American Geriatric Society (AGS) 2015 Beers Criteria Update: Implications for Patient Safety.

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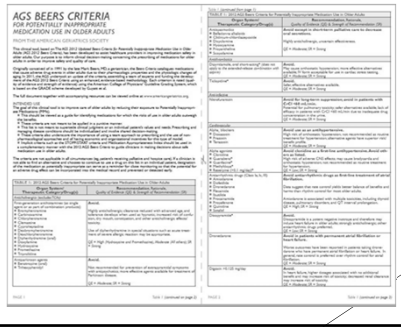
What is the Beers Criteria (aka the Beers List)???

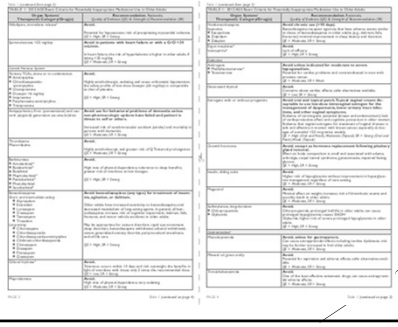
- List of *POTENTIALLY* inappropriate medications for use in older adults
- Published by the American Geriatrics Society
- Originally created in 1991 by the late geriatrician, Mark Beers, MD
- Last updated in 2012

2012 Beers Criteria



AGS BEERS CRITERIA
FOR POTENTIALLY INAPPROPRIATE MEDICATION USE IN OLDER ADULTS

2012 Beers Criteria



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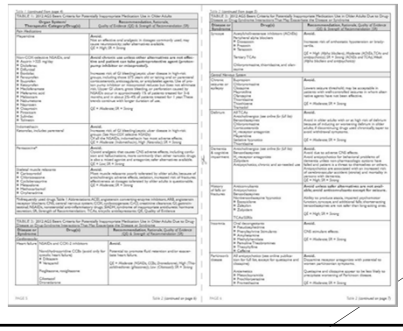

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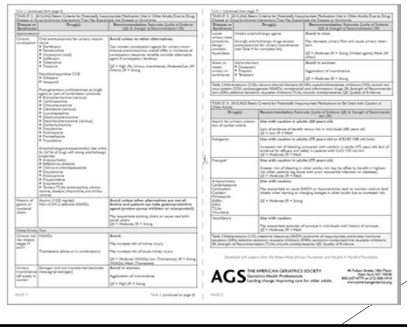

…and that's just the pocket guide.

(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 5: Potentially Clinically Important Non-infective Drug-Drug Interactions That Should Be Avoided in Older Adults.

Object Drug/Class	Interacting Drug/Class	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Alpha-1 blockers; peripheral	Loop diuretics	↑ risk of urinary incontinence in women	Avoid in older women unless conditions warrant both drugs	Moderate	Strong
ACE-I's	Amiloride or triamterene	↑ risk of hyperkalemia	Avoid routine use – may consider in patients with history of hypokalemia with ACE-I	Moderate	Strong
Anticholinergic	Anticholinergic	↑ risk of cognitive decline	Avoid / Minimize # of anticholinergic drugs	Moderate	Strong
Antidepressant	≥ 2 additional CNS drugs	↑ risk of falls	Avoid ≥ 3 CNS drugs	Moderate	Strong

Brandt, NJ. AGS Updated 2015 Criteria for Potentially Inappropriate Medication Use in Older Adults: What's New for 2015. Presented at: 2015 American Geriatrics Society Annual Scientific Meeting; 2015 May 16; Washington, DC.

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Object Drug/Class	Interacting Drug/Class	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Antipsychotic	≥ 2 additional CNS drugs	↑ risk of fall	Avoid ≥ 3 CNS drugs	Moderate	Strong
Benzodiazepines and benzodiazepine-receptor agonists	≥ 2 additional CNS drugs	↑ risk of fall and/or fracture	Avoid ≥ 3 CNS drugs	High	Strong
Corticosteroids	NSAIDs	↑ risk of peptic ulcer disease / GI bleed	Avoid. If not possible to avoid, provide GI protection	Moderate	Strong
Lithium	ACE-I	↑ toxicity	Avoid. Monitor lithium concentrations	Moderate	Strong
Lithium	Loop diuretic	↑ toxicity	Avoid. Monitor lithium concentrations	Moderate	Strong

Table 6: Renal Dosing

Table 6: Non-infective Medications That Should Be Avoided or Have Their Dosage Reduced with Varying Levels of Kidney Function in Older Adults.

Medication Class/ Medication	Creatinine Clearance (mL/min) Threshold	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Cardiovascular/Hemostasis					
Amiloride	< 30	↑ potassium ↓ sodium	Avoid	Moderate	Strong
Apixiban	< 15	↑ bleeding	Avoid	Moderate	Strong
Dabigatran	<30	↑ bleeding	Avoid	High	Strong
Edoxaban	30 – 50 <30	↑ bleeding	Reduce Dose Avoid	Moderate	Strong
Enoxaparin	<30	↑ bleeding	Reduce Dose	Moderate	Strong
Fondaparinux	<30	↑ bleeding	Avoid	Moderate	Strong
Rivaroxaban	30 – 50 <30	↑ bleeding	Reduce Dose Avoid	Moderate	Strong

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Cardiovascular/Hemostasis					
Spironolactone	< 30	↑ potassium	Avoid	Moderate	Strong
Triamterene	< 30	↑ risk of kidney injury ↑ potassium ↓ sodium	Avoid	Moderate	Strong
Central Nervous System / Analgesics					
Duloxetine	<30	↑ GI adverse effects	Avoid	Moderate	Weak
Gabapentin	< 60	CNS adverse effects	Reduce dose	Moderate	Strong
Levetiracetam	≤80	CNS adverse effects	Reduce dose	Moderate	Strong
Pregabalin	≤60	CNS adverse effects	Reduce dose	Moderate	Strong
Tramadol	<30	CNS adverse effects	Immediate release: Reduce dose Extended release:	Moderate	Strong

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 (ie "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 esophogitis
    - 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

Antipsychotics in Older Patients

- Keep in mind the emphasis from Table 5!

Object Drug/Class	Interacting Drug/Class	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Antipsychotic	≥ 2 additional CNS drugs	↑ risk of fall	Avoid ≥ 3 CNS drugs	Moderate	Strong
Benzodiazepines and benzodiazepine-receptor agonists	≥ 2 additional CNS drugs	↑ risk of fall and/or fracture	Avoid ≥ 3 CNS drugs	High	Strong
Corticosteroids	NSAIDs	↑ risk of peptic ulcer disease / GI bleed	Avoid. If not possible to avoid, provide GI protection	Moderate	Strong
Lithium	ACE-I	↑ toxicity	Avoid. Monitor lithium concentrations	Moderate	Strong
Lithium	Loop diuretic	↑ toxicity	Avoid. Monitor lithium concentrations	Moderate	Strong

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"

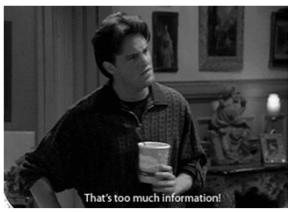
Digoxin

- 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

Beers Criteria List: Falls Risk Initiative

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MPA Fall Meeting (October 4, 2015)

ABCS Injury Risk Assessment Tool

- Frequency of assessment:
  - At the time of admission, in conjunction with initial fall risk assessment score
  - Changes in level of care
  - Post fall
  - Any other time when fall risk assessment is performed

ABCS Injury Risk Assessment Tool

- Use the ABCs to identify patients with the highest risk of injury related to a fall with Risk Categories:
  - Age – age 85 or older
  - Bones – osteoporosis, osteoporotic risk factors (post-menopausal women/men over 70 years old/smokers), previous fracture, prolonged steroid use, bone metastases
  - Coagulation abnormalities – anticoagulants, bleeding disorders, conditions causing coagulopathy
  - Surgery – recent lower limb amputation, or major abdominal or thoracic surgery

Corresponding Intervention for Triggers

A	B	C	S
AGE	**Bone**	**Coagulation**	**Surgery**
• Assist devices Lowest bed position except when exiting • Floor Mats • Safe Exit Side/Replicate home environment layout when possible • ***Medication Review / Alert*** Pharmacist • Teach Back	• Hip Protectors • Lowest bed position except when exiting • Floor Mats • Evaluate for Osteoporosis	• If Traumatic Brain Injury & anticoagulation consider helmets • Anti-tipping device on wheelchairs • Lowest bed position except when exiting • Floor mats	• Pre-op & Post-op education of fall prevention • Pain Management • Increase frequency of rounding • Lowest bed position except when exiting • Floor Mats • Toileting prior to medicating for pain

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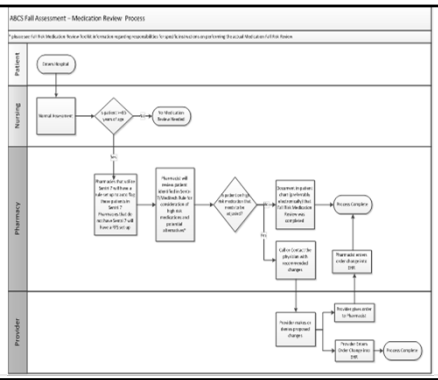

Sentri 7 Rules

- **Rule 1**
  - All patients great to or equal to 85 years of age
- **Rule 2**
  - All patients >85 years of age

AND

  - On 2 or more medications from the list of the minimum predetermined list

Medications that Contribute to Falls

Falls can be caused by almost any drug that acts on the brain or on the circulation. Usually the mechanism leading to a fall is one or more of:

- sedation, with slowing of reaction times and impaired balance
- hypotension, including the 3 syndromes of paroxysmal hypotension – orthostatic hypotension, vasovagal syndrome and vasodepressor carotid sinus hypersensitivity
- bradycardia, tachycardia or periods of asystole

Benzodiazepines	Tricyclic Antidepressants	Antipsychotics
Temazepam, Diazepam, Lorazepam, Oxazepam, Clonazepam, Flurazepam, Alprazolam, Chlordiazepoxide	Amitriptyline, Trazadone, Nortiptyline, Doxepin	Haloperidol, Risperidone Quetiapine, Olanzapine
Opiate Analgesics	**Beta Blockers**	**Centrally Acting alpha 2 Receptor Agonist**
Morphine, Codeine, Oxycodone, Tramadol	Metoprolol, Propranolol, Carvedilol, Atenolol, Sotalol, Bisoprolol	Clonidine

Recommended Fall Risk Medication Review Note Verbiage

01 **No Recommendations/ no meds within specific criteria**

Patient medications have been reviewed for potential to increase risk of falls. No recommendations at this time.

02 **Recommendation**

Patient medications have been reviewed for potential to increase risk of falls. Provider contacted with the following recommendations:

- Meds w/ concerns are: [ ], [ ], [ ]
- [enter recommendations and response]

03 **No Recommendations, yet on medications that meet criteria**

Patient medications have been reviewed for potential to increase risk of falls. One or several medications may be associated with fall risk. Review of medication history, indication, or patient status suggest minimal/low fall risk for this patient. No recommendations at this time.

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So… Back to our friend, AG
Recalling her medication list:

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

Two weeks later, AG presents to the local emergency department with symptomatic bacteriuria and is subsequently admitted to the medical floor for further evaluation and treatment. From the admission medication reconciliation, it is found that she also fills a prescription for lorazepam 0.5 mg TID PRN at another local pharmacy. What recommendation should you give the admitting provider?

A. Nothing, she's an inpatient who will be closely watched during her stay.
B. Discontinue doxazosin; recommend ACE-I for hypertension
C. Discontinue zolpidem; recommend low-dose doxepin for insomnia
D. Both B and C.

Provider ignores recommendation, patient has fall during admission with subsequent hip fracture. Following an extended stay, she is discharged to regional nursing home for long term care. Which of the following medications are of concern for her increased fall risk?

A. Benzodiazepines
B. Zolpidem
C. Tramadol
D. Warfarin
E. All of the above

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

Post-Test Questions for Pharmacy Technicians

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.

Questions?????

Thank you!! Have a great remainder of your weekend!