

## INTRODUCTION

**PROBLEM:** Polypharmacy and adverse medication reactions in those ≥ 65 years are key problems.

**OBJECTIVES:** Compute patient average percentages weighted by study size for American Geriatric Society Beers 2015 and STOPP 2015 criteria “Potentially Inappropriate Medications” and START criteria “Potential Prescribing Omissions” (PPOs).

**DESIGN:** Systematic review; searches Medline, Pub Med and Embase 2 January 2019; 563 abstracts/titles independently assessed, data from 62 independently abstracted.

## METHODS

**SEARCH:** 7 databases, 9 grey literature resources to January 2019. No date/language restrictions.

**RISK-OF-BIAS:** Using the STROBE Checklist the STOPP/START 2015 studies scored an average of 20/22, the AGS 2015 studies 20.3/20 and the studies which used both criteria 20.5/22.

## RESULTS

**Studies:** 2 RCTs and 60 non-randomised studies.

**Patients:** 1,854,698 from 33 countries

We know most about community patients (1,843,637) and very little about hospitalised patients (12,913 = 0.7%)

### Patients assessed with STOPP criteria

Community patients			Hospitalised patients		
No of medications	≥ 1 PIM	≥ 1 PPO	No of medications	≥ 1 PIM	≥ 1 PPO
9	43%	35%	8	52%	64%

### Patients assessed with American Geriatrics Society criteria

Community patients		Hospitalised patients	
No of medications	≥ 1 PIM	No of medications	≥ 1 PIM
8	58%	11	56%

### Patients assessed with both STOPP and American Geriatrics Society criteria

Community patients		Hospitalised patients	
≥ 1 STOPP PIM	≥ 1 AGS PIM	≥ 1 STOPP PIM	≥ 1 AGS PIM
34%	47%	42%	61%
PIM= “potentially inappropriate medication” ; PPO = “potential prescribing omission “			

**Most frequent PIMs:** benzodiazepines, proton pump inhibitors, drugs without clinical indication, antipsychotics, anticholinergics, antihistamines, duplicate drug classes, NSAIDS, Z drugs and opioids

**Most frequent PPOs:** platelet anti-aggregants, and statins and angiotensin converting enzymes with heart failure or coronary artery disease

## RESULTS (continued)

21/21 studies which compared PIMs and polypharmacy found they were correlated

Of the 6 studies which measured rehospitalisation 5/6 found it correlated with PIMs

Of the 4 studies which measured length of stay 4 found it correlated with PIMs

Of the 10 studies which observed change over time 8 found PIM rates decreased

Thus research at the present is nearly entirely retrospective documentation of PIM rates with minimal assessment of correlations with patient outcomes

## CONCLUSIONS:

### There are only two RCTs (both Canadian)

Cossette (2017) found 48% of patients in the intervention group had their medications of concern either discontinued or the dosage increased compared to 27% in the control group

P. Martin (2018) found after 6 months 43% of patients in the intervention group no longer filled medications related to falls in seniors compared to 12% in the control group.

**OVERALL CONCLUSION.** We need RCTs adequately powered assessing:

1. Detailed reviews of medications with patients, their ideas and reactions to their medications with their physicians and pharmacists.
2. Before hospital discharge a detailed deprescribing plan sent to the family physician and then a phone call between the physicians.
3. Assessments of the frequency and causal relationships between adverse medication events, rehospitalisations and deaths due to Adverse Medication Events.
4. EBM Software with decision making assistance to implement changes
5. Monitoring and prompt initiatives at the health system level of the exposure of each patient to “potential inappropriate medications,” and detection of adverse medication events.