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Addressing inappropriate polypharmacy: investigating perceived facilitators and barriers to U.S. pharmacists' ability to recommend deprescribing

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ADDRESSING INAPPROPRIATE POLYPHARMACY: INVESTIGATING PERCEIVED FACILITATORS AND BARRIERS TO U.S. PHARMACISTS' ABILITY TO RECOMMEND DEPRESCRIBING

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DEDICATION

I would like to thank my family and friends for their love and support during my time at Pepperdine during the coursework, the research, and the drafting of this dissertation.

I dedicate this dissertation to my husband, Randy, and to our children, Reider and Rennick, all of whom fill my life with meaning and joy. Marrying Randy remains the best decision of my life. He continues to inspire me in ways both practical and intellectual, and I am forever grateful for his continuous love and support.

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ABSTRACT

While the concurrent use of multiple prescriptions (polypharmacy) is common for those with chronic conditions, professional ownership is lacking when it comes to tapering or discontinuing potentially inappropriate medications. Our growing elderly population is especially vulnerable to negative risks associated with polypharmacy. Pharmacists are highly educated and skilled healthcare professionals working as critical touchpoints with patients; yet they are not empowered to deprescribe potentially inappropriate medications directly. This qualitative research study examined the perceived barriers and facilitators pharmacists encounter when pursuing deprescribing recommendations and initiatives with prescribers, healthcare staff, patients, and caregivers. Findings from this study revealed three key implications for business practice to provide empowerment and recognition for U.S. pharmacists to effectively recommend deprescribing recommendations. First, work and organizational structures should enable pharmacists to build meaningful relationships among stakeholders across the healthcare ecosystem. Second, transparency of patient information must be systematically accessible across providers. Finally, roles and responsibilities must be clearly defined across healthcare stakeholders with education available through multimedia channels. These key implications will help elevate the status of pharmacists creating greater opportunities to advance patient healthcare, increase patient satisfaction, and manage healthcare costs, which are also the goals of the Triple Aim Framework of healthcare.

Keywords: deprescribing, pharmacist, polypharmacy, Open Systems Theory, Triple Aim Framework

CHAPTER 1: INTRODUCTION

Overview

Prescription medicines can improve clinical outcomes, quality of life, and life expectancy and the United States is known for having the some of the most technologically advanced medicines and treatments in the world (Molokhia & Majeed, 2017; National Center for Health Statistics, 2010). In a simplified scenario of healthcare treatment with a prescription medication, a patient presenting with symptoms communicates with a doctor, receives a diagnosis, and is prescribed a treatment. The prescription is provided to a pharmacist and that pharmacist dispenses the prescription. The patient then obtains the prescription from the pharmacist, receives the treatment, and the symptoms resolve. When this simple scenario is repeated for a patient with multiple conditions or expands for the patient across multiple doctors or healthcare providers, overprescribing can ensue resulting in what is referred to as polypharmacy. Polypharmacy is defined as the use of multiple medications, usually five or more (Frazier, 2005; Slabaugh et al., 2010; Zarowitz et al., 2005) and in the United States, that is a common number of medications for people 65 years of age and older (Khezrian, 2020; Maust, 2017; Young et al., 2021). Polypharmacy can occur across all age groups but is most often seen in elderly people over 65 years of age. Approximately 37% of adults over 60 years of age experience polypharmacy, with an average of five prescription medications and an additional one to three non-prescription medications (Delara et al., 2022).

Many chronic conditions require the use of multiple medications, making polypharmacy a necessary component of overall healthcare. Diseases such as diabetes, cancer, and chronic heart disease require polypharmacy to manage symptoms and support patients' health, well-being, and

quality of life. Certain neurologic disorders also require multiple medications to manage symptoms for patients such as schizophrenia and bipolar disorder.

However, polypharmacy can entail risks. It is common for prescribers to add on additional prescriptions without taking heed of the medications currently in use, often resulting in serious consequences for older patients (Fulton & Allen, 2005). Drug interactions between medications have a high probability of occurring when a patient is taking more than five prescription medications (Maher et al., 2014). A study reviewing medication regimens in older hospitalized adult patients noted the probability of at least one drug interaction was 50% for persons taking between five and nine prescription medications, 81% with 10 to 14 prescription medications, 92% with 15 to 19 prescription medications, and 100% with 20 or more prescription medications (Doan et al., 2013). This is a clear demonstration that increasing the number of medications increases the risk of drug interactions. Decreased physical functioning has been associated with polypharmacy, often leading to falls, and increasing the risk of fractures (Fletcher et al., 2009; Lai et al., 2010). Decline in cognitive function has been observed, and the decline increases when polypharmacy increases, depending on the medications included in the medication regimen (Oyarzun-Gonzalez et al., 2015). In addition, as polypharmacy increases, the risk of taking potentially inappropriate medications (PIMs) also increases. Medications are considered PIMs when the risk of negative or harmful effects exceeds the benefit provided to a patient, or when a better alternative medication is available in terms of efficacy, safety, or tolerability (Morin, 2016).

Polypharmacy including PIMs can be addressed through deprescribing. Deprescribing is the process of "tapering, stopping, discontinuing, or withdrawing drugs" (Thompson & Farrell, 2013, p. 201). Because polypharmacy including PIMs is often associated with many risks,

deprescribing may reduce these risks by tapering or eliminating PIMs (Thompson et al., 2022; Thompson & Farrell, 2013). Deprescribing has the potential to better manage patient and organizational costs, improve healthcare outcomes, and increase patients' satisfaction with care (Chan, 2022; Gaurang, 2021; Sanyal, 2020). Yet, despite being studied and referenced worldwide, deprescribing has yet to be implemented with a high level of promise and success.

A patient's pharmacist is the critical link between the patient and their prescription medications. Pharmacists can assess patients with polypharmacy and communicate directly with patients and prescribers to help address the negative effects of polypharmacy. However, this assessment and communication about deprescribing currently rarely occurs. U.S. federal law does not recognize pharmacists as healthcare providers. This limits their ability to offer certain services to patients, even though patients are more likely to see their pharmacist than a primary healthcare physician (Mossialos et al., 2015; Tsuyuki et al., 2018). Pharmacists are in a unique position to monitor patients with polypharmacy including PIMs and ensure treatment is consistently appropriate, due to their proximity and access to the patient (Shen & Peterson, 2020). Yet, the question remains as to how they could be better informed and motivated to recommend deprescribing of PIMs, where appropriate.

The topic of deprescribing is both longstanding and topical. During the drafting of this dissertation, TIME magazine published an article about deprescribing and its importance (Schneeman, 2024). The author, a geriatrician, recognizes that the U.S. has siloed medical systems, wherein patients see many different doctors who do not communicate across these systems. The article mentions the issues with prescription cascades and the high number of medications patients take as they get older. It is left to the primary care physicians, who are often notably overworked, to try to make sense of a medication list in a 20-minute office visit

(Schneeman, 2024). What solution does the author offer? To schedule another doctor's appointment and let the doctor know that a drug analysis is needed to allow adequate time for the doctor to prepare for the appointment by researching medications. Given my healthcare industry expertise, I see this "solution" as doubtful at best, given that a notably overworked primary care physician would likely not have time to research a variety of different medications prescribed by a variety of specialists. I instead suggest shifting focus to another relevant expert who is often overlooked and underestimated in the process of deprescribing: the pharmacist. Schneeman (2024) even quotes the American Society of Health System Pharmacists' recommendations but does not recommend a pharmacist as the expert for a comprehensive medication review.

The World Health Organization (WHO) defines the healthcare system overall as "…all the activities whose primary purpose is to promote, restore or maintain health" (Doolan-Noble et al., 2015, p. 44). The healthcare environment in the U.S. has many stakeholders and systems in place within a complex matrix of interconnectedness. The U.S. benefits from a large and well-trained healthcare workforce, specialists in many areas, excellent medical research, and some of the best outcomes in the world (Rice et al., 2013). However, unlike other countries with socialized medical coverage where each citizen receives care and healthcare providers have transparent access to patient records, the U.S. healthcare system does not cover all its citizens, expenditures per person are excessive compared to all other countries, and there is an unequal distribution of services across different population groups (Rice et al., 2013). Open Systems Theory refers to systems that interact with each other in a particular environment, with inflows and outflows of resources and services. The U.S. healthcare system is considered an open system; that is, a system that interacts with an environment and actively manages the inflows and outflows of resources and services (Lai & Huili Lin, 2017; Tokoro, 2010). U.S. healthcare as an

open system consists of subsystems in which each subsystem is an open system. Each subsystem interacts with other subsystems through different channels that may change over time (Tokoro, 2010). Systems thinking addresses the relationships between the parts of a system and the events they produce through their interactions to connect toward a shared purpose (Mele et al., 2010). Pharmacists exist within the healthcare system as stakeholders who provide inflows and outflows of resources and services. Pharmacists are the experts in medications, ensuring safe and appropriate medications are dispensed for patients' healthcare needs. Pharmacists are also often trained in health and wellness screenings, medication management, and lifestyle management. Pharmacists have a significant impact when allowed to use their expertise to detect, resolve, and prevent errors in medication treatment (Dalton & Byrne, 2017).

This study intends to investigate this unrealized opportunity for U.S. pharmacists to expand beyond the current norms and confines of their formal work roles, to better understand how they can be enabled and empowered to recommend deprescribing to support patients who may experience negative consequences of polypharmacy. Pharmacists who liaise with physicians to help address patients with polypharmacy including PIMs at risk of negative healthcare outcomes could potentially help improve the health, financial security, and lives of patients and their families.

Problem Addressed

In 2000, the WHO's report on healthcare issues highlighted a worldwide aging population, skyrocketing healthcare costs, unsatisfactory healthcare outcomes, and dissatisfaction with healthcare services. While these issues have been well-known for over two decades, little has changed to improve the situation (Bezruchka, 2012; Levinson, 2022; Sarnak et al., 2017; Squires & Anderson, 2015). These same issues continue today and are struggles faced

across the globe (Deb & Curfman, 2020; Levinson, 2022; Sanyal et al., 2020). In addition, the number of new technologies has increased, but has not created improved healthcare outcomes (Vogenberg, 2019). A common belief in society that more is better when it comes to healthcare influences the expectations of elderly patients and their caregivers as well (Levinson, 2022). Yet, in the case of prescription medications, more is not necessarily better, as those with polypharmacy including PIMs face increasing risks with more prescribed medications (Doan et al., 2013).

Narrowing the focus to healthcare within the U.S., many similar issues emerge: increasing healthcare costs, aging population, continuously advancing medical technology, high prevalence of medication errors, and increased spending on medications (Dalton & Byrne, 2017; Rowe, 2016). There seem to be clear trends as part of these growing number of issues. Increases in age over 65 years old is associated with increases in the number of medications prescribed (Lichtenberg & Sun, 2007; Linjakumpu et al., 2002). Continuous technological improvements increase the number and types of new medications available and prescribed to patients (Joyner & Paneth, 2015; Lamichhane et al., 2019). The aging population is the most vulnerable to issues of chronic treatment, overprescribing, and continually increasing polypharmacy (Halli-Tierney et al., 2019). This is concerning since increased polypharmacy leads to a decrease in positive health outcomes (Frazier, 2005; Halli-Tierney et al., 2019, Lai et al., 2010; Maher et al., 2014). To complicate matters, the number of healthcare providers is diminishing, while the need for healthcare providers is increasing. This creates potential risks to the health of the growing aging population of elderly patients with a high level of expensive healthcare needs (Aluttis et al., 2014; Korneta & Chmiel, 2022; Sargen et al., 2011; Sharma, 2015; Winter et al., 2020; Wu et al., 2016). Table 1 depicts how these trends are changing within the healthcare landscape.

Table 1

Problematic Trends across the Healthcare Landscape

Trends With Increases in Healthcare	**Trends With Decreases in Healthcare**
Patient Age (Mitchell, 2014; Rowe 2016) Technology (Bauchner, 2018; Garg, et al., 2018) Number of Prescriptions (Frazier, 2005) Rates of Polypharmacy (Zarowitz, 2005; Slabaugh, 2010) Medication Errors (Bourgeois, 2010) Negative Clinical Consequences (Bourgeois, 2010) Costs (Gadsby, 2012)	Number of Healthcare Providers (Sargen, 2011) Positive Healthcare Outcomes (Frazier, 2005) Affordable Healthcare (Hartman et al., 2022) Accessible Healthcare (Porter, 2008; Lee et al., 2010)

This dissertation research also seeks to address problems and opportunities associated with the pharmacist occupation. Complexities within and around the healthcare ecosystem exist and pharmacy is also, in itself, complex. With so many stakeholders, diseases, medications, cost considerations, patient peculiarities, regulations, and relationships, along with a lack of systemization, it is difficult to pinpoint one single solution to so many problems. Technologies related to automation and robotics, which could disintermediate the pharmacist profession as fillers and dispensers, are being implemented globally (Law et al., 2021; Piercy & Gist-Mackey, 2021). While the literature supports integration of these high capital investment technologies and robotic systems, their safety and health outcomes on patients have not been measured and remain unknown (Boyd & Chaffee, 2019). Despite potential benefits of the automation such as decreased filling time and increased patient satisfaction, serious areas of concern exist, including decreased pharmacist-patient counseling rates, increases in ADEs, and decreased costs for the pharmacy but not for the patient (Harrison & Bye, 2018).

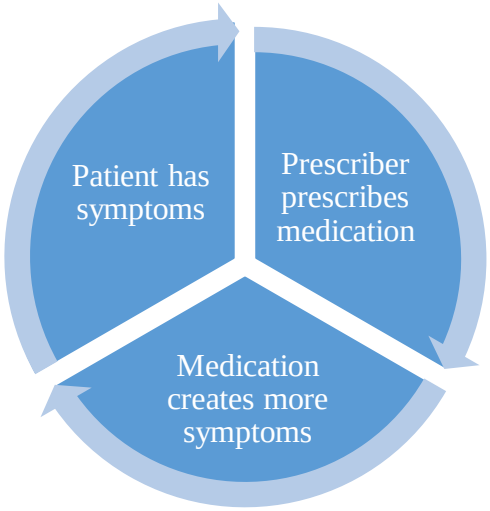
The novel approach taken with this dissertation research identifies the problem of polypharmacy as likely exacerbated because pharmacists have been continuously underutilized within the healthcare system. Used primarily as a dispensing service, pharmacists are capable of

many expanded tasks and contributions to patient health and well-being as a part of their roles, such as blood pressure and blood sugar screenings, cholesterol screenings and other point-of-care screenings (Bastianelli et al., 2017), medication counseling, vaccine administration and disease prevention advisement (Anderson et al., 2009; Brewer et al., 2014; Gray et al., 2019). They are also front facing with patients, providing the opportunity for trust and communication to enhance patient safety and positive health outcomes. Pharmacists worldwide have been shown to be willing, competent, and cost-effective providers (Anderson et al., 2009), yet they are not typically perceived or respected as healthcare professionals in the U.S. While patients have a high rate of trust in their pharmacists, they have a low rate of knowledge of the full capabilities and services pharmacists can provide (Bastianelli et al., 2017).

A better understanding of how pharmacists may be better equipped and motivated to recommend deprescribing could help to address the alarming trends of overprescribing and the addition of potentially inappropriate medications. Overprescribing can occur as a prescription cascade, a situation wherein symptoms resulting from ADEs are perceived as a 'new' or an added disease to an existing disease or illness, or sometimes the aging process itself (Garfinkel et al., 2015). This creates a vicious cycle (Figure 1) of overdiagnosis, overtreatment, and more medications prescribed - resulting in negative consequences of polypharmacy, more ADEs and diagnoses, more treatment, and even more medications prescribed (Garfinkel et al., 2015).

Figure 1

Graphic Depiction of Prescription Cascade



This is also an economic problem for patients, certain healthcare organizations, and the healthcare industry because polypharmacy has a high financial impact that does not correlate to better healthcare outcomes (Fried & Mecca, 2019; Mohottige et al., 2021). While the U.S. has access to the top medical treatments, costs are higher in comparison to the rest of the world (Bauchner & Fontanarosa, 2018) and are continually increasing (Deb & Curfman, 2020). The U.S. spends an astonishing $4.1 trillion on healthcare annually (Hartman et al., 2022). The elderly population (those over 65 years of age) is covered by Medicare, and they consume over 30% of all prescription medications (Larsen & Martin, 1999; Unuigbe, 2020), and 34.5% of those over 60 years of age are on at least five prescription medications (Hales et al., 2019). Complex regimens combined with comorbidities and multiple prescriptions lead to a potential waste of $2 billion (Almodóvar & Nahata, 2019). This financial waste impacts patients, caregivers, insurance companies, and the federal government as stakeholders in the U.S.

healthcare system; waste that could be mitigated if deprescribing efforts were more commonly accepted and enacted as part of the solution.

This study will address these problems by investigating how U.S. pharmacists can be successfully engaged in the process of reviewing polypharmacy treatment regimens and addressing the negative consequences of polypharmacy. Doing so could positively enhance healthcare system effectiveness, healthcare outcomes, management of healthcare costs, and patient satisfaction with care. Pharmacists are a potentially crucial yet currently unrecognized resource in deprescribing efforts. This research seeks a better understanding of what constraints or barriers prevent pharmacists from analyzing patients' medication treatment plans and recommending deprescribing, and the opportunities or facilitators that help enable pharmacists to support appropriate polypharmacy. Such an understanding can ultimately help patients and other stakeholders in the healthcare system with the negative health and financial impacts of polypharmacy.

Research Question

This research seeks to help patients by investigating and understanding how U.S. pharmacists, as touchpoints throughout the treatment cycle to patients, can have the knowledge, decision-making capabilities, and the internal motivation to be able to recommend deprescribing potentially inappropriate medications for patients with polypharmacy. I address the following research question: How can pharmacists in the U.S. be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy?

Significance of Research

Overall, while prescription medications have greatly improved the lives of those living with disease, patients in the U.S. have been largely over-prescribed and underserved. Too often, patients receive medications over extended periods of time that should have been stopped, when the proven benefit could no longer be experienced or the disease or ailment was successfully resolved (Malik & Jayabalan, 2022; Safer, 2019). Additionally, despite pharmacists having access to patients and their prescriptions, deprescribing is not well-implemented in the U.S., and the occupational behaviors that pharmacists tend to engage in with patients related to deprescribing are not well documented.

This research can help to fill gaps in current assumptions about, and constraints in, the role of pharmacists in the healthcare ecosystem. This has the potential to change our understanding about the opportunities pharmacists have to support and enhance the care of patients, while more effectively managing increasing healthcare costs. Deprescribing PIMs aligns with the Triple Aim Framework of healthcare, which articulates the goals of improving healthcare outcomes, managing costs, and increasing patient satisfaction (Berwick et al., 2008). Existing literature supports how deprescribing potentially inappropriate medications could improve healthcare outcomes, better manage costs, and help patients who then have fewer prescription medications to take (Almodóvar & Nahata, 2019; Bauchner & Fontanarosa, 2018; Brixner et al., 2016; Chan et al., 2023; Forest et al., 2021; Gaurang et al., 2021; Gilpin et al., 2022; Linsky et al., 2019; Page et al., 2016). Additionally, this research will increase our understanding of the organizational role and occupation of U.S. pharmacists and discover potential opportunities to help address or prevent polypharmacy. While doctors are responsible for evaluating and diagnosing patient illness and suggesting and providing treatment, they are not

always in the best position to advocate for deprescribing. Patients could be obtaining multiple prescriptions from multiple specialists for different diseases or conditions. Therefore, pharmacists may have the opportunity and ability to act as an integral touchpoint for the patient to protect them from overprescribing and potential negative health outcomes from polypharmacy including PIMs. Most people within the U.S. live within a few miles of a pharmacy (Shen & Peterson, 2020), making access to a pharmacist much simpler than access to other healthcare practitioners or providers.

Capitalizing on the role of pharmacists as a critical touchpoint to patients, this research focused on how the practice of recommending deprescribing can address the issue of polypharmacy. Understanding the barriers and facilitators to pharmacists' willingness to recommend deprescribing may further inform healthcare stakeholders on how to create better systems, processes, and communications around deprescribing. Ultimately, this has the potential to help patients with polypharmacy better manage their healthcare and pharmacological choices, achieve desired individual, organizational, and industry-level healthcare outcomes, and reduce the billions of dollars in waste due to overprescribing of inappropriate medications.

CHAPTER 2: LITERATURE REVIEW AND FRAMEWORK

Method for Developing and Conducting the Literature Search

Researching the topic of high consumption of prescription medications and overprescribing exposed multiple, intertwining topics such as high costs, high rates of hospitalizations, and unsatisfactory healthcare outcomes. The system of healthcare was investigated to determine the system or systems that impact the way patients are managed when presenting with healthcare complaints. Research topics were categorized into groups and different data sources were researched for information on each topic. A continuously growing elderly population adds to the multiple healthcare issues, including polypharmacy, ADEs, pill burden, and high costs of healthcare. The other main categories/phrases researched were "deprescribing, "deprescribe," "deprescribing and pharmacists," pharmacists, and the "Triple Aim Framework." Following the initial literature search on the listed topics, a recent study was identified that surveyed community pharmacists and prescribers and their perceptions on the barriers and facilitators to deprescribing (Huffmyer et al., 2021). Additional research was conducted to identify any other studies aligned with the identified study, but no other studies included community pharmacists. Table 2 provides a listing of the topics and categories supporting the problem statement and resulting research question.

Table 2

Literature Search Topics and Categories

Open Systems Theory	Polypharmacy	Deprescribing	U.S. Pharmacists
Triple Aim Framework • Improved Healthcare Outcomes • Management of Costs • Increased Patient Satisfaction	Appropriate polypharmacy Consequences • Adverse Drug Reactions (ADRs)* • Adverse Drug Experiences (ADEs)** • Pill Burden • Non-adherence • Healthcare Costs Aging Population	• Tools Used • Cost Benefits • Patient Satisfaction • Healthcare Outcomes	• Roles and Responsibilities • Experience with Deprescribing
*Adverse drug reactions (ADRs) are adverse reactions associated with a drug treatment and determined by a healthcare provider to be directly related to a specific medication (Beijer & de Blaey, 2002). **Adverse drug events (ADEs) are adverse events that occur during treatment with medication, but not necessarily directly associated with a particular or known medication (von Laue et al., 2003).			

Systems within healthcare that create the communication patterns that link the patient to the healthcare provider, the healthcare provider to the diagnosis and treatment(s), and the treatment(s) to the pharmacist and back to the patient were researched in the context of the theory of open systems. Within the healthcare environment, the Triple Aim Framework of healthcare was researched for its impact on the idea of deprescribing potentially inappropriate medications. The Triple Aim Framework is defined by Berwick et al. (2008) as a goal-centered measure in healthcare of improving healthcare outcomes, managing costs, and increasing patient satisfaction. The Triple Aim Framework provides key theoretical support of the potential importance and impact of deprescription of potentially inappropriate medications. It is clear from the literature that there are strong feelings about the Triple Aim Framework and its application to healthcare. To focus more closely on deprescribing, the term “Triple Aim” and “deprescribing” were entered together. This resulted in approximately 70 articles. The term “Triple Aim” entered in PubMed resulted in just over 150 articles.

In researching the idea of deprescribing, it was important to examine the factors contributing to polypharmacy in adults greater than 65 years of age. The phrase "aging population problem" returned over 3.5 million results on Google search. It is well-known that the world population is aging, and people are living longer than previous generations. Drivers to deprescribing were researched, using the terms "polypharmacy," "pill burden," "adverse drug reactions," "adverse drug events," and "healthcare costs." The term "polypharmacy" was most often defined as those as taking more than five prescription medications, but also those prescribed multiple medications (without a specific number assigned) when facing multiple diseases concurrently. "Pill burden" was searched as the term may reflect a potential catalyst for deprescribing. A Google scholar search for "pill burden" resulted in over 100,000 articles. PubMed pared that down to 55 mentions of "pill burden" in article titles.

To understand what research exists that identifies the process and outcomes of deprescribing, Google Scholar was searched for the terms "deprescribing" and "deprescription." Deprescription is primarily studied in people aged greater than 65 years because that age group has the greatest proportion of people prescribed more than five medications due to multiple diseases occurring, many related to aging or diseases that become more prevalent as people age. In addition, people aged greater than 65 in the U.S. qualify for government subsidy of prescribed medication, where data are recorded and maintained for tracking and research purposes. Separately, "deprescribing" and "deprescription" brought up approximately 14,000 and 17,000 results, respectively. PubMed brought up over 600 results related to the term "deprescribing" within the title. However, most of the articles were focused on small studies in very particular patient populations such as patients with cardiovascular health issues, Type 2 diabetes, HIV, end stage renal disease, cancer, and dementia. Although most articles were in elderly populations,

there were articles that described deprescription practices in other age groups faced with polypharmacy due to multiple chronic conditions or conditions that required multiple prescription medications for specific disease treatment management.

PubMed was also used to search for existing terms for tools specific to medication therapy management and potential deprescribing. These included "Beers Criteria" (194 within-title mentions), "START Criteria" (Screening Tool to Alert to Right Treatment, 78 within-title mentions), "STOPP Criteria" (Screening Tool of Older Persons' Prescriptions, 37 within-title mentions), the Medication Appropriateness Index (13 within-title mentions), and EPOCRATES medication electronic application (five within-title mentions). Other tools were also mentioned within the literature but were not as well-cited or adopted as readily as the more common tools mentioned above. Many were specific to certain countries and based on the existing Beers criteria and/or STOPP criteria (Motter et al., 2018).

References within articles were reviewed for authors appearing multiple times in multiple referenced articles and researched separately. Additionally, the Journal Quality List Australian Business Deans Council 2019 December v9 list was consulted to assist in obtaining support for clinical and healthcare journals not listed. The clinical and healthcare journals were often too clinically- or healthcare-focused without a bridge to the business or economic consequences of polypharmacy and/or deprescribing. The journals from the Australian Business Deans Council Journal Quality List Council that seemed to align well with the clinical outcomes article results were *PharmacoEconomics*, *Journal of Health Services Research and Policy*, *Organization Studies, Marketing Theory,* and the *Journal of Consumer Affairs*. These listed journals aligned with the healthcare and clinically-centric articles found within the Google Scholar and PubMed searches and added additional support to the topics researched from a healthcare business

perspective. Journals such as *Journal of the American Medical Association* (*JAMA*), *The Lancet*, and the *New England Journal of Medicine* (*NEJM*) were also searched and considered for inclusion as they are highly respected, clinically driven, peer-reviewed journals presenting the most current and advanced information in healthcare.

Following the organization of the literature, an additional search was created to identify existing research tools and surveys targeted toward pharmacists. Google Scholar was used to search "pharmacist survey" and resulted in a valuable survey instrument created for the Veterans Affairs Administration (Linsky et al., 2016). Once this validated survey instrument was identified, a search on the author was conducted to identify any additional information on the survey. The University of Kentucky utilized the survey to conduct their own state-wide survey, tailored specifically to community pharmacists and providers within Kentucky (Huffmyer et al., 2021). In particular, the results of the University of Kentucky survey further influenced my research interest because of its focus on pharmacists. The four major categories that I identified through my literature review include the Triple Aim Framework, polypharmacy, deprescribing, and U.S. pharmacists.

Scopus and Google Scholar were used after initial research was analyzed to reinvestigate topics and themes relevant to the research. The terms "pharmacist responsibility," "pharmacist deprescribing," "cloud-based health records," and "health technology" were searched for recent publications and updates to current thoughts on deprescribing, and the feelings pharmacists have related to their responsibilities, as that theme came up repeatedly in the initial seven interviews. This review unearthed the topic of deprescribing in pediatric patients. Of note was a study focused on children with medical complexities highlighting the risks related to polypharmacy in a patient population other than those over 65 years of age (Orth et al., 2023). Health technology

was also reinvestigated as new information was being published on technologies designed to help healthcare providers manage the increasing volume of patients. While digitalization ramped up due to the COVID-19 pandemic providing electronic prescribing and medical records, telehealth and text message prompts, gaps continue to exist due to lack of uniformity and interoperability (van der Schors et al., 2023).

Open Systems Theory and the Triple Aim Framework

Open systems theory refers to systems that interact with each other in a particular environment, with inflows and outflows of resources and services (Lai & Huili Lin, 2017). Organizations as open systems are not closed off from their environments, but open to, and dependent upon, the flow of personnel, resources, and information from different sources and stakeholders (Scott & Davis, 2015). Organizations have processes and structures to accomplish work goals and how their parts relate to each other (Scott & Davis, 2015). In terms of personnel, organizations develop practices on how employees are recruited, hired, and compensated, and design jobs based on tasks required and accomplished for a particular role, which can unfortunately have the negative side effect of becoming task-oriented, repetitive, and mundane (Scott & Davis, 2015).

Organizations are open systems which function based on culture, norms, and values developed through stories, rituals, and worldviews used as resources to solve problems within and outside an organization (Harrison & Corley, 2010). External cultures can act on a broad level across an organization, down to the individual level, and contribute to constraints and/or solutions to problems for organizations (Harrison & Corley, 2010). Cultural norms can be altered when actors within organizations act as change agents to develop new organizational understandings that drive alternative behaviors (Harrison & Corley, 2010).

Problems within open systems occur because subsystems are "correlated in a complicated way" (Tokoro, 2010, p. 7). Integration must occur across several dimensions in healthcare. These dimensions are physical, temporal, organizational, and functional (Tokoro, 2010). The physical dimension refers to the degree of co-location and whether the system is open, closed, or a hybrid, and what goods or services are offered. The temporal dimension addresses the degree of systems co-timing related to procedures, distributions, and expectations. The organizational dimension refers to the degree of systems co-management between people, processes, supplies, and centralization efforts. The functional dimension addresses the location, information, controls, and effectiveness of the system. Within this complex system, it is critical to provide quick and transparent access to patient health information (Tokoro, 2010).

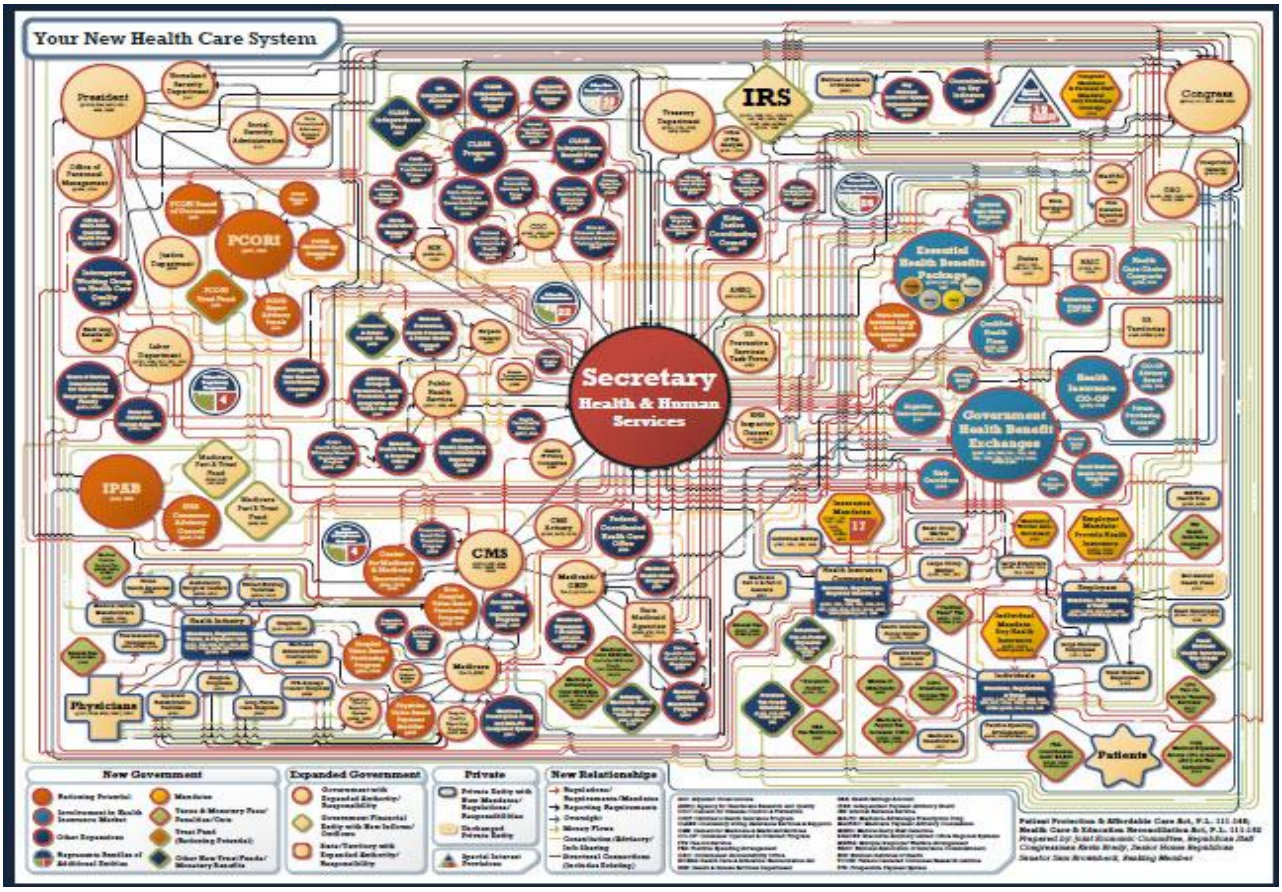
Closed systems also exist in the U.S. healthcare system. Examples of closed systems include managed care organizations and group health insurance plans such as the Veterans Administration, Health Partner, Virginia Mason, Intermountain Health, and Kaiser, which combine various sets of mechanisms and institutional arrangements to organize providers and payment methods (Glied, 2000; Strickland & Miike, 1977). These systems provide healthcare services for a population under agreed-upon terms including pricing (Strickland & Miike, 1977). Closed systems are often created when existing healthcare services are deemed inadequate or inappropriate for specific groups, yet complexity arises when healthcare is asserted as a basic right (Strickland & Miike, 1977). The complexity increases as the general population seeking healthcare as a right deems what is equal treatment in healthcare (Strickland & Miike, 1977). Unfortunately, managed care systems, built on the concept that it is cheaper to prevent ailments than to treat them in the long term, forgot the timeline of cause and effect in medicine which can be decades long; preventing ailments takes education, time, and dedication (Waldman, 2007).

The focus becomes the short-term budget and future expenses that could be avoided become forgotten and consumers recognize the lack of care and services along with lack of choice and voice in the operation of care (Orentlicher, 2003; Waldman, 2007). This often results in an adversarial relationship between care providers and patients due to dissatisfaction with available treatments and services and increased costs (Orentlicher, 2003; Waldman, 2007).

The U.S. has traditionally relied on a fee-for-service and transactional system in which the major stakeholders are the patients, the providers, the policymakers, and the payers (Hesp et al., 2015). There is no centralized, responsible governing agency and little integration and coordination resulting in a hybrid system, with open and closed systems within systems. The patients receive care from providers (Kulik & Holbrook Jr., 2002). The providers operationalize the care to the patients and provide them with healthcare services (Bodenheimer, 2005a, 2005b, 2005c; Bodenheimer & Fernandez, 2005). The payers manage the financial elements and enroll patients in programs as beneficiaries and procure services from the providers on behalf of those beneficiaries (McCauley, 2015). The policymakers are those establishing the frameworks within which healthcare is then provided to a country's citizens (Oswald, 2015). The Affordable Care Act implemented under the Obama administration was designed to expand primary healthcare to all Americans (Davis, 2011) but it was also mired in complexity as shown in Figure 2.

Figure 2

U.S. Healthcare System Diagram



Note. Graphic adopted from The Congressional Joint Economic Committee

With so many stakeholders and system complexities, communication, collaboration, teamwork, and systematic functioning between groups is crucial to support positive healthcare outcomes (McCovery & Matusitz, 2014). Open systems theory posits that all stakeholders within a system are interconnected, and that the whole of the system is greater than the sum of the individual stakeholders. The open system receives information, is organized, has many dynamic interactions between stakeholders and systems within systems, and is continually adapting to change (McCovery & Matusitz, 2014). It is essential to collaborate and cooperate within the

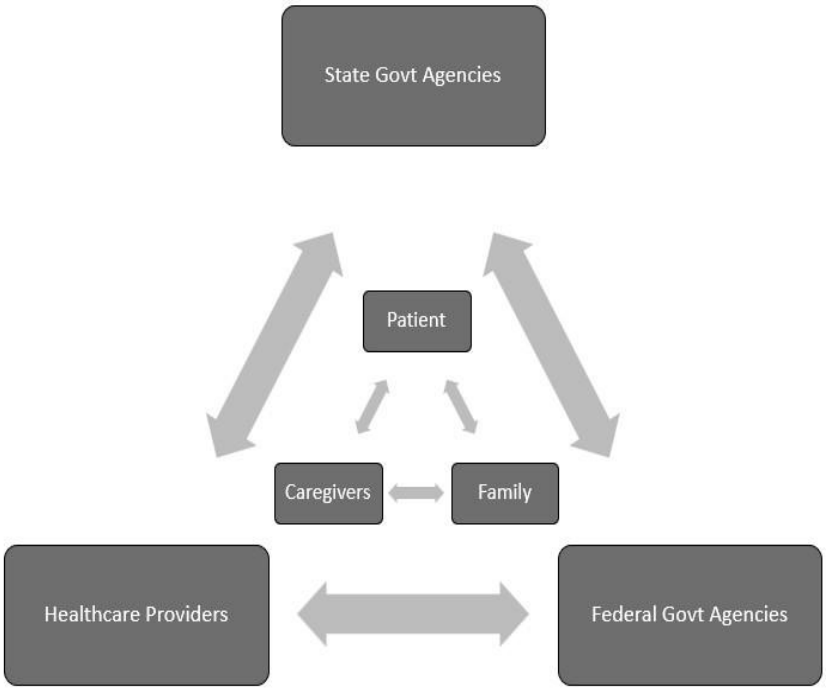
healthcare ecosystem to support positive health outcomes while being fiscally responsible (McCovery & Matusitz, 2014).

Patients are at the core of the services being provided within the healthcare system and positive healthcare outcomes are the goal of diagnosis and treatment. Looking from the patient perspective outward, the systems are also complex and interwoven, especially in long-term care settings as shown in Figure 3. There are many stakeholders involved, and communications between groups are not always transparent (Bell et al., 2017).

Figure 3

Inter-organizational Communication in Long-Term Care Settings

(adapted from Swierenga et al., 2007)



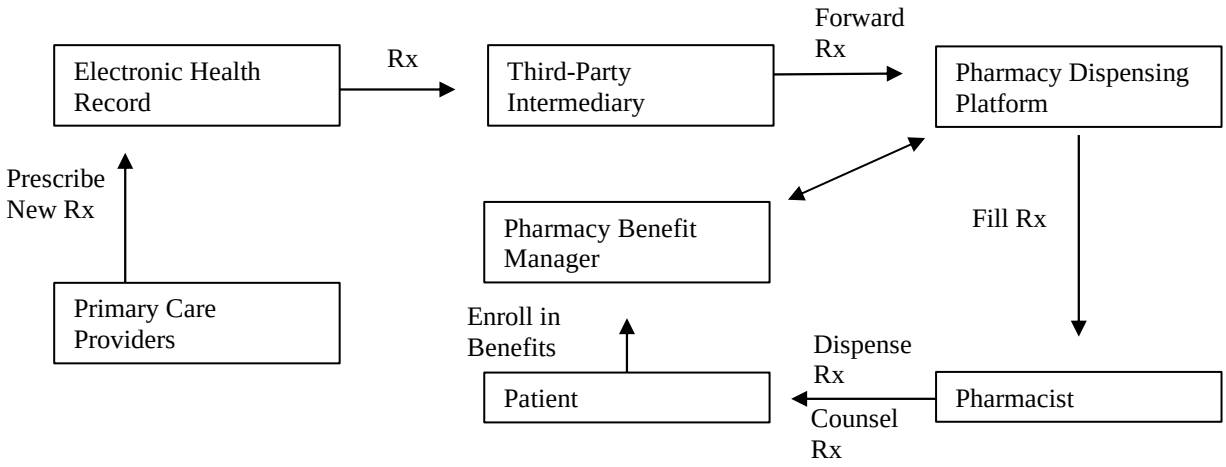
Within the medication use process, the system is also complex. A simplified description is a patient who visits a healthcare provider and is prescribed a new medication. That medication is recorded electronically in the patient's health record and sent to the pharmacy electronically.

Once the pharmacy receives the prescription information, the patient's insurance provider is billed. The prescription is assessed by a pharmacist for accuracy and is then dispensed to the patient. A graphic depiction of this process is provided in Figure 4.

Figure 4

Simplified Medication Use Process

(adapted from Watterson et al., 2023)



Improvement in the traditional systems and processes in the U.S. have been slow to progress. This lack of progress has been blamed on the "persistence of a medical ethos, institutionalized in the hierarchical structure of academic medicine and healthcare organizations, that discourages teamwork and transparency and undermines the establishment of clear systems of accountability" (Leape et al., 2009, p. 424). The lack of progress in improvement has not gone unnoticed and scholars developed a framework to address some of these long-standing concerns.

The WHO in 2000 communicated information related to three fundamental objectives in healthcare on a global scale: "improvement of health of the population, response to people's expectations, and financial protection against the cost of ill health" (WHO, 2000, p. 8). While the original WHO discussion occurred in 2000, little improvement has been made in pursuit of the

goals (Bezruchka, 2012). It is difficult to argue against the need for improvement in healthcare outcomes, rising costs of healthcare, and patient dissatisfaction (Paterson et al., 2015).

Triple Aim Framework

The goals and objectives of the Triple Aim Framework of healthcare were developed to strategically organize the interconnected healthcare systems in the U.S. to better serve communities by outlining three critical areas of need in healthcare: increased patient satisfaction, improved outcomes, and management of costs (Berwick et al., 2008; Whittington et al., 2015). The Triple Aim Framework intends to support three fundamental objectives in healthcare 1) improving the experience of care, 2) improving the health of populations, and 3) reducing the per capita costs of healthcare (Berwick et al., 2008).

The first aim is improving the experience of patient care. Patients are still underserved in the U.S., with many still not receiving access to, or satisfaction with, the care they have been prescribed (Katon & Unützer, 2013). There is focused effort on supporting increased patient satisfaction, but patient satisfaction is a complex construct (Ferrand et al., 2017). It is evident from the literature that open communication and strong relationships support a higher rate of patient satisfaction. Long-term relationships with healthcare providers encourage loyalty from patients, supporting effective healthcare and healthy lifestyle habits (Baummer-Carr & Nicolau, 2017). As previously noted, the number of healthcare providers is shrinking. The need for additional healthcare providers is critical to support the needs of patients, including increased satisfaction with services. The lack of appropriate staffing has a direct relationship to patient satisfaction (Winter et al., 2020).

The second aim is improving healthcare outcomes. Healthcare outcomes in the U.S. are not as positive as in other parts of the world, even though the U.S. spends more per capita on

healthcare (Bezruchka, 2012). The health of a country's citizens can be measured by a range of mortality indicators and, based on these indicators, health in the U.S. has stagnated while health in many other countries has steadily improved (Bezruchka, 2012). Health outcomes for all Americans are far worse than those in other developed countries regardless of technology, treatment, or financial income (Emanuel et al., 2021).

The third aim of the Triple Aim Framework is to reduce the costs of healthcare. Healthcare costs around the world have been increasing due to the aging population, changes in technology, the prevalence in medication errors, and increased spending on medications year over year (Dalton & Byrne, 2017). The U.S. spends more per capita on prescription medications than any other industrialized country and the spend continues to increase (Sarnak et al., 2017). While prescription medications are used at generally the same rate across industrialized nations, Americans spend more out-of-pocket and use newer, more expensive prescription medications which drive the spending on prescription drug products higher (Morgan & Kennedy, 2010; Raimond et al., 2021; Sarnak et al., 2017). In 2019, the pharmaceutical spend in the U.S. was $507.9 billion and projected to rise another 4% to 6% in 2020 (Tichy et al., 2020). Higher healthcare costs in the U.S. are primarily due to higher prices for drug products, higher salaries paid to physicians and nurses, higher prices for hospital stays, and higher prices for medical services overall (Bauchner & Fontanarosa, 2018). While the U.S. has access to many of the top treatments in the world, the costs for these treatments are significantly greater than in other countries (Bauchner & Fontanarosa, 2018). The COVID-19 pandemic increased federal spending dramatically and the U.S. healthcare expenditures reached $4.1 trillion with a large portion devoted to prescription medications (Hartman et al., 2022). Contributing to the demand and use of expensive prescription drug products is direct-to-consumer advertising (Frosch et al., 2007).

The U.S. and New Zealand are the only countries that currently allow direct-to-consumer advertising and promotion of prescription drug products (Woloshin et al., 2001). The use of television commercials in the U.S. to advertise prescription drugs is effective in increasing the demand for expensive products, especially when consumers could use other alternatives or lifestyle changes to address health issues (Farhud, 2015; Frosch et al., 2007).

Overall, the Triple Aim Framework was designed to help guide healthcare improvement initiatives to strategically pursue the three goals. The Triple Aim Framework has been widely adopted, as its simplicity and clarity has made it very popular. While these three goals are not necessarily new, the aim of pursuing them in balance and targeting them to a population, rather than on an individual basis, is still conceptually young (Mery et al., 2017).

The framework was intended for implementation at the organization or local community level (Mery et al., 2017). A population would be defined such as patients with a similar diagnosis or patients within a particular health plan. A policy would be set for the population, and an integrator would assume responsibility, measuring the success of meeting the goals for the population and making alterations as needed to continue to improve quality and achieve goals (Berwick et al., 2008). Value, in terms of healthcare, was redefined as health outcomes per dollar spent (Porter, 2008, 2010).

Research incorporating the Triple Aim Framework has not yet been linked with deprescribing potential, and thus is incorporated into this research. Deprescribing recommendations by pharmacists may support the goals of the Triple Aim Framework of improving healthcare outcomes at a manageable cost, while improving or maintaining patient satisfaction.

Polypharmacy and Our Aging Population

Polypharmacy can create short- and long-term complications for patients such as drug interactions between medications, increased need for hospitalization, poor healthcare outcomes, and higher costs (Bourgeois et al., 2010; Chang et al., 2020; Frazier, 2005; Fried & Mecca, 2019; Gadsby et al., 2012). Polypharmacy is associated with increased risks to patients, especially when multiple physicians are seen and different pharmacies are used to fill prescriptions (Montamat & Cusack, 1992). Polypharmacy has been shown to have a negative effect on physical and mental function (Katsimpris et al., 2019). A literature review on polypharmacy indicates that polypharmacy is a "significant predictor of hospitalization, nursing home placement, death, hypoglycemia, fractures, impaired mobility, pneumonia and malnutrition" (Frazier, 2005, p. 4).

Polypharmacy exists worldwide and has been studied for several decades (e.g., Waldron, 1977). In certain neurological disorders such as schizophrenia, polypharmacy is widespread (Baandrup, 2020). Although antipsychotic monotherapy is the recommended treatment regimen, schizophrenia is a severe disorder whose symptom profile encourages use of multiple therapies to treat symptoms (Baandrup, 2020). There are several areas where multiple prescription medications can assist patients with singular or multiple chronic conditions. Polypharmacy of five cardio-protective drugs seen in a 65-year-old who has had a heart attack may be appropriate but appear inappropriate in the same individual at 90 years old with a limited life expectancy (Sirois, et al, 2019). Type 2 Diabetes is prevalent among the elderly in the U.S. and due to the need to treat its many microvascular and macrovascular symptoms, polypharmacy is necessary (Dobrică et al., 2019). Patients suffering from cancer also require treatment with multiple medications to address the many complexities associated with the disease, and there is no

determined single polypharmacy cut off (i.e., number of medications) which predicts health outcomes (Turner et al., 2016).

The elderly community is known to have issues with certain conditions such as urinary incontinence as well as a high risk of malnutrition and internal processing of prescription drug products (Heuberger & Caudell, 2011; Nuotio et al., 2005; Win et al., 2017). A longitudinal study in Scandinavian women over 70 years of age showed an increase in lower urinary tract symptoms when they had polypharmacy of more than three medications (Nuotio et al., 2005). Malnutrition is a concern among elderly adults and the nutrients needed from consumed food are important in the absorption, metabolism and kinetics of medications administered to patients (Heuberger & Caudell, 2011; Win et al., 2017). Heuberger and Caudell (2011) found that more than 50% of the participants had polypharmacy of at least five medications taken on a regular basis and, of the commonly prescribed medications, certain gastrointestinal medications had interactions with caffeine and were known to interfere with the absorption of iron, calcium, and magnesium. Diuretic medications taken alone or in combination with other medications prescribed require an increase in potassium and magnesium intake and a decrease in dietary sodium. If mineral intake is not managed appropriately, the addition of just this one type of medication can result in malnutrition and a steady decline in health overall.

Polypharmacy increases the risk of adverse drug reactions and events, drug interactions between medications, non-adherence to medications regimens often associated with complex regimens and pill burden, a reduction in physical and mental function, multiple geriatric syndromes, and higher healthcare costs (Maher et al., 2014). Adverse drug reactions (ADRs) are adverse reactions associated with a drug treatment and determined by a healthcare provider to be directly related to a specific medication (Beijer & de Blaey, 2002). Adverse drug events (ADEs)

are adverse events that occur during treatment with medication, but not necessarily directly associated with a particular or known medication (von Laue et al., 2003).

A longitudinal study covering a decade of national health clinic and emergency department visits (1995-2005) reported ADE rates as the cause of high outpatient visits (35%) and hospitalization (40%) of elderly patients (Bourgeois et al., 2010). Bourgeois et al. (2010) demonstrated ADEs are a risk factor associated with polypharmacy which contributes to the high number of hospitalizations and outpatient visits experienced by elderly patients.

Contributing to the issues associated with polypharmacy, certain changes occur within the body as it ages, changing how medication is processed through the body and how the medication is metabolized within the body (Roberts et al., 2016). Drug processing and metabolism is referred to as pharmacokinetics/pharmacodynamics (PK/PD). The altered PK/PD in patients greater than 65 years of age increase the risk of adverse drug reactions, which often lead to hospitalizations (Hammerlein et al., 1998). Not only does age impact frequency of adverse drug reactions, but it also increases the severity of the ADRs (Hammerlein et al., 1998).

Polypharmacy can create the issues of pill burden and non-adherence with treatment regimens, which also contribute to ADRs and ADEs (Col et al., 1990). The increase in prescription medications can contribute to pill burden. Pill burden literature often articulates the number of prescription medications associated with a particular illness (Hagendorff et al., 2013). Higher pill burden is associated with lower adherence and worse outcomes for patients with HIV infection (Nachega et al., 2014). For patients with hypertension, the more pills taken per day, the higher the amount of pill burden experienced (Hagendorff et al., 2013). For those with Type 2 diabetes, pill burden contributed significantly to lack of medication regimen compliance (Hauber

et al., 2013; Kumar et al., 2014). When pill burden for patients with diabetes was reduced from two pills to one, there was a 12.8% greater adherence to a medication regimen (Pan et al., 2008).

An increase in prescription medications contributes to a lack of adherence to prescription medication regimens. Non-adherence to drug regimens is associated with complex medication regimens and overall pill burden (Maher et al., 2014). Non-adherence to medication regimens is also associated with negative health outcomes including "disease progression, treatment failure, hospitalization, and ADEs" (Maher et al., 2014, p. 4). A five-year study in Hong Kong tracking over 100,000 patients showed higher mortality rates among patients with cardiovascular disease who were non-adherent to medication treatment regimens (Wong et al., 2013). Patient responses as to why they are non-adherent vary and have been categorized into both reasons within and outside of the patients' control, as well as reasons outside of the patients' control (Turner et al., 2022). Regardless of reasons, positive health outcomes decrease with non-adherence (Chowdhury et al., 2022) and negative health outcomes can be a costly result.

Multiple studies have found that polypharmacy increases overall healthcare costs anywhere from 6% to 30% due to the risk of taking potentially inappropriate medications and the associated risk of hospitalizations and outpatient visits, as well as the chronic treatment medication costs (Brixner et al., 2016; Kojima et al., 2012; Maher et al., 2014; Rambhade et al., 2012). Those costs impact the patient and the third-party payers (Gadsby et al., 2012; Kojima et al., 2012). Complex medication therapy regimens treating multiple comorbidities with multiple prescription medications potentially waste $2 billion in national Medicare healthcare coverage (Almodóvar & Nahata, 2019).

Polypharmacy can occur across all age groups but is most often seen in elderly people (Larsen & Martin, 1999). The growing elderly population is an issue recognized worldwide

(Anderson et al., 2012; Feng et al., 2012; Kanasi et al., 2016). The population in 2016 estimated 11% of people were over age 60 and that percentage is expected to double by the year 2050 with more than two billion people in that age group (Newgard & Sharpless, 2013). The aging population has an increased incidence of chronic disease and chronic conditions (Chi et al., 2011; Wolff et al., 2002). The elderly population consumes approximately 37% of all prescription medications (Agency, 2022). Of those between the ages of 60 and 79, over 80% take at least one prescription medication and over 34% take five or more prescription medications (Hales et al., 2019). Chronic conditions are the primary reason for this consumption and several different medications may be used to treat the diseases or conditions (Larsen & Martin, 1999). The most common chronic conditions for those greater than 65 years include diabetes, heart disease, and arthritis; 80% have at least one chronic condition (Prasad et al., 2012; Vogeli et al., 2007). These conditions and the number of medications prescribed lead to polypharmacy.

Treatment with the correct prescription medications can improve clinical outcomes, quality of life, and life expectancy (Molokhia & Majeed, 2017). Ensuring there are systems in place to verify treatments are started only when a suitable indication exists, and patients are monitored regularly to determine whether the treatment regimens remain appropriate, could reduce the negative consequences of polypharmacy (Molokhia & Majeed, 2017). Ensuring the correct balance of many prescription medications is a significant challenge (Cadogan et al., 2016). Polypharmacy is beneficial and clinically indicated for specific chronic conditions such as diabetes mellitus and hypertension, and those with multiple health conditions (Cadogan et al., 2016). Balancing the benefits of medications and the risks associated with taking the medications is difficult, and polypharmacy has been described as “one of the greatest prescribing challenges” (Cadogan et al., 2016, p. 110).

The elderly population is a marginalized group in need of support because it is vulnerable to issues with polypharmacy. It is unclear whether patients are satisfied with fewer medications taken to address issues with polypharmacy, primarily due to emotional and psychological global beliefs that doctors heal diseases with medicines and medicines exist for each disease (Garfinkel et al., 2015). Evidence suggests primary care physicians demonstrate ageist perceptions, especially against the elderly in the over 85 years of age category or those that are part of the nursing home population, which may directly influence the quality of care these groups receive (Gunderson et al., 2005). Quality of care is especially important for the elderly population because it can serve to prevent hospitalization due to chronic conditions (Kong, 2007). Particularly for the highly vulnerable population of those aged 65 or older, even a small excess marginal risk could tip the balance in support of deprescribing the number of medications a patient is taking. Such deprescribing can be crucial to preventing potential adverse drug reactions and falls in patients who are frail or afflicted with multimorbidity (Fried & Mecca, 2019). Understanding more about how patients can be deprescribed can help this population.

The term polypharmacy has been linked to geriatric syndromes and disabilities, and avoiding polypharmacy is often recommended to optimize functional status in elderly patients (Lee et al., 2020). The fear now associated with polypharmacy has been identified as a risk factor for under-prescribing, a situation where patients do not receive necessary medications because a clinician feels a patient is already on “many” medications (Cadogan et al., 2016). Redefining the term polypharmacy into different categories may clarify when and where true risks are evident when a patient has polypharmacy (Cadogan et al., 2016; Lee et al., 2020). The terms necessary polypharmacy, unnecessary polypharmacy, and polypharmacy of unclear benefit have been

proposed. These terms offer distinctions between polypharmacy that may benefit patients versus polypharmacy that may potentially harm them (Lee et al., 2020).

Deprescribing

Deprescribing is defined as "the process of tapering, stopping, discontinuing, or withdrawing drugs, with the goal of managing polypharmacy and improving outcomes" (Thompson & Farrell, 2013, p. 201). The term deprescribing first appeared in Woodward (2003). A definition that includes the addition of the supervisory role of a healthcare professional is "the process of withdrawal of an inappropriate medication, supervised by a healthcare professional with the goal of managing polypharmacy and improving outcomes" (Reeve et al., 2015, p. 1262). The term healthcare professional has been included due to the complex nature of medication regimens in those with polypharmacy, especially as the number of medications increase due to age-related chronic conditions, potentially inappropriate medications, and how the medication is metabolized (Reeve et al., 2015).

The distinction between the two definitions is important because the newer definition contains the promise of managing polypharmacy and improving health outcomes in patients (Reeve et al., 2015). Although others have gone as far as to say deprescribing as outlined above is too narrow, should not be limited to those suffering from polypharmacy, and should include the removal of any medication – even if it is the only prescribed medication (Woodford & Fisher, 2019). Switching to a safer medication, switching to a lower-frequency formulation, and reducing the dose are also valid forms of deprescribing (Woodford & Fisher, 2019). Deprescription for patients over 65 years of age with polypharmacy of more than five prescriptions is being investigated worldwide in many studies (Chan et al., 2023; Curtin et al.,

2020; Earl et al., 2020; Garfinkel et al., 2015; Martin et al., 2015; Mohottige et al., 2021; Ng et al., 2018; Woodford & Fisher, 2019).

Empirical studies of deprescribing efforts have identified varied positive outcomes. One such outcome is a positive impact on healthcare outcomes. Chan and colleagues (2022) included patients with chronic diseases who were nonadherent to treatment medications and had poor health literacy. Patients were recommended by a prescriber and separated into either a control group receiving usual care, or an intervention group receiving pharmacist-led treatment support. The intervention group received pharmacist support in chronic disease management, specifically targeted toward medication titration and management. They followed pharmacists for two years. The intervention group had the pharmacist managing medications and experienced significantly better heart health outcomes (Chan et al., 2023). The intervention group had on average a single prescription removed, while the usual care group had a nearly half a prescription increase.

Other studies indicate improved cost management and a reduced number of medications because of deprescribing. Curtin et al. (2019) studied elderly patients with advanced frailty taking five or more medications. The sample included 65 subjects in control and intervention groups, taking an average of 11 medications per subject. This study focused on elderly, frail patients under the continuous care of a physician trained in the care of geriatric patients. The physicians used two different criteria to assess patients for potential deprescribing efforts. While no significant difference was shown in either group in terms of falls, hospitalizations, quality of life, or mortality, the study did show a reduction in the number of prescription medications and costs associated with those prescriptions (Curtin et al., 2019).

While the idea of deprescribing is creating excitement across the globe, there are complexities that occur in how elderly patients are managed from a healthcare perspective and

the medication prescription process. Garfinkel and colleagues (2015) highlighted the increased rate of hospitalizations, frailty, disability, and mortality facing the elderly population, as well as the vicious cycle of overdiagnosis and overtreatment (Garfinkel et al., 2015). Interestingly, they analyzed multiple studies of deprescribing around the world. They found that most studies were based on educational materials being disseminated to patients, and that changes in prescribing behaviors were difficult to sustain without continued and active intervention.

The cornerstone study on deprescribing has been cited in every subsequent study on deprescribing researched for this literature review. The study conducted by Martin and colleagues (2015) garnered attention and popularized the phrase deprescribe. This study was rigorous and was conducted over three years with 450 participants with polypharmacy. It tested a deprescribing intervention compared with a control group of usual care to reduce four classes of inappropriate prescription medications according to the Beers criteria (summarized in the next subsection). It also utilized pharmacists to provide the intervention. This is of particular interest, because no clear guidance exists on which healthcare provider should actively be targeting deprescribing (Martin et al., 2015). Study participants were separated into an intervention and control group. The control group received usual care. Pharmacists in the intervention group were encouraged to send patients an educational deprescribing brochure. They were encouraged to send their prescribers other options to recommend deprescribing of potentially inappropriate medications. The study demonstrated a decrease in costs to patients and improvement in healthcare outcomes. While heavily cited and referenced worldwide, deprescribing has yet to be implemented in practice with the same level of promise and success.

Literature results related to the topic of deprescribing are varied, and many more global studies have targeted deprescribing and its associated outcomes. Different tools are often used in

deprescribing (Earl et al., 2020; Gallagher et al., 2011; Hanlon & Schmader, 2022; Nicieza-Garcia et al., 2016) and deprescribing does not always lower costs of healthcare or improve patient healthcare outcomes (Shrestha et al., 2020). There is little information on whether patients are satisfied with fewer medications taken to address issues with polypharmacy, considering psychological beliefs that doctors heal with medicines (Garfinkel et al., 2015). Deprescribing interventions overall have been described as generally feasible, effective at reducing the number of potentially inappropriate medications, and safe (Thillainadesan et al., 2018). While the idea of deprescribing is exciting and there is a stream of existing research, there is no consensus amongst stakeholders on how to successfully implement deprescribing, what inhibits potential deprescribing efforts, which tools are most effective, and who ultimately could recognize polypharmacy and aid with deprescribing efforts.

Tools Used in Deprescribing

The definition of deprescribing as a "process of withdrawal of an inappropriate medication, supervised by a health care professional" (Reeve et al., 2015, p. 1262) raises the question of how a healthcare provider could attempt to deprescribe. An established framework for initiating the deprescribing process is comprised of five steps (Scott et al., 2015):

- Ascertain all drugs the patient is currently taking and the reasons for each one.
- Consider overall risk of drug-induced harm to individual patients in determining the required intensity of deprescribing intervention.
- Assess each drug for its current or future benefit potential compared with current or future harm or burden potential.
- Prioritize drugs for discontinuation that have the lowest benefit-harm ratio and lowest likelihood of adverse withdrawal reactions or disease rebound syndromes.
- Implement a discontinuation regimen and monitor patients closely for improvement in outcomes or onset of adverse effects.

While this protocol states that the prescriber should follow this framework, the definition of deprescribing includes the supervisory role of a healthcare professional. This may include the

prescriber, but as it does not define which healthcare professional supervises, opportunities exist to explore the potential participation of other stakeholders.

To date there is no specific agreed-upon process or preference for which tools to use in specific states of the deprescribing process (Curtin et al., 2019). Tools mentioned in the literature to support the process of deprescribing include the Beers criteria, START (Screening Tool to Alert to Right Treatment) and/or STOPP (Screening Tool of Older Persons' Prescriptions), the Medication Appropriateness Index (MAI), and the EPOCRATES medication information electronic application. The Beers criteria, START, and STOPP were the most frequently cited and most frequently combined when assessing potentially inappropriate medications in elderly patients with polypharmacy. Table 3 provides a brief description of various tools used in the deprescribing process, studies referencing such tools, and an assessment of the tool.

Table 3

Tools Frequently Utilized in the Deprescribing Process

Tool	Brief Description	Studies Referenced	Assessment
Beers Criteria	Developed in the U.S. A listing of drugs or drug classes that are recommended to be avoided or only used in certain clinical situations or used with caution in older adults. Organized by drug name or drug class. The authors recommend using STOPP/START in combination with Beers.	Alshehri et al., 2020; Anand et al., 2022; Blanco-Reina et al., 2019; Demirer Aydemir et al., 2021; Gorzoni & Rosa, 2020	Most widely referenced tool. Updated every three years by a panel of experts. Effective in reducing the amount of potentially inappropriate medications.
Screening Tool of Older Persons' Prescriptions (STOPP)	Developed in Europe. Similar to Beers Criteria but organized by physiological systems. Often used with START and Beers Criteria. Endorsed as a best practice tool by some organizations	Earl et al., 2020; Fahrni et al., 2019; Hill-Taylor et al.; Lam & Cheung, 2012; Mahony et al., 2018; Nauta et al. 2017; O'Connor et al., 2016; Pala et al., 2022; Parker et al., 2019	Effective in reducing the amount of potentially inappropriate medications.
Screening Tool to Alert to Right Treatment (START)	Developed in Europe. Often used in combination with STOPP. Focused on certain conditions seen more often in elderly patients	Fahrni et al., 2019; Hill-Taylor et al.; Lam & Cheung, 2012; Mahony et al., 2018; Nauta et al. 2017; O'Connor et al., 2016; Pala et al., 2022; Parker et al., 2019	START used primarily to ensure patients are given the appropriate preventative medications for conditions that regularly occur in their population such as cardiac and bone health.
EPOCRATES	An electronic web service and medical application used to assist healthcare providers in assessing medications, dosing, and drug interactions. Provides information about different drugs, dosing, and potential interactions.	Bregnhoj et al., 2005; Castelino et al., 2010; Hanlon & Schmader, 2022; Kassam et al., 2003; Krisch et al., 2020; Somers et al., 2012	Valuable tool for the digital age with over 1 million healthcare subscribers.
Medication Appropriateness Index (MAI)	Considered the best tool but the most time-consuming. This tool consists of 10 questions for each drug that allow three different ratings of A (appropriate), B (acceptable), or C (not appropriate).	Andrus et al., 2015; Bhanot & Sharma, 2017; Fitzgerald et al., 1997; Fox et al., 2005; Hanlon & Schmader, 2013; Hyler, 2002; Rappaport, 2006	Focused on improvement of prescribing quality. Has shown changes in medication improvement over time. Time consuming to use because of the 10 questions per drug and assessment of each question to make a final decision.

The Beers criteria is the most widely referenced when discussing deprescribing. Developed by Beers (1991), the first set of criteria was reviewed with a 13-member expert panel that came to a consensus on 30 medications which should be avoided for elderly patients in nursing homes (Marcum & Hanlon, 2012). The original set of listed medications have been updated over time, with panels of experts providing feedback on certain medications and updating the list on a regular basis to include more explicit information on interactions and severity ratings, length of treatment and impact on renal function (Marcum & Hanlon, 2012). These criteria were adopted by the American Geriatrics Society and the Centers for Medicare and Medicaid Services (Marcum & Hanlon, 2012), recognizing early on a clear need for a tool to address the overprescribing of potentially inappropriate medications in elderly patients.

START is another tool used with the elderly population (Barry et al., 2007). This tool is slightly different than the Beers criteria as it is focused on the appropriate medications that should be prescribed to elderly patients to help protect their cardiac health with statin use in those presenting with atherosclerotic disease and to protect their bone health from symptomatic osteoporosis with calcium and vitamin D supplementation (Barry et al., 2007). The concern from this perspective is the overprescribing of inappropriate medications while failing to prescribe drugs clearly indicated and likely to benefit the patient (Barry et al., 2007). This is a "give the patient this, not that" approach.

STOPP is often used with the START criteria and is like the Beers criteria used to identify potentially inappropriate medications in elderly patients (Gallagher & O'Mahony, 2008). While STOPP has been reported to identify more potentially inappropriate medications than Beers criteria, the Beers criteria defined potentially inappropriate medications resulted in fewer hospitalizations due to ADRs (Gallagher & O'Mahony, 2008). STOPP and START are often

used together to identify potentially inappropriate medications and to deprescribe them to ensure appropriate treatments are implemented when health may potentially improve (Gallagher et al., 2009). Earl et al. (2020) conducted an analysis of the literature, finding 26 studies and a systematic review utilizing the STOPP criteria. The deprescribing interventions used included protocols, algorithms, computer tools, patient educational materials, and medication reviews by pharmacists, prescribers, or a combination of pharmacists and prescribers. The study does recommend further focus on the potential impact of involving pharmacists, recognizing the expanding scopes of practice and the need for collaborative practice between pharmacists and prescribers. While the studies using the STOPP criteria were effective in reducing the number of potentially inappropriate medications and polypharmacy in general, it was not clear from the analysis that health outcomes were improved across studies (Earl et al., 2020).

A meta-analysis reviewed global initiatives in deprescribing and found that Beers and STOPP were commonly used, but also cited the Australian Prescribing Indicators Tool, Thailand criteria, Lindblad criteria, McLeod criteria, Rancourt criteria, French criteria, and Norwegian General Practice (NORGEP) criteria (Motter et al., 2018). Many of the criteria mentioned were based on previously published criteria, primarily Beers and STOPP (Motter et al., 2018). Experts from multiple medical fields participated in the process of deprescribing for the studies, with physicians and pharmacists most often engaged, yet psychiatrists, cardiologists, pulmonologists, and gastroenterologists sometimes included (Motter et al., 2018). This study did not provide data on outcomes, only on the differences between criteria used globally.

A review of studies of STOPP/START and the Beers criteria indicated significant differences in the studies, but focused on the need for investigation into these tools with randomized controlled trials to better assess substantial and significant outcomes for patients.

Disparities between the tools were potentially due to the availability of different medications across countries and data availability to assess the criteria in the countries where the tools were used (Thomas & Thomas 2019). This study did not provide data on outcomes, only the differences in the numbers of potentially inappropriate medications prescribed to patients and the differences between community-treated patients and patients who were hospitalized.

Technology is being developed and tested for better management of prescribed medications. CancelRx is a health information technology created to automate the communication of medication discontinuations from a clinic's electronic health record to a community pharmacy dispensing platform. The intent is to create greater transparency and communication between prescribers and pharmacists and avoid unnecessary medication continuation for greater patient safety. A study at the University of Wisconsin described the changes that took place in the clinic and community pharmacy work systems when CancelRx was implemented. Post-implementation of CancelRx, pharmacists reported that they did receive the messages to discontinue medications, but without a reason for the discontinuations (Watterson et al., 2023). In addition, pharmacists commented that most tasks regarding CancelRx messages were administrative only, lacking clinical judgment, the number of messages were too high, and that they considered the messages to be nuisances rather than important communications (Watterson et al., 2023).

Deprescribing – Cost Benefits

Worldwide studies on deprescribing often tout its benefit at managing costs (Bao et al., 2018; Horii & Atsuda, 2020; Jowett et al., 2022; Martin et al., 2015; Martinez-Sotelo et al., 2021). An analysis of the D-PRESCRIBE study in Canada specific to the reduction of non-steroidal anti-inflammatory drugs (NSAIDs) compared to usual care calculated a significant

reduction in costs. Results indicated that reducing NSAIDs provided lower system costs and a compelling strategy for patient treatment associated with chronic use of NSAIDs (Sanyal et al., 2020). Additionally, the same study was analyzed for cost savings in relation to a reduction and deprescription of sedatives in the same patient population and showed a cost savings and increased quality of life benefits (Turner et al., 2021).

However, not all studies have found empirical support for the cost savings benefits of deprescribing. A literature review of deprescribing interventions found older patients with life-limiting illnesses and limited life expectancy continue to receive potentially inappropriate medications, and that the complexities with this population prevent many doctors from deprescribing (Shrestha et al., 2020). Additionally, the terminology used related to cost analysis is different (i.e., overall cost, medication cost, healthcare expenditure) and calculated differently between studies (Shrestha et al., 2020). This variation in cost analysis does not support the idea of healthcare value. Value in healthcare is determined when certain expenditures are worthwhile, regardless of cost, because they provide positive outcomes for the patient (Porter 2010). Low value occurs when expenditures are excessive and more does not equal better outcomes (Porter 2010). While there is potential to account for cost savings, the authors concluded that there is not enough evidence to support the claim of cost savings (Shrestha et al., 2020).

Deprescribing does not always result in economic benefits and can have negative health consequences, as demonstrated in an analysis of a trial in elderly patients prescribed antihypertensive medication which demonstrated no cost saving benefit with the withdrawal of one hypertensive as compared with usual care (Jowett et al., 2022). In fact, the trial group with reduction in medication had higher rates of heart failure and stroke (Jowett et al., 2022).

Other countries have analyzed cost related impact of pharmacological interventions and deprescribing. In Spain, drug costs were not expected to be lowered by deprescribing (Martinez-Sotelo et al., 2021). In Japan, daily drug costs were reduced (Horii & Atsuda, 2020). In China, the benefit to cost ratio consistently increased (Bao et al., 2018). In the U.S., monthly medication costs were significantly decreased (Curtin et al., 2019; Tannenbaum et al., 2014). This difference across countries may be due to the structure of the healthcare system and whether the healthcare is private or subsidized.

In older adults, the need for the implementation of deprescribing tools is clear due to over-prescribing and prescribing of low-value medications (Levinson, 2022) which contributes to excessive expense without added benefits. Even with private insurance or Medicare coverage, there are still out-of-pocket costs for patients, and potentially inappropriate medications contribute to ADRs and ADEs which contribute to hospitalizations and additional healthcare needs (Vogenberg, 2019). There is a lack of education on the side of patients and caregivers as to the risks and 'true' costs associated with medications (Radomski et al., 2022). True costs can include side effects that require additional medications and/or result in injury or hospitalization (Radomski et al., 2022). These facts need to be disclosed to patients and their caregivers so that transparent, informed decision-making can occur with the patient and their caregivers (Radomski et al., 2022). This communication and education between prescribers and patients and caregivers will enable patients and caregivers to make decisions based on the true value of the medication and possible alternative options.

When looking at overall costs associated with prescribing medications, it should be noted that it is a simple matter for physicians to start a prescription medication treatment for a chronic condition in an elderly patient (Levinson, 2022) regardless of if the treatment provides only

marginal benefit, or any benefit, to the patient and regardless of cost to the patient. Twenty-five percent of people in the U.S. have difficulty paying for their prescription medications, and those who reported the greatest difficulty in paying were those most in need of the medications to address fair or poor health (Deb & Curfman, 2020).

While there is a lack of consistent findings in terms of deprescribing providing a clear cost benefit, the potential for cost savings does exist. Potential cost savings may have a positive impact, especially on an individual out-of-pocket cost basis. Those with out-of-pocket medication fees would most likely welcome deprescribing interventions.

Deprescribing – Patient Satisfaction

Patients have been questioned through surveys and questionnaires on their attitudes around deprescribing (Forest et al., 2021; Linsky et al., 2019). The results of the surveys were consistent in the desire for reduction of medications and more involvement from healthcare providers on communicating medication use (Forest et al., 2021; Linsky et al., 2019). Studies conducted in countries outside the U.S. show patients have a positive attitude toward deprescribing if there is sufficient oversight from their healthcare provider in the process of tapering or stopping certain medications (Gaurang et al., 2021). Gaurang and colleagues (2021) surveyed 312 patients and caregivers on their attitudes towards deprescribing medications; however, only 16.7% were from the elderly population and 2.5% had polypharmacy of more than five medications. Even with those limitations, over 50% of the people surveyed were willing to decrease the number of medications with healthcare provider oversight.

Interestingly, patients hospitalized and taking few medications are more likely to want to reduce the number of medications and want to be involved in the decision-making process of medication reduction (Gilpin et al., 2022). Patients dealing with polypharmacy due to multiple

diseases often share greater concerns about stopping or tapering medications (Gilpin et al., 2022), even with a higher risk of potentially inappropriate medications.

Deprescribing - Improving Healthcare Outcomes

Improving individual healthcare outcomes is one of the goals of deprescribing. One in four Americans over the age of 65 has at least one chronic condition (Health & Services, 2010). Medications are developed to address curing, treatment and prevention of diseases, and chronic conditions often require multiple medications to treat multiple symptoms (Shoemaker & Ramalho de Oliveira, 2008). However, medications often carry side effects with them which require a benefit/risk assessment for patients (Vandenbroucke & Psaty, 2008). A study conducted in the U.S. in patients with chronic diseases separated patients into two groups, with one group receiving medication management planning and deprescribing and the other group receiving usual care (Chan et al., 2023). The patient group with medication management and deprescribing practices applied saw an average of one medication removed from their overall treatment regimen. The usual care group averaged an additional 0.44 prescribed medications. The results of the study showed vast improvement in the medication management intervention group, with statistically significant improvements in certain health parameters (Chan et al., 2023).

Deprescribing, when targeted to an individual patient's needs, has been shown to reduce mortality rates in a meta-analysis of 132 studies (Page et al., 2016). However, these results were consistent in non-randomized studies, while randomized studies did not show significant differences in mortality rates. One analysis of the literature targeted deprescribing and associated clinical outcomes, noting that few studies identified clinical outcomes such as drug-related problems, quality of life, mortality, hospital readmissions, falls, and functional status. While the authors reviewing the literature support the idea of deprescribing, caution is recommended as the

evidence is limited, the quality of studies is low, and impact on clinical outcomes is unclear (Thillainadesan et al., 2018). In reviewing the analyses, it should be noted that while the clinical outcomes were not significant, they were lower across most measures, indicating a level of improvement in those measures. Of specific interest were potentially inappropriate medications (reduced in intervention groups), falls (reduced in intervention groups), and lower frequency of general practitioner visits (in intervention groups). Hospitalizations and mortality rates were not statistically significantly different (Thillainadesan et al., 2018).

A meta-analysis of certain deprescribing studies targeted the health outcomes of falls, all-cause mortality (death from any cause), hospitalizations, and reduction of potentially inappropriate medications (Kua et al., 2019). The authors prepared a sub-analysis of the data to further study all-cause mortality and falls. When individual patients received targeted medication reviews and deprescribing, all-cause mortality and falls were reduced.

Health outcomes related to deprescribing are not always positive (Jowett et al., 2022; Juraschek et al., 2022). As previously noted, medications are intended to help a person who is suffering from an ailment or disease and, in some cases, withdrawal of critically needed medications is a mistake. A study enrolling elderly adults receiving one hypertensive medication randomized patients to weight loss, sodium reduction, both, or neither and then either withdrew the antihypertensive medication or left it as part of usual care. Patients had an increase in systolic blood pressure without the antihypertensive medication, unless they followed their diet and sodium intake recommendation, which mitigated issues with drug withdrawal. Deprescribing the antihypertensive medication was problematic when the diet and sodium intake reductions were not followed and did not offer better outcomes for patients. In fact, it may have increased symptomatic adverse events (Juraschek et al., 2022). An additional trial in elderly patients

prescribed antihypertensive medication found no benefit in the withdrawal of one hypertensive as compared with usual care (Jowett et al., 2022). In fact, the trial group with reduction in medication had higher rates of heart failure and stroke.

While the literature remains mixed on patient healthcare outcomes of deprescribing efforts, there is identified potential for positive implications in many chronic diseases. Additionally, in integrating the previous literature on deprescribing tools, a key consideration may be who participates in deprescribing efforts, and how they could do so more effectively. Pharmacists, as a key stakeholder in the healthcare ecosystem, could be poised to support patients with polypharmacy by recommending deprescribing.

Pharmacist Roles in the U.S.

Pharmacists are highly educated and skilled medication experts who, since 2000, have been required to have a Doctor of Pharmacy degree. The PharmD program consists of a prepharmacy program, followed by a pharmacy program consisting of both classroom and experiential training (Scott, 2016). The WHO views pharmacists as drug therapy managers with an expanded role, including clinical care and roles in “manufacturing, quality control, drug discovery, regulatory pharmaceuticals, drug dispensing, patient education, patient counseling, hospital/pharmacy administration, and community services” (Thamby & Subramani, 2014, p. 1). The WHO introduced the seven-star concept of the pharmacist which includes roles such as caregiver, decision-maker, communicator, manager, life-long learner, teacher, and leader (Thamby & Subramani 2014). Yet, pharmacists are still viewed as pill pushers or pill dispensers.

Pharmacists provide healthcare services to patients primarily focused on drug distribution and dispensing of medications (Alwhaibi et al., 2021; Barnett et al., 2009). Pharmacists can "optimize patient outcomes by identifying, resolving, and most importantly, preventing drug

therapy problems…categorized as follows: untreated indication, improper drug selection, subtherapeutic dosage, overdosage, adverse drug reaction, drug interaction, failure to receive drug, and drug use without an indication," (Planas et al., 2005, p. 2394). The referenced study investigated the perceived responsibility for drug therapy outcomes based on the triangle model of responsibility. Pharmacists see themselves as moral and trustworthy but confined within their specific role. Pharmacists monitoring patient care programs with clear and applicable clinical practice guidelines, processes, protocols, and collaborative practice agreements were suggested.

Pharmacists are not considered healthcare providers by the federal government and the roles and services of pharmacists in the U.S. are varied as they span many areas of the overall healthcare spectrum. They work in many environments such as hospitals, universities, managed care organizations, research facilities, pharmaceutical companies, specialty pharmacies, the federal government, and local community pharmacies (Kokane & Avhad, 2016). In the U.S., about 60% of pharmacists work in community pharmacies, which includes independent pharmacies, large corporate chains, grocery store pharmacies, and mass merchants. Approximately 30% work in hospitals, long-term care facilities, and organized heath systems. The remaining 10% offer their expertise in pharmacology to academic institutions, government, and the pharmaceutical industry (U.S. Bureau of Labor Statistics, 2022).

The most familiar role pharmacists play for the lay person is the community pharmacist (Shen & Peterson, 2020). Most people within the U.S. live within a few miles of a pharmacy (Shen & Peterson, 2020), making access to a pharmacist much simpler than to other healthcare practitioners or providers. Such community pharmacists play a critical role in the overall healthcare of the population, including offering of services such as prescription drug dispensing, over-the-counter solutions for minor ailments, and overall healthcare counseling for common

health concerns such as weight management, smoking cessation, or high blood pressure (Bell et al., 2016; George et al., 2010). These services are displayed as a part of a continuum of health care in Figure 5. The transitioning of community pharmacists into other responsibilities as experts in medications and treatments could be an opportunity to offer greater support to patients experiencing polypharmacy.

Figure 5

The 21st Century Care Continuum with Pharmacist Touchpoints

(adapted from Bell et al., 2016)

<table>
<tr><th colspan="8">The Care Continuum in the 21st Century</th></tr>
<tr><th colspan="2">Healthy Living</th><th colspan="2">Minor Ailments</th><th colspan="2">In-hospital Care</th><th colspan="2">Long-term Conditions</th></tr>
<tr><td colspan="4">Pure Self-care
Responsible Individual</td><td colspan="4">Pure Medical Care
Professional Responsibility</td></tr>
<tr><td>Daily Choices</td><td>Lifestyle</td><td>Self-managed Ailments</td><td>Minor Ailments</td><td>Chronic Conditions</td><td>Acute Need</td><td>Psychiatric Care</td><td>Major Trauma</td></tr>
<tr><td colspan="8">Pharmacist Support and Professional Care Touchpoints</td></tr>
<tr><td colspan="2">Weight Management
Smoking Cessation
Birth Control</td><td colspan="2">First Aid
Acute Non-emergency</td><td>Diabetes
Chronic Heart Failure (CHF)
Asthma</td><td>Acute Treatment
Antibiotics
Vaccines</td><td colspan="2">Specialized Drug Treatments</td></tr>
</table>

Community pharmacies worldwide routinely provide safe, effective, and rational use of medicines to people in need of medicinal care, and a growing diversity of additional services are being developed and reimbursed in developed countries (Moullin et al., 2013). While pharmacists have an expanding health service provider role, there is no current agreed upon description of skills, services, and programs that adequately encompasses the entire scope of their activities, services, and programs provided. In the U.S., pharmacists have the primary responsibility for dispensing medications, with 49% of their time spent directly on dispensing. The remaining 51% of their time is spent on a variety of patient care services not related to

medication dispensing, such as business or organization management, education, research, and scholarship (Scott, 2016). Pharmacists employed in hospitals or clinics spend less than 50% of their time dispensing medication.

Pharmacists are not currently recognized as healthcare providers as part of Medicare (O'Brien, 2003) and therefore are not well-reimbursed, or reimbursed at all in some cases, for certain services. Pharmacists often have to make difficult choices in how they spend their time through the course of doing their job. Reimbursement for Medication Therapy Management (MTM) services is covered by Medicare but requires a volume of time that makes the process arduous with low levels of compensation (Rosenthal, 2018). In addition, community pharmacists need to be familiar with the federal Medicare Part D MTM service reimbursement. The Medicare Part D plan allows people to receive prescription drug coverage through the federal government. Due to the complexity surrounding Medicare requirements, independent community pharmacy managers often contract with outside resources to manage Medicare Part D billing and reimbursement services to be able to offer MTM to their patients (MacIntosh et al., 2009). Pharmacists who do not have contracts with vendors to manage the Medicare Part D billing and reimbursement are less likely to offer MTM, as they will not be reimbursed for the time-consuming work of analyzing the patient's list of medications and follow-up with each prescriber. For other healthcare services offered at pharmacies, pharmacists are reimbursed at different rates on a state-by-state basis. For example, California reimburses the pharmacy (not the individual pharmacist) 85% of the fee for healthcare providers for the same or similar services provided. Other states require credentialing of pharmacists by the insurance provider but do not require payment (Nguyen et al., 2021).

Pharmacists are a critical patient touchpoint within the overall U.S. healthcare ecosystem. Each state has its own criteria as to how pharmacists can practice. The West Coast is more advanced in recognizing the valuable role of pharmacists. California, Oregon, and Washington label pharmacists as healthcare providers under state law, and yet federal pharmacist provider status has yet to be granted (Karwaki, 2020). A regulation proposed under former President Trump's executive order would have allowed federal pharmacist provider status by permitting pharmacists to fully practice to the extent of their licensure with appropriate reimbursement, but it is believed internal conflicts within the Administration undermined those potential changes (Karwaki, 2020). Pharmacists do not fall into one category of practice and each state has its own set of regulations for pharmacists (Kokane & Avhad, 2016; Moullin et al., 2013). There are different levels of education and experience for each individual pharmacist. The U.S. healthcare system is also a system that is focused on sick care, not healthcare, not on the patient's health, but in the treatment of patients (Bielecki & Stocki, 2010).

Currently, the act of deprescribing is not part of the typical role of pharmacists. Pharmacists in general are important members of the overall healthcare system with their formal and informal relationships with their colleagues having influence on a prescriber's decision to accept or reject a recommendation or suggestion (Baumgartner et al., 2019). Only a prescriber (typically the patient's doctor) can formally deprescribe a medication. However, pharmacists can play a critical role in identifying the need for deprescribing and recommending deprescribing to the patient or other healthcare decision-makers.

Pharmacists are the link between the patient and their prescription medications. Community pharmacists play a critical role in the overall healthcare of the population, including the offering of services such as prescription drug dispensing, over-the-counter solutions for

minor ailments, and overall healthcare counseling (George et al., 2010). While there is literature in support of community pharmacists as medication managers for patients, there is no universally accepted definition in the pharmacy practice literature that encompasses the entire scope of activities, services, and programs provided by community pharmacy (Moullin et al., 2013). Changes across the healthcare spectrum have helped to potentially increase the direct involvement of pharmacists with patients' care, as patients who have more access to data and information will have more questions about their treatments (Sawesi et al., 2016).

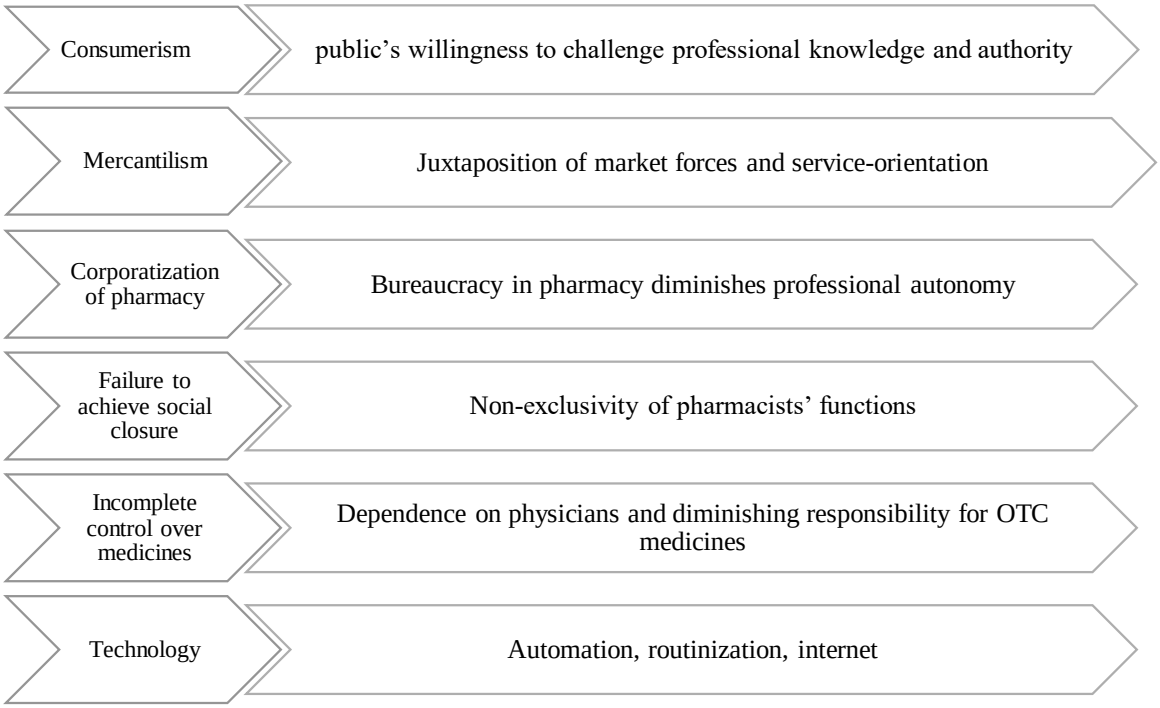
Relationships between physicians and pharmacists vary. There can be territorial challenges based on seniority or perceived authority when physicians do not want their decisions questioned by who they perceive as lower-level staff (Acheampong & Anto, 2015). Younger physicians have higher expectations of pharmacists, as more recent education of physicians includes collaborative and team-based practice agreements and value-based care structures (Smith et al., 2002). However, physicians do not have consistent positive expectations of the role of pharmacists related to MTM services (Alkhateeb et al., 2009). Collaboration increases between physicians and pharmacists when they work in collaborative practices, primarily because communication is facilitated due to proximity to one another (Kucukarslan et al., 2011) but that is not the model for most physicians and pharmacists.

An increase in technological advances has resulted in many changes for healthcare stakeholders and has modified the healthcare landscape. Figure 6 identifies several factors which typically diminish the role of traditional pharmacy practice amidst this landscape.

Figure 6

Factors Diminishing the Role of Traditional Pharmacy Practice

(adapted from Ilardo & Speciale, 2020)



Technology has introduced new terms into the healthcare landscape such as "digital health, connected devices, smart devices, wearables, activity trackers, connected sensors, remote monitoring, electronic surveys, electronic patient-reported outcomes, telehealth, telemedicine, artificial intelligence, chatbot, and digital assistants" (Garg et al., 2018. page 1). Patients have become more informed consumers, and greater access to health-related data and information has allowed patients to have more control over their care and open up communication and dialogue with their healthcare providers about diagnoses and treatment options (Santilli & Vogenberg, 2015). Traditional community pharmacy practice is being challenged by technology, as robots and automated fill systems have the capacity to replace the dispensing role of the community pharmacist (Barrett et al., 2012; Romanelli & Tracy, 2015; Sekhon, 2011). Mail order

pharmacies and online ordering have offered improvements logistically to patients but has almost eliminated personal contact between patients and pharmacy professionals (Ilardo & Speciale, 2020). This implies the roles and responsibilities of traditional pharmacy may need to be redefined, and community pharmacists may have an opportunity to take a more active role in the healthcare of patients.

Current State of Pharmacy Practice

Pharmacists are highly educated, skilled, motivated professionals in healthcare, and yet they are consistently underutilized, undervalued, and underpaid. Pharmacists work in several different areas of healthcare, with the largest employer being the large national corporate pharmacies such as CVS and Walgreens. CVS Health (2024) published and released a report highlighting the value of pharmacists, especially considering the COVID-19 pandemic when pharmacists faced tremendous change. During that worldwide crisis, pharmacists were given much greater responsibilities and rose to the challenge. CVS Health deployed a nationwide survey to 4,000 adults and responses highlighted the wants of consumers and changes that need to be implemented within the industry. The survey also disclosed that pharmacists themselves are interested in doing more than just filling and dispensing prescriptions and are excited to work at the height of their education and clinical skills.

While the report is exciting in its enthusiastic advocacy of the profession, it also recognizes that pharmacists are burned out. On a scale of 1 to 7, pharmacists reported an average burnout rating of 5.89, with 1 being “not at all” and 7 being “extremely” burnt out. The issue of burn out is not limited to CVS. Walgreens was forced to pay $275,000 to settle allegations of creating unsafe working environments and risking health and safety of patients, pharmacists, and customers during the pandemic.

Pharmacists, specifically community pharmacists within large corporate chain pharmacies, have become discouraged with the format of their work structure and environment. In September 2023, pharmacists in the Kansas City area walked off the job citing unsafe and stressful work conditions tied to a lack of proper staffing (Chappell, 2023). Shortly thereafter, Walgreens pharmacists staged a walkout (Genovese, 2023). The walkouts were considered likely to occur in other states if working conditions remained the same (Chappell, 2023). Social media posts started calling for Walgreens pharmacists to stage their own walkouts, which quickly followed in mid-October 2023, impacting over 200 of the 9,000 stores (Genovese, 2023). Reasons for the walkouts at both CVS and Walgreens included working conditions that pharmacists working at these stores believed put the lives of patients at risk. Pharmacists stopped being quiet. Bailey Schroeder, PharmD posted on LinkedIn:

> "*Dear Walmart, tonight I locked the pharmacy door for the last time. You *almost* broke me and I was ready to walk away from the profession altogether. Instead, you fueled my fire. I gained the courage to speak up, advocate for my patients, and I even started my own consulting business. CVS Pharmacy, Walgreens, RITEAID PHARMACY etc., pharmacists will continue to fight for safe working conditions and adequate staffing until you implement appropriate and sustainable changes so we can provide quality patient care.*" (Schroeder, 2023)

A lack of adequate staffing, transparency in decisions affecting staff, mandatory training programs for new hires, and matching skills to job tasks were also cited as needed changes. Pharmacists discussed the demands of offering additional services such as vaccines which take valuable time away from prescription filling. Vaccinations create a profit stream for large corporate pharmacies, and the push to increase vaccinations has taken a toll on the pharmacists who were already overburdened with filling and dispensing (Genovese, 2023).

Pharmacists working in a hectic work setting face both challenge stressors and hindrance stressors. Challenge stressors (e.g., workload, time pressure, and responsibility) are likely to

facilitate personal growth and goal achievement. Hindrance stressors challenge goal achievement and include organizational politics, role conflict, and role ambiguity (Cavanaugh et al., 2000; Lin et al., 2015). Challenge stressors tend to lead toward job satisfaction and more desirable work attitudes, while the hindrance stressors result in the less desirable attitudes such as turnover intention (Lin et al., 2015). Highly conscientious individuals maintain higher levels of performance even when under strain and stressors and tend to allocate more resources into meeting the high-performance standards to achieve more (Lin et al., 2015). However, the number of personal resources that an individual can provide is finite; eventually personal resources will be depleted, and individuals will burn-out or give up (Lin et al., 2015). Pharmacists, as highly conscientious employees in a difficult environment, regularly sacrifice their well-being in exchange for patient safety. The combined challenge and hindrance stressors have forced many to exit their community pharmacies and look for better, safer work environments.

Scant research exists that addresses the experiences U.S. pharmacists have with suggesting deprescribing of potentially inappropriate medications to prescribers, patients, and/or caregivers. One exception is a study out of the University of Kentucky, which deployed a survey to Kentucky-based community pharmacists (N = 248) and primary care clinicians (N = 58), asking questions about attitudes toward deprescribing (Huffmyer et al., 2021). Results showed that both groups had positive attitudes toward deprescribing, believed deprescribing to be effective, and believed the other group was important as a part of the deprescribing process. Yet, results also indicated that pharmacists have difficulty communicating directly with other healthcare providers, do not have enough time to spend with patients, experience a lack of trust between healthcare providers and pharmacists, and do not feel financially incentivized to make deprescribing recommendations.

Communication with patients depends upon a variety of factors. Patient autonomy allows for control over their health outcomes, but relies upon patient empowerment, which is dependent upon physical and mental competencies (Rajiah et al., 2021). Community pharmacists in particular face constant dilemmas in trying to balance patient autonomy with intervention toward appropriate treatment goals for positive healthcare outcomes. Building rapport with patients is important to establishing trust, but this takes time – and pharmacists face job pressures leading to time constraints which limit the time a pharmacist has available to communicate with patients.

While these barriers exist, the facilitators for deprescribing relate to these exact barriers. When better communication exists, it results in suggestions for deprescribing. When more time with patients exists, it allows for the time to debrief and communicate meaningfully about deprescribing. When trust between healthcare providers and pharmacists is high, it results in more confident and collaborative decisions regarding deprescribing. There are some limitations of this study, including that it was limited to the state of Kentucky. As each state has different laws and regulatory requirements as part of the practice of pharmacy, the results may not be transferable to other states nor reflective of the entire U.S. However, the results suggest a need for behavioral change models for the pharmacist occupation, including communication theory development, a realization of the pharmacist role within the complex open system, focus on trust to support deprescribing interventions, and having the time to do so.

It is not clear what the needs of the healthcare team are to successfully implement a deprescribing effort. A meta-analysis of global studies on the topic of deprescribing and pharmacists determined that the relationship between the pharmacist and the rest of the medical team was the most discussed factor of whether a deprescribing intervention was successful (Baumgartner et al., 2020). Seven of the 14 studies in the analysis acknowledged the importance

of the relationship between the prescriber and the pharmacist for the success of the deprescribing intervention (Baumgartner et al., 2020). This information indicates that while the opportunity to implement deprescribing practices exists, it is still not well understood. The requirements for implementing a successful deprescribing process and effectively employing the pharmacist as part of the healthcare team have yet to be realized.

Gaps in the Research

The research has revealed many challenges with deprescribing, along with opportunities for facilitating these efforts. Knowing which prescription drugs to remove, and when and how to remove them, can prevent adverse drug withdrawal events (Hanlon & Gray, 2022). Yet, there is no consensus between stakeholders on deprescribing in terms of process, tools to use, or responsibility. Who should be actively pursuing deprescribing initiatives? Where does the responsibility lie? How does one go about beginning the discussion of tapering or removing prescriptions?

The traditional roles of physicians are shifting from solo practice to group practices and team coverage. Patient healthcare is being supplemented by nonphysician practitioners such as physical therapists, nurse practitioners, mid-wives, and physician assistants (Liebler & McConnell, 2011). Pharmacists are rarely mentioned as part of patient healthcare, yet pharmacists are a critical touchpoint to the patient. Pharmacists have an opportunity to bridge a possible communication gap surrounding potentially inappropriate medications. While there is a large body of evidence regarding deprescribing, there is little related to the role and processes of U.S.-based pharmacists and their experiences in recommending deprescribing. Pharmacists are often cited as part of the process, but little information exists as to their understanding of their roles and responsibilities. There are layers of interaction within the open system of healthcare,

and it is in a continual state of ever-changing dynamics (Liebler & McConnell, 2011). What do pharmacists believe are the best practices for recommending deprescribing potentially inappropriate medications in this dynamic environment? Are they actively engaging with prescribers and/or patients?

The U.S. healthcare system is a matrix of interconnected systems, frameworks, and stakeholders. There is a critical need to better understand the potential role of pharmacists in having the ability to recommend deprescribing of potentially inappropriate medications. Further research exploring the phenomenon of deprescribing and how deprescribing recommendations are filtered, received, and acted upon - through a pharmacist to a prescriber, a patient, and/or caregiver - could help enhance the opportunities for deprescribing potentially inappropriate medications. As an occupation and stakeholder in this complex system that is often underestimated, I highlight the role of pharmacists as a potential missing link in the goal of appropriately recommending deprescribing as a means of reducing overprescribing and eliminating potentially inappropriate medications – a goal with organizational, industry, and practical impact.

CHAPTER 3: RESEARCH DESIGN AND METHODS

This research employed a transformative worldview, which holds that certain issues are political in nature and structural change is important to enact social change to support the oppressed (Creswell & Creswell, 2017). U.S. pharmacists are not considered healthcare providers by the federal government, have been marginalized as pill dispensers for many decades (Schommer et al., 2006), and have experienced a marginalized hierarchical social standing in healthcare (Hughes & McCann, 2003). The elderly, one of the most vulnerable groups in society (Delara, 2022), largely bear the brunt of polypharmacy. For example, pharmacists who do not have contracts with vendors to manage Medicare Part D billing and reimbursement are less likely to offer medication therapy management as they will not be reimbursed for the time-consuming work of analyzing the patient's list of medications and follow-up with each prescriber (MacIntosh et al., 2009). In generating a better understanding and the nature of the opportunities in the pharmacist role, this research may help inform regulatory and organizational change, which could serve to improve upon limitations pharmacists face in practice and better support them in deprescribing efforts by integrating them into the healthcare system in a more empowered way.

A focused phenomenological analysis was my choice to examine the lived experience of U.S. pharmacists, due to the nascent state of most closely related research (Creswell & Creswell, 2017; Edmondson & McManus, 2007). Phenomenological research allowed me to identify the essence of the human experience with a particular phenomenon (in this case, deprescribing) by a participant in a study (in this case, U.S. pharmacists) (Creswell & Creswell, 2017).

This area of research is nascent, with little information in the extant literature regarding U.S. pharmacists and deprescribing. Thus, this research was inductive and exploratory, following the data on the experiences of pharmacists, how the process of deprescribing unfolds, and the

barriers and facilitators pharmacists face when recommending deprescribing. The research was inductive in that it used observations to draw conclusions about deprescribing processes and experiences of pharmacists to provide a broad conclusion. Although the experience of each pharmacist may be different, emergent patterns in responses may be generalized to other pharmacists (Creswell & Creswell, 2017). The research was exploratory in seeking emergent understanding of the problems and issues facing pharmacists in their ability to recommend deprescribing as well as successful experiences that pharmacists have had with recommending deprescribing. Thus, this qualitative study incorporated interviews as the primary data source, as supplemented by observational and archival data.

Regarding my capabilities to conduct this research, my experiences in healthcare are different from pharmacists' experiences but we speak a similar language. I am well versed in the literature on the topic of pharmacy, deprescribing, and tools used in deprescribing and medication therapy management, and I have over 30 years of career experience in drug product development and drug life cycle management. Although I have extensive experience in drug product development, I am far enough removed from the day-to-day role of pharmacists that, during our discussions, the participants maintained their expert status as pharmacists, yet still had constructive and collaborative conversations with me (DiBenigno & Kellogg, 2014). I received positive feedback from some participants regarding my ability to speak their language such as the comment from a New York pharmacist: "You know, you're really knowledgeable for a person who is not a pharmacist or in the pharmacy field," (P20; pharmacists who participated in this research are identified with a letter "P" and a number such as P1, P2, P3 and so forth).

Limited evidence exists regarding the barriers and facilitators faced by U.S. pharmacists that impacts their willingness to recommend deprescribing (Huffmyer et al., 2021; Linsky et al.,

2017), but the advantage I have is a fresh set of eyes. “Advances in knowledge that are too strongly rooted in what we already know delimit what we can know” (Gioia et al., 2013, p. 16).

Study Population and Sampling

My study population was comprised of pharmacists practicing in the U.S. Pharmacists in the U.S. were of particular interest to me because their proximity to patients dealing with polypharmacy including PIMs and their largely unrealized potential to positively impact health and well-being of patients. Pharmacists are not federally recognized as healthcare providers, and therefore, are not eligible for cognitive service reimbursements (Ali et al., 2023). Healthcare provider status is legal recognition of a healthcare provider to be eligible for patient care service reimbursement through Medicare Part B. Healthcare provider status is currently limited to physicians, physician assistants, nurse practitioners, certified nurse midwives, nurse anesthetists, clinical psychologists, dietitians, and social workers. Pharmacists in the U.S. must complete rigorous schooling involving typically six to eight years of education. To become a practicing pharmacist, one must obtain a Doctor of Pharmacy (Pharm D) degree from a school accredited by the Accreditation Council for Pharmacy Education. Pharm D degrees prepare pharmacists for national licensure and pharmacy law examinations. In California specifically, a bachelor’s degree is the main prerequisite to attend a Pharm D program, and a candidate can expect to spend three to four years in undergraduate study followed by an additional four years in a pharmacy program. Pharmacists can expand their education and compensation with certifications or credentials and can perform services permitted under these agreements (Ali et al., 2023). Community and hospital pharmacies are the most common types of pharmacies, but pharmacists can be trained as clinical pharmacy specialists, incorporating years of experience, additional

training, and certification in an area of expertise such as ambulatory care, infectious disease, and pediatrics (Ulrich, 2023).

Participants in this research study were selected using a purposive sampling model, due to the specialized knowledge and careers of pharmacists in the U.S. (Creswell & Creswell, 2017; Miles et al., 2018). I originally identified a target sample size of 20 U.S. pharmacists to participate in my research. I chose this number of participants as a target because it is proposed that substantial information should be consistent after the first six interviews (Guest et al., 2020). Such a sample should be sufficient to both identify evidence of existing known themes from the extant literature, including time, trust, and communication (Huffmyer, 2021), as well as identify new themes of interest outside of the known themes. While it is possible that an important theme may emerge later in the data set, the most prevalent, high-level themes tend to be quickly developed within the those first six interviews (Guest et al., 2020; Kvale, 1996).

The study sample criteria included pharmacists currently practicing, or who had recently practiced, within the U.S., who were English-speaking, and over the age of 18 (Bradley et al., 2007; Meuser & Nagel, 2009; Van Nes et al., 2010). The initial intent was to engage with two groups of pharmacists that were homogenous with respect to their work practices but with different organizational contexts: those employed in corporate settings with large coverage networks such as CVS and those working at smaller, independent pharmacies. However, the difficulty in finding pharmacists as participants of the study forced me to cast a wider net. I tracked connections with over 80 contacts as potential participants.

While I had initially planned for pharmacists from only these two distinct groups, I eventually expanded my sampling strategy to interview pharmacists working in a wide variety of organizational contexts. For example, the final sample included participants who recently retired

with decades of experience in independent pharmacies, interns across different types of pharmacies, hospital pharmacists, and clinical specialty pharmacists. Expanding beyond the original study sampling plan of pharmacists from only small or large corporate pharmacies capitalized on the promising opportunity of offering a wider variety of perspectives across different pharmacist roles, contexts, and experiences. In addition, the sample reflected several diverse roles pharmacists may practice. As previously noted, pharmacists in the U.S. can practice in hospitals, universities, managed care organizations, research facilities, pharmaceutical companies, specialty pharmacies, the federal government, and local community pharmacies (Kokane & Avhad, 2016).

As a part of my participant recruitment strategy and to enhance my contextual knowledge of the occupation of pharmacists, I attended two conferences specific to pharmacy practice. These included the Western Pharmacy Exchange sponsored by the California Pharmacists Association and the National Community Pharmacists Association conference. Both conferences were open to U.S. pharmacists, and I networked with pharmacists and recruited potential study participants while in attendance. I attended sessions related to deprescribing and the role of pharmacists at the conferences. Networking with pharmacists attending these conferences consisted of introducing myself as a student interested in polypharmacy and deprescribing and their thoughts and views on the subject. I then acquired contact information if they were willing to participate in the research study and followed up with them afterwards to schedule interviews and/or seek targeted referrals. I asked those who agreed to participate to refer me to other potential participants who met my sampling criteria.

I also networked within my personal network of pharmacists employed in the pharmaceutical industry and with friends and family members to obtain names and contact

information of practicing pharmacists. I have been a mentor in the pharmaceutical industry to many up-and-coming pharmacy students who chose to go into the industry. They have many contacts within pharmacies and know of practicing pharmacists. I obtained agreement from certain individuals within my network to reach out within their networks to friends and colleagues who are practicing pharmacists and positively influence them to participate in my research. I requested participation from my contacts on LinkedIn, as there are many pharmacists on the platform and some I have met and keep in contact with using the platform. I checked LinkedIn regularly for other pharmacist contacts and attempted to connect and request volunteers to participate in my research study.

Ethical and Human Subjects Considerations

Ethical considerations are imperative in any research study. Pepperdine University supports ethical research, and IRB approval is required prior to initiation of this study. Qualitative research is dependent on a power structure between a researcher and their participants. Exploring, examining, and describing the information provided by a participant can only be successful when the participant feels free to be truthful, and protected from potential harm with a willingness to share their experiences (Orb et al., 2001).

I reviewed the potential ethical issues with my study and recognized the concerns pharmacists have as participants of my interviews. Pharmacists face many political barriers to practice to their full potential, making this a potentially sensitive research topic (Anderson, 2002; Gohlke et al., 2013; Hepler, 2004). I carefully developed the protocol questions so that they would present no more risk to the participant than they would likely face in a normal workday. There is the slight risk that some research questions may have had the participant recalling uncomfortable conversations they had in the past, but they were reminded at the start of the

interview process they were under no obligation to answer any questions and may stop the interview at any time.

I considered other aspects of the data collection procedures such as the voluntary nature of the interviews, privacy and confidentiality procedures, as well as my own personal biases towards the subject matter. I am aware I hold certain biases in this area of research. I am passionate about the area of healthcare and have been immersed in it for almost 30 years. Growing up, my father had cancer and after suffering terribly for two years, he passed away at the age of 50. This was emotionally and financially devastating to our family and had an impact that influenced the rest of my life. My career has focused on helping patients and I hold tightly to that ideal in decisions I make daily. I knew at the beginning of this research I must separate my personal experiences and biases from my interviews with participants so that I could process and interpret the data for facilitation of discovery without personal influence (Hewitt, 2007).

My career is highly focused on prescription drug product labelling, which includes the review for compliance of advertising and promotional materials targeted to prescribers and patients. My experience in the pharmaceutical industry has exposed me to the very positive and very negative sides of the industry. I know pharmacological products can be extremely effective and the correct medication for the correct treatment can have dramatically positive life-altering and life-saving effects. However, the pharmaceutical industry is profit-driven, and marketers are focused on selling as much and as many products as possible, often regardless of appropriateness of population. This has continued to spur my interest in protecting patients, especially upon learning about deprescribing initiatives.

I took several steps to help counteract potential bias throughout my research journey. First, I triangulated data and feedback from various resources, including my personal network of

pharmacists, professional contacts within the pharmaceutical industry, and personal contacts with non-healthcare related careers, but experience with U.S. healthcare. In addition, I reached out to contacts outside of the U.S. for an international perspective of the pharmacy profession and international healthcare services. I continually asked questions of my network for critical incidents and experiences with my topic and questions. I relayed my questions and discussed feedback received from interview participants to determine counter positions from different perspectives. Many of my contacts are pharmacists within the pharmaceutical industry, but all have worked in pharmacies as part of their overall education, training, and licensure. Their feedback was not captured in my interviews or data but was helpful in dispelling preconceived norms or ideas I might have held prior to interviewing participants, and in building the interview protocol questions, as well as follow up probing questions.

I took several appropriate steps to protect my study participants from any harm. Prior to recording interviews, participants were informed of my background, the topic of discussion (pharmacists and deprescribing recommendation practices), the purpose of the interviews (to obtain data to increase pharmacists' willingness to recommend deprescribing), participation requirements, and confidentiality as a participant. I asked permission to record the conversation. Each participant was informed that they had the right to not answer certain questions and to move on to others if uncomfortable or to discontinue the interview at any time, for any reason.

All potential participants were informed about the practices developed to maintain anonymity, confidentiality, and privacy. To maintain anonymity, any personal identifying information was removed from the transcripts and any identifiers were recharacterized into an alphanumeric format to protect each individual participant. Any narratives including patient identifying information or provider identifying information was removed from the transcripts

prior to analysis. Electronic data was accessed via a password-protected laptop. Each alphanumeric identifier was assigned to each participant and a master list of the identifiers was kept in a separate, electronic code book. Research data is electronically housed and only accessed by me on a secured, password-protected computer. All video recordings will be destroyed at the completion of the dissertation. Transcripts will be maintained in a secure electronic location for 10 years post study completion.

I anticipated collecting some potentially sensitive or confidential information during the interviews. A Certificate of Confidentiality was provided to participants via the Qualtrics survey email (Appendix C). Participants were encouraged to share personal experiences and stories as part of the interview process. Confidentiality was maintained by removing any personal identifiers including those of named prescribers or colleagues involved in the experiences or stories of participants, as well as any business identifiers such as employer name. Privacy was provided as participants were offered options to participate in a setting of their choice, either face-to-face when possible or electronically via Zoom. If the participant did not want to be on video, that was respected and the Zoom recording commenced with audio, in addition to the Otter.ai software for transcribing.

Data Collection Procedures

Following IRB approval of my research study proposal and interview protocol (Appendix A), I communicated directly with potential participants. The primary data source consisted of interviews with pharmacists. I reached out via email or text to schedule a day and time for the interview with potential participants. The interviews were scheduled on the Zoom platform, with Otter.ai software used to transcribe the spoken conversation. A password-secured personal laptop

was utilized for the recorded video communications. A personal cell phone with face recognition and password coding was used for recording using the installed Otter.ai application.

Qualtrics software was used to create a survey which incorporated the Informed Consent (Appendix B) and Confidentiality Agreement (Appendix C) into the survey. Upon receipt of a potential participant's email address, an email was crafted with the formal invitation to participate, the Confidentiality Agreement, and links to the survey. The survey began with the Informed Consent to participate and an option to select to participate or to opt out of participation. If the subject participated, then the participant was directed to the demographic questions portion of the survey. The survey questions were made up of seven demographic questions to collect information: Years of Practice, Level of Education, Job Title, Type of Pharmacist, Current Employer, State of Employment, and Familiarity with Deprescribing. Qualtrics survey completion notifications were sent to me upon successful completion of the survey questions. Once that step was completed, I reached out via email or text to the potential subject and attempted to schedule a time for the interview at their convenience.

The final sample yielded 22 participants. Interview scheduling proved challenging. Pharmacists are very limited in time, and being interviewed by a stranger for a study they may or may not have interest in was not very appealing. In addition, there were a few requests for compensation which I did not provide. This may have limited participation. I did not want to compensate participants for their participation in this research, which may have implications for the resulting nature of my sample. I continued interviews until I felt comfortable that I had reached theoretical saturation, when further interviews seem to provide no additional new knowledge (Guest et al., 2020; Kvale, 1996). The participant information and demographic data related to each participant collected via the Qualtrics survey are provided below in Table 4.

Table 4

Participant Information and Qualtrics Survey Data

Pharmacist Number	M/F	Degree	Years of Practice	Pharmacist Type	Practice Type	State Employ	Familiarity with Deprescribing
P1	M	Pharm D	15	Community	Corporate	CA	Extremely Familiar
P2	M	Pharm D	Over 40 (retired)	Community	Independent	CA	Somewhat Familiar
P3	F	Pharm D	37	Clinical	Self-employed	CA	Somewhat Familiar
P4	F	Pharm D	10	Community	Corporate	CA	Somewhat Familiar
P5	M	Pharm D	4	Community	Corporate	MA	Extremely Familiar
P6	M	Pharm D	20	Community	Independent	TX	Somewhat Familiar
P7	F	Pharm D	16	Clinical / University	University	TN	Extremely Familiar
P8	M	Pharm D	7	Community	Corporate	CA	Somewhat Familiar
P9	F	Pharm D	2	Community	Corporate	NV	Somewhat Familiar
P10	M	Pharm D	10	Hospital	Hospital	TX	Somewhat Familiar
P11	F	Pharm D	20	Community	University	NC	Extremely Familiar
P12	F	Pharm D	5	Community	Managed Care	CA	Neither Familiar nor Unfamiliar
P13	M	Pharm D	17	Community	Managed Care	CA	Neither Familiar nor Unfamiliar
P14	M	BS	25	Community	Independent	MO	Somewhat Familiar
P15	M	Pharm D	15	Community	Independent	CA	Extremely Familiar
P16	M	Pharm D	5	Hospital	Hospital	CA	Somewhat Familiar
P17	M	Pharm D	20	Community	Independent	CA	Unfamiliar
P18	M	Pharm D	15	Program Supervisor	Managed Care	NY	Extremely Familiar
P19	F	Pharm D	28	Community	University Professor	MA	Extremely Familiar
P20	M	Pharm D	6	Clinical	Managed Care	NY	Neither Familiar nor Unfamiliar
P21	F	Pharm D	14	Staff	Hospital	CA	Neither Familiar nor Unfamiliar
P22	M	Pharm D	9	Clinical	Hospital	TX	Somewhat Familiar

I determined gender based on name, physical appearance, and how they referred to themselves. There were 14 male participants and eight female participants. Their years of experience as practicing pharmacists ranged from two to over 40 years and averaged just under 15 and a half years. Most identified themselves as community pharmacists, working either in

large corporate organizations or smaller independent pharmacies, while the remainder were a mix of hospital pharmacists, clinical pharmacists, or pharmacists working within managed care organizations. Most pharmacists interviewed were from California, but participants were located across the U.S.

The semi-structured interviews involved questions pertaining to polypharmacy and deprescribing. I chose a semi-structured interview protocol to delve deeply into pharmacists' experiences, attitudes, and perceptions of deprescribing (Orb et al., 2001). Semi-structured interviews allowed for a richness of data from the pharmacist participants. The questions were open-ended, allowing for open discourse and probing if additional clarification was needed. Semi-structured interviews allow the researcher versatility and flexibility by offering reciprocity between the researcher and the participant and allowing the researcher the ability to improvise follow-up questions based on participant responses (Kallio et al., 2016). The protocol contained a blend of closed- and open-ended questions accompanied by follow-up "why" and "how" questions, which were prepared ahead of time to maintain focus on the topic for discussion (Adams, 2015; Cohen & Crabtree, 2006). The interview protocol included questions related to existing knowledge about deprescribing (e.g., time, trust, communication, and reimbursement) (Huffmyer et al., 2021). Section topics included pharmacy processes, attitudes toward polypharmacy and deprescribing, facilitators and barriers to deprescribing, and critical incidents experienced by participants related to deprescribing.

After each interview, raw data collected in Otter.ai and/or Zoom were transferred into a Word document and are considered the official transcript for each individual interview. I reflected upon each interview prior to analysis and used techniques of jotting during interviews while expanding into memos immediately post-interview (Miles et al., 2018). Identifiers

assigned to each participant were used to identify each transcript and to create folders in an electronic data repository, which included each participant's transcript, any notes from the interview, and any related memos from the data collection process. Once saved to the appropriate folder, the transcript was then cleaned by listening to the Zoom audio recording and aligning the text accordingly. Cleaning consisted of removing personal identifiers and listening to the audio transcript to complete sentences that were not coherent in the written transcript. The word count and page volume post-cleaning were 170, 106 and 332, respectively, with an average of 15 pages per transcript. Each individual transcript was uploaded into the qualitative analysis software Atlas.ti where coding could begin.

Rigor in Data Collection and Analysis

As business research should focus on producing more credible and actionable knowledge for better policies and practices, this research was designed to contribute valuable knowledge to support some of humanity's highest aspirations, including improvement in healthcare outcomes, cost management, and support of patients, who are arguably a vulnerable group of our society (McKiernan, 2016). Rigor of this research was demonstrated in several ways in this qualitative study. Detailed descriptions of the process and steps throughout the research and analysis journey documented the actions taken in the study (Gibbert & Ruigrok, 2010). Dependability, transferability, and confirmability are all areas of importance in demonstrating the rigor of the research and data analyses conducted. Dependability was critical as it demonstrates how the research plan and analyses were reliable. I adopted similar methods as in other published studies on interviews with targeted groups (e.g., Ailabouni et al., 2016; Alrasheed et al., 2018). Transferability indicates how findings can be generalized to other settings. Transferability demands rich, detailed descriptions of interviews and results, with detail to provide a mental

picture of life as a practicing pharmacist, as well as clear information regarding the facilitators and inhibitors in suggesting deprescribing to patients and healthcare providers. Confirmability was achieved through my large network of healthcare industry peers, including those with pharmacy backgrounds. I continually reached out for support and feedback when needed. I reflected upon each interview prior to analysis and used techniques of jotting during interviews while expanding into memos immediately post-interview (Miles et al., 2018). In addition to my recorded and transcribed interviews, secondary data consisted of observations and archival data accumulated while attending the National Community Pharmacists Association Conference (Appendix D). Finally, my respect and admiration of the role of pharmacists assisted in developing rapport with pharmacists being interviewed. This helped the participants feel comfortable in answering my questions and provided honest feedback. This research has the authentic goal of benefiting pharmacists and patients suffering from polypharmacy.

Data collection was conducted with a variety of resources including electronic equipment and applications for recording, transcribing, and tracking of participants. Data collection and management was tracked throughout the process to verify that necessary steps were taken to process the data consistently and to keep track of touchpoints and potential and completed participant interactions.

Data Analysis

I analyzed the data inductively, guided by my research question: How can pharmacists in the U.S. be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy? The interview transcripts are the primary data source for the study analysis. The analysis of the interview transcripts involved transforming the raw data into research findings (Lofland et al., 2022). The results that emerged

through data analysis are driven by the data. The theoretical observations that emerged inductively are considered grounded (Lofland et al., 2022). The emergent themes that developed from the data created the grounded theory based on the lived experiences of the participants.

The primary form of analysis was coding, or naming segments of data with a label to help categorize, summarize, and account for each piece of data (Charmaz, 2014). Coding was an iterative process, alternating between data and theory. This encouraged me to adapt and respond to the data as new information, theories, and codes emerged. Each word was read and words, sentences, and phrases were broken down into color-coded units in Atlas.ti, assigning codes based on the content and context of the words. The colored codes were developed to name segments of data with a label to help categorize, summarize, and account for each piece of data (Charmaz, 2014). Codes were developed and assigned to these words, phrases, behaviors, attitudes, concepts, and ideas, to aid in the sorting of similar and dissimilar concepts. The codes were continuously reviewed, analyzed, and reordered. There were two main phases of coding. The initial phase involved naming each word, line, or segment of data. This initial coding was followed by a focused selective phase that used the most significant or frequently used codes to sort, synthesize, integrate, and organize large amounts of data (Charmaz, 2014). The initial phase required a close reading open to all possible theoretical directions allowing for over 100 codes, while the focused coding pinpointed and developed the most salient codes, which were then applied to larger groups of data (Charmaz, 2014).

A codebook document was maintained to document code definitions and examples (Miles et al., 2018) within the Atlas.ti software. In addition to a codebook for coding the interview transcript and observational data, a memo book was maintained to document my thinking and decision-making process during the collection and analysis of the data. This serves

to document the process I followed, in relation to data collection provided for the later analysis. Memos offered an opportunity to further explain and express my thoughts and decisions within the context of the overall transcript.

Atlas.ti software was used to analyze transcripts using qualitative coding. This included initially drawing from extant literature to employ *a priori* codes of time, trust, and communication, and compensation as perceived barriers and facilitators of U.S. pharmacists' recommendation of deprescribing to prescribers (Huffmyer et al., 2021). The code of "communication" assessed perceived positive or negative verbal or written interactions between pharmacists and other stakeholders. "Time" was assessed based on pharmacists' feedback on the amount of time they felt that they had to achieve their daily work tasks and goals, and deprescribing recommendations patients could fit into their workflow. "Trust" involved issues with stakeholders and how that affected their ability to recommend deprescribing. "Compensation" captured feelings about pay for services, such as frustration or perceived inadequacy. A comparison of the original invoking of these themes based on survey scale content (Huffmyer et al., 2021) as compared to my coding process is shown in Table 5.

Table 5

Aggregate Dimensions of Existing and Novel Coding Descriptions

Dimension	Existing Theory and Research	Novel Coding Description
Pharmacists' Perceptions of Communication	The extent to which pharmacists have the ability to communicate directly with healthcare providers about deprescribing recommendations. The extent to which pharmacists had difficulty communicating with other healthcare providers about deprescribing recommendations. (Huffmyer et al., 2021) Communications can be assessed based on behaviors, linguistic and non-verbal cues, and the intentions behind the cues. (Braithwaite et al., 2007).	Communication was coded based on perceived positive or negative verbal or written interactions between pharmacists and other stakeholders. Communications are perceived based on behaviors, type of language used, body language cues, and the intentions behind the cues as communicated to me by participants.
Pharmacists' Perceptions of Time	The extent to which pharmacists felt they had adequate time to spend with patients to discuss deprescribing recommendations, or whether that time was insufficient. (Huffmyer et al., 2021) Time management can be assessed according to the relationship between the stressors experienced by employees and the strain caused by those stressors (Jex & Elacqua, 1999).	Participant descriptions of the amount of time that they spend with patients, their assessment of whether it is too little or enough, any impact on time spent in their ability to consider suggestions of deprescribing, and the level of stress that may cause.
Pharmacists' Perceptions of Trust	The extent to which pharmacists felt there was trust between themselves and different stakeholders, specifically, other healthcare providers and patients. (Huffmyer et al., 2021) The three C's of trust are competence, character, and caring. (Crandall 2007) Integrity, benevolence, and ability are core pillars of trust. (Mayer et al., 1995)	The extent to which pharmacists feel that their patients, practitioners, and patient's caregivers trust them during their interactions, based on perceived levels of competence, character shown when making decisions, and caring for their patients, along with the extent to which such trust may play a role in their ability to recommend deprescribing.
Pharmacists' Perceptions of Compensation	The extent to which pharmacists feel they are paid or receive financial incentives to offer deprescribing recommendations. (Huffmyer et al., 2021)	The extent to which pharmacists feel they are adequately compensated for their counseling services including deprescribing recommendations.

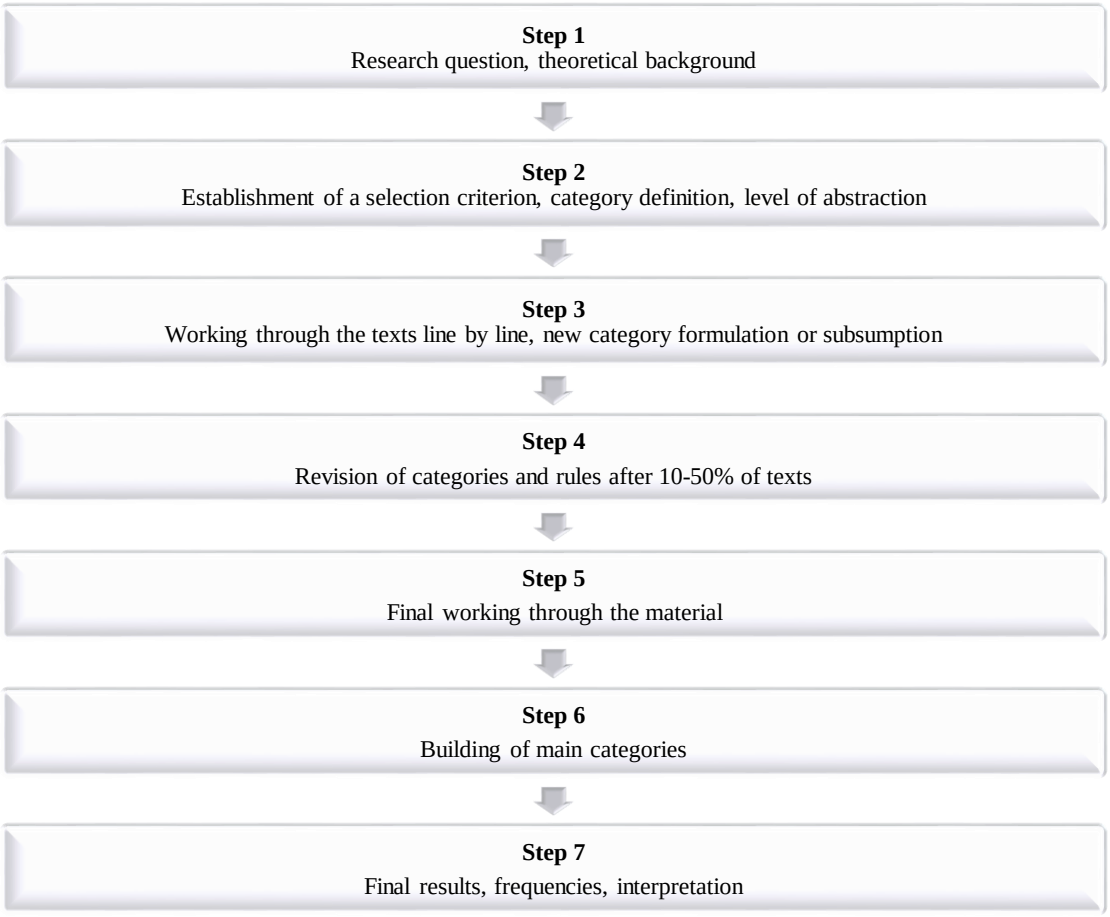
In addition to the *a priori* codes, throughout analysis, I remained open to additional analytic possibilities and developed emergent codes that best fit the data (Miles et al., 2018). This was completed through focused coding (Charmaz, 2014). Newly develop codes were compared against recently created codes, and studying the codes allowed for directional analysis and theoretical centrality of emergent patterns (Charmaz, 2014). This additional coding allowed for unexpected ideas to emerge. Theoretical coding was also applied. Theoretical coding assisted in making the analysis of the data coherent and comprehensible (Charmaz, 2014). Such coding seeks to uncover the specific conditions under which the phenomenon of deprescribing occurs or changes, and to identify consequences of it occurring or not. In addition, theoretical coding was employed to discover descriptive examples of real situations that served as evidence of the constraints, opportunities, and nuances of pharmacists' role, which could be leveraged as best practices for how this occupation can be better equipped and empowered to recommend deprescribing to patients with polypharmacy and potentially inappropriate medications.

The process at the beginning of the coding was very detailed with over 100 codes created. As time progressed and additional transcripts were recorded, cleaned, and analyzed, patterns started to emerge in the words used by pharmacists and the themes that were created from the data. Codes were being applied to larger excerpts of data to better express the content and context of the statements. I followed the model in the Qualitative Content Analysis guide provided by Mayring (2014). Figure 7 provides the steps in category development.

Figure 7

Step Model of Inductive Category Development

(adapted from Mayring, 2014)



Next, to apply an analytic frame to emergent data, axial coding (also known as second cycle or pattern coding) relates categories to subcategories by systemizing the data (Walker, 2006). This brings the data that has been fractured into separate pieces back to a coherent whole (Charmaz, 2014). Axial coding addresses the questions of when, where, why, who, how, and with what consequences (Charmaz, 2014), converting the text into concepts which specify larger categories. Codes and excerpts were organized into overarching themes and continually reviewed for higher-order themes. The emergent analysis was compared to the extant theory, with the

theory connecting the recurring themes that emerged from the data. Converting the data into a systemized structure was helpful to organize the concepts in a constructive manner.

Following the overall coding of the transcripts, the codes were separated into aggregate dimensions, analyzed with the underlying intent of identifying the greatest barriers and facilitators pharmacists face when making deprescribing recommendations. Table 6 identifies the additional codes aggregated into major dimensions.

Table 6

Novel Aggregate Dimensions

Dimension	Coding Definition Developed in this Study
Pharmacists' Perceptions of Responsibility	The extent to which any stakeholder feels they, or other stakeholder(s), have responsibility for patient care and deprescribing recommendations. Review perceptions of the current norms and confines of formal work roles.
Pharmacists' Understanding of Polypharmacy & Deprescribing	Participant descriptions, definitions, and perceptions of polypharmacy and deprescribing.
Pharmacists' Perceptions of Breakdowns in the Healthcare System	The extent to which systems and processes influenced, facilitated, or created barriers to pharmacists' recommending deprescribing of potentially inappropriate medication(s).*
Note: *System structure and processes is the source of system behavior, and system behavior reveals itself as a series of events over time (Chuang & Howley, 2019).	

The greatest prevalence in coding the data was designated in the category pharmacist responsibility/ownership, which was 20 percent greater in volume than the next category code of pharmacist role, which was related to job roles and employment requirements. The dimension of "Pharmacists' Perceptions of Responsibility" captured how pharmacists regularly stated they feel a tremendous responsibility for patient care and safety and was overwhelmingly important to each pharmacist interviewed. There was a sense of frustration in the lack of power and ownership over patient issues, and the feeling of not being heard by patients and/or healthcare providers when attempting to communicate recommendations. This sense of responsibility was

communicated repeatedly in how pharmacists felt they or other stakeholders had some responsibility for deprescribing initiatives. The dimension "Pharmacists' Understanding of Polypharmacy and Deprescribing" was developed because pharmacists were not aligned in their descriptions or definitions of polypharmacy and deprescribing. The first question asked during the interviews was their understanding of polypharmacy and there were a variety of answers given as to what the term meant to each interviewee. Deprescribing was also discussed but was not a common term known or used by most pharmacists interviewed.

Systems and processes were often barriers to successfully communicate recommendations or to have the transparency required to assess patients holistically and, therefore, the dimension of "Pharmacists' Perceptions of Breakdowns in the Healthcare System" was created. Multiple codes made up the aggregated dimension "Pharmacists' Perceptions of Breakdowns in the Healthcare System" and included: work environment, work chaos, transparency, patient setting, stress, protocols, staffing, and metrics. The intricacies of healthcare and the issues continually challenging the industry overall make the existing systems and processes a topic of continual discussion as the need to improve healthcare outcomes is important to all stakeholders.

Following the development of the novel dimensions, additional reviews were completed to determine if any of the dimensions overlapped, or could be combined, resulting in the final seven dimensions analyzed as part of this research. All dimensions were eventually categorized into barriers and facilitators to pharmacists' recommending deprescribing to patients with polypharmacy.

CHAPTER 4: PRESENTATION OF FINDINGS

The data obtained in this study revealed the multiple challenges to deprescribing that exist across many facets of pharmacy practice. These challenges manifested as difficulty communicating with prescribers and patients, lack of adequate time to be effective in pharmacy practice, lack of respect for pharmacists from stakeholders, inadequate compensation for services, various definitions of polypharmacy and deprescribing, and general chaos in the work environment not allowing for effective open systems to facilitate deprescribing initiatives. In addition to the previously known dimensions of communication, time, trust, and compensation, three novel themes emerged as important dimensions influencing the extent to which pharmacists can recommend deprescribing: responsibility, understanding of the terms polypharmacy and deprescribing, and systems and processes. In this chapter, the data structure for each of the seven dimensions is explained and presented via a table to visually demonstrate the raw data compilation into the aggregate dimensions. Finally, the results of analysis which integrated across these categories resulted in a framework of the aggregated barriers and facilitators to pharmacists recommending deprescribing.

Pharmacists' Perceptions of Communication

Communication was captured in how pharmacists described their positive or negative verbal or written interactions with other stakeholders regarding the opportunity to recommend deprescribing. Communication was coded initially into pharmacists' communication with patients, pharmacists' communication with healthcare providers, pharmacist communication styles, communication between healthcare providers, communication between healthcare providers and patients before being aggregated into the single overall code of "Pharmacists' Perceptions of Communication." Communication forms included behaviors, verbal and physical body language, and the intentions behind the cues. There are many challenges pharmacists face

encompassing many varying facets as they try to effectively communicate with stakeholders. While pharmacists as individuals have their own communication styles with stakeholders, patterns were noted in how communication played a role in their ability to recommend deprescribing. Direct communication with patients was often cited as the best way to obtain the information needed to make a positive change in someone's care, whether adding medication or removing unnecessary medication. Caring for patients and ensuring their safety leads to a need for more direct communication with prescribers. Table 7 portrays the data structure of the dimension of "Pharmacists' Perceptions of Communication."

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Pharmacists' Communications with Stakeholders

Pharmacists must communicate with a variety of stakeholders such as patients and caregivers, prescribers and their staff, and insurance companies. Several pharmacists described training they received in pharmacy school on how to communicate with patients and prescribers. One pharmacist described their experience in training and how to communicate with stakeholders as: "*How to talk to people, what the conversation needs to be, it's not an all or nothing conversation. So training is a big piece*" (P6). Even with training, however, pharmacists agreed that not everyone's communication style worked well because communication is a skill that varies amongst pharmacists. As noted by P8: "*I think it just depends on the pharmacist and their personality and how open they are*."

When discussing communications, pharmacists mentioned several areas of frustration in terms of communication. Communication styles need to adjust to the stakeholder being communicated with. Having professional conversations with a prescriber will be very different

than encouraging a patient to try to taper off or stop an unnecessary medication. A pharmacist at an independent pharmacy stated: "*I think pharmacists need to, besides their science, their knowledge, they need to step back and be human beings*" (P2).

Pharmacy size and communication style may also impact communication success as mentioned by a pharmacist at a corporate pharmacy: "*At an even busier pharmacy, like where they see different faces every day. They don't have that same similar communication*" (P8).

Culture and language barriers combined with socioeconomic status make it difficult for communication. Pharmacists in California and Texas often mentioned patients who were Spanish-speaking and the challenges of obtaining an interpreter in a timely fashion. A California-based pharmacist stated: "*Language does come in because…we get a good amount of patients that are Spanish speaking so there are times where we have really nobody that can speak Spanish*" (P4).

The capability exists to print medication labels in the native language, but unless the patient requests that service, it is not implemented. Patients may not know that it is an option. In addition, pharmaceutical manufacturers will often print patient directed materials in native languages for population clusters, but again, patients may not know about available resources.

Individualized care and personal goal setting for patients was an area that encouraged positive communications. Pharmacists employed by smaller, independent pharmacies often mentioned personal communication with patients and relationship building. This relationship building spurs a participant to personalize care: "*Helping them align to their goals, I think is the most important thing*" (P6). Helping patients align to their overall health goals cannot happen without communication and relationship building to ask those personal and often sensitive questions. There is a consistent effort made by those at the smaller independent pharmacies to

connect with patients on a personal level and to provide services aligned with patients' healthcare values and personal healthcare goals. Expressing this personal connection between a pharmacist and a patient, P2 states: "*Your neighborhood pharmacy knows you as a person*."

A pharmacist from a smaller independent pharmacy relayed their impact on their community: "*You know, I can tell you being an owner, and the amount of impact that I've had on my community, and the level of trust that I have from everybody that I see here, I lived in a community*" (P6).

To provide the most targeted healthcare possible, it helps for pharmacists to know patients on a personal level, understand their goals, and communicate openly to help them achieve those goals. This is difficult to do in a large corporate pharmacy setting. There is a clear difference between the services and communication that pharmacists can offer in a large corporate setting compared to a smaller independent setting as noted by pharmacist in academia:

> *Especially the big stores, they are so focused on metrics, how many prescriptions you do a day, and they don't necessarily like, corporate doesn't care. If you have a good relationship with this patient and are spending 20 minutes talking to them explaining things to them, they just want to get another prescription filled so they make more money. When a mom-and-pop store is built, independent pharmacies are going to be much better at paying attention to some of those things*. (P7)

Prescribers' Communications with Pharmacists

Pharmacists should communicate with prescribers and their staff when they have questions or concerns about medications prescribed to patients. Yet, prescribers' staff are often instructed to communicate on their behalf, creating an environment of risk in communication and misinterpretation. Communicating with staff or obtaining any sort of direct access to a prescriber is often a struggle for pharmacists. This situation was expressed by P5: "*You don't really get the chance to talk to your doctors one on one as much anymore. It's mostly like a middle person*."

Some prescribers are entrenched in hierarchy mindsets and refuse to communicate openly with pharmacists. P19 mentioned such an experience: "*This particular doc was just one that would never take a pharmacist recommendation. Like, try and fail time and time again.*"

Certain environments encouraged collaboration and communication between stakeholders, while others did not. The larger the organization the more difficult communication seemed, while smaller, integrated organizations had greater ability to communicate and collaborate across stakeholders. A pharmacist at a community hospital noted the difference in communication depending on setting:

> *{If} you are in an inpatient research hospital. Yeah, you're gonna have more training and the facility is going to have that culture of collaboration. I think that's part of it. But, you know, on the other spectrum is your busy retail store that's doing hundreds of prescriptions a day. I mean, that's not going to be the right venue for this {recommending deprescribing of potentially inappropriate medications}*. (P6)

This was supported by P12 who is employed in a Managed Care Organization (MCO) who said:

> *There's multiple roles for different pharmacists, depending on what our shift is. Or what we're more trained in, but the prescriber and pharmacists have a collaborative agreement where for certain disease states, they'll be like 'Okay, you guys can handle the management, deprescribing, all that stuff based on these guidelines for all these patients.*

MCOs were mentioned as a location for more collaboration across functions and referenced by a pharmacist working in a larger corporate setting:

> *I wish I was able to have a database like {MCO} because then I can be able to look at you and say, oh, you know what, let me communicate with your doctor because this is a centralized system. Let me communicate with a why they just changed you from a 20-milligram cholesterol medication to 40*. (P4)

Overall, the participants had different experiences in communicating with prescribers. P19 summed it up as: "*I don't feel that everywhere is a really good team dynamic or every provider wants to hear what you have to say.*"

Patients' Communications with Pharmacists

Patients have varying communication styles. Challenges communicating with patients were due to specific factors such as lack of understanding and/or education, patients not communicating with their prescribers, and possible medication addiction issues. Patients often lacked the education around their prescriptions and how they should be taken or used, as well as what they were for. This was a source of frustration for P4 who shared:

> *We're kind of ensuring that number one, the medication is not causing any side effects. And number two, we answer any questions that they may have. But it's tough to do that when they don't even know why they're taking it {the medication}.*

A pharmacist at a hospital felt patients needed to communicate for pharmacists to meet a patient's goals and expressed:

> *It's important for them {patients} to communicate, if they feel like something's working or not, or if they're taking a certain medication and it's creating unwanted side effects that they're experiencing so that providers are able to better tailor whatever it is that their treatment goals are.* (P16)

Open and clear communications from patients are not always expressed leaving pharmacists at a disadvantage in recommending appropriate treatment recommendations. Pharmacists often rely on the patient to communicate with their prescriber, and that can be unsuccessful. A pharmacist relayed their frustration over patient apathy as:

> *I go over to tell them hey, talk to your doctor, and then they say 'I'm okay with it. I don't care.' And that's like the saddest part. Because the patient is okay with it, which they don't really know what they're talking about*. (P5)

This leaves the pharmacist feeling powerless and unheard, with legitimate concerns for patient well-being and safety.

Communication can also be inhibited by addiction issues. Addictive medications have been in the spotlight recently, especially considering the opioid epidemic. Communications about addictive medications can present challenges with deprescribing initiatives. P19 was faced

with a mother with addiction issues and the daughter (caregiver) told her: "*You will never be able to get that away from my mother*."

However, P19 worked diligently with the daughter, mother, and prescriber to eventually taper and deprescribe a prescription medication that was causing the mother to fall. It took a long time and a lot of communication and effort, but she was successful and eventually succeeded in tapering the mother off the medication completely. While P19 succeeded in this deprescribing effort, many pharmacists recognize the difficulty of addiction and are only able to: "*at least prescribe them Narcan*" (P1) as a safety option to have on hand since they cannot communicate their way into helping the patient to discontinue the medication. Pharmacists expressed frustration due to feeling disempowered in being able to communicate about recommending tapering or deprescribing. A pharmacist at a large corporate pharmacy stated:

> *We don't have any laws that says oh, a pharmacist can decrease the medication on their own or we don't have a protocol based on hey, if you've been on this medication for this amount of time, you are safely like you can safely stop it, or there's no protocol. For example, tapering something down for us. It has to be the prescriber, so all we could do is just make the recommendation and honestly just hope for the best or at least the prescriber will follow up*. (P8)

Transparency of Communicated Patient Health Information

The ability to communicate with transparency and access to information was mentioned often by pharmacists. Without transparency of information about patients and their care, the job of pharmacists becomes more difficult because information is not being clearly communicated. There is even systemic attendance to the importance of this issue, as evidenced by the organization Pharmacists United for Truth and Transparency. Transparency has considerable influence on the impact pharmacists have on patient care. Transparency in this setting is communicating about not only the medications a patient may be on via an electronic health record, but also the reason for the medications. In explaining this lack of transparency P6 said:

> *Unfortunately, in the U.S., we don't have a very good way of accessing health records. And that's not just a pharmacist's issue. I think that is an issue across medicine in general. From the patient perspective, I mean, you can't even go okay, where are all my calls for concern? And there's no one database that you can even opt into.*

Without a cohesive way to communicate about a patient holistically, every treatment is a partial answer to a very large and complex puzzle.

When transparent communications exist, pharmacists can effectively support an overall approach to patient care. There are reasons P2 stated regarding the need for transparency: "*You need the time to communicate, to build the trust, to spend the time to research the underlying cause, to be able to treat the true issue for the work that you're putting in*." Without this, research into the underlying causes cannot take place inhibiting the opportunity to recommend deprescribing. The efficiency of transparency was expressed by P15 as: "*The more information I have, and the more succinctly that information is put together, the quicker and more efficiently I can help with the deprescribing*." Transparency allows pharmacists to engage in informed discussions with all stakeholders to effectively reach decisions more efficiently.

Pharmacists are frustrated with the lack of transparency communicated about patient information, and expressed a lack of understanding about why they should be prevented from seeing the information to make informed decisions regarding patient care. P5 could not understand the lack of transparency: "*You will never be able to get the 100%, the full prescription list, not even the doctor sometimes, which seems very weird to me*."

Transparency is also tied into time and trust, not just for the pharmacist, but the prescriber also. When patients use different providers such as specialists, there may not be transparency communicated across treatments. The issue of different providers and the difficulty was described by P11 as: *"{When} there's one pharmacist and many prescribers it's hard for the pharmacist to get to know all the prescribers*." This issue particularly impacts the geriatric

population as noted by P6: *"{In the} geriatric population we find that multiple specialists are being prescribed {and} are prescribing multiple therapies."*

Transparency, and the lack thereof, is a constant point of frustration for pharmacists. Transparency is also tied to engaging patients in their own healthcare with their prescribers. There are situations where the patients and prescribers are simply not communicating with pharmacists and P4 posed it this way:

> "*If the original prescriber, if they don't communicate that they're upping the dose. I mean they may say it to the patient, but then there's no, there's nothing behind the scenes happening, like they're just giving them the new dose but they haven't done the steps to eliminate the other dose*."

This highlights the need for the patient to also question any change in dosing and engage with the pharmacist prompting P4 to praise transparency across systems: "*We like electronic and moving forward everything is meant to be electronically sent because it's easier when you see everything in the system*." Unfortunately, communicating via integrated health systems is not available to most healthcare stakeholders. This was mentioned by a pharmacist at a large corporate pharmacy: "*We don't really have an integrated health system where you can see everybody's medications from different pharmacies, different doctors*" (P8).

Convenience increases when a single provider is communicating information as noted by the same pharmacist:

> *If the patient is being prescribed medications from the same provider, I feel like that makes it easier because you can call up the provider and ask, is this an addition or are we just continuing one and starting another, but when it's two different providers, that makes it a little more challenging*. (P8)

"Pharmacists' Perceptions of Communication" Summary

The dimension of Pharmacists' Perceptions of Communication encompasses a large volume of data regarding different facets of communications. Pharmacists had positive and negative perceptions of how those communications transpired. Positive communications were

usually framed around direct communication with stakeholders leading to positive health outcomes for the patient. Negative communications were often related to issues with impression management, lack of access to direct communication with stakeholders, or issues with patients' education and addiction to certain medications.

Pharmacists face many challenges when working to effectively communicate with stakeholders. Some of these challenges are due to the organizational structures or environments within which pharmacists are employed. Communication challenges create stress for pharmacists who are focused on safe and positive patient healthcare outcomes. Without the ability to easily access information regarding patients' treatment, pharmacists are not able to effectively communicate their concerns surrounding a treatment and appropriately recommend deprescribing. When communication is weak, pharmacists do not have the opportunity to offer suggestions for better, cheaper, or more effective treatment, let alone recognize and address areas of concern. This creates frustration for pharmacists who feel they cannot effectively support patient treatment goals in a safe and efficient manner. When communication is open and trusting, pharmacists feel most successful and proud of their services to support patients' health goals. Communication is a key dimension for successful, or unsuccessful, recommendations for deprescribing by pharmacists.

Pharmacists' Perceptions of Time

This aggregate dimension captured participants' descriptions of the amount of time they spend with patients, their assessment of whether it is too little or enough, and any impact on time spent in their ability to consider suggestions of deprescribing or other areas of healthcare education, such as lifestyle modification and general health. Codes that made up the aggregate dimension of "Pharmacists' Perceptions of Time" included pharmacist time, patient time, time is

money, healthcare provider time, saving time, treatment timeline, promise time, and verify time. In addition, time management was reviewed according to the relationship between the stressors experienced by pharmacists and the strain caused by those stressors. Time was brought up as a factor in every interview, regardless of what type of pharmacy the pharmacist worked in. It became clear that time is the key to the factors of communication and trust, and all are important factors to be effective in the role as a pharmacist. Pharmacists described a hectic work environment, with perceived limitations in time for prescribers and patients. The time limitations pharmacists face reduces their ability to effectively offer deprescribing recommendations because thorough patient medication analysis takes a large amount of time in comparison to the volume and prioritization of other tasks required in their roles. Table 8 portrays the data structure of the aggregate dimension of "Pharmacists' Perceptions of Time," comprising pharmacist time limitations, prescribers' time distribution, and patients' time without medications.

Table 8

Data Structure of Pharmacists' Perceptions of Time

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
Pharmacists' Perceptions of Time Participant descriptions of the amount of time that they spend with patients, their assessment of whether it is too little or enough, and any impact on time spent in their ability to consider suggestions of deprescribing. In addition, time management was reviewed according to the relationship between the stressors experienced by pharmacists and the strain caused by those stressors.	Pharmacist Time Limitations	Time pharmacists need to conduct medication review	"It just depends on whether you have the time" (P3) "Drug reviews take a lot of time." (P19)
		Lack of time to prioritize medication review	"I don't have time for it." (P5) "It's a lot of work to go back and forth and disagree with your prescriber," (P12)
		Pace of pharmacy practice, stress and chaos	"It's very fast paced, 24 hours, you want to get people out, you see the waiting time is high, you want to get the turnaround times out right" (P4) "We get so many phone calls, we get so many distractions that I don't have time" (P1) "{If} the patient brings it up to me and says 'I want a better option' I'll go and do it, but if they don't ask, then there's not enough time" (P12)
	Prescribers' Time Distribution	Prescribers have more time with patients cumulatively	"They see that patient, you know, more than a lot of times more than we see them, we give you a 90-day supply. Then we don't see you." (P9)
		Prescribers are limited in time	"I don't see much time for pharmacists and then there's the doctors who are also really busy. Time is always a tough one." (P20) "{Prescribers} have to see as many patients as you can within a day" (P15)
	Patients' Time without Medications	Processes/ technologies limit the amount of time patients are without medication and have to be in the pharmacy	"Minimize the time that they will not have a medication" (P4) "I think auto refill just creates a mess. And causes patients to take double medication- that's happened a few times" (P10) "Auto refills have a place I think along with that you need consultation with the patient" (P2) "If we do it for them, a lot of times we're able to get results faster" (P8)

Pharmacists' Time Limitations

Pharmacists practicing in filling and dispensing settings are under constant time pressures. This especially holds true for pharmacists who work in larger pharmacies. The larger the pharmacy, the higher the demand, allowing for less time available to manage all the tasks

required. Pharmacists were frustrated with the added burden of Medication Therapy Management (MTM) services because of the hectic work environment and number of tasks requiring completion. When speaking about deprescribing recommendations, the topic of MTM reviews was often mentioned. MTM is a precursor to offering deprescribing recommendations. However, the reviews take an average of 60 to 90 minutes to complete. While Medicare will pay for MTM reviews, the reimbursement for the review is at a set rate that averages low compensation for the time it takes to complete the typical review as expressed by a pharmacist at a small independent pharmacy: "*An hour and a half, but 60 bucks is like, not enough*" (P2).

Sixty to 90 minutes is a lot of time to ask a pharmacist to dedicate to reviewing someone's medications. A consistent description of the burden of deprescribing was stated as: "*Deprescribing takes a lot of time*" (P11). Even when time was allotted, it felt insufficient to complete an appropriate review. "*As far as my company, I don't have the opportunity to do true MTM with my patients*," stated P1, who works at a large corporate pharmacy. This was due to the lack of time available to complete a thorough analysis. Another pharmacist at a large corporate pharmacy agreed: "*We have a ton of things going on. And they want us to do the MTMs on top of it*" (P5). The MTM reviews are required for large corporate pharmacies to address, but pharmacists must fit them in on top of the other tasks they are required to do.

Pharmacists in the smaller, independent community pharmacies also spoke to the constraints of time limitations. While they had more time to communicate directly with patients, the time to see a change in a prescription or for a recommendation to move forward could easily take several months as shared by P15:

> *Hopefully I get to talk to the provider, the MA, the nurse, and hopefully they have a good relationship with the provider that will allow me to make the recommendation, and to take the recommendation. Otherwise, I'm hamstrung and the only thing I can do with the patient is tell them, you need to contact your doctor. 'But I can't get to them for the*

> *next four months.' All right, in your fourth month, when it comes, when you're at the beginning of the month, you come to me and we'll create a list*.

While P15 had a successful interaction with the patient, the patient dutifully followed P15's directions and the process toward deprescribing took almost a year in total after the pharmacist and patient partnered to work toward the outcome the patient wanted. The pharmacist also worked with the patient's healthcare provider, balancing the needs and wants of the patient with the healthcare provider's recommendations. This experience was described by P15 as follows:

> *I said 'beginning of June you come to me. We're gonna check off these things he did.' She comes back after that point and she's like, 'you're right. This provider I had was great, they saw some of your recommendations and they removed some more {medications} on top of it. It was great. It was terrific'. And she seems happier because when you go above, I think about … seven or eight medications daily, it becomes a chore*.

While this example did have a positive deprescribing ending, a full year is an inordinate amount of time to make changes to support a patient's proper care and healthcare goals.

Pharmacists must rely on the prescriber to make decisions and changes, which take time. Only the prescriber has the power to implement the recommendation of pharmacists, and pharmacists must wait for the prescriber to make decisions as stated by P9: "*For example, tapering something down for us. It has to be the prescriber, so all we could do is just make the recommendation and honestly just hope for the best or at least the prescriber will follow up*."

The fast pace of pharmacy practice was often described as chaotic and stressful. Lack of time was described as a source of stress. A university pharmacist expressed their previous experience in community practice as: "*Pure chaos at the pharmacy. And you know, it's always been numbers, but the numbers just really ramped up*" (P19). The pharmacy and work environment were described by a pharmacist working at a large corporate pharmacy as: "*Very*

fast paced, 24 hours, you want to get people out, you see the waiting time is high, you want to get the turnaround times out right" (P4).

The stress levels faced by pharmacists are extremely high as noted by P20:

> *A pharmacist I knew had a heart attack. He had a heart attack because of all the stress he had to deal with. This person previously, was a police officer. So they've seen stress, but somehow they had a heart attack as a pharmacist*.

Participants also expressed safety concerns with the lack of time and high-stress pace in pharmacy practice stating: "*We deal with a lot of critical tasks and it's important to be able to do that in a safe manner where we don't feel like crushed, or we're doing 10 things that's like in one minute, you know?*" (P4). Stress levels also impacted the ability of P5 to feel committed to the role of counseling patients: "*Are you really gonna put 100% into that consult with all that stress for the job going on?*" (P5).

Prescribers' Time

Pharmacists felt prescribers had cumulatively more time with their patients and therefore, perhaps more insight into patients holistically, making deprescribing recommendations moot. Pharmacists felt left out of the conversation as expressed by P13: "*They're {patients} in and out more regularly at the doctor's office. It's something that the doctors are gonna have to address and stabilize before a pharmacist can really get involved*."

This creates a state of uncertainty for the pharmacist to address concerns they may have for the number of medications prescribed to a patient. However, participants were quick to mention the lack of time for prescribers and patients. Pharmacists expressed the demands for prescribers' time as intense and constant. They had empathy for prescribers as they understood the difficulty of trying to see patients and answer calls and questions from pharmacists. Participants expressed this empathy such as when stating, "*I feel like they're {prescribers} also*

overworked" (P5). Finding time to discuss deprescribing is difficult for not only pharmacists, but also for the prescribers who have little time to analyze the recommendation.

Patients' Time Considerations

Pharmacies are focused on saving time for patients. Pharmacies are employing electronic systems and processes to address high patient demand, such as auto refill, drive-through pick-up, delivery services, and text reminders. Some pharmacies offer incentives to refill prescriptions quickly for patients to save time from having to visit the pharmacy as expressed by P4: "*There was this whole big implementation of 'save a trip' refills*." While these are time saving strategies implemented for patients, they are barriers to direct communication with patients because they circumvent the pharmacist as a touchpoint for patient care and treatment. This also risks a lack of oversight. A New York based pharmacist mentioned frustration regarding the lack of counseling services offered at pharmacies:

> *They don't offer you any kind of counseling, they have an electronic pad. You sign it, it says that you either accepted or declined counseling, the pharmacist doesn't come over and talk to you which they are required to by law*. (P18)

While that may save a patient time, it limits the amount of connection a pharmacist can have with a patient. Prescribers face time constraints with patients as well. Pharmacists attempt to communicate on behalf of patients who may have given up on trying to obtain a response from a prescriber and/or their office staff. Pharmacists have stepped in to act as an intermediary when patients are unsuccessful, but often recommend patients contact their doctor as well. Several channels of communication are available to pharmacists, as stated by P9: "*We can send or fax or email the physician notes about things that we see*." However, this same pharmacist noted that if the pharmacist was unsuccessful: "*I would call the patient and say, 'Listen, I've sent these two*

requests your physician, I need you to contact your doctor's office,'" …in the hopes the patient would have more success in accessing the prescriber (P9).

"Pharmacists' Perceptions of Time" Summary

Pharmacists with adequate time have the opportunity for direct communication with patients. More time allows for more thorough review of medications and direct focus on patient care and positive health outcomes. Deprescribing potentially inappropriate medication is an additional responsibility that takes time, and not enough time is allotted for thorough evaluation. Adequate time allows for individualized treatment aligned with a patient's healthcare goals. When pharmacists have adequate time to review medication plans, follow-up with prescribers and patients, and make recommendations, deprescribing of unnecessary medications can take place efficiently. This leads to a reduction in costs for the patient and the healthcare system, potentially better healthcare outcomes, and ultimately greater patient satisfaction with care the goals of the Triple Aim Framework of healthcare.

As time constraints put an overwhelming amount of pressure on pharmacists, the time it takes to discuss deprescribing often is time they do not have to give. They are pressured by people with little or no experience in the demands of healthcare services, such as regulators, patients, business owners, managed care organizations, and corporate executives. This often limits them to just filling prescriptions without the opportunity to counsel patients on their medications or alternative lifestyle modifications to support their overall health. Pharmacists employed in the larger corporate pharmacies had the least amount of time to offer to patients. Time constraints are in place for profit margins. Pharmacy profits are driven by the volume of prescriptions filled and dispensed to patients. It would be very difficult to offer additional time for pharmacists to practice at their highest level of education because the pharmacy is driven by

profits, and the profits come from medication filling and dispensing. There is typically not adequate time for pharmacists to review each patients' chart and thoroughly assess the need for deprescribing recommendations. In addition, the MTM process is only allowed annually, so there is a delay in reassessment of patients at highest risk of potentially inappropriate medication use or prescription medication abuse.

Pharmacists' Perceptions of Trust

Trust was coded according to the dynamics of trust as theorized in terms of the extent to which participants described patients, practitioners, and patients' caregivers trust them as having competence in their role, character in their decision-making, and care for them during their interactions, along with the extent to which such trust may play a role in their ability to recommend deprescribing. Relationship building and work partnerships/teamwork are important mechanisms to support patient health goals.

Trust emerged as an important factor in interviews with pharmacists. Relationship building, personal connection, perceptions of pharmacists from patients and prescribers as well as impression management, and visibility were all codes developed into the aggregate dimension of "Pharmacists' Perceptions of Trust." Pharmacists play a critical role in patient care and care deeply about their patients' health and wellbeing. Yet, they often go unrecognized for their efforts and are not treated in the same manner as other healthcare providers, even those with less serious roles. Many participants relayed demeaning interactions with patients and/or prescribers. Table 9 identifies the data structure for the aggregate dimension of "Pharmacists' Perceptions of Trust."

Table 9

Data Structure of Pharmacists' Perceptions of Trust

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
Pharmacists' Perceptions of TRUST The extent to which pharmacists feel that their patients, practitioners, and patient's caregivers trust them during their interactions, based on perceived levels of competence, character and caring shown when making decisions, and caring for their patients, along with the extent to which such trust may play a role in their ability to recommend deprescribing.	Building Trust in Relationships and Connections Between Pharmacists and Patients	Pharmacists' building relationships with patients	"The relationship building, to really understand the patient to give the optimal care" (P2) "Some of the patients are very excited and like, 'oh, yeah, thank you for telling me I didn't need the medication anymore,'" (P22)
		How pharmacists develop personal connections with patients	"I like being on a first name basis with my patients because that helps" (P15) "The level of trust that I have from everybody that I see here, I lived in a community" (P6)
	Lack of Respect from Stakeholders for the Role of Pharmacists	Patients' perceptions and behavior toward pharmacists	"I feel like that makes it a big barrier to patients to view us as anything else than just like a worker in the pharmacy and not a real doctor" (P5) "Patients get upset because if their prescription isn't ready, but it's not ready because your physician hasn't contacted us to change it, or okay it, or verify the change, then we can't do anything, but we'll get yelled at for that. But, the patient, they'll be like, well, it's not my doctor's fault," (P9)
		Pharmacists' choices in impression management	"The people that call me doctors are students. There's a level of respect, I think, in academia." (P6) "If you do a lot of clinical work, then you probably see more patients directly and then the stigma would be to call you doctor. But in the field, the retail setting …they just call them pharmacists. But they {patients} don't really know that most of them have doctorate degrees." (P17)
		Prescribers' perceptions of pharmacists	"I knew the doctor, this particular doc, was just one that would never take a pharmacist recommendation" (P19) "Prescribers trust us, I think, if it's reasonable," (P12) "I've been put in my place a couple of times by prescribers" (P22)
		Pharmacists' visibility as educated, skilled healthcare professionals	"They gotta get to know you and they've got to get to know that you're capable of doing that {clinical work}. It was when we would have the opportunity to actually meet the doctors, because they would also be there at the different affiliate functions, and we would participate and so we got to know them and so it made it a lot easier." (P3) "When we think about a pharmacist in general, we think retail you know, don't think hospital and then don't think manufacture industry, these areas where we have a lot of big impact," (P5)

The dimension “Pharmacists’ Perceptions of Trust” expresses the need pharmacists have to be trusted professionals. Pharmacists are not federally recognized as healthcare providers and are often perceived as merely filling and dispensing workers, yet pharmacists relayed strong feelings about building relationships with their patients and prescribers. Trust is a critical dimension in the relationship between pharmacists and their stakeholders. Pharmacists relayed strong feelings about building relationships with their patients and prescribers.

Building Trust in Relationships Between Pharmacists and Stakeholders

When pharmacists can build relationships with patients and prescribers, they are more effective in their role because their recommendations are taken more seriously. Trust is developed with counseling and discussion as noted by P2: “*Look at the medications that the patient is getting filled at your pharmacy, and talk to the patient, you have to have an interaction with them*.”

Positive, trusting relationships allow for open and thoughtful discussions with prescribers or patients leading to greater understanding of needs and personalizing treatment toward patient goals. Targeting individualized care was managed by asking lots of questions as P11 highlighted:

> *What are they willing to do? What are they not willing to do? What's motivating them? We use a lot of motivational interviewing techniques to identify what's important to them in their life like some people are like, ‘oh, I want to see my grandchild's baseball game’ and so okay, but you have to frame it around the grandchild's baseball game. Some people might be a wedding for like so what is what is the thing that motivates them to want to take their medications and how can you plan utilizing the patient's factors that is going to motivate them*.

When discussing the value of a small local independent pharmacy in comparison to a large corporate chain, a more personalized connection to create a high-quality level of care was expressed. A pharmacist from a small independent pharmacy was clear in describing the difference between large and small pharmacies and said:

> *You have the patients that live in town that come to your pharmacy, and so you know them and you do spend more time looking at their medications and helping them it's not like being at a large corporate pharmacy in a big town where you may never see that patient again*. (P2)

This was confirmed by P8 who switched from a large corporate setting to a small independent pharmacy and expressed the change as positive:

> *I've been at my pharmacy for a little over a year at this location and I know a lot of my patients on a first name basis. They come and say, hi, they sometimes tell me about their day and stuff like that. It builds that community feel and that's what I like about my pharmacy*.

Those personal, caring connections are important to pharmacists and one of the reasons they go into pharmacy practice. Some pharmacists were very clear that they craved that personal interaction such as P7: "*What I desire is having that ability to talk to patients*." Several gave personal connections as the reason for choosing the pharmacy profession:

> *Going into pharmacy, that was what I thought it was getting into, you know, that sounds like an ideal situation, people are coming to talk to me about this, and I'm going to make recommendations and suggestions to the doctor*. (P21)

Developing personal connections through rapport with patients helped pharmacists to build the trust needed to support patients' treatment plans. This was exemplified by P13 who acted as a personal cheerleader:

> *I think patients need to be encouraged. And I think they need to be positively reinforced for the successes that they make within their own care. When I see my patients at the window, and they come back and they tell me a medication that they started is working. The first thing I do is I congratulate them and I tell them that they're doing a great job*.

Personal connections are also appreciated by patients. This was expressed when one pharmacist called and made recommendations to patients over the phone and said: "*{Patients are} actually super appreciative of the fact that someone's talking to them about stuff*" (P9).

Building personal connections through rapport allows pharmacists to cater treatment to a patient's lifestyle. A pharmacist who works at a small independent pharmacy gets to know patients' habits:

> *I think when you're an independent community pharmacy practice, you get that less push back because we develop rapport with our patients, right? You know, when I get those patients who have multiple medications, and they just have a hard time remembering. I'll just say, because I know that in my conversations with them, I'm like, Hey look, I know you gotta take this at night so you know right when you're done reading your magazines because you always like reading your magazines right before bed. Put the magazine down next to your bed, now grab your pill, water, take it and go to sleep. I've created a routine for them. That's already built into their current lifestyle. That's easy to do in terms of making the recommendation*. (P15)

Lack of Respect for the Role of Pharmacists

Patients recognize a hierarchy of healthcare staff and pharmacists are not high on the list of who to go to for information and often challenge the pharmacist or defer to other healthcare providers. This is frustrating for pharmacists who have the education and skills to effectively support patient care, yet whose expertise is often discounted. Participants felt a lack of respect for their authority and profession, and believed they were not treated the same way as other healthcare professionals. A pharmacist at a large corporate pharmacy frustrated with patient behavior said:

> *It just feels like patients are more inclined to suspect us and yell at us. We're gonna invest a lot of time and energy in a consult and just not be heard. If that's not gonna happen, it's not gonna be supported. You're not gonna be wanting to do this anymore*. (P5)

Some pharmacists spoke directly of negative interactions with prescribers: "*He {prescriber} was like, 'This is how I practice, if I gave a prescription for the patient just fill it*,'" not allowing the pharmacist's question to be answered (P9). One pharmacist felt it was sometimes the lack of prestige that a pharmacist carries: "*I think a lot of times the recommendations either get ignored*

or even sometimes people are almost shamed a little bit {because} you're not the doctor, you don't know what's going on" (P7).

While most pharmacists had negative encounters with patients and prescribers, there were also positive and encouraging interactions based on personal connections and relationships. This was especially true when a positive outcome occurs as noted by P12 who described it as:

> *I think the patients who have experienced a positive change when they trusted a pharmacist, they're always going to be kind of on our side, but if they're not, if they're just coming in, they're just gonna go to the doctor and do what they tell them to do, pick up what they need to, and then just hope it works.*

At the same time, pharmacists did not refer to themselves as "doctors" and felt uncomfortable being addressed as such. Many felt it limited their ability to connect with patients on a personal level.

Impression management is an important part of pharmacy practice. Impression management is a way people (in this case pharmacists) control how they are perceived by others (Leary, 2001). Not a single pharmacist I spoke to referred to themselves as "doctor" and did not expect patients or other healthcare providers to either, even though they are Doctors of Pharmacy, and complete rigorous degree programs. Some were shocked at the question: "*Like, do people call me that {doctor}? No*," (P21), while others felt slighted by not being recognized by title like P20: "*I'm never seen as a doctor, ever*."

Some pharmacists interviewed believed not being called doctor helped them gain familiarity with their patients, obtaining support in a more personal way. One pharmacist described how not being called 'doctor' helped get more information from patients and said: "*I like being on a first name basis with my patients because that helps*" (P15).

Most were uncomfortable with the title and immediately smiled, shifted in their seats, or displayed body language that indicated their discomfort with the question of whether they used the title doctor. One pharmacist became very embarrassed and said:

> *We're not really recognized as doctors by patients that we would never get addressed by doctor and to some extent as a pharmacist addressing yourself as a doctor is embarrassing. You'd feel like they might laugh at me like you know what I mean?* (P5)

While it may make patients feel more comfortable on a personal level, medical doctors also seek the same opportunity to build patient relationships without diminishing their title. Pharmacists were very reluctant to discuss the title of 'doctor' and one relayed a running joke:

> *I don't know if you've heard this joke. Sort of a joke. A lot of times, we're known as, but I think this goes through like maybe optometrists too, like the 'Oh' doctor. If I was to tell someone, I'm a doctor, and they're like, oh, what kind of doctor are you? I'm a pharmacist, you know, Doctor of Pharmacy. Ohhhhhh, you're that kind of doctor. You know what I mean? Like, I was just with 'Oh' doctors.* (P21)

Pharmacists are important stakeholders in the healthcare ecosystem. While they are frustrated with the lack of respect from patients and providers, they themselves make choices in how they manage impressions of themselves and often diminish their value by not embracing the title of 'doctor.'

Pharmacists often lack confidence when conferring with prescribers. A pharmacist was very clear that there may be a lack of confidence and they would defer to the patient or prescriber, and said:

> *Pharmacists, I don't think we always have the confidence but it's a lot of work to go back and forth and disagree with your prescriber, or the patient's prescriber over something when their prescriber is not technically wrong, but it's not the best option. Unless the patient brings it up to me and says I want the better option. I'll go and do it.* (P12)

This lack of confidence and caution was also reflected by P13:

> *You also don't want to shoot in the dark and miss. So you know, you can sometimes get yourself into trouble just by making a casual recommendation that you may be over recommending. I usually open my mouth when it's obvious that I need to say something*.

That caution sometimes was expressed as fear and P20 said: "*Pharmacists, they sometimes don't want to overstep what the doctor prescribes, and that could lead to them not speaking out*."

Building connections across the healthcare ecosystem was important for successful and effective deprescribing recommendations. Pharmacists mentioned that the healthcare system is moving from a primarily authoritative to a more collaborative system to support teamwork amongst stakeholders. The newer generation of healthcare practitioners seem to have a less authoritative approach as stated by P12: "*It's more collaborative nowadays. Because they have a lot more of a new school, kind of like PA's {Physician's Assistants} and NP's {Nurse Practitioners} that are probably taught in school to trust a lot more of the pharmacists*."

Teamwork was also mentioned by P12 in reference to working toward deprescribing initiatives: "*You're probably going to have to team up with a lot of other professionals*." When a network of trust exists, deprescribing efforts often succeed as noted by P11: "*It works really, really well when there is that trust network*."

Visibility creates the trust and teamwork needed in the healthcare setting. When visibility is lacking, pharmacists' role often goes unrecognized, is unclear, or ignored. This is expressed in the larger corporate pharmacy settings as noted by P15: "*When I was in non-independents, it was a challenge because, hey, I don't know who you are. You're just putting pills in a bottle like other pharmacists*." This was echoed by P20 in terms of serving a large community: "*It's hard to build a relationship of trust in a city of millions*."

This lack of visibility is also due to the general view of a pharmacist employed in a larger corporate setting:

> *I think if you say to someone, what does a pharmacist do? They're going to think of a traditional pharmacist who's in a community setting. Someone at CVS, someone at Walgreens or wherever, and they're just behind the counter counting medications, putting them in the bottles and dispensing them. I think it's not until they perceive more specialized care that they're able to interact with pharmacists in a more comprehensive, diagnostic way*. (P16)

"Pharmacists' Perceptions of Trust" Summary

Pharmacists interviewed went into the practice of pharmacy to work with patients. They showed a tremendous dedication to integrity through their conscious work for patient safety and all had regularly reviewed patient medication protocols for drug interactions and potentially inappropriate medications. Deprescribing was consistently recommended when risks outweighed potential benefits. Participants consistently met the three C's of trust: competency, character, and caring, as described by Crandall (2007). Their competency is clear as they were all highly educated with a Doctor of Pharmacy degree. Their character was recognizable in the decisions they regularly made for patient care, which was always dedicated to patient safety and positive health outcomes. Their caring nature is evident in their personal investment in patients. Relationship building was important to all participants, but those employed at larger, corporate facilities recognized the limitations due to time constraints and volume of patients. Those employed at smaller, independent pharmacies took great pride in their ability to build relationships on a more personal level and to be an integral part of their community. When trust is high and valued as part of the relationship between a stakeholder and a pharmacist deprescribing initiatives can be openly discussed and thorough medication therapy management can be implemented. When trust is low, it is difficult for pharmacists to approach the subject of deprescribing because it requires transparency of patient health records for thorough analysis,

which are not automatically available. Patients may also not be willing to provide all the necessary information, relying instead on their doctors as final decision-makers.

Pharmacists' Perceptions of Compensation

Compensation is a constant theme for pharmacists and the services they are willing to provide to patients. Codes related to compensation included pay for services, remuneration, and reimbursement. Pharmacists are not recognized as healthcare providers federally and cannot charge for certain services, specifically cognitive services as part of Medicare Part B. They can charge for some services in certain states, but at discounted rates as compared with other providers for the exact same services. For example, the reimbursement rate in California for certain services can be charged at 85% of what a doctor's office would charge for the exact same service, yet California has the highest compensation rate for pharmacists in the U.S.

The profit margin is slim on prescription drug sales and continues to become slimmer and slimmer due to reimbursement rates set by government third-party payers and private insurance providers (RxSafe Blog, 2023). Independent pharmacies struggle with the complexities of reimbursement and often enter multiple contracts with different pharmacy benefit managers to support the patients within their communities. This creates complexities in reimbursement for prescription drug filling.

> *A dispensing fee compensates the pharmacy for transferring the drug from the pharmacy to the patient, including patient counseling. The national average cost of dispensing medications is $10.55 per prescription – not including pharmacy profit — but Medicaid only reimburses a dispensing fee on average of $4.50 per prescription. Under Medicare, the pharmacist is paid even less — $2.27 per prescription. In group-health plans or private insurance, a pharmacy benefit manager (PBM) negotiates the dispensing fee with the individual pharmacies, typically at 40 percent off the usual and customary dispensing fee charge. Any discussion of reimbursement must plainly take into account the cost of medications being dispensed. Especially in the area of generic drugs – where costs are rising dramatically – pharmacies are often reimbursed less than the acquisition cost of the drug. (RxSafe, 2023)*

This results in many smaller independent pharmacies forced to face tough decisions on whether they can fulfil a patient's prescription at a loss. This was discussed at length at the NCPA meeting in Orlando, Florida in October 2023, and much of the meeting was designed to educate independent pharmacists on how to generate additional profits to keep their doors open. Many pharmacists attending the NCPA meeting were concerned with lack of revenue generation due to corporate agreements with pharmacy benefit managers pricing them out of business. I attended different sessions during the conference to learn more about topics pharmacists were concerned about and walked through the exhibit hall speaking with vendors.

Small independent pharmacies have been forced to experiment with new ways of doing things to increase their profitability and compensation. If the patient has been a customer for a long time, is part of a family unit that are good customers, the pharmacy is making enough profit in other areas of the business, then the decision may be made to keep the customer, even at a loss. That decision becomes more and more difficult as the losses become greater and the risk to the pharmacy is bankruptcy. While expanding the role of pharmacists, specialized services and offerings tailored to niche markets creates opportunities to increase profitability and allow smaller independent pharmacists to support some of the communities' most vulnerable patient populations, including those that are home-bound and limited in function and ability to care for themselves. Observational data from the NCPA meeting can be found in Appendix D.

Pharmacist participants wanted to encourage medication therapy management and review patient information to make appropriate recommendations for treatment. They were discouraged by the lack of support to be compensated for their knowledge and counseling services. Table 10 identifies the data structure for the aggregate dimension of "Pharmacists' Perceptions of Compensation."

Table 10

Data Structure of Pharmacists' Perceptions of Compensation

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
Pharmacists' Perceptions of Compensation The extent to which pharmacists feel they are adequately compensated for their time to conduct counseling services.	How pharmacists are incentivized; lack of compensation for services vs products	No pay for services such as counseling, knowledge transfer, lifestyle management	"The service is not compensated" (P20) "Would we like to get reimbursed for that? Yeah, we would like to get reimbursed for that," (P9) "The payments are small {for MTM}" (P22)
		Pay for product sales/fills/ dispensing	"There has to be a change in the way reimbursement is done. I mean, you have to take the financial incentive out of volume" (P2) "They just want the patients in and out in and out in and out. It's like it's like a factory. It's like a factory mill essentially," (P1) "Everything is volume driven. I have to get their prescriptions filled. So we get paid and get them out the door," (P6)
	Lack of appropriate metrics to determine value of pharmacists' services	Measures of medications to determine impact or too much or too little	"We all want to make certain that there's some impact if we're looking at reducing meds," (P19) "What are we looking at to see if patients have great outcomes? What's the measure here?" (P4)
		Value based care implementation (consumer healthcare value for dollars spent) does not measure service, only medication dispensing	"There's not good compensation in that team-based model of care" (P11) "If these are the things a pharmacist can do at the highest level that my educational training allows me to do, that's what I want to do. I don't want to fill out, verify," (P15)
		Ratings from Centers for Medicare and Medicaid Services (CMS) are ineffective in measuring value	"The more compliant you can keep the patient, the higher star ratings your providers have, and the more patient referrals you get" (P13)

The dimension "Pharmacists' Perceptions of Compensation" expresses the need pharmacists have to be compensated for their skills and education. Although pharmacists fill and dispense medications, their real talent and skill comes from drug analyses and counseling stakeholders on the benefits and dangers of certain medications and the interactions between medications. However, they are not compensated for the transfer of that knowledge to others, nor their education and counseling services.

Lack of Adequate Compensation

There is a lack of compensation for the counseling services pharmacists are expected and required to do. They continually share information yet are not paid for that service or medication expertise as a separate service. A licensed pharmacist and pharmacy university professor strongly expressed "*We need to be paid for our cognitive services*," (P19). These services include counseling patients. A licensed pharmacist and pharmacy university professor stated: "*There should be a mechanism where that pharmacist gets compensated for that knowledge transfer that they're providing to that patient*" (P11).

This is especially clear when speaking about large corporate pharmacies where profits are driven by product sales volume. The U.S. healthcare system structure as a profit generating system creates the lack of time needed for pharmacists to do their work effectively at the highest level of their education and practice. Much of the system is fee-for-service based, yet the vast number of services pharmacists provide are not reimbursed. In this setting, pharmacists are hampered in offering their services by a lack of healthcare provider status as described by P16:

> *In terms of provider status, pharmacists are not recognized in that in that way, and so there isn't any way to compensate pharmacists for taking extra time because again, time is important. You need to actually sit down with a patient and communicate with them in order to understand what it is that they need*.

The medication (product) filled and dispensed is reimbursed, not the assessment or counseling of patients (service). Large corporate big-box pharmacies such as CVS and Walgreens are profit generating entities that rely on large volume and retail sales. This volume driven profit creates a rush: "*Everything is volume driven. I have to get their prescriptions filled. So we get paid and get them out the door*" (P6).

Pharmacy contracts with pharmacy benefit management companies (PBMs) and pharmaceutical companies allow them to purchase medications based on volume discounts.

There is a constant demand to fill and dispense as quickly as possible to generate the greatest amount of profit for the pharmacy. This challenges any incentive to recommend deprescribing initiatives as stated by P18:

> "*Where's their incentive? Is it to deprescribe or to just keep filling? They don't make money by not filling a prescription. Not to say that that's everybody's intention. In a chain situation the pharmacist doesn't have that incentive, the pharmacist incentive there is to just keep that patient safe and not lose their job*."

Pharmacists do have the opportunity to obtain additional education and specialized certifications in disease management which offers greater compensation. A pharmacist with their own specialty pharmacy had a small patient population, with the same patients seen month after month. They believed pharmacists were well compensated, but that "everybody regulates the prices these days, so they may charge a lot but they're not gonna get paid that much," (P3).

Lack of Adequate Metrics

A challenge exists when it comes to measuring patient health outcomes and creating appropriate metrics. How to measure positive health outcomes from the pharmacist perspective is a challenge as not only do pharmacists need to fill and dispense medications, they need to ensure adequate counseling and patient adherence. This need for metrics was recognized by P19: "*What's kind of making sense, and maybe making a little bit of an impact, is to start measuring, because we all want to measure things*."

Insurance companies are starting to recognize the need for quality metrics to support healthcare decisions as noted by a pharmacist working for an insurance health plan: "*The eyes of health plans are opening up now to see that there's value in quality metrics that health plans are assessed on*" (P18).

It is clear that it is difficult to create a metric around patient relationships and counseling services which are an important part of pharmacy practice. A pharmacist recognized the

challenge the corporate pharmacies face by saying: "*Big stores are so focused on metrics, and they can't, they can't create a metric out of you having a really good relationship with all the people…that come to your store*" (P7).

The value-based care model is of great interest in the U.S. and is being implemented in certain ways, such as in managed care organizations which have integrated healthcare models with streamlined healthcare, and the Affordable Care Act which was designed to offer care to a greater population through subsidies and ensure consumers get value for their dollars (Patient Protection and Affordable Care Act, 2010). Pharmacists are not reimbursed adequately for the important and critical part of their job, which is assessing and counseling on medication use. Unfortunately, value is determined by outcomes achieved and not by the volume of services delivered, and those results are not being adequately measured to support the expansion of the role of the pharmacist in most settings (Cowart & Olson, 2019). While value-based healthcare has been adopted by other healthcare providers such as physicians, standardized productivity and performance measures have not been implemented well into pharmacy practice (Cowart & Olson, 2019). There is difficulty in measuring the services as part of a value-based model as stated by P15: "*There's too much burden because the current structure, workflow, set up, of a pharmacy is again focused on the product and not the service. When you're able to carve it out and allow for service, the pharmacist is gonna thrive*." Without measurement of the value additional services from pharmacists bring, pharmacists will have a difficult time being integrated into value-based healthcare (Cowart & Olson, 2019).

Centers for Medicare and Medicaid Services (CMS) instituted STAR ratings as a measuring tool of how their services manage their members' healthcare services and outcomes as part of value-based care (Centers for Medicare & Medicaid Services, 2024). There are several

measures including how many prescriptions a pharmacy has filled for patients over a certain age. The pharmacy is responsible for filling and dispensing the medication per the prescription, and the more prescriptions are filled for patients meeting the STAR rating requirements, the higher the STAR rating the pharmacy receives, resulting in a greater number of referrals to that pharmacy. This was explained by a community hospital pharmacist as:

> *Something that CMS does as far as star ratings. And those quality metrics that are associated pharmacies are now part of the star rating, so patient adherence. Certain medications that are prescribed. Those are all set by CMS guidelines…You actually will lose money if you don't keep the star ratings. So if you're a five star, you get reimbursed at a certain level. If you're a four star you're reimbursed at a certain level and after four stars, it actually becomes difficult for a provider to even be part of the network. So most insurance companies only work with four star and five star rated facilities*. (P6)

Prescribers are also part of this rating system. The more medications they prescribe to patients meeting certain criteria, the higher the STAR rating and the greater number of referrals to that clinic or provider. However, some of the requirements do not sit right with pharmacists who want to ensure individualized care: "*Insurance is recommending a statin therapy for this patient because they are diabetic, for example, which I don't completely agree with*" (P5).

"Pharmacists' Perceptions of Compensation" Summary

Pharmacists, not federally recognized healthcare providers, lack the ability to be reimbursed for services rendered in the same way a prescriber would be, even when providing the same services. This is a cause for frustration and annoyance, and a perpetual fight to try to obtain federal approval of healthcare provider status. It causes certain pharmacists to leave their independent or corporate filling and dispensing roles and look for opportunities within industry or academia.

Working in large corporate settings is salary based, but continual addition of tasks and services and fewer staff to support consumers has led to walkouts at the largest employers of pharmacists. Smaller independent pharmacies are suffering from lack of reimbursement for

products due to contracting requirements and regulatory implications for certain services. While value-based care is growing in the U.S., pharmacy practice is not yet incorporated into that construct. There are few programs that report on outcomes of pharmacy services, and metrics do not exist to assess all patient care activities and services, and what fees could be applicable for those services and activities (Houle, et al., 2014). Medication therapy management exists and is reimbursed by Medicare but is not deemed sufficient for the amount of time thorough review is required. This leaves pharmacists with a lack of incentive to actively pursue medication therapy management services. For those not on Medicare, thorough review of medication therapy is not compensated and even when pharmacists take the initiative, they can only recommend deprescribing, which takes time and effort with stakeholders who may or may not be interested.

The perception of a lack in appropriate compensation for engagement with patients and prescribers creates challenges in recommending deprescribing initiatives. Pharmacists are focused on safe and positive patient healthcare outcomes but are compensated for the number of products sold but not for counseling services or prescriber outreach. Without the ability to easily access information regarding patients' treatment, pharmacists are not able to efficiently assess treatments and offer appropriate deprescribing recommendations or suggestions for better, cheaper, or consolidated treatments with lower pill burden.

Pharmacists' Perceptions of Responsibility

The dimension "Pharmacists' Perceptions of Responsibility" is a novel dimension that reflects pharmacists' role as a barrier or facilitator to recommending deprescribing. This dimension captures the sense of responsibility pharmacists have as well as the disparity that is evident between roles and responsibilities for stakeholders in patient care and positive healthcare outcomes. Responsibility as a theme was prevalent in the data, as every participant mentioned

their feelings of responsibility regarding patient safety and the single code, pharmacist responsibility/ownership made up most of any single code. Table 11 identifies the data structure for the aggregate dimension of “Pharmacists’ Perceptions of Responsibility.”

Table 11

Data Structure of Pharmacists' Perceptions of Responsibility

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
Pharmacists' Perceptions of Responsibility The extent to which any stakeholder feels they, or another stakeholder(s), have responsibility for patient care. Review perceptions of the current norms and confines of formal work roles.	Pharmacists' Perceptions of Pharmacists' Responsibility	Focus on patient safety is top priority	"The second it comes through, and I see the interaction, I'll put a stop on it and call the doctor," (P1) "As long as you're trying and you're successful with one patient, you're pretty much helping save their lives. You're decreasing the risk of overdose really," (P8) "Don't you guys get it? It's the patient that's getting screwed" (P2) "It's a huge weight on our shoulders…it's a big responsibility" (P21)
		Pharmacists have training, ability, skills	"We go to school, and we get trained for everything that we do and then some" (P9) "They're the experts on prescribing medication, at least they should be," (P3)
	Pharmacists' Perceptions of Prescribers' Responsibility	Providers are ultimately responsible for prescribing and deprescribing medications	"It's up to the providers to help the patient navigate through the great game and get the desired results" (P2) "There is this deprescribing process that's been, you know, provided to prescribers. You know, how you might help a patient with deprescribing kind of thing. These are the things you want to be looking at." (P19) "{It's the} prescriber who's writing it," (P4)
		Prescriber has visibility into the overall patient data	"I mean, they might be more knowledgeable in terms of just like the whole picture of what's going on with the patient" (P21) "We just need to call the doctor now because the doctor has the documents. The indication or reason for the medication, that's something that we cannot see" (P8) "If they're in and out more regularly at the doctor's office, it's something that the doctors are gonna have to address and stabilize before a pharmacist can really get involved," (P13)
	Pharmacists' Perceptions of Patients' Responsibility	Patient is responsible for their health and treatment options	"If the patient brings it up, then then a provider…is going to be more likely to get involved" (P19) "I feel like patients are not taking ownership," (P21) "It's the patient's responsibility to say like, do I have to take these seven pills?" (P22)
	Balanced Responsibility	All stakeholders have a balanced ownership of patient treatment including deprescribing medications	"It's the balance of the physician, the patient, the pharmacist, and all of these things have to work together." (P2) "For it {the system} to work correctly, everyone has to have equal responsibility, including the patient" (P13) "Hopefully everybody is guided by their…moral compass," (P21)

Pharmacists consistently expressed a tremendous sense of responsibility for patients and their safety, regardless of the type of pharmacist and the type of pharmacy. Patient safety was the number one priority for pharmacists as expressed in every interview. Pharmacists conduct constant assessments of patients' needs and consistently watch for red flags. The stress of this responsibility was palpable in the interviews. Stress was often spoken of in terms of not making mistakes, and what could happen should a mistake be made. There is a level of respect for the profession and a desire to practice at the highest levels of training and education as well as living with a highly ethical and moral code.

Pharmacists' Perceptions of Pharmacists' Responsibility

Pharmacists are dedicated to patient care and safety, and they consistently make their best efforts to address their concerns for each patient, especially when the stakes for that patient are high. "*You don't want to give something regardless of the profit. You don't want to give something to somebody that's going to hurt them*," (P2). This was a sentiment that was clearly communicated time and time again. P22 reflected on treatment of family members and how that impacted work practice when working in the Medicare reimbursement space at a profitable independent pharmacy: "*The common question in my head is like, what if this was your grandmother, it's really messed up*," (P22). This was also reflected by a pharmacist in a large corporate setting: "*No matter what you say, there's a human involved, right?... You just want to take care of the patient*" (P4).

There exists a genuine care and concern for patients and their families, and a connection with the community pharmacists live in. When pharmacists see "red flags" or patients who are at high risk of adverse reactions to medications, or drug/drug interactions between medications the patients have been prescribed, they make their best efforts to address those concerns. The "holy

trinity" was brought up by several participants and was an instant "red flag" that would trigger a review of that patient's medications. The holy trinity was described as an opioid, anxiety medication, and a muscle relaxant, usually prescribed to older adults with pain and insomnia. The holy trinity is difficult to address with patients because they often become dependent on it as noted by P8: "*Holy Trinity, you see it, that's a major red flag and we try our best to work with prescribers to kind of wean them {patients} off*."

In California, pharmacists can prescribe Narcan to rescue in case of overdose, without having to consult with a prescriber, limiting an avenue of communication, but saving time and potentially life. A pharmacist at a large corporate pharmacy sees it quite often and confronts prescribers and patients:

> *Why is your patient on fentanyl and morphine, that doesn't make sense. 'Well, patient has extreme back pain.' I'm like, Well, look, I mean, you're overdosing the patient. Right? So at least prescribe them Narcan, and the doctor doesn't want to prescribe it. I'm not going to sell you this drug without buying the Narcan. And I'll physically be standing there and make sure they buy it*. (P1)

Pharmacists are advocates for their patients and are there to ensure safe use of medication including over-the-counter products. This is recognized by a pharmacist who teaches university pharmacy students the "*importance of what people are grabbing for over-the-counters while they're actually also buying their prescriptions*," (P19). This concern sparked a student pharmacy intern to create a notification system within the pharmacy with a simple sticker solution and the pharmacist professor explained the story:

> *So one of my students asked the independent that she was doing a rotation at, could I redo the pharmacy? Can I put all the high-risk medicines inside of the pharmacist area, so that anything that could be an issue is kind of more noticeable? You can see who's grabbing what. Can I tag these with a colored sticker? So, no matter where they go to bring it up, whether you see it or not, someone can see this colored sticker and say, 'Hey, this is really important. You know, this isn't the safest over-the-counter drug.' The sticker means that you might want to speak to the pharmacist here before you actually take it. And it worked. The pharmacists there loved it*. (P19)

This creative approach was implemented as invoking responsibility to protect patients, creating a collaborative approach to care.

If a patient has a concern that has not been addressed, pharmacists may take personal interest and action to quickly follow up with prescribers: "*I would immediately call that doctor and be like, they complained about this and I'd question them*" (P12). There is also the tracking of patient progress as conducted by a hospital pharmacist: "*Think of after care because the outpatient setting, you're following them, you're following how this medication is working*," (P4).

Pharmacists also understand the complexities of medications and try to communicate that like an example a pharmacist at a large corporate pharmacy provided:

> *I got into the doctor's office telling them that these medications when taken together, the blood thinner would not work. And the doctor's office called back representative contact, aka nurse or whoever it was and they said 'oh the doctor is aware and is fine with it.' I'm like the medication is not gonna work. The blood thinners don't work. We have alternatives for the medication to choose from the same class that does not interact and does not impact it.* (P5)

Pharmacists complete rigorous doctoral degrees; all have to be licensed to practice pharmacy in the state they are employed. They are well-educated and skilled professionals. They are in a constant state of questioning and research as relayed by P8:

> *When we get a prescription we have no idea sometimes about their diagnosis, their history. When was this medication started, was it a long time ago? We notice the patient is on this medication and this medication? Is this part of their treatment plan or are we tapering one off starting another? We're always just questioning, facilitating this conversation to see what is the treatment plan.*

Pharmacists are willing to transfer that knowledge to patients in an educational way, especially when it's related to a specific disease state as mentioned by a clinical pharmacist: "*We did a lot of teaching. You know, we did a lot a lot of things that went along with it. And I think that's beneficial to the patient*" (P3). P4 describes patient interactions and education as: "*We're gonna*

go over everything. And that's what pharmacists do." Pharmacists research information to provide the best possible option for a patient, although they can only recommend options and that can become challenging as noted by P5:

> "*It was like a big achievement when they actually heard us and it took a lot of research and a large amount of time to produce that research, and nothing was being done and that hurts. And just because you're looking out for the patient, you know, what's better, 100% there's going to be a side effect or there's going to be errors. And the doctors like, 'well it's ok,'(in reference to research supporting the switch of a medication that would reduce the risk of blood clots but increase the risk of acid reflux)*.

Obtaining provider status could be a pathway toward more explicit responsibility. There is discussion as well as differing opinions in my sample about obtaining provider status. For example, P2 stated: "*There are certain groups of pharmacists who are very advanced thinking they want to practice to their fullest, but I certainly think that's a minority. I don't think that's the majority of pharmacists*." This point of view was echoed by P20: "*Not every pharmacist wants provider status. I've spoken with a couple of my friends about this topic. Some of them, are like, 'yes, we are doctors,' and others are like, 'that's more work, is what it is*.'" Others felt there was interest: "*I feel like every pharmacist should have the opportunity in every stage of opportunity. To go beyond just filling medication in a bag*" (P1).

There is recognition that pharmacists' education and training exceed that of other types of healthcare providers and should be recognized and rewarded. A clinical pharmacist shared:

> *I think it's a great opportunity. I think if the pharmacists are trained these days, to know all that and they're the experts on prescribing medication, at least they should be, and I feel that they should be able to do that {independently prescribe or stop medication}. I know that other health care providers like nurse practitioners and physician's assistants don't have anywhere near that background, yet they can prescribe. I think pharmacists should be able to do it too* (P3).

Pharmacists' Perceptions of Prescribers' Responsibility

Participants were questioned about who they believed had the most responsibility in terms of patient healthcare outcomes and medication treatment management. Pharmacists often

felt prescribers were responsible for patient healthcare outcomes. Prescribers had the most visibility and responsibility for patients, with pharmacists playing a lesser role. One hospital pharmacist described the prescribers' ownership of the responsibility this way:

> *I think the physician at the end of the day, because as pharmacists, yes, we are specialized in medications. We're supposed to be the medication specialist, but at the end of the day, the physician is the one doing their blood work. The physician is the one diagnosing them with their disorder with their chronic disease and they're the ones prescribing the medication. So as pharmacists, there's only so much we could do. That's their responsibility. That's their patient*. (P9)

Another hospital pharmacist also clearly relied heavily on the prescriber for overall responsibility stating: "*I feel like they have a huge responsibility…they're going to do a diagnosis, and they're going to prescribe a medication. So they have to be pretty confident*" (P21).

Pharmacists also recognized prescribers may be unwilling to adjust other prescribers' treatment decisions, regardless of whether it made sense for the patient. This created concern for a pharmacist who had experience in elder care who said:

> *I used to be consulted in group homes, they're on four different laxatives and nobody wants to stop what the old doctor prescribed because it wasn't their order, even though they're prescribing something that works almost identically. You know, there's a lot of doctors who don't want to touch what the other doctor started type of thing also*. (P18)

This leaves pharmacists at an impasse, as they only recommend deprescribing, but without prescribers' approval, pharmacists cannot intervene.

Pharmacists' Perceptions of Patients' Responsibility

Patients were recognized by pharmacists as needing to have at least some accountability for their own care as mentioned by a pharmacist at a managed care organization: "*One of the biggest problems today is, patients feel like doctors and pharmacists are responsible to take care of them. No, they're responsible for taking care of themselves. We're responsible for being available to help them do that*" (P13).

Pharmacists felt that patients were apathetic about their healthcare. One hospital pharmacist was frustrated with patients and said: "*I'm blaming the patient more than anything, because I think everyone should be more curious about what am I putting in my body...I think patients have to be more accountable*" (P22).

Shifting responsibility to the pharmacist and prescriber was related to a lack of patient awareness and education. A hospital staff pharmacist said: "*I feel like there's a big responsibility for the pharmacist, the patient you know, I'm sure has some responsibility but isn't as knowledgeable as you know, the pharmacists and also the doctor or pharmacist*" (P21).

Different responsibilities developed across stakeholders in healthcare, but in terms of the patient a pharmacist's feeling was:

> *The doctor and the pharmacist aren't going to be at home. They're {patients are} responsible for being adherent. They're {patients are} responsible for managing their lifestyle choices. And it's part of our {pharmacists and prescribers} responsibility just as much as making clinical recommendations is also just professionally supporting the patients, so they have confidence in what they're doing*. (P13)

Balanced Responsibility

Many pharmacists expressed how all stakeholders have responsibility when it comes to patient care, including deprescribing efforts, as noted by P8:

> *I think all of them have an important role. I think all of them are equally important, because you need to have the patient involved in their health plan. You need the prescriber to be aware of the patient's condition, even if it's multiple conditions and you need to have the pharmacist always the final check in between those two*.

Teamwork and communication are critical due to the shared roles and responsibilities of each party as noted by a community pharmacist working at a university:

> *We have to work together with the prescriber of those medications. So that's the part of the plan and implement is we have to implement not just with the patient, but we have to implement with the prescriber and make sure that the person it's a triangle, the prescriber, the pharmacist and the patient all working together for that plan*. (P11)

"Pharmacists' Perceptions of Responsibility" Summary

Participants were asked about the balance between the prescriber, the pharmacist, and the patient as a triangle and asked whether any one of the points of the triangle had more responsibility for healthcare outcomes. Most indicated all parties were important and had equal weight in responsibility. Some participants pointed the finger at the patient as having more responsibility. Some participants point the finger at the prescribers. All participants vehemently agreed pharmacists carry a tremendous amount of responsibility for patient safety. It is the primary focus for everyone they treat. They work with a high ethical obligation and moral code. Pharmacists recognize their own responsibility in the care of patients but are not aligned when it comes to who has overall responsibility when it comes to issues with polypharmacy and deprescribing initiatives. In certain cases, pharmacists feel responsible for all medication-related decisions, in others, they defer to prescribers. Patients were recognized as not having enough education or information to support their own healthcare goals, but also chastised for relying too heavily on others for their care.

Results revealed how prescribers, pharmacists, and patients each have responsibility to work together to improve overall patient health. Prescribers must provide transparency of the diagnosis and treatment plan for the patient, pharmacists must ensure safe and effective treatment is being provided, and the patient needs to understand and follow the directions of the treatment(s) and maintain open communication with prescribers and pharmacists so treatment adjustments can be made to optimize outcomes aligned with patient healthcare goals. Pharmacists have a responsibility to keep patients on appropriate medications and discontinue inappropriate medications, but they cannot assess or implement deprescribing initiatives when stakeholders are not upholding their respective responsibilities.

Pharmacists' Understanding of Polypharmacy & Deprescribing

An important, emergent discovery of this research was the differing definitions pharmacists held of both polypharmacy and deprescribing. Each interview began with a question of what the pharmacist believed about polypharmacy and deprescribing. The codes were identified simply as "polypharmacy definition" and "deprescribing definition." The results of the research questions ranged widely as the understanding of the terminology was completely different with each participant. Table 12 identifies the data structure for the aggregate dimension of "Pharmacists' Understanding of Polypharmacy & Deprescribing."

Table 12

Data Structure of Pharmacists' Understanding of Polypharmacy & Deprescribing

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
Pharmacists' Understanding of Polypharmacy & Deprescribing Participant descriptions and perceptions of polypharmacy and deprescribing.	Polypharmacy Definitions	Pharmacists' definition of polypharmacy	"Different services provided but I'm not sure." (P17) "I would say patients are on more than six or so medications"(P3) "Patients taking multiple medications for different disease states or the same one" (P12) "Agents that are prescribed that may be of questionable benefit, especially when prescribed by multiple practitioners and they're not coordinated properly" (P6) "I say five, prescription or non-prescription. {This} encompasses everything because everything counts, whether it's a supplement, an herbal vitamin, whatever, OTCs anything. And anything and everything counts." (P19)
		Pharmacists' definition of overprescribing	"They did send some medication I recommended along with all their medication. Like it's okay to keep both." (P5) "You have doctors over prescribing drugs beyond FDA limits that are taking high cost medicines and making them extremely high cost medicine" (P18) "We definitely need to put bigger emphasis on how we're going to do this instead of just keep throwing medications people" (P6)
	Deprescribing Definitions	Pharmacists' definitions and knowledge of deprescribing	"I know a little bit about it, but I'm not an expert." (P8) "{The term deprescribing} is not something that I really use and I looked it up." (P21)
		Different definitions/ descriptions of deprescribing	"The most common reason for deprescribing is patient complaints about side effects; they think it's not working. They want to try something else. They're just not feeling well after starting something." (P12) "Deprescribing could be totally stopping the medicine so discontinuing the medication, it can also be you know, a slow taper to get them to the lowest effective dose for that particular person" (P11) "The withdrawal from medication or perhaps the tapering of medications" (P16)

The dimension "Pharmacists' Understanding of Polypharmacy & Deprescribing" identifies the feedback received from participants regarding interpretations or definitions of the terms polypharmacy and deprescribing. Polypharmacy and deprescribing are often cited in the literature, with deprescribing gaining global interest due to its potential cost-savings, improvement in patient healthcare outcomes, and increased patient satisfaction, the pillars of the Triple Aim Framework of healthcare.

Polypharmacy Definitions

Every pharmacist interviewed had a different definition of polypharmacy. While the literature defines polypharmacy, the definitions relayed by 22 participants were different almost every single time and many pharmacists did not use the term or were unfamiliar with it. One pharmacist said: "*I'm not super familiar with that term*" (P9). As mentioned previously, polypharmacy is defined as the simultaneous use of multiple prescriptions (usually more than five) by a single person (Nyborg, 2012; Slabaugh, 2010; Zarowitz, 2005). Those that were familiar with the term had different definitions from the accepted definition in the literature including a hospital pharmacist who said: "*You visit multiple physicians or you visit multiple pharmacies*" (P11). This was a common description and was sparked by the opioid epidemic as addicts often pharmacy shop to obtain prescriptions. "*Polypharmacy are the patients that in general are complicated, with multiple disease states, individuals that are typically confused about their meds*" (P14) which, while a good answer, is not quite correct, especially for this pharmacist who specialized in geriatric care.

The cause of polypharmacy in some cases is due to overprescribing, which was often mentioned by study participants. Pharmacy is a for-profit business in the U.S., and this was reflected in many conversations. A pharmacist in a large corporate pharmacy in Nevada was

concerned about the number of vaccines being marketed to elderly patients in the same visit and said the pharmacy coached pharmacists to: "*Push, push more vaccines, if somebody's coming in for a flu shot, try to push them to get the COVID and the RSV and the shingles*" (P9).

I was a willing participant influenced by this type of campaign in California and participated in the multiple vaccine campaign to receive the COVID 19 booster and the flu shot on the same visit, as recommended. A third vaccine for shingles was offered on the same visit but I declined at the time. One participant mentioned a new term to replace polypharmacy and said: "*I think poly pharmacy is a bad term actually, I think it should be called poly prescribing because the pharmacists are not causing the problem*" (P18).

This is also reflected in the risk of prescription cascades, when a patient receives a medication, has unpleasant side effects, is prescribed another medication for those side effects, has more side effects which are managed with more medication, and so on.

Not all pharmacists had the same experience with the phenomenon of overprescribing and believed it fell on the patients. P3, who is self-employed as a clinical hemophilia specialty pharmacist, stated:

> I don't think there is a lot of overprescribing, but it depends on the patient. I think a lot of them feel like a medication and another medication, that's the solution to my problem. Instead of maybe trying other aspects, whether they're supplements or changes in lifestyle…they feel like they're going to the doctor that does this problem and they're paying money for it, and they need a prescription for something.

Deprescribing Definitions

Deprescribing was not a term that many participants had heard of or used, but they were able to define it based on inference. The reason for this may be because of a lack of incentive to address polypharmacy. However, much of the role of pharmacists is tied to patient safety, which requires monitoring of medication therapy for disease treatment. Pharmacists are highly attuned

to patient safety, and often recommend deprescribing for inappropriate medications. Deprescribing is an action all pharmacists recommend during their time as pharmacists, whether they describe it as such or not. In the hospital setting, without using the term deprescribing one pharmacist said: "*I'd say the closest going into this is like in the hospital setting is basically duplicate therapy, where they're ordering meds, and you're like, hey, they're already on an anticoagulant*" (P21).

Duplication of therapy was often mentioned and something that pharmacists were highly attuned to look for and seek alternatives to. A pharmacist employed by a managed care organization saw the financial angle as well and said: "*I'm bringing this to their {prescribers'} attention and trying to get them to discontinue duplicate therapies to both reduce side effects and save money*" (P18).

"Pharmacists' Understanding of Polypharmacy & Deprescribing" Summary

While pharmacists interviewed were not aligned in their definition of either polypharmacy or deprescribing, they were consistent in their recognition of the phenomenon of overprescribing, or "poly prescribing" as one participant stated. Participants were aware of duplication of therapy and the overprescription of medications. All participants were actively engaged in discussing the terminology and were aware of the issues with polypharmacy and the potential for deprescribing inappropriate medications. The lack of alignment and understanding of the terms polypharmacy and deprescribing causes concern and is likely a barrier to their ability to recommend deprescribing. This is not to say they are not familiar with the phenomenon or sufficiently competent in contributing towards appropriate deprescribing recommendations. Yet, if pharmacists do not use these recognized terms, or they use terms based on different definitions and meanings, they are not speaking the same language and may not notice or

recognize the potential consequences of polypharmacy and need for deprescribing of inappropriate medications. Without consistent terminology, efforts to reduce unnecessary medications may be misunderstood and receive push-back from prescribers and patients.

Pharmacists' Perceptions of Breakdowns in the Healthcare System

The U.S. healthcare system is complex and challenging with many stakeholders and systems within systems. Some systems are open, and some systems are closed. There are many definitions of open systems, but most align with the idea of organized elements or parts that are interconnected in patterns that create certain behaviors (Chuang & Howley, 2019). The four principles are that a system is more than the sum of its parts, many of the interconnections in systems operate through information flow, the system's purpose is less visible yet often a crucial determinant of the system's behavior, and system structure is the source of behavior revealed through events over time (Chuang & Howley, 2019). In the eyes of pharmacists, there appear to be areas of breakdown throughout the healthcare system. Codes that made up the final aggregate dimension "Pharmacists' Perceptions of Breakdowns in the Healthcare System" included work environment, transparency, patient setting, stress, corporate policy, metrics, patient knowledge, patient education, value-based care, and streamlined healthcare. Table 13 identifies the data structure for the aggregate dimension of "Pharmacists' Perceptions of Breakdowns in the Healthcare System."

INSERT TABLE 13 ABOUT HERE

The aggregated dimension "Pharmacists' Perceptions of Breakdowns in the Healthcare System" expresses the issues and opportunities associated with the systems and processes in place within the healthcare system overall, as well as within pharmacy practice. Systems and processes in large corporate pharmacy chains differ from those in the small, independent

pharmacies. Hospitals have specific systems and processes, and insurance providers have their systems and processes for reimbursement of prescriptions. MCOs have their own systems and processes and are open within their own system but closed to other systems. No specific systems or processes are related to deprescribing, except when defined as those recommended by CMS in the form of MTM reviews once annually.

Interconnections Through Flow of Information

The lack of transparency into overall patient health statuses is a challenge for pharmacists. They often do not have visibility into the complete information related to a patient. A comprehensive detailed record is crucial for pharmacists' understanding of why certain decisions were made, yet this is not within the normal healthcare system and processes of most pharmacies. Visibility and transparency are critical for pharmacists to effectively do their job. A pharmacist at a large corporate pharmacy described the need for information as follows:

> *This information is very helpful because it helps us look at the whole history we can see certain trends - has this patient been on this medication for so long? Is there an increase, decrease in dosage, stuff like that, but it's still missing certain stuff. For example, you have patient pain medications, all of a sudden we're adding a different medication or something like that. But we're not able to see the clinical information that went into making that decision*. (P8)

Having a closed integrated system with transparency across functions could reduce risk of errors and provide information for an elevated level of individualized care.

Integrated healthcare organizations (commonly known as MCOs) allow for transparency and management of patient records and refer to their patients as members. Pharmacists at an integrated healthcare organization are part of an overall healthcare team and are rated as part of the positive or negative health outcomes and service experiences of their patient members. P4 spoke excitedly of a MCO as: "*In {managed care organization}, all the prescribers can see who this patient saw, what meds they're on, because it's a centralized system*."

This is more of a closed system of healthcare, where all the providers work together, information is integrated, and positive and negative outcomes are shared across teams. Members' ratings are crucial for certain integrated healthcare organizations. The ratings members provide help to identify gaps in services provided, facilitate teamwork amongst service providers, and highlight satisfaction with services. Members influence ratings of service providers with negative ratings potentially impacting overall employment within the MCO. The idea of the closed system of healthcare was consistently touted by P4, who worked in the hospital setting and was often lacking complete patient data. The drawback with the MCO from P4's perspective was that the hospital was not part of the closed system, so if a patient came in and "unfortunately, I don't cover your medications because you're your own entity." This meant P4 could not offer services to members of that MCO who arrived in that hospital.

Patients as a Critical Link

Patients often do not take the initiative in their care or lack a feeling of responsibility for their health. This theme is reflected in the interviews with pharmacists as they indicated a great deal of responsibility should be on the patients while at the same time acknowledging their lack of education. This can create challenges for patients: "*If you're not trying to learn about, or you're not trying to get engaged, then it's going to be a little difficult*" (P4).

When patients take the initiative to go to the doctor, they often are looking for a prescription as a solution to their problem as noted by a clinical pharmacist: "*They {patients} feel like they're going to the doctor that does this problem and they're paying money for it, and they need a prescription for something*" (P3). This situation as described by P3 contributes to overprescribing and polypharmacy.

Patients are not always well-educated about their health or how to prevent disease. There is a feeling of always going straight to medication rather than looking for alternatives: "*Instead of maybe trying other aspects, whether they're supplements or changes in lifestyle or, you know, some other type of thing*" (P3).

Patients are not always aware of drug/drug interactions and the potential dangers of certain addictive medications and sometimes present with feelings of resentment toward the pharmacist for suggesting a change. This was expressed by a pharmacist working at a large corporate pharmacy: "*If we recognize certain risks and we try to do some of the deprescribing or lowering amount or tapering off or suggesting back to the doctor, even if the doctor agrees, sometimes we get a little bit of resentment from the patient themselves*" (P8).

Lack of patient education continued to be mentioned:

> *I do have patients that take what they're prescribed, but if you're not educated, then that does take away a lot of it because it's almost like when I'm trying to ask {treatment questions}, they're not involved at all. That is one of the biggest barriers, you know, just education*. (P4)

Trying to counsel patients and provide information is challenging because there is little ownership, responsibility, process, or system regularly communicating that information.

Perceptions of Problems and Solutions of Roles, Systems, and Structure

The U.S. healthcare system presents many complexities for all parties involved. The pharmacy system focused on filling as many prescriptions as possible was of concern for patient safety. Working in a large corporate pharmacy, a pharmacist said: "*I feel like as long as we have adequate staffing in a community setting, we could do a lot more and even make it a more relaxed environment. And on top of that the most important is better safety*" (P8).

Attempts to manage deprescribing practices within the current system often fail, due to systems in place: "*Even though we've stopped something there, they're starting up again, often*

because of the health systems that are in place" (P19), in reference to multiple prescribers for one patient. The larger corporate chain pharmacies seemed to be the most problematic as reiterated by another pharmacist at a corporate pharmacy: "*I don't think that the chains should expect their pharmacists to work with one technician and be able to do all the things that are extra*" (P14). Processes in place were not one-size-fits-all solutions and pharmacists were sometimes left questioning decisions: "*It depends on the population, and I didn't think that certain things that the company came out with, worked for everybody*" (P4).

Pharmacists in smaller independent settings were able to offer more controlled, individualized care as noted by P17 whose pharmacy had a limited clientele and specialized in compounding medications: "*Our product, it's just personalized medication. For that reason, it's not that difficult.*"

Making changes to the current processes within the system by providing healthcare provider status to all pharmacists was not seen as a solution to the coming issues associated with the silver tsunami. When discussing provider status with P11, they said: "*I don't think provider status is going to solve the problem to be honest with you. I don't think it will. I think we just need to work better on the system, the process and the system*." The system, not the status of the pharmacist, was seen as the key to supporting patients more effectively.

Certain organizational environments encouraged collaboration and communication between stakeholders, while others did not. A community hospital pharmacist said:

> {*If}* *you are in an inpatient research hospital. Yeah, you're gonna have more training and the facility is going to have that culture of collaboration. I think that's part of it. But, you know, on the other spectrum is your busy retail store that's doing hundreds of prescriptions a day. I mean, that's not going to be the right venue for this {recommending deprescribing of potentially inappropriate medications}* (P6).

A pharmacist at a managed care organization supported that idea and said:

> *There's multiple roles for different pharmacists, depending on what our shift is. Or what we're more trained in, but the prescriber and pharmacists have a collaborative agreement where for certain disease states, they'll be like 'Okay, you guys can handle the management, deprescribing, all that stuff based on these guidelines for all these patients*. (P12)

MCOs were mentioned as a location for more collaboration across functions. One pharmacist was envious of the open system within a locally known MCO and said:

> *I wish I was able to have a database like {MCO} because then I can be able to look at you and say, oh, you know what, let me communicate with your doctor because this is a centralized system. Let me communicate with a why they just changed you from a 20-milligram cholesterol medication to 40*. (P4)

"Pharmacists' Perceptions of Breakdowns in the Healthcare System" Summary

Pharmacists employed within the U.S. healthcare system are subject to numerous systems and processes. Many systems they are engaged with are not interconnected, making transparency of patient information virtually impossible. Integrated systems can exist, and do for certain medications such as scheduled narcotics, so the lack of visibility into other patient data seems unnecessary. Somewhere along the line, privacy was relaxed for patient safety when it comes to narcotics. Each participant had access to patient data if narcotics were prescribed.

Patients' lack of education and unwillingness to make lifestyle adjustments to improve overall health presents challenges within the overall system of healthcare. Supplanting healthy choices with additional medication often leads to polypharmacy and prescription cascades. The systems and processes are inconsistent across settings, and oftentimes set in place without acknowledging the need for individualized care.

Pharmacists interviewed showed concern for broad brush policies that were not ideal for all patients and concern for patient safety was again at the forefront of their consciousness. Trying to recommend deprescribing initiatives without transparency of patient health information is a challenging, if not a useless practice. Patients' lack of education and apathy toward lifestyle

changes additionally hamper pharmacists' efforts to recommend deprescribing. There were certain structures and technologies mentioned as successful in bridging gaps and creating more collaborative work settings. With the existence of certain integrated systems, deprescribing can occur, such as with the CURES database.

An Integrative Framework of Barriers and Facilitators to Recommending Deprescribing

From the seven aggregate dimensions, I developed an integrative framework of the barriers and facilitators to pharmacists being able to appropriately recommend deprescribing for patients experiencing polypharmacy. To provide an overview of the identified challenges which exist in many facets of pharmacy practice, this research revealed the difficulty pharmacists experience in communicating with prescribers and patients, lack of adequate time to be effective in pharmacy practice, lack of respect for pharmacists from stakeholders, perceived inadequate compensation for services, various definitions of polypharmacy and deprescribing, and general chaos in the work environment not allowing for effective collaboration amongst stakeholders. Communication is often restricted or limited, due to time constraints or lack of transparency to crucial patient health information. Time constraints prevent pharmacists from practicing at their highest level of skill and education, limiting positive healthcare outcomes and potentially putting patient lives at risk. Lack of respect for pharmacists and their role from stakeholders make them less frequently sought out for their expertise. Lack of respect is self-actualized as pharmacists do not refer to themselves as doctor, though their education and degree says otherwise. Services through knowledge transfer are not financially compensated and filling and dispensing comprises most financial compensation for pharmacists in the retail setting. Definitions of polypharmacy and deprescribing varied amongst the participants interviewed and therefore pharmacists are not aligned in their perception of these issues. If pharmacists do not use the same terminology when

discussing the issues of polypharmacy and deprescribing, they may not be aligned in achieving the same goals. Lack of consensus may lead to unpreparedness for the coming silver tsunami. Systems and processes are not aligned across siloed healthcare organizations and functions.

From these many difficulties and challenges, I developed opportunities for shifting focus to facilitators which can enhance pharmacists' opportunities and capabilities to engage in deprescribing recommendations. I first present an overview of this in Table 14, which identifies each dimension and the barriers or facilitators that exist within each dimension. Then I develop how the seven initial aggregate dimensions can be consolidated and integrated into a framework of how pharmacists may be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy.

INSERT TABLE 14 ABOUT HERE

Barriers and facilitators to pharmacists' recommending deprescribing initiatives to patients and/or prescribers were categorized across all dimensions researched and analyzed. The *a priori* codes used in this qualitative research of communication, time, trust, and compensation were evident in the data collected via my research study interviews with pharmacists. These were existing dimensions from extant literature and emerged from data analysis. In addition to the *a priori* codes mentioned, novel dimensions evolved from the data analysis. The three novel dimensions uncovered via this research are "Pharmacists' Perceptions of Responsibility," "Pharmacists' Understanding of Polypharmacy & Deprescribing," and "Pharmacists' Perceptions of Breakdowns in the Healthcare System." Pharmacists felt an overwhelming sense of responsibility for patient safety, which was always mentioned passionately as their core role in healthcare. Pharmacists interviewed were asked to provide their definition of the terms

polypharmacy and deprescribing, and all had different responses to the terminology. Pharmacists believe that the current systems and processes in place do not allow them to effectively analyze patient records to determine the need for deprescribing, let alone recommend deprescribing initiatives to prescribers and patients.

Pursuant to the coding and analysis, trends started to emerge across dimensions. The descriptions within each category for facilitators and barriers were analyzed for existence as both barriers and facilitators, and occurrence across different dimensions. Most codes acted as both facilitators and barriers to recommending deprescribing and were integrated across dimensions. Table 15 highlights the data that emerged as a framework of how pharmacists may be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy. The extent to which pharmacists can meaningfully relate with stakeholders, based on the dimensions of time and communication, was impactful across dimensions. Transparency of patient information via electronic health records across systems was a consistent theme that also crossed dimensions. Finally, clarifying roles and responsibilities across stakeholders evolved as an important factor that would increase pharmacists' visibility as important healthcare providers that offer more than just filling and dispensing services to patients and prescribers. In addition, this factor highlights the need for patients to understand their healthcare goals and outcomes through education and transparent communication

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INSERT TABLE 15 ABOUT HERE

Table 15 provides detailed descriptions of how pharmacists may be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy. Pharmacists communicated the need for the ability to meaningfully relate with stakeholders. This need to relate meaningfully was challenged due to difficulty with communication related to time constraints, language and cultural barriers, socioeconomic factors, and education levels. When these factors were managed, such as having an interpreter for direct communication with a foreign language speaking patient, meaningful discussion could take place, and success in medication treatment management occurred.

Pharmacists lacked complete transparency into patient health information effectively blinding them to important information and preventing them from being able to effectively analyze a patient holistically, limiting their ability to offer appropriate counseling and medication recommendations. Systems in place work against pharmacists who want to practice at their highest level of education and skill, because they are essentially blinded to complete patient data when they are not part of a specific closed system such as a managed care organization, where all records are shared across healthcare workers, and patients are cared for by a team.

A lack of clarity around roles and responsibilities across stakeholders prevents pharmacists from being relied upon as important healthcare providers capable of more than filling and dispensing services. Pharmacists are experts in medication, with education at the doctoral level required, yet they are not federally recognized as healthcare providers, preventing them from acting with decisive power in medication management. Pharmacists are often seen in

filling and dispensing roles, and do not refer to themselves as ‘doctor’ which may give the impression they are not as skilled or valuable in terms of practicing healthcare for patients.

Patients often accept treatments without questioning why or for what reason they are taking them and, after a certain number of medications, keeping track of treatments becomes difficult. This can increase the risk of interactions, ineffectiveness, and hospitalization (Wolf et al., 2011). In this study, patients were highlighted as responsible parties with a need to take control of their own healthcare by educating themselves on their conditions and treatments, and to question their status quo to receive care that aligns with their personal healthcare goals.

Summary

My research question (i.e., “*How can pharmacists in the U.S. be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy?”*) examined the lived experiences of pharmacists in making deprescribing recommendations. Opportunities exist to facilitate pharmacists to be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy. When pharmacists have the time to build meaningful relationships with stakeholders, those open and transparent channels of communication enable pharmacists to engage in effective communications highlighting their level of skill and education in medication treatment management. Integrated systems across stakeholders create an environment of transparency, enabling pharmacists the ability to make appropriate assessments and recommend deprescribing of potentially inappropriate medications to support the needs of patients with polypharmacy. Pharmacists are motivated by their tremendous amount of perceived responsibility for patient safety, and believe physicians and patients share additional responsibilities for success in maximizing patient treatment goals.

CHAPTER 5: DISCUSSION

Overview

This research began with a desire to understand the barriers and facilitators to pharmacists' willingness and ability to recommend deprescribing of potentially inappropriate medications to patients with polypharmacy. Deprescribing initiatives to reduce potentially inappropriate medications can improve patient satisfaction, improve healthcare outcomes, and manage costs for patients with polypharmacy. Evidence supports the deprescribing of potentially inappropriate medications to address the goals of the Triple Aim Framework, yet there is still no consensus on who is responsible for addressing the issue of overprescribing, and how to communicate deprescribing initiatives in an effective manner. The role of pharmacists is still uncertain in deprescribing potentially inappropriate medications and is generally marginalized across the healthcare ecosystem. While extant quantitative research showed existing barriers and facilitators to pharmacists' willingness and ability to recommend deprescribing, this qualitative research study sought to improve understanding of barriers and facilitators and potentially uncover emergent theory. This study developed additional theory, through cross-dimensional data analysis that informed broader understanding of pharmacists' willingness and ability to recommend deprescribing of potentially inappropriate medications.

To develop such an approach, I conducted a phenomenological study to understand pharmacists' perceptions about polypharmacy and the perceived facilitators and barriers to deprescribing initiatives based on their direct experience in the workplace setting. I conducted interviews with 22 pharmacists practicing in different settings related to pharmacotherapy and collected observational and archival data. By way of overview, I found seven critical aggregated dimensions related to barriers and facilitators to pharmacists' recommending deprescribing. Integrating across these aggregated dimensions, I developed an integrative framework of how

pharmacists may be better equipped, empowered, and motivated to recommend deprescribing potentially inappropriate medications for patients with polypharmacy. This framework highlights the importance of developing meaningful relationships between pharmacists and other stakeholders, transparency of health information across systems and stakeholders, and clarification of roles and responsibilities.

Implications for Advancing Theory

This qualitative, inductive, exploratory research study focused on the experiences of pharmacists, how the process of deprescribing unfolds, and the barriers and facilitators pharmacists face when recommending deprescribing. Phenomenological research allowed me to identify the essence of pharmacists' experiences with deprescribing. While extant research tends to engage in quantitative studies of the barriers and facilitators to pharmacists' recommendations of deprescribing, their survey data did not delve into why pharmacists chose their answers. Understandings of how and why these factors impacted pharmacists' ability to recommend deprescribing are essential to understanding how to rectify these challenges and make progress towards realizing opportunities. My research and analysis highlight the tremendous passion (and frustration) pharmacists feel for their role and the efforts made to protect patients.

These findings contribute novel, additional understanding that informs the explanation of the barriers and facilitators that enable pharmacists to recommend deprescribing. The research indicates participants were familiar with appropriate polypharmacy but also with the detrimental effects of polypharmacy and the volume of health risks faced by the vulnerable aging population. Deprescribing as a process was discussed along with the tools used for assessing polypharmacy and identifying potentially inappropriate medications. Roles and responsibilities were an area of discussion that shed light on the different perspectives of pharmacists based on the role within

their employment organization and their experiences with deprescribing in different organizations. In addition, the Triple Aim Framework drove much of my interest in researching the barriers and facilitators to pharmacists' recommending deprescribing. Open systems theory was researched to determine the potential impact of changes in boundaries for pharmacists and other healthcare stakeholders within the open system of U.S. healthcare.

A Novel Integrated Framework of Barriers and Facilitators to Recommending Deprescribing

This research study extends and synthesizes extant theory within an incredibly complex healthcare system to add understanding to the existing barriers and facilitators to pharmacists' recommendations for deprescribing potentially inappropriate medications. Preliminary evidence suggests certain patterns exist depending on the organizational setting or occupational structure. Noted patterns were visible between different roles of pharmacists interviewed for this research study. The integrated framework developed based on the cross-dimensional barriers and facilitators to recommend deprescribing highlights three new pillars: the extent to which pharmacists can meaningfully relate with stakeholders, transparency of patient information via electronic health records across systems and clarifying roles and responsibilities across stakeholders. These novel dimensions enhance the explanation of what barriers and facilitators exist that enable or prevent pharmacists from recommending deprescribing initiatives.

Building Meaningful Relationships with Stakeholders

Pharmacists in this study recognized the need for strong professional relationships with prescribers, and closer, more personal relationships with patients to improve patient health outcomes. Pharmacists tend to be responsible for initiating the relationship with a prescriber because they rely on the relationship more than the prescriber does, requiring action on the part of the pharmacist (Mercer et al., 2020). Pharmacists have been encouraged to develop strong

collaborations with prescribers yet have expressed difficulty in developing interprofessional working relationships (Mercer et al., 2020). A lack of significant data around how relationships influence how and when pharmacists communicate with prescribers makes it difficult to determine the extent to which pharmacists can meaningfully relate with prescribers.

Communication theory is complex, and communication among stakeholders in healthcare varies considerably, as do the communication abilities of each of the stakeholders. Communication is not only the transmission of messages, but also the understanding of the message transmitted, but that is only one of many interpretations of the term communication (Dainton & Zelley, 2022). Pharmacists must consider different types of communication, including interpersonal, intercultural, persuasion, strategic, group, and organizational, to be effective in recommending deprescribing to different healthcare stakeholders.

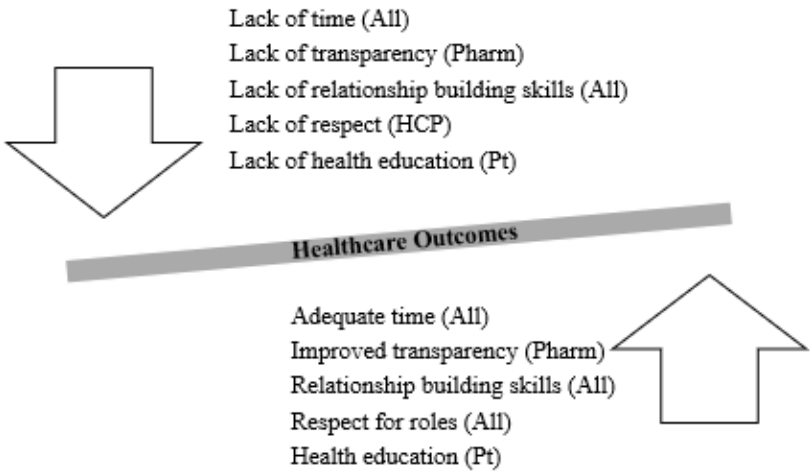
Trust is an important component in building meaningful relationships with stakeholders and is required for effective communication between pharmacists and prescribers. Shaping trust between pharmacists and prescribers requires availability, affability, acknowledgement, respect, and interpersonal chemistry (Gregory & Austin, 2021). Differences in how trust is perceived by pharmacists and prescribers creates tension in the healthcare continuum. Pharmacists tend to confer trust to prescribers based on title, degree, status, and positional authority (Gregory & Austin, 2021). Prescribers do not confer trust to pharmacists as a profession but transfer trust to pharmacists they have established relationships with, based on pharmacists' competency and performance (Gregory & Austin, 2021; Mercer et al., 2020).

Relationships between pharmacists, prescribers, and patients are challenged by time constraints, transparency of health information, relationship building skills, levels of respect,

knowledge of healthcare. Figure 8 offers a simplified graphic of the challenges across the integrated framework between stakeholders.

Figure 8

Challenges Across the Integrated Framework for Pharmacists Recommending Deprescribing



All: Pharmacist, Prescriber (HCP), Patient
Pharm: Pharmacist
HCP: Healthcare Provider/Prescriber
Pt: Patient

Lack of time and transparency limit the ability to develop meaningful relationships across stakeholders. A lack of relationship building skills and a lack of respect for the pharmacy profession limit the value pharmacists can provide. Conversely, when pharmacists have adequate time and improved transparency, their ability to contribute meaningfully is increased. Those with proficiency in relationship building skills increase respect for the role of pharmacists, supporting transparency and knowledge-sharing amongst professionals. Patients often lack basic health education or live and work in norms that do not support interactions with pharmacists.

The Theory of Goal Attainment (TGA) is a theoretical model assessed by Sabater-Galindo et al. (2016) for successful community pharmacist-patient relationship building. The TGA takes into consideration attaining patients' health outcomes and ways to improve

relationships between pharmacists and patients in the community setting by focusing on how perceptions influence behavior, social interaction, and health (Sabater-Galindo et al., 2016). The TGA relies on open systems to enhance relationships on a personal level and consequently, attain patients' healthcare goals. Relationships between pharmacists and patients are heavily influenced by individual patient characteristics, such as marital status, health issues, the volume of medications prescribed, and the type of pharmacy dispensing the medication (Adekunle et al., 2023). The 2021 National Consumer Survey on Medication Experience and Pharmacists' Role collected data from 1521 patients and indicated a strong relationship was built when patients visited smaller independent pharmacies and pharmacies associated with clinics, allowing for time to communicate and potentially change patient behaviors and perceptions, as compared to larger corporate pharmacies (Adekunle et al., 2023). The findings from this study support the findings of Sabater-Galindo et al. (2016) in advocating that elevating the professional image of community pharmacists away from a view of pill dispensers and more toward service provision would likely influence the behavior of patients by changing outdated perceptions. This study also provides evidence that this shift in perceptions would translate into communication and other interpersonal and occupational improvements that could effectuate the ability to recommend deprescribing when appropriate.

Once an improvement in perception of the pharmacist professional role is developed, supporting pharmacist-patient relationships through the Trans-Theoretical Model of intentional behavior change would allow pharmacists to play a more active role in patient care. The Trans-Theoretical Model would be implemented in five stages: 1) pre-contemplation in which pharmacists encourage modification of a negative habit without expecting success; 2) contemplation which occurs when patients contemplate possibly changing the negative habit

with a pharmacist offering a plan to address change; 3) preparation which occurs when a patient accepts a decisions for change and a pharmacist helps build an action plan and set goals; 4) action in which the patient implements change with support and the establishment of a permanent relationship with the pharmacist; and 5) maintenance where the pharmacist continues in a supportive role providing encouragement and positive feedback to the patient (Ilardo & Speciale, 2020). Pharmacists supporting patients throughout a medication therapy treatment offer an environment more conducive to conversations about health and ask questions regarding health conditions that can later be shared with other healthcare professionals (Ilardo & Speciale, 2020).

Pharmacists actively assess for improper drug selection, subtherapeutic dosage, overdosage, adverse drug reactions, and drug interactions on a regular basis. Pharmacists believe building successful relationships is critically important in all aspects of their work environment, and especially deprescribing recommendations. An important aspect of this study's findings is the different experiences of pharmacists in larger corporate organizational environments as compared to smaller independent organizations. Pharmacists working in large corporate pharmacies have little time to communicate with stakeholders, making relationship-building challenging. Pharmacists employed at smaller independent pharmacies have more time and often closer relationships with patients allowing for greater trust and transparency into patient healthcare goals, but there are grave concerns about business sustainability under the constant pressure of the PBMs and regulatory bodies regarding prescription drug costs and compounding rules. Hospital pharmacists have more visibility into acute patient care, work collaboratively with prescribers on staff, and provide follow-up consultations for patients' post-treatment assessments. These developments offer an opportunity to extend theories from applied social sciences in how practitioners can increase and intensify training in cross-collaboration

communication as part of pharmacy education, as building meaningful relationships requires communication and trust-building skills of pharmacists to engage successfully with prescribers and patients to improve health outcomes for patients.

Transparency of Patient Information Via Electronic Health Records

Transparency is a vague but widely used term that refers to disclosure of information as "a key to better governance" (Valentinov et al., 2019, p. 289). Transparency implies the exchange of information as a dimension of an open systems model (Valentinov et al., 2019). Participants were clear that transparency of patient information via electronic health records across systems as well as through personal interaction with patients was lacking and that hampered the ability of pharmacists to assess patients' medication treatment plans accurately. Healthcare services depend on interactions between the patient and the process of producing and delivering healthcare, which includes the management and distribution of medications (Tien & Goldschmidt-Clermont, 2009). Organizations can be thought of as open systems and transparency as an "informational exchange between an organization and its stakeholders" (Valentinov et al., 2019, p. 290). Within U.S. healthcare, the need for transparency results from the impact of the system on public health (Valentinov et al., 2019). Transparency comes with costs as it requires time, effort, and funding, as well as the potential implementation of "transparency-making devices, which bring about some visibility, calculability, and comparability" (Valentinov et al., 2019, p. 289). U.S. information infrastructure is among the nation's weakest links, creating risk of sabotage and invasion of privacy (Acharya et al., 2023; Tien & Goldschmidt-Clermont, 2009; Wilson, 2014).

When full transparency is implemented in healthcare, it could change the way prescribers provide and disclose information, potentially reducing efficiency in practice (Erlingsdóttir et al.,

2019). The concern is that prescribers will reconsider how they write prescriptions and describe conditions to prevent potential liability, limiting the holistic view of the patient to those beyond the scope of the prescriber. Complete transparency is not always the answer and can become problematic, and therefore something between no transparency and full transparency should be considered (Erlingsdóttir et al., 2019).

Pharmacists cannot practice at their highest level of education and skill and are ineffective without transparency into patient health information. A lack of secure, integrated systems across U.S. healthcare creates barriers to effective transmission of information to support collaboration among stakeholders.

Clarifying Roles and Responsibilities

Pharmacists are well situated to influence patient outcomes from drug therapy due to their point of contact with the patient prior to release of medication. Do pharmacists believe they are responsible for drug therapy outcomes? Planas et al. (2005) suggested pharmacists do not feel responsible, nor can they be responsible, for drug therapy problems due to limitations of their occupation and restrictions from an organizational perspective. Without partnership and transparent communication across systems and processes, pharmacists cannot be responsible for patient's drug therapy outcomes. This study revealed how lack of partnership amongst stakeholders and lack of transparency of health information limits pharmacists' ability to ensure patients experience desired outcomes from drug therapy while minimizing and avoiding illness or adverse effects of drug therapy. Pharmacists are not able to assess patients for untreated indications, cannot always control access to drugs, and do not have consistent visibility into indications.

The role of pharmacists is intrinsically tied to the nature of pharmacy as an occupation, which pharmacists enter with specific occupational and career orientations, namely, a preference to use and develop specialist occupational skills and competencies and secondly, helping others through a service or cause (Rodrigues et al., 2013). This was certainly reflected in the data from my research where pharmacists conveyed passion toward their care and safety of patients. Rodrigues et al. (2013) framed career preferences as rooted in a wider social and family context while also adapting to individual work and life circumstances. Given the current state of pharmacy practice in the U.S., where the largest employers are seeing walkouts from disgruntled and burned-out pharmacists, this research contributes to understanding of how and why this occupation seems to be experiencing turmoil.

Another aspect of occupational change for the pharmacist role is the creep of automation. Technology has been embraced by pharmacists to support a reduction of mundane and repetitive tasks and to allow for more direct interaction with patients (Barrett et al., 2012). This could be an important way to optimize the facilitator of communication with patients and other stakeholders. While robots have yet to be seamlessly integrated into pharmacy practice, rather than reducing time pressure and facilitating more time for communication and relationship building, pharmacists in my study were responsible for the robot loading and maintenance, which further reduced the time available to spend with patients directly while creating additional task-related duties for pharmacists.

Open Systems and the Triple Aim Framework

U.S. healthcare is an open system, and systems thinking identified where the challenges and opportunities exist for pharmacists recommending deprescribing initiatives. Systems thinking helps to "1) explore problems from a systems perspective; 2) show potentials of

solutions that work across sub-systems; 3) promote dynamic networks of diverse stakeholders; 4) inspire learning; and 5) foster more system-wide planning, evaluation, and research," (De Savigny, 2009, p. 20). Within healthcare, the system functions with knowledge-intensive agents or components that work together to create healthcare value (Tien & Goldschmidt-Clermont, 2009). The healthcare system is a complex integration of human-centered activities dependent on information technology (Tien & Goldschmidt-Clermont, 2009).

Pharmacists exist as knowledge-intensive agents within the system of healthcare who attempt to work with patients and prescribers to deliver healthcare value via the input of counseling services and filling and dispensing of medication. This research revealed how the view of pharmacists at a potentially lower level within the hierarchy of healthcare limits them as an effective input and output of services to prescribers and patients. To become more highly valued as knowledge-intensive agents within the open system of healthcare, pharmacists must build relationships that enhance trust. This will improve their ability to act as inputs and resources for other stakeholders in healthcare.

As previously noted in Chapter 2, there are four dimensions within healthcare systems that require integration to reduce problems that occur because of subsystem complications: physical, temporal, organizational, and functional (Tokoro, 2010). For the physical dimension, the degree of co-location with clinicians is important as pharmacists working as part of a team have greater visibility and more direct influence on patient medication treatment management. The degree of co-location with patients is also important. Pharmacists are visited almost twice as often as primary care providers and are particularly important for those patients living in rural areas (Berenbrok et al., 2022). The temporal dimension of pharmacy practice is related to timing of procedures, distributions, and expectations. The data expressed pharmacists lack time to meet

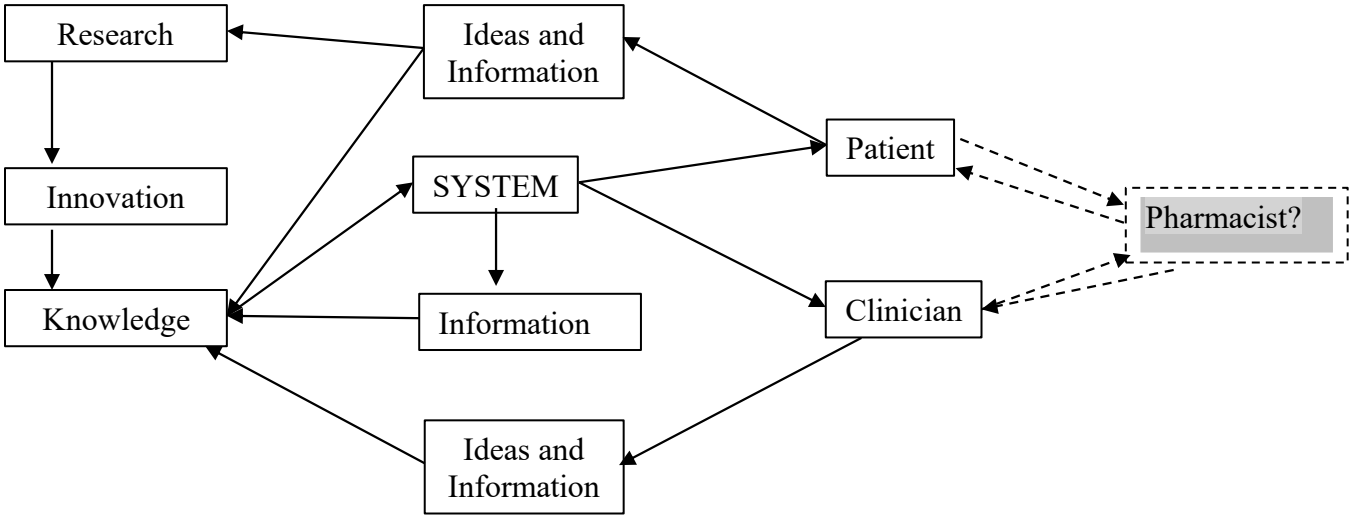
occupational requirements and expectations due to the financial incentives of filling and dispensing medications. When pharmacists have adequate time to work at their highest level of skill, their ability to contribute meaningfully to patient care is increased. The organizational dimension refers to people, processes, supplies, and centralization efforts. In the settings where pharmacists are more integrated into the healthcare team such as hospitals, clinics, or managed care organizations, pharmacists may feel more empowered to make deprescribing recommendations due to greater integration into an open system of information. From the functional perspective large corporate pharmacies and small independents often lack the technology integration from external systems to assist them in making complete medication treatment assessments for patients with polypharmacy hinders the ability to recommend deprescribing.

The information technology required to enable community-level pharmacists to effectively assess patients for deprescribing efforts is described as a multiphasic, multilevel input/output mechanism that is interdependent with its environment and at the individual job level as well as the subunit and organization levels (Rousseau, 1979). Figure 9 provides a graphic example of an open system in healthcare.

Figure 9

Open System of Healthcare

(adapted from Gray, 2017)



The example in Figure 9 shows the patient and the clinician (prescriber) on the right side of the graphic. Pharmacists work within the system of healthcare but are limited by the information inputs required for them to provide their service output of deprescribing recommendations to patients with polypharmacy. The lack of transparency that pharmacists have as agents outside of integrated healthcare systems or collaborative agreements creates a gap in service delivery of pharmacists. Pharmacists must also be included in the graphic as a separate agent attempting to service patients and clinicians with pharmacotherapy, including recommending deprescribing initiatives. Bottlenecks occur at the human service provider level and, to accelerate and provide exceptional care, human service providers require information technology in support of systems co-management and patient-centered care (Tokoro, 2010). The lack of integration into the healthcare system prevents pharmacists from effectively practicing at the highest level of education, skills, and service, including recommending deprescribing

initiatives to patients with polypharmacy including PIMs. Pharmacists as healthcare system insiders must continue to raise their voices and act as agents of change. To influence the status quo and call attention to inconsistencies and negative practices that reduce their ability to be effective in their quest for improved healthcare outcomes for patients, they must advocate for themselves as experts in medication therapy for patients. This advocacy will create space for new cultural views and practices which may develop into resources that can generate new institutional norms and values in continued support of patients' healthcare goals.

The Triple Aim Framework drove this research with the goals of improving patient outcomes, managing healthcare costs, and increasing patient satisfaction. The Triple Aim was originally designed to be used as a strategic principle to guide improvements at organizational or local levels (Mery et al., 2017). This distinction is what sets the Triple Aim Framework apart from other frameworks or initiatives. However, this research unveiled how pharmacists who are excluded from collaborative practice agreements or integrated managed care organizations are not practicing in open systems that allow for a holistic approach to patient care. This prevents them from recommending deprescribing initiatives. Pharmacists require transparency to effectively assess patients holistically, creating an impasse of availability of information when pharmacists and prescribers work in siloed organizations within fragmented systems.

This continues to be the state of the healthcare ecosystem as noted by Randy Hyun, Chief Executive Officer at CarepathRx, a company leading capabilities in infusion, specialty pharmacy, telepharmacy, and technology to support health systems, hospitals, and pharmacies across the U.S. Randy Hyun was a panelist at Pepperdine University's "The Future of Healthcare" Symposium held February 29, 2024. There is an active attempt to create a "closed loop around the patient experience" at Houston Methodist Hospital, where patient care is

managed from birth to end of life care, including insurance coverage and all health-related services providing a transparent view of the patient within the system (Hyun, 2024). The missing component is the integration of pharmacists within this potentially closed loop system and that is a serious gap in service to patients (Hyun, 2024).

Summary

The novel integrated framework presented highlights the barriers and facilitators pharmacists face when recommending deprescribing initiatives. While integrated systems such as hospitals, clinics, and managed care organizations offer more collaboration for pharmacists, challenges remain for pharmacists in building meaningful relationships with stakeholders. The systems and processes in place restricting adequate transparency of patient health information, as well as the lack of occupational structure facilitating or rewarding time spent communicating with patients, limit the ability of pharmacists to assess patients efficiently and effectively. The lack of general recognition and understanding of the education and skills pharmacists have limits their ability to maximize their impact in the healthcare ecosystem, including offering recommendations for deprescribing initiatives.

U.S. healthcare has multitudes of systems within systems and subsystems. The Triple Aim Framework of healthcare is well-adopted in many systems as a driver for positive healthcare outcomes but was not intended to support large systems such as national healthcare. Yet optimistically, when pharmacists are included and valued as part of clinical healthcare teams, evidence clearly supports enhanced health outcomes for patients. This opportunity is thwarted by the current industry context in which most pharmacists in the U.S. are employed (large corporate pharmacies) and are thus limited to the systems and processes of their occupational structure in those environments, directing them to more task-related activities as opposed to medication

assessments and pharmacotherapy counseling, and spending time to meaningfully connect with patients. When medication therapy management is implemented, pharmacists are limited by a lack of complete transparency as patients utilizing pharmacists outside of integrated healthcare systems have a reduced amount of interaction with pharmacists.

Implications for Business Practice

This study suggests practical implications that could meaningfully support pharmacists in the pursuit of deprescribing recommendations for patients with polypharmacy including potentially inappropriate medications. Building on relationships between pharmacists and stakeholders, allowing for transparency of complete patient healthcare information, and clarity around roles and responsibilities of pharmacists are areas that need to be addressed for patients' medication treatment plans to be adequately assessed by pharmacists and appropriate recommendations made.

Pharmacists Must be Supported in Building Meaningful Relationships with Stakeholders

The ability to relate with stakeholders in a meaningful way was an important factor for pharmacists to feel comfortable in recommending deprescribing initiatives. The need for meaningful relationships was exemplified across pharmacist roles. Pharmacist participants were passionate about protecting patients from potential harm from treatment with medications. When meaningful relationships can be created, pharmacists are able to communicate more freely and transparently with patients and assess potential medication issues more effectively. This in turn allows pharmacists to practice at their highest level of skill and education, by communicating safe medication practices for patients. In addition, the tapering or elimination of unnecessary medications has proven benefits from health and cost perspectives.

Pharmacists employed at large corporate pharmacies as well as small independents are challenged with excessive task-oriented duties and profits based on product sales that prevent them from investing time in addressing excessive polypharmacy in patients. Until shifts in both organizational culture and talent and labor processes occur to compensate pharmacists at reasonable rates for their knowledge transfer and service contributions, deprescribing initiatives will not be prioritized, except for patients who request an assessment directly.

Pharmacists often work in high-stress, task-oriented environments, limiting the amount of time available to fully focus on time-consuming medication therapy management reviews or complete medication reviews for patients with polypharmacy. Pharmacists are often focused on dispensing activities, frequently interrupted, with little time for counseling. Time affects patients as well, and the demand for fast delivery increasingly limits the oversight of medication dispensing (Dauod, 2018). To support pharmacists with these time constraints, additional staffing funded and provided by corporate pharmacies, and the use of trained technicians to help eliminate some of the administrative burden on pharmacists frees time to allow pharmacists to practice at their highest level of skill and education. Professional judgement from pharmacists is not needed to collect medication and health histories from patients; that information can be documented by technicians, along with chart construction, filing of information and other documentation steps necessary to complete thorough medication therapy reviews for patients (Powers & Bright, 2008).

A need exists to create an environment where pharmacists feel comfortable in recommending deprescribing initiatives for patients with polypharmacy including potentially inappropriate medications. Pharmacies often exist as siloed entities within the overall healthcare system, especially when speaking of large corporate and small independent pharmacies.

Pharmacies have their own systems, processes, and patterns in place. An online survey conducted with 1,006 U.S. adult participants noted certain trends in U.S. healthcare (Rebelo, 2022). The survey notes that Americans feel strongly that pharmacists have a great deal of responsibility for informing patients about the safety and efficacy of the medications being prescribed, and they are concerned possible interactions are not being identified. Results of the survey also highlighted the interest in personalized care and pharmacogenomic testing, stating that 82% of Americans would be willing to participate in testing if it would result in safer or more effective prescription medications. This indicates patients are willing to work with pharmacists in primary healthcare roles and are interested in technological advances in pharmacy practice if it means avoiding wasted spending on ineffective or unnecessary medications.

To build meaningful relationships with patients, pharmacists must have visibility into patients' needs and overall healthcare goals. Pharmacists interviewed wanted to have discussions with patients but were often hampered by a lack of time for direct communication. Pharmacists with an understanding of patients' overall health and treatment goals can tailor their recommendations in alignment with those goals. Having adequate time for communication creates an environment for the open dialogue needed for information transparency and to accommodate different cultural and socioeconomic factors, allowing for trust to be built between pharmacists and stakeholders. Improved staffing conditions and transfer of task-oriented and administrative roles to trained technicians would free time for pharmacists working in heavy task-oriented settings. Providing adequate time for discussions and consultations would benefit all healthcare stakeholders.

Meaningful relationships are critical across professional levels. For change in systems and processes to be effective pharmacists must build relationships with prescribers and their

staff. Collaborative agreements can assist in improving relationships to support patient healthcare goals. Although evidence suggests collaborative practice agreements support patient healthcare goals, they are difficult to achieve due to difficulty in communication across systems and knowledge sharing, as well as a lack of mutual respect between stakeholders (Gittell et al., 2012, Hepp et al., 2015, McNaughton et al., 2021). Personal relationship building amongst professionals is critical otherwise the collaboration fails to improve organizational change and learning (Steenkamer et al., 2020).

Building collaborative practice agreements between corporate pharmacies, hospitals, and clinics across communities would allow for cross-functional teams and improvement in the overall care process and some examples of this exist with contracted hospital pharmacies. Corporate pharmacies could host brown bag appointments, meet and greets, and local events to introduce pharmacists to local providers to help develop working relationships among pharmacist staff and medical staff across a community. Improvements would include closed loop treatment of patients with hospital care, primary care, and pharmacy.

Pharmacists Need Transparency of Information Across Systems

The lack of consensus amongst pharmacists regarding the understanding and use of the terms deprescribing and polypharmacy was an interesting finding. Pharmacists were not aligned in their perception of these issues. Even though not every participant knew the exact definitions per se, they could figure out what the terms meant easily, and they all had experience with the phenomenon. Pharmacists deal with polypharmacy and deprescribing daily yet do not necessarily use the terms polypharmacy and deprescribing. If pharmacists do not use consistent terminology when discussing the issues of polypharmacy and deprescribing, they may not be aligned in achieving the same goals. Lack of consensus may lead to unpreparedness for the coming silver

tsunami. Since the growing elderly population is vulnerable to polypharmacy including PIMs, it would be beneficial for students of pharmacy to be very clearly educated on these terms and their consistent use in practice. Having a specialized course as a required portion of education and training specific to polypharmacy, deprescribing initiatives, tools used in deprescribing, and how deprescribing is being implemented on a global scale would increase the visibility of the issue of polypharmacy including PIMs and the importance of monitoring, assessment, and initiative in addressing the negative consequences of polypharmacy including PIMs. In addition, the criteria and tools used for reference to address deprescribing for those with polypharmacy including PIMs should refer to deprescribing and polypharmacy including PIMs as part of the criteria and tools, to reinforce use of the terminology.

To make appropriate assessments for patients with polypharmacy, pharmacists must have transparency across healthcare systems. Interconnections in the U.S. healthcare system operate through a flow of information that is fragmented. Pharmacies as siloed entities within the overall healthcare system have their own systems, processes, and patterns in place, but time limitations and lack of appropriate compensation do not allow for the ability to engage in additional services as part of their practice level of skill and education. While there is continued growing interest in systems thinking targeted toward healthcare, making even small changes within a process or system is difficult because even small changes may result in wasted resources, cause unintended harm, or affect some patients in an unfair manner (Lynn, 2007).

Transparency between prescribers, pharmacists, and patients is critical to create a flow of information between all stakeholders to optimize healthcare outcomes. A lack of transparency between pharmacies and other stakeholders exists due to a variety of reasons. In 1996, the Health Insurance Portability and Accountability Act (HIPAA) was enacted, and this law created federal

standards that protect patient personal information or identifiers from being disclosed without consent or knowledge (CDC, 2003). This has prevented stakeholders within the U.S. healthcare system from sharing information easily, as patient consent is required for each exchange with each stakeholder. In addition, there is no single database that contains a patient's complete information. If a patient is hospitalized, the attending physician cannot necessarily see the history of that patient's illnesses or treatments. The physician must rely on the information the patient provides. The patient may be released with medications to take at home, or to be filled at a pharmacy after release, and a pharmacist may or may not have access to that patient's complete medication history. HIPAA becomes problematic in this setting and pharmacists push back on the need for HIPAA because they require the information to do their job effectively and do not further share the information. Open systems within healthcare can reduce the number of silos and create greater communication across all stakeholders along the healthcare continuum. Consistent access to electronic healthcare records across groups creates more visibility into patients' needs. This allows for greater interconnections in the flow of information and allows decisions to be made more efficiently.

Systems thinking implementation would require more relief for pharmacists from filling and dispensing medications to facilitate greater communication with patients and prescribers. The technology exists to provide pharmacists with transparency about patient medications because there are systems in place for patients prescribed scheduled narcotics. In California, this is called the Controlled Substance Utilization Review and Evaluation System (CURES) report. This is a database of Schedule II, III, IV, and V controlled substance prescriptions. This report is accessible by pharmacists and was designed to reduce the abuse of prescription drugs and their diversion into the wrong hands without impacting legitimate healthcare practice. The information

is limited to pharmacists and licensed healthcare providers and other agencies may only access CURES when assisting in efforts to control diversion and abuse of controlled substances (State of California Department of Justice, 2023).

Changes in current systems and process must occur for pharmacists to have the ability to assess patients holistically, and recommend appropriate medication treatment, whether that includes recommending changing medications, tapering medications, or offering options for deprescribing. System and process barriers limit the ability of pharmacists to recommend deprescribing. Without synchronized and streamlined electronic medical records, transparency is lacking for accurate clinical assessment across all aspects of healthcare. State and federal laws prevent pharmacists from accessing patient records, ordering and/or interpreting patient test results (Adams & Weaver, 2019).

Pharmacists should be given access to all health information just as another healthcare provider would receive. Allowing pharmacists as a critical touchpoint to have information transparency allows for quicker assessment as more patients have access to a pharmacist than other healthcare providers. This may be in the form of electronic health record access across systems, or through collaborative practice agreements with clinics and hospitals. Transparency exists in other aspects of pharmacy patient care and treatment; expanding that transparency to overall patient healthcare records would alleviate many of the structural and process related issues that exist as part of recommending deprescribing initiatives.

Although electronic medical record systems exist, they are not synchronized or streamlined. While this would be challenging, creating transparency of clinical assessments across healthcare providers could potentially reduce the need for excessive phone calls and faxes to obtain information, and waiting times for information to become available. A secure medical

card with a comprehensive medical history, including all surgeries, medications, allergies, and other personal health data, synched with a phone application or other transferable data source, would benefit healthcare providers across healthcare systems. Creating cloud-based health records has been suggested in the extant literature, but implementation has been slow due to cost, privacy and security concerns.

Clarify Roles and Responsibilities of Pharmacists Across Stakeholders

When healthcare stakeholders are not aware of the roles each participant plays, an environment is created that enables overprescribing and prescribing potentially inappropriate medications. When clarifying the roles and responsibilities across stakeholders, participants were inconsistent in their beliefs regarding responsibility for deprescribing potentially inappropriate medications. This lack of clear ownership and responsibility creates a chaotic environment without the understanding that all parties need to work together to achieve the ultimate common goal: the health of the patient. Americans are looking for ways to reduce costs and manage expenses and often talk to their prescriber (56%) about alternate medications as opposed to their pharmacist (43%) and prefer to receive medications by mail if it means their costs will be lower (Rebelo, 2022).

Advanced clinical practice options exist for pharmacists to advance their clinical education through additional education and certifications. Programs are available for certification in fields of genetics and how the individual genome can impact response to medication. Other programs exist for focus on the management of chronic diseases with high rates of polypharmacy including hypertension, diabetes, hyperlipidemia, anticoagulation, depression, anxiety, and the safe use of medications in the geriatric population. Pharmacists can be trained to perform patient assessments, refer patients to specialized healthcare providers, participate in the evaluation and

management of diseases and health conditions in collaboration with other healthcare providers, and when a practice agreement is in place, pharmacists can initiate, adjust, and discontinue drug therapy when medically appropriate. Research into increasing the availability of these services in areas where populations are dense and access may be lacking, may further entice students into the pharmacy profession, and offer an expanded role in healthcare.

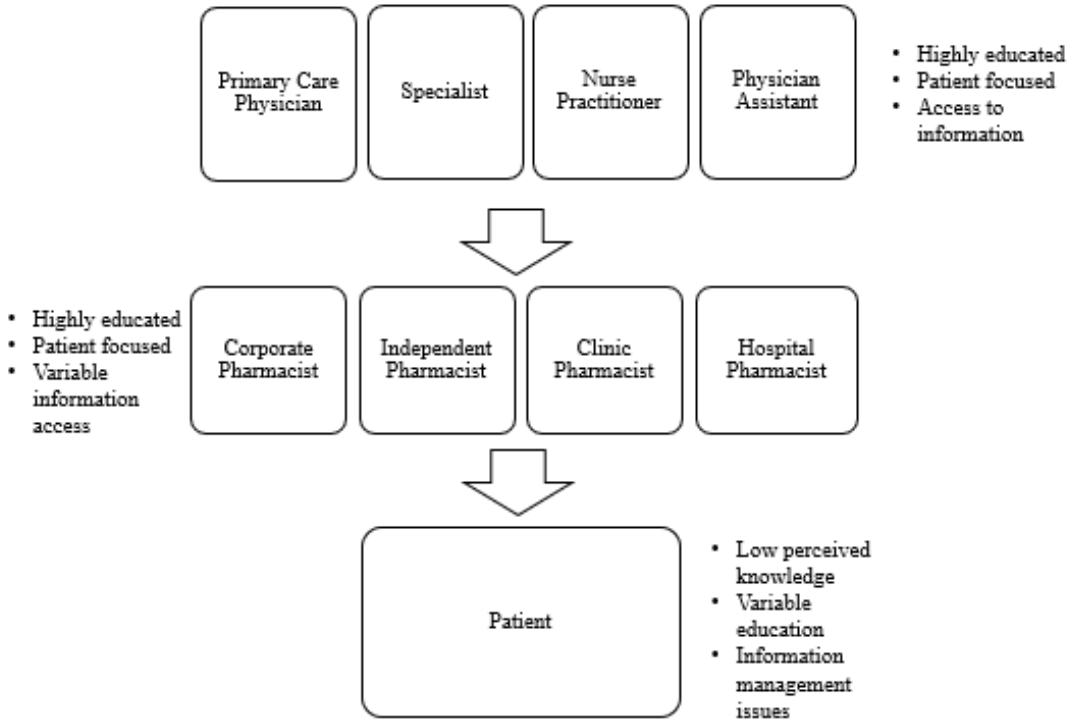
Evidence from this research demonstrates pharmacists have much more to offer than just dispensing medications. Pharmacists are experts in medication and have interest and ability to offer patients individualized counseling, which is more likely to happen when it is appropriately compensated for. Pharmacists play a crucial role in patient safety. Pharmacists are highly educated and skilled healthcare workers. The role of pharmacists in the U.S. is expanding and the ask of pharmacists is increasing with the creation of medical kiosks within large pharmacies and the federal authority given to pharmacists to administer vaccines. What has not occurred is an effort to fully integrate pharmacists into the healthcare ecosystem with equal pay commensurate for their services, inclusion in consistent collaboration amongst healthcare providers, and transparency across healthcare records with access provided to pharmacists for patients they are responsible for serving. Yet, societal trends are moving in the opposite direction. The American Medical Association (AMA) published an article rejecting legislation introduced in the U.S. House of Representatives that would allow pharmacists to test and treat patients for COVID-19, respiratory syncytial virus, influenza, and potential other illnesses if passed. It would also allow for Medicare to compensate for certain services provided by pharmacists (O'Reilly, 2023). The AMA has fought against pharmacists several other times in attempts to prevent what they term 'scope creep' they deem threatens patient safety.

Prescribers need to recognize the formal and critical role of pharmacists and allow for transparency and relationship building to build a more collaborative work environment, rather than an authoritative one. When prescribers and pharmacists work together in partnership, patients receive the best possible care. Studies show improvement in multiple health parameters when pharmacists and prescribers work in collaboration together to support patient health (Farland et al., 2013; Matzke et al., 2018). Studies into collaborative agreements between pharmacists and prescribers describe success when direct communication occurs and roles are clearly defined, often with the prescriber as the agreed upon final decision-maker (Liu & Doucette, 2011; Snyder et al., 2010).

As noted by Chuang and Howley (2018), the least obvious part of the system is often the most crucial part. In this context, I suggest that this least obvious and most crucial part of the healthcare system is the patient, for whom the system is presumably directed towards but is often neglected as an active participant. Empowered with information, patients must understand the need for medication counseling and take ownership of their healthcare goals and medication regimens, working in partnership with their prescribers and pharmacists to achieve those goals. Making appropriate decisions aligned with overall healthcare goals would require patients to educate themselves and seek answers. Figure 10 provides a graphic example of the multitude of inputs patients receive from healthcare system providers overall, especially those who are elderly and dealing with multiple chronic conditions.

Figure 10

Inputs to Patients from Healthcare Providers



Gaps within the flow of information are the amount of access to information the group at the top of the graphic has, compared to the group of pharmacists in the middle of the graph. Patients are being communicated to by all the groups listed above them in the graphic and can become overwhelmed and confused with the amount and types of information coming from different sources. It is critical for patients to ask questions, read the information provided to them, and become literate in their healthcare journey. If the information is too overwhelming, asking for help and support should not be turned down. Each healthcare provider is invested in providing healthcare to patients, and patients need to recognize their needs and express their healthcare goals to providers.

Healthcare in the U.S. is a business with high risks. The fear of malpractice lawsuits

increases costs for services and creates an environment where healthcare providers over-test, over-treat, over-refer and overmedicate their patients (Bielecki & Stocki, 2010). The belief that patients make the best decisions for their own healthcare when they are accurately informed (Spicer, 1994) sounds wonderful, but patients have very little choice in their care when it comes to providers or treatments as these are determined by their employers or insurance companies (Porter & Teisberg, 2004). By building relationships with all healthcare professionals involved in their care, patients can support the achievement of their healthcare goals.

Insurance companies and PBMs can analyze drug dispensing data and use that information to determine where certain populations exist with high levels of polypharmacy which would also flag areas with high rates of polypharmacy including PIMs. This creates opportunities for targeted research into the utilization of pharmacists for medication therapy management assessments and potential reduction in PIMs. Patients could also be targeted by insurance companies when prescription medication usage exceeds five prescriptions. Those with private health insurance could be reminded to speak to their pharmacist if questions or concerns arise with the number of medications being taken, to report adverse drug experiences, and to remind patients that their prescription medication needs may change over time.

The need exists for clarification of roles and responsibilities for pharmacists and other healthcare stakeholders. Preconceived perceptions of pharmacists and their roles within the healthcare continuum make it difficult to adequately assess and address patients with polypharmacy. Pharmacists are not federally recognized as healthcare providers, limiting their power and prestige within the healthcare industry. Recognizing pharmacists federally as healthcare providers would expand their ability to practice at their highest level of training and education while being compensated for their cognitive services. Patients already visit their

pharmacists more frequently, almost twice as often, as their physicians or other healthcare providers (Valliant et al., 2022). Community based pharmacists are already well-positioned to improve patient access to care, especially when healthcare provider designation allows pharmacists to be reimbursed for cognitive services, thereby increasing advanced and appropriate care services to patients. Disparate pharmacy associations should consider banding together to combine members and funds to support lobbying efforts in Congress. Healthcare provider status would offer relief to other overworked healthcare providers, may create opportunities for greater collaboration, and support goals of the Triple Aim Framework by managing costs, increasing patient satisfaction with care, and promoting positive healthcare outcomes.

One method to reshape the perception of the pharmacist occupation is through government or pharmacist association-sponsored Public Service Announcements (PSAs). Such announcements could communicate the roles pharmacists have along the healthcare continuum, educate the public on the extensive education and training that pharmacists must achieve to practice, and the various roles pharmacists can play throughout the healthcare ecosystem. This education would hopefully adjust the misconceptions about pharmacists' abilities and increase the level of respect and value they may bring. In addition, PSAs would be seen by pharmacists, hopefully giving them much needed recognition, fulfillment, and improved image management.

Government-sponsored PSAs communicating the need for more patient education and involvement in healthcare may support patient visits to pharmacists to ask questions and understand personal healthcare goals and outcomes, potentially reducing burden on primary care physicians and other primary care health providers. The Federal Omnibus Budget Reconciliation Act of 1990 (OBRA 90) states that pharmacists must conduct medication reviews whenever an outpatient prescription is dispensed to a Medicaid recipient (Hansen, 1994). Patient counseling

on medication use is legally only allowed by pharmacists, not pharmacy technicians. Each state pharmacy board determines the level of counseling a pharmacist should provide patients with medication dispensing.

Although large corporate pharmacy chains employ most pharmacists in the U.S., the use of technology is disintermediating filling and dispensing roles of pharmacists. Embracing technology to fill and dispense medication would free up the time needed for pharmacists to practice at their highest level of education and allow them to expand their level of healthcare influence, potentially contributing to greater patient satisfaction with care, better healthcare outcomes, and greater management of healthcare costs. Collaborative practice agreements with clinical practices would allow pharmacists in different structures and settings to work in partnership with other healthcare providers, freeing up time in task-oriented functions and allowing more focus on clinical services.

Value-based care models have been discussed as potential solutions for improving the role of pharmacists, but there is still much work to be done. The CVS Health report mentions a "sustainable retail pharmacy reimbursement model, to bring more transparency and simplicity to the system. Specifically, the new model, called CVS CostVantage™, will shift how the pharmacy is compensated by aligning reimbursement to the quality services provided and prescriptions dispensed," (CVS Health, 2024, p. 4). This is an example of a value-based care model. Value based care models align with the Triple Aim Framework of healthcare in improving patient healthcare outcomes, satisfaction with care, and management of costs. While this sounds intriguing, no explanation of what this means or how it will be implemented is provided. The measurements are still lacking for services pharmacists perform and their impact on healthcare factors. CVS Health also reported pharmacists' willingness and interest in

performing beyond filling and dispensing duties. Pharmacists surveyed mentioned high levels of interest in providing immunizations, education about diseases or health conditions, counseling about medications, providing specific heart-related health services, sharing cost information for prescription savings, and offering diagnostic tests for different illnesses (CVS Health, 2024). However, without integration into the healthcare system as healthcare providers with appropriate privileges and responsibilities, it will be difficult to implement effective change for pharmacists to feel valued in their role of medication experts responsible for patient safety.

Congress has yet to approve healthcare provider status for pharmacists. They should do so. Recognition of the capabilities and responsibilities of pharmacists is currently limited in scope, diminishing the opportunities to contribute their vast expertise, education, and talent to address some of our healthcare systems' greatest challenges. This will require focused coordination of existing pharmacy associations and tremendous additional effort to continue to consistently lobby for healthcare provider status for pharmacists.

Summary

Within the business scope of pharmacy practice, several changes must be made to the current systems and thinking to improve the opportunities for pharmacists to recommend deprescribing. Pharmacists must build meaningful relationships with healthcare stakeholders and require the time to do so. Increased administrative and technical staffing would support pharmacists bogged down with mundane task-oriented duties that limit their ability to provide thorough, comprehensive medication reviews for patients. Pharmacists require transparency of patient health information, and the technology exists to convey the information, but pharmacists must be given adequate provider status and access to the information. Patients play a crucial role in their own healthcare, but many lack healthcare literacy and have preconceived notions of the

roles of healthcare professionals. Providing education to the public about the role of pharmacists in healthcare and their education and skills may elevate the current perceptions of pharmacists. Table 16 illustrates a simplified outline of the many practical implications discussed throughout the section in support of pharmacists.

Table 16

Practical Implications in Support of Pharmacists Summary

Implication	How?	Who?
Support Meaningful Relationships	Reduce task-oriented duties and administrative burden by providing adequate staffing.	Corporate pharmacy employers increase staffing with certified technicians and technologies that reduce the administrative burden on pharmacists.
	Build collaborative practice agreements across pharmacies and clinics regardless of pharmacy size.	Pharmacies large and small can reach out to community clinics and establish relationships and agreements for record sharing and transparency.
	Create community outreach with brown-bag seminars, medication review training, Continuing Medical Education (CME) programs.	Corporate pharmacy employers increase community outreach with healthcare providers to build cross-functional team environments.
Transparency of Information	Allow federal healthcare provider status for pharmacists.	Assemblage of pharmacy associations to continue to advocate for healthcare provider status to be passed in Congress.
	Increase access and utilization of technology such as robot pharmacists supported by technicians.	Pharmacies, regardless of size, should invest in, and utilize, advanced technologies such as robot pharmacists, prescription vending machines, access to patient health information databases, and adherence packaging services (to improve adherence and control over multiple medications).
Clarify Roles and Responsibilities	Integrate pharmacists into the healthcare ecosystem with healthcare provider status to allow compensation for cognitive services.	Congress passes healthcare provider status to pharmacists trained to offer cognitive services to patients.
	Patients recognize the role and responsibility of pharmacists by receiving targeted messaging and education.	Government- and/or pharmacy association-sponsored PSAs dedicated to directing patients to pharmacists for appropriate services.
	Patients become educated on positive health and lifestyle goals and express their personal healthcare goals to healthcare providers.	Government sponsored PSAs dedicated to appropriate healthcare messages.
	Patients become educated on their medications.	Insurance companies, MCOs, pharmaceutical companies, and PBMs can provide notifications to patients with polypharmacy to speak with a pharmacist when patient prescriptions reach a certain number, include medications with high risk of ADRs, or better treatments become available.

Limitations

This qualitative semi-structured research design allowed me to capture the various perceptions pharmacists held about polypharmacy and deprescribing. The qualitative methods were appropriate for exploring and expanding on the topic of barriers and facilitators to deprescribing recommendations by pharmacists. This research study was conducted with a variety of pharmacists, not focused only on community pharmacists, split into two categories of large corporate such as CVS, and small independents, as originally intended. In addition, most pharmacists interviewed in this study were from California, the state with the highest mean salary for pharmacists. This makes the generalizability of the results difficult because the pharmacists were not a homogenous group with similar practices and rates of compensation, although the study population paralleled the current practices of pharmacists in the U.S. This reduced the number of like respondents, further limiting the sample size. Due to the difficulty in obtaining participants, different categories of pharmacy practice were included in the research such as clinical specialty pharmacists and hospital pharmacists. All pharmacists interviewed had at least minimum experience within large corporate and/or smaller independent pharmacies as part of their internships as pharmacists. No pharmacists from the Veterans Affairs Administration participated in this research.

Most participants were pharmacists practicing in the state of California, where pharmacy practice is highly regulated, yet offers more pharmacy services than most other states (Guglielmo & Sullivan, 2018). Interviews with primarily California-based pharmacists may bias the research toward those with the ability to offer more pharmacy services to patients than states in other parts of the U.S., also limiting the generalizability of the results. Twenty of the 22 interviews were conducted via Zoom, the remaining two interviews were face-to-face. Some of the

videoconferences were not video recorded, only audio was available for transcript purposes. This limited some of the visual cues and body language interpretations for some of the participants.

Recommendations for Future Research

Future research should include value-based care models' impact on patient healthcare outcomes and costs when pharmacists' services are part of the care model. Deprescribing initiatives are being implemented by pharmacy benefit managers (PBMs) to reduce polypharmacy and promote positive healthcare outcomes and manage costs for members. Data from these organizations should be shared externally to promote reduction of polypharmacy of potentially inappropriate medication use in support of the Triple Aim Framework across the healthcare ecosystem. Reduction in PIMs through deprescribing efforts should continue to be investigated in patients with different chronic diseases to determine the impact on the Triple Aim framework to manage costs, support patient satisfaction with healthcare, and improve overall healthcare outcomes. Pharmacists, as experts in medication, are critical in the discussion of the risks of polypharmacy, potentially inappropriate medication use, and benefits of medication therapy management.

Research of patient education and involvement is needed to support ownership and responsibility for patients' healthcare goals and outcomes. The lack of understanding and education of patients in their own healthcare creates a large gap in treatment, management of costs, and positive healthcare outcomes. Patients are at the core of their own healthcare. The distribution of PSAs is encouraged. Government funded PSAs designed to educate patients on the role of pharmacists and counseling of patients, direction to ask questions about personal healthcare, and education about healthcare goals would offer areas of education that pharmacists studied believed were lacking. Research into the impact of PSAs in small markets would

determine the value of different messaging for patients and the healthcare system overall. PSA messaging should be tested for pre- and post- increases or decreases in visits to pharmacists by patients, and the effect of visits in either increasing or decreasing open communication about healthcare goals or questions about medications.

The results of this study invite further discussion on investigating several opportunities for pharmacists and their greater integration into the healthcare ecosystem. Pharmacists offer additional healthcare accessibility to patients. The evolving nature of the pharmacist role and occupation are ripe for future research as well. Given the primarily inductive nature of this study's design, future research could test the prevalence of, or relationships amongst, the seven categories within the comprehensive framework developed here. Associations with desired outcomes – such as reduction of overprescribing or inappropriate polypharmacy, impact of pharmacist counseling on patient satisfaction with treatment, and value of pharmacist intervention at different levels of polypharmacy – could be tested quantitatively. Additional investigation into the benefits of consistent communication between patients and pharmacists regarding the quantity of medications being prescribed and the quality of the healthcare outcomes achieved for those patients may offer support for pharmacists' continued integration into an improved standard care of patients.

Conclusion

Polypharmacy continues to be a challenge for many, especially the vulnerable elderly population. The need for deprescribing potentially inappropriate medications exists, and there are opportunities to support patients' healthcare goals in a satisfactory way while managing costs by utilizing existing educated and skilled human talent that are being disintermediated by technology. The adoption of healthcare provider status for pharmacists could allow for more

relief for primary care providers, but such a change may be very slow in advancing. Pharmacy organizations continue to push for healthcare provider status, but such status has yet to be granted federally.

Healthcare provider status may mitigate some of the issues of transparency pharmacists face due to HIPAA regulations. The lack of transparency pharmacists face limits them from practicing at their highest level of skill and education, which could potentially include performing patient assessments, ordering and interpreting drug-therapy related tests, evaluating and managing health conditions in conjunction with other healthcare providers, and collaborating to support prescribers in the overburdened healthcare system.

It is an exciting time of change in pharmacy practice. Healthcare is a business in the U.S. and the care model is starting to shift to value-based care. Pharmacists play a critical role as important touchpoints along the patient healthcare continuum and must be included in the overall care process. Collaborative practice agreements and value-based care initiatives will continue to improve patient healthcare outcomes and manage healthcare costs by creating open lines of communication through transparency and interaction and determine metrics to measure success of care initiatives. Patient safety is at the core of the pharmacy profession and pharmacists continue to be passionate about their patients and their safety. Better support and compensation for pharmacists with a more expansive vision of how they can contribute to patient may allow for greater analysis of medication treatment plans and, when appropriate, the tapering and/or elimination of potentially inappropriate medication use.

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TABLES

Table 7

Data Structure of Pharmacists' Perceptions of Communication

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
Pharmacists' Perceptions of Communication Communication was coded based on perceived positive or negative verbal or written interactions between pharmacists and other stakeholders. Communications are perceived based on behaviors, type of language used, body language cues, and the intentions behind the cues as communicated to me by participants.	Pharmacist Communication with Stakeholders	Pharmacist communication style with patients	"How to reach them in a common-sense way and build this relationship a real relationship. So when you make a suggestion, they're hearing the suggestion, not someone telling them what to do." (P2) "I never tell the patient to stop. I tell him I recommend you stop." (P1) "The way the world is, you don't want to upset anyone anymore," (P22)
		Communication issues due to culture & language, socioeconomics of patients	"I don't want to do it sometimes, due to socioeconomic status {in terms of communicating options}" (P21) "You really have to know your patient population, cultural background, financial background, all that stuff," (P12) "You have to be mindful I think also of their educational experience. I dealt with a lot of lower income, less educated in many cases" (P2)
		Working with patients to create individualized care assessments linked to patient healthcare goals	"Patients definitely need to be educated. The more educated people are, the more invested they become and the more they can make better lifestyle choices for themselves, which may or may not involve them taking medication because that may not be the right choice for them," (P6) "What's motivating them? We use a lot of motivational interviewing techniques to identify what's important to them in their life. Some people are like, oh, I want to see my grandchild's baseball game, and so you have to frame it (healthcare outcomes) around the grandchild's baseball game," (P11)
		Having personal communication with patients	"I got to know people more and would talk to them and if they wanted to sit down for 10-15 minutes with me, I can definitely sit down and address their issues," (P6) "People have come in Monday morning feeling like shit and after something happened on the weekend; listening to them and seeing if I can solve their problem," (P2)
	Prescriber Communications with Pharmacists	Prescribers' communication style with pharmacists	"There are times when doctors are like 'you don't know what you're talking about'" (P1) "You get a lot of push-back from providers" (P6)

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
		Barriers to access to communicate with prescribers/ lack of communication from prescribers	"When you're trying to call hospitals. The thing is, you're calling into operator, and like when you call an operator, you're just trying to find out well, who's this doctor I want to like talk to this doctor and they're just like, well, I don't know" (P4) "They {prescribers} might be more knowledgeable in terms of just like the whole picture of what's going on with the patient," (P21)
	Patient Communications with Pharmacists	Patient understanding of what pharmacists are communicating	"If they don't understand what you're saying, and even when you're trying to ask them a question they don't understand at all like, what is the medication prescribed for" (P4) "You have to be mindful, I think, also of their educational experience," (P2) "{Patient} isn't as knowledgeable," (P21)
		Patient transparency and communication with prescribers	"Is the patient telling them (the provider)?" (P8) "She's taking all this stuff that she's heard about, and nobody knew. Not even a doctor," (P12)
		Patient addiction issues	"They start tapering them off but you know, with the opioids, anxiety, and those medications, usually they're less willing to do that. There's definitely categories of what patients are more willing to be deprescribed versus what they're not willing to let go of," (P8)
	Transparency of communicated patient health information	Access to patients' detailed health records	"There needs to be some universal medical health record data system or something where everything is in there," (P9) "We've had discussions about polypharmacy, and how a solution would be a more comprehensive medication record that different providers are able to access" (P16) "We're just able to see just a list of medications that are being added, but we don't know why" (P8)
		Benefits of transparency of patient information	"You know every time you call the doctor you are taking up their time as well to ask those questions, and it's taking up our time being on hold and stuff like that. If we had access for these questions, sometimes something simple that we need to clarify, it could be mentioned in their progress note, … it probably increases efficiency," (P8) "Those people {elderly Medicare patients}, I guess they would benefit the most because they have the most medication," (P12)
		Frustration with lack of patient understanding and lack of clarity around treatment	"I mean, some people didn't even know why am I taking this? What am I taking this for?" (P6) "Long as I'm not telling or giving information on anybody else," (P1)

Table 13

Data Structure of Pharmacists' Perceptions of Breakdowns in the Healthcare System

Aggregate Dimension	Secondary Code	Primary Code	Supportive Quotes
Pharmacists' Perceptions of **Breakdowns in the Healthcare System** System structure and processes is the source of system behavior, and system behavior reveals itself as a series of events over time.	Inter-connections through flow of information	Systems in place do not allow for complete transparency of patient health information	"In an ideal world we see labs, you know, and or blood pressure results or whatever it is. And then you see whether or not what you are taking or exposed to, is correct" (P1) "I think transparency across prescribers is critical. Unfortunately, in the US, we don't have a very good way of accessing health records." (P6) "We don't really have an integrated like health system. Where you can see everybody's medications from different pharmacies, different doctors." (P8) "There needs to be some universal medical health record data system" (P9)
	Patient as critical link throughout the healthcare system	Patients need to take more responsibility for their own healthcare	"One of the biggest problems today is, patients feel like doctors and pharmacists are responsible to take care of them. No, they're responsible for taking care of themselves. We're responsible for being available to help them do that," (P13) "It should be the patient that's in control of everything. That's how it should be," (P6)
		Patients lack adequate health education	"I think it's not fair to pin it all on the patients because not everyone is trained as a healthcare professional, and so they don't know what they don't know," (P11) "I feel like that makes it a big barrier to patients to view us as anything else than just like a worker in the pharmacy and not a real doctor." (P5)
	Perceptions of problems within the systems and processes of healthcare	Misalignment and confusion across systems, processes, and drivers of healthcare	"It's the balance of the physician, the patient, the pharmacist, and all of these things have to work together, really, in conjunction, to deal with the healthcare system, which is adversarial," (P2). "The community pharmacies out here have been so focused on filling as many prescriptions as possible and vaccinating, I mean, there's quotas for the flu season of how many vaccines" (P9) "Unfortunately, most of it {medication review and management} was adding on medications because it was insurance driven" (P22)
	Perceptions of problems and solutions of roles, systems, and structure	Collaboration /technology within certain systems/ settings supports patient healthcare goals and positive outcomes	"In those more specialized settings, I think, where they see that pharmacists add more value to managing medication than just dispensing" (P16) "There are things implemented to try to help the pharmacist and doctor and nurse, like a pop-up alert, to say, Hey, there's something else on the medication profile that's in the same class, which are about this and that is very helpful. So yeah, I'm assuming a lot of places had some sort of system like that, to help the pharmacist and the physician" (P21)

Table 14

Barriers and Facilitators to Pharmacists Recommending Deprescribing

Dimension	Barrier	Facilitator
Pharmacists' Perceptions of **Communication** *a priori*	• Time constraints prevent effective communication. • Lack of transparency prevents understanding of what to communicate to whom, when, and why. • Lack of access to directly communicate with a patient or prescriber. • Pharmacists' communication style isn't working with stakeholders. • Cultural/language differences prevent open discussion with patients to understand overall health goals.	• Adequate time for counseling and knowledge transfer. • Transparency allows for understanding to make appropriate and timely connections. • Pharmacists with access to patient/prescriber for direct communication. • Pharmacists with an effective communication style appropriate for the audience. • Cultural awareness and/or living in the community as a community member.
Pharmacists' Perceptions of **Time** *a priori*	• Pace/stress of pharmacy practice limits time available for medication analysis. • Lack of prioritization for recommending deprescribing of potentially inappropriate medications.	• Adequate time allowing pharmacists to provide thorough analysis, have access and communication with stakeholders. • Continued improvement in technology services to accommodate task-oriented roles such as pick and pack robotics. • Prioritization of patients with ≥5 prescription medications to facilitate those at greatest risk.
Pharmacists' Perceptions of **Trust** *a priori*	• Pharmacists' lack of impression management results in lack of respect for recommendations. • Pharmacists' lack of personal relationships in large corporate settings due to volume. • Lack of visibility into the role pharmacists play in healthcare.	• Impression management and self-efficacy. • Personal relationships with patients facilitate transparency into healthcare goals and outcomes. • Visibility as an important healthcare provider and a critical component of the overall healthcare system.
Pharmacists' Perceptions of **Compensation** *a priori*	• Lack of compensation for services such as patient counseling and knowledge transfer, rather than focus on product filling and dispensing. • Lack of adequate reimbursement for pharmacists' services rendered, even if same service provided by other healthcare providers.	• Compensation for services such as patient lifestyle counseling, medication education, and knowledge transfer. • Adequate reimbursement for services rendered, even if same service.

Dimension	Barrier	Facilitator
Pharmacists' Perceptions of **Responsibility** *Novel*	• Lack of visibility/transparency as an important healthcare provider. • Lack of Prescriber responsibility in analyzing and eliminating inappropriate medications. • Lack of Patient responsibility for their own education and overall healthcare.	• Do no harm/safety first is at forefront of pharmacists' consciousness. • Education and training of pharmacists makes them skilled healthcare professionals capable of recommending deprescribing and potentially prescribing medication and other healthcare services.
Pharmacists' Understanding of **Polypharmacy & Deprescribing** *Novel*	• Pharmacists have inconsistent definitions of terminology when it comes to polypharmacy and deprescribing. • Many pharmacists lack clarity around definitions of polypharmacy and deprescribing.	• Existing knowledge of MTM services and recommendations to taper or eliminate certain medications, on an as-needed basis or by request, not only annually. • Integration and expansion of existing tools for deprescribing inappropriate medications.*
Pharmacists' Perceptions of **Breakdowns in the Healthcare System** *Novel*	• There is a lack of integrated systems for transparency of patient information, and pharmacists lack access to important patient information. • The lack of transparency into patient health information can be due to HIPPA or other issues. • The healthcare system is often adversarial due to different motivating factors. • A lack of patient education or patient apathy prevents success of lifestyle changes or medication modifications.	• Integrated systems allow for full visibility so all stakeholders can work together for positive patient outcomes. • Transparency allows for holistic view and treatment of patient. • Collaborative environments between all stakeholders allow for an increase in transparency and alignment toward common healthcare goals and outcomes. • Managed care organizations with transparency across all functions operate toward same goal as a team. • Patients educated about their healthcare status who work together with healthcare providers communicate goals to improve outcomes.
*BEERS Criteria, START, STOPP guidelines, narcotics reporting systems		

Table 15

Integrative Framework of How Pharmacists May be Better Equipped, Empowered, and Motivated to Appropriately Recommend Deprescribing

Dimension	Barrier	Facilitator
Enable pharmacists to be able to meaningfully relate with stakeholders	• Pharmacists often lack access to directly communicate with patients or prescribers. Pharmacists in large corporate organizations do not have time to speak with patients and those in smaller pharmacies must often build relationships prior to patients communicating transparently. (*Comm, Time*) • Pharmacists' communication style doesn't always work due to different communication styles for different stakeholders. Communication with a patient or caregiver will be much different than communicating with a prescriber. Adjusting levels of understanding is necessary based on the audience. (*Comm, Trust*) • Cultural/language differences prevent discussion between pharmacists and patients. (*Comm, Trust*) • Time constraints exist for pharmacists due to the pace and stress of pharmacy practice, preventing them from building trusting relationships. with stakeholders. (*Time, Trust*)	• When pharmacists have access to patients/prescribers for direct communication, it is much easier to achieve healthcare goals. (*Comm, Trust*) • Pharmacists with an effective communication style appropriate for the audience can achieve more for patients' healthcare goals. Understanding what the patients' goals are helps treatment decisions aligned with patients' goals. (*Comm, Trust*) • Cultural awareness and/or living in the community as a community member is helpful because pharmacists obtain a better sense of the needs and wants of the community. This builds relationships and personal contact that helps create trust and ultimately, transparency. (*Comm, Trust*) • When pharmacists have adequate time to thoroughly review their patients' needs, they are able to offer counseling and lifestyle management services and knowledge transfer to ensure the patient is working toward their healthcare goals in the most effective way. (*Time, Trust*)

Dimension	Barrier	Facilitator
Enhance transparency of patient information via electronic health records across systems	• Pharmacists have a lack of transparency into patient information which prevents understanding of what to communicate to whom, when, and why for the most effective healthcare. (*Comm, R&R, Systems*) • A lack of integrated systems exists for transparency of patient information, even though technology is available and used for certain medications (CURES system, for example). (*R&R, Systems*) • Patient privacy rules create a lack of transparency (HIPPA for example) for pharmacists. (Comm, Trust, *R&R, Systems*)	• Transparency into patient healthcare information allows for understanding to make appropriate connections and support appropriate healthcare decisions. (*Comm, R&R, Systems*) • Integrated electronic healthcare systems allow for full visibility into patients' disease states and treatment needs. (*Comm, R&R, Systems*) • Transparency of patient electronic health records allows for holistic view and appropriate treatment of patients. (*Comm, Trust, R&R, Systems*)
Clarify roles and responsibilities of all stakeholders	• There is a lack of visibility and understanding of the role pharmacists play in healthcare across stakeholders. (*Comm, Trust, R&R, Systems*) • There is a lack visibility/transparency as an important healthcare provider due to federal limitations and cultural biases. (*Comm, Trust, R&R, Systems*) • The U.S. has an adversarial healthcare system due to different motivating factors between systems and processes. (*Trust, R&R, Systems*) • Patients lack responsibility for their own education, decision-making, and overall healthcare. (*Comm, R&R, Systems*) • Patients lack education in overall healthcare preventing success of lifestyle changes or medication modification. (*Comm, Trust, R&R, Systems*)	• The visibility of pharmacists as healthcare providers is a critical component of the overall healthcare system. (*Comm, Trust, R&R, Systems*) • Collaborative environments between all stakeholders allow for clarity and alignment of patient healthcare goals and positive outcomes. (*Comm, Trust, R&R, Systems*) • Patients educated about their health status actively working with healthcare providers improves outcomes. (*Comm, Trust, R&R, Systems*)

Comm = Dimension "Pharmacists' Perceptions of Communication"
Time = Dimension "Pharmacists' Perceptions of Time"
Trust = Dimension "Pharmacists' Perceptions of Trust"
R&R = Dimension "Pharmacists' Perceptions of Responsibility"
System = Dimension "Pharmacists' Perceptions of Breakdowns in the Healthcare System"

APPENDIX A: INTERVIEW PROTOCOL

The research topic under review is the willingness of U.S. pharmacists to recommend deprescribing of potentially inappropriate medications in people with polypharmacy (more than one prescribed medication at a time, usually qualified as those with ≥5 prescription medications).

Research Question: How can pharmacists be better equipped, empowered, and motivated to recommend deprescribing for patients of potentially inappropriate medications **with polypharmacy?**

Pre-Interview and Procedures

Introductions
Hello, my name is Susanne Steiner. I am currently enrolled in Pepperdine University's Executive Doctor of Business Administration program. Thank you so much for taking the time to meet with me today. I have set aside one hour for this interview and I'm happy to discuss any questions or comments you may have along the way.

Overview of the Study
This research study investigates the topic of deprescribing of potentially inappropriate medications and the perceived barriers and facilitators of its adoption in the United States. I am interested in learning more about your overall perceptions about recommending deprescribing and your thoughts about how pharmacists can be better equipped, empowered, and motivated to do so.

Semi-Structured Interview Protocol

As mentioned, I am interested in the role of U.S. pharmacists and deprescribing recommendations. Deprescribing is usually described as tapering or discontinuing prescription and/or non-prescription drugs. Is this something you are familiar with? [If yes, continue to **I. PROCESS**. If no, see **VII. UNFAMILIAR** - not aware of deprescribing processes.]

I. **PROCESS**

Let's talk about polypharmacy and deprescribing.

1. **What do you consider to be polypharmacy?** Does that include only prescription medications or do you also include over-the-counter products and supplements?
2. What are the **triggers or conditions** that help you recognize a patient may be a candidate for review of their medications?
3. **How often do you suggest deprescribing** of potentially inappropriate medications to a patient with polypharmacy?
    - **Probe**: Is this something that you schedule as part of your day? Is it done daily, weekly, monthly? How many patients would you say you have recommended deprescribing to?
4. What is the typical process you follow, or steps you take, that are **helpful in dealing with patients with polypharmacy**?

- **Probe**: Do you engage in **medication treatment management (MTM) planning** with your clients/patients? **Is that something encouraged or required by your employer?**
  What does MTM typically consist of? (i.e., what does it look like, what steps do you take, do you have difficulty with MTM processes?)

5. How did you first learn about deprescribing? Do you feel well-trained to recommend tapering or removing therapies?
- **Probe:** Is there **specific training/certification** you are aware of that addresses how to manage polypharmacy? (If no, where would one go to find out more about de(?)prescribing trends?)

6. What are the best **tools** for **deprescribing**? (By tools, I mean Beers criteria, STOPP, START criteria)
- **Probe**: Technical tools? Criteria variances? Do the criteria support the argument to deprescribe potentially inappropriate medications?

II. ATTITUDE

1. How do you feel about the topic of polypharmacy in general? Do you have any particular feelings about the elderly population and their risks associated with potentially inappropriate medications within polypharmacy?
2. Do **you want to engage in deprescribing** with your patients with polypharmac**y?**
3. Is deprescribing something that is **important to you**? To a **patient's treatment**?
4. Do you believe it's **your responsibility to recommend deprescribing** of potentially inappropriate medications **to a prescriber/patient/caregiver**?

III. FACILITATORS OF DEPRESCRIBING

1. What do you think are the **factors that encourage pharmacists** to recommend deprescribing?

- Probe: Do you feel you are personally motivated to recommend deprescribing? Or is it more about meeting MTM goals or corporate goals?

2. Do you feel pressured to recommend deprescribing by your employer, patients, prescribers?
3. What else would you like to share about **how deprescribing** of potentially inappropriate medications **can be facilitated**?
4. What advice do you have for pharmacists trying to **support efforts of deprescribing** of potentially inappropriate medications?

IV. BARRIERS TO DEPRESCRIBING

1. What do you think are the **factors that prevent** pharmacists from recommending deprescribing of potentially inappropriate medications?
   - **Probe**: Think of challenges with the patient, the doctor, within the pharmacy, with the caregiver, with insurance…
2. Do you feel you are personally prevented from recommending deprescribing? What might have prevented you from recommending deprescribing in the past? Examples?

V. CRITICAL INCIDENTS (POSITIVE OR NEGATIVE)

1. Have you ever had a particular experience you would like to share that **really** impacted your beliefs around deprescribing?
   - **Probe:** Any incident or situation that jumps out to you, that you particularly remember, or that stands out in your memory, related to deprescribing?

2. Tell me about a time when you were successful in recommending deprescribing for a patient (or not successful)
    - **Probe:** Situation, task, action, result?

VI. UNFAMILIAR WITH DEPRESCRIBING

1. Now that I've explained deprescribing as a way of tapering and or stopping a prescription or non-prescription medication for someone with polypharmacy, what are your thoughts about it?
2. Do you think this idea of deprescribing is a positive or negative idea for patients?
3. Do you think pharmacists should be involved in recommending deprescribing?
4. Do you think the amount of time a pharmacist has is adequate to include deprescribing in their practice?
5. Do you think there is a sufficient amount of trust between prescribers and pharmacists for deprescribing to be successful?

Interview Conclusion / Closing Remarks

1. Is there anything else that you think is important in terms of the care of patients?
2. May I reach out to you again if I have any additional questions or thoughts?

Thank you so much for your participation today. The insight from our discussion will contribute to our research on deprescribing and understanding of how to better support patients with polypharmacy. I appreciate your time and input!

FOLLOW UP QUESTIONS

If Time, Trust, Communication not discussed by the participant, then ask these follow-up questions:

1. What are your **thoughts about time** influencing a pharmacist's ability to discuss deprescribing? (by time, I mean…)
2. What are your **thoughts about trust** influencing a pharmacist's ability to discuss deprescribing? (by trust, I mean…)
3. What are your **thoughts about communication** influencing a pharmacist's ability to discuss deprescribing? (by communication, I mean to discuss the idea of tapering or discontinuing a prescription medication with a prescriber, a patient or a care-giver)

APPENDIX B: PARTICIPANT RECRUITMENT INVITATIONS

Invitation To Participate in The Research Study [Direct]:

Challenging Polypharmacy: Exploring Perceived Facilitators and Barriers to U.S. Pharmacists' Willingness to Recommend Deprescribing

My name is Susanne Steiner and I am a student at Pepperdine University working toward my Executive Doctorate of Business Administration. We met at [*location*] on [*date*]. I am working on my research study in support of my dissertation, and I need your help.

The goal of my study is to understand how pharmacists in the U.S. can be equipped, empowered, and motivated to recommend deprescribing for patients with polypharmacy (more than 5 prescriptions medicines). The purpose of this research is to increase pharmacists' willingness to recommend deprescribing to improve the satisfaction of patients, improve healthcare outcomes, and manage costs for patients with polypharmacy (aligning with the Triple Aim Framework, Berwick et al., 2008).

I am conducting one hour interviews with pharmacists who practice in the U.S. Here are ways you can help:

- *Can you participate?* You are eligible to participate if you are a licensed pharmacist in the United States, and over the age of 18. If you fit these requirements and are interested, please respond to this email to schedule an interview.
- *Can you refer someone?* Do you know anyone who is eligible? I would greatly appreciate referrals to other potential participants.

Your involvement in this study can play a crucial role helping to expand our understanding of how pharmacists can better engage in deprescribing, helping patients, caregivers, and our health care system overall. Please let me know if you have any questions. Thank you for your consideration.

Kind regards,

Susanne Steiner
Candidate, Executive Doctor of Business Administration
Pepperdine University
Graziadio School of Business

Invitation To Participate in The Research Study [Referral]:

Challenging Polypharmacy:
Exploring Perceived Facilitators and Barriers to U.S. Pharmacists' Willingness to Recommend Deprescribing

My name is Susanne Steiner and I am a student at Pepperdine University working toward my Executive Doctorate of Business Administration. [Referral] provided me your contact information in support of my research study and I hope you can help me!

The goal of my study is to understand how pharmacists in the U.S. can be equipped, empowered, and motivated to recommend deprescribing for patients with polypharmacy (more than 5 prescriptions medicines). The purpose of this research is to increase pharmacists' willingness to recommend deprescribing to improve the satisfaction of patients, improve healthcare outcomes, and manage costs for patients with polypharmacy (aligning with the Triple Aim Framework, Berwick et al., 2008).

I am conducting one hour interviews with pharmacists who practice in the U.S. Here are ways you can help:

- *Can you participate?* You are eligible to participate if you are a licensed pharmacist in the United States, and over the age of 18. If you fit these requirements and are interested, please respond to this email to schedule an interview.
- *Can you refer someone?* Do you know anyone who is eligible? I would greatly appreciate referrals to other potential participants.

Your involvement in this study can play a crucial role helping to expand our understanding of how pharmacists can better engage in deprescribing, helping patients, caregivers, and our health care system overall. Please let me know if you have any questions. Thank you for your consideration.

Kind regards,

Susanne Steiner
Candidate, Executive Doctor of Business Administration
Pepperdine University
Graziadio School of Business

APPENDIX C: CERTIFICATE OF CONFIDENTIALITY

Certificate of Confidentiality

To help us protect your privacy, this research is covered by a Certificate of Confidentiality from the National Institutes of Health. The researchers with this Certificate may not disclose or use information or documents that may identify you in any federal, state, or local civil, criminal, administrative, legislative, or other action, suit, or proceeding, or be used as evidence, for example, if there is a court subpoena, unless you have consented for this use. Information protected by this Certificate cannot be disclosed to anyone else who is not connected with the research except, if there is a federal, state, or local law that requires disclosure (such as to report child abuse or communicable diseases but not for federal, state, or local civil, criminal, administrative, legislative, or other proceedings, see below); if you have consented to the disclosure, including for your medical treatment; or if it is used for other scientific research, as allowed by federal regulations protecting research subjects.

You should understand that a Certificate of Confidentiality does not prevent you from voluntarily releasing information about yourself or your involvement in this research. If you want your research information released to an insurer, medical care provider, or any other person not connected with the research, you must provide consent to allow the researchers to release it.

The Certificate of Confidentiality will not be used to prevent disclosure for any purpose you have consented to in this informed consent document.

APPENDIX D: ETHNOGRAPHIC RESEARCH

Note. At the 2023 National Community Pharmacists Association Meeting, Orlando, Florida

While attending the NCPA Meeting in Orlando, Florida October 13 -16, 2023, I took notes on conversations and general impressions during the entire experience. Sessions tended to focus on business aspects, eg: "Medical Billing: The Fundamentals," "Remodeling Your Pharmacy (And Your Mindset) For Growth," "How to Respond to a DEA Investigation," "Inventory Tips to Keep the Dollars in Your Bank Account, Not on Your Shelf," and "Maximizing Profits Online," to name a few (NCPA 2023 Conference Schedule). The few sessions that were dedicated to patient care or were related to safety were tied specifically to profits for a pharmacy. Several large corporations presented information for their products as well. Lilly USA presented "Mounjaro® (tirzepatide)," Merck presented "Epidemiologic Trends in Adult Invasive Pneumococcal Disease and Unmet Needs," and Pfizer presented "An Approved Respiratory Syncytial Virus Vaccine to Help Protect Adults 60 Years and Older," (NCPA 2023 Conference Schedule). Mounjaro® is a semaglutide product with a high demand due to its success with weight loss and celebrity endorsement, and the others are vaccines which offer another stream of revenue and are in high demand during the fourth quarter every year due to upcoming flu and seasonal illnesses.

While sitting at a table waiting for the conference "Elevate Your Pharmacy: Profit Boosters and DIR Defense Tactics" session to begin, I listened and took notes on conversations between pharmacists at my table. A younger pharmacist from New Jersey mentioned that his pharmacy cannot compete with mail order delivery. His patients receive large discounts for moving to the mail order model of service. He was looking for ways to increase revenues and profits to save his pharmacy from shutting down. A pharmacist from Colorado stated that his pharmacy is moving toward compounding efforts because there is greater profit to support his business. A pharmacist from Idaho mentioned that COVID devastated her personally, and she

almost quit the pharmacy business due to burnout from 80-hour weeks without any breaks during shifts. She was able to reclaim her life by switching to a private pharmacy that is part of a medical building. She also mentioned the ability to offer clinical services but not at a fair reimbursement. The pharmacist from Colorado agreed and stated the PBMs (Pharmacy Benefit Managers – companies that provide prescription drug benefits to consumers on behalf of insurance providers, employers, and health payers) are not on board for medical billing for clinical services in his state. He again mentioned compounding and discussed bio-identical hormone treatment and mental health medications sourced through China as options for additional pharmacy income streams.

The session we attended was dedicated to discussing Direct and Indirect Remuneration (DIR) fees and relates to price concessions for prescriptions. DIR is also known as "pay-to-play" fees. These fees occur when pharmacies pay to participate in certain preferred networks and align with reimbursement reconciliations (RxSafe, 2023).

There are political decisions that have occurred that will change the billing for prescriptions for small pharmacies beginning in 2024, and there was a promise of more transparency of fees and discounts for pharmacies. H.R. 5378 Lower Cost, More Transparency Act and S. 2052 Modernization and Ensuring PBM Accountability Act (MEPA) were discussed briefly and showcased CMS empathy toward small pharmacy concerns. As part of these proposed laws, PBMs will not be able to create transaction fees or hide fees as administrative fees. There was a call to keep being vigilant and check in your state pharmacy board to see if there are opportunities to advocate for your small business. The NCPA website has a large cache of information regarding lawsuits and the legal process that has been followed to support community pharmacies in their fight to stay in business (NCPA, 2023)

The session "Selling Your LTC-At-Home Services" highlighted the long-term care (LTC) at home theme that was in several sessions throughout the conference. Long-Term Care

At Home services were interchangeable with Medical Care At Home and both refer to services provided to patients who do not want to transition into nursing homes or skilled nursing facilities. These services are offered to patients who qualify based on their ability to care for themselves. These are often patients who require more complex medical care, eg, three or more conditions and six or more medications. These patients are based in their own home and receive community healthcare provider visits and regular monitoring by an overall care team including a pharmacist. The services pharmacists provide as part of an LTC program include pre-packaging of medications for ease of use. A pharmacist will assess the overall medications a patient takes and organize them in pre-packaged units (also known as compliance packaging or adherence packaging) depending on the time of day they need to take them and in what combination, with direct delivery service. In addition, pharmacists with oversight of these patients review their medications much more regularly, usually between a monthly to quarterly schedule. These services are billed at a higher rate by pharmacists and there is recognition that keeping patients at home rather than in nursing homes or skilled nursing facilities reduces costs and healthcare burden on communities. The dreaded DIR fees are also mitigated as there are no DIR fees associated with these services, making fees and revenues more transparent and reasonable.

In addition to LTC at home, other areas pharmacists were coached on were reducing inventory to free up cash for the upcoming DIR fees pharmacists were facing for 2024. Pharmacists were advised to become advocates for their patients by offering services related to their insurance providers. Pharmacists were encouraged to speak to patients to help them understand their medication coverage options and which plans were best for patients based on their needs. Adding supplements to overall offerings and combining adherence packaging creates value for the patients as they are most likely purchasing low quality supplements online without knowledge behind quality and compliance standards, or what type of supplements they

should be considering for their overall health conditions. Adding pet-related medications is also something that was mentioned as another revenue stream to support the overall family, not just a single patient in a household. Sports medicine was referred to as a growing area for pharmacy, though little information was provided as to what exactly that encompassed.

I learned a great deal at the NCPA meeting. My impressions of the meeting overall were that the conference sessions and training were based on profitability and overall business decision-making. There was a sense of fear in the eyes of the small community pharmacy owners and employees as they mentioned the threats from the big box retailers, mail order pharmacies, robots, and overall burnout. I engaged with two pharmacists for in-person interviews and both participants were employed by independent pharmacies. Their experiences with deprescribing were limited and their feedback demonstrated their focus on the business of pharmacy.