Polypharmacy in the Elderly: Too Many Pills!

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Dr. Cole earned her medical degree from the University of South Florida in Tampa and completed her residency and fellowship training at Florida Hospital in Orlando. As part of her role as director of the Geriatric Fellowship, she supervises medical students, residents, and geriatric fellows in the care of elderly patients in the hospital, outpatient clinics, nursing homes, and home visits. Within the Centre for Aging and Wellness, she oversees a Comprehensive Geriatric Assessment Clinic where elderly patients and their caregivers meet with an interdisciplinary team to evaluate their medical, functional, and psychosocial status. Dr. Cole is a member of the AAFP, the American Geriatrics Society (AGS), and the American Medical Directors Association (AMDA). She is board certified in family medicine and geriatric medicine and is a Certified Medical Director (CMD).
Learning Objectives

1. Use evidence-based criteria (e.g. BEERS, STOPP, START) to evaluate for potentially adverse drug events, among elderly patients receiving multiple medications.

2. Develop a systematic approach, including applicable REMS, to managing elderly patients with multiple chronic conditions that focus on the quality-of-life outcomes most valued by the patient.

3. Develop collaborative care plans to address the needs of patients who have poor health literacy or reduced cognitive function, or those patients who have language barriers, in order to foster appropriate self-administration of medications.

4. Counsel elderly patients and caregivers about tools, resources, and strategies to aid in the self-administration of medications.
Presentation Overview

- Polypharmacy
- Steps in rational deprescribing
- Multiple chronic conditions
- Medication self-administration in challenging populations
Poll Question 1

79 y/o patient, first visit to your practice, recent fall with minor injuries at home. Has Alzheimer’s dementia, HTN, and BPH.

Which drug would you prioritize to “deprescribe” first?

A. Temazepam 15 mg qhs for sleep
B. Quetiapine 50 mg BID for agitation
C. Diphenhydramine 25 mg QAM for allergic rhinitis
D. Tamsulosin 0.4 mg QD for BPH

Presentation Overview

• Polypharmacy
• Steps in rational deprescribing
• Multiple chronic conditions
• Medication self-administration in challenging populations
Introduction

• Approximately ½ of older adults take 5 or more medications
• One in five is potentially inappropriate
• Older adults more likely to be hospitalized for an adverse drug reaction
• Adverse drug reactions cause more morbidity/mortality than chronic diseases


Why is Polypharmacy an Issue?

**Patient**

- Herbals perception “natural”, “safe”
- Patient or family insists on staying on medication
- Patient afraid to stop the medication
- Patient hoarding medication
- Patient sees multiple specialists

**Prescriber**

- Aggressive treatment goals
- Guidelines for starting medications, but not stopping
- Altered pharmacokinetics
- New patient to you
- Unclear duration
- Prescribing cascade

*Good prescribing requires desprescribing*

The Prescribing Cascade

- **Diabetic with Gastroparesis**
  - Rx Metoclopramide

- **Parkinsonism**
  - Rx Carbidopa/Levodopa

- **Hallucinations**
  - Rx Antipsychotic

Presentation Overview

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Deprescribing

• In certain patient populations does not worsen outcomes
• Decreases risk of adverse drug reactions
• Reduces cost
• Makes patients happy!

Deprescribing Steps

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

Bain et al. JAGS 56:1946-1952
Deprescribing

Step 1 Recognize an indication for discontinuing

Bain et al. JAGS 56:1946-1952

Indication ➔ Drug

• Is the original indication still present?
• Is the drug still appropriate given aging, decline in renal function, comorbidities?
• Is there duplication of therapy?
Poll Question 2

• An 85 year old female has a serum creatinine of 1.0 and weighs 100lbs. Which of the following drugs does NOT need to be renally adjusted?

• A. Furosemide 20mg twice daily
• B. Famotidine 20mg twice daily
• C. Gabapentin 200mg twice daily
• D. Tramadol 50mg ever 8 hours

Altered Pharmacokinetics

- **Absorption**
  - Slowed gastric emptying and motility
  - Decreased rate of absorption through GI tract
  - Drug interactions – Calcium Carbonate

- **Distribution**
  - Body composition differs (↑ fat ↓ water changes Vd)
  - Longer time to be eliminated (Diazepam, Trazodone)
  - Lower albumin = higher drug levels

- **Metabolism**
  - Most drug metabolism occurs in liver
  - Decreased hepatic flow with age - > decreased metabolism

- **Elimination**
  - GFR decreases 10% per decade of life after age 30
  - Difficulty in estimating
  - Cockcroft-Gault equation

AACP. 2013;87(5):331-336.*
Deprescribing

Step 1 Recognize an indication for discontinuing

Step 2 Identify and prioritize the medications targeted for discontinuation

Bain et al. JAGS 56:1946-1952

Priority Medications to Deprescribe

- Antihypertensives
- Antihyperglycemic medications
- Proton pump inhibitors
- Benzodiazepines
- Antipsychotics
- Statins

Bemben N. Pharmacother. 2016; 36(7):774-780.;
The Beers List

• American Geriatrics Society 2019 Updated AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults
  – Originally published in 1991, updated about every 3 yrs
  – Continue recommendations with a “Quality of Evidence” Rating & “Strength of Recommendation” Rating
  – Some additions/deletions since 2015
  – Several excellent tables


Beers List Highlights

Potentially Inappropriate Medications for all Older Adults
Select Notable Changes

<table>
<thead>
<tr>
<th>Medication/Medication Class</th>
<th>Update in 2019 Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-2 Antagonists</td>
<td>Removed from avoid list in pts with dementia</td>
</tr>
<tr>
<td>Glimepiride</td>
<td>Added to sulfonylureas for risk of severe prolonged hypoglycemia</td>
</tr>
<tr>
<td>SNRI’s</td>
<td>Added to avoid if history or fracture</td>
</tr>
<tr>
<td>Aspirin</td>
<td>Age lowered from 80 to 70 to use extra caution when using for primary prevention</td>
</tr>
<tr>
<td>Trimethoprim-sulfamethoxazole</td>
<td>Added use with caution in reduced renal function</td>
</tr>
<tr>
<td>Opioids</td>
<td>Added avoid use of opioids with benzodiazepines; avoid use of opioids with gabapentinoids</td>
</tr>
</tbody>
</table>


Select Examples

<table>
<thead>
<tr>
<th>Table Designated</th>
<th>Example</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organ System and/or Drug Class</td>
<td>Antidepressants (e.g. paroxetine)</td>
<td>Highly anticholinergic, sedating</td>
</tr>
<tr>
<td>Disease or Syndrome</td>
<td>History of falls or fractures (e.g. zolpidem)</td>
<td>May cause ataxia, psychomotor impairment, falls</td>
</tr>
<tr>
<td>Drugs to Be Used in Caution</td>
<td>Antipsychotics</td>
<td>May exacerbate or cause SIADH or hyponatremia</td>
</tr>
<tr>
<td>Drugs to Be Avoided (Drug Interactions)</td>
<td>Corticosteroids plus NSAIDS; Anticholinergic</td>
<td>Increased risk of peptic ulcer disease</td>
</tr>
<tr>
<td>Drugs to Be Avoided (Impaired Renal)</td>
<td>Tramadol (CrCl &lt; 30 mL/min)</td>
<td>Increased risk of cognitive decline</td>
</tr>
</tbody>
</table>

Deprescribing

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 for effects

Bain et al. JAGS 56:1946-1952

Ms. D

• 75 y/o, HTN, COPD, chronic anxiety
• Diazepam 10mg BID for 30 years, sometimes takes third dose depending on stressors
• Temazepam 15mg QHS for sleep past 10 years
Poll Question 3
Which of the following is true regarding benzodiazepines according to the 2019 Beers Criteria?

• A. Short acting benzodiazepines are preferred.
• B. Shorter acting benzodiazepines are safer than long acting regarding fall risk.
• C. Combination of three or more CNS active drugs should be avoided.
• D. Benzodiazepines may be used with gabapentinoids.

Benzodiazepines

• Educating patients about the harms of benzodiazepine increase successful discontinue by five-fold (Empower)¹
• Taper very slowly to avoid withdrawal
• Risk factors for withdrawal: use > one year, high dose, short duration of action (e.g alprazolam,lorazepam)²
• Second half of taper should take longer than first half of taper³

EMPOWER Trial

- Eliminating Medications Through Patient Ownership of End Results\(^1\)
- Can educational brochures reduce benzodiazepine use?\(^2\)
- Patients > 65, benzodiazepine use 3 months
- 62% initiated conversation about benzo cessation
- 27% (intervention) vs 5% (control) stopped drug
- Empowering patients highlights shared decision making

2 http://www.criugm.qc.ca/fichier/pdf/BENZOeng.pdf
Tapering Options

**Option 1:** Decrease by 25% week 1, by 25% week 2, then ~10%/week. Monitor patient for withdrawal or worsening of condition treated. If needed, continue present dose for a few extra weeks, or return to higher dose if needed.\(^1,3\)

**Option 2:** Taper by 10% every 1-2 weeks until 20% of the original dose is reached. Then taper by 5% every 2-4 weeks.\(^2,3\)

**Option 3:** If unable to do 25% reduction, may decrease by 50% initially using drug-free days in latter part of tapering, or switch to lorazepam/oxazepam in final tapering.\(^4\)

Monitor patients for withdrawal (may need to continue dose or return to higher dose)

Mr. S

- 81 y/o with BMI 34, CAD, HTN, DM2
- On omeprazole 20mg daily, does not recall when it was started
- Enjoys beer and hot wings at least weekly, takes an extra omeprazole as needed

Proton Pump Inhibitors

- Beers list reflects the recent appreciation that long-term PPIs are not benign
- Avoid use > 8 weeks unless high risk (oral corticosteroids or chronic NSAID use, erosive esophagitis, Barrett esophagitis, pathological hypersecretory condition, or demonstrated need for maintenance)

<table>
<thead>
<tr>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Strong</td>
</tr>
</tbody>
</table>

Rationale

- *C difficile* infection, bone loss, fractures

Other Concerns

- Hypomagnesia¹, pneumonia², colon cancer³, dementia⁴

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²Vakil N. Acid inhibition and infections outside the gastrointestinal tract. [Am J Gastroenterol. 2009;104(9):S47-S57](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2728838/)


⁴Kuller LH. Do proton pump inhibitors increase risk of dementia? [JAMA Neurol. 2016;73:779,81](https://jamanetwork.com/journals/jamaneurol/article-abstract/2638704)
Proton Pump Inhibitors Tapering Options

• Switch to a H2RA daily
• Decrease and use a lower dose
• Stop and use on demand (on demand daily until symptoms stop)
• Taper over 2-4 weeks
• Monitor at 4 and 12 weeks

Antipsychotics

• Applies to first and second generation agents
• Most concerns are specific to pts with dementia (black boxed warning)
• Often used off-label for delirium, specifically if pts manifest behavioral disturbances
• Alternative: SSRI, mood stabilizer, non-pharm

<table>
<thead>
<tr>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>

Rationale

Increased risk for stroke, increased rate of cognitive decline and mortality in pts with dementia

Exception

May be used for schizophrenia, bipolar, or other mental illness. May only use for behavioral problems of dementia or delirium if nonpharm interventions fail and the pt is a potential harm.
Statins

- 35% patients > 79 take a statin for PRIMARY prevention
- Limited data for primary prevention in this population
- Pts more prone to drug interactions, side effects
- Does patient have limited life expectancy, without CV risk factors?
- Bottom Line: Consider need for statin > 75 in pts WITHOUT CVD

Han BH, Sutin D, Williamson JD, et al. JAMA Intern Med 2017 Jul 1;177(7):955-965

Bedside reference

- AGS iGeriatrics $9.99 annual
- Geriatrics at Your Fingertips $19.99 annual
- Deprescribing.org- algorithms for discontinuing meds
- Medstopper.com- enter med list, printable recommendations regarding discontinuation
Any symptom in an elderly patient should be considered a drug side effect until proven otherwise.

<table>
<thead>
<tr>
<th>Geriatric Presentation</th>
<th>Medication Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls, dizziness, syncope</td>
<td>Sedatives, hypnotics, cholinesterase inhibitors, antihypertensives, antidepressants, anticholinergics</td>
</tr>
<tr>
<td>Confusion, cognitive impairment</td>
<td>Anticholinergics, anticonvulsants, steroids, opioids, sedative/hypnotics</td>
</tr>
<tr>
<td>Weight loss</td>
<td>Alter taste: allopurinol, ACE inhibitors, antibiotics, calcium channel blockers, propranolol, spironolactone Anorexia: anticonvulsants, antipsychotics, benzos, digoxin, cholinesterase inhibitors, metformin, opiates, SSRIs</td>
</tr>
<tr>
<td>Constipation</td>
<td>Anticholinergics, calcium, calcium channel blockers, opioids, TCAs</td>
</tr>
</tbody>
</table>

https://www.managedhealthcareconnect.com/articles/tips-deprescribing-nursing-home
Common Prescribing Cascades

<table>
<thead>
<tr>
<th>Initial Medication</th>
<th>Adverse Effect</th>
<th>Subsequent Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donepezil, other cholinesterase inhibitor</td>
<td>Urinary incontinence</td>
<td>Antimuscarinic (oxybutynin, etc)</td>
</tr>
<tr>
<td>NSAID</td>
<td>HTN</td>
<td>Antihypertensive</td>
</tr>
<tr>
<td>Amlodipine</td>
<td>Edema</td>
<td>Furosemide</td>
</tr>
<tr>
<td>Thiazide diuretics</td>
<td>Gout</td>
<td>Allopurinol/colchicine</td>
</tr>
<tr>
<td>Amitriptyline</td>
<td>Urinary retention</td>
<td>Tamsulosin</td>
</tr>
<tr>
<td>Digoxin, opioids, NSAIDs, ACE inhibitors, diuretics, steroids</td>
<td>Nausea</td>
<td>Zofran, PPI</td>
</tr>
</tbody>
</table>

https://www.managedhealthcareconnect.com/articles/tips-deprescribing-nursing-home

Patient Preferences

- Many patients prefer to make changes in diet, lifestyle rather than take a prescription drug to manage a symptom
- Older patients often choose to accept risks rather than “take another pill”
REMS: Risk Evaluation and Management Strategies

• FDA requires drug manufacturers to mitigate risks of certain drugs:
  – Medication guide (package insert)
  – Letter to prescribers
  – Special training for prescribers/dispensers
  – Requiring lab monitoring
  – Patient registries


REMS Prolia (*denosumab*)

• Goals
  – Mitigate risks of hypocalcemia, osteonecrosis of the jaw, atypical femoral fracture, serious infections, and dermatologic reactions
  – Inform health care providers/patients about the risks

• REMs Materials
  – Provider Focused
    • Letter to provider
    • Patient Counseling Toolkit
  – Patient Focused
    • Brochure
    • Medication Guide

https://www.proliahcp.com/risk-evaluation-mitigation-strategy/
Challenges to Deprescribing

• Time!
• The specialist started it
• The patient is worried about stopping it
• Some TV celebrity recommended it
• Automated refills

Deprescribing Summary

• Avoid inappropriate meds
• Use appropriate drugs for appropriate indications
• Monitor for side effects, drug levels
• Keep creatinine clearance in mind
• Avoid drug-drug interactions
• Incorporate patient values
Presentation Overview

- Polypharmacy
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Betty Smith is 80 years old
- COPD
- DM type 2
- Osteoporosis
- HTN
- Osteoarthritis

- Clinical practice guidelines recommend 12 medications
- Which meds are appropriate?
Betty Smith: Med List

<table>
<thead>
<tr>
<th>Rx</th>
<th>OTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyburide 5mg daily</td>
<td>Naproxen 500mg BID prn joint pains</td>
</tr>
<tr>
<td>Lisinopril 20mg daily</td>
<td>Melatonin 3mg qhs</td>
</tr>
<tr>
<td>Alendronate 70mg Q weekly</td>
<td>Tylenol PM qhs</td>
</tr>
<tr>
<td>Fluticasone/Salmetrol 250/50 BID</td>
<td>Glucosamine</td>
</tr>
<tr>
<td>Metformin 1000mg BID</td>
<td>Vitamin B complex</td>
</tr>
<tr>
<td>Meloxicam 15mg daily</td>
<td>Calcium with Vitamin D</td>
</tr>
</tbody>
</table>

Poll Question 4
Which of Betty Smith’s meds are on the BEERS list?

A. Glyburide  
B. Lisinopril  
C. Alendronate  
D. Metformin  
E. Fluticasone
Geriatric Heterogeneity

- Illness severity
- Functional status
- Prognosis
- Personal priorities
- Risk of adverse events

Patient Preferences

- Patients not comfortable with treatment plan are much more likely to be nonadherent
- One therapy may worsen another condition
- Medications often confer long-term benefits at the risk of short-term harm
Interpret the Evidence

• Assess applicability and quality
• Most trials do not include > 75 y/o or patients with multiple conditions
• Extrapolating evidence to older adults could be harmful
• Consider time horizon to benefit in NNT

Prognosis

• Consider remaining life expectancy, quality of life, and functional status
• Is patient likely to live long enough to benefit?
• Particularly important in screening decisions
• Eprognosis.org
### Remaining Life Expectancy

![Graph showing remaining life expectancy by age and gender.]

### Presentation Overview

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Low Health Literacy
Reduced Cognitive Function Interventions

• Simplify information
  – Use illustrations
  – Limit the number of messages
  – Focus on action
• Avoid jargon
• “Teach back” method
• Encourage questions
• Involve caregivers/community resources

Language Barrier

• Use a trained interpreter
  – Family members may have own agenda or may place interpreter in inappropriate position
  – Untrained staff may misinterpret medical terms
• Provide education in patient’s primary language
• Write down instructions
• Avoid metaphors, idioms, colloquialisms
Resources

• Home Healthcare referral
  – HHC nurse can set up medications, help caregiver develop system for administration and monitoring
• Telehealth or disease-state monitoring systems
• Automatic Medication dispenser
• Alarms
  – There’s an app for that- lots of them!

Practice Recommendations

• Recognize potentially inappropriate medications
• Incorporate patient priorities and prognosis in medication reviews
• Utilize tools to improve self-administration accuracy
Contacts

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Questions