Beers Criteria

Dr. Mariam Akhtar

Disclosure Statement

- I have no financial or other relationships to disclose.

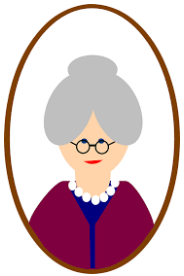
Learning Objectives

By the end of this talk you should be able to:

1. Discuss what the Beers Criteria is and why it is important.
2. Identify the updates that were made to the Beers Criteria in 2019.
3. Know how to use this criteria in clinical practice.

My typical clinic patient…

- 76 year old female presents to primary care clinic to establish care and for refill of her chronic medications.
- Patient is a very poor historian but from the history she is able to give, it is surmised patient has congestive heart failure, COPD, hypertension, hyperlipidemia, urinary incontinence and Diabetes Type 2
- She gives you a bag full of medications



Bag of medications

- Spiriva
- Metoprolol
- Ranitidine
- Oxybutynin
- Levothyroxine
- Lisinopril
- Ibuprofen
- Glipizide
- Glargine insulin
- Furosemide
- Diphenhydramine
- Atorvastatin
- Aspirin
- Alprazolam

Background

- Half of all prescription medications are dispensed to patients older than 60 years
- ~90 % of older adults in the US take at least one prescription drug
- Polypharmacy, five or more medication are common among older adults
- One in six hospitalization in older adults are due to adverse drug events

Background

- Common adverse effects in older adults
  - *Falls*
  - *Orthostatic hypotension*
  - *Heart failure*
  - *Delirium*

  - Many more including death
- Common medications involved
  - *NSAIDs*
  - *Anti-diabetic medications*
  - *Diuretics*
  - *To name just a few*

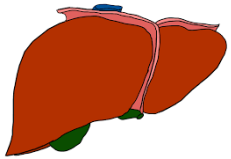
Age related Changes

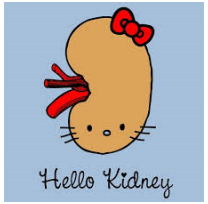
- Pharmacokinetics changes
  - *Absorption*
  - *Distribution*
  - *Metabolism*
  - *Excretion*
- Pharmacodynamics
  - *Body weight*
  - *Compliance*
  - *Disease processes i.e. chronic medical conditions*

  - *Decrease first past clearance in liver*
  - *Decreased in body fat*
  - *Serum protein levels (malnutrition or dietary issues)*
    - Consider age related changes to include dentures, poor appetite, loss of partner who prepared food, comorbid conditions, etc

Age related changes

- Due to physiologic changes in metabolism due to age, there is increase in harmful effects of certain medication
- Estimated 40% reduction in hepatic blood flow in older adults
- Decrease first past clearance in liver
- Renal blood flow can also be reduced up to half in patient up to age 80 years old
- About half of older adults have some degree of chronic kidney disease (CKD)





What is the Beers Criteria?

- This criteria is used to assess patients individually and should be used along with clinical judgement

- Beers Criteria
  - *First developed by Dr. Mark Beers for institutionalized older adults*
  - *Later incorporated by CMS in 1999*
  - *Used widely to assess safety when prescribing medications*

What is the Beers Criteria?

- The American Geriatrics Society (AGS) took over the Beers Criteria for Potentially Inappropriate Medication (PIM) Use in Older Adults in 2011
- AGS provides update every 3 years

- List of PIM that should avoided by older adult patients
- Risk outweighs benefits
- Resource to use in clinical setting to help avoid adverse effects

Why is understanding PIM important?

- To prevent adverse drug events including death
- To prevent the increase cost and utilization of healthcare due to adverse drug events
- Improve medication selection
- Educate clinicians and patients

Who do you use the Beers Criteria for?

- Older adults age ≥65 and older
- Community dwelling or institutionalized
- Excludes palliative care and hospice patients

What is included in the Beers Criteria

5 categories

1. Drugs inappropriate in most older adults
2. Drugs avoided in older adults with certain conditions
3. Drugs to use with caution
4. Drug-drug interactions
5. PIM based on kidney function, may avoid or dose differently

2019 Updates

- Still has 5 categories
- Provide new evidence on PIMs based on literature reviews from 2015 to 2017
- 13 clinician consensus to include physicians, pharmacist and nurses. Also feedback from AGS and general public (individuals, pharmaceutical companies and peer organization)
- Grade strength and quality of PIMs

How to use the Beers Criteria.

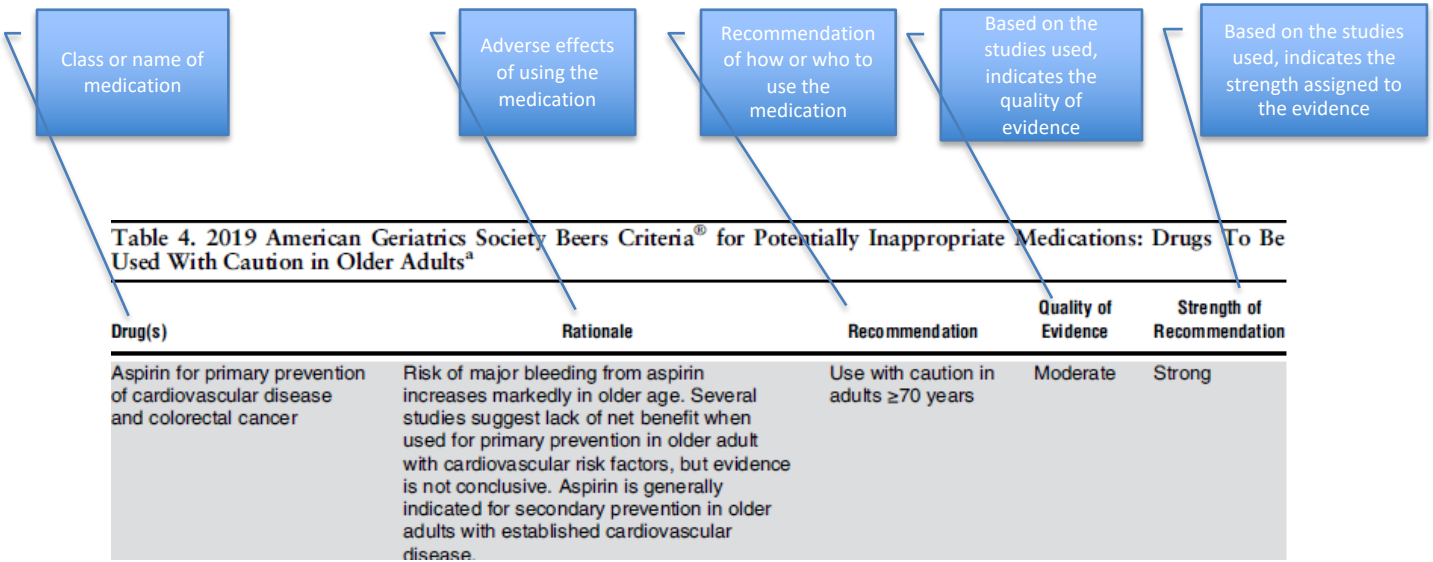


Table 4. 2019 American Geriatrics Society Beers Criteria® for Potentially Inappropriate Medications: Drugs To Be Used With Caution in Older Adults[a]

Drug(s)	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Aspirin for primary prevention of cardiovascular disease and colorectal cancer	Risk of major bleeding from aspirin increases markedly in older age. Several studies suggest lack of net benefit when used for primary prevention in older adult with cardiovascular risk factors, but evidence is not conclusive. Aspirin is generally indicated for secondary prevention in older adults with established cardiovascular disease.	Use with caution in adults ≥70 years	Moderate	Strong

Criteria 1: Drugs inappropriate in most older adults

- General drug classes including
  - *Anticholinergics*
  - *antiparkinsonian agents*
  - *antispasmodics, Antithrombotic*
  - *alpha-blockers*
  - *Digoxin*
  - *Nifedipine*
  - *amiodarone,*
  - *antidepressant (TCA, high anticholinergic effects)*
  - *Antipsychotics*
  - *benzodiazepines hormones*
  - *sulfonylureas*
  - *PPIs*
  - *NSAIDs*
  - *Muscle relaxers*

- Specific drugs including:
  - *Nitrofurantoin*
  - *Megestrol*
  - *Meperidine*
  - *Desmopressin*

Note: corresponds to Table 2 in AGS article

Criteria 2: Drugs avoided in older adults with certain conditions

- Drug disease or drug syndrome interaction
- Avoid in patient with heart failure: cilostazol, nondihydropyridine CCB, NSAID, thiazolidinediones, Dronedarone
- Avoid in patient with syncope: ACEI, TCA, antipsychotics
- Avoid in patients with delirium or dementia: anticholinergics, steroids, H2 blockers (avoid in delirium only), benzos, hypnotics
- Avoid in patients with falls or fractures: Antidepressants, antipsychotics, benzos, hypnotics, opioids and antiepileptic
- Parkinson disease: antiemetic, most antipsychotics
- Avoid in patient with ulcers: Aspirin

Note: corresponds to Table 3 in AGS article

Criteria 3: Drugs to use with Caution in Older Adults

- Aspirin for primary prevention of CVS or colorectal cancer in adults older than 70 years
- Dabigatran/ Rivaroxaban in adults older than 75 years
- Prasugrel in adults older than 75 years
- Certain Antipsychotics, diuretics, antidepressant may exacerbate or cause SIADH
- Dextromethorphan/quinidine has limited efficacy
- TMP-SMX may increase risk of hyperglycemia in combination of ACEI or ARB

Note: corresponds to Table 4 in AGS article

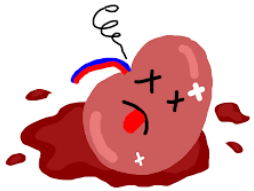
Criteria 4: Drug –Drug Interaction

- ACEI and ARB avoid with ACEI, ARB or diuretics
- Opioid avoid with Benzos, Gabapentin or pregabalin
- Anticholinergic avoid with other anticholinergic
- Any combination of three or more of antidepressant, antipsychotics, antiepileptics, benzos or hypnotics
- Corticosteroid avoid with NSAID
- Lithium avoid with ACEI, loop diuretics
- Phenytoin avoid with TMP-SMX
- Theophylline avoid with Cimetidine or Cipro
- Warfarin avoid with Amiodarone, Cipro, Macrolides or NSAIDs

Note: corresponds to Table 5 in AGS article

Criteria 5: PIM based on kidney function, may avoid or dose differently

- Antibiotics including Cipro or TMP-SMX
- Anticoagulants (Warfarin not included)
- Diuretics such as Spironolactone or Triamterene
- CNS based analgesics including Gabapentin, Pregabalin, Levetiracetam, Tramadol
- H2 blockers
- Acute gout medication including colchicine or Probenecid



Note: corresponds to Table 6 in AGS article

Limitations of Beers Criteria

- Pay for App
- Lots to familiarize yourself
  - *Including categories, class and specific medications to avoid*
- Sometimes has limited evidence based on what is available
- All patient and subpopulation cannot be accounted for
-
- Medication included were those mostly available in the US

Back to the Bag of medications

- Spiriva
- Metoprolol
- Ranitidine
- Oxybutynin
- Levothyroxine
- Lisinopril
- Ibuprofen
- Glipizide
- Glargine insulin
- Furosemide
- Diphenhydramine
- Atorvastatin
- Aspirin
- Alprazolam

What do we do now?

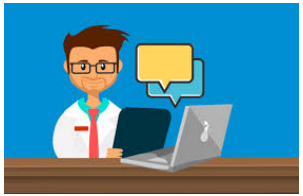
- The Beers criteria is a guide, AGS stresses it should not used punitively
- Using your clinical judgement, assess you patient
- Assess for your patient's risk for falls
- Assess for risk your patient for bleed
- Assess for benefit vs risk

What do we do now?

- Evaluate what medication can be reduced or discontinued
- Take note of medication that cannot be stopped abruptly, consider tapering dose before discontinuing
- Evaluate patient and physician goals
- De-prescribe medication through shared decision making

What Providers can do to adequately Use Beers Criteria

- Know the general categories to avoid and some specific medications
- Understand the rationale for reasons to avoid medication
- Use as a starting point when prescribing medication
- There are times when use of certain medications are appropriate even though it may be under the Beers Criteria, use clinical judgement
- Use website https://deprescribing.org to help de-prescribe medication, gives nonpharmacologic alternatives for consideration



Rules to follow when prescribing medication

- Have patient bring in all medications and supplement to doctors visit, “brown bag check”
- Perform medication reconciliation during every visit
- Take thorough medication history
  - *Ask "What prescription medications, over the counter medicines, vitamins, herbs, or supplements do you use?"*
- “Start low, go slow”
- Close follow-up after starting new medication
- Consider nonpharmacologic therapies
- Use Beers Criteria as a clinical tools to reduce or avoid prescribing medication that can lead to adverse events

Work Cited

- American Geriatrics Society 2019 Updated AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults. (2019). *Journal of the American Geriatrics Society*, 67(4), pp.674-694.
- Richard w. Pretorius, et al. Reducing the Risk of Adverse Drug Events in Older Adults. Wright State University Boonshoft School Of Medicine, Dayton, Ohio *Am Fam Physician*. 2013 Mar 1;87(5):331-336.
- Rochoon, P. Drug prescribing for older adults. Schmader, K (ed.) Aug 2019. UptoDate https://www.uptodate.com/contents/drug-prescribing-for-older-adults?search=beers%20criteria&source=search_result&selectedTitle=1~47&usage_type=default&display_rank=1
- Anne. Halli-Tierney, et al. Polypharmacy: Evaluating Risks and Deprescribing. Auburn University Harrison School of Pharmacy, Auburn, Alabama. *Am Fam Physician*. 2019 Jul 1;100(1):32-38