



Application of the Consolidated Framework for Implementation Research to community pharmacy: A framework for implementation research on pharmacy services



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ABSTRACT

Background: Community pharmacies are an increasingly important health care setting with opportunities for improving quality and safety, yet little is understood about determinants of implementation in this setting.

Objective: This paper presents an implementation framework for pharmacy based on the Consolidated Framework for Implementation Research (CFIR).

Methods: This study employed a critical review of 45 articles on professional services provided in community pharmacies, including medication therapy management (MTM), immunizations, and rapid HIV testing.

Results: The relevant domains and associated constructs for pharmacy services were as follows. *Intervention Characteristics* ultimately depend on the specific service; of particular note for pharmacy are relative advantage and complexity. The former because implementation of services can pose a cost-benefit challenge where dispensing is the primary role and the latter because of the greater challenge implementing multi-faceted services like MTM compared to a discrete service like immunizations. "In terms of *Outer Setting*, pharmacies are affected by patient needs and acceptance, and external policies and incentives such as reimbursement and regulations. For *Inner Setting*, structural characteristics like pharmacy type, size and staff were important as was pharmacists' perception of their role and available resources to provide the service. Key *Characteristics of Individuals* include training, preparedness, and self-efficacy of the pharmacist for providing a new service. Few studies revealed relevant *Process* constructs, but if they did it was primarily related to engaging (e.g., champions).

Conclusions: As pharmacists' roles in health care are continuing to expand, a framework to inform implementation research in community pharmacy (and other) settings is crucially needed.

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1. Introduction

The role of pharmacists has long been evolving from not only a dispenser but to being utilized for their clinical knowledge and providing direct patient care.¹ Since the 1990s, with the introduction of pharmaceutical care, U.S. pharmacists have been called to

assume responsibility for patients' drug therapy outcomes.^{1–3} One of pharmacists' expanded roles was officially recognized with the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA), which required drug plans to offer a medication therapy management (MTM) program to optimize therapeutic outcomes for high-risk beneficiaries.⁴ Pharmacists are reimbursed for MTM provided to Medicare beneficiaries,⁵ as well as in several states Medicaid programs.^{4,6–9} While there was vigorous debate about what constitutes MTM, a 2004 consensus statement among professional associations, defined it as "a service or distinct group of services that optimize therapeutic outcomes for individual patients."¹⁰ In practice, there is real variation in what patients receive

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when pharmacists provide MTM – from a comprehensive examination of all medications¹¹ to a targeted focus on specific medications; or a focus on all drug therapy problems (i.e., indication, effectiveness, safety and convenience)¹² to just specific ones (e.g., adherence); or conducting MTM face-to-face with patients to only by telephone; as well as other variations.^{5,13} Regardless of the variation, MTM is a service largely provided by pharmacists. Studies have shown that MTM can improve medication adherence and patient outcomes.^{11,13–15} Pharmacists are also acknowledged for their essential role in the patient-centered medical home.^{16,17}

In addition to providing MTM, pharmacists are increasingly accepted as immunization providers for vaccines by national organizations, providers, and patients alike.^{18,19} Specific requirements and limitations of pharmacists providing vaccines vary from state to state but all 50 states legally permit the administration of vaccines by pharmacists.^{20,21} Similarly, use of point of care testing has been increasing in pharmacies for decades, including providing rapid HIV testing. The role of pharmacists has been expanding for decades and across various settings.

Pharmacists can work in many different settings. One setting that is specifically interesting because of its unique features and continuing expansion into patient care services is the community pharmacy setting. Practicing as a pharmacist in this setting differs in several ways from hospitals, nursing homes, and ambulatory clinics. For example, community pharmacists are considered one of the most accessible health professionals because they do not require appointments and are available in the evenings and on weekends. Another difference is that community pharmacies have to operate as a business with the goal of making a profit, but as health care professionals, they also have the responsibility of providing care for their patients.²² Hence, deciding to provide a patient care service in a community pharmacy is a decision that often includes a careful examination of the costs and benefits in regards to both the potential to increase revenue and the needs of patients.^{23,24}

Despite the difficulty of these decisions, pharmacists in community pharmacies are providing a variety of services that increase access to care and improve patient outcomes. The U.S. Department of Labor, Bureau of Labor Statistics estimates the number of employed pharmacists in the United States to be nearly 295,620.²⁵ According to the Final Report of the 2014 National Pharmacist Workforce Study, a national survey that takes place every 4–5 years, 60% of pharmacists reported providing MTM, 53% reported providing immunizations, and 29% provided health screenings or health coaching.²⁶

Community pharmacies are an increasingly important health care setting with opportunities for improving quality and safety, yet little is understood about determinants of implementation in this setting. Few systematic implementation studies have been conducted in these settings, and we know of only one prior review article attempting to document use of implementation strategies in community pharmacies, though it was focused on implementing guidelines.²⁷ Additionally, pharmacies have unique contextual features that may impact implementation (e.g., retail environment, incentive structures) and potentially unique staffing-related barriers compared to other health care professionals (e.g., not a recognized provider, dispensing workflow). While there are many studies of implementing various interventions or services in pharmacy, there are very few that use an implementation science approach or framework.^{28–31} Thus, given the unique features of community pharmacy compared to other health care settings, which are important for consideration in implementation research, this study reviewed literature to provide a framework for implementation research for community pharmacy based on the Consolidated Framework for Implementation Research (CFIR).

2. Methods

A critical review³² of existing literature was conducted on services commonly provided in community pharmacies. The critical review framework was chosen because it “provides an opportunity to ‘take stock’ and evaluate what is of value from a body of work” and the result can be a model, which “may constitute a new interpretation of existing data.”³² In terms of the professional services, the review focused on MTM, immunizations and rapid HIV testing because these services are somewhat widely provided across community pharmacies in the United States and thus have generated a decent body of literature, although the literature on these services in community pharmacies seldom comprises explicit implementation research.

2.1. Literature search

The literature searches were conducted in PubMed using key terms and synonyms reflecting each of the services (e.g., immunizations and vaccines). Since there are few systematic implementation studies in pharmacy, the investigators scanned titles and abstracts to identify studies that sought to understand determinants, barriers, facilitators or other factors affecting implementation of one of the selected services in community pharmacies. The review focused on studies of MTM, immunizations, and rapid HIV testing in community pharmacy settings only, available in English. Pharmacists have been certified to provide immunizations since 1996 so we included studies of immunizations since their introduction as a service provided by pharmacists. Reimbursement under Medicare for MTM and MTM billing codes have only been available since 2006 and rapid HIV testing is even more recent, so only studies of those two services from the last 10 years were included.

2.2. Coding and synthesis of the literature

To synthesize findings from the literature and to develop a framework, the Consolidated Framework for Implementation Research (CFIR) was chosen because of its ability to situate potential implementation determinants across a wide range of factors.³³ The CFIR consists of 5 domains, including: i) intervention characteristics, ii) outer setting, iii) inner setting, iv) characteristics of individuals, and v) process. Within each of these domains there are several constructs (see <http://cfirguide.org/> for a description of each construct). The investigators aimed to identify the constructs that are most pertinent for implementing professional services in community pharmacy settings. For each article, one or more of the authors coded the findings from the study that appeared to surface one of the CFIR constructs, if any. It should be noted that this involved interpretation of whether there were findings relevant to a construct (or not), since again, most studies did not use the CFIR or any implementation framework. After capturing the information for each article, the review synthesized the findings from across the literature for a specific service for each CFIR construct and then examined the findings from across all 3 services by CFIR domain and construct.

3. Findings

The review for relevant CFIR domains included 10 articles on MTM,^{34–43} 26 articles on immunizations,^{44–68} and 9 articles on rapid HIV testing^{69–77} (see Table 1). The findings are presented by each of the five CFIR domains (i.e., intervention characteristics, outer setting, inner setting, characteristics of individuals, and process) and the relevant constructs within each domain.

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