

First, Do No Harm: Polypharmacy and Deprescribing

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Disclosures

- ▶ Non-Declaration Statement: I have no relevant relationships with ineligible companies to disclose within the past 24 months.

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📱 Text **WAFM2023** to **22333** once to join

An Older Adult's Medication List....

Absolute panic

Let's roll up our
sleeves and get started

Objectives

- ▶ Define and discuss polypharmacy, including prevalence and outcomes
- ▶ Review normal physiologic aging and how it affects pharmacokinetics
- ▶ Discuss approaches to deprescribing
- ▶ Practice case-based deprescribing
- ▶ Identify additional resources for deprescribing

POLYPHARMACY

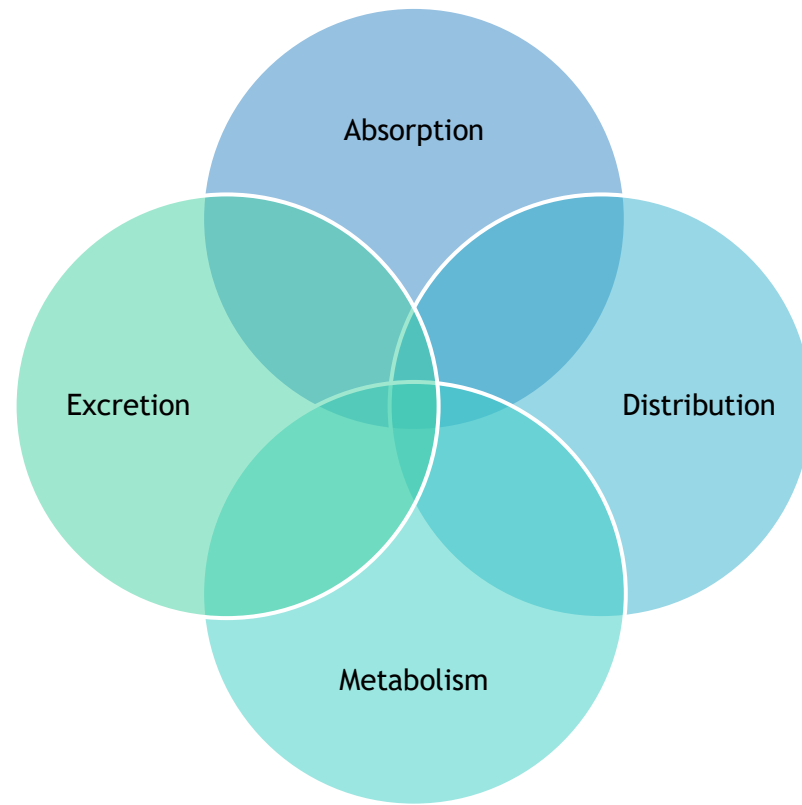
- ▶ Defined as > 4 medications
- ▶ Taking medications with no apparent indication
- ▶ Concurrent usage of interacting medications
- ▶ Using inappropriate dosages
- ▶ Utilizing medications to treat reactions or side effects



Prevalence and Outcomes

- ▶ Why is safe prescribing for older adults an increasingly important topic?
 - ▶ Older adults are the fastest growing segment of the US population
- ▶ Adverse drug reactions are estimated to be the 4th leading cause of death in the U.S.
- ▶ Over a five-year period...
 - ▶ 1 in 4 older adults are hospitalized for medication-related problems.
 - ▶ Accounted for 10% of all older adult admissions.
 - ▶ Up 55% of problems and hospitalizations deemed preventable.
- ▶ Adverse drug events account for approximately 1.3 million ED visits annually
- ▶ **One unnecessary drug prescribed at discharge to 44% of patients.**

Normal and Pathophysiologic Changes that Affect Pharmacotherapeutics



Normal and Pathophysiologic Changes that Affect Pharmacotherapeutics

Absorption

- Delayed transit in the GI tract, decreased gastric acid secretion

Distribution

- Decrease in lean muscle and increase in adipose tissue

Metabolism

- Changes in enzymatic activity of the liver as number of parenchymal cells decreases

Excretion

- Decreased kidney function due to nephron loss

Other

- Medication sensitivity, polypharmacy

TOOLS FOR IDENTIFYING AND DISCONTINUING INAPPROPRIATE MEDICATIONS

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
advanced age (>75 years)
high-risk medications
- assess for current, past or highly likely future toxicity

.....>>>
All three at-risk criteria – aim for ≤ 5 drugs
Discontinue drugs for which there is unequivocal evidence of past, current or future toxicity (eg triple whammy of NSAID, diuretic, ACE inhibitor)

3. Estimate life expectancy

- clinical prognostication tools or lifespan calculators

4. Define overall care goals

- consider current functional status and quality of life with reference to estimated life expectancy

.....>>> If life func prolc goal: -----
C'mon Jessica, no way!

5. Verify current indications for ongoing treatments

- perform diagnosis-medication reconciliation
- confirm diagnostic labels against formal diagnostic criteria
- ascertain, for each confirmed diagnosis, drug appropriateness

.....>>> Discontinue drugs for which the diagnosis is wrong or totally unsubstantiated or where, for a confirmed diagnosis, the drug is ineffective

6. Determine need for disease-specific preventive medications

- estimate clinical impact and time to future treatment benefit
- compare this estimate with expected lifespan

.....>>> Discontinue preventive drugs whose time until benefit exceeds expected lifespan

7. Determine absolute benefit-harm thresholds of medications

- reconcile estimates of absolute benefit and harm using prediction tools (see <http://www.mdcalc.com>)

.....>>> Discontinue drugs whose absolute level of harm exceeds absolute level of benefit; in 'line-ball' cases elicit patient preferences

8. Review the relative utility of individual drugs

- 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



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STEP 1: ASCERTAIN ALL CURRENT DRUGS



STEP 2: IDENTIFY PATIENTS WHO ARE HIGHEST RISK OF ADVERSE DRUG EVENTS

- ▶ ≥ 8 medications
- ▶ Age ≥ 75
- ▶ High risk medications
- ▶ Frailty

STEP 3: IDENTIFY HIGH RISK MEDICATIONS

Class	High Risk Agents	Use This Instead
Antihistamines	diphenhydramine, hydroxyzine	cetirizine, fexofenadine
Antiemetics	prochlorperazine, promethazine	ondansetron (ODT v PO/IV)
Opiates	morphine, fentanyl	oxycodone, hydromorphone
Benzodiazepines	All of them!	nonpharmacologic therapy
Antimuscarinics	oxybutynin, tiotropium	scheduled toileting, trospium?, ipratropium
Sleep Agents	zolpidem, benzodiazepines	melatonin, nonpharmacologic therapy
Corticosteroids	prednisone, dexamethasone	:(
Fluoroquinolones	ciprofloxacin, levofloxacin	cephalosporin, nitrofurantoin

Step 3: Identify High Risk Medications

The screenshot shows the AGS (American Geriatrics Society) website. At the top left is the AGS logo with the tagline "Leading Change. Improving Care for Older Adults." To the right are "Join Now" and "Member Login" buttons. Below the logo is a navigation menu with categories: ABOUT US, MEMBERSHIP, PROGRAMS, PUBLICATIONS & TOOLS, GERIATRICS AS A PROFESSION, and WHERE WE STAND. Under "PUBLICATIONS & TOOLS", there is a sub-menu with "Media Center" and "News". On the left side, there is an "Archives" section with a list of years from 2022 down to 2016. The main content area features a headline: "UPDATED 2022 AGS BEERS CRITERIA® FOR POTENTIALLY INAPPROPRIATE MEDICATION USE IN OLDER ADULTS NOW POSTED FOR PUBLIC COMMENT". Below the headline is a "SHARE" button with icons for Facebook, Twitter, LinkedIn, and Email. A small text box below the share button states: "The public comment period for reviewing the 2022 AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults is now open through December 9th! Click here for more details: <http://ow.ly/2ZGZ50LAaZc>".

▶ Beer's Criteria - Updated 2019. And 2022?!?!

▶ Journal of American Geriatrics Society

▶ <https://www.americangeriatrics.org/media-center/news/updated-2022-ags-beers-criteriar-potentially-inappropriate-medication-use-older>

STEP 4: ESTIMATE LIFE EXPECTANCY

► EPrognosis

<https://eprognosis.ucsf.edu>

WHAT WOULD YOU LIKE TO DO?



CALCULATORS

CANCER SCREENING

COMMUNICATING PROGNOSIS

Step 4: Estimate Life Expectancy

All persons		No comorbidities ^a		Low/med comorbidities		High comorbidities	
		Low frailty	High frailty	Low frailty	High frailty	Low frailty	High frailty
Male, by age							
66	NR	NR	· ^b	NR	NR	11.5 (11.1, 12.2)	6.1 (5.5, 7.0)
70	15.1 (14.9, 15.3)	16.1 (15.9, 16.4)	NR	14.0 (13.8, 14.5)	11.2 (9.4, NR)	9.8 (9.5, 10.0)	5.6 (5.2, 5.9)
75	11.4 (11.3, 11.5)	12.6 (12.5, 12.7)	9.1 (8.7, 11.9)	11.3 (10.9, 11.5)	9.4 (8.8, 10.3)	7.8 (7.6, 8.0)	5.5 (5.3, 5.8)
80	8.3 (8.2, 8.3)	9.7 (9.6, 9.8)	8.1 (7.8, 8.9)	8.5 (8.3, 8.8)	8.0 (7.8, 8.3)	6.5 (6.2, 6.7)	4.8 (4.7, 5.0)
85	5.7 (5.7, 5.8)	7.2 (7.1, 7.4)	6.6 (6.4, 6.7)	· ^b	5.9 (5.8, 6.0)	· ^b	3.8 (3.7, 3.9)
90	3.7 (3.7, 3.8)	· ^b	4.7 (4.6, 4.8)	· ^b	4.1 (3.8, 4.3)	· ^b	2.7 (2.6, 2.8)
Female, by age							
66	NR	NR	NR	NR	14.8 (12.1, NR)	14.8 (14.4, 15.4)	7.6 (7.0, 8.8)
70	NR	NR	NR	15.7 (15.6, 16.3)	13.9 (12.8, 15.8)	12.5 (12.1, 12.9)	7.8 (7.4, 8.2)
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90	4.5 (4.5, 4.6)	· ^b	5.6 (5.6, 5.7)	· ^b	4.8 (4.7, 4.9)	· ^b	3.1 (3.1, 3.2)

STEP 5: DEFINE OVERALL CARE GOALS



- Photo 1: Photo by [Johann Walter Bantz](#) on [Unsplash](#)
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STEP 6: VERIFY CURRENT INDICATIONS FOR ONGOING TREATMENTS

Diagnosis-Medication Reconciliation

- ▶ Evaluate for “diagnostic labels”

“Does Laura take daily ASA because she has CAD or does she have CAD because she takes daily ASA?”

- ▶ Confirm drug appropriateness and dose for each medical problem

“Should Lester be taking gabapentin 900 mg TID if his creatinine clearance is 35 mL/min?”



STEP 7: DETERMINE NEED FOR PREVENTIVE MEDICATIONS



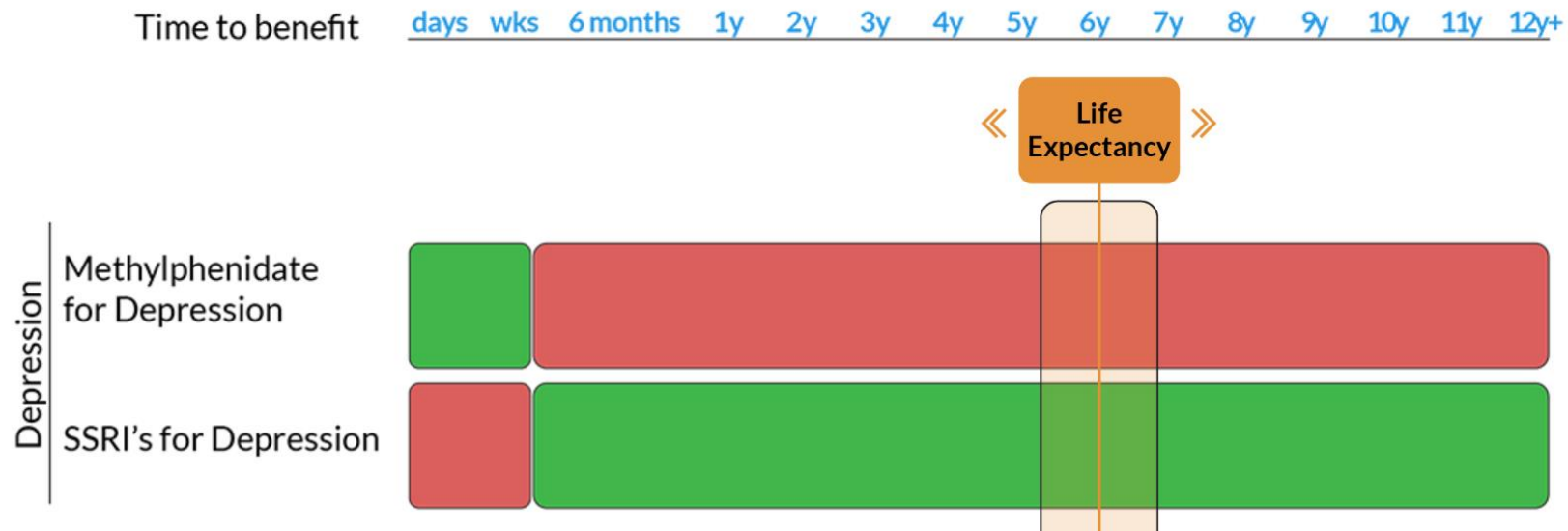
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- ▶ Estimate clinical impact
 - ▶ Aspirin
- ▶ Time to future treatment benefit weighed against life expectancy
 - ▶ Bisphosphonates, statins

STEP 7: DETERMINE NEED FOR PREVENTIVE MEDICATIONS

▶ Time to Benefit

▶ https://eprognosis.ucsf.edu/time_to_benefit.php



STEP 8: DETERMINE BENEFIT-HARM AND UTILITY THRESHOLDS



Photo by [Michael Williams II](#) on [Unsplash](#)

- ▶ Reconcile absolute benefit and harm using predictive or prognostic tools
 - ▶ <https://www.mdcalc.com/>
- ▶ Consider ranking drugs based on utility
 - ▶ High to low by predicted benefit
 - ▶ Harm
 - ▶ Administration and monitoring burdens

STEP 9: SEEK CONSENT AND DEVISE/IMPLEMENT PLAN

- ▶ Patient/family/caregiver
 - ▶ Patient-centered, shared decision-making
 - ▶ Preferences, goals, and values
- ▶ Discontinuation/reduction plan
 - ▶ Timeline
 - ▶ Monitoring



Clinical Case

Miriam



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- ▶ 83 years old, former high school principal, chair tai chi, walks with cane, resides in independent living community
- ▶ HTN, DM 2, mild chronic anemia, osteoporosis, OA, R knee TKA, falls, macular degeneration
- ▶ Hospitalized 10 months ago and 3 ½ weeks of rehab for L hip and rib fractures sustained in fall at home
- ▶ “My ankles are so swollen, my arthritis seems worse, and I’m always dizzy!”

“My ankles are so swollen, my arthritis seems worse, and I’m always dizzy!”

- ▶ Alendronate 70 mg once weekly
- ▶ ASA 81 mg daily
- ▶ Amlodipine 7.5 mg daily
- ▶ Calcium 500 mg BID with meals
- ▶ Cyanocobalamin 500 mcg daily
- ▶ Furosemide 20 mg BID + PRN 20 mg daily ankle swelling
- ▶ Lisinopril 20 mg daily
- ▶ Omeprazole 20 mg BID
- ▶ Potassium 20 mEq BID
- ▶ Magnesium 400 mg daily
- ▶ Meclizine 25 mg Q6H PRN dizziness
- ▶ MVI
- ▶ Trazodone 50 mg QHS
- ▶ PRN acetaminophen, diclofenac topical gel, PEG, tramadol, TUMS

"My ankles are so swollen, my arthritis seems worse, and I'm always dizzy!"

Resume her Tylenol and diclofenac gel as scheduled

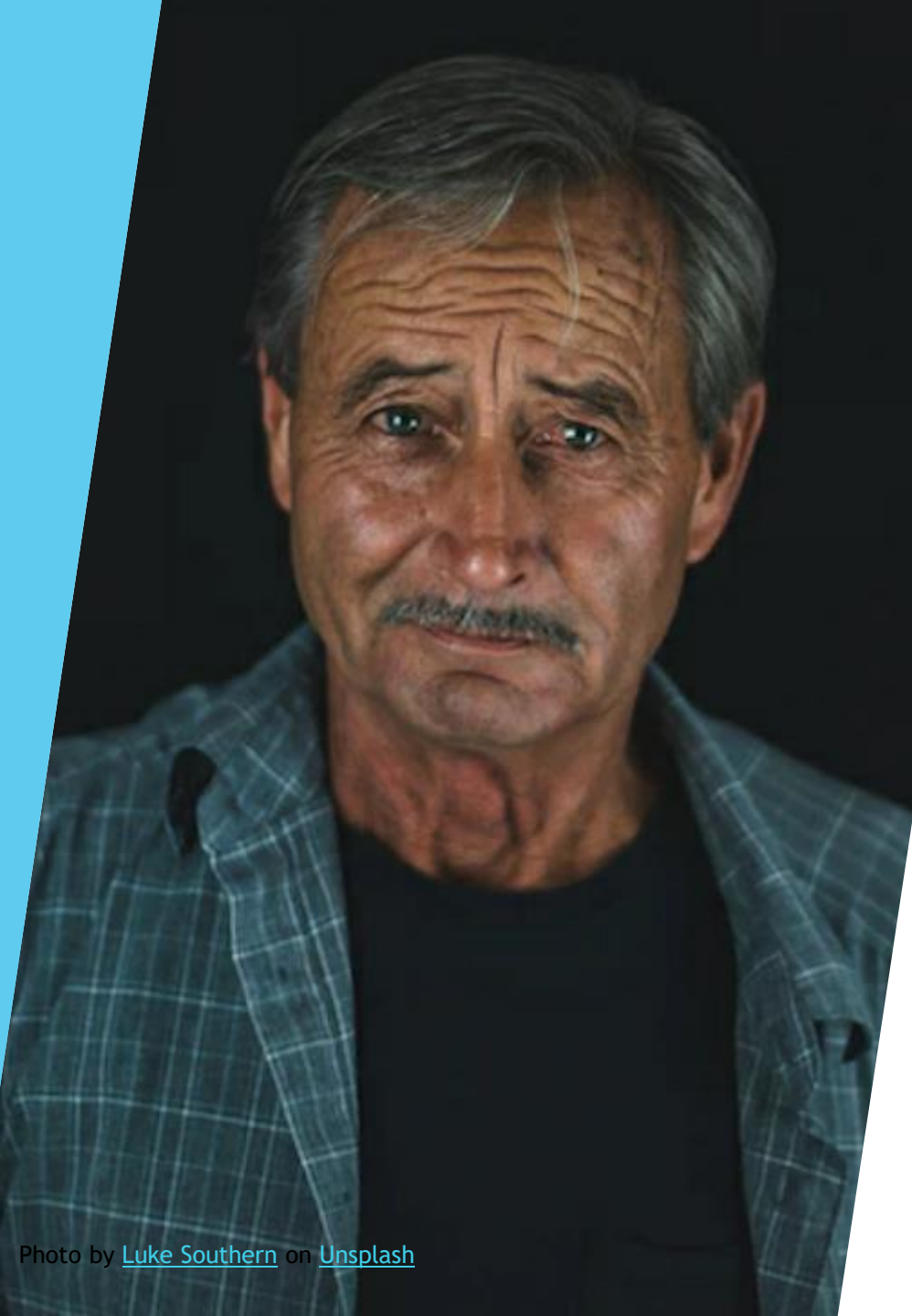
Decrease her amlodipine as it may be contributing to leg swelling

Discontinue Furosemide and use compression stockings

Discontinue Meclizine and Tramadol as I think those are not good medications for older adults

E: All of the Above!

- ▶ Alendronate 70 mg once weekly
- ▶ ASA 81 mg daily
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- ▶ Calcium 500 mg BID with meals
- ▶ Cyanocobalamin 500 mcg daily
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- ▶ PRN acetaminophen, diclofenac topical gel, PEG, tramadol, TUMS



Clinical Case- Robert

- ▶ 76 years old, formerly robustly healthy retired physicist with metastatic prostate cancer diagnosed several months ago. Functional decline following chemotherapy initiation
- ▶ Admitted from SNF with pneumonia and volume overload. 3rd admission in the past 4 months following a fall with vertebral burst fracture and prior pneumonia
- ▶ Family is telling you that he is just not as sharp as he was prior to the first hospitalization

Clinical Case-Robert

- ▶ Ca Carbonate (Ca-D-Mg) 2 tablets BID with meals
- ▶ Lorazepam 0.5 mg TID PRN
- ▶ Omega 3 Fatty Acids 1 cap daily
- ▶ Tylenol 325 mg Q4H PRN pain
- ▶ Baclofen 20 mg QID PRN muscle spasms
- ▶ Co-Enzyme Q-10 75 mg daily
- ▶ Diphenhydramine-Tylenol (25-100 mg) QPM PRN insomnia
- ▶ Guaifenesin 100 mg/5 mL Q4H PRN cough/congestion
- ▶ Tamsulosin 0.4 mg daily
- ▶ Morphine ER 45 mg TID
- ▶ Multivitamin 1 tab daily
- ▶ Ondansetron ODT 4 mg Q8H PRN nausea/vomiting
- ▶ Oxycodone 5-20 mg Q6H PRN pain
- ▶ Polyethylene glycol 17 gram daily
- ▶ Ranitidine 150 mg BID PRN heartburn/indigestion
- ▶ Senna-docusate 8.6-50 mg BID

Family is telling you that he is just not as sharp as he was prior to the first hospitalization.

Start a plan for stopping or tapering all his high-risk medications

Add caffeine pills to in hopes that it will increase his daytime wakefulness

Start him on some scheduled non-opioid medications to try and reduce need for narcotics

Add caffeine pills to my regimen in hopes of increasing daytime wakefulness

Family is telling you that he is just not as sharp as he was prior to the first hospitalization.

A: Start a plan for stopping or tapering all his high-risk medications

~~B: Add caffeine pills to in hopes that it will increase his daytime wakefulness~~

C: Start him on some scheduled non-opioid medications to try and reduce need for narcotics

D: Add caffeine pills to my regimen in hopes of increasing daytime wakefulness



Clinical Case- Sarge

- ▶ 84 yo retired army sergeant with advanced dementia, atrial fibrillation and frequent falls who presented to the hospital with subarachnoid hemorrhage
- ▶ He is seeing you in follow-up after his hospital visit and family is asking if Sarge should resume his anticoagulant

Clinical Case-Sarge

- ▶ Donepezil 23 mg once daily
- ▶ Vitamin D 2000 IU once daily
- ▶ Atorvastatin 10 mg once nightly
- ▶ Furosemide 20 mg once daily
- ▶ Fish Oil Omega 3 two capsules daily
- ▶ Warfarin 2 mg Tuesday and Thursday, 1 mg once nightly the remainder of the week
- ▶ Tylenol PM once nightly
- ▶ Oxybutynin ER 10 mg daily

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Clinical Case-Sarge

Calculate risk of bleeding using "mdcalc"

Calculate life expectancy using 'eprognosis' to help guide discussions about deprescribing

Start Melatonin once nightly and stop Tylenol PM

Look at discontinuing lasix and Oxybutynin as you think they may be related to a prescribing cascade

HAS-BLED Score for Major Bleeding Risk ☆

Estimates risk of major bleeding for patients on anticoagulation to assess risk-benefit in atrial fibrillation care.

When to Use ▾

Pearls/Pitfalls ▾

Why Use ▾

4 points

Risk was 8.9% in one validation study (Lip 2011) and 8.70 bleeds per 100 patient-years in another validation study (Pisters 2010).

Alternatives to anticoagulation should be considered: Patient is at high risk for major bleeding.

Copy Results 📄

Next Steps >>>

MDCALC

EPROGNOSIS

Six Month Mortality

Points	Risk of 6 month mortality
1.0 - 6.4	7%
6.5 - 7.9	10%
8.0 - 8.9	13%
9.0 - 9.7	14%
9.8 - 10.5	17%
10.6 - 11.5	20%
11.6 - 12.5	23%
12.6 - 14.0	28%
14.1 - 16.1	34 - 43%
> 16.1	49 - 62%

Jessica's Deprescribing Method

HARM

- Identify drugs that may cause harm
- Identify drugs that may need to be reduced

PRESCRIBING CASCADE

- Look for medications that are being used to treat side-effects
 - Can the initial med be stopped or changed? Can the secondary med be stopped?

DEPRESCRIBING +

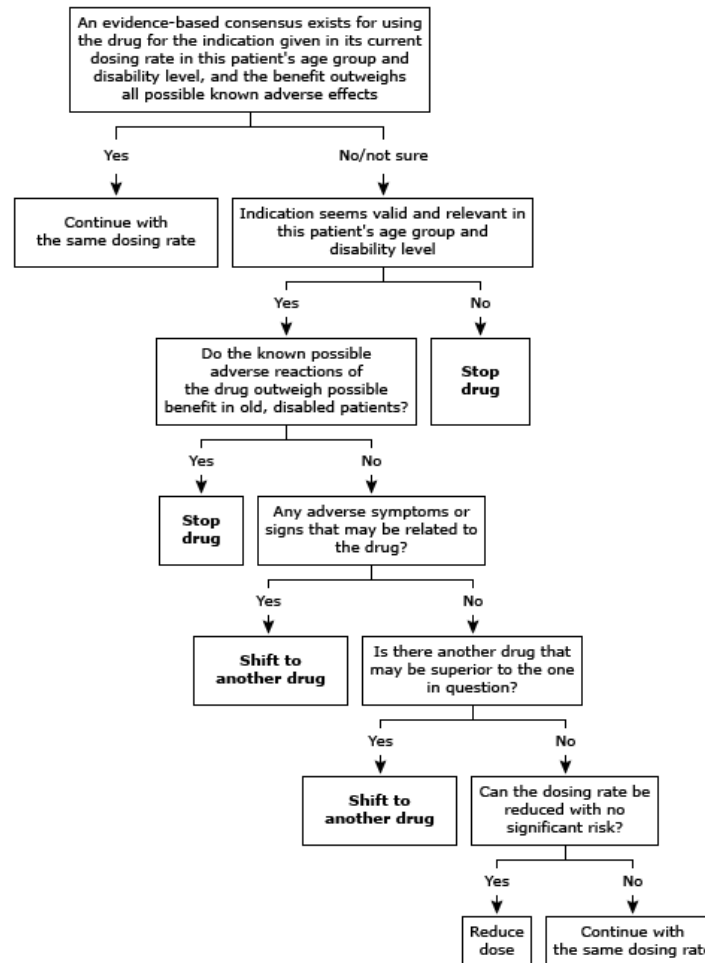
- Plan for further reduction based on patient goals and estimated life expectancy

Resources for Deprescribing

▶ UpToDate

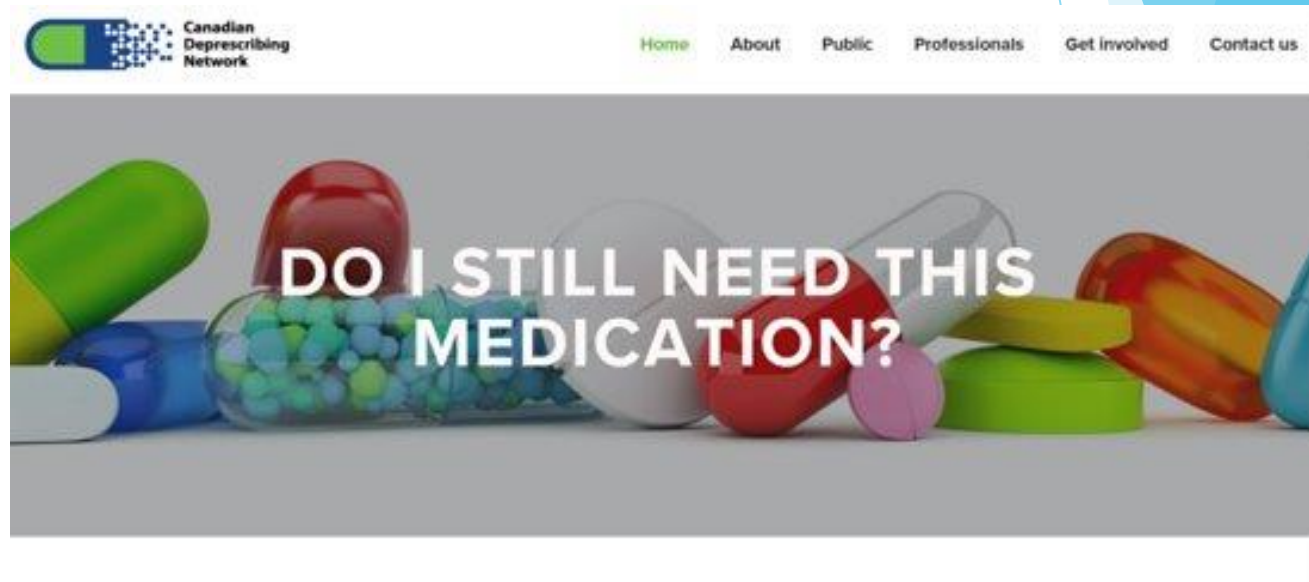
- ▶ “Drug Prescribing for Older Adults”
- ▶ <https://www.uptodate.com/contents/drug-prescribing-for-older-adults>

Discuss the following with the patient/guardian



Resources for Deprescribing

- ▶ Canadian Deprescribing Network
 - ▶ A treasure trove!
 - ▶ <https://www.desprescribingnetwork.ca/>



Take Home Points

- ▶ Polypharmacy is widespread and increases risk for adverse events for older adults
- ▶ Don't underestimate the value of the "paper bag" method for medication reconciliation
- ▶ Reducing high risk medications can be a good first step for deprescribing--and it's fun!
- ▶ Deprescribing may be the best prescription you can write for older adults hoping to maintain their independence

References

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- ▶ UpToDate. “Drug Prescribing for Older Adults” <https://www.uptodate.com/contents/drug-prescribing-for-older-adults>
- ▶ Canadian Deprescribing Network: <https://www.desprescribingnetwork.ca/>

Questions?

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Thank you to the course Co-Directors
and the American Academy of
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to speak on this very important
topic.

