

Geriatric polypharmacy: Deprescribing, safety, innovation.

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Introduction

This scoping review explores medication management interventions for older adults with multiple chronic conditions and polypharmacy, identifying various approaches like medication reviews, deprescribing strategies, and interdisciplinary team interventions. It highlights the need for tailored, patient-centered approaches to optimize pharmacotherapy and reduce adverse drug events in this complex population, emphasizing the importance of shared decision-making [1].

This narrative review delves into deprescribing in older adults, examining its outcomes such as reduced adverse drug events, improved quality of life, and hospital admissions. It discusses challenges like patient and clinician reluctance, lack of clear guidelines, and system barriers, while proposing strategies to facilitate safe and effective medication withdrawal [2].

This article explores the potential of pharmacogenomics to prevent adverse drug reactions (ADRs) in older adults, a population particularly vulnerable due to polypharmacy and altered drug metabolism. It highlights how genetic variations can predict individual responses to medications, suggesting that integrating pharmacogenomic testing into clinical practice could personalize geriatric pharmacotherapy and improve safety [3].

This systematic review examines the effectiveness of medication reconciliation interventions during transitions of care for older adults. It highlights how accurate medication reconciliation can reduce discrepancies, prevent adverse drug events, and improve patient safety, underscoring its critical role in optimizing pharmacotherapy in this vulnerable population moving between different healthcare settings [4].

This review explores the complex relationship between frailty and pharmacotherapy in older adults. It emphasizes that drug prescribing in frail individuals requires careful consideration due to altered pharmacokinetics, pharmacodynamics, and increased susceptibility to adverse effects, advocating for individualized approaches, deprescribing, and integrating frailty assessments into medication management [5].

This scoping review investigates digital health interventions designed to support medication management in older adults. It identifies various digital tools, such as mobile apps, wearable sensors, and telemedicine platforms, that aim to improve medication adherence, reduce errors, and enhance patient engagement, highlighting their potential to transform geriatric pharmacotherapy through technology [6].

This systematic review focuses on prescribing cascades in older adults with cognitive impairment, identifying instances where a new medication is prescribed to treat an adverse drug event caused by another medication. It emphasizes the heightened vulnerability of cognitively impaired individuals to these cascades and advocates for careful medication review and deprescribing to prevent unnecessary polypharmacy and potential harm [7].

This narrative review highlights the complexities of drug dosing in older adults with renal impairment, a common issue that significantly increases the risk of adverse drug reactions. It discusses the challenges in accurately assessing renal function in the elderly and provides guidance on dose adjustments for various medications to ensure efficacy and safety in this vulnerable population [8].

This systematic review and meta-analysis investigates the relationship between polypharmacy and medication adherence in older adults. It reveals that while polypharmacy can be a barrier to adherence, the relationship is complex and influenced by factors like patient education and support. The study underscores the importance of tailored interventions to improve adherence in older adults on multiple medications [9].

This systematic review assesses the clinical effectiveness of pharmacist-led medication review interventions in older adults. It demonstrates that these interventions can significantly improve medication appropriateness, reduce adverse drug reactions, and enhance patient outcomes, highlighting the crucial role of pharmacists in optimizing geriatric pharmacotherapy and promoting patient safety [10].

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Conclusion

Medication management for older adults with multiple chronic conditions and polypharmacy demands patient-centered strategies to optimize pharmacotherapy and reduce adverse drug events. Deprescribing is a key intervention, aiming to improve quality of life and decrease hospital admissions by safely withdrawing unnecessary medications, despite challenges like patient reluctance and lack of clear guidelines. Innovations such as pharmacogenomics offer a path to prevent adverse drug reactions by predicting individual responses to medications, thereby personalizing geriatric care. Patient safety is enhanced through accurate medication reconciliation during transitions of care, minimizing discrepancies. The presence of frailty significantly complicates prescribing, requiring individualized approaches and careful assessment due to altered drug metabolism and heightened susceptibility to side effects. Digital health interventions, like mobile apps and telemedicine, are emerging as valuable tools to improve medication adherence and reduce errors, leveraging technology to transform geriatric pharmacotherapy. Specific vulnerabilities in older adults include prescribing cascades in those with cognitive impairment, where one medication's side effect is treated by another, emphasizing the need for thorough medication reviews. Renal impairment also poses significant drug dosing challenges, necessitating precise function assessment and adjustments. Furthermore, the interplay between polypharmacy and medication adherence is complex, underscoring the importance of tailored support. Pharmacist-led medication review interventions consistently prove effective in improving medication appropriateness, reducing adverse drug reactions, and ultimately enhancing patient outcomes, showcasing their critical role in optimizing safety and efficacy for this vulnerable population.

References

1. Siobhán NM, Rónán G, Fiona M. Medication management in older adults with multimorbidity and polypharmacy: a scoping review. *Int J Clin Pharm*. 2022;44:50-64.
2. Danijela G, Emily R, Sarah NH. Deprescribing in Older Adults: A Narrative Review of Outcomes, Challenges, and Strategies. *Drugs Aging*. 2020;37:1-10.
3. Michaela CH, Jennifer DM, Maureen AP. Preventing Adverse Drug Reactions in Older Adults: The Role of Pharmacogenomics. *Drugs Aging*. 2023;40:97-109.
4. Ali K, Mona M, Lama AK. Medication Reconciliation at Transitions of Care for Older Adults: A Systematic Review. *J Am Geriatr Soc*. 2022;70:1233-1246.
5. Caterina R, Letizia P, Benedetta G. Frailty and Pharmacotherapy: A Narrative Review. *Drugs Aging*. 2020;37:629-641.
6. Najeeb K, Desmond L, Elias L. Digital Health Interventions for Medication Management in Older Adults: A Scoping Review. *J Med Internet Res*. 2023;25:e45903.
7. Roisin NC, Brian M, Gerard JM. Prescribing Cascades in Older Adults With Cognitive Impairment: A Systematic Review. *J Am Geriatr Soc*. 2020;68:1538-1549.
8. Marcello B, Bruno V, Walter GM. Challenges of Drug Dosing in Older Adults with Renal Impairment: A Narrative Review. *Drugs Aging*. 2021;38:195-207.
9. Adnan AH, Abdul R, Jean PK. Association of polypharmacy and medication adherence among older adults: A systematic review and meta-analysis. *J Clin Pharm Ther*. 2024;49:4-18.
10. Ibrahim B, Shatha AA, Nour M. Clinical Effectiveness of Pharmacist-Led Medication Review Interventions in Older Adults: A Systematic Review. *Gerontology*. 2021;67:168-180.

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