

# The Role Of Pharmacists In Optimizing Polypharmacy Management Among Older Adults: A Systematic Review

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## Abstract

Polypharmacy among older adults presents one of the most complex challenges in modern healthcare, directly impacting patient safety, therapeutic efficacy, and healthcare costs. As populations age and multimorbidity becomes the norm, traditional, physician-centered medication management models have proven insufficient to mitigate the escalating risks of adverse drug events, hospital readmissions, and reduced quality of life. This systematic review critically synthesizes current evidence on the role of pharmacists in optimizing polypharmacy management through proactive, structured interventions, including comprehensive medication reviews, deprescribing initiatives, and collaborative care models across healthcare settings. The findings reveal that while conventional medication oversight focuses primarily on prescription accuracy and adherence, it often neglects the dynamic interactions between multiple therapeutic agents and patient-specific factors such as frailty, renal function, and cognitive decline. Pharmacist-led strategies—particularly those integrating tools like the Beers Criteria, STOPP/START guidelines, and individualized deprescribing algorithms—demonstrate superior outcomes by systematically identifying and resolving medication-related problems before they escalate to clinical harm. Importantly, the success of these interventions is strongly mediated by interprofessional collaboration, continuity of care, and supportive health-system structures, including access to integrated electronic health records and decision-support systems. Therefore, the most effective approach to polypharmacy management is a multidisciplinary one, wherein pharmacists act not merely as dispensers but as integral members of the clinical decision-making team. Embedding pharmacist-led medication optimization into geriatric care pathways reframes pharmacotherapy from a reactive corrective process into a proactive, patient-centered practice essential to promoting safe aging, reducing healthcare burden, and enhancing therapeutic value across the continuum of care.

## Introduction and Conceptual Framework

### The Geriatric Challenge: Defining Polypharmacy and the Burden of Potentially Inappropriate

## **Prescribing (PIP)**

The management of pharmacotherapy in the aging population is one of the most significant challenges in modern healthcare. Older adults, generally defined as those aged 60 years and older, frequently present with multimorbidity, necessitating complex and extensive medication regimens. This clinical pattern often results in polypharmacy, a state widely recognized to increase the risk of adverse drug reactions (ADRs), subsequent hospitalizations, and overall mortality. Addressing polypharmacy is critical, as any superfluous drug can potentially be dangerous in this cohort [1].

Crucially, the risk is not solely defined by the sheer number of medications, but by the qualitative nature of prescribing, leading to Potentially Inappropriate Prescribing (PIP) and the use of Potentially Inappropriate Medications (PIMs). PIMs are defined by medications that should generally be avoided among older adults because they carry either a high risk of adverse events in this population or limited evidence of benefits compared to safer, more effective alternatives. The prevalence, cost, and harm associated with PIM use underline the necessity for structured, evidence-based medication review to optimize prescribing quality in this vulnerable cohort.

## **The Role of the Pharmacist: Comprehensive Medication Review (CMR) and Deprescribing**

A pharmacist-led Comprehensive Medication Review (CMR) constitutes a structured, systematic intervention designed to identify and resolve drug-related problems in complex patients. The core goals of studies evaluating CMRs are centered on optimizing the drug regimen and enhancing the quality of prescribing in elderly patients. This process often involves pharmacists using explicit criteria (e.g., STOPP/START) to suggest deprescribing—the planned method of reducing or stopping medications—or to recommend alternative, more appropriate therapies. The structure of these interventions varies across studies. The pharmacist's role ranges from performing reviews and providing clinical recommendations to the primary prescriber to being integrated into a multifaceted team that utilizes educational and organizational strategies. The general aim across most controlled studies has been to enhance prescribing quality, often tracking metrics such as the reduction in the number of medications as a secondary outcome [2]. The effectiveness of the intervention is intrinsically linked to the pharmacist's ability to successfully implement changes, either directly or through collaborative agreement with the physician.

## **Rationale and Scope of Evidence Synthesis**

To establish robust policy and clinical guidelines, evidence must be sourced from the highest level of methodological rigor. Therefore, this synthesis focuses specifically on the findings derived from existing systematic reviews and meta-analyses which have compiled and assessed the quality of individual Randomized Controlled Trials (RCTs). RCTs are essential for assessing causality and defining the true efficacy of pharmacist interventions against controls.

The scope of this investigation aligns precisely with the user query, encompassing evaluations of pharmacist-led CMRs in adults aged 60 years and older, drawn from global English-language literature. The comparators identified in these studies were broad, including "Usual Care" (standard treatment without the structured intervention) and "Other Active Interventions" (non-pharmacist-led efforts). The primary outcomes analyzed are the effect of the intervention on the total number of medications prescribed (polypharmacy) and the use of potentially inappropriate medications (PIMs) [3].

## **Efficacy on Primary Outcomes: Quantitative Impact on Prescribing Metrics**

### **Impact on the Total Number of Medications (Polypharmacy Reduction)**

A critical assessment of the RCT evidence reveals a highly conflicting and often disappointing picture regarding the ability of pharmacist-led interventions to significantly reduce the absolute number of medications prescribed (i.e., achieving a numerical reduction in polypharmacy). A major systematic review

assessing the impact of pharmacists on polypharmacy reduction, which included eight RCTs (totaling 3,277 participants), found that the majority of trials reported no significant effect on the number of medications prescribed when a pharmacist was involved, compared with control groups (5 of 8 RCTs).<sup>2</sup> While one RCT did report a clear reduction in the number of medications, the remaining two positive results merely reported a smaller increase in prescribed drugs compared to controls. This nuance is highly important, as it suggests that for many trials, the positive conclusion regarding polypharmacy was primarily supported by findings from six non-randomized controlled trials, evidence which was explicitly noted to not be supported by the higher-quality RCT evidence base.<sup>2</sup> Consequently, generalized conclusions stating that pharmacist intervention can reduce the number of drugs must be treated with caution [4].

This lack of consistent numerical reduction suggests that the value of the pharmacist intervention should not be solely defined by quantitative metrics. The discrepancy between the failure to reduce the total number of drugs and the success in improving drug quality highlights a divergence in clinical goals. For many patients, the intervention functions less as an aggressive deprescribing campaign aiming to cut drug count from 10 to 5, and more as a qualitative optimization strategy. In this context, the finding that two trials reported a smaller increase in prescribed drugs relative to controls suggests a protective or stabilizing function, mitigating the natural tendency for polypharmacy to creep upward over time—a key clinical benefit distinct from mass deprescribing. It is also important to consider that a reduction in medication count was often tracked as a secondary outcome, potentially leading to studies being underpowered for this specific metric. The findings regarding medication count reduction are summarized in Table I.

**Table I: Quantitative Outcomes of Pharmacist Intervention on Total Number of Medications (Based on RCT Synthesis)**

| <b>Finding Category</b>       | <b>Count of RCTs Reporting Finding (Approximate)</b> | <b>Nature of Reported Effect</b>                                        | <b>Implication for Polypharmacy Management</b>                                                                              |
|-------------------------------|------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| No Significant Effect         | 5                                                    | Change in medication count statistically similar to control group.      | Challenges the general efficacy of generic pharmacist involvement in forced numerical deprescribing.                        |
| Significant Reduction         | 1                                                    | Clear decrease in medication number post-intervention.                  | Indicates potential success under specific, optimal conditions (requires further research into successful trial protocols). |
| Smaller Increase than Control | 2                                                    | Intervention limited or slowed the natural progression of polypharmacy. | Suggests a protective, stabilizing effect against creeping polypharmacy over time.                                          |

## **Efficacy in Reducing Potentially Inappropriate Medications (PIMs)**

In stark contrast to the ambiguous results concerning the absolute number of medications, there is strong and consistent evidence supporting the efficacy of pharmacist-led CMRs in reducing the use of Potentially Inappropriate Medications (PIMs). Multiple systematic reviews have converged on this positive finding. One review of interventions across hospitals, care homes, and community settings reported positive outcomes, including PIM reduction, in 12 of 14 studies. A separate synthesis confirmed that six systematic reviews documented a statistically significant reduction in inappropriately prescribed medications. The inclusion of a pharmacist in the PIM intervention team appears highly beneficial; in relevant studies, the success rate for interventions was 72.7% when a pharmacist was part of the team, compared to 62.5% when they were not.<sup>5</sup> Even in targeted U.S. settings, such as Medication Therapy Management (MTM) programs for Medicare populations, PIM use was reduced in 5 of 7 studies reviewed[5].

While the success rate is high, the reported magnitude of PIM reduction varies dramatically, ranging from as low as 3.5% up to 87%. This immense variance underscores a crucial methodological challenge: the results are highly dependent on the definitions, criteria, and explicit tools utilized for the review. Benzodiazepines and antipsychotics were frequently cited as the most common classes of PIMs targeted for reduction across these studies. The significant variation in the magnitude of PIM reduction—from minimal impact to near-complete elimination—raises questions about methodological consistency and the baseline appropriateness of prescribing prior to intervention. If policy and practice guidelines are to be consistent and reproducible, measuring only a vague "PIM reduction" is insufficient. Future policy benchmarks must transition toward standardizing both the intervention protocol and the criteria used (e.g., mandating the use of the latest, most sensitive explicit tools). This standardization is necessary to ensure that trials globally are measuring the same quality outcome in the same high-risk cohorts, thereby ensuring the success metric reflects actual clinical improvement rather than simply compliance with less rigorous screening criteria.

## **Determinants of Efficacy: Tools, Settings, and Comparators**

### **The Role of Explicit Screening Criteria in CMRs**

The effectiveness of pharmacist-led interventions in reducing PIMs is inextricably linked to the validated, explicit screening tools employed. These tools provide the necessary structure and evidence base to identify and justify changes to complex drug regimens. The Screening Tool of Older Persons' Prescriptions (STOPP) and the Screening Tool to Alert to Right Treatment (START) are recognized as essential explicit criteria facilitating medication review in multi-morbid older people. STOPP focuses on identifying medications that should be stopped due to potential harm or adverse effects (PIMs), while START highlights potential omissions (POMs) that are essential for preventing or managing specific conditions. The comprehensiveness of these criteria continues to expand, reflecting advancements in geriatric medicine, moving from 65 STOPP criteria in the initial version to 133 STOPP and 57 START criteria in the most recent version 3[6].

The utility of STOPP/START is often compared with other tools, such as the widely known Beers criteria. Studies have reported that STOPP/START criteria are more sensitive in identifying PIMs than the Beers criteria in six of seven observational comparisons. Critically, the STOPP criteria identified more medications associated with adverse drug events (ADEs) than the 2002 version of the Beers criteria, indicating superior predictive power for clinical harm. In one study, patients identified with potentially inappropriate prescribing by STOPP showed an 85% increased risk of adverse drug events (Odds Ratio = 1.85, 95% CI: 1.51–2.26). Because the selection of criteria directly impacts the detection of high-risk medication issues, using less sensitive criteria in an RCT risks significantly underreporting PIM prevalence and obscuring the true magnitude of the intervention's benefit. Therefore, policy developers should mandate the use of the most current and sensitive explicit criteria (e.g., STOPP/START V3) in all prospective

medication review programs. Other critical tools include the Medication Appropriateness Index (MAI), which significantly improved prescribing appropriateness in 35% of studies and was noted to enhance complex hospital reviews. For specialized settings, tools like STOPPFrail have proven effective, specifically reducing PIMs in care home environments [7].

**Table II: Comparative Utility of Major Explicit Criteria for Potentially Inappropriate Medication (PIM) Identification**

| Criteria (Tool)                               | Focus Area                  | Key Sensitivity/Utility Finding                                                                  | Typical Setting                              |
|-----------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------|
| <b>STOPP</b>                                  | PIMs (What to stop)         | More sensitive than Beers criteria; identified medications linked to 85% increased risk of ADEs. | Diverse: Community, Hospital, Care Homes     |
| <b>START</b>                                  | Potential Omissions (POMs)  | Essential partner to STOPP; ensures necessary drugs are initiated for management/prevention.     | Diverse: Community, Hospital, Care Homes     |
| <b>Beers Criteria</b>                         | PIMs (What to avoid)        | Older versions generally less sensitive than STOPP; widely known but may miss critical issues.   | Primarily U.S. outpatient and long-term care |
| <b>Medication Appropriateness Index (MAI)</b> | Overall prescribing quality | Enhanced complex hospital reviews; tracks granular improvement in appropriateness.               | Hospital/Complex acute care settings         |

### Analysis of Control Group Design in RCTs

The design of control arms in CMR RCTs is fundamental to interpreting efficacy. The most common comparators used are Usual Care or Other Active Interventions that do not involve a pharmacist. The use of "usual care" presents both a practical necessity for pragmatic trials and a methodological challenge. Usual care describes the full spectrum of patient practices where clinicians have the opportunity, but not

necessarily the mandate, to individualize care. This variability means that "usual care" may not reflect "best current care," potentially allowing for an inflation of the intervention's benefit if the control group receives substandard, highly individualized, and non-protocolized treatment. Nonetheless, comparing a defined protocol against usual care is standard practice for pragmatic effectiveness trials. Interestingly, patient-reported outcomes show that medication reviews achieved significantly higher patient satisfaction rates compared with usual care in two moderate-quality RCTs.

### **Contextual Variation in Success Rates**

The environment in which the CMR is performed critically influences the nature of the drug-related problems encountered and the corresponding intervention strategy. In the hospital setting, medication review is deemed the most assertive strategy for reducing PIMs, often aided by technology. Computerized Decision Support Systems (CDSS) interventions have been successful in significantly reducing PIM numbers in hospitalized older adults. Conversely, in care homes, tools like STOPPFrail are context-specific and effective in reducing PIMs. Community and primary care interventions have been effective in improving adherence and reducing the use of fall risk drugs. However, a key limiting factor in primary care settings is the observed lack of CDSS, which contrasts with its positive impact in hospital settings. Furthermore, the strategy of the intervention matters. Multifaceted strategies—those that include education messages, recommended behavior alternatives, and organizational changes—are often observed to be more successful in changing health professional prescribing behavior than singular interventions, such as merely presenting a physician with a decision algorithm [8].

### **Clinical and Economic Outcomes: Beyond Prescribing Metrics**

#### **Secondary Clinical Safety Outcomes**

The success demonstrated in reducing PIMs translates directly into positive findings for immediate clinical safety metrics. Pharmacist-led interventions have consistently improved prescribing quality, leading to reported reductions in Adverse Drug Reactions (ADRs), a decrease in medication burdens, and reduced risks of falls and fall-related injuries. Patient-reported outcomes are mixed but often favorable. For instance, one RCT demonstrated that medication reviews significantly improved patients' clinical response to knee pain management (using the OMERACT-OARSI responder criteria) at 3 months compared with usual care. However, the same study showed that the intervention did not produce a significant difference in the change in depression or anxiety scores compared to the usual care control group [9].

#### **Impact on Systemic Metrics and Resource Utilization**

Despite clear evidence that pharmacist interventions reduce proximal harm (PIMs and ADRs), a major methodological failing in the current body of RCT evidence is the consistent inability to demonstrate a sustained impact on high-level health system metrics and resource utilization. Multiple systematic reviews have confirmed that successful PIM reduction does not reliably translate into improved population-level system outcomes. Specifically, no studies demonstrated a reduction in hospitalizations, mortality, or length of stay (LOS). Although two systematic reviews reported a decrease in hospital admissions, the overall evidence supporting this outcome remains insufficient and highly variable. Economic analyses supporting the interventions also reflect this uncertainty, demonstrating mixed cost-effective results. Older controlled studies frequently reported cost savings, but it was often difficult to definitively assess whether these savings corresponded with a tangible clinical benefit to the patient [10].

The disconnect between proximal clinical safety improvements (PIM reduction) and the absence of distal system improvements (hospitalization/mortality reduction) strongly indicates a critical implementation gap. The mechanism of the review itself is clinically sound—it improves prescribing quality and lowers immediate risks—but the intervention fails to achieve system-wide resource savings because the results are not scaled or sustained long enough to affect high-cost events like hospital admissions. Key barriers cited

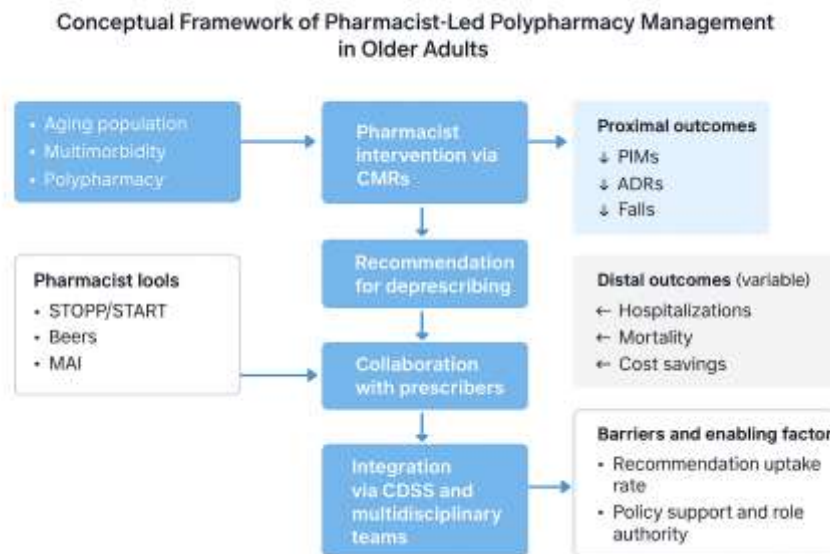
for this failure include the low uptake rate of pharmacist recommendations by prescribers and short follow-up periods in the trials, which fail to capture the required duration for changes in pharmacotherapy to impact institutional utilization.<sup>1</sup> Future policy and research must therefore shift focus from proving if CMRs work (which is proven for PIM reduction) to determining how to ensure widespread, consistent adoption and sustained impact necessary to influence distal outcomes.

### Assessment of Evidence Quality and Bias

The methodological rigor of the RCTs evaluating pharmacist interventions has been a consistent point of concern. The overall quality assessment of the synthesized evidence often ranges from moderate to critically low. Specific methodological limitations include low detail in reporting, studies frequently focusing only on inpatient populations (limiting generalizability to community settings), and wide variations in intervention protocols and primary endpoints. Earlier systematic reviews that concluded positive effects on polypharmacy were later shown to rely heavily on non-randomized data, which masked the failure of the pharmacist intervention to significantly reduce the absolute number of drugs in the higher-quality RCTs. A necessary next step for robust research is greater standardization of trial designs, criteria utilized, and extended follow-up periods[10].

### Translational Challenges and Future Implementation

The failure of pharmacist-led CMRs to consistently impact system metrics like hospitalizations, despite proven clinical efficacy in reducing PIMs, highlights critical translational barriers within the healthcare ecosystem.



### Barriers to Successful Deprescribing and Recommendation Acceptance

The consistent documentation of a low uptake rate for pharmacist recommendations is the primary limiting factor in achieving maximal clinical and economic outcomes. The problem lies largely outside the technical skill of the pharmacist, whose success rate in reducing PIMs when involved is 72.7%. Instead, the limiting factors are systemic and relational[11].

**Clinician-Related Barriers** are numerous and widespread:

1. **Clinical Complexity:** Prescribers frequently cite the high degree of medical complexity,

multimorbidity, and potential interactions between diseases and medications in older adults as barriers to rationalizing or deprescribing.

2. **Knowledge and Confidence:** A significant portion of prescribers (71.69%) agree that a lack of formal education on prescribing for the elderly is a top barrier. Prescribers may also lack awareness of PIP/PIMs, possess poor insight into the process of deprescribing, or feel uncomfortable with deprescribing, particularly if they were not the original prescriber.<sup>15</sup>
3. **Systemic and Access Issues:** Practical limitations such as limited time and a lack of access to complete medical records detailing the patient's full medication intake or side effects impede appropriate prescribing.

The persistence of these clinician and system barriers demonstrates that the issue has shifted from a question of clinical efficacy to one of health services delivery. Pharmacists effectively identify drug-related problems and propose clinically sound solutions, but the current clinical infrastructure—characterized by poor information flow, time constraints, and a lack of enforced collaboration—prevents the widespread adoption of these solutions. Funding and strategic focus must therefore pivot toward mandatory, integrated system reforms that mandate recommendation uptake and support information transfer[12].

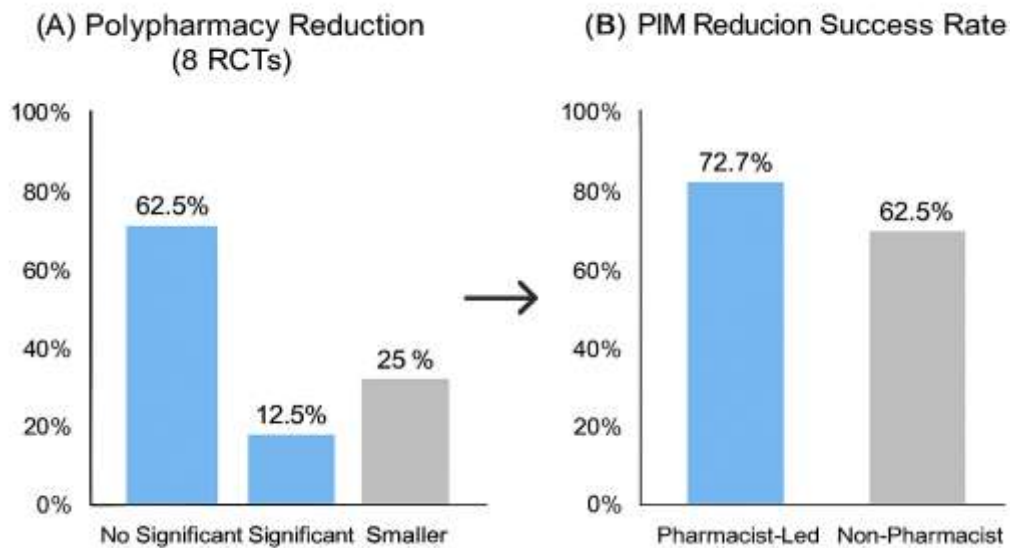
### **Strategies for Optimizing Implementation and Uptake**

Addressing these deep-seated barriers requires comprehensive policy and technological reforms, moving beyond traditional educational strategies alone.

**Policy and Role Expansion** are critical enablers. Policy reforms must focus on expanding the clinical role of the pharmacist, including the implementation of collaborative practice agreements that empower pharmacists to initiate deprescribing protocols under physician oversight. Such reforms are deemed essential for translating clinical gains into sustained health system benefits.

**Technology Solutions** offer robust mechanisms for supporting complex decision-making and enforcing changes. Computerized Decision Support Systems (CDSS) have demonstrated success in reducing PIMs in the hospital setting.<sup>5</sup> Investment is required to ensure CDSS availability and usability in the primary care setting, where such systems are often lacking due to outdated user interfaces [13].

**Team and Educational Strategies** remain vital components. Educational strategies that focus on recommended behavior alternatives and organizational changes have been shown to be effective in altering prescribing habits.<sup>5</sup> Furthermore, embedding pharmacists within multidisciplinary care teams, particularly during high-risk transitions such as hospital discharge or nursing-home admission, is a necessary organizational strategy to enhance medication safety and ensure continuous monitoring [14].



The necessary strategies to overcome implementation inertia are summarized in Table III.

**Table III:** Key Barriers and Evidence-Based Solutions to Pharmacist Recommendation Uptake

| Barrier Category               | Specific Challenge                                                    | Evidence-Based Strategy (RCT/Review Support)                                                   | Snippet Reference |
|--------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------|
| <b>Systemic/Organizational</b> | Low uptake rate of recommendations.                                   | Expanded pharmacist roles, collaborative practice agreements, and policy reforms.              | 1                 |
| <b>Prescriber/Clinical</b>     | Lack of knowledge/comfort with deprescribing.                         | Multifaceted educational strategies focusing on behavior alternatives and recommended actions. | 5                 |
| <b>Technological/Access</b>    | Lack of access to comprehensive medical records; outdated interfaces. | Implementation of Computerized Decision Support Systems (CDSS) in primary and hospital care.   | 5                 |
| <b>Complexity</b>              | Multimorbidity and high-risk transitions (e.g., discharge).           | Embedding pharmacists within multidisciplinary care teams during high-risk phases.             | 15                |

## Synthesis, Knowledge Gaps, and Expert Recommendations

### Synthesis of Conflicting Evidence and Thematic Conclusion

The synthesis of randomized controlled trial evidence confirms that pharmacist-led Comprehensive Medication Reviews are a validated, high-quality clinical mechanism for improving prescribing safety in older adults. The intervention consistently and significantly reduces Potentially Inappropriate Medications (PIMs) and associated risks such as Adverse Drug Reactions (ADRs) and falls [15].

However, the efficacy of the intervention is sharply bifurcated: while qualitative improvements in prescribing quality are achieved, RCT evidence does not reliably support numerical polypharmacy reduction, and crucially, fails to demonstrate a sustained positive impact on high-level system metrics, including hospitalization rates and mortality. This core inconsistency is not indicative of clinical failure but rather of a severe implementation gap. The successful proximal changes in prescribing quality are effectively neutralized by systemic factors, particularly low recommendation uptake and the inadequate duration of follow-up in research required to demonstrate long-term, population-level economic benefits [16,17].

### Critical Gaps in Current RCT Literature

To resolve the critical implementation gap and fully realize the systemic potential of CMRs, future research must address several methodological shortcomings:

1. **Standardization Gap:** The large variance observed in PIM reduction (3.5% to 87%) highlights the urgent need for standardized intervention protocols. Future trials must mandate the use of the most current and sensitive explicit screening criteria (e.g., STOPP/START V3) to ensure results are comparable and clinically meaningful.
2. **Follow-up Duration:** Short follow-up periods are consistently identified as a key barrier. RCTs must transition to pragmatic effectiveness designs with extended observation periods (ideally 12 months or more) to capture the true effect on costly distal outcomes like hospitalizations.
3. **Process Metrics:** Future studies must formally track and report the rate of prescriber acceptance of pharmacist recommendations as a primary process outcome. Understanding why recommendations are rejected is as important as measuring the clinical endpoint.
4. **Economic Clarity:** Rigorous economic modeling is required to link the investment in advanced pharmacist roles and technology (such as CDSS) directly to sustained, long-term savings derived from avoided healthcare utilization.

### Recommendations for Clinical Practice, Policy, and Future Research

Based on the evidence derived from systematic reviews of randomized controlled trials, the following recommendations are provided for implementation:

#### Clinical Practice Recommendations

- **Mandate Sensitive Criteria:** Healthcare systems must mandate the use of the most current, comprehensive, and sensitive explicit criteria (currently STOPP/START V3) in all comprehensive medication reviews for older adults to maximize the detection of high-risk PIMs and Potential Omissions.
- **Targeted Intervention:** Focus intervention efforts on high-risk settings (hospital discharge, care homes) and leverage setting-specific tools (e.g., MAI for complex hospital cases; STOPPfrail for residential care).

## Research Recommendations

- **Pragmatic Design:** Future RCTs must adopt pragmatic designs with a strong focus on assessing long-term health outcomes over periods exceeding 12 months.
- **Measure Implementation Success:** Research should explicitly measure and report the acceptance rate of pharmacist recommendations as a primary process outcome, alongside clinical metrics, to identify precise points of system failure in the care continuum.
- **Frequency and Intensity:** Further interventional studies are needed to determine the optimal frequency and intensity of follow-up required to maintain deprescribing gains over time and minimize the risk of renewed polypharmacy.

## Conclusion

The systematic synthesis of Randomized Controlled Trial (RCT) evidence establishes pharmacist-led Comprehensive Medication Reviews (CMRs) as a clinically validated mechanism for enhancing medication safety in older adults. The data unequivocally confirms their power in achieving proximal success by consistently and significantly reducing Potentially Inappropriate Medications (PIMs), thereby mitigating immediate risks like Adverse Drug Reactions (ADRs) and falls. The pharmacist, leveraging explicit screening criteria like STOPP/START, has moved beyond a traditional dispensing role to become a non-negotiable clinical necessity in complex geriatric care.

However, the evidence exposes a critical and unacceptable translational failure: this proven clinical benefit rarely translates into sustained distal outcomes, such as reduced hospitalization rates or mortality. This critical discontinuity is not a flaw in the pharmacist's skill, but rather a failure of the healthcare system to integrate and enforce clinical change. The demonstrated low uptake rate of pharmacist recommendations by prescribers is the primary bottleneck, reflecting deep-seated issues in clinical workflow, information exchange, and policy support.

The mandate for future action is clear. The focus must pivot from proving efficacy (which is established for PIM reduction) to mandating systemic integration. Achieving true population health and economic value requires comprehensive, multi-faceted reform: expanding the pharmacist's scope through collaborative practice agreements, embedding them in high-risk transitions, and investing in ubiquitous Computerized Decision Support Systems (CDSS). Only by eliminating the organizational inertia that currently neutralizes clinical gains can we transform polypharmacy management from an intermittent service into a proactive, sustained, and foundational pillar of safe, high-quality aging. The time for proving the pharmacist's worth has passed; the time for enforcing their critical role in health policy is now.

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