DEPRESCRIBING: A CASE-BASED APPROACH

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DISCLOSURES

The presenters have nothing to disclose with regard to commercial interests or financial relationships.

Objectives

- Recognize potentially inappropriate medications (PIMs) based on the Beers, STOPP and START lists.
- Consider patient prognosis and time to benefit as well as time to harm when prescribing or deprescribing.
- Describe to role of the consultant pharmacist in the process.
- Describe how age affects pharmacotherapy.
- Implement a systematic plan to review medication lists.
- Deprescribe unnecessary medication using a case based approach.

Introduction

- Individuals aged 65 and older represented 14.1 % of US population in 2013. Expected to increase to 21.7 % in 2040 [1].
- Approximately 40% of nursing home residents use 9 or more medications daily.
- Up to 30% of hospital admissions for patients over 75 years are medication related and three quarters of those are potentially preventable [2].
- In 2012 inappropriate polypharmacy resulted in $1.3 billion in avoidable healthcare costs in US [3].
- Taking medications may be necessary for health, improving symptoms or prolonging life expectancy [4].
- The risks and benefits of medication changes with age.
- Polypharmacy increases the risk of harmful effects.
- Deprescribing involves patients, caregivers, healthcare providers and policy makers.
- Deprescribing should be done in partnership with a health care provider.
  - Some medications should not be stopped.
  - Some medications need to be tapered.
  - Patients should not stop medications on their own.

- 1. Administration on Aging. (2015). Aging Statistics. Retrieved from http://www.aoa.acl.gov
- 2. Klarin I et al. The association of inappropriate drug use with hospitalization and mortality: a population-based study of the very old. Drugs Aging. 2005;22: 69-82.
- 3. Aiken M, Valkova S; Avoidable Costs in US Healthcare: The $200 Billion Opportunity for Using Medicines More responsibly. 2013
- 4. Canadian Institute for Health Information (CIHI): 2014 Drug use among Seniors on Public Health programs in Canada.

Definition

- Term first used in 2003 by Woodward, an Australian physician. [5]
- Describes a process of optimization of medication regimens through cessation of potentially inappropriate medications (PIMs), supervised by a health care professional with a goal of managing polypharmacy and improving outcomes.[6]

5. Michael C. Woodward MBBS, FRACP. Deprescribing: Achieving Better Health Outcomes for Older People through Reducing Medications. Journ Pharm Pract Res 2003;33: 323-8.

6. Emily Reeve, Danijela Gnjidic et al. A systematic review of the emerging definition of 'deprescribing' with network analysis: Implications for future research and clinical practice.

The Deprescribing Protocol [7]

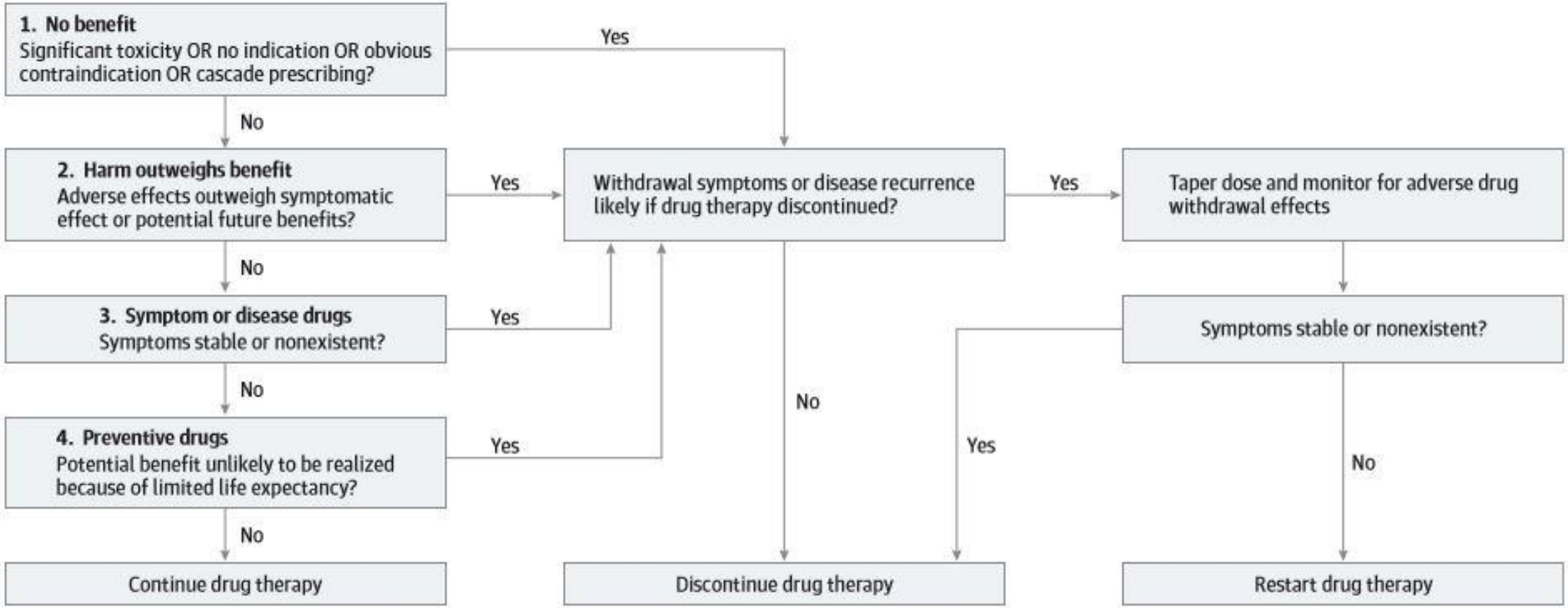
- Ascertain all drugs the patient is taking and the reasons for each one.
- Consider the overall risk of drug-induced harm.
- Assess each drug for its eligibility to be discontinued.
- Prioritize drugs for discontinuation.
- Implement and monitor drug discontinuation regimen.
- Support the patient.
- Document the changes.

7. Ian A. Scott, MBBS, FRACP, MHA, MEd. Reducing Inappropriate Polypharmacy. The Process of Deprescribing. JAMA Intern Med. 2015; 175(5): 827-834.

Deprescribing Tools

- American Geriatrics Society (AGS) Beers Criteria
- Screening Tool of Older Persons' Potentially Inappropriate Prescriptions (STOPP)
- Screening Tool to Alert doctors to the Right Treatment (START)

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



7. Ian A. Scott, MBBS, FRACP, MHA, MEd. Reducing Inappropriate Polypharmacy. The Process of Deprescribing. JAMA Intern Med. 2015; 175(5): 827-834.

Risks of Polypharmacy

- Increased risks of
  - Falls
  - Delirium
  - Lethargy
  - Depression
  - Adverse drug events
  - Hospital admissions
  - Death
- Increased financial burdens.

8. Wade Thompson, HBSc and Barbara Farrell, BScPhm, PharmD, FCSHP. Deprescribing: What is it and What does the Evidence Tell us? Can J Hosp Pharm, 2013 May-Jun; 66(3): 201-202.

Barriers to Deprescribing

- Multiple prescribers
- New patient to this health care provider
- Unclear duration of treatment
- Lack of continuous medication list review
- Fear of adverse drug withdrawal effects
- Pressure to prescribe due to disease specific guidelines
- Family insists
- Patients' view
  - Physician giving up on them
  - Afraid to stop medications they have taken for years.

9. Paula Lueras, MD. Deprescribing in the Nursing Home: Phase 1 – PRN Medications. Quality Improvement/ JAMDA 18 (2017) B11- B12

Patients' Attitude Towards Deprescribing[10]

- *Setting:* Survey done at a multidisciplinary ambulatory consulting service at Royal Adelaide Hospital, Australia.
- *Participants*: 18 years and older. (Median 71.5 years). 100 participants, 65 of whom were over 65 years.
- *Results:* An average of 10 different prescription and non prescription, regular and as-needed medications.
  - More than 60% felt they were taking "a large amount" of medications.
  - 92% stated that they were willing to stop one or more of their current medications if possible.
- *Conclusion*: Revealed concerns about the inconvenience, potential adverse effects and costs of taking multiple medications.

10. Emily Reeve BPharm et al. People's Attitudes , Beliefs and Experiences Regarding Polypharmacy and willingness to Deprescribe. J Am Geriatr Soc 61:1508-1514, 2013.

Health Professional Views

- Physicians may not want to stop a medication prescribed by another specialist.
- Physicians may not want to stop a medication that is indicated by policy guidelines.
- Pharmacists view depends on the setting in which they work and the guidelines for prescribing disease specific medications.
- Nurses in long term care facilities usually know if patients are compliant with their medication usage.
- Nurses know if and how often PRN medications are used.

Indiana SMART campaign Polypharmacy reduction Project[11]

- Indiana Safer Medication Administration Regimens and Treatment (SMART) campaign
- Funded by Indiana State Department of Health for a pilot period of 2 years (2016-2018)
- Objectives
  - Reducing the average number of medications per resident
  - Reducing the number of antipsychotic, anxiolytic and hypnotic medications
  - Reducing the overall medication costs within participating facilities.

11. Kathleen Abrahamson et al. A novel approach to Deprescribing in long-term care settings: The SMART campaign.

Uniqueness of the SMART campaign

- Collaborative effort between an interprofessional team of long term care stakeholders.
- Direct physician to prescriber communication.
- Facilities trained by QI experts to tackle not just the act of deprescribing but the process surrounding medication administration within their facilities.
- Facilities are given freedom to select their own project parameters select their own focus, and highlight a process improvement area that is of particular salience to their culture.

11. Kathleen Abrahamson et al. A novel approach to Deprescribing in long-term care settings: The SMART campaign

What is new about SMART?

- Truly interprofessional.
- A State, Industry and Academic partnership.
- Evidence-based with physician input.
- Directed from the bottom up: nursing homes allowed to use project resources selectively and as they see fit to reach desired outcomes.
- Focused beyond the problem at hand (polypharmacy) toward creating a sustainable social infrastructure.

11. Kathleen Abrahamson et al. A novel approach to Deprescribing in long-term care settings: The SMART campaign

What can patients do?

- Educate themselves about what medications they are taking and why [4].
- Discuss deprescribing options with their health care provider.
- Do not stop medications without first consulting their health care provider.
- Spread the word about deprescribing to friends and family.

4. Canadian Institute for Health Information (CIHI). Drug use among seniors on public drug programs in Canada, 2014.

PHARMACISTS' ROLE IN DEPRESCRIBING

Andrea Levin, PharmD, BCACP

Consultant Pharmacist

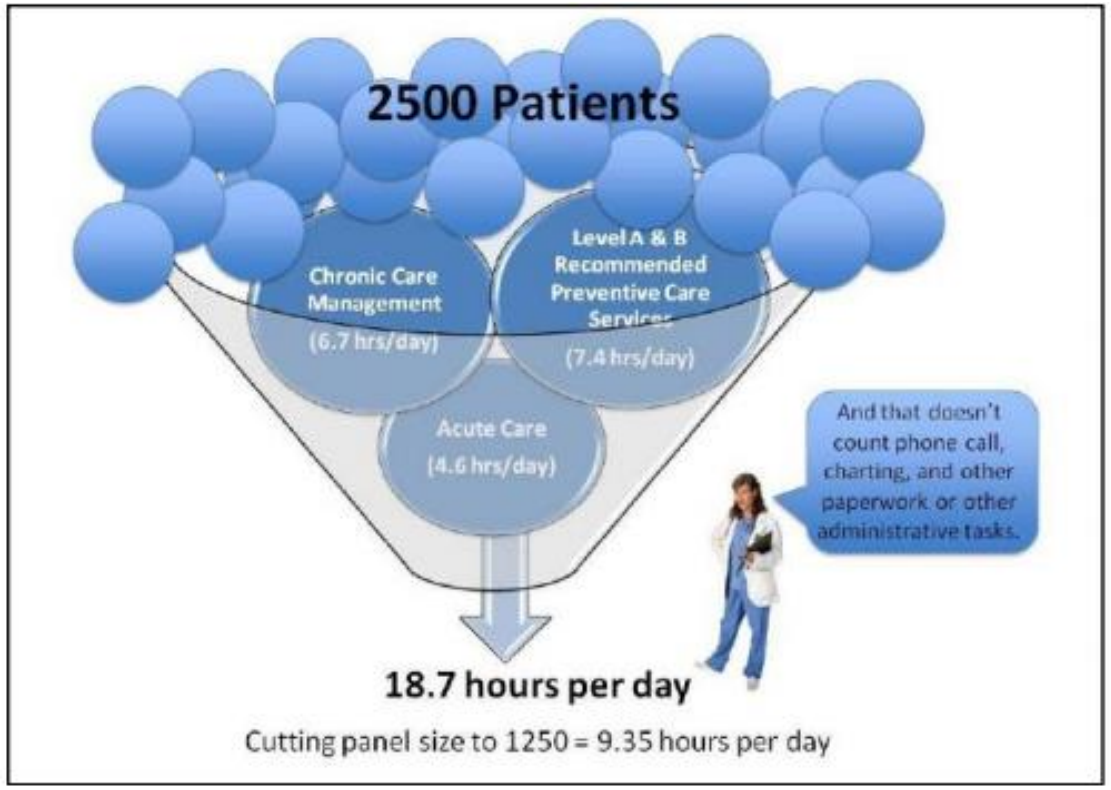
- Practices in a nursing home facility
- Maintains all drug records
- Establishes drug handling procedures
- Orders and evaluates laboratory and/or clinical testing
  - Laboratory and clinical testing is performed in accordance with the medical director
- Additional training and licensing is required

Ambulatory Care Pharmacist[1]

- Address medication needs
- Develop patient-pharmacist and patient-provider relationships
- Perform direct patient care, medication management, and patient education
- Coordinate care
- Advocate for patients
- Promote health and wellness
- Triage and refer where appropriate

1. Helling DK, Johnson SG. Defining and advancing ambulatory care pharmacy practice: it is time to lengthen our stride. ASHP Ambulatory Care Conference and Summit. 2014. 1-23.

Primary Care Physician Demands[1]



1. Helling DK, Johnson SG. Defining and advancing ambulatory care pharmacy practice: it is time to lengthen our stride. ASHP Ambulatory Care Conference and Summit. 2014. 1-23.

Pharmacodynamic and Pharmacokinetic Changes in the Elderly[2]

- Pharmacodynamic
  - Increased sensitivity to medications
- Pharmacokinetic
  - Reduction in renal and hepatic clearance
  - Increased volume of distribution
  - Drug absorption

2. Mangoni AA, Jackson SHD. Age-related changes in pharmacokinetics and pharmacodynamics: basic principles and practical applications. Br J Clin Pharmacol. 2004; 57(1): 6–14

Resources

- BEERS Criteria For Potentially Inappropriate Medication[3]
  - Medications to avoid in older adults
    - Increase risk of confusion, falls, and mortality
  - 2015 update gave consideration to renal dose adjustments and drug-drug interactions

- Screening Tool of Older People's Prescriptions (STOPP)/Screening Tool to Alert to Right Treatment (START)[4]
  - Identifies potential errors in medication use in the elderly
  - Identifies potential omissions in prescribing

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015; 63:2227–2246.

4. O'Mahony D, O'Sullivan D, Byrne S, O'Connor M N, Ryan C, Gallagher P; STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. *Age Ageing* 2015; 44 (2): 213-218. doi: 10.1093/ageing/afu145

Utilizing BEERS Criteria[3]

Therapeutic Category, Drugs	Rationale
Anticholinergics (example: diphenhydramine, hydroxyzine, meclizine, etc)	Increased risk of confusion, dry mouth, constipation
Anti-infective (Nitrofurantoin)	Pulmonary toxicity, hepatotoxicity, peripheral neuropathy
Alpha blockers (examples: prazosin, doxazosin)	Orthostatic hypotension
Central acting alpha 2 agonist (example: clonidine, methyldopa)	Bradycardia and orthostatic hypotension
Digoxin	**Atrial Fibrillation**: Avoid as first line; more effective medications available; may increase mortality **Heart failure**: Avoid as first line-increased mortality; unknown benefit in hospitalizations; higher doses not associated with benefit **Renal Consideration**: Avoid doses >0.125 mg/day if CKD Stage 4 or 5

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015. 63:2227–2246.

Utilizing BEERS Criteria[3]

Therapeutic Category, Drugs	Rationale
Antidepressants (example: paroxetine, amitriptyline, doxepin, etc)	Some are highly anticholinergic, sedating, orthostatic hypotension
Antipsychotics	Increased risk of stroke, increase in cognitive decline, mortality (Avoid in behavioral complications of dementia or delirium unless other options failed)-use acceptable in schizophrenia and bipolar
Benzodiazepines Short and intermediate-examples: alprazolam, lorazepam, temazepam Long-examples: diazepam, clonazepam	Increased risk of cognitive impairment, falls, factures Long acting may be appropriate for seizure disorder, alcohol withdrawal
Barbiturates (example, pentobarbital, secobarbital, phenobarbital)	Addiction potential, tolerance to sleep benefit, overdose
Eszopiclone, Zolpidem, Zaleplon	Increase in delirium, falls, fractures, ED visits, little improvement in sleep

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015. 63:2227–2246.

Utilizing BEERS Criteria[3]

Therapeutic Category, Drugs	Rationale
Estrogen +/- Progestin	Carcinogenic, lack of cardio or cognitive protection (Avoid oral and transdermal)
Insulin sliding scale	Higher risk of hypoglycemia without improvement in hyperglycemia
Sulfonylureas	Hypoglycemia (avoid glyburide and chlorpropamide)
Proton-pump inhibitors	Risk of C. *diff* and bone fractures. Avoid for >8 weeks unless high risk patient

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015. 63:2227–2246.

Utilizing BEERS Criteria[3]

Organ System, Therapeutic Category, Drugs	Rationale
Nonselective NSAIDs (example, aspirin >325 mg/day, ibuprofen, meloxicam, naproxen)	Increased risk of GI bleeding, peptic ulcer; avoid chronic use
Muscle relaxants: (example carisoprodol, methocarbamol)	Poorly tolerated (anticholinergic effects), increase in fractures

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015. 63:2227–2246.

Table 5. 2015 American Geriatrics Society Beers Criteria for Potentially Clinically Important Non-Anti-infective Drug–Drug Interactions That Should Be Avoided in Older Adults

Object Drug and Class	Interacting Drug and Class	Risk Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
ACEIs	Amiloride or triamterene	Increased risk of Hyperkalemia	Avoid routine use; reserve for patients with demonstrated hypokalemia while taking an ACEI	Moderate	Strong
Anticholinergic	Anticholinergic	Increased risk of Cognitive decline	Avoid, minimize number of anticholinergic drugs (Table 7)	Moderate	Strong
Antidepressants (i.e., TCAs and SSRIs)	≥2 other CNS-active drugs[a]	Increased risk of Falls	Avoid total of ≥3 CNS-active drugs[a]; minimize number of CNS-active drugs	Moderate	Strong
Antipsychotics	≥2 other CNS-active drugs[a]	Increased risk of Falls	Avoid total of ≥3 CNS-active drugs[a]; minimize number of CNS-active drugs	Moderate	Strong
Benzodiazepines and nonbenzodiazepine, benzodiazepine receptor agonist hypnotics	≥2 other CNS-active drugs[a]	Increased risk of Falls and fractures	Avoid total of ≥3 CNS-active drugs[a]; minimize number of CNS-active drugs	High	Strong
Corticosteroids, oral or parenteral	NSAIDs	Increased risk of Peptic ulcer disease or gastrointestinal bleeding	Avoid; if not possible, provide gastrointestinal protection	Moderate	Strong
Lithium	ACEIs	Increased risk of Lithium toxicity	Avoid, monitor lithium concentrations	Moderate	Strong
Lithium	Loop diuretics	Increased risk of Lithium toxicity	Avoid, monitor lithium concentrations	Moderate	Strong
Opioid receptor agonist analgesics	≥2 other CNS-active drugs[a]	Increased risk of Falls	Avoid total of ≥3 CNS-active drugs[a]; minimize number of CNS drugs	High	Strong
Peripheral Alpha-1 blockers	Loop diuretics	Increased risk of Urinary incontinence in older women	Avoid in older women, unless conditions warrant both drugs	Moderate	Strong
Theophylline	Cimetidine	Increased risk of Theophylline toxicity	Avoid	Moderate	Strong
Warfarin	Amiodarone	Increased risk of Bleeding	Avoid when possible; monitor international normalized ratio closely	Moderate	Strong
Warfarin	NSAIDs	Increased risk of Bleeding	Avoid when possible; if used together, monitor for bleeding closely	High	Strong

[a]Central nervous system (CNS)-active drugs: antipsychotics; benzodiazepines; nonbenzodiazepine, benzodiazepine receptor agonist hypnotics; tricyclic antidepressants (TCAs); selective serotonin reuptake inhibitors (SSRIs); and opioids.

ACEI = angiotensin-converting enzyme inhibitor; NSAID = nonsteroidal anti-inflammatory drug.

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015. 63:2227–2246.

Table 6. 2015 American Geriatrics Society Beers Criteria for Non-Anti-Infective Medications That Should Be Avoided or Have Their Dosage Reduced with Varying Levels of Kidney Function in Older Adults

Medication Class and Medication	Creatinine Clearance, mL/min, at Which Action Required	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Cardiovascular or hemostasis					
Amiloride	<30	Increased potassium, and decreased sodium	Avoid	Moderate	Strong
Apixaban	<25	Increased risk of bleeding	Avoid	Moderate	Strong
Dabigatran	<30	Increased risk of bleeding	Avoid	Moderate	Strong
Edoxaban	30–50	Increased risk of bleeding	Reduce dose	Moderate	Strong
	<30 or >95		Avoid		
Enoxaparin	<30	Increased risk of bleeding	Reduce dose	Moderate	Strong
Fondaparinux	<30	Increased risk of bleeding	Avoid	Moderate	Strong
Rivaroxaban	30–50	Increased risk of bleeding	Reduce dose	Moderate	Strong
	<30		Avoid		
Spironolactone	<30	Increased potassium	Avoid	Moderate	Strong
Triamterene	<30	Increased potassium, and decreased sodium	Avoid	Moderate	Strong
Central nervous system and analgesics					
Duloxetine	<30	Increased Gastrointestinal adverse effects (nausea, diarrhea)	Avoid	Moderate	Weak
Gabapentin	<60	CNS adverse effects	Reduce dose	Moderate	Strong
Levetiracetam	≤80	CNS adverse effects	Reduce dose	Moderate	Strong
Pregabalin	<60	CNS adverse effects	Reduce dose	Moderate	Strong
Tramadol	<30	CNS adverse effects	Immediate release: reduce dose Extended release: avoid	Low	Weak
Gastrointestinal					
Cimetidine	<50	Mental status changes	Reduce dose	Moderate	Strong
Famotidine	<50	Mental status changes	Reduce dose	Moderate	Strong
Nizatidine	<50	Mental status changes	Reduce dose	Moderate	Strong
Ranitidine	<50	Mental status changes	Reduce dose	Moderate	Strong
Hyperuricemia					
Colchicine	<30	Gastrointestinal, neuromuscular, bone marrow toxicity	Reduce dose; monitor for adverse effects	Moderate	Strong
Probenecid	<30	Loss of effectiveness	Avoid	Moderate	Strong

CNS = central nervous system.

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015. 63:2227–2246.

Medications to Target for Deprescribing [3,4,5]

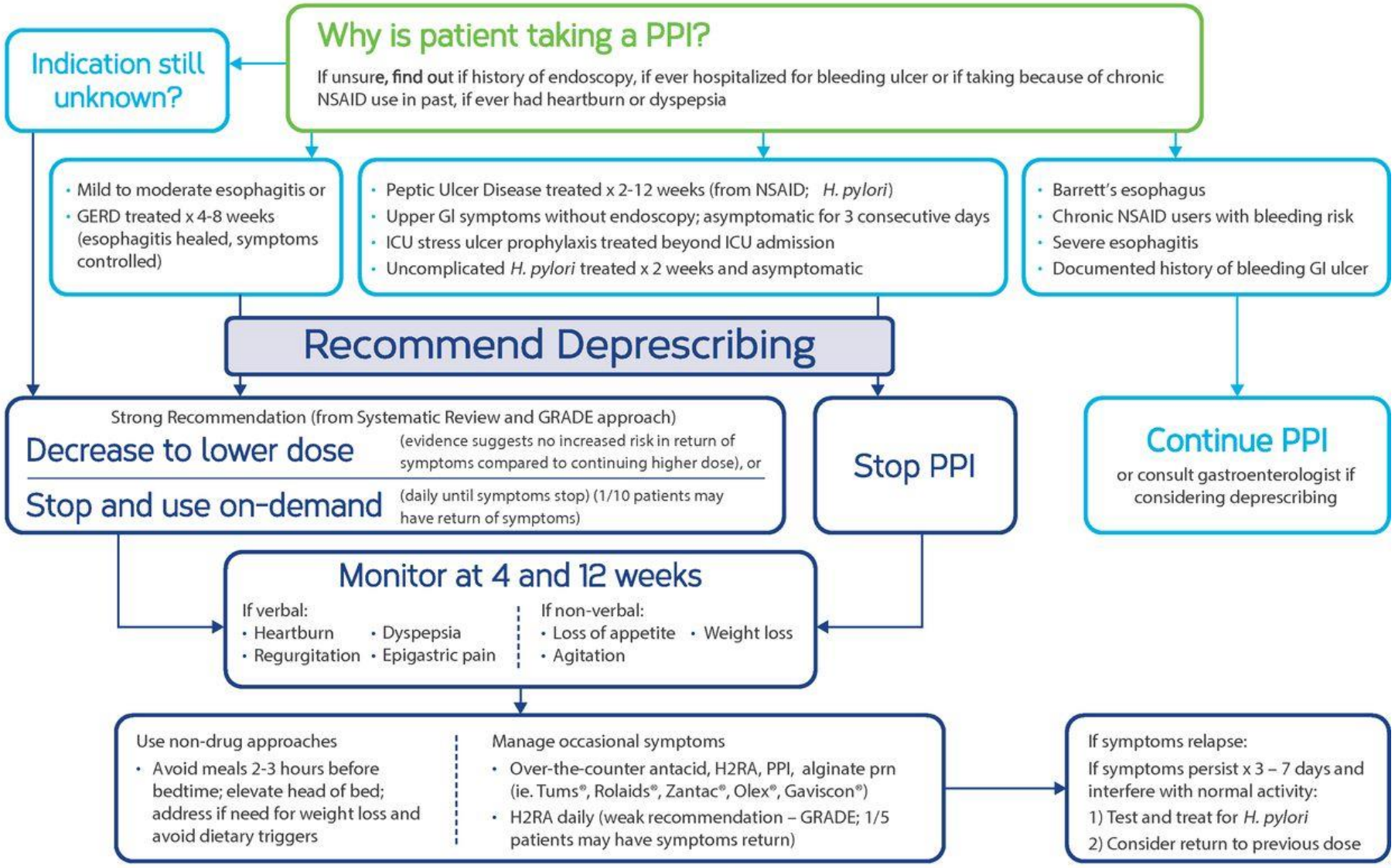
- Antihypertensives
- Antihyperglycemic medications
- NSAIDs
- CNS medications
- Proton pump inhibitors
- Statins
- Bisphosphonates

3. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc.* 2015. 63:2227–2246.

4. O'Mahony D, O'Sullivan D, Byrne S, O'Connor M N, Ryan C, Gallagher P; STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. *Age Ageing* 2015; 44 (2): 213-218. doi: 10.1093/ageing/afu145

5. Bemben, N. Deprescribing: An application to medication management in older adults. *Pharmacother*. 2016; 36 (7):774-780.

Figure 1 | Proton Pump Inhibitor (PPI) Deprescribing Algorithm



Farrell B, Pottie K, Thompson W, Boghossian T, Pizzola L, Rashid FJ, et al. Deprescribing proton pump inhibitors. Evidence-based clinical practice guideline. *Can Fam Physician* 2017;63:354-64 (Eng), e253-65 (Fr).

deprescribing.org

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PPI Availability

PPI	Standard dose (healing) (once daily)*	Low dose (maintenance) (once daily)
Omeprazole (Losec®) - Capsule	20 mg+	10 mg+
Esomeprazole (Nexium®) - Tablet	20[a] or 40[b] mg	20 mg
Lansoprazole (Prevacid®) - Capsule	30 mg+	15 mg+
Dexlansoprazole (Dexilant®) - Tablet	30[c] or 60[d] mg	30 mg
Pantoprazole (Tecta® , Pantoloc®) - Tablet	40 mg	20 mg
Rabeprazole (Pariet®) - Tablet	20 mg	10 mg

Legend

a Non-erosive reflux disease

b Reflux esophagitis

c Symptomatic non-erosive gastroesophageal reflux disease

d Healing of erosive esophagitis

\+ Can be sprinkled on food

* Standard dose PPI taken BID only indicated in treatment of peptic ulcer caused by *H. pylori*; PPI should generally be stopped once eradication therapy is complete unless risk factors warrant continuing PPI (see guideline for details)

Key

GERD = gastroesophageal reflux disease

NSAID = nonsteroidal anti-inflammatory drugs

H2RA = H2 receptor antagonist

SR = systematic review

GRADE = Grading of Recommendations Assessment, Development and Evaluation

Engaging patients and caregivers

Patients and/or caregivers may be more likely to engage if they understand the rationale for deprescribing (risks of continued PPI use; long-term therapy may not be necessary), and the deprescribing process

PPI side effects

- When an ongoing indication is unclear, the risk of side effects may outweigh the chance of benefit
- PPIs are associated with higher risk of fractures, *C. difficile* infections and diarrhea, community-acquired pneumonia, vitamin B12 deficiency and hypomagnesemia
- Common side effects include headache, nausea, diarrhea and rash

Tapering doses

- No evidence that one tapering approach is better than another
- Lowering the PPI dose (for example, from twice daily to once daily, or halving the dose, or taking every second day) OR stopping the PPI and using it on-demand are equally recommended strong options
- Choose what is most convenient and acceptable to the patient

On-demand definition

Daily intake of a PPI for a period sufficient to achieve resolution of the individual's reflux-related symptoms; following symptom resolution, the medication is discontinued until the individual's symptoms recur, at which point, medication is again taken daily until the symptoms resolve

Farrell B, Pottie K, Thompson W, Boghossian T, Pizzola L, Rashid FJ, et al. Deprescribing proton pump inhibitors. Evidence-based clinical practice guideline. *Can Fam Physician* 2017;63:354-64 (Eng), e253-65 (Fr).

Steps to Deprescribing[5]

- Thorough medication history/medication reconciliation
- Medication assessment
  - Quantity and type of medications
  - Multiple prescribers
- Determine if a medication should be discontinued
  - Life expectancy
  - Patient preference
  - Symptom control, quality of life, cure, prevention
- Develop a plan for medication discontinuation
- Monitor effects of discontinued medication

5. Bemben, N. Deprescribing: An application to medication management in older adults. *Pharmacother*. 2016; 36 (7):774-780.

Pharmacists Effect on Deprescribing[6]

Table 1
Clinical controlled studies to reduce medication exposure

		Study Results	
Intervention	**Study Setting[a]**	**Impact on Prescribing**	**Impact on Outcomes**
Pharmacist-based interventions			
Clinical pharmacist medication review combined with physician and patient education[26]	Outpatient managed care (n = 195,971)	Significant reduction in the number of prescriptions	Not assessed
Clinical pharmacist consultation and computer-based medication profiles provided to physician[27]	Internal medicine clinic (n = 512)	Significant reduction in the number of medications	Not assessed
Clinical pharmacist patient tailored medication review provided to physician[28]	Outpatient clinic (n = 562)	Significant reduction in the number and costs of medications	Not assessed
Medication review performed by pharmacist and reviewed by the primary care provider[29]	Geriatric outpatient clinic (n = 250)	Significant reduction in the mean number of medications	Neutral or positive in 99.5% of cases

6. Clin Geriatr Med 28 (2012) 237–253

Pharmacists Effect on Deprescribing[6]

Multidisciplinary-based interventions			
Clinical pharmacists prescribed medications under the supervision of a family physician[34]	Nursing homes (n = 139)	Pharmacists prescribed significantly less medications than physicians	Improved survival (P = .05); more patients discharged to lower levels of care (P = .03)
Case conference involving health professionals including general practitioner, pharmacist, nurses and other health professional[35]	Nursing home (n = 245)	Nonsignificant reduction in the number of medications	No effect on mortality

6. Clin Geriatr Med 28 (2012) 237–253

DEPRESCRIBING USING DIFFERENT CASES

Kenya Rivas MD, CMD

Deprescribing Steps

- Step 1: Recognize an indication for discontinuing.
- Step 2: Identify and prioritize the medications targeted for discontinuation.
- Step 3: Discontinue, communicate with patient and other providers.
- Step 4: Monitor effects.[1]

1.Bain et al. JAGS 56:1946-1952

Top 3 drugs causing Adverse Reactions

- Warfarin
- Insulin
- Digoxin

Herbal and dietary supplements

Use of them by older adults has been increasing from 14 percent in 1998 to 63 percent in 2010.[1]

1.Rowe JW, Andres R, Tobin JD, et al. The effect of age on creatinine clearance in men: a cross-sectional and longitudinal study. J Gerontol 1976; 31:155

Mr T

A 62 year old male with history of hypertension and atrial fibrillation, on Warfarin 3 mg oral daily, depression on Citalopram 20 mg daily. He started taking the following medications recently for memory, knee pain and depression.

- Ginkgo biloba
- Acetaminophen
- St. John's wort

Mr P

- 71 year old male at Skill Nursing Facility (SNF) for rehabilitation post fall, hip fracture, ORIF.
- On warfarin for atrial fibrillation. History of urinary retention, since hospitalization failed Foley removal.
- Urodynamic testing done at Urology office, sent back to SNF on Cipro x 10 days.
- Is the Cipro necessary? What effect will it have on INR.

Antibiotic Treatment Duration

- Antibiotic Stewardship

  -Streamline antibiotics and add stop dates.

  -Stop dates are just as important as start dates.

  Ex: Plavix duration after Acute Coronary Syndrome (ACS)

  -Need for treatment to occur after 12 months?

  Deescalation to aspirin.

Mr B

- 85 year old male admitted for rehabilitation after prolonged hospital stay due to sigmoid colectomy with colostomy, following rupture diverticulitis/peritonitis/sepsis. *He is on Diazepam 10 mg BID and Quetiapine 50 mg qhs for sleep.*

- What should be done about his BEERs list of mediations?

  Sedatives and Hypnotics:

- Medications classes to consider used to reduce sleep or treat insomnia;

  Barbiturates, Benzodiazepines, non-Benzodiazepines, antihistaminics, tricyclic antidepressants.

Sedatives and Hypnotics:

- BEERs Criteria recommends against the use of sedatives and hypnotics, for the management of insomnia, or agitation and recommends against chronic use of Z-drugs * (> 90 days) for management of insomnia to prevent dependence.

- * Z-drugs-Ambien (Zolpidem), Lunesta (eszopiclone), Sonata (Zaleplon)

Long Term Risk of Medications

Do drugs cause dementia?

- Anticholinergics:

-Patients taking oxybutynin, amitriptyline, olanzapine, meclizine or similar anticholinergic burden for 3 years had 1.5 times risk of developing dementia in next 10 years.

JAMA Intern Med 1/26/15

- Benzodiazepines:

-Benzo use for > 3 months increased risk of dementia, longer use and use of medications with longer half life increased risk 84%.

BMJ 9/9/14

Mr R
A newly diagnosed Alzheimer's patient considering donepezil

Following are his current medications. Which one has the highest anticholinergic burden?

- A. Paroxetine
- B. Cyclobenzaprine
- C. Atenolol
- D. Digoxin
- E. Warfarin

Tapering Antipsychotics

- Typically tapered over 3-6 months or longer to discontinuation or lowest effective dose
  - -Avoid withdrawal symptoms
  - -Prevent rebound of target symptoms
- Few guidelines on tapering of specific medications are available
- Best method is patient specific based on clinical judgment and close monitoring during discontinuation period.

Mr V

89 y/o male with recent h/o heart surgery triple vessel bypass/valve replacement

- Aspirin 325 mg/d
- Diphenhydramine 50 mg hs
- Astelin
- Sinemet 10/100 mg TID
- Coreg 6.25 mg/Brkfst
- Celexa 10 mg/d
- Donepezil 10 mg/d
- Dulcolax 10 mg/d
- Vitamin B12: 2500 mcg/d
- Kdur 10 meq/d
- Pravachol 40 mg/hs
- Acetaminophen 650 mg q 4h
- Hydroxyzine 25 mg TID anxiety
- Lovenox 40 mg sq/BID
- Pepcid 20 mg/d
- Megace 40 mg/mL
- Vit D 1000 IU/d
- Provigil 100 mg/d
- Micostatin topical BID
- Mirabegron (Myrbetriq) 50 mg/d
- Miralax 17 gm BID

Mrs W

91 y/o female admitted to your SNF following weakness, pacemaker placement

- On warfarin for artificial aortic valve, developed significant hematoma at site of pacemaker replacement, anticoagulation held in hospital.
- When should warfarin be restarted?

Mrs S

- 70 year old woman admitted for rehabilitation post CVA. History of HTN, T2DM, Obesity

Medication list on admission includes several "orphan" drugs:

- Gabapentin 300 TID
- Meloxicam 15 daily
- Omeprazole 20 mg daily

Proton Pump Inhibitors (PPI's)

-Recommended duration of therapy is a maximum of 12 weeks, alternative agents include H2 receptor antagonists

- Reason for PPI's use:
  - NSAIDs on board and h/o gastric ulcers
  - Failure to suppress symptoms of RA, severe OA
- PPI weaning:

-Medication should be discontinued slowly over 2-4 weeks

-Prevents rebound gastric symptoms

-Use of alternative short acting medications to suppress rebound symptoms

- H2 receptor antagonists, Antacids

Interpret the evidence

- Assess applicability and quality.
- Most trials do not include > 75 y/o patients with multiple conditions.
- Extrapolating evidence to older adults could be harmful.
- Consider time horizon to benefit in number needed to treat (NNT).

Conclusion

- Polypharmacy is a public health problem that adversely affects the lives of vulnerable elders.
- Older patients >75 with multiple comorbidities are not included in most studies. Extrapolating findings to these patients could be harmful and erroneous.
- Most studies showed that medications could be successfully withdrawn with little or no harm to the patient[8].
- Some trials showed benefits such as reduced fall risk.
- All evidence suggests that deprescribing in older patients leads to reduced medication usage and cost.
- Practitioners do not have evidence based guidelines on exactly how to deprescribe.
- More research needs to be done on the outcomes of deprescribing.

8. Wade Thompson, HBSc and Barbara Farrell BScPhm, PharmD, FCSHP. Deprescribing: What Is It and What does the evidence tell Us? Can J Hosp Pharm: 2013 May – Jun; 66(3):201-202.


Thank you!

DEPRESCRIBING: A CASE-BASED APPROACH

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