

The role of pharmacists in managing polypharmacy among elderly or multi-morbid patients in collaboration with primary care physicians; Review

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Abstract

Polypharmacy, the simultaneous use of multiple medications, is a prevalent issue among elderly and multi-morbid patients, posing significant risks such as adverse drug events (ADEs), medication non-adherence, and drug-drug interactions. Addressing polypharmacy requires a collaborative approach involving pharmacists and primary care physicians (PCPs). Collaboration between pharmacists and PCPs is essential to optimize care. Through shared decision-making, medication therapy management (MTM) programs, and integration into primary care teams, pharmacists contribute to reducing medication-related problems and improving patient adherence. Challenges such as communication barriers, role ambiguity, and insufficient policy support can hinder effective collaboration. Strategies to address these challenges include interprofessional training, leveraging electronic health records (EHRs), and expanding pharmacists' roles through supportive policies and reimbursement models. This review highlights that pharmacist-PCP collaborations lead to improved patient outcomes, including a reduction in ADEs, enhanced medication adherence, and significant cost savings. Future directions should focus on integrating pharmacists into patient-centered care models, adopting advanced technologies, and fostering interprofessional education to strengthen collaborative practices. By addressing the complexities of polypharmacy, healthcare systems can enhance patient safety, improve quality of life, and achieve sustainable care outcomes for vulnerable populations.

Introduction

Polypharmacy, defined as the simultaneous use of five or more medications, is a growing concern in the management of elderly and multi-morbid patients. As populations age and chronic diseases such as hypertension, diabetes, and cardiovascular conditions become increasingly prevalent, the complexity of medication regimens has surged. While polypharmacy is often a necessary component of managing multiple conditions, it carries significant risks, including adverse drug events (ADEs), drug-drug interactions, medication non-adherence, and overall increased healthcare utilization (1). These risks are exacerbated in elderly patients, who are more vulnerable due to physiological changes such as reduced renal and hepatic function, altered pharmacokinetics, and comorbidities that complicate treatment plans (2).

Addressing polypharmacy requires a multidisciplinary approach that emphasizes the safe and effective use of medications while balancing therapeutic goals and patient preferences. Pharmacists, with their in-depth knowledge of pharmacology and medication management, are uniquely equipped to address these challenges. In collaboration with primary care physicians (PCPs), they can help optimize medication regimens, reduce unnecessary drug use, and prevent medication-related problems. This partnership is increasingly recognized as a cornerstone of effective chronic disease management and patient-centered care (3).

This review explores the critical role of pharmacists in managing polypharmacy among elderly and multi-morbid patients. It examines the challenges posed by polypharmacy, the contributions of pharmacists in mitigating these issues, and the strategies to enhance collaboration between pharmacists and PCPs.

Review:

Challenges of Polypharmacy in Elderly and Multi-Morbid Patients

1. Adverse Drug Events (ADEs):

The elderly population is particularly vulnerable to ADEs due to age-related physiological changes such as reduced renal clearance, altered hepatic metabolism, and increased drug sensitivity. These changes lead to prolonged drug half-lives and a heightened risk of toxicity. A study by Budnitz et al. (4) identified anticoagulants, antidiabetic agents, and NSAIDs as the most common culprits for ADE-related hospitalizations in older adults. The interplay between multiple medications exacerbates these risks, particularly when the patient is managed by multiple prescribers without centralized oversight.

2. Medication Non-Adherence:

Polypharmacy regimens are often complicated, involving medications with varying dosages and administration times. Haynes et al. (6) highlighted that nearly half of patients fail to adhere to prescribed regimens due to factors like cognitive decline, poor health literacy, and the financial burden of multiple medications. Non-adherence not only reduces the therapeutic efficacy of the regimen but can also lead to worsening of chronic conditions, increasing healthcare utilization.

3. Drug-Drug and Drug-Disease Interactions:

Drug interactions in polypharmacy are a significant concern. For example, combining warfarin with antibiotics like ciprofloxacin increases the risk of bleeding. Similarly, anticholinergic drugs used in conditions like urinary incontinence may exacerbate dementia symptoms in elderly patients. Studies (7) have shown that these interactions are particularly problematic when patients with multi-morbidity are prescribed medications for conflicting conditions.

4. Healthcare Fragmentation:

Patients with multiple comorbidities often see several specialists, leading to fragmented care and an increased risk of duplicative or conflicting prescriptions. Garfinkel and Mangin (8) noted that the lack of a centralized medication oversight system frequently results in polypharmacy that is not evidence-based, highlighting the need for integrated care teams that include pharmacists.

The Role of Pharmacists in Managing Polypharmacy

1. Medication Review and Reconciliation:

Pharmacists systematically review all medications a patient is taking, including over-the-counter drugs and supplements. This process helps identify drugs that are inappropriate, duplicative, or contraindicated. Tools like the Beers Criteria (1) and STOPP/START (9) criteria allow pharmacists to pinpoint high-risk medications and recommend safer alternatives. For instance, a pharmacist might suggest replacing a long-acting benzodiazepine with a short-acting alternative or discontinuing an unnecessary proton-pump inhibitor.

Holland et al. (10) found that pharmacist-led medication reviews reduced hospital admissions by 20% in elderly patients, demonstrating the significant impact of this intervention on patient safety and healthcare costs.

2. Patient Counseling and Education:

Pharmacists play a vital role in demystifying complex medication regimens for patients. They educate patients about the purpose of each medication, the importance of adherence, and potential side effects to watch for. Counseling also involves simplifying regimens where possible, such as combining medications into once-daily formulations. Research by Krska et al. (11) revealed that pharmacist-led counseling improved adherence rates by 30%, resulting in better disease control and reduced hospitalizations.

3. Monitoring and Optimizing Therapies:

Regular monitoring by pharmacists ensures that prescribed medications continue to align with patients' health goals and conditions. For instance, in cases where a patient's blood pressure has stabilized, pharmacists can recommend tapering antihypertensive drugs to avoid hypotension. Similarly, they can identify therapeutic redundancies, such as prescribing two medications with overlapping mechanisms of action, and suggest appropriate adjustments (12).

4. Deprescribing:

Deprescribing is a structured process of discontinuing medications that are no longer beneficial or pose more risks than benefits. Scott et al. (13) emphasized that pharmacists are well-suited for this role due to their ability to assess medication risks and benefits comprehensively. Examples of deprescribing include tapering off benzodiazepines in patients at risk of falls or stopping statins in patients with limited life expectancy where the benefits are unlikely to be realized.

Collaborative Efforts Between Pharmacists and PCPs

1. Shared Decision-Making:

Collaboration between pharmacists and PCPs is grounded in shared decision-making, where patient preferences and clinical evidence guide treatment plans. Horne et al. (14) highlight that involving patients in discussions about their medications improves adherence and ensures that care aligns with their goals. For example, a pharmacist and PCP might collaboratively deprescribe a medication with marginal benefits after discussing potential side effects with the patient.

2. Medication Therapy Management (MTM):

MTM programs formalize the pharmacist-PCP partnership, enabling pharmacists to systematically review medication regimens and identify opportunities for optimization. In MTM programs, pharmacists proactively communicate with PCPs, providing recommendations for dose adjustments, therapeutic substitutions, or discontinuation of unnecessary medications. Chisholm-Burns et al. (16) reported that MTM interventions led to a 22% reduction in hospitalizations and a 17% improvement in adherence rates.

3. Integration into Primary Care Teams:

Embedding pharmacists within primary care teams facilitates real-time consultations and immediate action on medication-related concerns. Weiner et al. (17) noted that integrating pharmacists into primary care settings reduced the time to medication review and enhanced care coordination for patients with multi-morbidity. For example, during team meetings, pharmacists can flag potential drug-drug interactions and suggest evidence-based alternatives directly.

4. Technology-Driven Collaboration:

Shared electronic health records (EHRs) enable pharmacists to access patients' complete medical and medication histories. This integration allows pharmacists to identify duplicative therapies, track adherence patterns, and recommend adjustments to PCPs seamlessly. Bates et al. (18) found that EHR

integration reduced medication errors by 25%, highlighting the critical role of technology in supporting pharmacist-PCP collaboration.

Strategies to Strengthen Collaboration

1. Interprofessional Training and Education:

Interdisciplinary workshops and simulation-based training sessions build trust and enhance understanding of the respective roles of pharmacists and PCPs. IPEC (19) advocates for incorporating interprofessional education into healthcare training programs to foster effective teamwork and communication.

2. Policy and Reimbursement Models:

Expanding the scope of pharmacists' practice and creating reimbursement pathways for clinical services are critical to enhancing their role in polypharmacy management. Countries like Canada have implemented policies allowing pharmacists to independently deprescribe under specific conditions, with significant success in reducing polypharmacy-related complications (20).

3. Patient-Centered Medical Homes (PCMHs):

PCMHs, which prioritize coordinated, team-based care, provide an ideal environment for pharmacist-PCP collaboration. In PCMH models, pharmacists are integrated as core team members, ensuring that medication management is a central focus. Studies (21) show that PCMHs significantly improve medication adherence and reduce medication-related hospitalizations.

Conclusion:

Managing polypharmacy in elderly and multi-morbid patients is a critical challenge that requires a systematic and collaborative approach. The risks associated with polypharmacy, including adverse drug events (ADEs), drug-drug interactions, medication non-adherence, and healthcare fragmentation, highlight the need for specialized intervention. Pharmacists, with their expertise in pharmacotherapy and medication management, play a pivotal role in addressing these challenges. By collaborating with primary care physicians (PCPs), pharmacists contribute to optimizing medication regimens, enhancing patient safety, and improving overall healthcare outcomes.

Collaboration between pharmacists and PCPs is essential for managing polypharmacy effectively. Shared decision-making, medication therapy management (MTM) programs, and integration into primary care teams allow pharmacists and PCPs to work together seamlessly. This partnership ensures that patients receive comprehensive, coordinated care that addresses the complexity of their health conditions. Evidence from research demonstrates that such collaborations lead to reduced ADEs, improved medication adherence, and significant cost savings for healthcare systems.

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