



# Medication Therapy Management and Medication Adherence For Geriatric Patients

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## ABSTRACT

The aging population represents a significant global challenge that demands our immediate attention. Treating elderly patients presents distinct difficulties, with research indicating that nearly 50% of these individuals struggle with adherence to at least one of their prescribed medications. Ensuring medication adherence is imperative for achieving optimal health outcomes, particularly among geriatric patients who often face multiple chronic conditions and complex medication regimens. Pharmacists are pivotal in enhancing medication adherence through Medication Therapy Management (MTM), a comprehensive service designed to optimize therapeutic outcomes. MTM encompasses essential activities such as medication reconciliation, identifying and resolving drug-related issues, and delivering patient education tailored to individual needs. Pharmacists actively implement targeted interventions, including simplifying medication regimens and adopting deprescribing strategies to alleviate financial burdens on patients. Moreover, pharmacists collaborate closely with healthcare providers to ensure continuity of care and engage in patient-centered communication that empowers older adults throughout their treatment journey. This review paper highlights the critical non-dispensing roles of pharmacists, such as Drug Utilization Review (DUR), and highlights various activities and advancements in geriatric care. Now more than ever, it is essential to recognize and leverage pharmacists' expertise in caring for the aging population.

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## Introduction

The aging population is an undeniable global phenomenon that demands attention [1]. Asia and Europe are home to some of the oldest populations in the world, particularly individuals aged 65 and older. Japan leads with a significant 28% of its population in this age group, followed closely by Italy at 23%. Finland, Portugal, and Greece each account for just under 22%, solidifying their positions among the oldest nations. Southern Europe is the oldest region globally, with 21% of its population aged 65 and above. In China, 12% of the population falls into this category, while the United States has 16%, India 6%, and Nigeria 3% [2].

## Geriatric population burden on the healthcare system

About half of the primary care provided to adults over 65 comes from family physicians. Additionally, approximately 22 percent of visits to family physicians are made by older adults. Older adults are projected to account for at least 30 percent of patients in typical family medicine outpatient practices, 60 percent in hospital settings, and 95 percent in nursing home and home care practices. The baby boomer generation is also reaching age 65, causing a rapid 30% annual increase in the elderly population until 2050. This trend will significantly impact healthcare, social systems, and societal infrastructure [3]. The geriatric population is at a high risk for drug-related problems (DRPs), such as adverse events and toxicity, due to age-related changes in pharmacokinetics and pharmacodynamics. Additionally, the increased prevalence of multiple chronic diseases in older adults often leads to more

complex therapeutic regimens, which can further elevate the incidence of drug-related issues, increasing the burden on healthcare systems [4].

## Problems Associated With Geriatric Care

### Declined organ functions

Aging is inherently linked to a decline in functional reserves and adaptability. Elderly patients commonly experience multiple medical conditions, necessitating complex medication regimens. The reality of polypharmacy in this demographic is significant; it poses a serious risk of adverse drug events, potential drug-drug interactions, and medication errors, ultimately leading to increased morbidity and mortality. We must address these challenges with urgency and care [1].

### Risk of adverse events

It is observed that approximately 20% of patients aged 65 and older take at least ten medications per day. As the number of medications increases, the risk of adverse drug events (ADEs) increases significantly. ADEs in elderly patients can have serious consequences, such as weight loss, falls, declining cognitive function, and loss of autonomy. Alarming, ADEs account for approximately 10% of hospital admissions in this population. While many factors can contribute to developing an ADE, it is clear that 85% of preventable ADEs occur during the prescribing process. Addressing the risks in this vulnerable demographic requires immediate attention [3].

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### **Medication non-compliance**

Up to 50% of elderly patients have difficulty adhering to at least one of their medications. It is important to note that advanced age does not predict nonadherence. Various factors influence adherence, including cognitive impairment, medication side effects, the complexity of the regimen, and the patient's skepticism about the treatment's benefits. These issues must be thoroughly addressed in the care of geriatric patients [3].

### **Lack of multimorbidity treatment guidelines**

Older patients frequently experience multimorbidity, which is defined as multiple chronic diseases or geriatric conditions caused by the natural aging of their organs. This situation necessitates a comprehensive approach to medical management. Unfortunately, current treatment guidelines for older adults with multimorbidity are inadequate, making it difficult for physicians to determine the intensity of treatment for various diseases and the extent of improvement required. It is also critical to consider various other factors when beginning treatment for this population.

Physicians need to assess patients' physical functioning thoroughly. While some individuals may have no issues with ambulation, others are bedridden and struggle to stand on their own. Given the variations in disease severity, comorbidities, and life expectancy, treatment decisions and drug prescriptions must reflect these differences. Treatment options should be adjusted based on cognitive function and the patient's living and care environments, utilizing comprehensive geriatric assessments. Moreover, when managing multimorbidity, it is crucial to address polypharmacy, as it significantly increases the risk of adverse drug events. Therefore, physicians must prioritize dose reduction and consider the discontinuation of medications for patients experiencing polypharmacy [5].

### **Clinical pharmacist's role in addressing these issues in geriatric care**

#### **Medication therapy management**

Drug-related problems (DRPs) are clearly defined as "events or circumstances involving drug therapy that disrupt desired health outcomes, both potentially and effectively." These issues significantly escalate healthcare costs, increase hospital admissions, prolong hospital stays, diminish quality of life, and elevate mortality rates. Therefore, it is imperative that medication prescribing and usage in older patients are approached with heightened vigilance. This includes actively avoiding inappropriate medications, ensuring rational use of indicated drugs, rigorously monitoring for side effects, preventing drug-drug interactions, and thoroughly evaluating patient adherence and involvement [4].

Moreover, the identification, resolution, and prevention of DRPs are fundamental to effective pharmaceutical care, and medication review is an important competency of MTM. Clinical pharmacists are expertly trained to perform medication reviews for geriatric patients, and their involvement has been proven to enhance the use of high-risk medications and improve the accuracy of medication regimens. Their role is not just beneficial; it is essential for safeguarding patient health [4].

Although there isn't a universally accepted gold standard for medication reviews, a brown-bag medication review is an effective tool that provides critical insights into a patient's medication habits. In this process, the patient brings all their prescription and non-prescription medications to the pharmacist for an exhaustive evaluation. During the review, pharmacists must inquire about potential side effects, missed doses, and the overall effectiveness

of the therapy, allowing them to make necessary interventions that significantly enhance patient adherence [3].

MTM takes medication review to the next level by providing a structured approach where a pharmacist or another trained healthcare professional thoroughly examines the patient's medications. By its very definition, MTM encompasses education about prescribed medications, strategies for improving adherence, and the identification of adverse drug reactions or improper medication use. In the US, as of 2013, legislation mandates that all Medicare Part D participants receive MTM services, and prescription drug plans are required to reimburse providers for these essential services. Pharmacists must take action now to ensure that patients fully benefit from these programs [3].

#### **Drug Utilization Review (DUR)**

Drug Utilization Review (DUR) is essential for promoting patient safety in healthcare settings, particularly within pharmacies. DUR helps identify potential risks and optimize therapeutic outcomes by reviewing and monitoring drug prescriptions and usage. There are two key ways in which DUR enhances patient safety: by identifying drug interactions and optimizing dosages, as well as addressing the challenges associated with polypharmacy while promoting evidence-based prescribing. The concurrent use of multiple medications, or combined therapeutics, is becoming increasingly common, especially among patients with chronic diseases. While polypharmacy is often necessary, particularly in the elderly, it also raises the risk of medication errors, poor adherence, and adverse drug reactions. DUR systems are vital in identifying polypharmacy and confirming that all medications are necessary and properly prescribed [6].

Through DUR, pharmacists can evaluate whether specific medications are redundant or if safer alternatives are available. For example, if a patient is prescribed multiple drugs with similar action mechanisms, DUR can highlight these therapeutic duplications. This process helps streamline the medication regimen, reducing the risk of adverse effects and improving patient adherence. Furthermore, DUR promotes evidence-based prescribing, ensuring all medications are prescribed according to the latest clinical guidelines and research findings. By reviewing prescriptions, pharmacists can verify that prescribed therapies align with current best practices and make recommendations when deviations are found. This is particularly important for managing chronic diseases such as hypertension and diabetes, where adherence to guidelines is critical for achieving long-term health outcomes [6].

Additionally, DUR encourages the use of cost-effective treatments without compromising patient safety. By providing prescribers with alternative treatment options that are both safer and more affordable, DUR supports more rational prescribing practices. DUR (Drug Utilization Review) has transformed the role of pharmacists from simply dispensing medications to becoming active participants in patient care. In the context of DUR, pharmacists take on clinical responsibilities that include monitoring patient therapies, identifying medication-related problems, and collaborating with prescribers to adjust treatment plans [6].

Pharmacists are also responsible for educating patients on the proper use of medications, addressing side effects, and ensuring adherence to prescribed therapies. Through DUR, pharmacists play a key role in optimizing therapeutic outcomes by making evidence-based recommendations and ensuring that medications are aligned with best practices. This shift elevates the pharmacist's role as a vital healthcare provider, highlighting their involvement in promoting patient safety and rational drug use [6].

## Deprescribing

The term "polypharmacy" is clearly defined as the usage of five or more regularly scheduled medications. While multiple medicines can sometimes be essential for saving lives or enhancing quality of life, the prevalence of polypharmacy often signals a significant issue that must be addressed [7,8]. Several factors contribute to medication overload, including a culture of prescribing, usually described as "a pill for every ill," alongside gaps in time, knowledge, and education. The fragmentation of healthcare systems—such as having multiple prescribers—also plays a role. Additionally, there is a tendency toward therapeutic inertia, where older adults are prescribed medications for decades without a regular reassessment of the benefits and risks. This can create a "don't rock the boat" approach, where the absence of harm leads to a reluctance to change treatment plans [9, 10].



**Figure:** Schematic representation of Geriatric consultant assessment plan [16].

Sometimes, patients accumulate medications because specialists prescribe treatments for a single condition without considering the patient's complete medical history or overall care trajectory. Guidelines that focus solely on treating individual disease states can further perpetuate medication overload, especially given the lack of representation of older adults in the studies supporting these guidelines [11-13]. Moreover, there is often insufficient attention paid to re-evaluating medication use when a person's prognosis or goals of care change. While guidelines may prioritize meeting specific health targets, they do not always consider a patient's age, frailty, or the changes in pharmacokinetics and pharmacodynamics that occur with aging. For example, declines in renal function and alterations in body fat distribution can influence how certain drugs are metabolized or accumulated in the body, making older adults more susceptible to adverse medication effects. Unfortunately, existing guidelines rarely address these factors [14, 15]. Hence, Deprescribing in older adults includes considering patient functionality, support needs within living situations, and decisions regarding patients' ongoing care plans. Overarching objectives should go beyond eliminating targeted overuse of proton pump inhibitors or unnecessary supplements and be tailored to a patient's health and living status [16].

## Medication adherence support

Pharmacists can enhance geriatric patients' adherence to therapy by taking three key actions. First, they should review the patient's medication list to ensure appropriateness and minimize potential issues. Second, they can implement medication therapy management (MTM) to optimize treatment outcomes. Finally,

collaborating with the patient to develop personalized adherence strategies can promote consistent medication use [3]. Pharmacists play a crucial role in enhancing medication adherence by utilizing their expertise to tackle barriers at the patient, physician, and system levels [17].

Pharmacists improve medication adherence by educating patients about their treatments. They use tools such as teach-back methods, videos, and easy-to-understand resources to enhance patient comprehension. Pharmacists also provide tailored solutions, including medication organization tools and accessible information on health literacy. By addressing financial challenges, they connect patients with assistance programs, ensuring access to necessary medications. Furthermore, as part of the healthcare team, pharmacists promote adherence by conducting medication therapy management (MTM) and collaborating with physicians and other healthcare providers. They facilitate proper medication reconciliation during care transitions, identify potential medication errors, and offer strategies to overcome health system challenges, such as poor care coordination or limited physician availability. Pharmacists can recommend and guide patients using digital health applications, including mobile apps and wearable devices. These tools provide medication reminders, track health data, and facilitate communication with healthcare providers, offering a cost-effective and user-friendly way to improve adherence and manage chronic conditions [17].

## Conclusion

Pharmacists are critical to driving effective medication therapy management (MTM) and improving medication adherence among geriatric patients. They identify and resolve issues such as drug interactions, inappropriate prescriptions, and dosing complexities through comprehensive medication regimen reviews. Pharmacists help older adults understand their therapies better by providing effective patient-centered education and counseling. They work with healthcare teams to improve care coordination and integrate digital health tools, making adherence strategies more accessible and practical. Finally, pharmacists' assertive engagement not only enhances therapeutic outcomes but also helps in reducing healthcare costs and significantly improves the quality of life for elderly patients.

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