PRACTICAL APPLICATION OF THE BEERS CRITERIA IN THE OUTPATIENT SETTING

ADULT/GERIATRIC DRUG THERAPY 2021
UNIV WASHINGTON CONTINUING NURSING EDUCATION

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Objectives

- Provide an overview of the American Geriatric Society's 2019 Beers Criteria for Potentially Inappropriate Medication Use in Older Adults
- Discuss practical clinical decision-making strategies when incorporating the Beers Criteria into practice
- Using a case-based approach, describe practical applications of the Beers Criteria in the outpatient setting

Medications in the Older Adult

HC SVNT DRACONES

Translated: "**Here there be dragons**"

Medications are a Fundamental Component in Geriatric Care!

- When used appropriately, medications can
  - Prevent or slow the onset or worsening of medical conditions
    - E.g. management of hypertension and hyperlipidemia to prevent heart disease and stroke
  - Reduce distressing symptoms
    - E.g. from osteoarthritis, inflammatory diseases, malignancy
  - Improve health outcomes

Bain. Medication risk mitigation. Clin Geri Med. 2017; 33:257-281. p. 258.

Medication Related Problems in Older Adults

- Medication related problems
  - Adverse reactions
  - Drug-drug interactions
- One in five hospital admissions is due to an adverse drug event
  - Majority occur in older adults
- While in the hospital, one in five geriatric patients experiences an adverse drug event
- Adverse drug events are preventable 50% of the time!

Bain. Medication risk mitigation. Clin Geri Med. 2017; 33:257-281. p. 258.

What is the Beers Criteria® ?

- *"The AGS Beers Criteria® is an explicit list of PIMs that are typically best avoided by older adults in most circumstances or under specific situations, such as certain diseases or conditions."* (p. 674)

- Originally developed by geriatrician Mark H. Beers MD and consensus panel of experts in 1991
- Initially focused on frail nursing home population
- Updated every few years
- Uses Delphi method

- PIMs = Potentially Inappropriate Medications
- "Older adult" = 65 and older

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics* Soc. 2019;67: 674-694. p. 674. Beers Criteria. Wikipedia. https://en.wikipedia.org/wiki/Beers_criteria.

The Beers Criteria is Intended To Be Used For

- Adults 65 and older
- In all settings
  - Ambulatory, acute, institutional
  - Except hospice and palliative care settings

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694.

Beers Criteria - Goals

- Improve medication selection
- Educate clinicians and patients
- Reduce adverse drug events
- Increase awareness of polypharmacy
- Serve as a tool to evaluate quality of care, cost, and patterns of drug use in older adults

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019;67: 674-694. p. 675-690.

Drugs on the Beers Criteria® List Are Not Contraindicated in Older Adults!

- Note the language used: **Drugs on the list are NOT intended to be an absolute contraindication to use!**
- *"The AGS Beers Criteria® is an explicit list of PIMs that are **typically** best avoided by older adults in **most** circumstances or under **specific situations**, such as certain diseases or conditions."* (p. 674)

- PIMs = Potentially Inappropriate Medications

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694.

Drugs on the Beers Criteria® List Are Not Contraindicated in Older Adults!

- The Beers Criteria list is intended as a **guide**
- It is *"**not meant to supplant clinical judgment** or individual patient preferences, values, care goals and needs."* (p. 690)
- *"Medications listed…are **potentially** inappropriate, rather than **definitely** inappropriate for all older adults."* (p. 690)

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694.

Beers Criteria – Goals - Quality Care

- Serve as a tool to evaluate quality of care, cost, and patterns of drug use in older adults
  - *"Quality measures must be clearly defined, easily applied, and measured with limited information, and thus, although useful cannot perfectly distinguish appropriate from inappropriate care."* (p. 675)

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694.

Not Intended to be Punitive!

- ***"The AGS Beers Criteria® are not meant to be applied in a punitive manner."***
- *"Prescribing decisions are not always clear-cut, clinicians must consider multiple factors …"* (p. 675)
- Nonetheless, *"some controversy and myths about their use in practice and policy continue to prevail"* (p. 675)

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694.

Potentially Inappropriate Medications (PIMs)

- Some examples are listed in the next few slides
- The field of PIMs is becoming much more complex due to better understanding of cytochrome P450 system drug interactions and drug genomics
- Reviewing a medication list to determine PIM is time consuming and challenging

Zullo. Screening for medication appropriateness in older adults. *Clin Geri Med.* 2018; 34:39-54. AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria. *J Am Geriatrics Soc.* 2019; 67: 674-694.

Anticholinergics: First Generation Antihistamines - **"Avoid"**

- Examples
  - **Diphenhydramine** (Benadryl®)
  - Doxylamine (Unisom®)
  - Hydroxyzine (Atarax®)
  - Meclizine (Travel-Ease®)
  - Promethazine (Phenergan®)
- Rationale
  - Highly anticholinergic
    - Confusion
    - Dry mouth
    - Constipation
  - Clearance reduced in advanced age
  - Tolerance when used as hypnotic
- Considerations
  - May be appropriate for acute tx of severe allergic reaction
- Moderate quality evidence
- **Strong recommendation**

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. (Table 2; p. 678)

Tricyclic Antidepressants (TCA) **- "Avoid"**

- Examples
  - Amitriptyline
  - Desipramine
  - Doxepin
  - Nortriptyline
- Rationale
  - Highly anticholinergic
  - Sedating
  - Orthostatic hypotension
- High quality evidence
- **Strong recommendation**

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. (Table 2; p. 678)

Older Adults are Significantly Impacted by Anticholinergic Overdose

Mnemonics for Anticholinergic Overdose

- Can't see (vision changes)
- Can't pee (urinary retention)
- Can't spit (dry mouth)
- Can't sh** (constipation)
- Blind as a bat (blurred vision)
- Dry as a bone (dry mouth)
- Red as a beet (flushing)
- Mad as a hatter (confusion)
- Hot as a hare (hyperthermia)

Fitzgerald. Mnemonics and memory aids. p. 8.
https://fhea.com/content/content/Newsletter/fheanews_volume12_issue12.pdf
Family Practice Notebook: Anticholinergic Medications
https://fpnotebook.com/Neuro/Pharm/AntchlnrgcMdctn.htm

Drugs With Strong Anticholinergic Properties

Table 7. Drugs With Strong Anticholinergic Properties

Antiarrhythmic	Promethazine
Disopyramide	Pyrilamine
	Triprolidine
Antidepressants	
Amitriptyline	
Amoxapine	
Clomipramine	Antimuscarinics
Desipramine	(urinary incontinence)
Doxepin (>6 mg)	Darifenacin
Imipramine	Fesoterodine
Nortriptyline	Flavoxate
Paroxetine	Oxybutynin
Protriptyline	Solifenacin
Trimipramine	Tolterodine
	Trospium
Antiemetics	
Prochlorperazine	Antiparkinsonian agents
Promethazine	Benztropine
	Trihexyphenidyl
Antihistamines (first generation)	
Brompheniramine	Antipsychotics
Carbinoxamine	Chlorpromazine
Chlorpheniramine	Clozapine
Clemastine	Loxapine
Cyproheptadine	Olanzapine
Dexbrompheniramine	Perphenazine
Dexchlorpheniramine	Thioridazine
Dimenhydrinate	Trifluoperazine
Diphenhydramine (oral)	
Doxylamine	Antispasmodics
Hydroxyzine	Atropine (excludes ophthalmic)
Meclizine	Belladonna alkaloids
Clidinium-chlordiazepoxide	Scopolamine (excludes ophthalmic)
Dicyclomine	
Homatropine (excludes ophthalmic)	Skeletal muscle relaxants
Hyoscyamine	Cyclobenzaprine
Methscopolamine	Orphenadrine
Propantheline	

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. (Table 7; p. 690)

Benzodiazepines – "**Avoid**"

- Examples
  - Alprazolam (Xanax®)
  - Diazepam (Valium®)
  - Lorazepam (Ativan®)
  - Temazepam (Restoril®)
- Rationale
  - Older adults have increased sensitivity to benzodiazepines
  - Decreased metabolism of long-acting agents (such as diazepam)
  - All benzos increase the risk of
    - Cognitive impairment
    - Delirium
    - Falls
    - Fractures
    - Motor vehicle crashes
- Considerations
  - *"May be appropriate for seizure disorders, rapid eye movement, sleep behavior disorder, benzodiazepine withdrawal, ethanol withdrawal, severe generalized anxiety disorder and periprocedural anesthesia"*
- Moderate quality evidence, **strong recommendation to AVOID**

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria. JAGS. 2019; 67: 674-694. (Table 2; p. 680)

Nonbenzodiazepine-benzodiazepine receptor agonist hypnotics (BZRA, “Z-drugs”) – “**Avoid**”

- Examples
  - Zolpidem (Ambien®)
  - Zaleplon (Sonata®)
  - Eszopiclone (Lunesta®)
- Moderate quality evidence
- **Strong recommendation to AVOID**
- Rationale
  - Adverse events similar to benzodiazepines in older adults
  - Increase the risk of
    - Delirium
    - Falls
    - Fractures
    - Emergency room visits & hospitalizations
    - Motor vehicle crashes
  - Minimal improvement in sleep latency and duration

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. (Table 2; p. 680)

Non-steroidal Anti-inflammatory Drugs (NSAIDs) “Avoid Chronic Use”

- Examples
  - Ibuprofen (Motrin, Advil®)
  - Naproxen (Aleve®)
  - Ketorolac (Toradol®)
  - Aspirin > 325 mg/day
- Rationale - increased risk of
  - Gastrointestinal bleeding or peptic ulcer disease in high-risk pts
    - *Age 75+*
    - On corticosteroids, anticoagulants or antiplatelet agents
  - Kidney injury
  - Raises blood pressure
  - Heart failure exacerbation
- Considerations
  - Use of GI protection agents such as PPI or misoprostol reduces but does not eliminate risk of GI issues
  - GI risk includes parenteral formulation
  - Risks are dose and duration related
- Moderate quality evidence
- **Strong recommendation**
  - *“Avoid chronic use unless other alternatives are not effective and patient can take GI protection agent”*

GI: gastrointestinal; PPI: proton pump inhibitor
AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria *J Am Geriatrics Soc.* 2019; 67: 674-694. (Table 2; p. 682)

Caveat for Avoiding NSAIDs

- *“However, the recommendation to avoid chronic, regular use of NSAIDs should not be interpreted as an invitation to prescribe opioids in their place.”*

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. (p. 690-1)

Sliding Scale Insulin Without Concurrent Basal Insulin - Avoid

- AVOID 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
- Rationale
  - *“Higher risk of hypoglycemia without improvement in hyperglycemia mngt regardless of care setting.”*
  - “This recommendation does not apply to regimens with contain basal insulin or long-acting insulin.”
- Moderate quality evidence
- Strong recommendation

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria J Am Geriatrics Soc. 2019; 67: 674-694. (Table 2; p. 681)

Some Drug – Disease Interactions
Beers Criteria for Potentially Inappropriate Medications

- Delirium
  - Avoid anticholinergics, corticosteroids, H2 blockers
  - Avoid benzodiazepines and non-benzodiazepine receptor agonists (BZRAs)
  - Avoid antipsychotics
    - Unless non-pharmacological options have failed
    - AND older adult is threatening substantial harm to self or others
- History of falls or fractures
  - Avoid unless safer alternatives are not available
  - Reduce dose of other CNS-active meds
    - Antipsychotics, antidepressants
    - Benzodiazepines, BZRAs,
    - Opioids
      - Except in setting of severe acute pain (recent fracture, total joint replacement)

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. (Table 3; p. 683)

Some Clinically Important Drug-Drug Interactions
Beers Criteria for Potentially Inappropriate Medications

- Opioids + benzodiazepines
  - Increased risk of overdose
  - Strong recommendation to AVOID
- Opioids + gabapentin or pregabalin
  - Increased risk of severe sedation related adverse events: resp depr, death
  - Strong recommendation to AVOID
  - Exception: transitioning from opioids to gabapentinoid or using it to reduce opioid dose. Use Caution.
- CNS-active drugs – any combination of 3 or more
  - Antidepressants, antipsychotics, antiepileptics, benzodiazepines, BZRAs, opioids
  - Risk of falls and fractures
  - Strong recommendation to AVOID 3 or more CNS-active drugs

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. (Table 3; p. 683)

Opioids in Older Adults

- Opioid overdose death is becoming an increasing concern in older adults
- A 2018 paper reported a 754% increase of opioid related deaths in persons age 55 to 64 (from 0.2% to 1.7%)
- The absolute number of deaths is increasing in those 65 and older
- Foundation for Healthcare Policy / Washington State Bree Collaborative (private-public endeavor) has a workgroup on "Opioid Prescribing in Older Adults"
  - https://www.qualityhealth.org/bree/topic-areas/current-topics/opioid-prescribing-in-older-adults/

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694. Bree Collaborative: Opioid prescribing in older adults. 2021.

Using the Beers Criteria®
Finding a Middle Ground

- The Beers Criteria is not intended to be a rigid "black/white," "right/wrong" criteria
- Must balance clinical nuance with the imperative of quality improvement
- Provide for individualized person-centered care

Steinman. Using wisely: A reminder on how to properly use the American Geriatric Society Beers Criteria ® . J Gero Nurs. 2019:45(3):3-5.

Strategies for Screening Medication Appropriateness in Older Adults

- Use a team-based approach
  - Include the pharmacist!
- Eliminate unnecessary medications
  - Focus on commonly used medications that are overprescribed, have questionable benefit, or have safer alternatives
    - Proton pump inhibitors, benzodiazepines, hypnotics
- Identify Potentially Inappropriate Medications (PIMs) and consider dose reduction or discontinuation
  - Beers Criteria, STOPP and START criteria
- Identify conditions not being treated
  - Cardiovascular disease, osteoporosis, conditions requiring anticoagulation

Zullo. Screening for medication appropriateness in older adults. *Clin Geri Med.* 2018; 34:39-54. (p. 51)

Other Tools

- STOPP – Screening Tool of Older People's Prescriptions
- START - Screening Tool to Alert to Right Treatment
- Available at Comprehensive Geriatric Assessment Toolkit Plus
  - https://www.cgakit.com/m-2-stopp-start

O'Mahony, D. 2015

Strategies for Screening Medication Appropriateness in Older Adults

- Note that some of the most clinically necessary medications can also be high-risk in certain older adults
  - Anticoagulants, hypoglycemic agents
  - Reassess risk/benefit
  - Consider relaxing therapeutic goals (% HbA1c)
- Pay special attention to transitions of care
  - Older adults transitioning across health care settings are at the highest risk of inappropriate medication use and related negative health outcomes
- Consider the patient's and caregiver's preferences regarding medication use
  - Shared decision making

Zullo. Screening for medication appropriateness in older adults. *Clin Geri Med.* 2018; 34:39-54. (p. 51)

A1c Goals for Older Adults

Framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults

Patient characteristics/health status	Rationale	Reasonable A1C goal*
Healthy (few coexisting chronic illnesses, intact cognitive and functional status)	Longer remaining life expectancy	<7.5% (58 mmol/mol)
Complex/intermediate (multiple coexisting chronic illnesses¶ or 2+ instrumental ADL impairments or mild-to-moderate cognitive impairment)	Intermediate remaining life expectancy, high treatment burden, hypoglycemia vulnerability, fall risk	<8.0% (64 mmol/mol)
Very complex/poor health (LTC or end-stage chronic illnesses$^{\Delta}$ or moderate-to-severe cognitive impairment or 2+ ADL dependencies)	Limited remaining life expectancy makes benefit uncertain	<8.5%◊ (69 mmol/mol)

UpToDate. Treatment of type 2 diabetes mellitus in the older patient. Table 1. Accessed 5/29/2021.
https://www-uptodate-com.offcampus.lib.washington.edu/contents/image?imageKey=ENDO%2F117873&topicKey=ENDO%2F1776&search=diabetes%20management%20in%20older%20adults&rank=1~150&source=see_link

Strategies for Safer Prescribing of Medications in Older Adults

Strategy	Explanation
"Think beyond drugs"	Resist the urge to write a prescription to treat every new symptom, especially sedating drugs such as benzodiazepines and opioids. Non-pharmacological strategies can be very effective for pain and symptom management, and should be utilized as part of a multi-modal treatment plan. Effective treatments may include regular physical activity, physical or occupational therapy, thermal therapy (heat, ice), psychological therapies (CBT or mindfulness meditation for anxiety, insomnia, pain), alternate therapies (acupuncture, aromatherapy), or minimally invasive interventions (regional blocks).
"Start Low and Go Slow"	This is the key strategy for safer drug prescribing. In older, frail adults, start with ¼ to ½ of the usual adult dose. Then, titrate the dose slowly, at ¼ to ½ of the usual dose and interval. Monitor more frequently after starting a new medication, for example, follow-up in-clinic or by phone in a few days to weeks.

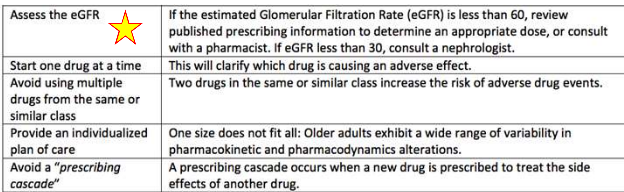
Davies PS. Opioids for pain management in older adults: Strategies for safe prescribing. *Nurse Practitioner.* 2017; 42(2): 20-26. p. 22.

Non-drug Alternatives for Dementia and Delirium

- Scales 2019 review of 197 papers for evidence-based nonpharmacological approaches including
  - Sensory practices (massage, light therapy)
  - Psychosocial practices
    - Music, pet therapy, reminiscence
  - Structured care protocols
    - Mouth care, bathing
- Findings
  - Most practices acceptable to patients
  - No harmful effects
  - Minimal to moderate investment
- Resources
  - www.NursingHomeToolKit.com
  - www.HospitalElderLifeProgram.org

AGS. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication use in older adults. *J Am Geriatrics Soc.* 2019; 67: 674-694.
Scales. Gerontologist. 2018; 58(suppl 1):S88-102.

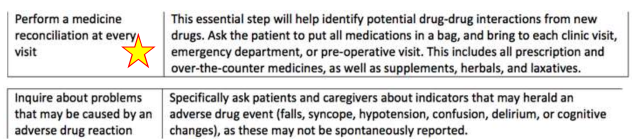
Strategies for Safer Prescribing of Medications in Older Adults



Assess the eGFR	If the estimated Glomerular Filtration Rate (eGFR) is less than 60, review published prescribing information to determine an appropriate dose, or consult with a pharmacist. If eGFR less than 30, consult a nephrologist.
Start one drug at a time	This will clarify which drug is causing an adverse effect.
Avoid using multiple drugs from the same or similar class	Two drugs in the same or similar class increase the risk of adverse drug events.
Provide an individualized plan of care	One size does not fit all: Older adults exhibit a wide range of variability in pharmacokinetic and pharmacodynamics alterations.
Avoid a "*prescribing cascade*"	A prescribing cascade occurs when a new drug is prescribed to treat the side effects of another drug.

Davies PS. Opioids for pain management in older adults: Strategies for safe prescribing. *Nurse Practitioner.* 2017; 42(2): 20-26. p. 22.

Strategies for Safer Prescribing of Medications in Older Frail Adults



Perform a medicine reconciliation at every visit	This essential step will help identify potential drug-drug interactions from new drugs. Ask the patient to put all medications in a bag, and bring to each clinic visit, emergency department, or pre-operative visit. This includes all prescription and over-the-counter medicines, as well as supplements, herbals, and laxatives.
Inquire about problems that may be caused by an adverse drug reaction	Specifically ask patients and caregivers about indicators that may herald an adverse drug event (falls, syncope, hypotension, confusion, delirium, or cognitive changes), as these may not be spontaneously reported.

Davies PS. Opioids for pain management in older adults: Strategies for safe prescribing. *Nurse Practitioner.* 2017; 42(2): 20-26. p. 22.

Strategies for Safer Prescribing of Medications in Older Frail Adults

Look for opportunities to "de-prescribe" unnecessary medications.	Regularly evaluate the appropriateness and dose of each medication prescribed. As patients age, dose reductions may be necessary due to physiological changes in pharmacokinetics. Although patients may be reluctant to reduce or discontinue medications that has been used for many years, providing education may help. The website *HealthinAging.org* has useful informational material for patients.
Use the "medical home" for all new prescriptions	All new medication prescriptions should be coordinated by the primary care provider (PCP, also known as the "medical home.") The PCP should supervise all prescriptions to avoid excessive polypharmacy and duplicate prescriptions. Specialists, such as cardiologists or neurologists, should ideally communicate with PCP before starting a new drug, especially sedating drugs, and those with high risk for adverse events.

Davies PS. Opioids for pain management in older adults: Strategies for safe prescribing. *Nurse Practitioner.* 2017; 42(2): 20-26. p. 22.

Polypharmacy

- Various definitions, commonly 5+ medications
- Predictor of poor health outcomes in older adults
- Highly prevalent in the aged, especially age 80 and older

Chen. Geriatric polypharmacy. Clin Geri Med. 2017; 33:283-8.
Bain. Medication risk mitigation. Clin Geri Med. 2017; 33:257-281.

Causes of Polypharmacy and PIMs

- Causes include
  - Multiple comorbidities
  - Multiple providers / lack of coordination
  - Pressure from patient to prescribe PIM
    - Antibiotics, analgesics
  - "Prescribing is seen by patients as a sign of caring" (Chen, p. 285)

PIMs: Potentially inappropriate medications
Chen. Geriatric polypharmacy. Clin Geri Med. 2017; 33:283-8.

Importance of Polypharmacy in the Older Adults

- Higher risk of adverse drug effects (ADE), and increased "impact" of ADE in older adults
  - Falls → fracture → surgery → Rehab → SNF
  - Cognition changes → added drugs or premature admission to SNF
  - Gastrointestinal bleeding → surgery (or possible death)
- **Higher risk of clinically significant interactions**
  - Drug-drug
  - Drug-disease
- Multimorbidity→ More problems → RX → ADE → Polypharmacy
  - **"Prescribing cascade"**
- Challenging to "**de-prescribe**" or reduce dose
  - Drugs started while inpatient are not questioned
  - **Rarely see dose reductions** as patients age especially for high-risk drugs such as opioids or benzodiazepines
- Non-adherence, potential withdrawal
  - Patients sometimes decide to stop all their medicines at once
  - Cost

SNF = skilled nursing facility (nursing home)

Table 4. Examples of Prescribing Cascades

- Ibuprofen → hypertension → antihypertensive
- Metoclopramide → parkinsonism → levodopa/carbidopa
- Risperidone → parkinsonism → benztropine
- Amlodipine → edema → furosemide
- Gabapentin → edema → furosemide
- Ciprofloxacin → delirium → risperidone
- Lithium → tremor → propranolol
- Bupropion → insomnia → mirtazapine
- Donepezil → urinary incontinence → oxybutynin
- Amiodarone → tremor → lithium
- Venlafaxine → tremor → diazepam
- Meperidine → delirium → risperidone
- Beta-blocker → depression → antidepressant
- Amitriptyline → decreased cognition → donepezil
- Narcotic → constipation → sennosides
- Sennosides → diarrhea → loperamide
- Lorazepam → morning drowsiness → caffeine
- Enalapril → cough → dextromethorphan
- Furosemide → hypokalemia → potassium supplement
- Nonsteroidal anti-inflammatory drug → heartburn → H_2-antagonist or proton pump inhibitor
- Omeprazole → low B12 → B12 supplement

Kwan. Polypharmacy: Optimizing medication use in elderly patients. CGS Journal CME. 2014;4(1):22

Beers Criteria® - Patient Education Resource

https://www.healthinaging.org/medications-older-adults

Medications & Older Adults

People 65 years old and older take prescribed medications more frequently than any other age group in the United States. Most older adults take several medicines to treat chronic illnesses. Healthcare providers may also prescribe medications to older adults to help prevent certain illnesses. This section provides important information on medication safety for us all as we age.

HealthinAging.org
Trusted Information. Better Care.

Beers Criteria® - Patient Education Resource

https://www.healthinaging.org/tools-and-tips/tip-sheet-avoiding-overmedication-and-harmful-drug-reactions

Tip Sheet: Avoiding Overmedication And Harmful Drug Reactions

HealthinAging.org
Trusted Information. Better Care.

- Ask before taking an OTC med
- Make a list and keep it updated
  - Share it with all HCP
- Review your medications
  - Ask your HCP to review your med list 1-2 times per year
- Organize your medications
  - Mediset
- Ask questions
- Follow directions
- Report problems
- Medication "don'ts"
  - Take meds not RX for you
  - Take past expiration date
  - Stop taking if feel better
  - Drink alcohol when taking meds for sleep, pain, anxiety, depression

OTC – over the counter; HCP – healthcare provider

Deprescribing

- A strategy to eliminate unsafe or unnecessary drugs from a patient's regimen
- Takes time, extensive discussion and education
- Best approached with a team

- Resource: Deprescribing.org

Deprescribing is an Art

Examples of How to Discuss Deprescribing with Patients

Introducing choice

You are on a number of medications now. I would like to regularly review these to make sure each of them is still benefiting you, as well as check for side effects.

Medication side effects can add up. I'm worried that "x," "y," and "z" might all contribute to memory challenges.

Several of your medications might be contributing to this growing issue you are having with falls. I would like to tell you about different options to reduce risks from these medications. We can try reducing the dose or stopping one or more of these medications. What do you think?

As we get older, medications that worked well may no longer have the same benefit; in particular, I'm thinking that "x" may no longer be needed.

A "course" for this medication is usually eight weeks. Because you have been taking it for longer than "x" weeks, we can reduce the dose slowly and stop it.

Benefits and risks

If we reduce the dose or stop your sleeping pill(s), there is a risk you might have difficulty sleeping for a few nights. We will need to focus on how you can get a good night's sleep without medication. On the plus side, if the sleeping pill is reduced or stopped, you may feel less tired in the morning and have fewer falls.

Exploring options and making decisions

From your point of view, what matters most to you? How do you feel about these options? Is this something you would consider?

What medications are important for you to keep taking?

Are you ready to decide? Do you need more time?

Would you like to try a "pause and monitor" approach, in which we stop the medication, monitor you carefully, and restart the medication if needed?

Farrell. Deprescribing is an essential part of good prescribing. *Am Fam Phys*. 2019; 99(1):7-9. p. 9.

Optimize a Medication List in an Elder

- 65-year-old woman with non-small cell lung cancer with metastases to brain, bone, and bilateral lung lesions. New leptomeningeal disease.
- Treated with erlotinib (Tarceva®) at reduced dose, recently discontinued.
- Seen for initial outpatient Palliative Care visit; consult for "pain and symptom management, assistance with family."
- Present are family members (husband, 2 daughters) and Vietnamese translator.

Medication List from EMR

- **clindamycin topical (ClindaMax 1% topical gel) Dose: 1 application Topical BID apply a thin film to affected area after washing**
- **doxycycline hyclate 100 mg oral tablet Dose: 100 mg PO BID**
- **emollients, topical (Aquaphor Healing topical ointment) BID**
- **hydromorphone 2 mg 1-2 tablets q 4-6 hrs**
- **lidocaine topical (lidocaine 5% topical film) Dose: 1 patch Topical Q24 Hours Remove pafter 12 hours. apply to lower rib area for pain**
- **lorazepam 0.5 mg 1-2 q6 hr prn**
- **OLANZapine 5 mg oral tablet Dose: 5 mg PO QHS**
- **oxyCODONE 5mg 1-2 tab q3-4 hr prn pain**
- **oxyCODONE (OxyCONTIN 10 mg oral tablet, extended release) 10 mg PO Q8 Hours**
- **ranitidine 300 mg oral tablet Dose: 300 mg PO QHS take at least 12 hours apart from the tarceva and only take as needed**
- **diclofenac topical (Voltaren 1% topical gel) Dose: 1 application Topical QID PRN for pain not to exceed 32 grams/day**
- **diphenhydrAMINE 25 mg 1-2 q6 hr prn itching**
- **loperamide (Imodium A-D 2 mg oral tablet) Dose: 2 mg PO QID PRN for diarrhea**
- **meclizine 25 mg oral tablet Dose: 25 mg PO TID PRN for dizziness**
- **ondansetron 8 mg oral tablet Dose: 8 mg PO Q8 Hours PRN for nausea/vomiting**
- **polyethylene glycol 3350 (MiraLax oral powder for reconstitution) Dose: 17 g PO Daily PRN for constipation Dissolve in water or juice**
- **traZODone 50 mg oral tablet Dose: 50 mg PO QHS PRN for sleep**
- **zolpidem (Ambien 5 mg oral tablet) Dose: 5 mg PO QHS PRN for sleep**

Medication List from EMR – First Impressions

- clindamycin topical → **Probably not needed since Tarceva was discontinued**
- doxycycline → **Probably not needed since Tarceva was discontinued**
- emollients, topical (Aquaphor)
- **Hydromorphone** → **On two short-acting opioids – why? Is she taking it? How often? Recommend only one short-acting drug, not two.**
- lidocaine topical patch → **Topical – a good choice for post-thoracotomy incisional pain. Expensive and insurance won't pay – is she using it?**
- **lorazepam** 0.5 mg 1-2 q6 hr prn → **Note: this is dosed to allow up to 4 mg per day, too much for frail older adult. Why is it being taken? Anxiety? N/V?**
  - **Benzos are on Beers Criteria list, also combined with opioids and BZRA. Recommend D/C**
- OLANZapine 5 mg QHS → **She has no psychiatric dx, it is likely this was prescribed for insomnia. Not appropriate for insomnia.**
  - **On Beers Criteria list: as it is highly anticholinergic, and can cause sycope. Recommend D/C**
- oxyCODONE 5mg 1-2 tab q3-4 hr prn pain→ **On two short-acting opioids – why? Is she taking it? How often?**
- oxyCODONE (OxyCONTIN, extended release) 10 mg PO Q8 Hours → likely appropriate given her extensive disease
- ranitidine 300 mg
- diclofenac (Voltaren 1% topical gel) → **Topical – a good choice for joint pains, can use for post-thoracotomy incisional pain.**
- **diphenhydrAMINE** 25 mg 1-2 q6 hr prn itching → **BAD DRUG IN ELDERS! On Beers list. A safer option for pruritus is 2nd gen antihistamine (e.g. fexofenadine)**
- loperamide (Imodium 2 mg oral tablet) Dose: 2 mg PO QID PRN for diarrhea → **On meds for both diarrhea and constipation. Is she taking it?**
- meclizine 25 mg oral tablet for dizziness → **on Beers Criteria list, strongly anticholinergic. Recommend D/C and assess source of dizziness (could be meds!)**
- ondansetron 8 mg Q8 Hours PRN for nausea/vomiting → **this is a high dose, recommend reduce to 4mg. Use non-pharm strategies. Is she taking it?**
- polyethylene glycol 3350 (MiraLax) 17 g po qd PRN for constipation → **Needed due to opioids. Recommend continue. (Make sure not taking Imodium too!)**
- traZODone 50 mg PO QHS PRN for sleep → **not on the Beers Criteria list, but causes sedation and may contribute to falls. See if reduced dose is acceptable.**
- zolpidem (Ambien) 5 mg PO QHS PRN for sleep → **BZRA, on Beers Critiera. Has 3 drugs for insomnia!**

Allergies

Allergies (2) Active	**Reaction**
OxyCODONE Hydrochloride	None Documented
shellfish	Itching

(She is taking oxycodone IR and ER)

Home Medications – "Brown Bag Review"

- acetaminophen 500 mg tab (OTC) – taking a few times a day
- alprazolam 0.5 mg q8 hr prn anxiety (RX)
- docusate 100 mg po (OTC), taking 2 qd for constipation
- enoxaparin injection SC once daily, Dose unclear-not in box (RX)
- ibuprofen 200 mg tab (OTC) – taking 2 tabs 3 times daily
- metoclopramide 5 mg 1-2 q6 hr prn (RX)
- Prilosec 20 mg qd (OTC)
- Senna 8.6 mg po (OTC), taking 2 tab daily for constipation

- Also has a large number of unlabeled Asian supplements that are taken regularly

Home Medications – First Impressions of THIS List ☺

- acetaminophen 500 mg tab → **double check maximum dose <3000 mg/day**
- alprazolam 0.5 mg q8 hr prn anxiety → **need to confirm frequency. On Beers list**
- docusate 100 mg po 2 qd for constipation → OK
- enoxaparin injection SC once daily, Dose unclear-not in box
- ibuprofen 200 mg tab → **Drug interaction. NOT OK to take while on enoxaparin!**
- metoclopramide 5 mg 1-2 q6 hr prn → **on Beers list, extrapyramidal sx / tardive dyskinesia**
- Prilosec 20 mg qd (OTC) → **on Beers list. Also on H2 blocker (duplication)**
- Senna 8.6 mg po 2 tab daily for constipation → OK

- Also has a large number of unlabeled Asian supplements that are taken regularly
  - → **Need pharmacist input to evaluate. In general, not ok in oncology setting**

Suggested Changes To Consider Over Time

Discontinue / Consider (in order of importance)

- Benzo - lorazepam 0.5 mg 1-2 q6 hr prn → **Need education, patient input. D/C via slow taper. If continued, suggest dose max 1-1.5 mg/day**
- Zolpidem (Ambien) → **will need education and patient input. Will need a taper, preferably not concurrent with benzo reduction / taper**
- Diphenhydramine
- Ibuprofen
- Olanzapine (antipsychotic, likely for insomnia)
- Hydromorphone (only 1 short-acting opioid needed)
- Meclizine for dizziness
- Metoclopramide (will continue on ondansetron for n/v)
- Loperamide if not using – need to assess bowel medicines in future
- Omeprazole
- Topical clindamycin, doxycycline (since she is off Tarceva)
- D/C lidocaine patch if not using

- Continue:
  - oxycodone 5mg 1-2 tab q3-4 hr prn pain
  - Oxycodone ER 10 mg PO Q8 Hours
  - ranitidine 300 mg
  - diclofenac (Voltaren 1% topical gel)
  - PEG (Miralax), docusate, senna
  - Ondansetron → **reduce to 4 mg TID if tolerated**
  - Trazodone → **attempt reductoion to 25 mg**
  - Acetaminophen, **max 2-3 grams/day**
  - Enoxaparin
- Consider adding:
  - Fexofenadine for itching
    - (in place of diphenhydramine)

Optimize a Medication List in an Older Adult

- Essential information needed
  - What is actually being taken (vs. what is prescribed)
    - May take several visits to figure it out
    - "Brown Bag Medication Review"
  - Allergies
  - Purpose (and patient's perceived purpose) of drug
    - Is the benzo for insomnia, anxiety, or chemotherapy-induced nausea?
    - Is the olanzapine for a psychotic disorder or insomnia?
- "Low hanging fruit" → Discontinue these first
  - Duplication (two short-acting opioids, 3 hypnotics)
  - Not taking
    - Perceived as not effective
    - Too expensive
- Then focus on the highest risk drugs
  - Benzodiazepine / BZRA
  - CNS-active drugs
  - Diphenhydramine

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