# First, Do No Harm: Polypharmacy and Deprescribing

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AAPA We Are Family (Medicine) Conference

# Disclosures

- Non-Declaration Statement:

I have no relevant relationships with ineligible companies to disclose within the past 24 months.

# When You Think of an Older Adult's Medication List You……

- A: Panic!
- B: Roll up your sleeves and dig right in!

# 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

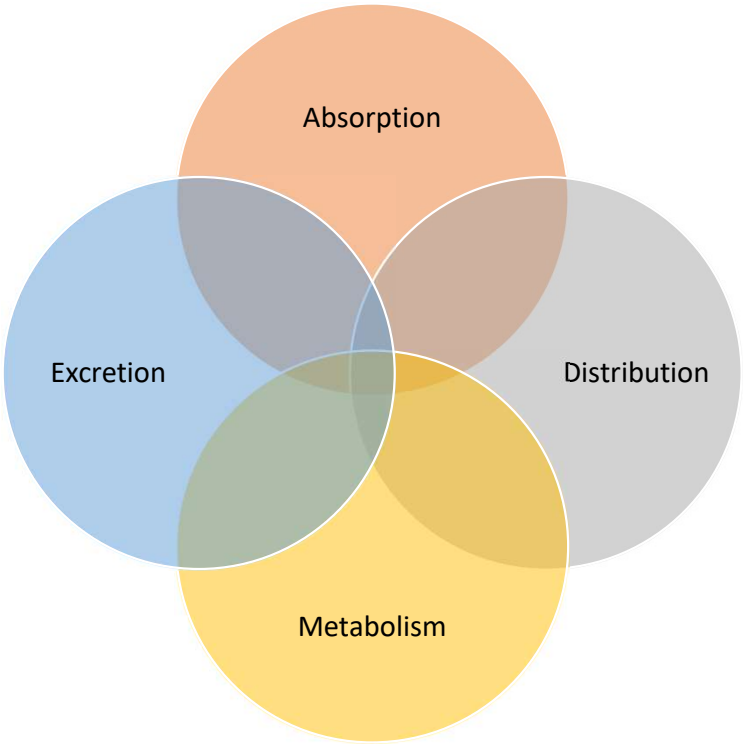
# Polypharmacy

- 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 Pharmacokinetics



# Normal and Pathophysiologic Changes That Affect Pharmacokinetics

| Absorption | Distribution | Metabolism | Excretion | Other |
| --- | --- | --- | --- | --- |
| Delayed transit in the GI tract, decreased gastric acid secretion | Decrease in lean muscle and increase in adipose tissue | Changes in enzymatic activity of the liver as number of parenchymal cells decreases | Decreased kidney function due to nephron loss | Medication sensitivity, polypharmacy |

# Deprescribing

- Process of medication discontinuation, supervised by a health care professional, with the goal of managing polypharmacy and *improving outcomes*
  - Reducing overall medication burden
    - Improved QOL AND improve adherence to other medications
  - Reducing the risk of falls
  - Improve/preserve cognitive function
  - Reduce risk of hospitalization and death.

# Tools for Identifying and Discontinuing Inappropriate Medications

# Step 1: A rrent Drugs

# Step 2: Identify Patients Who Are at the Highest Risk of Adverse Drug Events

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

Photo by Danie Franco on Unsplash

# 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

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

AGS Geriatrics Healthcare Professionals
Leading Change. Improving Care for Older Adults.

SPECIAL ARTICLE | Free Access

**American Geriatrics Society 2023 updated AGS Beers Criteria® for potentially inappropriate medication use in older adults**

By the 2023 American Geriatrics Society Beers Criteria® Update Expert Panel

First published: 04 May 2023 | https://doi.org/10.1111/jgs.18372

Listen to the GeriPal Podcast with the authors at https://bit.ly/GeriPalEp266
Panel Members and Affiliations are provided in Appendix.

- Updated every 2 years-2023!!!
- https://agsjournals.onlinelibrary.wiley.com/doi/10.1111/jgs.18372

# Step 4: Estimate Life Expectancy

- EPrognosis

https://eprognosis.ucsf.edu

# Step 4: Estimate Life Expectancy

| | | No comorbidities[a] | | Low/med comorbidities | | High comorbidities | |
|---|---|---|---|---|---|---|---|
| | All persons | 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) |
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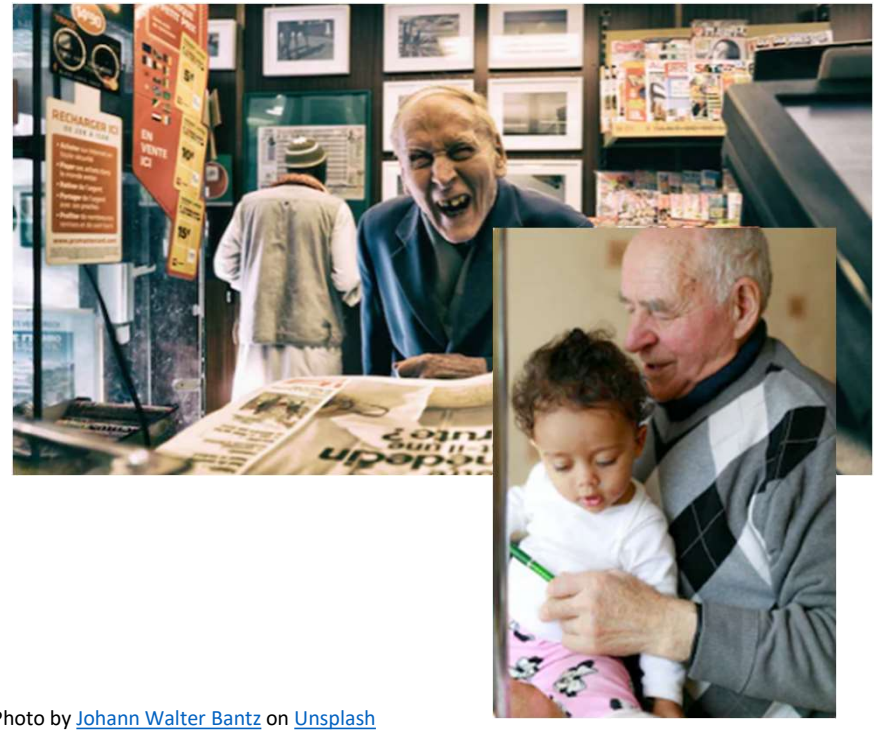
https://doi.org/10.1111/jgs.17468

# STEP 5: DEFINE OVERALL CARE GOALS



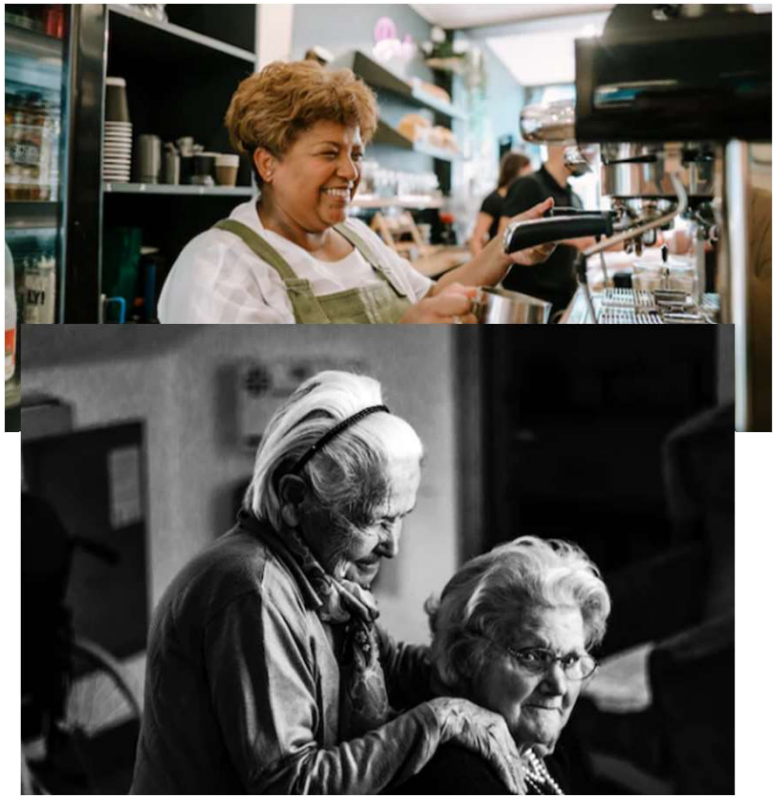


Photo 1: Photo by Johann Walter Bantz on Unsplash
Photo 2: Photo by Centre for Ageing Better on Unsplash
Photo 3:Photo by Humphrey Muleba on Unsplash
Photo 4: Photo by eberhard 🖐 grossgasteiger on Unsplash

# Step 6: Verify Current Indications for Ongoing Treatment

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 Preventative Medications

- Estimate clinical impact
  - Ex. Primary prevention Aspirin

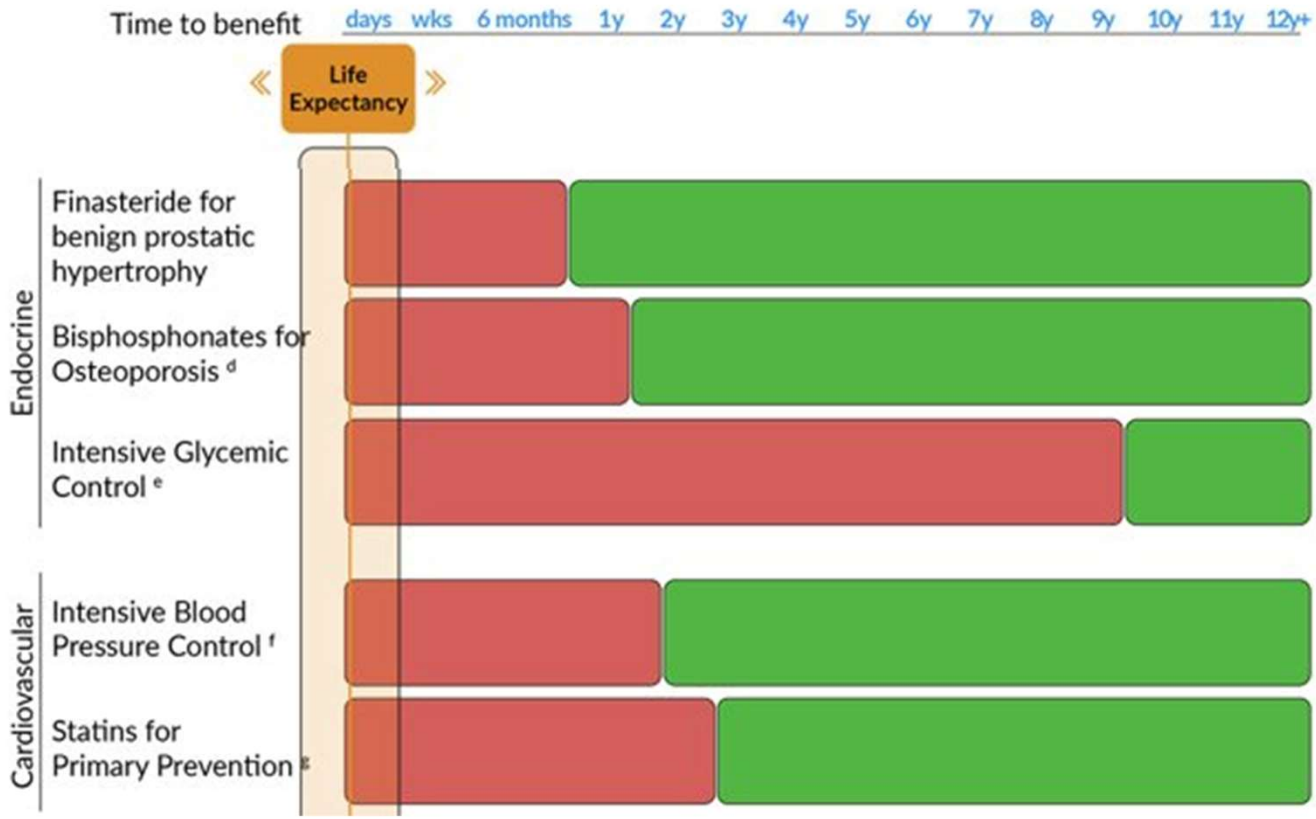
- Time to benefit weighed against life expectancy
  - Ex. Bisphosphonates, Statins

Photo by Tamanna Rumee on Unsplash

# Step 7: Determine Need for **Preventative** Medications

- Time to Benefit

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



# Step 8: Determine Benefit-Harm and Utility Thresholds

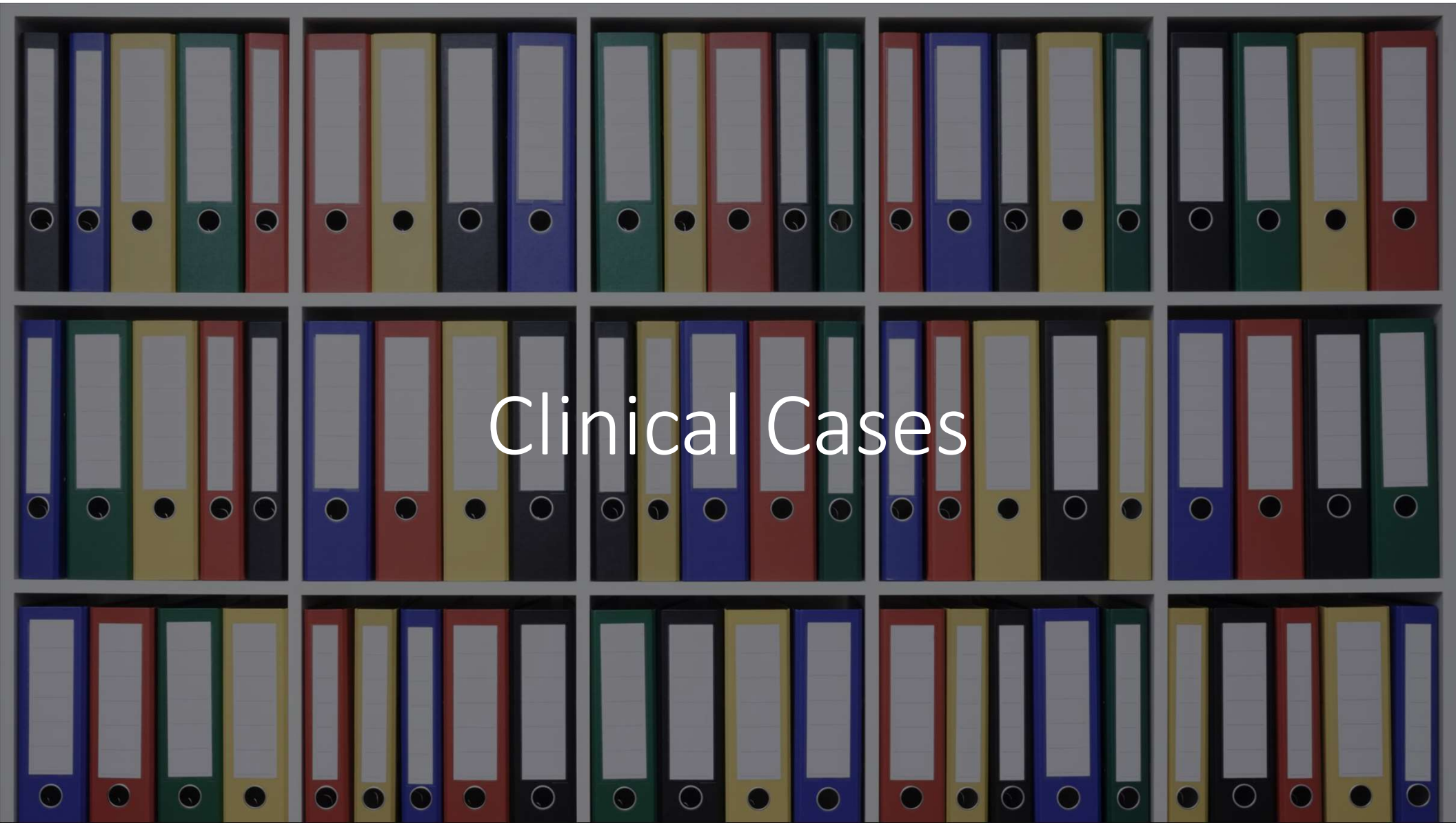
- Reconcile absolute benefit and harm using predictive or prognostic tools
  - https://www.mdcalc.com/
- Consider ranking drugs based on utility
  - High to low by predicted benefit
  - Harm
  - Administration and monitoring burdens

Photo by Michael Williams II on Unsplash

# Step 9: Seek Consent and Devise and Implement a Plan

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

Photo by Jixiao Huang on Unsplash


Clinical Cases

# Miriam


- 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 had 3 ½ weeks of rehab for L hip and rib fractures after a 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!”

- A: Resume her Tylenol and diclofenac gel as scheduled
- B: Decrease her amlodipine as it may be contributing to leg swelling
- C: Discontinue Furosemide and use compression stockings
- D: 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
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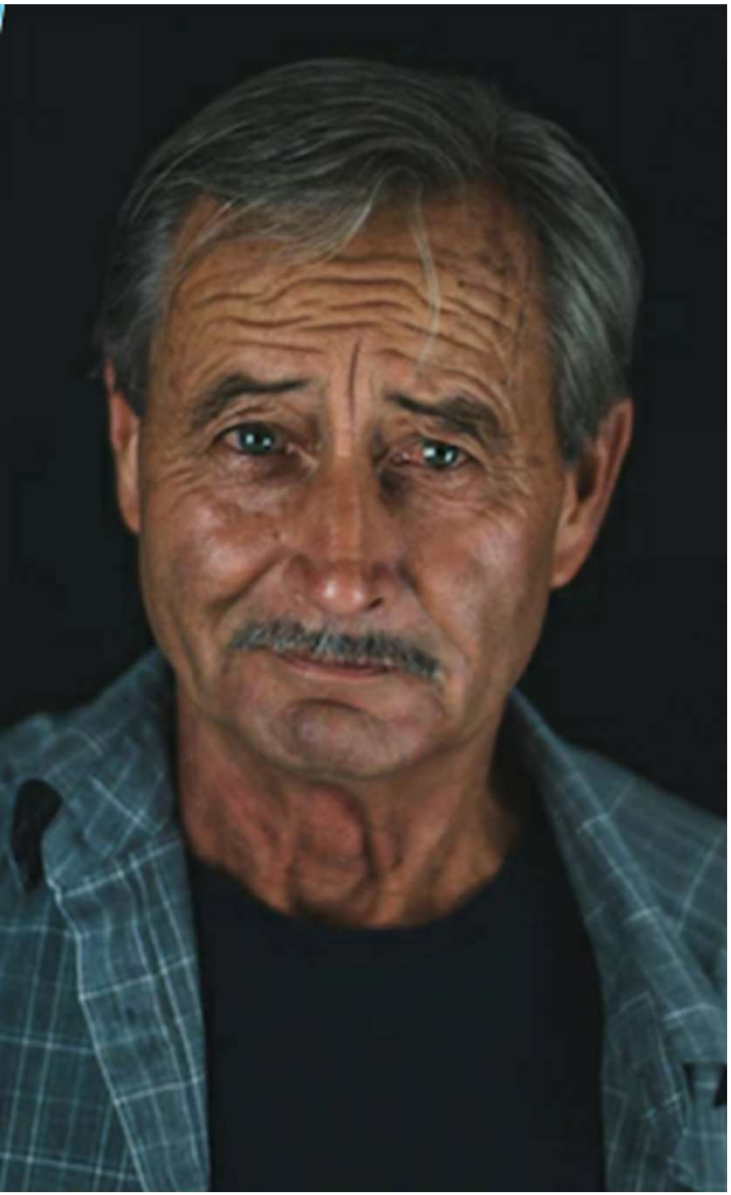

# Robert

- 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

# "He is just not as sharp as he was prior to the first hospitalization"

- 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 grams daily**
- Ranitidine 150 mg BID PRN heartburn/indigestion
- **Senna-docusate 8.6-50 mg BID**

# "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

# "He is just not as sharp as he was prior to the first hospitalization"

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

# 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

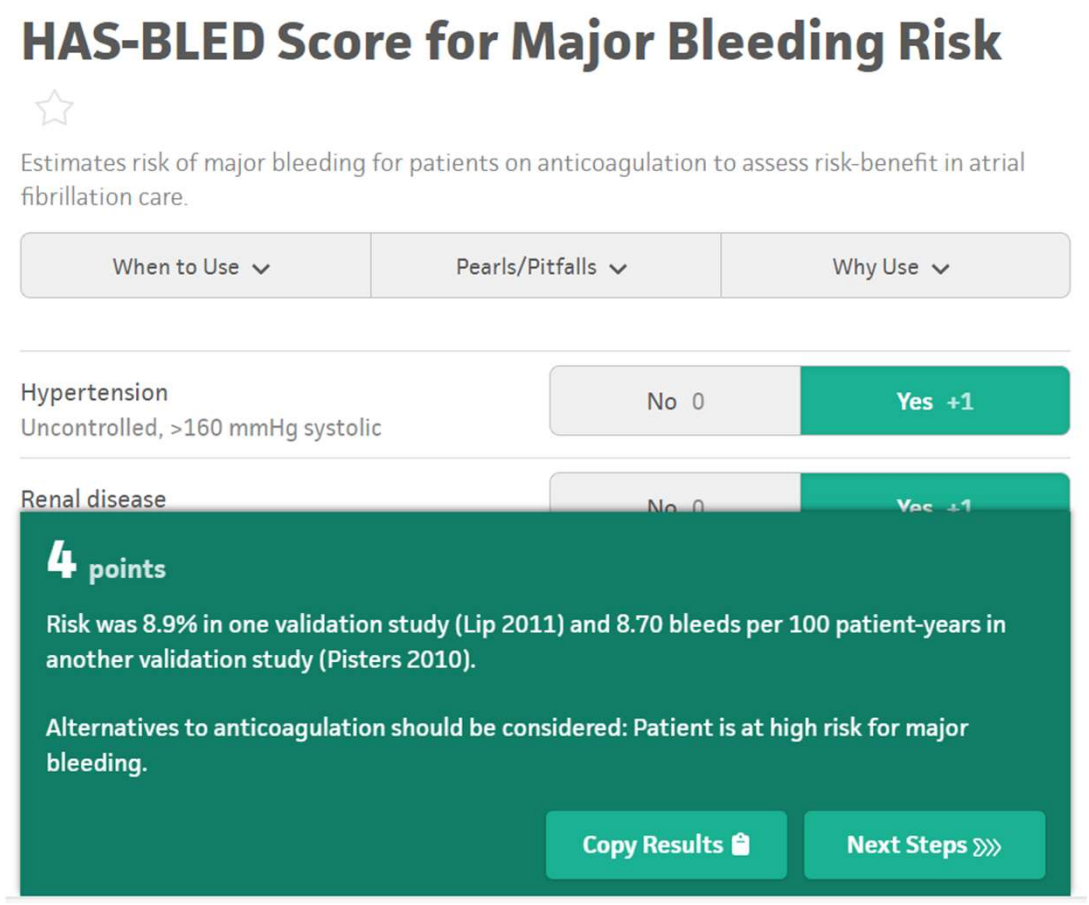
photo by Donald Teel on Unsplash

# "Should Sarge resume his anticoagulant?"

- 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

•A: Calculate risk of bleeding using "mdcalc"
•B: Calculate life expectancy using 'eprognosis" to help guide discussions about deprescribing
•C: Start Melatonin once nightly and stop Tylenol PM
•D: Look at discontinuing lasix and Oxybutynin as you think they may be related to a prescribing cascade

# MDCALC


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
Hypertension
Uncontrolled, >160 mmHg systolic
No 0
Yes +1
Renal disease
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

# 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% |

# Additional Resources for Deprescribing

# Jessica's Deprescribing Method

## HARM

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

## PRESCRIBING CASCADE

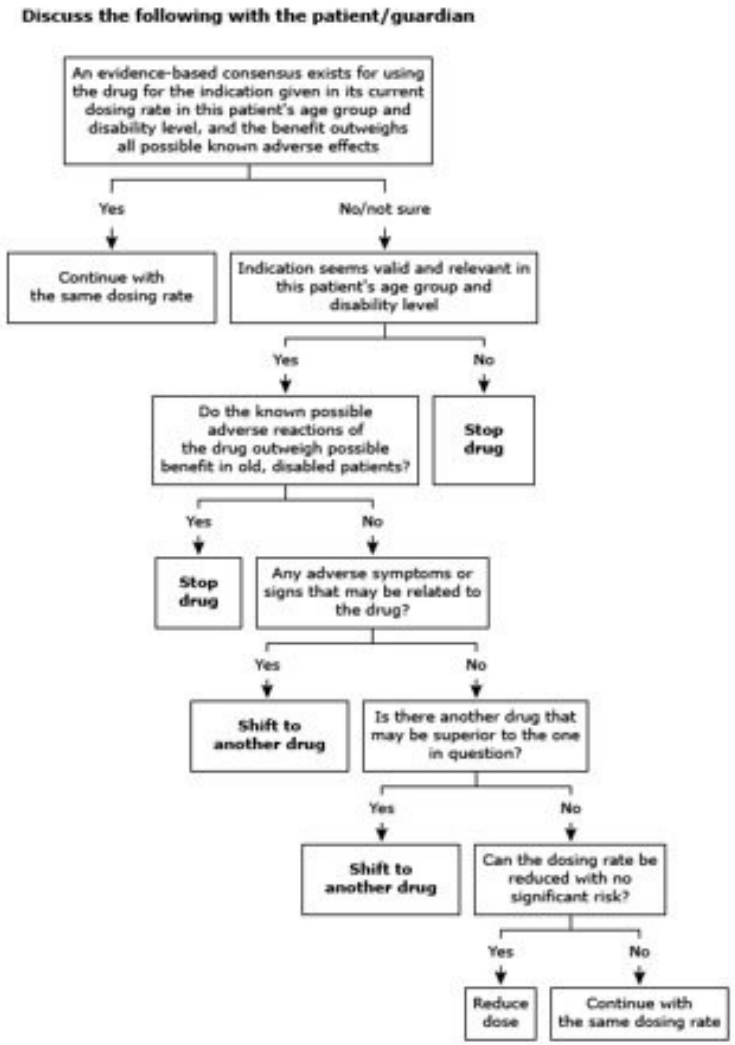
- Look for medications that are being used to treat side-effects
  - Can the initial med be stopped or changed? Can the secondary med be stopped?

## DEPRESCRIBING +

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

# Additional Resources for Deprescribing

- Up To Date
  - "Drug Prescribing for Older Adults"
  - https://www.uptodate.com/contents/drug-prescribing-for-older-adults




# Additional Resources for Deprescribing

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

# Questions?

Thank you to the course Co-Directors and the American Academy of Physician Associates for inviting me to speak on this very important topic.

Contact Information

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# References


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