Prescribing in the Elderly

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With thanks to Heather Astell, CMDHB

Background

- Geriatrician and General Physician at Middlemore Hospital
- Currently working in community geriatrics in Manukau and Franklin Locality, MAU, RACP supervision, Choosing Wisely clinical reference group and InterRAI governance Board
- Involved with regular meetings with ARRC and GPs to review medications
- Medication review is a routine part of our practise
- Working in private for GLMS (Greenlane Medical Specialists)
- Working with Summerset on Medication Optimastion

Polypharmacy and De-prescribing

- Stopping medicines is as important as prescribing them
- Always need to be looking at lists of medicines and questioning if they are all needed
- Often medications are started in hospital or by colleagues with a view to stopping/weaning down but it just doesn't happen

Overview

- Pharmacokinetics
- Polypharmacy
- Adverse effects
- Inappropriate prescribing
- Deprescribing
- A few specific meds
- Cases to discuss

Pharmacokinetics as we age

- Reduced renal clearance
  - calculate the GFR CrCl (cockroft gault)
  - Always less than testsafe/Labtest eGFR
- Reduced hepatic metabolism

age	serum creatinine	CrCl
30	110	62
50	110	60
70	110	47
90	110	34

Older people

- Ageing population
- Living longer with co-morbidities
- Multi-morbidity is the norm
- 60% in their 60s have > 2 diagnoses
- 70% in 70s > 2 morbidities

Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study

Lancet, 2012-07-07, Volume 380, Issue 9836, Pages 37-43

Polypharmacy

- Defined as > 5 medications.
- Includes prescribed treatment, OTC, complimentary meds
- As number of meds increase
  - Reduced accuracy of drug use recording
  - Doctors forget less important meds
  - Falls increase
  - More admissions to hospital and increased healthcare use
  - Mortality increases
  - Under-prescribing of indicated drugs

Adverse effects

- Often non specific – confusion, lethargy, dizziness, falls
- Often can accentuate symptoms due to other medical problems
- Cumulative anticholinergic effects eg constipation, dry mouth
- 1/5 hospital admissions are medication related in older patients

Polypharmacy

- Interactions
  - drug-drug
  - drug-disease
  - drug-food
  - drug- geriatric syndrome
- Prescribing cascade (cause new symptom due to reduced reserve)
  - eg steroids→ PPI, hypoglycaemic drugs
  - Eg antibiotics → nausea → metochlopramide
  - https://www.nps.org.au/australian-prescriber/articles/the-prescribing-cascade

Polypharmacy

- Patient and carer burden
  - administration time
  - cost
  - —> reduced compliance

- The problem with trials:
  - Most trails of therapy for conditions older people suffer from do not include many/any older people
  - If they do, often only unusual older people who only have the condition of interest

Consider prognosis and how that impacts

- Sometimes can be easier to do when an event prompts a revision of treatment because the patient has moved to PH or is now palliative
- Or a new diagnosis has come in clearly indicating a poor prognosis
- Then we can focus on symptomatic treatment rather than preventative treatments that may never yield a positive result

Medication reconciliation 1

- Is the original condition which the medicine was prescribed for still present?
- Are medicines initiated for symptomatic management providing adequate relief?
- Are there any medicines which do not have a clear indication for use?
- Has there been a change in the patient's health status, e.g. frailty or falls, which alters the balance between the benefits and possible harms of a particular treatment?
- Are there any duplications in the patients prescribed medicines, e.g. two medicines from the same class initiated to treat the same condition when one is sufficient?
- Are any simplifications in their prescribed regimen possible? For example, once daily medicines or combination tablets.

Medical reconciliation 2

- Were any medicines initiated to treat an adverse reaction to another medicine, i.e. a prescribing cascade? If so, could both medicines be stopped?
- Is there a risk of medicine interactions, including with any over-the-counter medicines or supplements?
- Is the dose appropriate? For example, declining renal function may mean a lower dose is required in an older adult.
- Could a non-pharmacological treatment be used instead? For example, exercise or physiotherapy for patients with osteoarthritis, instead of non-steroidal anti-inflammatory medicines.
- Does the patient have any concerns regarding their prescription regimen?
- https://deprescribing.org/resources/

Medicines to have a second think about

Medicine class	Potential harms, particularly in older patients
Anticholinergic medicines	Increased risk of falls, delirium, cognitive impairment and urinary retention
Antihypertensive medicines	Increased risk of hypotension and falls
Antipsychotics	Increased risk of mortality in patients with dementia, increased risk of falls and postural hypotension when used as sedatives or hypnotics, e.g. quetiapine
Aspirin	Increased risk of gastrointestinal bleeding, limited evidence of benefit for CVD prevention[12]
Benzodiazepines or zopiclone	Increased risk of falls, cognitive impairment and possible association with Alzheimer's disease
Bisphosphonates	Increased risk of atypical fractures with prolonged treatment.
Diabetes medicines	Intensive glucose lowering is unlikely to benefit older patients; risk of hypoglycaemia with some medicines
Hypnotics	Cognitive effects the following day, increased risk of falls, possible increased risk of Alzheimer's disease
NSAIDs	Greater increase in absolute risk of bleeding than in younger patients, acute kidney injury
Opioids	Constipation, delirium, sedation, increased risk of falls or unintentional overdose[13]
Proton pump inhibitors (PPIs)	Increased risk of fractures, *Clostridium difficile* infection and renal adverse effects such as interstitial nephritis
Statins	Risk of adverse effects, e.g. myalgia, new onset diabetes mellitus, limited evidence of benefit for CVD prevention[14]
Tricyclic antidepressants	Cognitive impairment, urinary retention, postural hypotension, increased risk of falls

Inappropriate Prescribing

- Where risk of adverse event outweighs clinical benefit
- Where there is a safer, more effective alternative
- Higher frequency or longer duration than needed
- Drugs that Interact
- Contraindications – e.g. anticholinergics with prostatism, acetylcholinesterase inhibitors with heart block

Inappropriate prescribing

- Renally excreted drug in CRF
- > one drug from same class
- Won't live long enough to benefit
- Drug goals not compatible with overall goal – eg statins in advanced dementia or palliative cancer diagnosis
- Adding similar drugs to drug eg haloperidol and risperidone and benzodiazepine for BPSD

STOPP and START

Screening tool of older persons potentially inappropriate prescriptions/screening tool to alert doctors to the right treatment

international journal of clinical and pharmacology and therapeutics vol 46 2/2008

Age and ageing 2015; 44:213-218

- First published 2008, updated version 2, 2015

- Comprehensive list of potentially inappropriate prescriptions for common conditions in older people
- Evidence based
- Reflect consensus opinion of experts
- Include common drug-drug and drug-disease interactions
- Includes common omissions

STOPP and START criteria

- STOPP - 80 clinically significant criteria
- START - 34 evidence based prescribing indicators
- With reasons why /why they should not be prescribed

Examples of STOPP

- Cardiovascular:
  - digoxin at long term dose >125mcg with impaired renal function
  - loop diuretic for ankle oedema only
  - thiazide with history of gout
- CNS and psychotropic drugs:
  - TCAs with dementia
  - TCAs with constipation
  - SSRIs with history of hyponatraemia

STOPP

- Gastrointestinal:
  - PPI for PUD at full treatment dose for more than 8 weeks
- Musculoskeletal:
  - NSAID with history of mod-severe hypertension
- NSAID with chronic renal failure
- Urogential
  - bladder antimuscarinics with dementia
  - alpha blockers with long term IDC in situ
- Endocrine
  - glibenclamide with type 2 DM

Inappropriate Prescribing

- Drugs that affect fallers
  - benzodiazepines
  - vasodilator drugs
- Analgesic drugs:
  - regular use of opiates in those with hx of constipation, without laxatives
- Duplicate drug classes:
  - 2 concurrent NSAIDS

Examples of START

- Cardiovascular:
  - Antihypertensive for BP consistently >160mmHg
- ACEi for chronic heart failure
- Anticoagulation in AF
- CNS
  - L-DOPA in Parkinson's disease with definite functional impairment
- GI system
  - PPI for severe GORD
  - Fibre supplement for diverticular disease with constipation

Beers criteria

American geriatrics society 2015 updated Beers criteria for **potentially inappropriate medication** use in older adults JAGS Nov 2015 vol 63 no 11

- List of PIMs best avoided in older adults in general and in those with certain disease or syndromes
- Associated with poor health outcomes, falls, confusion, mortality
- Listed as per therapeutic drug category
- Examples:
  - Anticholinergics – eg promethazine
  - Nitrofurantoin – in renal failure or long term use
  - Alpha blockers- Doxazosin for hypertension

https://evolve.edu.au/docs/default-source/default-document-library/download-the-aus
evolve.edu.au
File Edit Go to Favorites Help

1 Do not use antipsychotics as the first choice to treat behavioural and psychological symptoms of dementia

2 Do not prescribe benzodiazepines or other sedative-hypnotics to older adults as first choice for insomnia, agitation or delirium

3 Do not use antimicrobials to treat bacteriuria in older adults where specific urinary tract symptoms are not present

4 Do not prescribe medication without conducting a drug regimen review

5 Do not use physical restraints to manage behavioural symptoms of hospitalized older adults with delirium except as a last resort

value practices and interventions.

EVOLVE is patient-centred and evidence-based, with rigorous and transparent processes. Its focus is to stimulate clinical conversations – between colleagues, across specialties, and with patients – to ensure the care that's delivered is the best for each patient.

EVOLVE is part of a worldwide movement to analyse medical practices and reduce unnecessary interventions. It is an initiative in partnership between the RACP and the Specialty Societies, Divisions, Faculties and Chapters.

SOE Quick Launch
13:45
06/06/2017

Individualise treatment

- Think about overall care strategy
  - For particular patient and their combination of illnesses
  - Consider non medical treatment e.g. exercise for depression
  - Respect patients autonomy
  - Goals : life prolonging vs symptom relief
  - Regular medication review including OTC
  - Thoughtful medication review at every contact
    - Consider deprescribing
    - Ideally have one prescriber
    - Don't treat side effects with more drugs
  - Generic prescribing
  - Start low, go slow, get therapeutic
  - Consider remaining life expectancy and time until benefit of treatment and treatment target

Deprescribing

- Risks:
  - Return of underlying condition or failure to prevent a condition
  - effects on remaining medications

- Studies have shown successful and safe deprescribing of many drugs e.g. diuretics, antihypertensives, psychotropics, statins

De-prescribing

- If more than one med to de-prescribe:
  - Discuss with patient /family the reasons for deprescribing
  - Prioritise withdrawals and withdraw one at a time
  - Slow reduction in dose
  - Watch for withdrawal symptoms eg CNS acting meds
  - Watch for Rebound symptoms – eg rebound tachycardia when stopping B Blockers, gastric acid when stopping PPI
  - Unmasked drug interactions – eg INR will drop following discontinuation of amiodarone

Useful online resources on deprescribing

- Tasmanian Primary Health Network
- Evidence based information sheets on risks vs benefits of a range of medications and advice for deprescribing
- https://www.primaryhealthtas.com.au/resources/deprescribing-resources/

A GUIDE TO

deprescribing

ANTIPLATELET AGENTS

KEY POINTS

- Aspirin treatment is effective in preventing recurrence of cardiovascular events in people with previous cardiovascular events. The ARR in for secondary prevention is 2-4% per year (NNT 25-50).
- For primary prevention, the ARR for aspirin is significantly lower. In people with one or two risk factors for cardiovascular disease, the ARR is of the order of 0.2-0.4% (NNT 250-500 per year). In healthier patients, the NNT for aspirin primary prevention approaches 2000 for one year.
- The risk of gastrointestinal and other extracranial bleeding increases with age and by other factors such as previous GI bleeding and ulceration, concurrent medications, smoking and alcohol use.
- The risk of major bleeding with dual antiplatelet agents is more than twice that of either agent alone.
- Recurrent minor bleeding can have a significant impact on quality of life.

CONTEXT

This guide considers the use of antiplatelet agents in the prevention of primary and secondary cardiovascular events.

RECOMMENDED DEPRESCRIBING STRATEGY

- Patients with a high risk of gastrointestinal bleeding (e.g. elderly, taking other GI bleed inducing agents such as NSAIDs, SSRIs and corticosteroids, alcohol users, smokers) should be considered for cessation of antiplatelet agents.
- Patients with a low cardiovascular risk should be considered for cessation of antiplatelet agents.
- Patients receiving dual antiplatelet agents should generally have one of these ceased within 12 months of the acute event. For patients where bleeding risk is higher, earlier cessation may be appropriate.
- Patients with troublesome adverse effects associated with antiplatelet agents should be reassessed for the ongoing risk vs benefit of the antiplatelet agent.
- Patients with a limited prognosis should be considered for cessation of antiplatelet agents.
- Antiplatelet agents can usually be stopped without the need for tapering.

Useful online resources on deprescribing

- Medstopper website
- Enter the list of patients medications
- The website prioritises which to stop first, gives reasons
- Advice on how to withdraw the medication and what symptoms to watch out for
- https://medstopper.com/
- There is a prompt to link you to Frail elderly if relevant, changes risk

HOME ABOUT FAQs RESOURCES CONTACT

MedStopper is a deprescribing resource for healthcare professionals and their patients.

1 Frail elderly?

2 Generic or Brand Name:
amit

3 Select Condition Treated:

Generic Name	Brand Name	Condition Treated	Add to MedStopper
amitriptyline	Elavil	chronic pain	ADD

Previous Next

MedStopper Plan

Arrange medications by: Stopping Priority

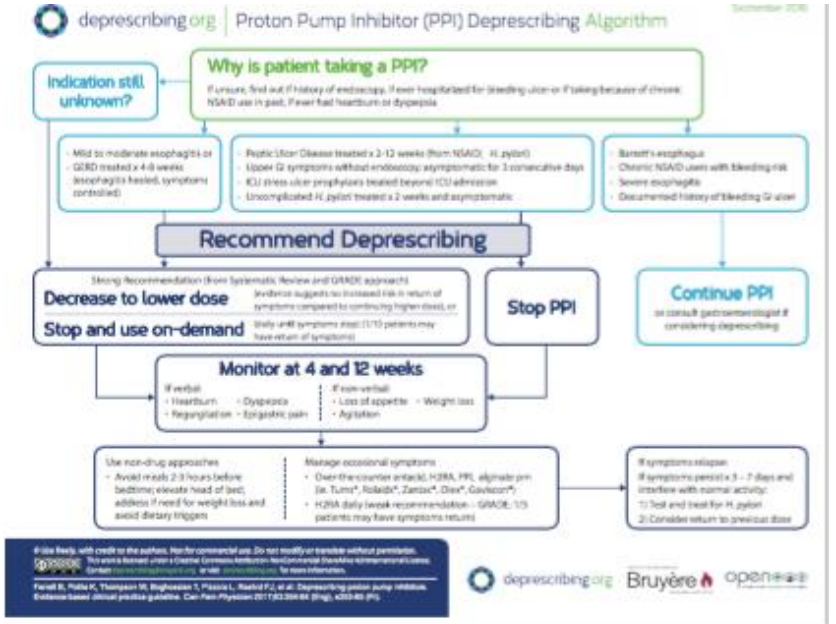
CLEAR ALL MEDICATIONS

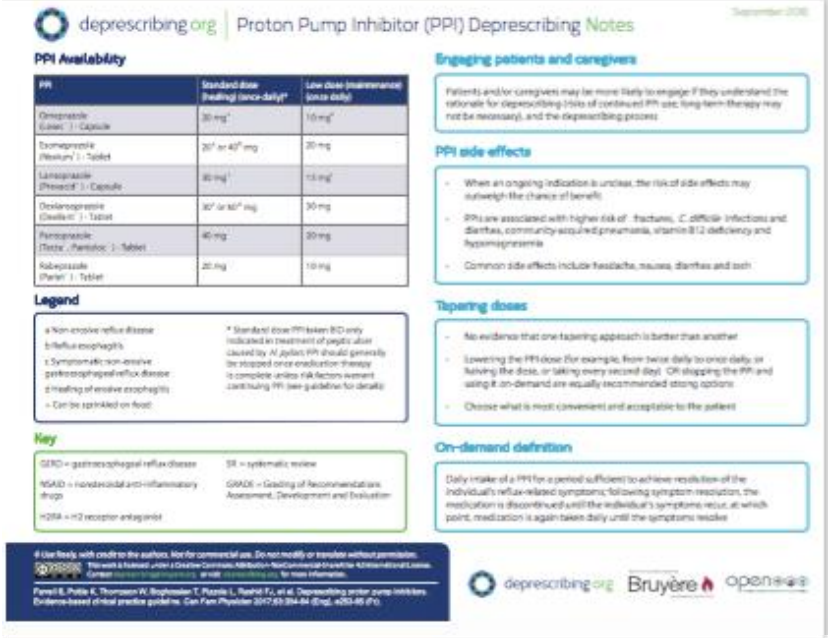
PRINT PLAN

Stopping Priority RED=Highest GREEN=Lowest	Medication/ Category/ Condition	May Improve Symptoms?	May Reduce Risk for Future Illness?	May Cause Harm?	Suggested Taper Approach	Possible Symptoms when Stopping or Tapering	Beers/ STOPP Criteria
					If used daily for more than 3-4 weeks. Reduce dose by 25% every week (i.e. week 1-75%, week 2-50%, week 3-25%) and this can be extended or decreased (10% dose reductions) if needed. If intolerable withdrawal symptoms	cramping, diarrhea, nausea, sweating, hot or cold flashes, headache, dizziness, flu-like	

Useful online resources on deprescribing

- https://deprescribing.org/
- They have an app you can download
- Resources include patient information leaflet
- **The Canadian Deprescribing Network**


deprescribing.org | Proton Pump Inhibitor (PPI) Deprescribing Algorithm
Indication still unknown?
Why is patient taking a PPI?
If unsure, find out if history of endoscopy, if ever hospitalized for bleeding ulcer or if taking because of chronic NSAID use in past. Fever had heartburn or dyspepsia
Recommend Deprescribing
Decrease to lower dose
Stop and use on-demand
Stop PPI
Continue PPI
Monitor at 4 and 12 weeks
Bruyère
openmed


deprescribing.org | Proton Pump Inhibitor (PPI) Deprescribing Notes
PPI Availability
Legend
Key
Engaging patients and caregivers
PPI side effects
Tapering doses
On-demand definition
Bruyère
openmed

Drug Burden Index DBI

Pharmacological risk assessment tool that measures cumulative burden of anticholinergic and sedative medications in older people

- dry mouth
- constipation
- blurred vision
- tachycardia
- confusion/delirium
- sedation

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4166346/

https://www.tandfonline.com/doi/full/10.1080/17512433.2018.1528145

Being developed as a software programme for medication review

Specific meds: Proton Pump Inhibitors

- Increased Bone fragility
- Increased C difficile
- Increased Pneumonia
- Hypomagnesaemia
- ? Higher mortality (high dose PPI associated with increased mortality)

- JAMA Intern Med. 2013 Apr 8;173(7):518-23. doi: 10.1001/jamainternmed.2013.2851.
- Proton pump inhibitors and risk of 1-year mortality and rehospitalization in older patients discharged from acute care hospitals.
- Maggio M1, Corsonello A, Ceda GP, Cattabiani C, Lauretani F, Buttò V, Ferrucci L, Bandinelli S, Abbatecola AM, Spazzafumo L, Lattanzio F.

Specific meds: Anticoagulation in AF

Is aspirin "better than nothing?"

- In some patients the decision is straight forward – too high risk of bleeding (not for anticoagulation) or fit elderly (needing anticoagulation).
- In others?
- Aspirin ineffective in older adults to prevent stroke from AF

Effect of age on stroke prevention therapy in patients with atrial fibrillation. Stroke 2009;40:1410-1416
Impact of advanced age on management and prognosis in AF: insights from a population-based study in general practice. Age and Ageing 2015;44:874-878

- Aspirin similar risk of bleeding to warfarin

Warfarin versus aspirin for stroke prevention in an elderly community population with atrial fibrillation (the Birmingham atrial fibrillation treatment of the aged study, BAFTA): a randomised controlled trial. The lancet 2007;370, August

- Conclusion: Probably should anti-coagulate more patients with OAC. If not for OAC, and if patient got other vascular risk e.g. IHD can give aspirin (for that other indication), otherwise give NOTHING
- Use online calculators for CHADS2VASC and HASBLED

Case 1

- An 85 year old man is dizzy when he gets out of a chair and on several occasions has blacked out, although has always quickly recovered. He has no history of IHD or heart failure. He is on treatment for hypertension (felodipine 10mg and frusemide 40mg), prostatism (doxazosin 2mg) and has reduced his fluid intake to reduce his need to go to the toilet at night. He is on amitriptyline 25mg note for chronic back pain.
- Why is he collapsing?
- What changes could be made to his medications to improve his symptoms.

Case 2

- An 80 year old man is on digoxin for AF, bendrofluazide 5mg for hypertension, and oxybutinin 5mg BD for urinary incontinence. He becomes depressed and is started on fluoxetine. 3 weeks later he is admitted with confusion, all investigations are normal apart from Na of 123mmol/l
- What are the possible causes of his confusion?

Case 3

- An 84 year old man complains of dizziness for 4 months and increasing difficulty walking for 2 months. He lives alone, is struggling to look after himself, and has had several falls. He has been on no medication until 6 months ago when he was diagnosed with hypertension.
- His medications are:
  - prochlorperazine
  - cilazapril
  - paracetamol

  - what role might his medications have played in his presentation?

Case 4

- 79 year old man has been having frequent falls. He is no longer able to mobilise independently. He has developed dementia and dysphagia. He has a history of hypertension and type 2 diabetes and has been having a few low blood sugars lately. Investigations reveal a degenerative neurological condition with no disease modifying treatment available.
- meds:
  - metformin 500mg bd
  - protophane 10 u nocte
  - simvastatin 40mg
  - doxazosin 4mg
  - oxybutinin 5mg bd
  - cilazapril 5mg

Case 5

- 86 year old woman with frequent falls and dementia (MoCA 7/30). History of IHD (no angina for years), and restless legs/leg cramps. Incontinent of urine. Cameron ulcers causing Fe deficiency anaemia. Tendency to constipation.

- MEDS:
- Clonazepam 0.5mg nocte
- Norflex 100mg nocte
- Aspirin 100mg daily
- Isosorobide Mononitrate 30mg daily
- Omeprazole 40mg bd
- Ferrous Fumerate 200mg 3 x a week
- Solifenacin 10mg daily
- Cetirizine 10mg daily
- Atorvastatin 40mg daily
- Chlorthalidone 25mg daily
- Pindolol 15mg daily
- Candesartan 32mg daily
- Allopurinol 300mg
- Laxsol

References

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- Prescribing for older people – Peter Darzins
- STOPP and START
- American geriatrics society 2015 Updated Beers criteria for potentially inappropriate medication use in older people
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☐Proton pump inhibitors and risk of 1-year mortality and rehospitalization in older patients discharged from acute care hospitals.

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- Warfarin versus aspirin for stroke prevention in an elderly community population with atrial fibrillation (the Birmingham atrial fibrillation treatment of the aged study, BAFTA): a randomised controlled trial. The lancet 2007;370, August

- Deprescribing webinar by prof Sarah Hilmer