

A Systematic Review of RCTs Outcomes of Deprescribing in Older Adults with Polypharmacy

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BACKGROUND

- Deprescribing interventions typically involve the withdrawal, reduction, or substitution of potentially inappropriate medications to improve clinical outcomes.
- Mixed findings about deprescribing impact have emerged from varied study designs, interventions, outcome measures, and targeting sub-categories of medications or morbidities.
- This systematic review controls for study design by reviewing randomized controlled trials (RCT) of deprescribing interventions using comprehensive medication profiles.
- Characteristics of interventions that had significant beneficial outcomes are explored for factors that contributed to their positive effects.

OBJECTIVES

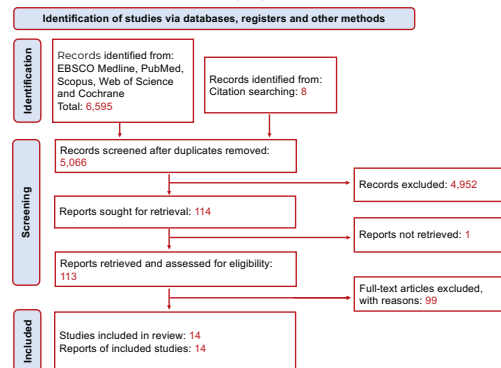
This systematic review aims to:

- Review RCT deprescribing studies focusing on complete medication reviews of older adults with polypharmacy across all health settings.
- Map patients' clinical and economic outcomes against intervention and implementation strategies using the Consolidated Framework for Implementation Research.
- Inform research agendas, policy makers and healthcare providers of observed benefits and best practices.

METHODS

- PRISMA guidelines were used for the review.
- Inclusion criteria were older adults ≥ 65 with chronic conditions on ≥ 5 regular medications receiving deprescribing intervention that assessed the whole regimen.
- Comparator was "usual care". Outcomes were changes in number and/or doses of drugs and clinical or economic outcomes.
- Bias was assessed using the Cochrane Risk of Bias tool for RCT.

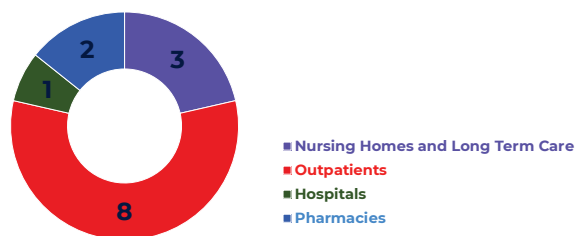
FLOWCHART



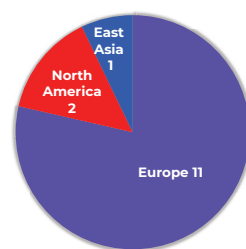
RESULTS

- Fourteen articles were included, thirteen (92.9 %) found deprescribing interventions reduced the number of drugs and/or doses.
- Four of the five studies identifying health related quality of life, powered as a primary outcome found significant effects with deprescribing.
- All studies with cost as an outcome, with two as powered primary outcome, found significant effects.
- No study found threats to patient safety in terms of primary outcomes including morbidity, hospitalizations, emergency room use, and falls.

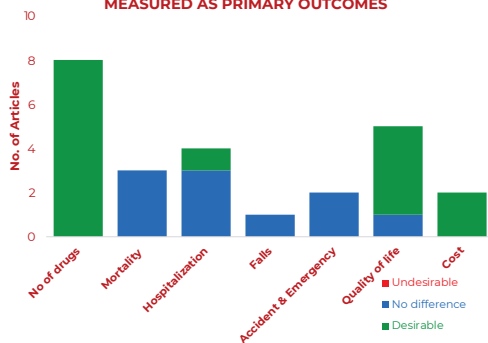
SETTINGS



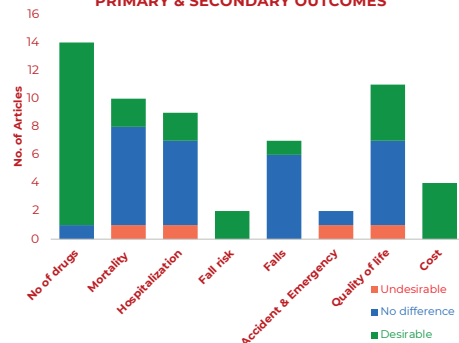
REGIONS



MEASURED AS PRIMARY OUTCOMES



PRIMARY & SECONDARY OUTCOMES



INTERVENTION COMPONENTS AND PRIMARY OUTCOME

Year/ First Author	INTERVENTION CHARACTERISTICS				OUTER SETTING - Patient's Needs, Resources & Reactions				INNER SETTING - Professional's Preparation & Readiness for Implementation				CHARACTERISTICS OF PHYSICIAN				PROCESS				PRIMARY OUTCOME (Down arrow - Sig. decrease; Up arrow - Sig. increase)			
	Adaptability & Physician Acceptance	Complexity	Follow up with patients	Patient goals focused	Patient Fruity	Patient's readiness	Interprofessional collaboration	Self self pre-education	Physician Communication	Physician Decision Support	Database or algorithm	Specialized examiners & test results	Knowledge & Beliefs	Self-efficacy	Pharmacist recommendation	Physician makes recommendation	Executing Plan	Reflecting & Evaluating	No. of Drugs	HRQoL	Cost	Mortality	Hospitalization	Falls
2020/Balsom C.	★																							
2017/Campins, L.	★																							
2021/Cateau, D.	★																							
2020/Curtin, D.	★																							
2015/Jo'dar-Sa'nche F.																								
2022/Kornholt, J.	★																							
2021/Kua, C. H.	★																							
2014/Lenander, C.	★																							
2021/Mahiknecht, A.	★																							
2022/McCarthy, C.	★																							
2020/Rieckert, A.	★																							
2020/Romskaug, R.	★																							
2019/Verdoorn, S.	★																							
2004/Williams, M. E.	★																							

Green color - Intervention component; Red stop sign - Reported barrier/limitation; Blue star - Reported facilitator; Down arrow - Significant decrease; Up arrow - Significant increase

Omuya et al., A systematic review of randomised-controlled trials on deprescribing outcomes in older adults with polypharmacy. *Int J Pharm Pract*. May 8 2023;doi:10.1093/ijpp/riad025

Cochrane Risk of Bias Assessment for number of drugs/doses deprescribed

Study	Risk of bias domains					
	D1	D2	D3	D4	D5	Overall
Balsom C. 2020	+	+	+	+	+	+
Campins, L. 2017	+	-	+	+	+	-
Cateau, D. 2021	+	+	+	+	+	+
Curtin, D. 2020	+	-	+	+	+	-
Jo'dar-Sa'nche F. 2015.	+	+	+	+	+	+
Kornholt, J. 2022	+	✗	+	+	+	✗
Kua, C. H. 2021	+	+	+	+	+	+
Lenander, C. 2014	+	+	+	+	+	+
Mahiknecht, A. 2021	-	+	+	+	+	-
McCarthy, C., 2022	+	-	+	+	+	-
Rieckert, A. 2020	+	-	+	+	+	-
Romskaug, R. 2020	+	+	+	+	+	+
Verdoorn, S. 2019	+	+	+	+	+	+
Williams, M. E. 2004	-	+	+	+	+	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
High
Some concerns
Low

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DISCUSSION

- Interventions were mapped to the Consolidated Framework for Implementation Research.
- Four primary strategies were used to implement deprescribing interventions.
- Five studies had significant, positive primary outcomes in health-related quality of life, cost, and/or hospitalization; four of these studies reported a focus on patient goals and two studies had patient follow-up visits.
- The most common barriers to deprescribing were clinician time constraints, reluctance of patients & providers to adopt recommendations, lack of clinician knowledge, and incomplete interprofessional team involvement.
- Facilitators of deprescribing were patients' involvement in decisions and interprofessional collaboration with consensus.
- Insufficient power for outcomes measures and short study durations limited detection of clinical significance in some studies.

CONCLUSION

RCT primary outcomes found deprescribing is safe and reduces drug number or dose. Five RCTs found significant deprescribing impact on HRQoL, cost and/or hospitalization. Important future research agendas include analyzing (1) understudied outcomes like cost, (2) intervention and implementation components that enhance effectiveness, such as patient-centered elements.

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