Managing Complex Pharmacological Scenarios – Deprescribing and Polypharmacy

2023 Toronto Geriatrics Update Course
Friday November 10th; 1:10 – 2:10 PM EST
Facilitators: Katie Mok & Andrea Hudson

Sinai Health | Healthy Ageing and Geriatrics

UHN Toronto General Toronto Western Princess Margaret Toronto Rehab Michener Institute

Facilitators

- Katie Mok: BScPhm, ACPR, BCGP (Internal Medicine/Geriatrics Pharmacist, Mount Sinai Hospital)
- Andrea Hudson: B.A Psych, BScPhm, Pharm D, (Pharmacist, Home and Community Care Support Services)
- We have no disclosures

Poll question (#1): What is your health care role?

a) Family physician
b) Nurse practitioner
c) Specialist
d) Social worker
e) Occupational therapist
f) Physiotherapist
g) Pharmacist
h) Other allied health
i) Non-direct patient care

Poll question (#2): How often do you discuss polypharmacy and deprescribing with your patients/clients?

a) Every visit and chance I get!

b) If patient/client raises it as a concern

c) After a hospitalization or new diagnosis

d) Whenever I prescribe a new medication

e) Never

f) Doesn't really apply to me

Learning objectives

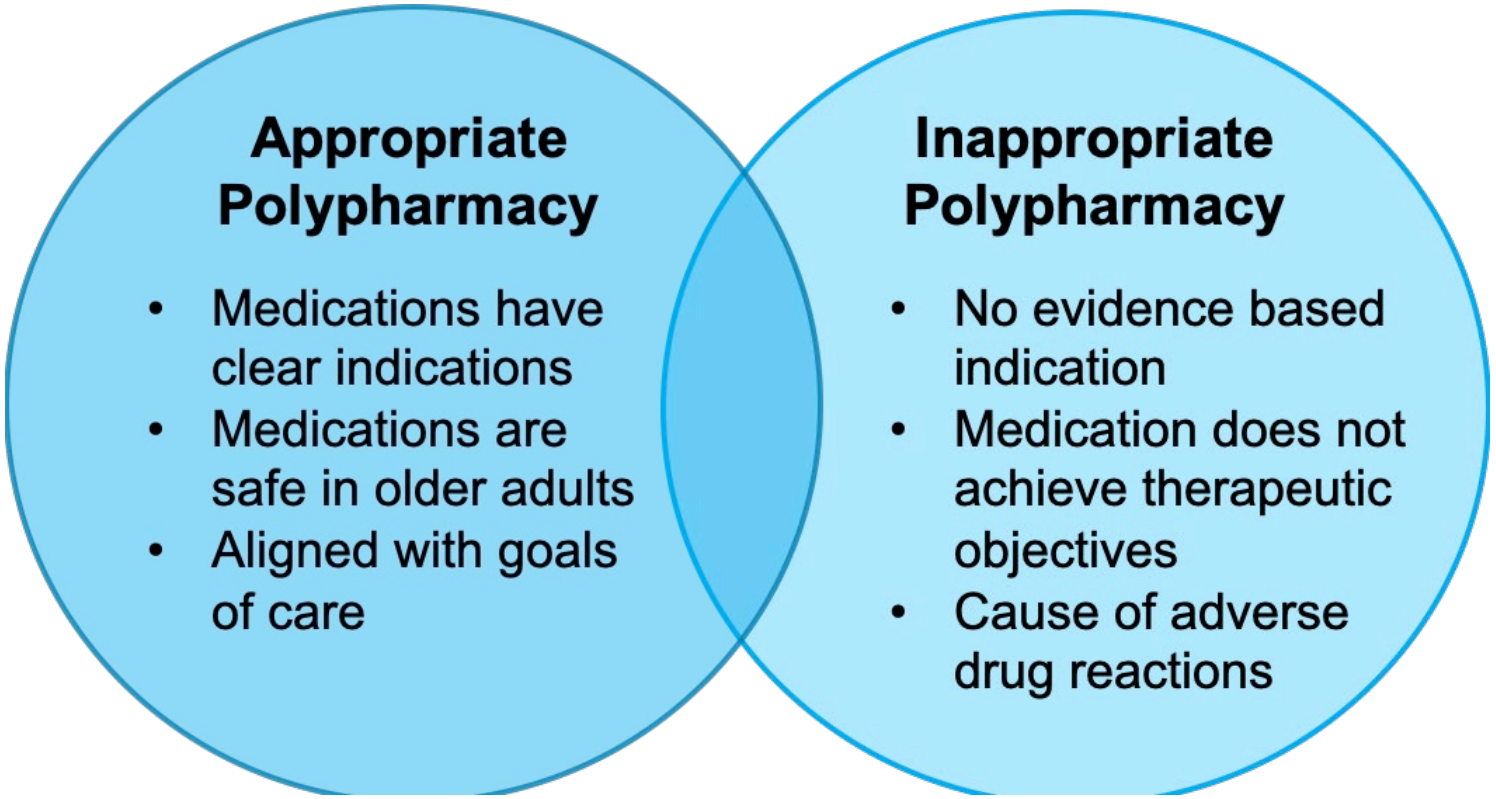
1. Review key concepts of inappropriate polypharmacy, prescribing cascades and deprescribing.

2. Utilize a complex patient case to apply a framework for deprescribing medications.

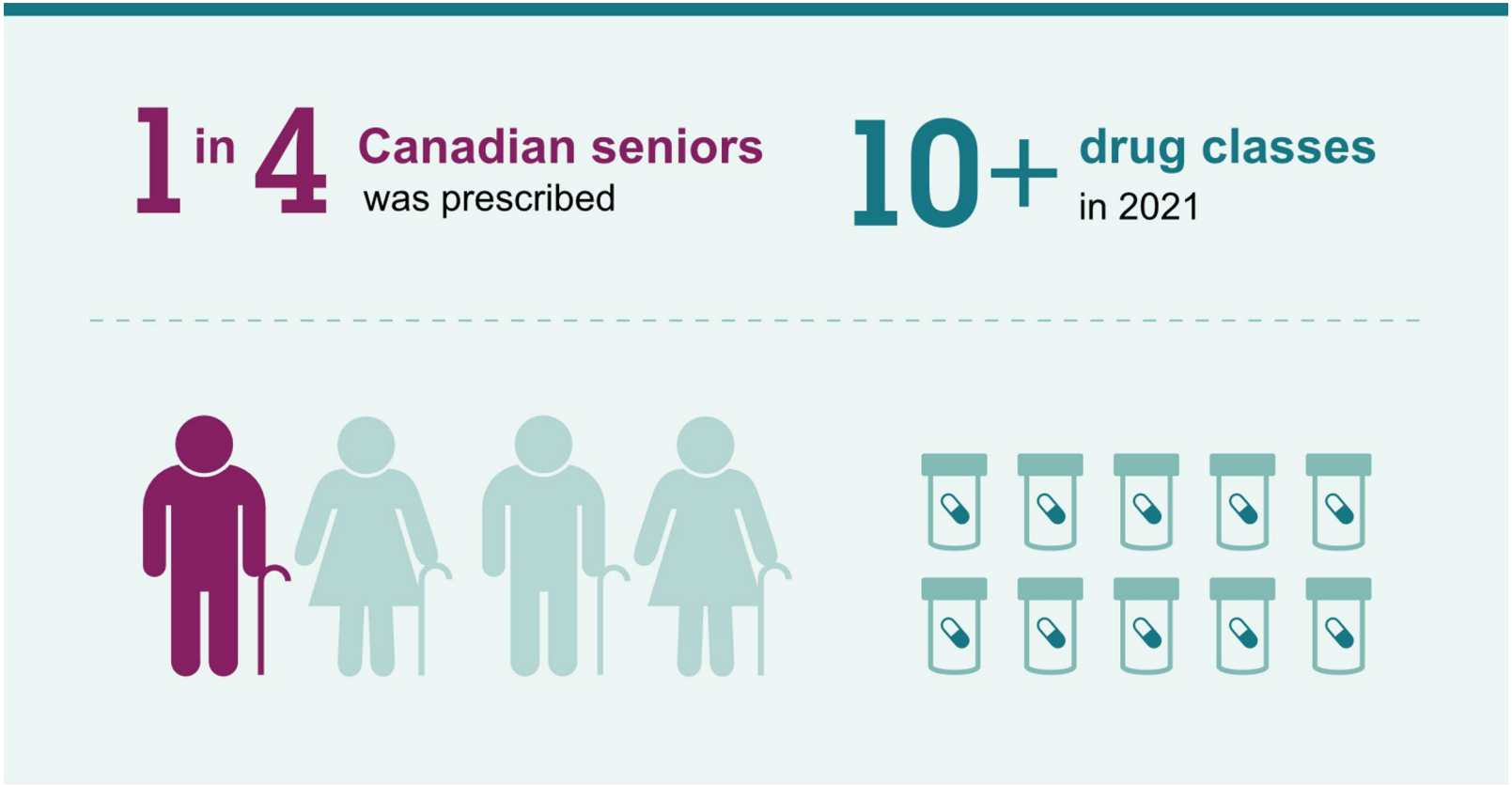
3. Appreciate differences in the opportunities and timeframes of deprescribing that occur as outpatients compared to inpatients.

Polypharmacy

- WHO definition: concurrent use of multiple medications by a patient
  - Typically defined as routine use of five or more medications



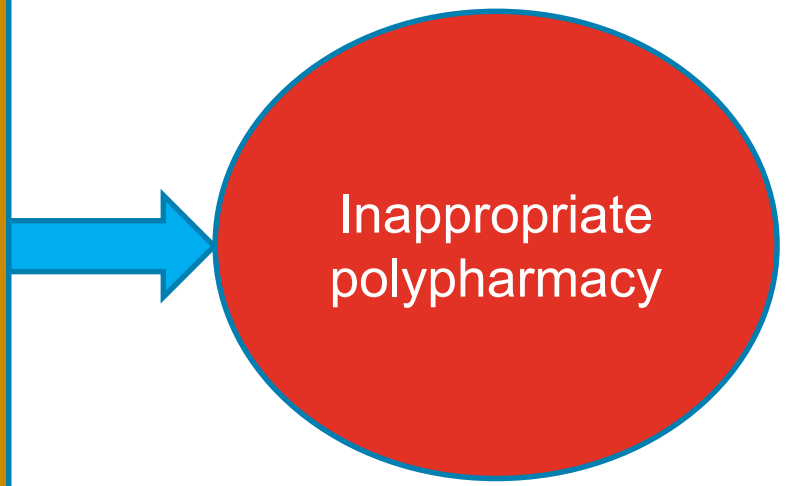
Polypharmacy



Canadian Institute for Health Information. Drug use among seniors in Canada. Accessed October 17, 2023

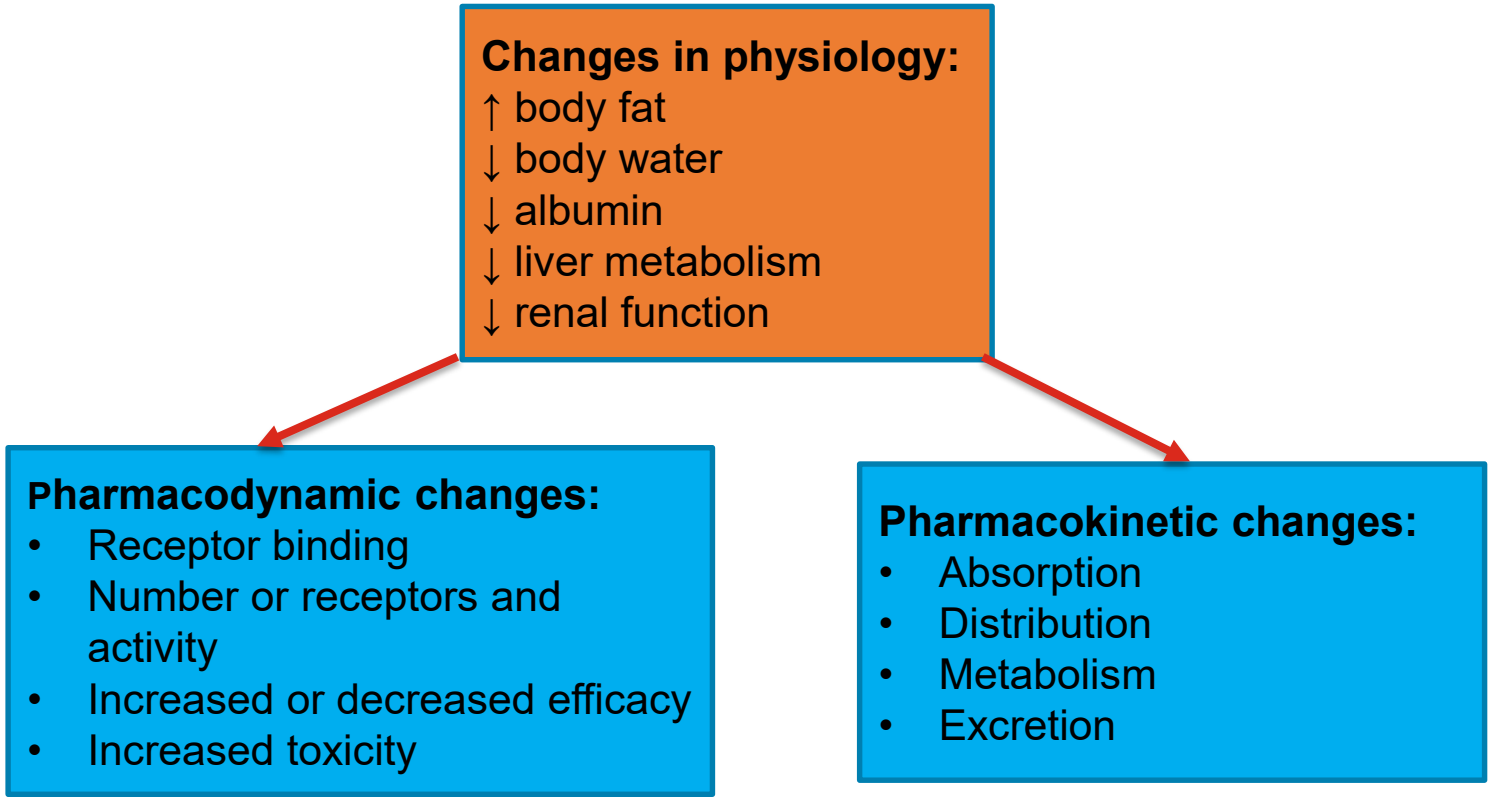
Risk factors for inappropriate prescribing

- Age >62 (homeostasis changes, organ dysfunction)
- Cognitive impairment
- Frailty
- Multiple chronic conditions
- Mental Health conditions
- Lack of primary care
- Multiple prescribers (primary care, specialists)
- Acute illness
- Poor care transitions



Halli-Teirney et al Am Fam Physician. 2019;100(1):32-38

Age-related changes impacting medications



Drenth-van Maanen AC et, Wilting al I,. Br J Clin Pharmacol. 2020 Oct;86(10):1921-1930.

Consequences of inappropriate polypharmacy

↑ Risk Adverse Drug Events

- ❑ 2 medications: 13%
- ❑ 5 medications: 58%
- ❑ >7 medications: 82%

Prescribing cascade

Unnecessary drug expenses

ED visits

↓ Adherence

↓ QOL

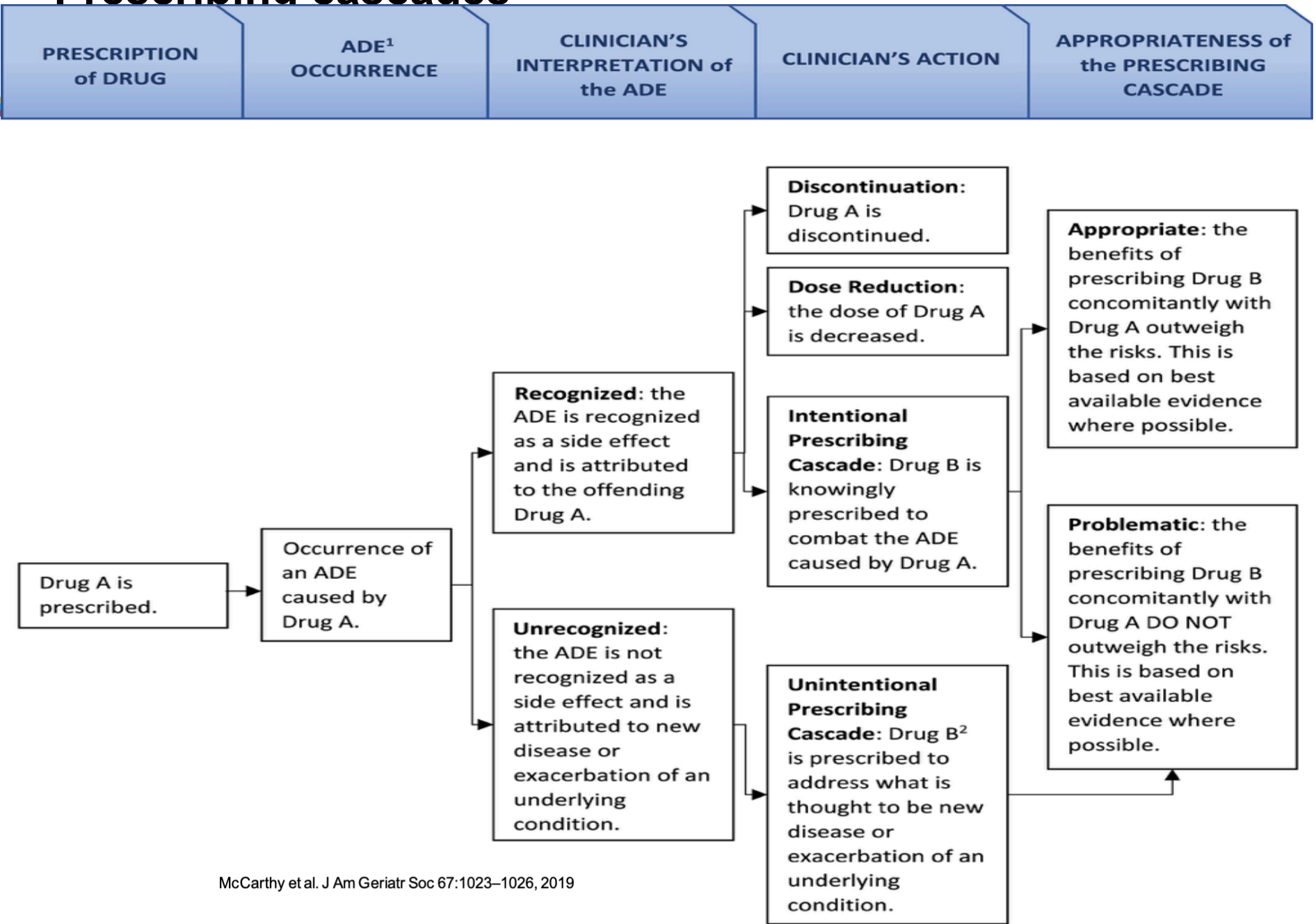
Functional decline

↑ Mortality risk

Zed et al. *CMAJ* 2008;178:1563-1569; Bourgeois et al. *Pharmacoepidemiol Drug Saf* 2010;19:901-910; Gnjidic D et al. *J Clin Epidemiol* 2012;65(9):989-95; Maher RL, et al. *Expert Opin Drug Saf* 2014;13(1):57-65; Patterson SM et al. *Cochrane Database Syst Rev* 2014;(10): CD008165; Johansson T et al. *Br J Clin Pharmacol 2016*;82:532–548

WELL, THE **WHITE PILL** LOWERS MY BLOOD PRESSURE BUT MAKES MY **LEGS SWELL**, THE **YELLOW PILL** LOWERS THE SWELLING BUT **CAUSES ME TO PEE**, THE **BLUE PILL** STOPS ME FROM PEEING BUT **MAKES ME CONFUSED**, THE **TAN PILL** IMPROVES MY MEMORY BUT **MAKES MY NOSE RUN**, THE **PINK PILL** STOPS MY NOSE FROM RUNNING BUT **MAKES ME SLEEPY**, THE **ORANGE PILL** WAKES ME UP BUT **INCREASES MY BLOOD PRESSURE**, SO THE **WHITE PILL** LOWERS MY BLOOD PRESSURE BUT...

Prescribing cascades



McCarthy et al. J Am Geriatr Soc 67:1023–1026, 2019

Poll question (#3): Which of the following is an example of a possible inappropriate prescribing cascade?

a) pregabalin --> edema --> diuretic

b) levodopa-carbidopa --> hallucinations --> quetiapine

c) over the counter NSAID --> GERD --> PPI

d) all of the above

Prescribing cascade examples

Drug A	Side effect	Drug B
Appropriate cascade		
methotrexate	Mouth sores, folate deficiency	folic acid
opioid	constipation	laxative
Inappropriate cascade		
calcium channel blocker	peripheral edema	diuretic
diuretic	urinary incontinence	overactive bladder medication
NSAID	hypertension fluid retention	antihypertensive diuretic

Strategies to reduce potential harms of polypharmacy

1. Assess risk of polypharmacy
2. Regular medication review
3. Inform caregivers of medication changes
4. Choose medications with fewest side effects
5. **DEPRESCRIBE- Stop or reduce unnecessary medication**
6. Consider impact of medications on QOL
7. Consider ability to take and remember to take medications
8. Multidisciplinary case conferencing

Medication Safety in Polypharmacy. Geneva: World Health Organization; 2019 (WHO/UHC/SDS/2019.11).

What can patients, families and caregivers do?

- Bring someone to appointments
- List questions before appointments
- Inform about over-the-counter medications, supplements and herbal products
- Report any new or unexpected symptoms
- Ask questions about your medication (prescribers and pharmacists)
- Use one pharmacy

Medication Safety in Polypharmacy. Geneva: World Health Organization; 2019 (WHO/UHC/SDS/2019.11).

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 CANADA

cpsi icsp

Visit safemedicationuse.ca for more information.

Deprescribing

"Deprescribing is the planned and supervised process of dose reduction or stopping of medication that might be causing harm, or no longer be of benefit.

Deprescribing is part of good prescribing – backing off when doses are too high, or stopping medications that are no longer needed."

What is deprescribing? deprescribing.org. Accessed Oct 30, 2023

10 step deprescribing algorithm (British Medical Journal Group)

1. Accurately ascertain all current drug use

• 'brown paper bag' medication reconciliation

2. Identify patients at risk of, or suffering, ADR

• at risk: ≥8 medications
advanc
high-risk

• assess for curre

All three at-risk criteria – aim for ≤ 5 drugs

3. Estimate life e

• clinical prognost

4. Define overall

• consider current
referenc

5. Verify current

• perform diagnos
• confirm diagnos
• ascertain, for ea

6. Determine nee

• estimate clinical
• compare this es

7. Determine abs

• reconcile estima
tools (se

8. Review the rel

• rank drugs according to the relative utility from high to low based on predicted benefit, harm, administration and monitoring burden ⇢ Discontinue drugs of low utility

9. Identify drugs to be discontinued and seek patient consent

• reconcile drugs for discontinuation with patient preferences ⇢ Discontinue drugs patients are not in favour of taking

10. Devise and implement drug discontinuation plan with close monitoring

Poll question (#4): What is the biggest challenge that affects your ability to deprescribe?

a) Not enough time

b) Knowledge and skills, access to resources

c) Patient hesitancy

d) Lack of information from other providers

e) Not part of my role

Barriers and Facilitators to deprescribing

	Barrier	Facilitator
Cultural	Prescribing culture Lack of non-pharmaceutical alternatives	More prudent prescribing culture
Organizational/ system	Disease focused evidence-based guidance Lack of guidance on tapering and interactions Incomplete information sharing	Better evidence-based multimorbidities guidance Accessibility of resources and tools
Interpersonal	Fragmented care Prescriber uncertainties (e.g., reluctance to cease medication, concerns of poor outcomes) Lack of time	Improved communication Continuity of care Interdisciplinary collaboration
Individual	Patient may not want to stop medication Cognitive impairment	Patient-centred care Involvement of patient in decision making Decreased pill burden

Alison Jayne Doherty et al. BJGP Open 2020;4 (3): bjgpopen20X101096.

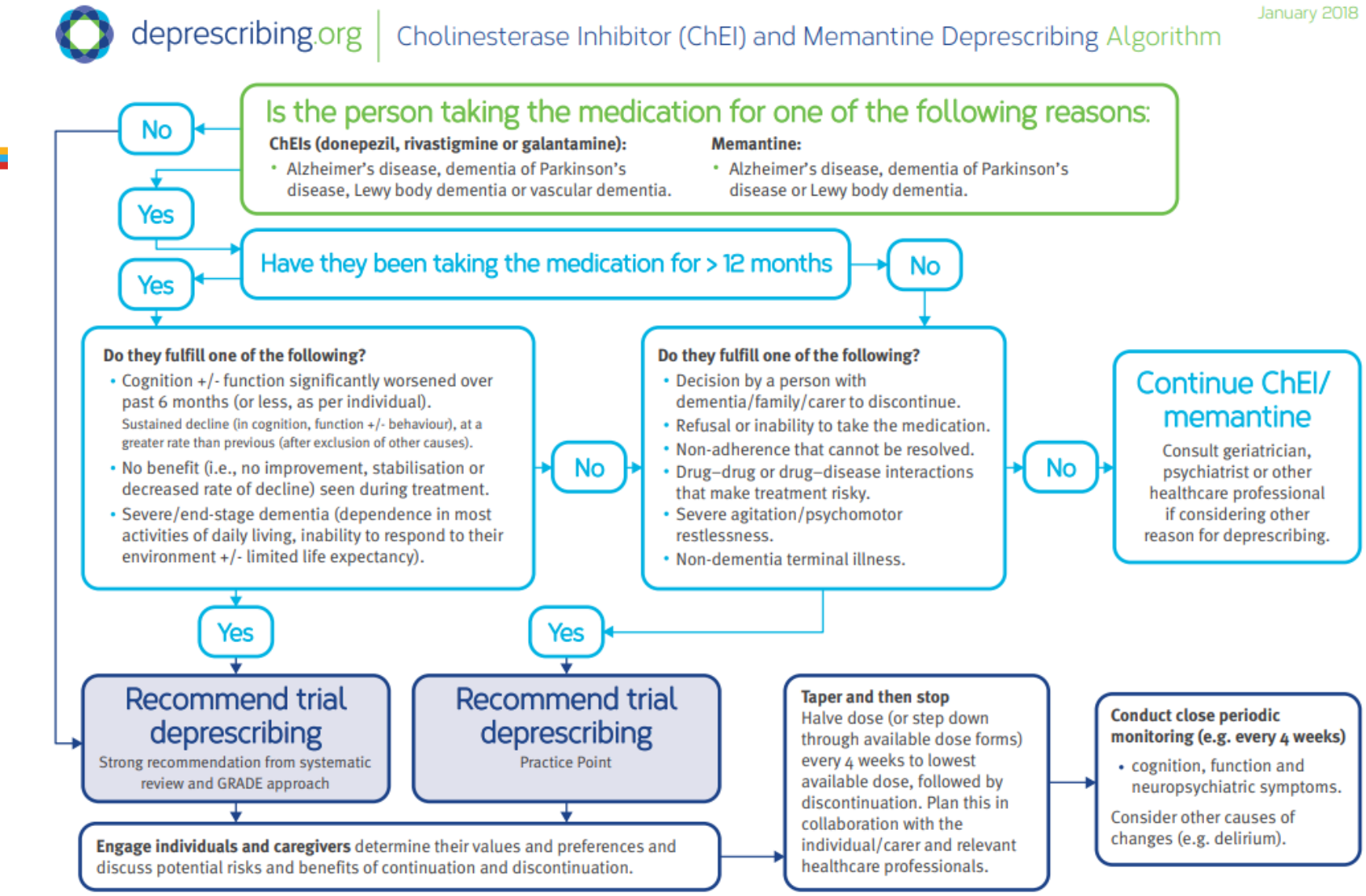
Identifying potentially inappropriate medications

Resources:

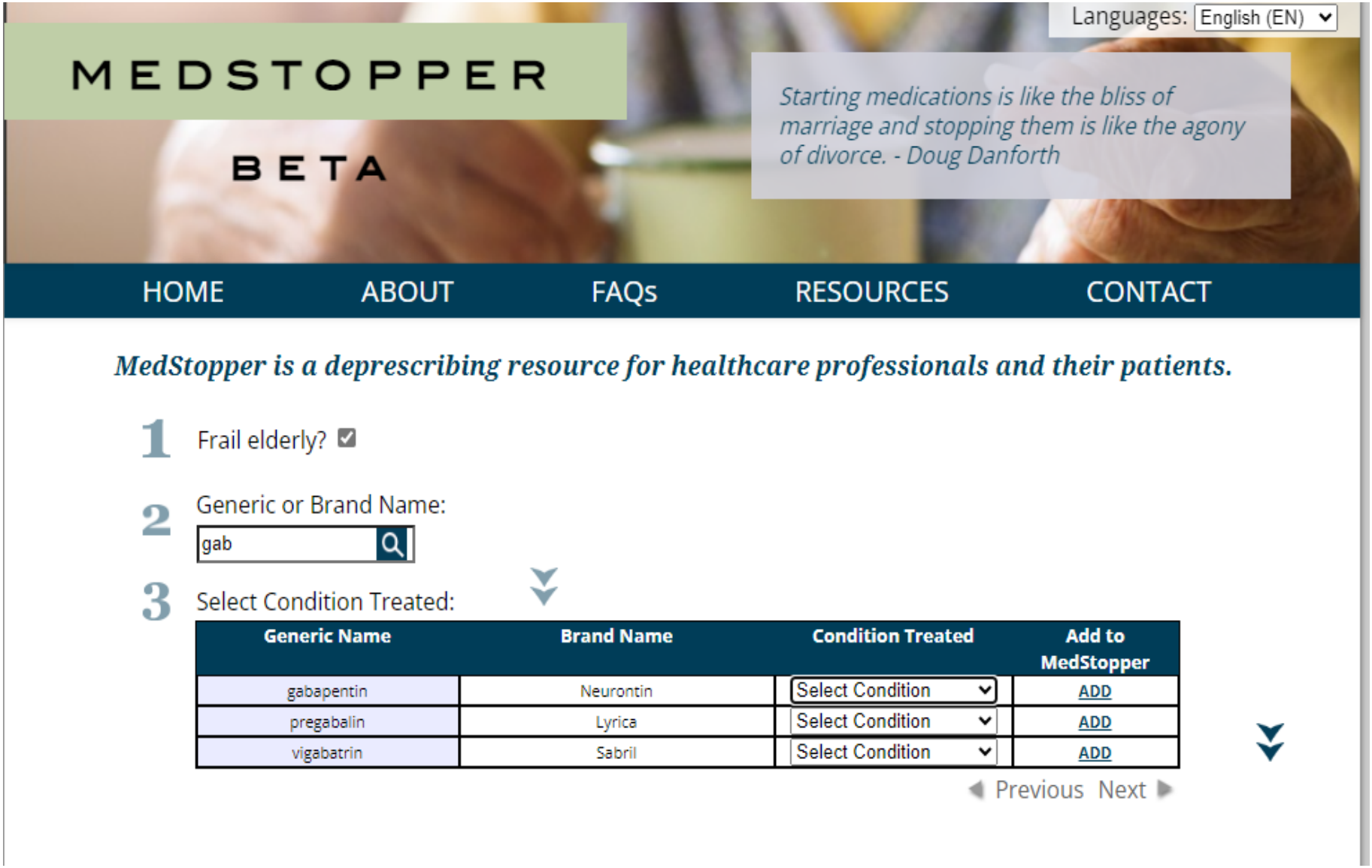
- Beers Criteria – updated May 2023
- STOPP/START version 3 – updated July 2023
  - 133 STOPP criteria and 57 START criteria
- Medication Appropriateness Index (MAI)

Deprescribing resources/tools

- Deprescribing.org: resources and algorithms (e.g., PPIs, sedative hypnotics, antihyperglycemics, antipsychotics, AChEIs)
- The Canadian Medication Appropriateness and Deprescribing Network: resources, tools and algorithms
- Medstopper.com: prioritization and tapering recommendations
- Centre for Effective Practice: evidence-based tools, resources and programs
- Choosing Wisely: recommendations and toolkits (e.g., Bye-bye PPI) for treatments not supported by evidence



Reeve E, Farrell B, Thompson W, at al Evidence-based Clinical Practice Guideline for Deprescribing Cholinesterase Inhibitors and Memantine. 2018.
ISBN-13: 978-0-6482658-0-1 Available from: http://sydney.edu.au/medicine/cdpc/resources/deprescribing-guidelines.php


MEDSTOPPER
BETA
Languages: English (EN)
Starting medications is like the bliss of marriage and stopping them is like the agony of divorce. - Doug Danforth
HOME
ABOUT
FAQs
RESOURCES
CONTACT
MedStopper is a deprescribing resource for healthcare professionals and their patients.
1 Frail elderly?
2 Generic or Brand Name:
gab
3 Select Condition Treated:
Generic Name
Brand Name
Condition Treated
Add to MedStopper
gabapentin
Neurontin
Select Condition
ADD
pregabalin
Lyrica
Select Condition
ADD
vigabatrin
Sabril
Select Condition
ADD
Previous
Next

MedStopper Plan

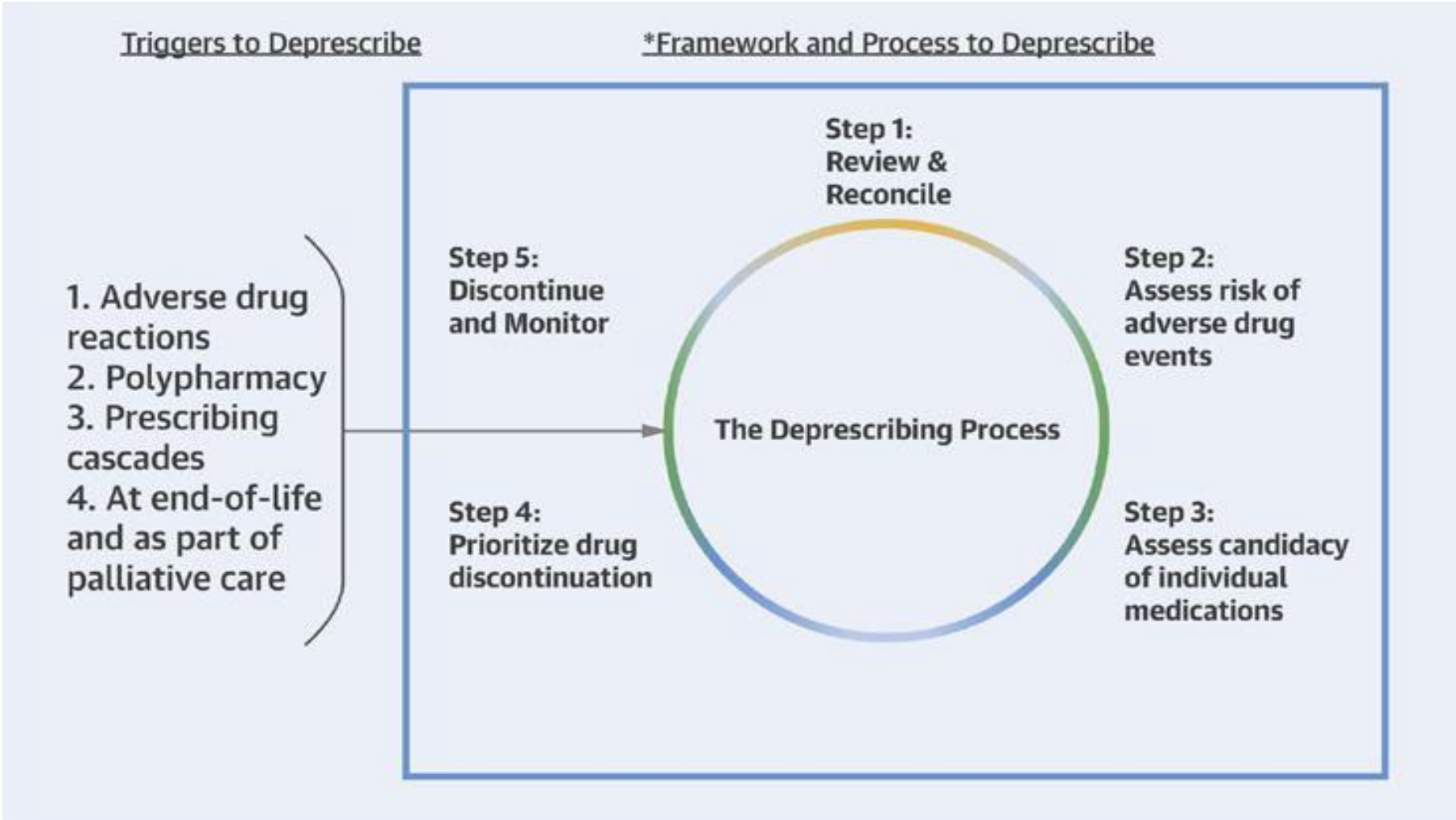
Arrange medications by: Stopping Priority

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
X	duloxetine (Cymbalta) / SNRI / **chronic pain**				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 occur (usually 1-3 days after a dose change), go back to the previously tolerated dose until symptoms resolve and plan for a more gradual taper with the patient. Dose reduction may need to slow down as one gets to smaller doses (i.e. 25% of the original dose). Overall, the rate of discontinuation needs to be controlled by the person taking the medication.	nausea, diarrhea, abdominal pain, sweating, headache, dizziness, cold and flu-like symptoms, anxiety, irritability, trouble sleeping, unusual sensory experiences (e.g. electric shock-like feelings, visual after images), sound and light sensitivity, muscle aches and pains, chills, confusion, pounding heart (palpitations), unusual movements, mood changes, agitation, distress, restlessness, rarely suicidal ideation	None
X	gabapentin (Neurontin) / Antiepileptic / **pain**				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 occur (usually 1-3 days after a dose change), go back to the previously tolerated dose until symptoms resolve and plan for a more gradual taper with the patient. Dose reduction may need to slow down as one gets to smaller doses (i.e. 25% of the original dose). Overall, the rate of	return of symptoms, pain	None

Triggers for deprescribing



Krishnaswami A, et al. J Am Coll Cardiol 2019;73(20):2584-2595.

Problem-based deprescribing

1. Consider medications as a possible cause
2. Prioritize according to risk (e.g., falls, delirium)
3. Consider the risk and benefits of deprescribing
4. Develop a plan for deprescribing and monitoring (collaborate)

Molnar FJ, et al. *Can Geriatr Soc J CME* 2018;8(2):1-14

CASE STUDY

Case

- 85-year-old female presents to primary care clinic for dizziness
- Accompanied by daughter who is concerned about her mom being able to keep track of recent medication changes

Past medical history: atrial fibrillation, hypertension, type 2 diabetes with polyneuropathy, hypothyroidism, osteoarthritis, mild cognitive impairment, falls

Social history: no alcohol, smoking or recreational drug use

Allergies: none known

Weight: 61 kg **Height:** 165 cm

Case

Medications on file	Labs and vitals:
1. Bisoprolol 5 mg daily 2. Apixaban 5 mg BID 3. Amlodipine 10 mg daily 4. Rosuvastatin 5 mg daily 5. Levothyroxine 0.075 mg daily 6. Metformin 500 mg twice daily 7. Insulin glargine 8 units daily 8. Duloxetine DR 30 mg daily 9. Gabapentin 600 mg BID 10. Donepezil 10 mg daily 11. Pantoprazole 20 mg daily 12. Vitamin D 1000 units daily 13. Acetaminophen PRN	• BP 110/78 HR 62 (lying), 91/80 HR 70 (standing) • Na= 138 (135-145) • K= 3.6 (3.5-5.) • SCr= 78 (42-102) • eGFR- 64 (>60) • A1C= 6.7 (9.2 6 months ago) • TSH= 2.83 (0.4-5.00) • B12 > 1400 (>220) • MOCA 21/30 • CHADS2- 5

Consider medications as a cause

- Ensure list of medications is accurate and complete
- List all prescription and non-prescription medications
- Ensure list is what is actually being taken versus what is prescribed

- You review your list and the blister pack and ask about over-the-counter medications, supplements and other natural health products and discover additional medications:
  1. **Furosemide 20 mg daily**- started 4 weeks ago and increased to 40 mg last week. Patient had lower extremity swelling- was seen at a walk-in clinic
  2. **Vitamin B12 1000 mcg daily**- family started due to cognitive impairment
  3. **Over-the-counter sleep aid-** diphenhydramine 50 mg at bedtime when needed

Poll question (#5): Which of the following medications could be contributing to orthostatic hypotension?

a) bisoprolol, amlodipine and apixaban

b) bisoprolol, furosemide and duloxetine

c) donepezil, furosemide and vitamin D

d) amlodipine, levothyroxine and diphenhydramine

Drug-induced orthostatic hypotension

Drug	How
Diuretics (e.g., furosemide, thiazides)	Volume depletion
Alpha-1-blockers (e.g., terazosin, tamsulosin, prazosin)	Vasodilation
Beta-blockers (e.g., metoprolol, bisoprolol) and calcium channel blockers (e.g., verapamil, diltiazem)	Reduced cardiac output and vascular resistance
RAS inhibitors (e.g., ramipril, valsartan)	Vasodilation
Antidepressants (e.g., TCA, trazodone, paroxetine)	Vasodilation
SGLT2 inhibitors (e.g., empagliflozin, canagliflozin)	Volume depletion
Antipsychotics (e.g., olanzapine, risperidone, quetiapine)	Vasodilation

Possible medication causes

1. Bisoprolol 5 mg daily
2. Apixaban 5 mg BID
3. Amlodipine 10 mg daily
4. Furosemide 40 mg daily
5. Rosuvastatin 5 mg daily
6. Levothyroxine 0.075 mg daily
7. Metformin 500 mg twice daily
8. Insulin glargine 8 units daily
9. Duloxetine DR 30 mg daily
10. Gabapentin 600 mg BID
11. Donepezil 10 mg daily
12. Pantoprazole 20 mg daily
13. Vitamin D 1000 units daily
14. Vitamin B12 1000 mcg daily
15. Diphenhydramine 50 mg PRN

Prioritize and consider risks/benefits of deprescribing

- Temporal relationship- furosemide most likely
- Several other possible causes
- Risks
  - Falls and falls complications
  - Return of swelling- possible prescribing cascade:

    Amlodipine --> edema --> furosemide --> dizziness

    Gabapentin --> edema --> furosemide --> dizziness

- You decide to focus on stopping furosemide, reassessing and consider additional deprescribing at the next visit

Develop a plan and monitor

- Discontinue furosemide
- Discourage diphenhydramine use for sleep
- Encourage fluid intake
- Monitor dizziness, blood pressure and leg swelling
- Return to office in 1 week for reassessment
  - Reassess other causes of dizziness at next appointment (donepezil, duloxetine, gabapentin, bisoprolol)
  - Consider alternatives for amlodipine

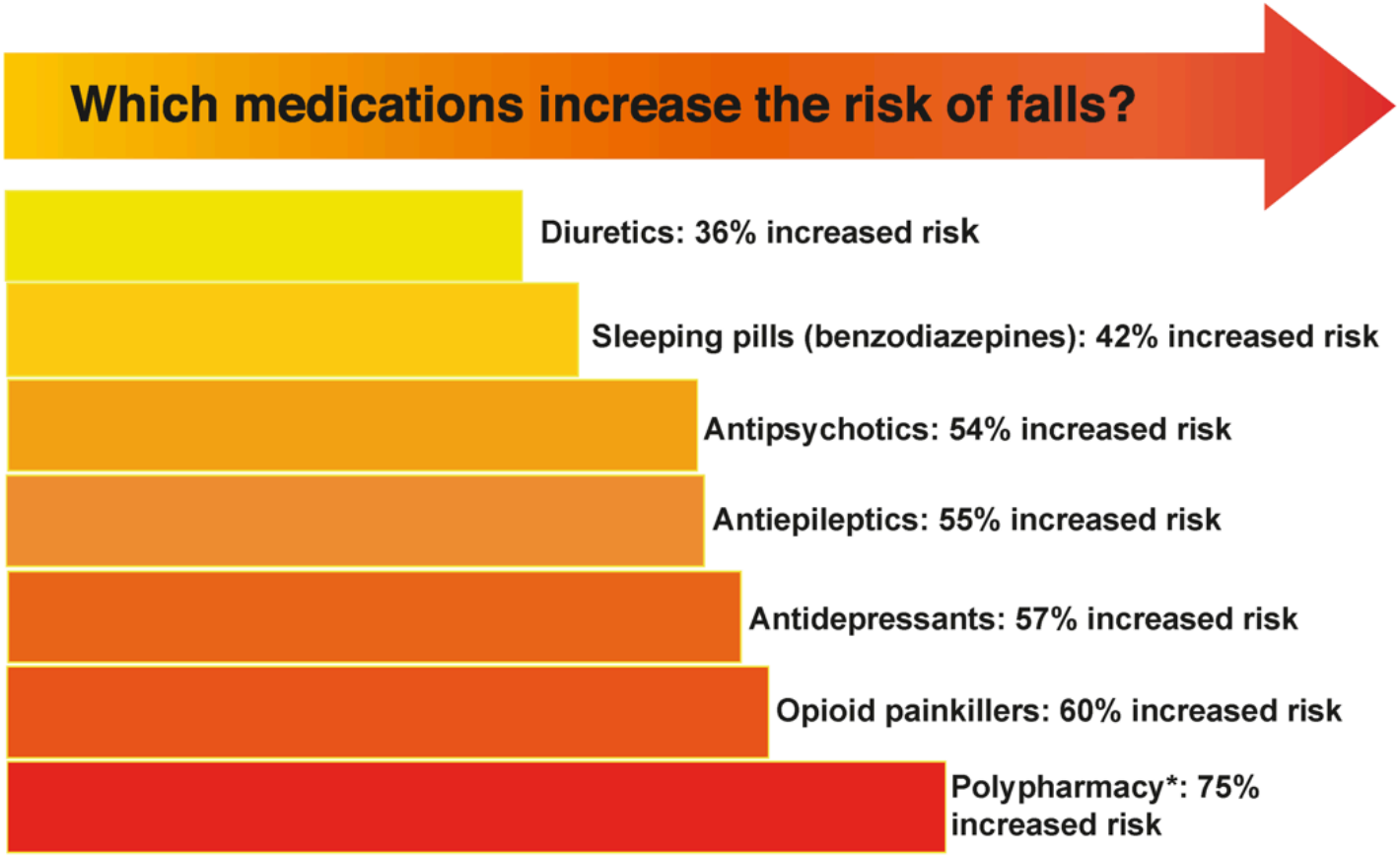
Case follow-up

- Prior to her follow-up appointment, patient presents to ER for a mechanical fall
- RFR: falls and confusion – no acute fractures
- Patient admitted to hospital under GIM and flagged for a geriatrics consult
- Pharmacist completes medication reconciliation and review, and discovers the following:
  - Patient was taking medications from old blister pack, containing furosemide, which was stopped about 5 days ago by GP

Case: on admission

Medications	Labs
1. Bisoprolol 5 mg daily 2. Apixaban 5 mg BID 3. Amlodipine 10 mg daily 4. Furosemide 40 mg daily 5. Rosuvastatin 5 mg daily 6. Levothyroxine 0.075 mg daily 7. Metformin 500 mg twice daily 8. Insulin glargine 8 units daily 9. Duloxetine DR 30 mg daily 10. Gabapentin 600 mg twice daily 11. Donepezil 10 mg daily 12. Pantoprazole 20 mg daily 13. Vitamin D 1000 units daily 14. Vitamin B12 1000 mcg daily 15. Acetaminophen PRN 16. Diphenhydramine 50 mg PRN – last used 2 nights ago	• BP = 105/73, HR=62 • Na=134 • K=3.8 • SCr= 105 (was 78 last week) • BG=3.6 • Recent HbA1C=6.7% • TSH=2.83

Polypharmacy and falls



In this analysis, the most commonly used definition for polypharmacy was 4 or more medications.

Sources: de Vries M *et al.* 2018, Seppala LJ *et al.* 2018, Seppala LJ *et al.* 2018

FRIDs: Fall-Risk-Increasing-Drugs

- Antihypertensives
- Anticonvulsants
- Antipsychotics
- Antidepressants
- Benzodiazepines/Sedative/hypnotics
- Opioids
- Antispasmodics, muscle relaxants
- Antidiabetic agents
- Anticholinergic agents

Problem-based deprescribing

1. Consider medications as a possible cause
2. Prioritize according to risk (e.g., falls, delirium)
3. Consider the risk and benefits of deprescribing
4. Develop a plan for deprescribing and monitoring (collaborate)

Molnar FJ, et al. *Can Geriatr Soc J CME* 2018;8(2):1-14

Case: Medication causes of falls

1. Bisoprolol 5 mg daily
2. Apixaban 5 mg BID
3. Amlodipine 10 mg daily
4. Furosemide 40 mg daily
5. Rosuvastatin 5 mg daily
6. Levothyroxine 0.075 mg daily
7. Metformin 500 mg twice daily
8. Insulin glargine 8 units daily
9. Duloxetine DR 30 mg daily
10. Donepezil 10 mg daily
11. Pantoprazole 20 mg daily
12. Vitamin D 1000 units daily
13. Vitamin B12 1000 mcg daily
14. Acetaminophen PRN
15. Diphenhydramine 50 mg PRN sleep

Poll Question (#6): Which medication would you prioritize for deprescribing for our patient?

a) donepezil

b) pantoprazole

c) insulin glargine

d) furosemide

e) amlodipine

Framework for deprescribing medications

CEASE protocol: 5 steps

- **C**onfirm current medications
- **E**stimate risk
- **A**ssess each medication
- **S**ort: Prioritize medications to deprescribe
- **E**liminate: discontinue and monitor

Prioritize according to risk

1) Risk for recurrent falls:
   - Low blood pressure and orthostasis: furosemide, amlodipine, bisoprolol, duloxetine, gabapentin, donepezil
   - Hypoglycemia: insulin glargine
   - Anticholinergic: diphenhydramine

2) Medications with no indications:
   - Pantoprazole
   - Vitamin B12

Discharge plan/medication changes

Changes to medications	For follow-up and monitoring
STOPPED: 1) furosemide 2) amlodipine 3) diphenhydramine 4) insulin glargine 5) vitamin B12 6) pantoprazole NEW: 1) melatonin 5 mg SL QHS	• BP, orthostatic vitals --> if BP control required, consider ACEi as patient has DM2 • Sleep • BG and recheck HbA1C in 3 months • Recurrence of GERD symptoms • Reassess with GP need for duloxetine and gabapentin • Consider tapering donepezil with monitoring of cognitive function

Considerations for seamless care:

- Ensure medication changes are communicated to patient (or family/caregivers), community pharmacy and primary care provider
- When discontinuing medications, include a prescription order to "stop all refills on _____" to ensure patient does not continue to have stopped medications filled
- Include rationale for changes where possible

Post-discharge resources:

- Homecare referral for OT home assessment
- Geriatric Hub referral
- House Calls
- MedsCheck Follow-up with community pharmacy
- Pharmacist home visit

https://www.ti.ubc.ca/2014/09/02/reducing-polypharmacy-a-logical-approach/

Thank you!

Questions/Comments???