What is the Beers Criteria (aka the Beers List)???

- List of **POTENTIALLY** inappropriate medications for use in older adults
- Published by the American Geriatrics Society
- Originally created in 1991 by the late geriatrician, Mark Beers, MD
- Last updated in 2012

2012 Beers Criteria
...and that’s just the pocket guide.
(Printable PDF of 2012 Criteria included with the handouts)

So, what changed in the 2015 update?

- **New Tables!**
  - Table 5: Drug-Drug Interactions
    - Emphasizes additive effects of medications
  - Table 6: Renal Dosing
    - Some are medications previously marked as “AVOID”
  - Clarifications on drugs from 2012 List

So, what changed in the 2015 update?

- **Additions to Table 2** (Potentially inappropriate due to drug-disease effects)
  - Desmopressin
  - PPI’s for duration > 8 weeks

- **Removed from Table 2**
  - Antiarrhythmics in Atrial Fibrillation
  - Trimethobenzamide
  - Spironolactone
So, what changed in the 2015 update?

- Additions to Table 3 (Potentially inappropriate - use with caution)
  - Dementia or Cognitive Impairment
  - Eszopiclone, Zaleplon, Zolpidem
  - Anti-psychotics
  - History of Fall or Fracture
  - Opioids
- Removal of “Chronic Constipation” from Table 3

### Table 5 - Drug-Drug Interactions

<table>
<thead>
<tr>
<th>Object Drug/Class</th>
<th>Interacting Drug/Class</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipeptidyl peptidase-4 inhibitors</td>
<td>Alpha-1 blockers; peripheral</td>
<td>Risk of urinary incontinence in women</td>
<td>Avoid in older women unless conditions warrant both drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>ACE-I’s</td>
<td>Angiotensin receptor blockers</td>
<td>Risk of hyperkalemia</td>
<td>Avoid routine use – may consider in patients with history of hyperkalemia</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Anticholinergic</td>
<td>Anticholinergic</td>
<td>Risk of cognitive decline</td>
<td>Avoid / Minimize # of anticholinergic drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Antidepressant</td>
<td>&gt; 2 additional CNS drugs</td>
<td>Risk of falls</td>
<td>Avoid &gt; 3 CNS drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Antipsychotic</td>
<td>&gt; 2 additional CNS drugs</td>
<td>Risk of fall</td>
<td>Avoid &gt; 3 CNS drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Benzodiazepines and benzodiazepine-receptor agonists</td>
<td>&gt; 2 additional CNS drugs</td>
<td>Risk of fall and/or fracture</td>
<td>Avoid &gt; 3 CNS drugs</td>
<td>High</td>
<td>Strong</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>NSAIDs</td>
<td>Risk of gastric ulcer disease / GI bleed</td>
<td>Avoid. If not possible to avoid, provide GI protection</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Lithium</td>
<td>ACE-I</td>
<td>Toxicity</td>
<td>Avoid. Monitor lithium concentrations</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Lithium</td>
<td>Loop diuretic</td>
<td>Toxicity</td>
<td>Avoid. Monitor lithium concentrations</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>
### Table 6: Renal Dosing

<table>
<thead>
<tr>
<th>Medication Class/ Medication</th>
<th>Creatinine Clearance (mL/min) Threshold</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular/Hemostasis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiloride</td>
<td>&gt; 30</td>
<td>∆ potassium, ∆ sodium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Apixiban</td>
<td>≤ 15</td>
<td>∆ bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Dabigatran</td>
<td>≤ 10</td>
<td>∆ bleeding</td>
<td>Avoid</td>
<td>High</td>
<td>Strong</td>
</tr>
<tr>
<td>Edoxaban</td>
<td>30 – 50</td>
<td>∆ bleeding</td>
<td>Reduce Dose</td>
<td>Avoid</td>
<td>Moderate</td>
</tr>
<tr>
<td>Enoxaparin</td>
<td>≤ 30</td>
<td>∆ bleeding</td>
<td>Reduce Dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Fondaparinux</td>
<td>≤ 30</td>
<td>∆ bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>30 – 50</td>
<td>∆ bleeding</td>
<td>Reduce Dose</td>
<td>Avoid</td>
<td>Moderate</td>
</tr>
<tr>
<td>Spironolactone</td>
<td>≤ 30</td>
<td>∆ potassium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Triamterene</td>
<td>≤ 30</td>
<td>∆ risk of kidney injury, ∆ potassium, ∆ sodium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Central Nervous System / Analgesics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duloxetine</td>
<td>≤ 30</td>
<td>∆ GI adverse effects</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Weak</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>≤ 60</td>
<td>∆ CNS adverse effects</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Levitiracetam</td>
<td>≤ 30</td>
<td>∆ CNS adverse effects</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Pregabalin</td>
<td>≤ 60</td>
<td>∆ CNS adverse effects</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Tramadol</td>
<td>≤ 30</td>
<td>∆ CNS adverse effects</td>
<td>Immediate release: Reduce dose Extended release:</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>


### Sliding Scale Insulin - Clarification

- “Use of short- or rapid-acting insulins to manage or avoid hyperglycemia in the absence of a basal or long-acting insulin. Does not apply to the titration of basal insulin or use of additional short- or rapid-acting insulin in conjunction with scheduled insulin (i.e. “corrective insulin”).”
Added to Table 2: Desmopressin

- Desmopressin for treatment of nocturia and/or nocturnal polyuria
- Strong recommendation to avoid
- High risk of hyponatremia

Added to Table 2: PPI's

- PPI's at durations > 8 weeks
  - Exceptions:
    - Chronic NSAID use
    - Erosive esophagitis
    - Barrett's esophagus
    - Pathologic hypersecretory condition or demonstrated need for maintenance tx.
  - Increased risk of *C. difficile* infection, bone loss, fracture

Removed from Table 2: Anti-arrhythmics in Atrial Fibrillation (Class Ia, Ic, III)

- New evidence and ACC/AHA guidelines suggest rhythm control can have equal or even better outcomes versus rate control
- **AVOID** amiodarone as 1st line unless patient has heart failure or significant LV hypertrophy
- **AVOID** dronedarone in permanent Afib or with severe/decompensated heart failure
Removed from Table 2: Trimethobenzamide

- Recommended anti-emetic for use with apo-morphine in Parkinson’s disease

Removed from Table 2: Spironolactone

- Moved to renal dosing table (Table 6)
- Concerns based on dosing and renal function only

Added to Table 3: Non-benzodiazepine hypnotics

- Zaleplon, Eszopiclone, Zolpidem
- Removed “avoid chronic use (>90 days)” from recommendation
- AVOID use regardless of duration
- Increased evidence of harm (fall, fracture)
- Minimal efficacy for insomnia in elderly patients

So, what do we do for insomnia in our older patients??

- Consider safer alternatives:
  - Sleep hygiene
  - Address possible underlying conditions
    - Pain?
    - Sleep apnea?
    - Urinary incontinence or BPH?
  - Mirtazapine 7.5mg PO HS PRN
  - Doxepin 2 - 6mg PO HS PRN
Added to Table 3: Antipsychotic medications

- Dementia or Cognitive impairment
- AVOID antipsychotics

...UNLESS...

- Non-pharmacologic options have failed or are not possible
  
  AND

- Patient is a danger to self and/or others

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Antipsychotics in Older Patients

- Keep in mind the emphasis from Table 5!

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Added to Table 3: Opioids

- AVOID in patients with history of fall or fracture

- "If agent must be used, consider reducing use of other CNS-active medications that increase risk of falls and fractures...and implement other strategies to reduce fall risk"
Digoxin

- AVOID as 1st line in atrial fibrillation
  - More effective alternatives available
  - Possible increase in mortality
- AVOID as 1st line in heart failure
  - Questionable effect on risk of hospitalization
  - Possible increase in mortality
- AVOID doses > 0.125mg daily

Nitrofurantoin

- Removed recommendation to avoid in CrCl < 60ml/min
  - New evidence of safety and efficacy in CrCl<60ml/min
- AVOID use for long-term suppression
  - Potential pulmonary toxicity

Whoa! That’s a lot of info! What am I supposed to remember out of all that???
Take home points:

- The Beers Criteria is a list of drugs with the POTENTIAL to cause harm
- The list is meant to serve as a starting point – not a definitive “DO NOT USE”
- Weigh risk vs. benefit
- What’s the REASON for the drug’s place on the list?? Does it apply to your patient??
- Consider less risky alternatives if possible

AG is a 72-year-old woman who brings a prescription to your pharmacy for Macrobid 100mg BID x 7 days then 100mg daily thereafter. She typically fills her medications through mail-order pharmacy. When asked, she provides the following list of daily medicines:

- Doxazosin 4mg qhs
- Toprol XL 50mg daily
- Metformin 500mg BID
- Lantus 32 units QHS
- "water pill" QAM
- Oxybutynin 5mg TID
- Ambien 10mg QHS

Which of the following medications is of concern based on the updated Beer’s criteria and why?

A. Macrobid; long term use potentially not appropriate
B. Ambien; not recommended in elderly patients
C. Oxybutynin; potentially not appropriate due to anticholinergic effects
D. All of the above
Upon questioning, AG responds that they are for her use and that she typically takes the Tylenol PM every night with her Ambien for aches and pains, and the Benadryl if she needs it for nasal allergies. What should you do?

a. Sell her the items - she's an adult, and can purchase whatever she likes.
b. Attempt to dissuade her from purchasing the Benadryl, and suggest a less cholinergic drug for her allergies.
c. Attempt to dissuade her from purchasing the Tylenol PM and suggest acetaminophen for her pain.
d. B and C

Post-Test Questions for Pharmacy Technicians

1. Which of the following types of medicines can possibly lead to problems in elderly patients?
   a. sleeping medicines
   b. cough and cold medicines
   c. over-the-counter pain medicine
   d. all of the above

2. Based only on the information provided, which of the following patients appears to have the highest risk of fall or fracture?
   a. 45-year-old man hospitalized for pneumonia
   b. 71-year-old woman with high blood pressure and insomnia, hospitalized following a head injury sustained in a car accident
   c. 27-year-old woman hospitalized following a caesarian birth
   d. 52-year-old man hospitalized following a heart attack
Post-Test Questions for Pharmacy Technicians

3. Which of the following most accurately describes the Beer's Criteria?
   a. A list of medicines that should never be used in elderly patients.
   b. Medicines that should require prior authorization from insurance companies.
   c. A list of medicines that should be used with caution in the elderly.
   d. The qualifications required before a person can be certified as a brewmaster.