When Less is More: Managing Medication for Older Adults

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Disclosures

• Dr. Linnebur has no relevant financial relationships to disclose, but is a member of the 2019 American Geriatrics Society (AGS) Updated Beers Criteria® Expert Panel

• Dr. Page has no relevant financial relationships to disclose
CPE Information

• Target Audience: Pharmacists
• ACPE#: 0202-0000-19-098-L01-P
• Activity Type: Application-based
Learning Objectives

At the completion of this application-based activity, participants will be able to:

• Develop strategies to address geriatric syndromes when evaluating medication regimens.

• Explain how to individualize a patient’s treatment goals and medication regimen to account for changes associated with aging.

• Evaluate the usefulness and limitations of Beers criteria and practice guidelines for the geriatric population.

• Evaluate the medication regimen of a senior patient to identify medication-related problems and resolve polypharmacy.

• Discuss therapeutic goals for geriatric patients using a shared decision-making approach that is based on patient-specific factors, including functional status, patient and family preference, and quality of life.
Assessment Questions

1. Which of the following is a geriatric syndrome?
   A. Stroke
   B. Depression
   C. Urinary incontinence
   D. Benign Prostatic Hypertrophy
2. According to the AGS 2019 Updated Beers Criteria®, which of the following drugs should be avoided chronically in older adults due to increased risk of *C. difficile* infection?

A. Clindamycin  
B. Megestrol  
C. Omeprazole  
D. Metoclopramide
Assessment Questions

3. Which of the following factors is the most important to consider when initiating new drug therapy in a frail older adult?
   
   A. Lag time to benefit
   B. Age of patient
   C. Guideline-directed therapy
   D. Social support for the patient
Assessment Questions

4. Which of the following tools is most helpful when assessing drugs in an older adult for potential deprescribing?
   A. Mini-cog
   B. GoodRx
   C. Medication appropriateness index
   D. Morisky medication adherence scale
Grandma 65 y/o

Medical Problems
• Hypertension
• Insomnia
• Dyslipidemia
• Osteoarthritis
• Hypothyroidism

Drugs
• Amlodipine 10 mg PO daily
• HCTZ 25 mg PO daily
• Atorvastatin 40 mg PO daily
• Levothyroxine 50 mcg PO daily
• Tramadol 50 mg PO three times daily
• Ibuprofen 400 mg PO every 4-6 hours as needed for pain
• Acetaminophen/diphenhydramine 1 tablet PO at night
• Fish oil—unknown dose
• Vitamin E 400 units PO daily
What are Geriatric Syndromes?

Typical Geriatric Syndromes

- Incontinence
- Falls
- Pressure Ulcers
- Delirium
- Cognitive Impairment
- Functional Decline

FRAILTY

- Disability-Dependence
- Nursing Home
- Death

Evaluating Drug Causes of Geriatric Syndromes: Using the Medication Appropriateness Index

- Indication
- Effectiveness
- Dosage/directions
- Drug-drug interactions
- Drug-disease interactions
- Duplications
- Duration of therapy
- Cost/adherence
- Adverse effects

Think-Pair-Share

• What drugs do you often see prescribed:
  • In duplication?
  • For longer than necessary?
  • That you suspect are causing side effects?
  • When they are not effective for the patient?
Prescribing Cascade

- Amlodipine for BP
- Vancomycin
- Furosemide
- PPI
- Potassium
1. Individually write down 3 common understandings about the American Geriatrics Society (AGS) Beers Criteria®

2. Turn to your neighbor and discuss your points
   • Which are similar?
   • Which may be misunderstandings?
Resource: The AGS Updated Beers Criteria®

• Consensus criteria for safe medication use in older adults
• Based on expert consensus developed through modified Delphi technique
• Originally published in 1991
• Updated in 1997, 2002; by AGS: 2012, 2015, 2019
• Current versions supported by AGS and include evidence rating, evidence tables, and additional resources
• Additional guidance document available + alternatives paper from 2015
• Adopted by National Committee for Quality Assurance and Centers for Medicare and Medicaid Services into quality initiatives
The AGS 2019 Updated Beers Criteria®

Usefulness
• Evidence-based
• Updated regularly
• Includes evidence rating and evidence tables
• Designed to support good clinical judgment

Limitations
• Evidence-based
  • If no evidence, not included
  • If evidence supports in patients of all ages, drug was not included
• Does not apply to all patients
• Does not replace common sense and clinical judgment
• The criteria are not equally applicable in all countries

1. Medications are potentially inappropriate (PIM), not definitely inappropriate

2. The caveats and guidance listed in the rationale and recommendation statements are important.

3. Understand why medications are included in the Criteria and adjust your approach to those medications accordingly.

4. Optimal application involves identifying PIMs, and where appropriate, offering safer non-pharmacological and pharmacological therapies

5. The Criteria should be a starting point for a comprehensive process of identifying and improving medication appropriateness

6. Access to medications included in the Criteria should not be excessively restricted by prior authorization and/or health plan coverage policies

7. The Criteria are not equally applicable to all countries.

The AGS 2019 Updated Beers Criteria®: Tables

• **Table 2**: PIMs that should be avoided, if possible, in all older adults

• **Table 3**: PIMs that should be avoided, if possible, in certain older adults (those with a drug-disease/syndrome interaction)

• **Table 4**: PIMs to be used with caution in older adults

• **Table 5**: Potentially clinically important drug-drug interactions (DDIs) that should be avoided in older adults

• **Table 6**: Medications that should be avoided or have dose reductions in patients with varying degrees of kidney function
The AGS 2019 Updated Beers Criteria® Format

<table>
<thead>
<tr>
<th>Therapeutic Category</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPIs</td>
<td>Risk of Clostridium difficile infection and bone loss and fractures</td>
<td>Avoid scheduled use for &gt;8 weeks unless for high-risk patients (e.g. oral corticosteroids or chronic NSAID use), erosive esophagitis, Barrett’s esophagitis, pathological hypersecretory condition, or demonstrated need for maintenance treatment (e.g. due to failure of drug discontinuation trial or H2RAs)</td>
<td>High</td>
<td>Strong</td>
</tr>
</tbody>
</table>

J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
Table 2  |  AVOID--Updated
--- | ---
**Digoxin**  |  • Avoid this rate control agent as first-line therapy for AFib  
• Avoid as first-line therapy for heart failure  
• If used for Afib or HF: avoid dosages >0.125 mg/day

**Estrogens with or without progestins**  |  Avoid systemic estrogen (oral and topical patch)  
Vaginal cream or tablets: acceptable to use low-dose intravaginal estrogen for management of dyspareunia, *recurrent* lower UTIs, and other vaginal symptoms

**Insulin, sliding scale***  |  Avoid due to higher risk of hypoglycemia without improvement in hyperglycemia management, regardless of care setting  
*SSI = insulin regimens containing only short- or rapid-acting insulin dosed according to current blood glucose levels without concurrent use of basal or long-acting insulin

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J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
Excerpts from The AGS 2019 Updated Beers Criteria®

<table>
<thead>
<tr>
<th>Table 2</th>
<th>AVOID--Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyburide, glimepiride, chlorpropamide</td>
<td>Avoid due to higher risk of severe prolonged hypoglycemia in older adults</td>
</tr>
<tr>
<td>Metoclopramide</td>
<td>Avoid, unless for gastroparesis with duration of use <em>not to exceed 12 weeks</em> except in rare cases; can cause EPS, including tardive dyskinesia; risk may be greater in frail older adults with prolonged exposure</td>
</tr>
<tr>
<td>Meperidine</td>
<td>Avoid, as not effective in oral dosages commonly used; may have higher risk of neurotoxicity, including delirium, than other opioids</td>
</tr>
</tbody>
</table>

J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
Table 2 | AVOID
--- | ---
Antipsychotics (all) | Avoid, except for schizophrenia, bipolar disorder, or short-term use as an antiemetic during chemotherapy
Benzodiazepines (all) | Avoid
Skeletal muscle relaxants (carisoprodol, chlorzoxazone, cyclobenzaprine, metaxalone, methocarbamol, orphenadrine) | Avoid
Nonbenzodiazepine hypnotics (Z-drugs) | Avoid use due to adverse effects similar to benzodiazepines

Excerpts from The AGS 2019 Updated Beers Criteria®

**Table 2**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Avoidance Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desmopressin</td>
<td>Avoid for treatment of nocturia or nocturnal polyuria due to high risk of hypontremia</td>
</tr>
<tr>
<td>Nitrofurantoin</td>
<td>Avoid in individuals with CrCl &lt; 30 mL/min or for long-term suppression due to potential pulmonary toxicity, hepatotoxicity, and peripheral neuropathy</td>
</tr>
<tr>
<td>Megestrol</td>
<td>Avoid due to minimal effect on weight and increased risk of thrombosis and possibly death</td>
</tr>
</tbody>
</table>

J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
Table 3: AVOID/Use with Caution in certain patients (Drug-Disease/Syndrome Interaction)--UPDATED

<table>
<thead>
<tr>
<th>Condition</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Failure</td>
<td>Cilostazol, Non-DHP CCBs (HFrEF), NSAIDs, COX-2 inhibitors, TZDs, dronedarone</td>
</tr>
<tr>
<td>Dementia or cognitive impairment</td>
<td>Anticholinergics, benzodiazepines, Z-drug hypnotics, antipsychotics</td>
</tr>
<tr>
<td>Falls</td>
<td>Antiepileptics, antipsychotics, benzodiazepines, Z-drug hypnotics, TCAs, SSRIs, SNRIs, opioids</td>
</tr>
<tr>
<td>Women with urinary incontinence</td>
<td>Oral and transdermal estrogen, peripheral alpha-1 blockers</td>
</tr>
<tr>
<td>Parkinson Disease</td>
<td>Metoclopramide, prochlorperazine, promethazine, all antipsychotics (except quetiapine, clozapine, and <em>pimavanserin</em>)</td>
</tr>
</tbody>
</table>

J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
<table>
<thead>
<tr>
<th>Updated Table 4</th>
<th>CAUTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA for 1° prevention of CV disease &amp; colorectal cancer</td>
<td>Use caution in adults ≥70 yrs</td>
<td>Risk of major bleeding from ASA increases in older age. Data suggest lack of net benefit when used for 1° prevention in older adults with CV RF but evidence is not conclusive.</td>
</tr>
<tr>
<td>Dabigatran</td>
<td>Use caution for treatment of VTE or AFib in adults ≥75 yrs</td>
<td>Increased risk of GI bleeding compared to warfarin and reported rates with other DOACs when used for long term treatment of VTE or Afib in adults ≥75 yrs</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prasugrel</td>
<td>Use with caution in adults ≥75 yrs</td>
<td>Increased risk of bleeding in older adults; benefit in highest-risk older adults may offset risk when used for ACS+PCI</td>
</tr>
</tbody>
</table>

Excerpts from The AGS 2019 Updated Beers Criteria®

J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
### Updated Table 4

<table>
<thead>
<tr>
<th>CAUTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antipsychotics, carbamazepine, diuretics, mirtazapine, oxcarbazepine, SNRIs, SSRIs, TCAs, tramadol</strong></td>
<td>Use with caution</td>
</tr>
<tr>
<td><strong>Dextromethorphan + quinidine</strong></td>
<td>Use with caution</td>
</tr>
<tr>
<td><strong>Trimethoprim-sulfamethoxazole</strong></td>
<td>Use with caution in patients on ACEI or ARB &amp; decreased CrCl</td>
</tr>
</tbody>
</table>

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J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
### Table 5: DDIs to Avoid, Added Anti-infective Agents

<table>
<thead>
<tr>
<th>Object Drug</th>
<th>Interacting Drug</th>
<th>Rationale</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEI, ARB, aliskiren or K-sparing diuretics</td>
<td>ACEI, ARB, aliskiren</td>
<td>Hyperkalemia</td>
<td>Avoid routine use in those with CKD Stage 3a or higher</td>
</tr>
<tr>
<td>Opioids</td>
<td>Benzodiazepines</td>
<td>Overdose</td>
<td>Avoid</td>
</tr>
<tr>
<td>Opioids</td>
<td>Gabapentin, pregabalin</td>
<td>Severe sedation-related ADEs, including respiratory depression and death</td>
<td>Avoid, except when transitioning from opioid to gabapentinoid or when using gabapentinoid to reduce opioid dose</td>
</tr>
</tbody>
</table>

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### Table 5: DDIs to Avoid, Added Anti-infective Agents

<table>
<thead>
<tr>
<th>Object Drug</th>
<th>Interacting Drug</th>
<th>Rationale</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenytoin</td>
<td>TMP-SMX</td>
<td>Increased risk of phenytoin toxicity</td>
<td>Avoid</td>
</tr>
<tr>
<td>Theophylline</td>
<td>Ciprofloxacin</td>
<td>Increased risk of theophylline toxicity</td>
<td>Avoid</td>
</tr>
<tr>
<td>Warfarin</td>
<td>Ciprofloxacin, Macrolides (excluding azithromycin), TMP-SMX</td>
<td>Increased risk of bleeding</td>
<td>Avoid when possible; if used together, monitor INR closely</td>
</tr>
</tbody>
</table>

J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
<table>
<thead>
<tr>
<th>Med or Med Class</th>
<th>CrCl where Action Required</th>
<th>Rationale</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciprofloxacin</td>
<td>&lt; 30 mL/min</td>
<td>CNS effects and tendon rupture</td>
<td>Reduce dose</td>
</tr>
<tr>
<td>Trimethoprim-sulfamethoxazole</td>
<td>&lt; 30 mL/min</td>
<td>Worsening renal function and hyperkalemia</td>
<td>Reduce dose if CrCl 15-29 mL/min; Avoid if CrCl &lt;15 mL/min</td>
</tr>
<tr>
<td>Dofetilide</td>
<td>&lt; 60 mL/min</td>
<td>QTc prolongation and torsades de pointes</td>
<td>Reduce dose if CrCl 20-59 mL/min; Avoid if CrCl &lt; 20 mL/min</td>
</tr>
</tbody>
</table>
| Rivaroxaban                  | < 50 mL/min                 | Lack of efficacy or safety evidence in patients with a CrCl < 30 mL/min | Afib: reduce dose if CrCl 15-50 mL/min; avoid if CrCl < 15 mL/min  
                                                   |                                         | VTE tx and ppx: avoid if CrCl < 30 mL/min          |

Excerpts from The AGS 2019 Updated Beers Criteria®

J Am Geriatr Soc 2019: [https://doi.org/10.1111/jgs.15767](https://doi.org/10.1111/jgs.15767)
What is Deprescribing?

• Systematic process of identifying and discontinuing drugs in instances in which existing or potential harms outweigh existing or potential benefits within the context of an individual patient’s care goals, current level of functioning, life expectancy, values, and preferences
  
  • Part of the good prescribing continuum
  
  • Not about denying effective treatment to eligible patients
  
  • Should be a positive, patient-centered intervention with shared decision making and close monitoring

JAMA Intern Med. 2015 May;175(5):827-34
Deprescribing Algorithm

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

1. No benefit
   Significant toxicity OR no indication OR obvious contraindication OR cascade prescribing?
   Yes
   No

2. Harm outweighs benefit
   Adverse effects outweigh symptomatic effect or potential future benefits?
   Yes
   Withdrawal symptoms or disease recurrence likely if drug therapy discontinued?
   Yes
   Taper dose and monitor for adverse drug withdrawal effects
   No
   No
   No

3. Symptom or disease drugs
   Symptoms stable or nonexistent?
   Yes
   Discontinue drug therapy
   No
   No

4. Preventive drugs
   Potential benefit unlikely to be realized because of limited life expectancy?
   Yes
   Continue drug therapy
   No

Symptoms stable or nonexistent?
Yes
No

JAMA Intern Med. 2015 May;175(5):827-34
DOs and Don’ts of Tapering Drugs

1. Think about and write down 3 drug classes that should be tapered to prevent adverse drug events during discontinuation

2. Think about and write down 3 drug classes that do NOT need to be tapered during discontinuation

3. Turn to your neighbor and discuss your lists
## To Taper or Not to Taper?

<table>
<thead>
<tr>
<th>Taper Needed</th>
<th>Generally No Taper Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Beta-blockers</td>
<td>• ACE-Is, ARBs</td>
</tr>
<tr>
<td>• Clonidine</td>
<td>• Spironolactone</td>
</tr>
<tr>
<td>• Benzodiazepines</td>
<td>• Anticholinergics</td>
</tr>
<tr>
<td>• Antidepressants</td>
<td>• NSAIDs</td>
</tr>
<tr>
<td>• Opioids</td>
<td>• Insulin, sulfonylureas, metformin</td>
</tr>
<tr>
<td>• Pregabalin/gabapentin</td>
<td>• Cholinesterase inhibitors</td>
</tr>
<tr>
<td>• PPIs</td>
<td>• OTCs and supplements</td>
</tr>
</tbody>
</table>
Deprescribing Tools: MedStopper.Com

• Provides guidance for deprescribing with risk/benefit for each drug
• Medications can be arranged by either stopping priority or by condition
• For some medications/indications, just below the faces, there are CALC and NNT links for more information.
  • CALC links to on-line calculators that help you make individual assessments of risks and benefits
  • NNT takes you to the relevant number needed to treat information provided by thennt.com
• Includes suggested tapering approach if applicable
  • Includes possible symptoms to assess during the tapering process
• If the medication is listed in either the Beers or STOPP criteria, click the details button and the specific criteria form these tools will be provided in a popup
## MedStopper Plan

**Arrange medications by:** Stopping Priority

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RED=Highest</td>
<td>pregabalin (Lyrica) / Antiepileptic / pain</td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
<td><img src="https://via.placeholder.com/15" alt="" /></td>
<td>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.</td>
<td>return of symptoms, pain</td>
<td>None</td>
</tr>
<tr>
<td>GREEN=Lowest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table Notes:
- **RED** = Highest, **GREEN** = Lowest
- **Lyrica**: Antidepressant, pain
- **Antiepileptic**: Anticonvulsants
- **Beers/STOPP**: Criteria for medication review and discontinuation.
Deprescribing Tools: Deprescribing.org

- Deprescribing algorithms for clinicians
- Deprescribing educational tools for patients and caregivers
- Deprescribing patient decision aids

- PPIs, benzodiazepines, Z-drugs, antihyperglycemic agents, antipsychotics, antihistamines, NSAIDs, cholinesterase inhibitors/memantine
Deprescribing PPIs

Deprescribing.org | Proton Pump Inhibitor (PPI) Deprescribing Algorithm

August 2018

Why is patient taking a PPI?
If unsure, find out if history of endoscopy, if ever hospitalized for bleeding ulcer or if taking because of chronic NSAID use in past, if ever had heartburn or dyspepsia

Indication still unknown?
- Mild to moderate esophagitis or GERD treated x 4-8 weeks (esophagitis healed, symptoms controlled)
- Peptic Ulcer Disease treated x 2-12 weeks (from NSAID: H. pylori)
- Upper GI symptoms without endoscopy; asymptomatic for 3 consecutive days
- ICU stress ulcer prophylaxis treated beyond ICU admission
- Uncomplicated H. pylori treated x 2 weeks and asymptomatic
- Barrett’s esophagus
- Chronic NSAID users with bleeding risk
- Severe esophagitis
- Documented history of bleeding GI ulcer

Recommend Deprescribing

Strong Recommendation (from Systematic Review and GRADE approach)
(evidence suggests no increased risk in return of symptoms compared to continuing higher dose, or...)
(daily until symptoms stop) 1/10 patients may have return of symptoms

Decrease to lower dose
Stop and use on-demand

Stop PPI

Continue PPI or consult gastroenterologist if considering deprescribing

Monitor at 4 and 12 weeks

If verbal:
- Heartburn
- Dyspepsia
- Regurgitation
- Epigastric pain

If non-verbal:
- Loss of appetite
- Weight loss
- Agitation

Use non-drug approaches
- Avoid meals 2-3 hours before bedtime; elevate head of bed; address need for weight loss and avoid dietary triggers

Manage occasional symptoms
- Over-the-counter antacid, H2RA, PPI, alginate pm (i.e. Tums*, Rolaid*, Zantac*, Ome*, Gaviscon*)
- H2RA daily (weak recommendation – GRADE: 1B)
- Patients may have symptoms return

If symptoms resolve:
- If symptoms persist x 3 – 7 days and interfere with normal activity: 1) Test and treat for H. pylori 2) Consider return to previous dose
**PPI Patient Decision Aid**

**SHOULD I KEEP TAKING MY ACID REFLUX MEDICATION?**

A consult decision aid for you to discuss whether to continue your proton pump inhibitor (PPI).

1. **Why am I being offered this choice?**

**YOU HAVE TAKEN A PPI FOR AT LEAST 4 WEEKS** or recently manifested heartburn or acid reflux

**YOU HAVE NO SYMPTOMS**

**YOU DO NOT HAVE A REASON TO STAY ON A PPI LONG-TERM**

2. **What are your options?**

- **Continue taking your PPI as you are now**
- **Use a lower dose of PPI**
- **Stop and use PPI “on-demand” (only when you have symptoms, for as long as it takes for symptoms to go away, then stop)**

3. **Rate the importance of benefits and harms of each option**

**CONTINUE VS. LOWER DOSE**

This is the best estimate of what happens to 100 people with mild/moderate acid reflux who use a lower dose of PPI versus those who continue the same dose for 12 months.

**SYMPTOMS COME BACK**

- 42 out of 100 continue PPI
- 49 out of 100 stop PPI

**Continue PPI*** **Stop PPI*** **How much does this matter?***

**Continue PPI**

- 9 out of 100 experience this

**Stop PPI**

- 16 out of 100 experience this

**RARE ADVERSE EFFECTS**

It is uncertain whether the following adverse effects are associated with PPI use (versus those not taking PPI) because the certainty of evidence is very low:

**Community-acquired pneumonia**

- 60 out of 100 experience this

**C. difficile infection**

- 50 out of 100 experience this

**Hip fractures**

- 10,000 women experience this

---

4. What you can do if symptoms come back

If your symptoms come back for more than 3 days and bother you, please contact your doctor or pharmacist. You may have to return to your previous dose.

If symptoms come back but are occasional or mild: consider using an over-the-counter product such as TUMS® or Gaviscon®. Check with your doctor or pharmacist first.

Avoiding meals within 2-3 hours of bedtime; raising the head of your bed or weight loss may help control symptoms.

5. What are your decision-making needs?

- Sure of myself
- Do you feel sure about the best choice for you?
- Yes
- No

- Understand information
- Do you know the benefits and risks of each option?
- Yes
- No

- Risk benefit ratio
- Are you clear about which benefits and risks matter most to you?
- Yes
- No

- Encouragement
- Do you have enough support and advice to make a choice?
- Yes
- No

6. Which option do you prefer?

- Continue taking my PPI at the current dose
- Try to use a lower dose of PPI
- Try to stop PPI and use “on-demand”
- Unsure

Do not change how you are taking your acid reflux medication without consulting your doctor, nurse practitioner or pharmacist.

7. My plan:

1.

2.

3.

If your symptoms come back for more than 3 days and are interfering with your sleep and/or normal activity, please contact your doctor or pharmacist.
You May Be at Risk
You are currently taking a proton pump inhibitor (PPI):

- Dexlansoprazole (Dexilant®)
- Esomeprazole (Nexium®)
- Omeprazole (Losec®, Olex®)
- Lansoprazole (Prevacid®, Prevacid Fast Tab®)

* Generic brands often start with the words: APO, Nuro, Pink, Rato, Sanka, Teva

TEST YOUR KNOWLEDGE ABOUT THIS MEDICATION

QUIZ
Proton pump inhibitors (PPI)

1. PPIs are sometimes prescribed for heartburn and acid reflux.
   - [ ] TRUE  [ ] FALSE

2. More than half of all people taking PPIs probably do not need them.
   - [ ] TRUE  [ ] FALSE

3. There are no risks involved in taking PPIs.
   - [ ] TRUE  [ ] FALSE

4. PPIs are the best option to treat occasional heartburn.
   - [ ] TRUE  [ ] FALSE
1. TRUE
Proton pump inhibitors (PPIs) are sometimes prescribed to treat heartburn and acid reflux. PPIs reduce the production of acid in the stomach. The stomach produces acid to help break down food, but sometimes the acid can reflux back up the throat and cause discomfort, pain or burning.

2. TRUE
To treat occasional heartburn, it is recommended to take Tums® or Rolaid® as needed. Should your condition require you to take a PPI, your physician should prescribe the lowest dose for the shortest amount of time possible. The next page lists reasons why PPIs should be continued or stopped.

3. FALSE
Taking a PPI for longer than 8 to 12 weeks has been linked to:
- A higher risk of hip fractures
- Pneumonia
- An infection with the bacteria Clostridium difficile, which can lead to severe diarrhea, fever, and in rare cases, death
- A higher risk of kidney problems
- Rare instances of vitamin B12 or magnesium deficiency

4. FALSE
PPIs are powerful drugs. If you have heartburn every now and then, you probably do not need a PPI. Over-the-counter antacids should be sufficient. You can ease heartburn without drugs. This brochure explains how.

Do I need to **continue** taking my PPI?

Check all that apply:

- Barrett’s esophagitis, or
- Severe erosive esophagitis.
- Every day, I take medication that can irritate the stomach, such as anti-inflammatory medication (e.g. ibuprofen or corticosteroids).

If you checked any of these statements, then long-term use of PPIs is usually recommended. If you don’t know the answers, you should talk to your doctor before stopping your PPI.

Do I need to **stop** taking my PPI?

Check all that apply:

- I no longer have heartburn.
- My symptoms are infrequent.
- I had a major stomach bleed a few years ago but was treated.
- I have been taking my PPI for longer than 12 weeks and I did not check any of the statements on the previous page (page 6).

If you checked any of these statements, continue reading about how to stop your PPI.

When you need a PPI, you should take the lowest dose for the shortest amount of time possible.
**ALTERNATIVES**

If you do not need to continue taking PPIs, speak to your doctor, nurse, or pharmacist. You can make simple changes in your diet and lifestyle. To prevent heartburn, try these alternatives instead of taking a PPI:

- **Watch what you eat.** Try to figure out which food or beverage triggers your heartburn. You might want to avoid:
  - Alcohol
  - Fried food or junk food
  - Spicy food
  - Garlic and onions
  - Citrus fruits
  - Chocolate and peppermint
  - Food with lots of tomatoes
- **Eat smaller meals.**
- **Do not eat before going to bed.** You could also lie with your head raised up by using extra pillows.
- **Stop smoking.** Studies show that smoking increases your risk of heartburn and acid reflux.
- **Lose weight.** Studies show that just by dropping a few pounds, you could reduce heartburn and acid reflux.
- **Do not wear tight clothes.** The added pressure from tight-fitting clothes that constrict your abdomen can make heartburn worse.

**TAPERING-OFF PROGRAM**

**IF YOUR OPTION IS TO SKIP A CAPSULE EVERY SECOND DAY:**

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**IF YOUR OPTION IS TO REDUCE THE DOSE:** Not all PPI tablets or capsules can be cut. Ask your pharmacist.

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**Legend**
- **Full dose**
- **Half dose**
- **Quarter dose**
- **No dose**

5 QUESTIONS TO ASK YOUR HEALTH CARE PROVIDER

1. Do I need to continue my medication?
2. How do I reduce my dose?
3. Is there an alternative treatment?
4. What symptoms should I look for when I stop my medication?
5. With whom do I follow up and when?

Questions I want to ask my health care provider about my medication

Use this space to write down questions you may want to ask:

This brochure can be found online at:

www.dispensingnetwork.ca/useful-resources
Deprescribing Evidence: EMPOWER and D-PRESCRIBE

• EMPOWER
  • Cluster randomized, controlled trial of 261 older adults for 6mo with intervention (education about benzodiazepine cessation) vs usual care
  • At 6 months, 27% in the intervention group = discontinued benzo; 5% in control group

• D-PRESCRIBE
  • Pragmatic, cluster, RCT of 489 older adults taking sedative-hypnotics, first-generation antihistamines, glyburide, or NSAIDs
  • Intervention: EMPOWER brochure provided by the pharmacist to the patient + accompanying pharmaceutical opinion sent by the pharmacist to the physician
  • Control group: usual care
  • At 6 months, 43% discontinued in the intervention group vs 12% in control

Grandma 65 y/o

Medical Problems
• Hypertension
• Insomnia
• Dyslipidemia
• Osteoarthritis
• Hypothyroidism

Drugs
• Amlodipine 10 mg PO daily
• HCTZ 25 mg PO daily
• Atorvastatin 40 mg PO daily
• Levothyroxine 50 mcg PO daily
• Tramadol 50 mg PO three times daily
• Ibuprofen 400 mg PO every 4-6 hours as needed for pain
• Acetaminophen/diphenhydramine 1 tablet PO at night
• Fish oil—unknown dose
• Vitamin E 400 units daily
 Think-Pair-Share

1. What geriatric syndromes does the patient have?

2. If you could, what objective findings (e.g. vital signs, laboratory values) would you like to see?

3. What drugs would you like to see deprescribed, why, and how you would you accomplish this?
Taking Care of Patients #20YearChallenge
Grandma 85 y/o

**Medical Problems**

- Hypertension
- Dyslipidemia
- Depression
- Myocardial Infarction—2017
- Osteoarthritis (hips, back)
- Urinary incontinence
- Constipation
- Mild cognitive impairment
- **NEW Diagnosis:** HFrEF NYHA Class II, Stage C
Medications

- Amlodipine 10 mg PO daily
- HCTZ 12.5 mg PO daily
- Atorvastatin 40 mg PO daily
- Celecoxib 100 mg PO twice daily
- APAP 500 mg PO 1-2x/wk
- Pregabalin 150 mg PO daily
- Docusate 100 mg PO twice daily
- Citalopram 40 mg PO daily

- Clopidogrel 75 mg PO daily
- Aspirin 325 mg PO daily
- Omeprazole 20 mg PO daily
- Atenolol 25 mg PO daily
- Furosemide 20 mg, ½ tab PO daily
- Digoxin 0.25 mg PO daily
- Oxybutynin 5 mg PO three times daily
- Ferrous sulfate 325 mg PO daily
Expired in 1967
Shared-Decision Making

**STEP 1**
SEEK YOUR PATIENT’S PARTICIPATION
Communicate that a choice exists and encourage your patient to become involved in the conversation

**STEP 2**
HELP YOUR PATIENT EXPLORE & COMPARE TREATMENT OPTIONS
Discuss the benefits and risks of each option

**STEP 3**
ASSESS YOUR PATIENT’S VALUES & PREFERENCES
Take into account what matters most to your patient

**STEP 4**
REACH A DECISION WITH YOUR PATIENT
Decide together on the best option

**STEP 5**
EVALUATE YOUR PATIENT’S DECISION
Is the decision reasonable? Any concerns?

Shared-Decision Making

Prognosis is not only about expectations for survival.

Treatment Decisions in Older Adults

• Despite improvements in mortality, approximately 50% of those diagnosed with HF die within 5 years

• Consider “Lag time to benefit”
  • The time between an intervention is initiated and when improved health outcomes occur

• To identify which patients are more likely to be helped vs harmed
  • Focusing on age does not account for comorbidities and baseline health
  • Compare lag time vs life expectancy
  • [http://eprognosis.ucsf.edu](http://eprognosis.ucsf.edu)

Prevention and Treatment Decisions in Older Adults

• Lag time > life expectancy: don’t recommend
• Lag time < life expectancy: recommend
• Lag time = life expectancy: pt preference

• Lag time and harms vary
  • Statins vs prostate cancer screening
  • HTN treatment: hypotension immediate, benefit 6-12 months
  • Glycemic treatment: hypoglycemia immediate, benefit years
  • Pain treatment: side effects immediately, benefit immediately

ePrognosis Calculator

http://eprognosis.ucsf.edu/calculators/index.php#
ePrognosis Cancer Screening

WHAT WOULD YOU LIKE TO SCREEN FOR?

- Colorectal Cancer
- Breast Cancer
- Both Cancers

http://cancerscreening.eprognosis.org/
ePrognosis Cancer Screening

http://cancerscreening.eprognosis.org/
Lag Times to Morbidity and Mortality Benefit: HF Meds

- ACEI/ARBs: 3-6 months
- Beta-Blockers: 3-6 months
- Spironolactone: 6 months
- Digoxin: 2-3 months
- Isosorbide dinitrate + hydralazine: 12 months
- Ivabradine: 6 months
- Sacubitril/valsartan: 12-18 months
Routine evaluation of HF patients should include evaluation for anemia.

In patients with HF and anemia, erythropoietin-stimulating agents should not be used to improve morbidity/mortality.

Recommendations Impacting QOL
Example: 2017 AHA/ACC Guideline

<table>
<thead>
<tr>
<th>Recommendations for Anemia</th>
<th>Recommendations</th>
<th>Comment/Rationale</th>
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<td>In patients with NYHA class II and III HF and iron deficiency (ferritin &lt;100 ng/mL or 100 to 300 ng/mL if transferrin saturation is &lt;20%), intravenous iron replacement might be reasonable to improve functional status and QoL(173, 174).</td>
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See Online Data Supplement D.

Circulation 2017;136(6):e137-e161
Deprescribing: Statins At the End of Life

• RCT with 381 patients: 189 randomized to d/c statins; 192 randomized to continue
  • Mean age 74.1 years
  • 22.0% cognitively impaired
  • 48.8% had cancer
• No difference in the proportion in the discontinuation vs continuation groups who died w/in 60 days (23.8% vs 20.3%)
• Total QOL was better for the group discontinuing statin therapy (mean McGill QOL score, 7.11 vs 6.85; \(P = .04\)).
• Few participants experienced CV events
  • 13 in the discontinuation group vs 11 in the continuation group
• Mean cost savings were $3.37 per day and $716 per patient

Grandma 85 y/o

**Medical Problems**

- Hypertension
- Dyslipidemia
- Depression
- Myocardial Infarction—2017
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Grandma 85 y/o
Think-Pair-Share

1. What geriatric syndromes does the patient have now?

2. If you could, what objective findings (e.g. vital signs, laboratory values) would you like to see?

3. What drugs would you like to initiate and why?

4. What drugs would you like to see deprescribed (or adjusted), why, and how would you accomplish this?
1. What geriatric syndromes does the patient have now?
   • Cognitive impairment, urinary incontinence
2. If you could, what objective findings (e.g. vital signs, laboratory values) would you like to see?
   • BP, HR, CrCl, K, QTc, ferritin/iron binding panel
3. What drugs would you like to initiate and why?
   • ACEI/ARB, vaccines
4. What drugs would you like to see deprescribed (or adjusted), why, and how you would you accomplish this?
   • Amlodipine, HCTZ, celecoxib, pregabalin, citalopram, aspirin, omeprazole, atenolol, digoxin, oxybutynin, ferrous sulfate
• Pharmacists need to have an understanding of geriatric syndromes and incorporate them into drug evaluations

• Pharmacists should utilize principles of shared decision making in order to individualize recommendations for older adults

• The AGS 2019 Updated Beers Criteria® provide evidence-based guidance for pharmacists; however consideration must be given to patient specific factors such as functional status, patient and family preference and impact on quality of life

• Helpful tools for deprescribing in order to resolve polypharmacy can be found at: www.deprescribing.org and www.medstopper.com
Muddiest Point

• Based on today’s discussion, write down one of your “muddiest points.”

• We would like to pick one or two from the audience for discussion in the Q&A portion of this presentation.
When Less is More: Managing Medication for Older Adults

Sunny Linnebur, PharmD, BCGP, BCPS
Robert Page, PharmD, MSPH, BCGP, BCPS-AQ Cardiology

Professors, University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences
1. Which of the following is a geriatric syndrome?
   A. Stroke
   B. Depression
   C. Urinary incontinence
   D. Benign Prostatic Hypertrophy
2. According to the AGS 2019 Updated Beers Criteria®, which of the following drugs should be avoided chronically in older adults due to increased risk of *C. difficile* infection?

A. Clindamycin  
B. Megestrol  
C. Omeprazole  
D. Metoclopramide
3. Which of the following factors is the most important to consider when initiating new drug therapy in a frail older adult?

A. Lag time to benefit
B. Age of patient
C. Guideline-directed therapy
D. Social support for the patient
4. Which of the following tools is most helpful when assessing drugs in an older adult for potential deprescribing?

A. Mini-cog
B. GoodRx
C. Medication appropriateness index
D. Morisky medication adherence scale