaceutical Product Center. What remains is the Prescription Service Center, billing, and receipt/warehousing. Second, the increased focus on clinical outcomes from drug therapy has required a stronger clinical presence within hospitals.

55. Technological Advancements in Pharmacy

Recent technological advancements have significantly transformed numerous aspects of life, including healthcare. Within pharmacy, these advancements offer substantial benefits to pharmacists, healthcare professionals, patients, and society. Technology improves patient care and drug safety in both community and hospital settings. The implementation of technology and automation empowers pharmacists to engage in more direct patient care and ensures better regulatory compliance. Barcode systems enhance medication identification and dosing accuracy, reducing error rates. Pharmacies utilize technology to securely protect patient information, although security measures may vary. Patients can often access online platforms to manage and monitor their personal medication profiles.

The continuous development of new medications and specialized treatments further improves patient healthcare outcomes. As primary patient care providers, today's pharmacists employ advanced diagnostic and therapeutic clinical skills when interacting with healthcare professionals and patients. (Al-Worafi, 2023)(Trenfield et al.2022)(Awad et al.2021)(Pal et al.2021)(Chu & Traverso, 2022)(Raijada et al.2021) Research evaluating the role of IT in modernizing community pharmacy services reveals varying levels of IT implementation and patient satisfaction with those services across different community pharmacies. Studies also explore customer perceptions of service quality in urban and rural communities. This research offers insights into the use of IT innovations to enhance the efficiency of community pharmacies, examining both the advantages and disadvantages. Specifically, studies analyze different investment and utilization patterns of IT to support healthcare delivery within community pharmacies, often using qualitative methods or case studies. Findings often highlight the need for tailored marketing strategies to address the specific needs of different patient segments to promote patient satisfaction and reduce hospital readmissions. High-quality IT service, combined with high-quality professional service, is crucial for community pharmacies to thrive in the competitive market.

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