RACGP
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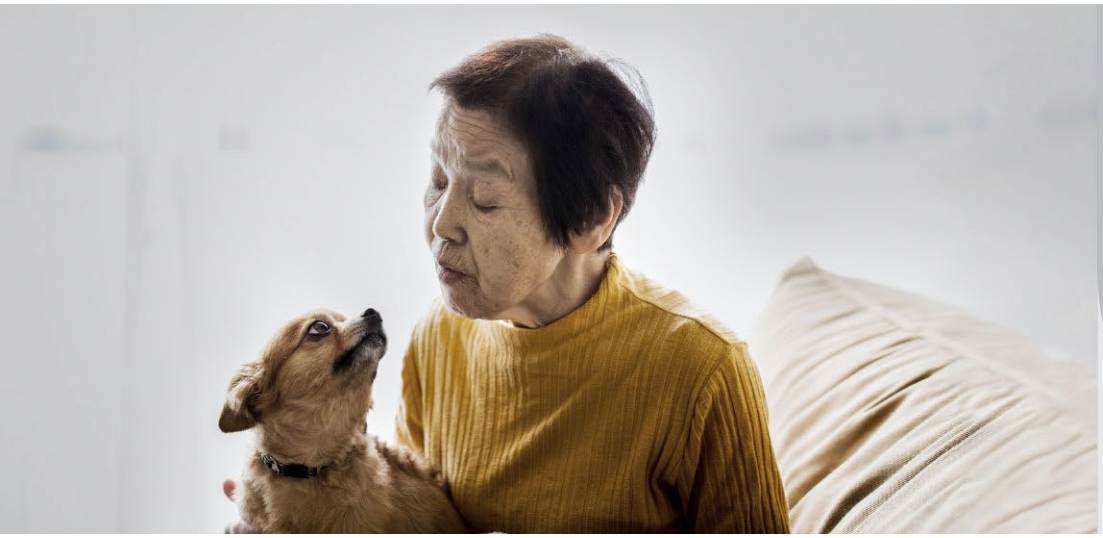
Part A. Polypharmacy



General principles

- The higher prevalence of disease states in older people means they take many medicines.
- The risk of adverse drug events and drug interactions increase with the number of medicines taken.
- Polypharmacy is associated with suboptimal prescribing.
- Good practice requires regular review of a patient's medicines, medical conditions and comorbidities.

Practice points

Practice points	References	Grade
Only use medicines associated with strong evidence of benefit when indicated, and cease those with questionable or no evidence of efficacy	11	Consensus-based recommendation
Identify inappropriate prescribing in older people using the Beers Criteria, with varying levels of evidence for different patient groups	12	Various, refer to Table 2 in reference 12
All prescribing criteria have limitations and do not substitute for good clinical decision making; however, they are prompts for potentially inappropriate prescribing	9	Consensus-based recommendation
Review the medication of all older people (ie prescribed, over-the-counter, complementary and alternative medicines) and attempt to deprescribe, particularly for those who are vulnerable to the adverse effects of medication	3, 4	Consensus-based recommendation
Consider indications, therapeutic aims, dose, efficacy, safety and ability to use devices as part of the patient's medication review	4	Consensus-based recommendation
Calculate renal function and consider hepatic impairment for all patients, especially those with polypharmacy	4	Consensus-based recommendation

Check for drug interactions, side effects and adverse drug reactions	4	Consensus-based recommendation
Medicines (including complementary and alternative medicines) must be written on the patient's medication chart, even if the medicines are being self-administered	–	Consensus-based recommendation

Introduction

A literature search of medication and safety in Australia shows that medication-related hospital admissions are estimated to be 2–3% of all hospital admissions, which is about 250,000 hospital admissions per year at a cost of $1.4 billion.[1] Among people aged ≥65 years with medical or surgical admissions, 55% were on a potentially inappropriate medicine and 6% of all admissions were due to the potentially inappropriate medicine.[1]

Medicine use in older people involves a complex balance between managing disease and avoiding medicine-related problems. The higher prevalence of disease in older people with multiple comorbidities means they take more medicines, which increases the risk of adverse drug effects and interactions (refer to Part A. Multimorbidity).[2]

The International Group for Reducing Inappropriate Medication Use and Polypharmacy (IGRIMUP) has produced a position statement and a list of 10 recommendations (Box 1) for action and 12 recommendations for research.[3] This transition requires a shift in medical education, research and diagnostic framework, and re-examination of the measures used as quality indicators.

Box 1. Ten recommendations for action of the International Group for Reducing Inappropriate Medication Use and Polypharmacy[3]

1. Review the medication of all older people with an eye to deprescribing, particularly those who are vulnerable to the adverse effects of medication.
2. Before initiating a potentially 'appropriate' medication, consider the validity of the evidence based on patient characteristics and preferences.
3. Consider each medication for potential withdrawal, extending beyond standardised lists.
4. Employ mixed implicit and explicit approaches to polypharmacy.
5. Address the underrepresentation of older patients in clinical trials.
6. Acknowledge and address commercial influences on polypharmacy: trial results should not be implemented in older adults unless access to all available patient-level data is provided. Appropriate outcome measures should be required before licensing indications that include older populations.
7. Medical education needs a stronger focus on inappropriate medication use and polypharmacy.
8. Medical training should review methods to stop treatments and provide equal attention to drug side effects and benefits.
9. When patients have multimorbidity, the single disease model should be spurned. The single disease approach with adherence to clinical guidelines for each illness makes polypharmacy and inappropriate medication use inevitable.
10. Decisions in older complex patients should routinely consider expected survival and quality of life, giving the highest priority to patient/family preferences.

Australia has now adopted the *Quality use of medicines to optimise ageing in older Australians: Recommendations for a National Strategic Action Plan to Reduce Inappropriate Polypharmacy* (National Plan), which currently has global action statements to increase awareness of polypharmacy.[4] The National Plan is relevant to consumer, professional, academic, government and policymaking organisations to:

- raise awareness of the significant challenges polypharmacy creates for individuals and society
- provide an integrated cohesive National Plan for a wide spectrum of stakeholders and settings (national and/or local organisations) to use when designing their own plans for reducing polypharmacy and optimising medicines use in their population
- highlight the activities and resources needed as part of a cohesive framework to inform funding and policy decisions.

Clinical context

Polypharmacy is usually defined as the use of five or more drugs, including prescription, over-the-counter, and complementary and alternative medicines.[5,6] The more medicines a patient takes, the harder it may be to obtain an accurate medication history, which impedes informed medication review and prescribing (refer to Part A. Medication management). The incidence of adverse drug reactions increases with the number of medicines used.[7] Polypharmacy may be a barrier to adherence because of the associated complex medication regimens, increased risk of adverse drug events and high medication costs.

Polypharmacy is associated with suboptimal prescribing. The more medicines a patient is exposed to, the more likely they are to be prescribed inappropriately and the poorer the patient's overall function. In addition, the more medications a person takes, the more likely they are not prescribed one or more indicated medicines.[8]

The 'prescribing cascade' – where one medicine is begun to treat the adverse effects of another – can also contribute to the number of medicines taken.[5,9,10]

Risks from multiple medicines include adverse effects, hospitalisations, functional impairment, geriatric syndromes (eg confusion, falls, incontinence, frailty) and mortality.[11]

Appropriate prescribing comprises the use of medicines associated with strong evidence of benefit when indicated, monitoring and dose adjustments while using, and ceasing those with questionable or no evidence of efficacy. There are many tools used to reduce polypharmacy and inappropriate prescribing.

In practice

The Beers Criteria is one of the more commonly used resources to identify inappropriate prescribing.[12] The 2015 American Geriatrics Society's (AGS's) Beers Criteria includes a list of potentially inappropriate medications that should be avoided in older people, each to their various levels of evidence (refer to Table 2 in reference 10). The criteria include medicines that should be avoided, or have their dose adjusted, based on the patient's kidney function and select drug–drug interactions documented to be associated with harms in older people.[12] This criteria was further updated in 2019.[13]

Other common criteria that could be considered include:

- McLeod Criteria[14]
- Screening Tool to Alert to Right Treatment (START); Screening Tool of Older People's Prescriptions (STOPP)[15]
- Medication Appropriateness Tool for Comorbid Health conditions during Dementia (MATCH-D)[16]
- Australian Inappropriate Medication Use and Prescribing Indicators tool, plus the MATCH-D for people with dementia.[9]

All prescribing criteria have limitations and do not substitute for good clinical decision making; however, they are an alert to potentially inappropriate prescribing.

Box 2 lists some of the medicines where caution must be exercised when prescribed to older people. This information is based on the Beers and McLeod revised criteria, and has been further revised to ensure its relevance to medicines available in Australia.

Box 2. Medicines to be used with caution in older people[2,9,12,13]

- Amiodarone
- Anticholinergic agents
- Antihistamines (first generation)
- Antipsychotics for behavioural and psychological symptoms of dementia
- Aspirin for primary prevention for those aged >80 years
- Benzodiazepines
- Diuretics
- Fluoxetine
- Methyldopa
- Nitrofurantoin

- Nonsteroidal anti-inflammatory drugs (NSAIDs), including cyclooxygenase-2 (COX-2) inhibitors
- Tricyclic antidepressants

Medication review

While the traditional medicine review process typically involved cross-referencing medicines used with current diagnoses, a more sophisticated version of this process critically reviews the medicines and associated diagnosis, giving less emphasis to diagnoses that are no longer relevant (refer to Part A. Medication management). Known as undiagnosis, this process facilitates the withdrawal of corresponding medicines used to manage those conditions. Systematically reviewing diagnoses regularly and the associated medicine management strategies could reduce prescribing. The novel ERASE mnemonic can help clinicians:[17]

- **E**valuate diagnoses to consider
- **R**esolved conditions
- **A**geing normally
- **S**electing appropriate targets to
- **E**liminate unnecessary diagnoses and their corresponding medicines

Regular medication review in older people is important to identify those at high risk of harm from polypharmacy, monitor efficacy, and reassess the need for specific medicines (refer to Part A. Medication management). The review should consider ongoing treatments in terms of current goals of care, patient preferences and life expectancy.

The assessment should:[4]

- obtain an accurate and current history
  - review all medications prescribed, including over-the-counter and complementary medicines
  - consider indication, therapeutic aims, dose, efficacy, safety and (where appropriate) ability to use devices
  - calculate renal function and consider hepatic impairment
  - check for drug interactions, side effects and adverse drug reactions
- match the medicines to medical conditions and treatment goals. These will change with ageing and may involve undiagnosis. Identify discrepancies between medicines being taken and those prescribed, including *pro re nata* (PRN) medicines
- assess physical and cognitive function
- evaluate any medicines-related problems, monitoring required, and untreated conditions
- reassess goals of care.

In the residential aged care facility (RACF) setting, the list of medicines being taken by the patient must be written on the medication chart, even if the medicines are being self-administered. Complementary and alternative medicines must be approved, checked for safety and written up by the treating general practitioner (GP). Consider a Residential Medication Management Review (RMMR; Medicare Benefits Schedule [MBS] item number 903),[18] which may be helpful. A Home Medicines Review (HMR; MBS item number 900)[19] should be considered in the home environment to ensure a correct current list of all medications being taken, adherence, and to identify medication-related problems.

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