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:
1. Review RCT deprescribing studies focusing on complete medication reviews of older adults with polypharmacy across all health settings.
3. 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.

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.

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.