NATIONAL MEDICINES SYMPOSIUM 2024

Approaches to deprescribing of medicines

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Disclosures

- Sarah Hilmer is an inventor of the Drug Burden Index. Software developed with her research group to calculate Drug Burden Index is under consideration for commercialisation.
- Employed by Royal North Shore Hospital, NSLHD, with a conjoint appointment at The University of Sydney.
- Research is funded by government and institutional grants and by philanthropy.
- Chairs the NSW Therapeutic Advisory Group (NSW TAG), Sydney Health Partners Geriatric Medicine Clinical Academic Group, the International Union of Basic and Clinical Pharmacology (IUPHAR) Clinical and Translational Section and its Geriatric Committee.
- Member of ACSQHC Medication Safety and Quality Advisory Committee.

NSW TAG NSW Therapeutic Advisory Group Inc.

https://www.nswtag.org.au/deprescribing-tools/
https://www.nswtag.org.au/polypharmacy-qum-indicators-and-resources/

What is deprescribing?

Deprescribing: Achieving Better Health Outcomes for Older People Through Reducing Medications

Michael C Woodward

JOURNAL OF Pharmacy Practice and Research
Official Journal of the Society of Hospital Pharmacists of Australia

2003

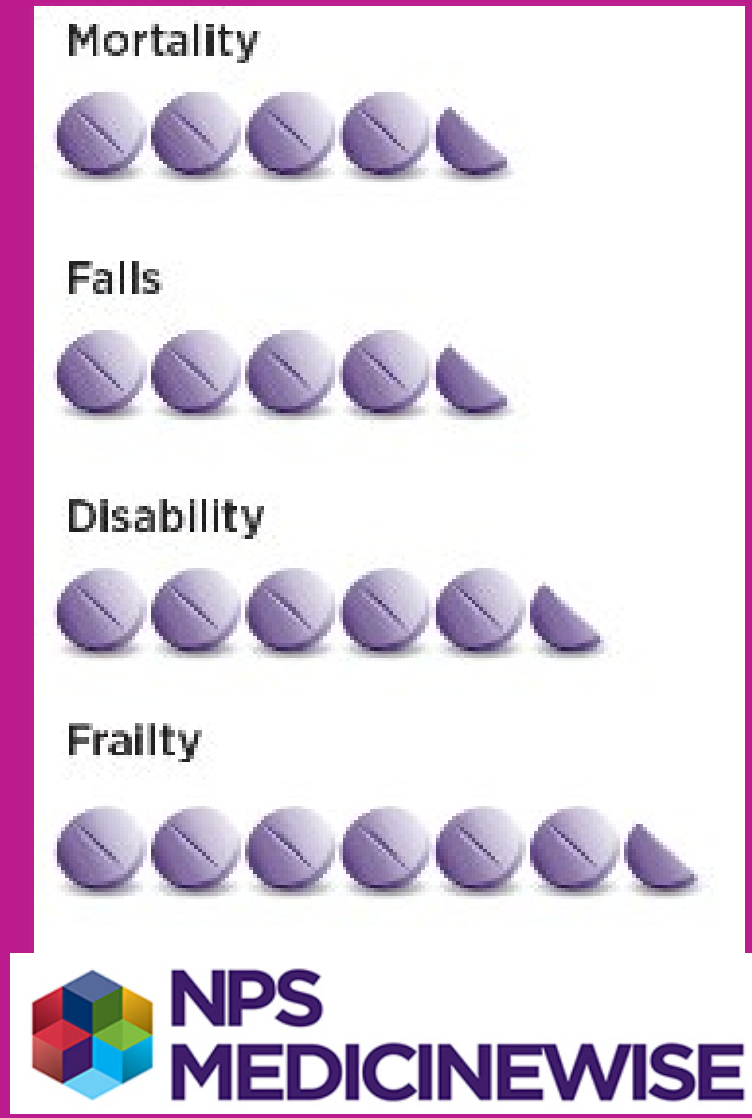
Deprescribing is the process of withdrawal of an inappropriate medication, supervised by a health care professional with the goal of managing polypharmacy and improving outcomes

Reeve, Gnjidic, Long, Hilmer, BJCP2015

Why is deprescribing important for older people?

1. Limited evidence of benefits of prescribing medications in older people with multimorbidity, polypharmacy and frailty
2. Known risks of polypharmacy in older people
3. Person centred

Polypharmacy is associated with adverse geriatric outcomes



Hilmer and Gnjidic, Clin Pharmacol Ther 2009
Gnjidic *et al*., J Clin Epidemiol. 2012

Not just the number but also the type and dose of drugs determines risk

The Drug Burden Index (DBI) is a **pharmacological measure** of an older person's total exposure to medicines with anticholinergic and sedative effects that impair physical and cognitive function

$$\frac{E}{\alpha} = \sum \frac{D}{\delta + D}$$

D, daily dose taken, δ, minimum registered dose (estimate DR50)

Higher exposure to the DBI is associated with:

- Impaired physical function
- Falls
- Delirium
- Frailty
- Hospitalisation and GP visits
- Mortality

Hilmer et al., Arch Intern Med 2007; Hilmer, Expert Rev Clin Pharmacol. 2018; Liu et al., J Am Geriatrics Soc. 2024

What are the outcomes of deprescribing?

Effects of Deprescribing

- Harms of deprescribing
  - Adverse drug withdrawal reactions
  - Return of underlying condition or failure to prevent condition
  - Pharmacokinetic and pharmacodynamic effects on remaining medicines

- Benefits of deprescribing
  - Less adverse drug reactions
  - Less treatment burden from taking medicines

Evidence on deprescribing: RCTs

Single Drug Classes

- Antihypertensives
  - 20-85% normotensive over 6-60 months
  - Mortality OR 2.08 (95% CI 0.79-5.46)
- Psychotropics
  - ↓falls ↑ cognition and/or behaviour
- Statins in people thought to be in last year life
  - No change in mortality
  - Trend to improved quality of life

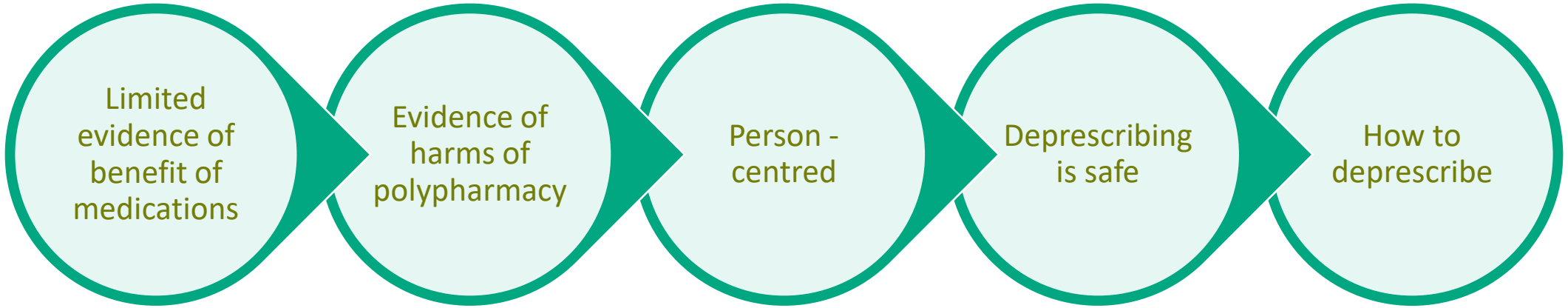
Inappropriate Polypharmacy

- No impact on mortality overall (OR 0.96, 95% CI 0.84-1.09)
- Reduced mortality in 65-79 age group (OR 0.71, 95% CI 0.51–0.99)
- No change in falls, cognition, QoL

- No increased risk of withdrawal events reported
- Medicines often weaned over months

Iyer et al., Drugs Aging 2008; Kutner et al., JAMA Internal Medicine, 2015; Reeve et al., Cochrane Database Syst Rev 2020; Reeve et al., Aust Prescr. 2024; Quek et al., BJCP 2024

Deprescribing is an important part of prescribing for older people



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Person-centred deprescribing

Tips and tricks to support person-centred deprescribing in practice

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The University of Sydney

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Disclosures

Inventor: Goal-directed Medication review Electronic Decision Support System (G-MEDSS)© and The Drug Burden Index (DBI) Calculator©. Currently under consideration for commercialisation.

*Research funding: G*overnment and institutional grants.

Contributions to Essential CPE Deprescribing: The Pharmaceutical Society of Australia.

Executive member: The Australian Deprescribing Network

Employer: The University of Sydney

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

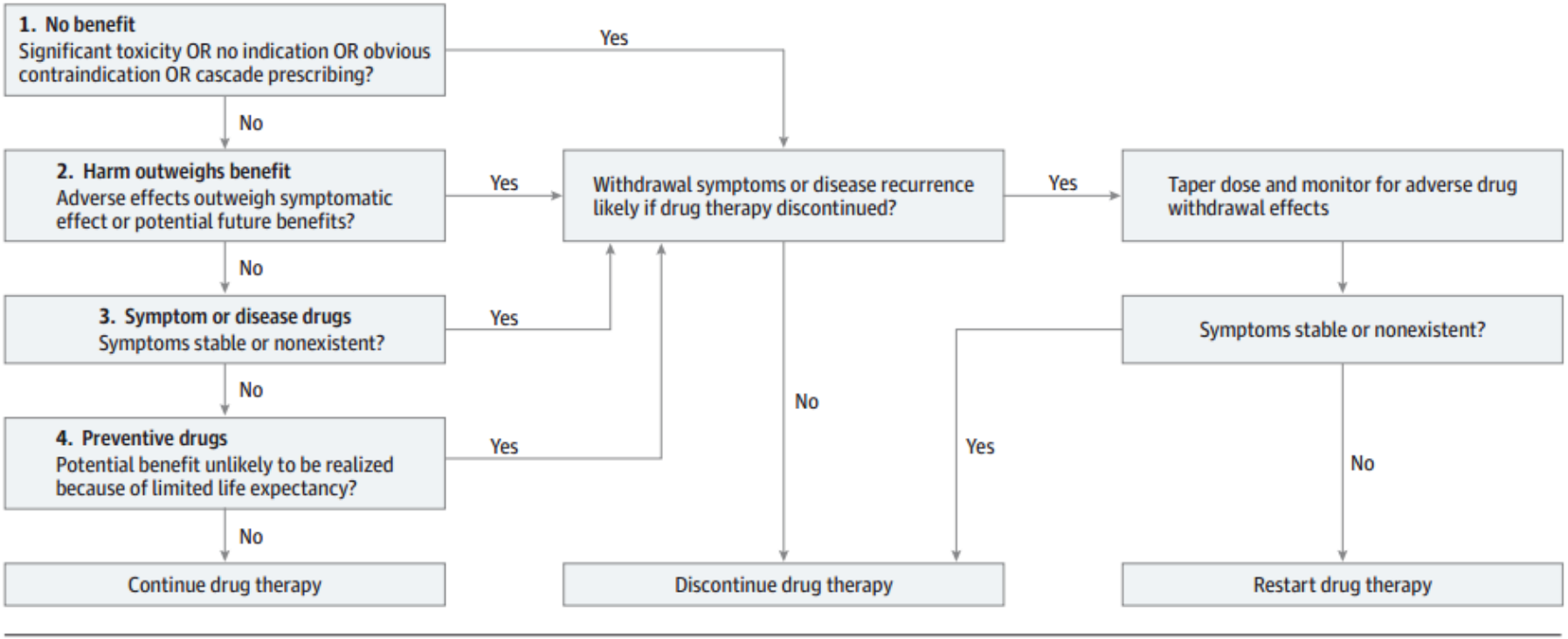
THE UNIVERSITY OF SYDNEY

ADeN Australian Deprescribing Network

What deprescribing guidelines and tools are available for use in practice?

1. General deprescribing guidance

Figure. Algorithm for Deciding Order and Mode in Which Drug Use Could Be Discontinued



Reducing Inappropriate Polypharmacy The Process of Deprescribing *JAMA Intern Med.* 2015;175(5):827-834.

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1. General deprescribing guidance

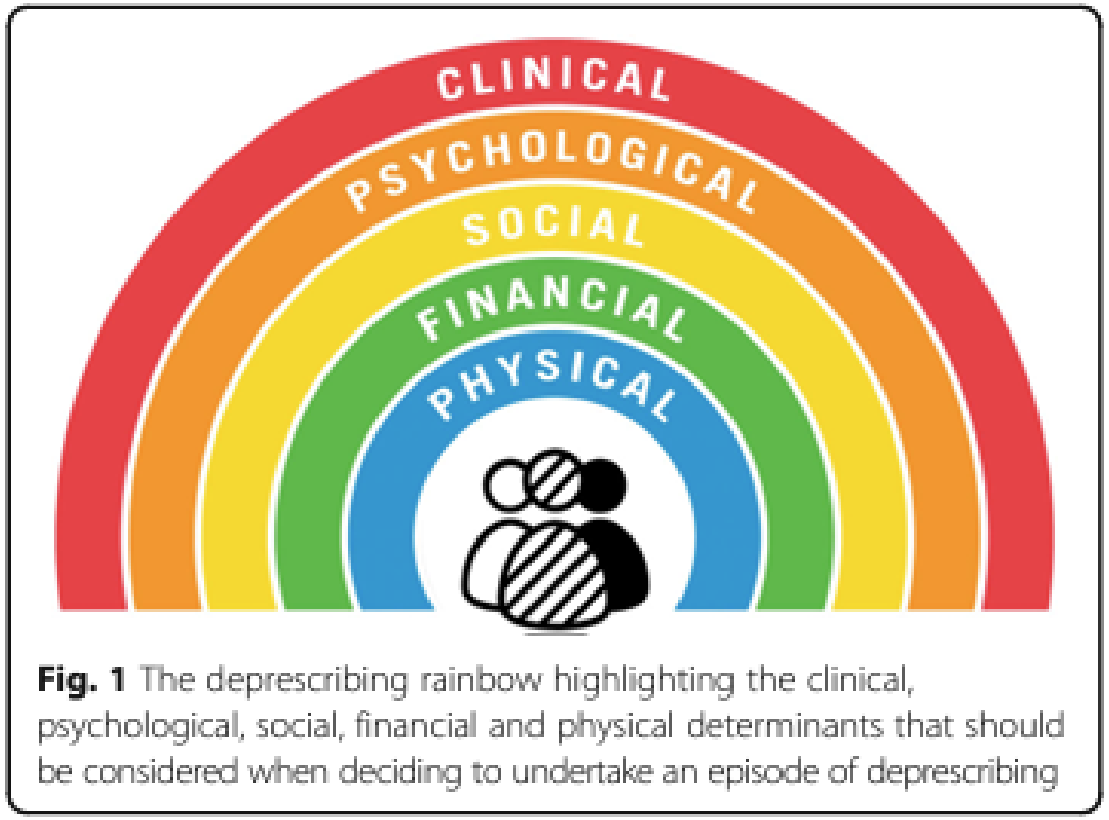
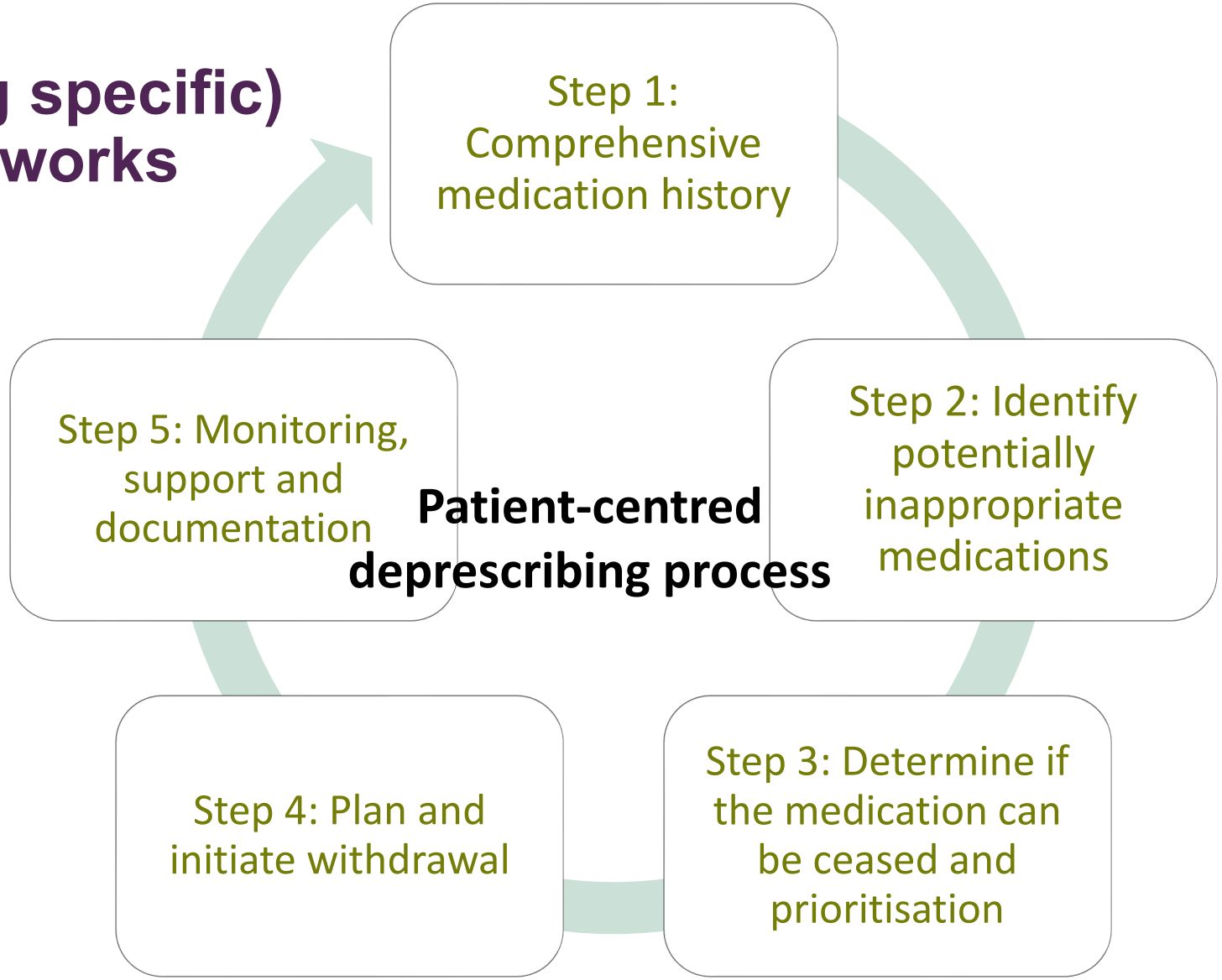


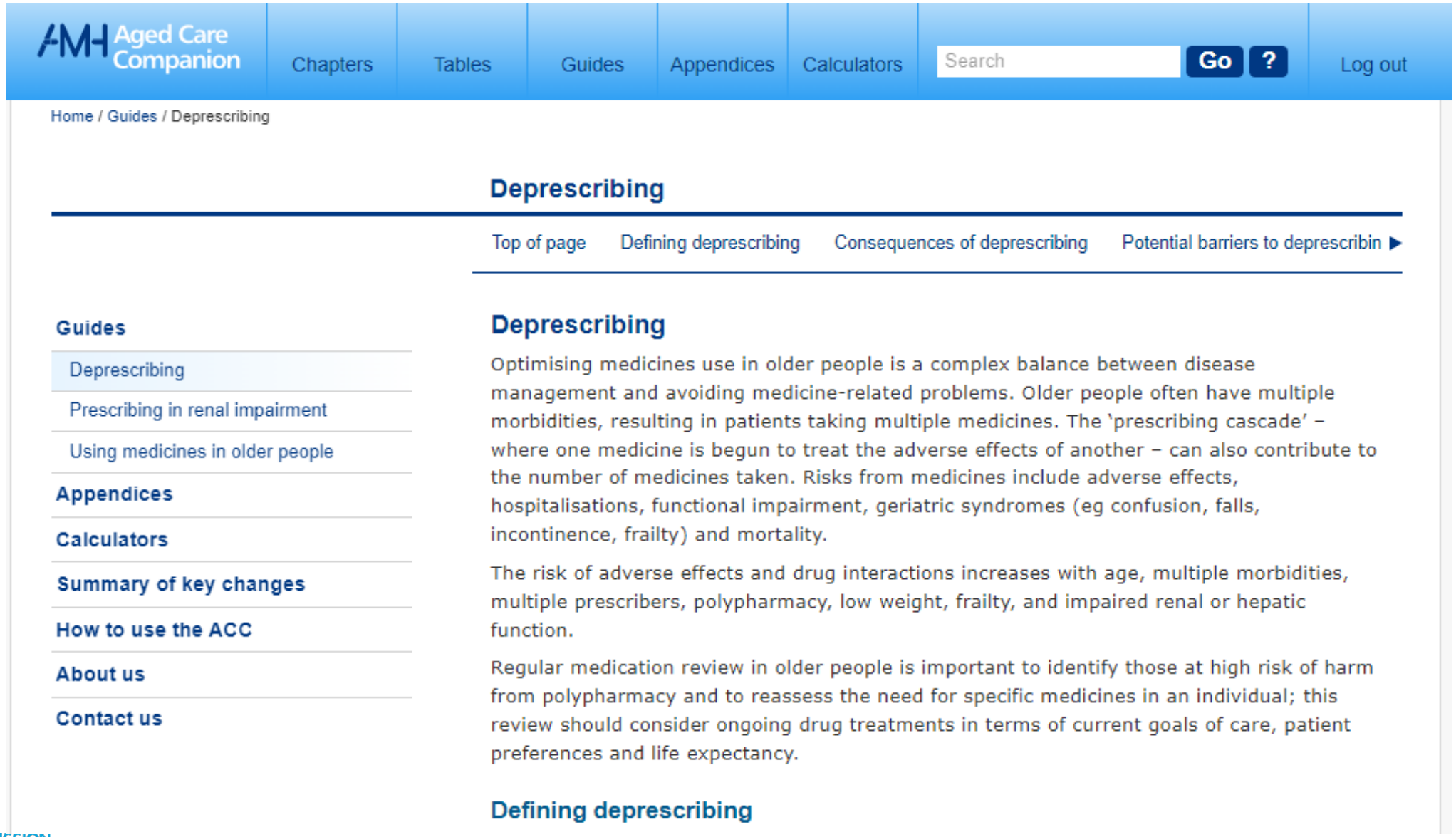
Fig. 1 The deprescribing rainbow highlighting the clinical, psychological, social, financial and physical determinants that should be considered when deciding to undertake an episode of deprescribing

Todd A et al, BMC Geriatrics. 2018; 18:295

2. Generic (non-drug specific) deprescribing frameworks



Reeve E. et al., Br J Clin Pharmacol 2014;78(4):738-747



AMH Aged Care Companion 2023>Guides>Deprescribing

Table – Deprescribing process: key steps

Actions	Comments
Assess patient	
• consider functional status and quality of life • estimate life expectancy • ascertain patient and/or carer wishes	• these assessments are important to establish goals of care and to determine the value of long-term preventive medicines
Obtain medication history	
• ascertain all medicines that a patient is taking, including over-the-counter and complementary (eg herbal) medicines • determine the indication for each medicine, and document the dose, frequency and duration of treatment • determine if the patient is experiencing any adverse effects (always consider new symptoms as possible adverse effects)	• consider a medication review (HMR or RMMR) or a 'brown-paper bag' review (where the patient brings all their medicines to a consultation)
Identify potential medicines for cessation and prioritise	
Consider: • is there a current indication for the medicine and is it effective? • have the risks (eg adverse effects) or benefits of the medicine changed from when it was originally prescribed? • was a medicine started to treat an adverse effect of another medicine, and if so, is this still appropriate? • are there any new medical conditions that may affect drug treatment (drug–disease	• it can be useful to classify medicines into 2 groups: those that relieve symptoms/improve quality of life, or those that prevent future illness • if life expectancy is limited, those that relieve symptoms may be of benefit • those being used for disease prevention may be considered for withdrawal if they are unlikely to prevent disease in the patient's expected life span

1. Assess the patient
2. Obtain medication history
3. Identify potential medicines for cessation and prioritise
4. Develop a withdrawal plan
5. Monitor and document outcomes

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3. Drug-specific deprescribing guidelines

DEPRESCRIBING GUIDE FOR BENZODIAZEPINES AND Z DRUGS

(including short-acting [e.g. alprazolam, oxazepam, tema
and intermediate/long-acting [e.g. diazepam, lorazepam
benzodiazepines, and Z drugs [e.g. zopiclone, zolpidem]

This guide provides deprescribing information that can be appli
and/or verbal communication (in the form of "preferred languag
clinicians, patients and/or carers. Adapt appropriately for indivi

CONSIDER TWO STEPS WHEN DEPRESCRIBING:

1 Should I depre

STEP 1: SHOULD I DEPRESCRIBE?

Deprescribing triggers:

- Inappropriate indication, no current indication, presenc
  interaction, high drug burden index (DBI),[1] poor adhere

1a) Is there a documented indication or sym

Inappropriate indication for continued use:

- Long-term regular treatment of insomnia (beyo
- Behavioural and psychological symptoms in de

Do not deprescribe if:

- Used for severe anxiety or grief, before consult
- Used for acute alcohol withdrawal.
- An acute physical or mental condition is aggravatin
  to resolve before starting to wean.

GO TO SECTION:

Indication

How to wean

DEPRESCRIBING GUIDE FOR PROTON PUMP INHIBITORS (PPIs)

(including omeprazole, pantoprazole, esomeprazole, lansoprazole, rabeprazole)

This guide provides deprescribing information that can be applied to written and/or verbal communication (in the form of "preferred language") between clinicians, patients and/or carers. Adapt appropriately for individual patients.

GO TO SECTION:

- Indication
- How to wean
- Alternative management
- Monitoring
- Evidence-based advice
- Summarised phrasing during admission and/or at discharge
- References

CONSIDER TWO STEPS WHEN DEPRESCRIBING:

1 Should I deprescribe?

2 How do I deprescribe?

STEP 1: SHOULD I DEPRESCRIBE? (PATIENT ASSESSMENT)

Deprescribing triggers:

- Inappropriate indication, no current indication, presence or risk of adverse events, drug interaction, drug-disease interaction, poor adherence, or patient preference.

1a) Is there a documented indication or symptoms supporting continued use?

Inappropriate indication for continued regular use:[3]

- Mild to moderate oesophagitis.
- Gastro-oesophageal reflux disease (GORD) treated for 4-8 weeks (oesophagitis healed, symptoms controlled).
- Peptic ulcer disease treated for 2-12 weeks (from non-steroidal anti-inflammatory drug [NSAID] and/or Helicobacter pylori [*H. pylori*]).
- Upper gastrointestinal (GI) symptoms without endoscopy, asymptomatic for 3 consecutive days.
- Intensive care unit (ICU) stress ulcer prophylaxis treated beyond ICU admission.
- Uncomplicated *H. pylori* treated for 2 weeks and asymptomatic.

Do not deprescribe if:[3]

- Barrett's oesophagus without consulting gastroenterologist.
- Chronic NSAID users with bleeding risk.
- Severe oesophagitis.
- Documented history of bleeding GI ulcer.

Consider whether the PPI is part of a prescribing cascade and confirm appropriateness of other drugs:[1]

2022

Evidence-Based Clinical Practice Guideline for Deprescribing Opioid Analgesics

THE UNIVERSITY OF SYDNEY

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

https://www.nswtag.org.au/deprescribing-tools/

https://www.opioiddeprescribingguideline.com/

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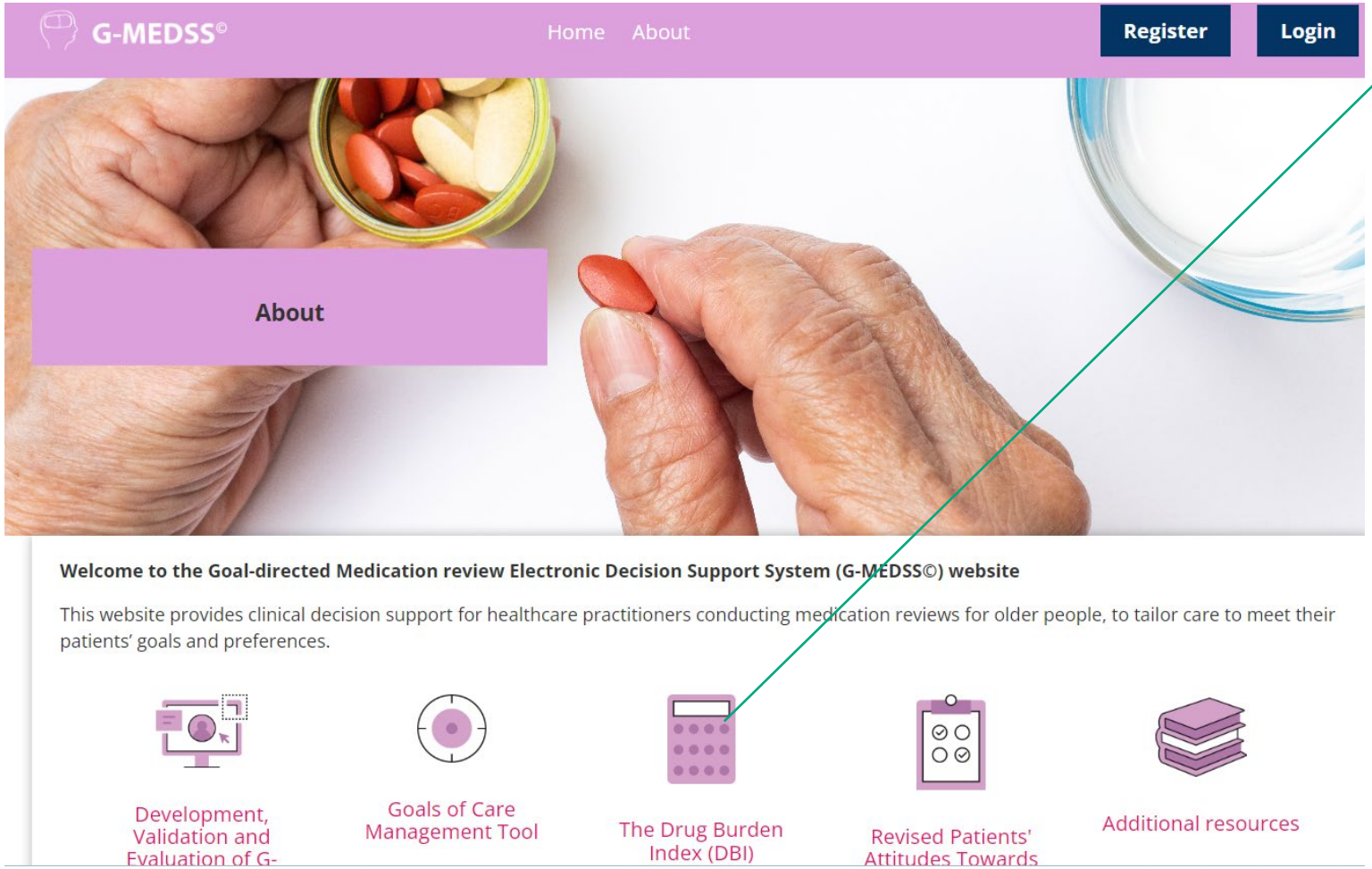
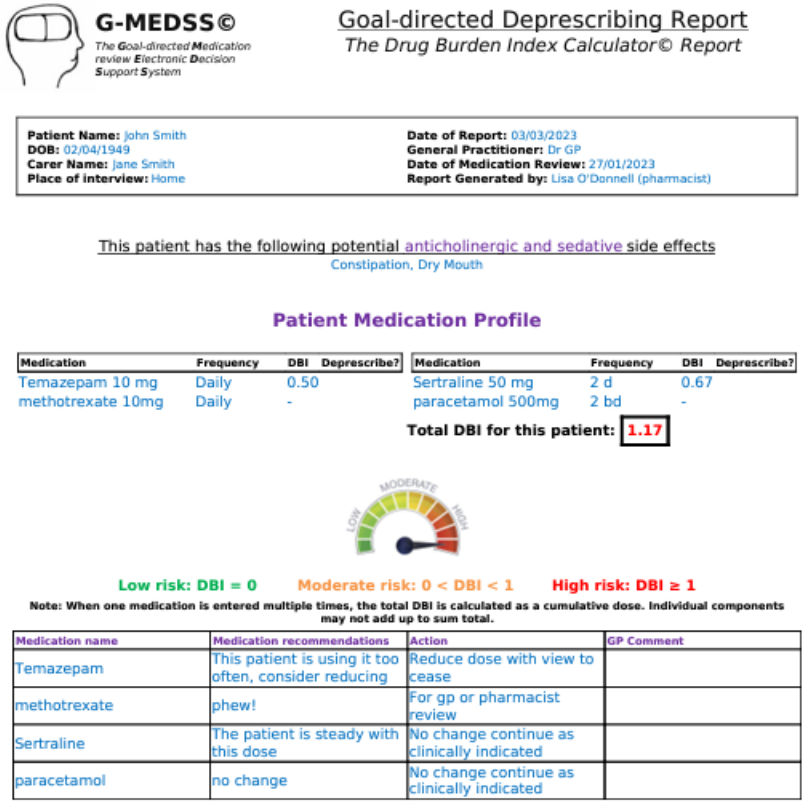
4. Electronic Clinical Decision Support Systems (CDSS)





https://gmedss.com

5. Tools for identifying potentially inappropriate medications (PIMs)

- STOPP criteria (Screening Tool for Older Peoples Prescriptions)

STOP medications (age ≥ 65 years)	Circumstances to review	Reason to review
α-blockers	Long-term urinary catheter in situ >2 Months	Not indicated
Antibiotics Review	IV antibiotics - ensure review date has been discussed with microbiology (under OPAT team) with the aim to switch to oral if possible Long-term antibiotics for UTI prophylaxis	Review individual patients as recommended by microbiology – guidance at http://www.rcgp.org.uk/TArGeTantibiotics/ Risk of infected/phlebitic IV lines. Increased risk of adverse effects and errors in preparation are significantly higher with parenteral drugs, compared to oral formulations. Increased patient discomfort and reduced mobility Refer to urology. Patients should be reviewed at regular intervals to assess the risk: benefits in relation to C. difficile infection. Prophylactic antibiotics should be reviewed after 6 months and stopping should be considered.
Anticholinergics	To treat extra-pyramidal side-effects of antipsychotic medications	Risk of anticholinergic toxicity, including confusion and urinary retention
Anticholinergic antispasmodics (e.g. hyoscine butylbromide)	For patients with chronic constipation	Risk of exacerbation of constipation
Antidiarrhoeal drugs (co-phenotrope, loperamide or codeine phosphate)	For treatment of diarrhoea of unknown cause ***N.B. Please be aware of C. difficile in undiagnosed diarrhoea***	Risk of delayed diagnosis, may exacerbate constipation with overflow diarrhoea, may precipitate toxic mega colon in inflammatory bowel disease, may delay recovery in unrecognised gastroenteritis
Antidiarrhoeal drugs (co-phenotrope, loperamide or codeine phosphate)	For the treatment of severe infective gastroenteritis	Risk of exacerbation or protraction of infection Risk of colitis and toxic mega colon if Clostridium difficile
Antimuscarinics (bladder)	Dementia or glaucoma or constipation or prostatism	Risk of worsening respective condition NICE CG171 Urinary Incontinence in Women

O'Mahony D. et al. Age Ageing 2015;44(2):213-8

5. Tools for identifying potentially inappropriate medications (PIMs)

- Australian PIMs

Table 2 Consensus agreement (strongly or somewhat agree) for drugs/drug classes to be included in the Australian list of PIMs in older people, which drugs to be avoided, conditions for avoidance and recommended alternative medicines

PIM or medicine class group	Avoid these drugs in older people	Avoid this medicine or medicine class in older people with these conditions	Instead of prescribing this medicine or class of medicines for older people, consider these alternatives
Alpha-adrenoreceptor antagonists (prazosin)	Prazosin	Risk of hypotension Taking other antihypertensive medications Frailty Risk of falls Initial dose adverse effects	ACE inhibitors (e.g. enalapril and lisinopril) Angiotensin II receptor blockers (e.g. candesartan and irbesartan) Calcium channel blockers (e.g. amlodipine and diltiazem) Silodosin Tamsulosin
Antiemetics – dopamine antagonist (chlorpromazine, domperidone, metoclopramide and prochlorperazine)	Chlorpromazine Prochlorperazine	Parkinson disease Polypharmacy Lewy body dementia Neurodegenerative diseases (e.g. alzheimer disease and cognitive impairment) Frailty High risk of falls	Ondansetron Domperidone
Antihypertensives, centrally acting (methyldopa, clonidine and moxonidine)	Methyldopa	Risk of hypotension Risk of falls Taking other antihypertensive medications Frailty	ACE inhibitors (e.g. enalapril and lisinopril) Angiotensin II receptor blockers (e.g. candesartan and irbesartan) Thiazide diuretics (e.g. hydrochlorothiazide)
Antipsychotics (haloperidol, zuclopenthixol, trifluoperazine, thioridazine, periciazine and flupenthixol)	Haloperidol Zuclopenthixol Trifluoperazine Thioridazine Periciazine Flupenthixol	At risk of extrapyramidal reactions Taking anticholinergic medications Polypharmacy Frailty Neurodegenerative diseases (e.g. delirium) Cognitive impairment Cardiovascular diseases Cerebrovascular diseases Risk of falls	Atypical antipsychotics (e.g. quetiapine) Risperidone Nonpharmacological strategies (e.g. yoga)
Antipsychotics (olanzapine, quetiapine	Olanzapine	Cardiometabolic syndrome (e.g. high blood pressure	Quetiapine

Wang K et al., Internal Medicine Journal 2024;54:980-1002.

5. Tools for identifying potentially inappropriate medications (PIMs)

- ThinkCascades – a prescribing cascade tool

Table 3 ThinkCascades: clinically important prescribing cascades affecting older people; by physiologic system

Drug A	Side effect	Drug B
Cardiovascular System (n=2)		
Calcium Channel Blocker →	Peripheral edema →	Diuretic
Diuretic →	Urinary incontinence →	Overactive bladder medication
Central Nervous System (n=4)		
Antipsychotic →	Extrapyramidal symptoms →	Antiparkinsonian agent
Benzodiazepine →	Cognitive impairment →	Cholinesterase Inhibitor or memantine
Benzodiazepine →	Paradoxical agitation or agitation secondary to withdrawal →	Antipsychotic
Selective Serotonin Reuptake Inhibitor (SSRI) / Serotonin-norepinephrine Reuptake Inhibitor (SNRI) →	Insomnia →	Sleep agent (e.g., Benzodiazepines, Benzodiazepine Receptor Agonists, Sedating antidepressant, Melatonin)
Musculoskeletal System (n=1)		
NSAID →	Hypertension →	Antihypertensive
Urogenital System (n=2)		
Urinary Anticholinergics →	Cognitive impairment →	Cholinesterase inhibitor or memantine
Alpha-1 Receptor Blocker →	Orthostatic hypotension, dizziness →	Vestibular sedative (e.g., betahistine, Antihistamines, Benzodiazepines)

NSAIDs non-steroidal anti-inflammatory drugs

McCarthy L et al., Drugs Aging 2022;39(10):829-840

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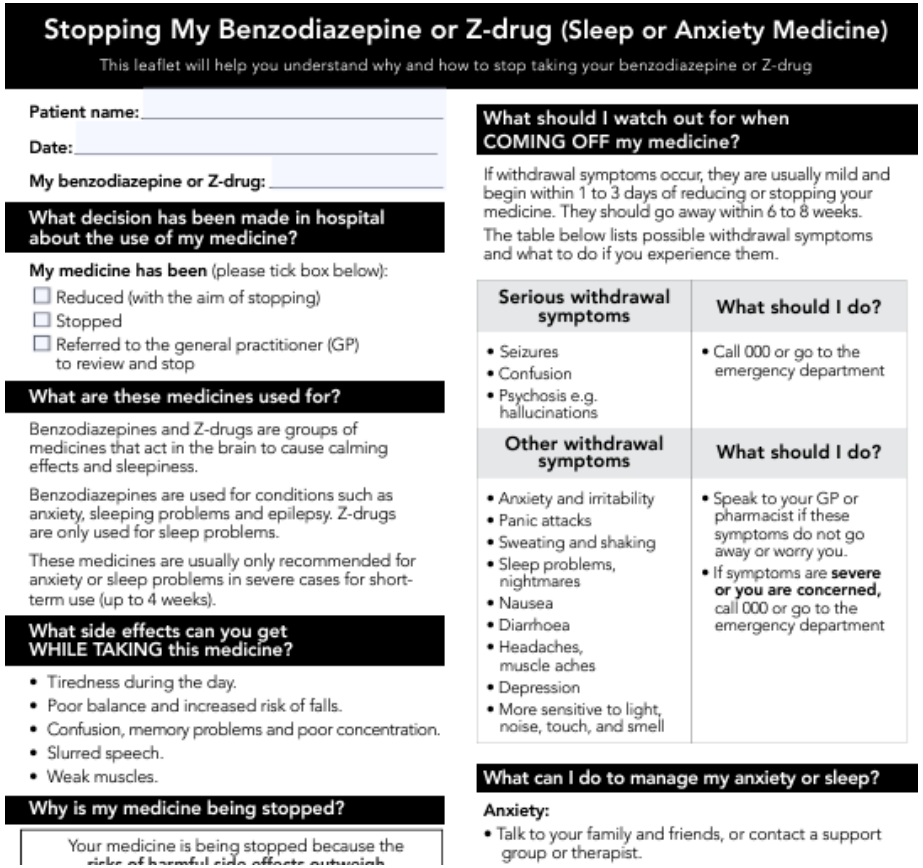
6. Tools for engaging patients



Stopping My Benzodiazepine or Z-drug (Sleep or Anxiety Medicine)

This leaflet will help you understand why and how to stop taking your benzodiazepine or Z-drug

Patient name: _____

Date: _____

My benzodiazepine or Z-drug: _____

What decision has been made in hospital about the use of my medicine?

My medicine has been (please tick box below):

- ☐ Reduced (with the aim of stopping)
- ☐ Stopped
- ☐ Referred to the general practitioner (GP) to review and stop

What are these medicines used for?

Benzodiazepines and Z-drugs are groups of medicines that act in the brain to cause calming effects and sleepiness.

Benzodiazepines are used for conditions such as anxiety, sleeping problems and epilepsy. Z-drugs are only used for sleep problems.

These medicines are usually only recommended for anxiety or sleep problems in severe cases for short-term use (up to 4 weeks).

What side effects can you get WHILE TAKING this medicine?

- Tiredness during the day.
- Poor balance and increased risk of falls.
- Confusion, memory problems and poor concentration.
- Slurred speech.
- Weak muscles.

Why is my medicine being stopped?

Your medicine is being stopped because the risks of harmful side effects outweigh

What should I watch out for when COMING OFF my medicine?

If withdrawal symptoms occur, they are usually mild and begin within 1 to 3 days of reducing or stopping your medicine. They should go away within 6 to 8 weeks.

The table below lists possible withdrawal symptoms and what to do if you experience them.

Serious withdrawal symptoms	What should I do?
• Seizures • Confusion • Psychosis e.g. hallucinations	• Call 000 or go to the emergency department
Other withdrawal symptoms	**What should I do?**
• Anxiety and irritability • Panic attacks • Sweating and shaking • Sleep problems, nightmares • Nausea • Diarrhoea • Headaches, muscle aches • Depression • More sensitive to light, noise, touch, and smell	• Speak to your GP or pharmacist if these symptoms do not go away or worry you. • If symptoms are **severe or you are concerned,** call 000 or go to the emergency department

What can I do to manage my anxiety or sleep?

Anxiety:

- Talk to your family and friends, or contact a support group or therapist.

5 QUESTIONS TO ASK ABOUT YOUR MEDICATIONS

when you see your doctor, nurse, or pharmacist.

1. CHANGES?
Have any medications been added, stopped or changed, and why?

2. CONTINUE?
What medications do I need to keep taking, and why?

3. PROPER USE?
How do I take my medications, and for how long?

4. MONITOR?
How will I know if my medication is working, and what side effects do I watch for?

5. FOLLOW-UP?
Do I need any tests and when do I book my next visit?

Keep your medication record up to date.

Remember to include:

- ✓ drug allergies
- ✓ vitamins and minerals
- ✓ herbal/natural products
- ✓ all medications including non-prescription products

Ask your doctor, nurse or pharmacist to review all your medications to see if any can be stopped or reduced.

ismp · cpsi · icsp

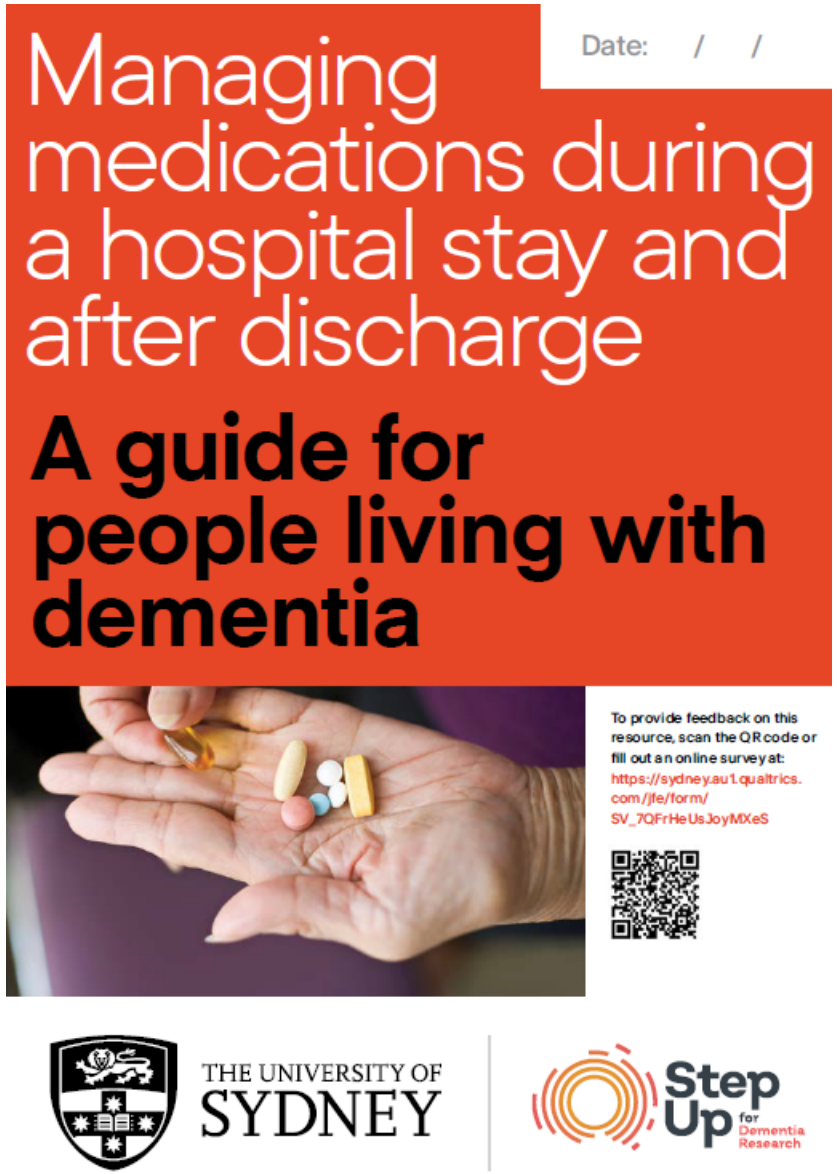
Visit safemedicationuse.ca for more information.

Canadian Society of Hospital Pharmacists · Société canadienne des pharmaciens d'hôpitaux · Canadian Pharmacists Association · Association des pharmaciens du Canada · SafeMedicationUse.ca

https://www.ismp-canada.org/download/MedRec/MedSafety_5_questions_to_ask_poster.pdf

https://www.nswtag.org.au/deprescribing-tools/

6. Tools for engaging patients



Sawan M et al, *Under development*

Deprescribing is part of good prescribing!

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Letters » Deprescribing

Should we deprescribe the term "deprescribing"?

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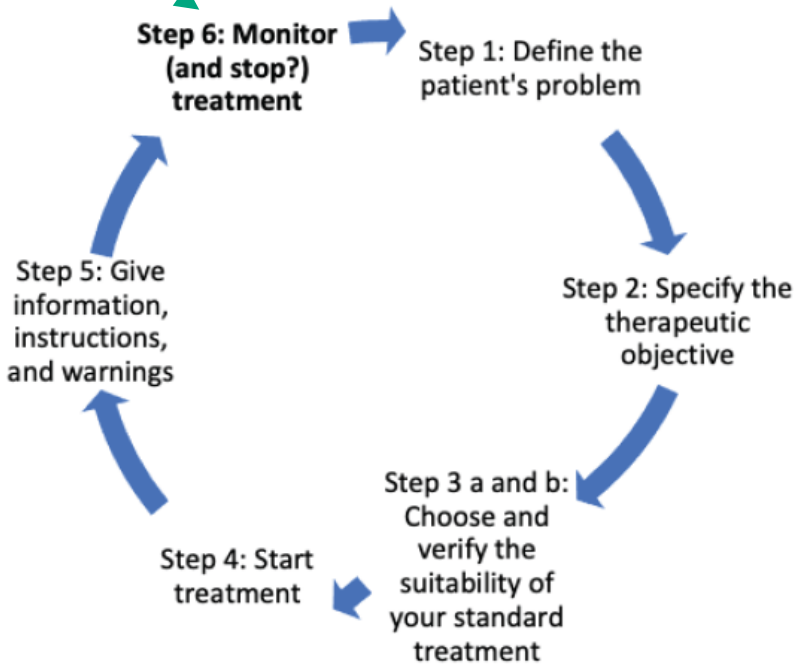

Thank you

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