Patient Safety: Cheers to the Beers: Unpacking the Latest Updates for Safer Prescribing

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Learning Objectives

- **Review** the role of the Beers Criteria in reducing potentially inappropriate medication (PIM) use and enhancing patient safety in older adults
- **Identify** recent updates to the Beers Criteria and their implications for medication management in geriatric care
- **Apply** the updated Beers Criteria to real-world scenarios, optimizing medication selection and minimizing risks in older adults

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Disclosures

Dr. Giara has no relationships with ineligible companies.

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Older Adults and Medication Use

50% — More than half of prescription medications are dispensed to individuals > 60 years old

90% — More than 90% of noninstitutionalized older adults in the U.S. take prescription medication(s)

Pretorius RW, et al. *Am Fam Physician.* 2013;87(5):331-336.

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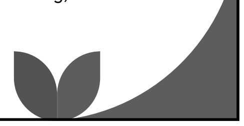
Adverse Drug Reactions (ADRs)

- Any noxious, undesired, or unintended response to a therapeutic agent
- May be expected or unexpected
- At dosages used for the prophylaxis, diagnosis, or therapy of disease, or for modifying physiological function
- Does not include therapeutic failures, poisoning, or overdoses (accidental or intentional)



Zazzara MB, et al. *Eur Geriatr Med.* 2021;12(3):463-473.

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Older Adults Are High Risk

- Age-related changes
- Polypharmacy
- Comorbidities

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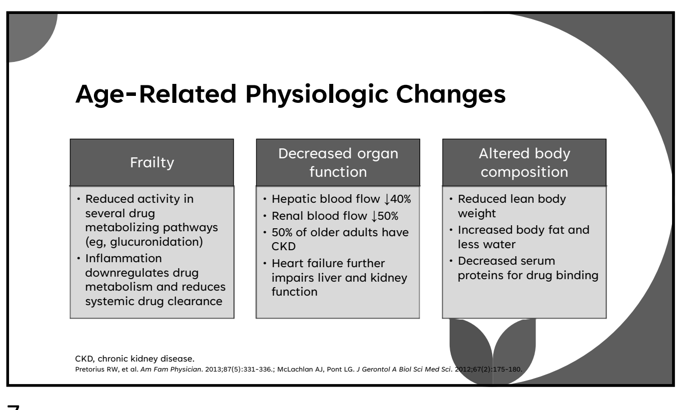

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Polypharmacy and ADRs

Older adults take **6 to 8** medications on average

66% of older adults take $\geq$ 3 medications each month

- Each new medication adds > 1 ADR per year
- Taking $\geq$ 6 medications increases ADR risk four-fold
- Each additional prescriber increases ADR risk by 30%

Pretorius RW, et al. *Am Fam Physician*. 2013;87(5):331-336.; American Geriatrics Society. Many Older Adults Take Multiple Medications; an Updated AGS Beers Criteria® Will Help Ensure They Are Appropriate. May 4, 2023. Accessed November 26, 2024. https://www.americangeriatrics.org/media-center/news/many-older-adults-take-multiple-medications-updated-ags-beers-criteriar-will-help

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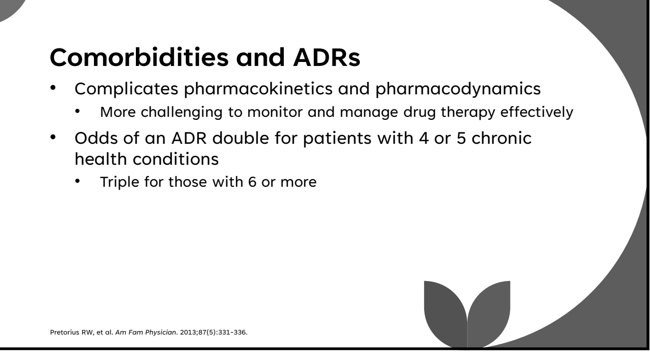

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Growth of the Older Adult Population

- Slower growth in the 1990s due to the small number of babies born during the Great Depression
  - Significant increase now as 46% of the "baby boom" generation is aged $\geq$ 65 years
- 2012: 43.1 million ⟶ 2022: 57.8 million (34% increase)
- Future projections:
  - 78.3 million by 2040 (more than **double** the size in 2000!)
  - 88.8 million by 2060

Administration for Community Living. Profile of Older Americans (2023). Accessed November 25, 2024. https://acl.gov/aging-and-disability-in-america/data-and-research/profile-older-americans

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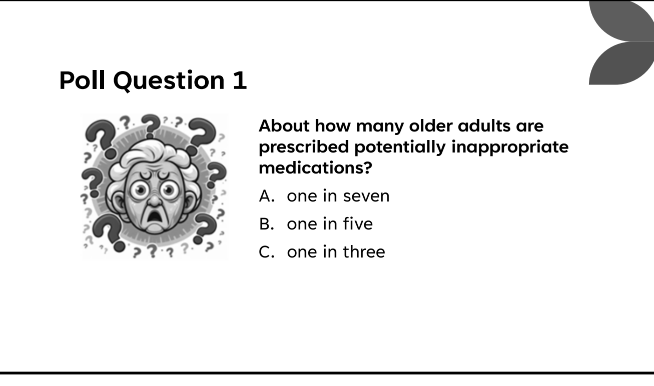

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Potentially Inappropriate Medications

- Also knows as "PIMs"
- Drugs for which risks outweigh benefits in older adults
  - Especially when safer alternatives exist
- PIM use is prevalent
  - Around **one-third of older adults** are prescribed PIMs

Clark CM, et al. *J Am Geriatr Soc.* 2020;68(11):2542-2550.

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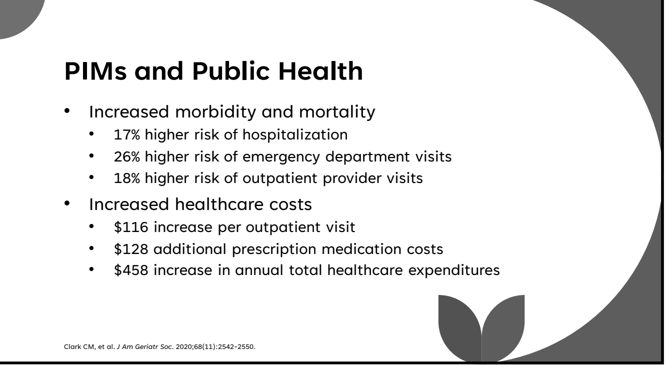

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Beers Criteria

& Its Role in Patient Safety

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Defining The Beers Criteria

- Comprehensive list of medications that older people should avoid or use with caution (PIMs)
  - More than 3 dozen individual medications or classes
  - ≥ 40 medications or classes to avoid with certain diseases or conditions
- Cornerstone of geriatric care and an essential tool to ensure the safety and well-being of older adults
- Can be used in the care of adults >65 years old in all care settings except hospice and end-of-life care

American Geriatrics Society. Many Older Adults Take Multiple Medications; an Updated AGS Beers Criteria® Will Help Ensure They Are Appropriate. May 4, 2023. Accessed November 26, 2024. https://www.americangeriatrics.org/media-center/news/many-older-adults-take-multiple-medications-updated-ags-beers-criteriar-will-help

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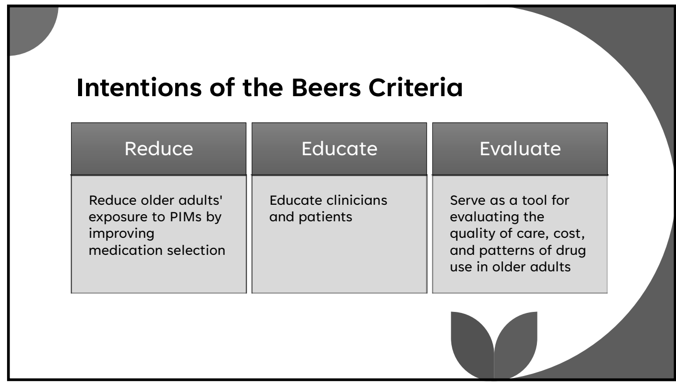

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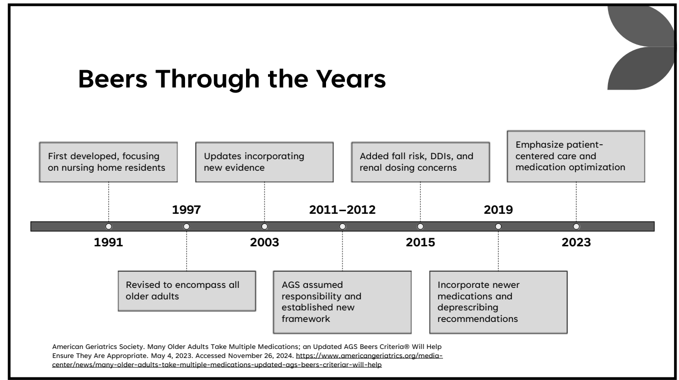

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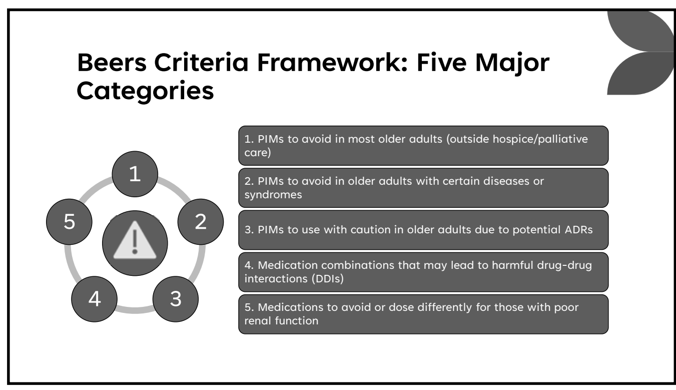

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Interpreting the Guidelines

- Shared decision-making is critical
  - Drug-related harms are more pronounced in the "old-old" than the "young-old" and those with frailty or multimorbidity
- "***Avoid***" is not always an absolute contraindication
  - Avoid except under unusual circumstances (i.e., when a safer alternative does not achieve the desired therapeutic outcome)
- "***Use with caution***" highlights drugs that raise some concern but not to the level of an "avoid" recommendation
  - Could be due to limited evidence

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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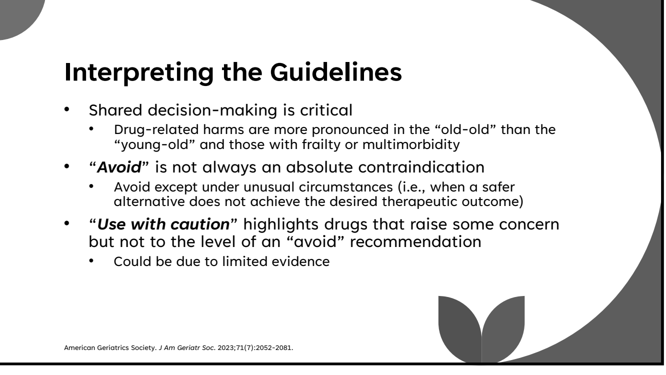

2023 Key Updates

Additions, Removals, and Revisions

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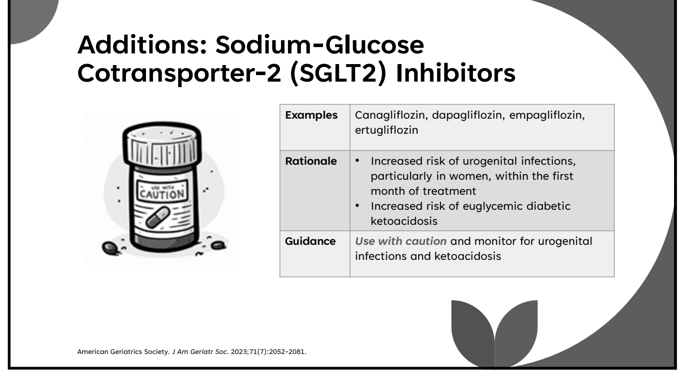
Additions: Sodium-Glucose Cotransporter-2 (SGLT2) Inhibitors



Examples	Canagliflozin, dapagliflozin, empagliflozin, ertugliflozin
Rationale	• Increased risk of urogenital infections, particularly in women, within the first month of treatment • Increased risk of euglycemic diabetic ketoacidosis
Guidance	*Use with caution* and monitor for urogenital infections and ketoacidosis

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Additions: Anticholinergic Burden

- Cumulative anticholinergic burden
- Rationale for anticholinergic drugs to avoid has been expanded to recognize the risks associated with concurrent use

Examples	First generation antihistamines, antidepressants, anti-Parkinsonian agents, GI antispasmodics, etc.
Rationale	Increased risks of cognitive decline, delirium, falls and fractures
Guidance	*Avoid* and minimize number of anticholinergic drugs

GI, gastrointestinal
American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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First Generation Antihistamines

- Clearance reduced with advanced age, and tolerance develops when used as hypnotic
- Risk of confusion, dry mouth, constipation, and other anticholinergic effects or toxicity
- **Examples:** brompheniramine, chlorpheniramine, cyproheptadine, dimenhydrinate, diphenhydramine, doxylamine, hydroxyzine, meclizine, promethazine, triprolidine

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Antidepressants

- Some are highly anticholinergic, sedating, and cause orthostatic hypotension
- **Examples:** amitriptyline, amoxapine, clomipramine, desipramine, doxepin (>6 mg/day), imipramine, nortriptyline, paroxetine
- However, evidence level for antidepressants contributing to falls reduced to "moderate"

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Anti-Parkinsonian Agents

- Some have strong anticholinergic activity
- More effective agents are available to treat Parkinson disease
  - Also not recommended to prevent or treat extrapyramidal symptoms caused by antipsychotics
- **Examples:** benztropine (oral), trihexyphenidyl

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Gastrointestinal Antispasmodics

- Some are highly anticholinergic
- Uncertain effectiveness
  - Risks do not outweigh benefits
- **Examples:** atropine (excludes ophthalmic), clidinium-chlordiazepoxide, dicyclomine, hyoscyamine, scopolamine

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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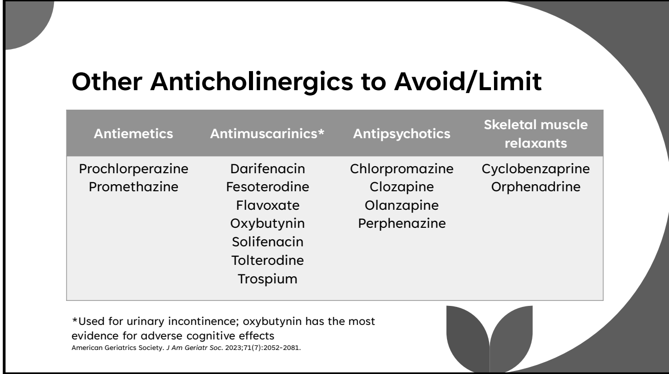
Other Anticholinergics to Avoid/Limit



Antiemetics	Antimuscarinics*	Antipsychotics	Skeletal muscle relaxants
Prochlorperazine Promethazine	Darifenacin Fesoterodine Flavoxate Oxybutynin Solifenacin Tolterodine Trospium	Chlorpromazine Clozapine Olanzapine Perphenazine	Cyclobenzaprine Orphenadrine

*Used for urinary incontinence; oxybutynin has the most evidence for adverse cognitive effects

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Additions: Anticoagulants

- Added a special box summarizing criteria
- Recall that "use with caution" reflects less concern or less clear evidence than "avoid"
- Pay special attention to kidney function for DOACs
- Also, ***avoid*** SSRI use with warfarin

Warfarin	*Avoid* initiating for nonvalvular AFib or VTE treatment unless contraindications or substantial barriers to DOACs exist. For long-term users with well-controlled INR* and no AEs, continuation may be reasonable.
Dabigatran	*Use caution* selecting dabigatran over other DOACs for long-term AFib or VTE treatment
Rivaroxaban	*Avoid* for long-term AFib or VTE treatment in favor of safer anticoagulant alternatives

*>70% time in the therapeutic range

AEs, adverse effects; AFib, atrial fibrillation; DOACs, direct-acting oral anticoagulants; INR, International Normalized Ratio; SSRI, selective serotonin reuptake inhibitor; VTE, venous thromboembolism.; American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Removals: Doxepin

- Removed from the list of PIMs in doses of ≤ 6 mg/day
- Recent evidence suggests at very low doses, doxepin's sedative effects aid sleep without significant risks
  - Low-dose doxepin offers a safer option for treating insomnia in older adults
- Highlights an important aspect of geriatric pharmacy: **many AEs are dose-dependent**
  - Should still monitor patients closely for AEs, particularly during the initial treatment period

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.; Fisher M, et al. *Sleep.* 2024;47(Suppl_1):A178-A179.

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Revisions: Proton Pump Inhibitors (PPIs)

- Emerging evidence linking long-term use in older adults with several adverse outcomes: bone loss, fractures, and *Clostridium difficile* infections
  - Particularly concerning in older adults already at higher risk for osteoporosis and falls
- Updated criteria emphasize the need for *deprescribing* PPIs in older adults
- ***Avoid*** scheduled use for more than 8 weeks unless for high-risk patients (e.g., oral corticosteroids or chronic NSAID use)
  - Consider lifestyle modifications or intermittent use of antacids or H2 blockers when appropriate

NSAID, nonsteroidal anti-inflammatory drug.

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Revisions: Aspirin for Primary Prevention

- Recommendation changed from "use with caution" to "***avoid*** initiating" for primary prevention of cardiovascular disease in older adults
- Aligns with the U.S. Preventive Services Task Force's guidance
- Consider deprescribing for those already on aspirin for this purpose

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Revisions: Sulfonylureas

- ***Avoid*** as first- or second-line monotherapy or add-on unless substantial barriers exist to safer, more effective agents
- Expanded to include all sulfonylureas, not just long-acting ones
- Associated with a higher risk of cardiovascular events, all-cause mortality, and hypoglycemia than alternative choices
- If a sulfonylurea must be used, short-acting agents are preferred (lower risk of prolonged hypoglycemia)

Shorter-acting
- Glipizide

Longer-acting
- Glimepiride
- Glyburide

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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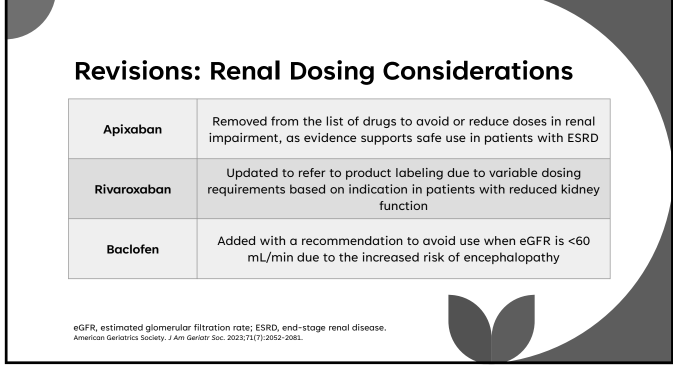
Revisions: Renal Dosing Considerations



Apixaban	Removed from the list of drugs to avoid or reduce doses in renal impairment, as evidence supports safe use in patients with ESRD
Rivaroxaban	Updated to refer to product labeling due to variable dosing requirements based on indication in patients with reduced kidney function
Baclofen	Added with a recommendation to avoid use when eGFR is <60 mL/min due to the increased risk of encephalopathy

eGFR, estimated glomerular filtration rate; ESRD, end-stage renal disease.
American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Additional Drug-Disease Interactions

Heart Failure:
- ***Avoid*** dextromethorphan/quinidine due to QT prolongation concerns
- Use dronedarone ***with caution*** in patients with HFrEF with less severe symptoms*

Delirium: opioids added to the list of exacerbating drugs
- Continued recommendation to ***avoid*** medications that worsen delirium

*New York Heart Association (NYHA) class I or II
HFrEF, heart failure with reduced ejection fraction.
American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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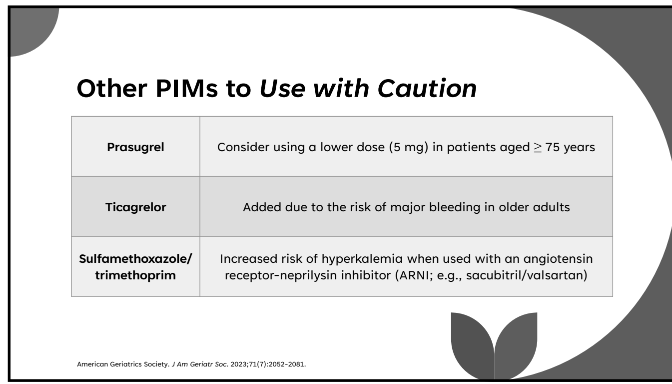
Other PIMs to *Use with Caution*



Prasugrel	Consider using a lower dose (5 mg) in patients aged $\geq$ 75 years
Ticagrelor	Added due to the risk of major bleeding in older adults
Sulfamethoxazole/ trimethoprim	Increased risk of hyperkalemia when used with an angiotensin receptor-neprilysin inhibitor (ARNI; e.g., sacubitril/valsartan)

American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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CNS-Active Drugs

- Maintains the recommendation to limit to fewer than 3
- Added skeletal muscle relaxants to this list
- Applies to those used for musculoskeletal complaints: carisoprodol, chlorzoxazone, cyclobenzaprine, metaxalone, methocarbamol, orphenadrine
  - Does not apply to baclofen and tizanidine used for spasticity

CNS, central nervous system.
American Geriatrics Society. *J Am Geriatr Soc.* 2023;71(7):2052-2081.

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Poll Question 2

Which of the following is TRUE?

A. Older adults should always avoid SGLT2 inhibitors

B. The updated criteria removes doxepin < 6 mg/day

C. Dabigatran is the safest anticoagulant for older adults

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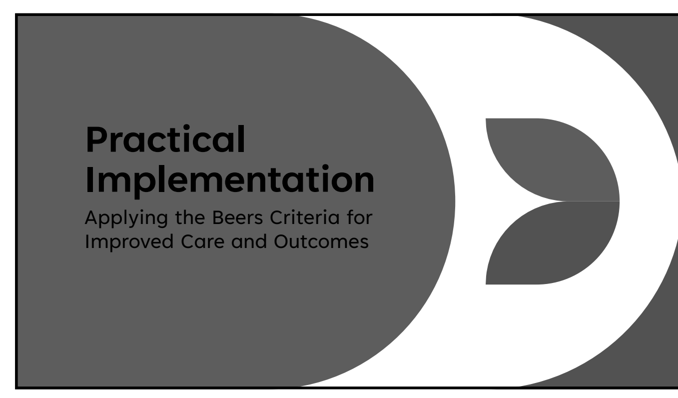

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Beers Criteria in Practice

- Adherence to Beers Criteria improves health outcomes among older patients
- Surveys show that awareness and application of the Criteria are inadequate
  - 36.4% of pharmacists and 12.9% of physicians knew guidelines that listed specific PIMs
  - 31.8% of pharmacists and 35.4% of physicians demonstrated good knowledge of the criteria

Akande-Sholabi W, Fafemi A. *J Pharm Health Care Sci*. 2022;8(1):36.

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Pharmacists: The Last Line of Defense

- **Identify PIMs:** Use Beers Criteria to flag high-risk medications and reduce polypharmacy
  - Evaluate patient-specific factors (e.g., renal function, fall risk)
  - Detect and mitigate risks
- **Counsel Patients:** Educate on safer alternatives and non-pharmacologic strategies
- **Collaborate:** Work with prescribers to optimize medication regimens
  - Advocate for shared decision-making aligning with patient goals and values

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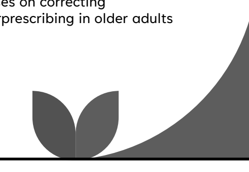
STOPP and START Criteria

STOPP (Screening Tool of Older Persons' Potentially Inappropriate Prescriptions):

- Identifies 65 potentially inappropriate prescribing practices in older adults
- Aims to prevent ADRs leading to hospitalization
- Includes explanations for why each prescribing practice is inappropriate

START (Screening Tool to Alert Doctors to Right Treatment):

- Highlights 22 evidence-based indicators for commonly omitted beneficial treatments
- Focuses on correcting underprescribing in older adults



Pretorius RW, et al. *Am Fam Physician*. 2013;87(5):331-336.

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Deprescribing Strategies

1. Reconcile medications according to indication
2. Consider overall risk of drug-induced harm
3. Assess eligibility for deprescribing
4. Prioritize which medications to address first
5. Implement deprescribing strategy and monitoring plan

Drug factors: total # of drugs, use of high-risk drugs, past or present toxicity
Patient factors: age, cognitive impairment, comorbidities, multiple prescribers, adherence

- Potential/actual harm > benefit
- No valid indication
- Ineffective
- Therapy completed
- Part of prescribing cascade
- Treatment burden
- Safer alternatives

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Poll Question 3

Mrs. Taylor, a 78-year-old woman with a history of AFib and diabetes, is prescribed rivaroxaban for stroke prevention and glyburide for glycemic control. During a consultation, she reports episodes of dizziness and has a recent lab result showing a creatinine clearance of 35 mL/min. Which of the following is the BEST plan of action?

A. Recommend switching glyburide to glipizide
B. Advise switching rivaroxaban to warfarin
C. Continue both medications with increased monitoring for AEs

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Final Considerations

- The Beers Criteria should serve as a guide, not a strict rulebook
  - Individualized care remains paramount
- Carefully weigh the risk-benefit ratio of each medication
- When discussing medication changes with older patients, communicate clearly and compassionately
  - Address concerns about stopping or switching medications
  - Ensure patients understand the reasons for the changes
- Ongoing monitoring and follow-up are crucial to ensure new regimens are effective and well-tolerated

In geriatric care, "less is more."

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