Prescribing Quality in Older Adults

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- I receive grant support from the NIH/NIA and CDC.
- I participate as a faculty mentor for a postdoctoral fellowship in health economics and outcomes research sponsored by Genentech.
- Some slides shared courtesy of Holly Holmes, MD, MS

Objectives

1. Describe the core components of prescribing quality in older adults
2. Understand the key aspects of the updated AGS Beers Criteria in older adults
3. Assess an older adult's medication regimen for potential deprescribing opportunities

****Introduce you to key resources for future use****

Section 1

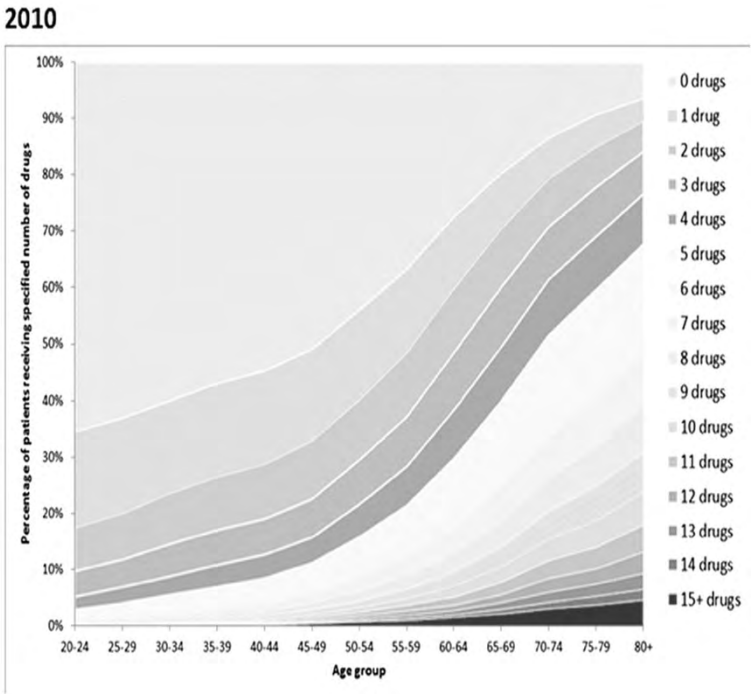
Prescribing Quality

Survey Monkey: Question 1

- https://www.surveymonkey.com/r/VL8968Y

- In your opinion, what is the biggest barrier to prescribing for older adults?

Older adults are the greatest consumers of medication



Guthrie et al. *BMC Medicine* 2015;13:74.

Polypharmacy: From the Prescriber's View

Morphine sulfate MR 10 mg tabs

Dexamethasone 4 mg tabs

Levothyroxine 50 mcg tabs

Simvastatin 40 mg tabs

Ferrous sulfate 200 mg/5 mL syrup

Ramipril 10 mg caps

Aspirin 75 mg tabs

Diazepam 2 mg tabs

Amlodipine 10 mg tabs

Glipizide 10 mg tabs

Prednisone 5 mg tabs

Albuterol 100 mcg inhaler

Metoclopramide 10 mg tabs

Metformin 500 mg tabs

Multivitamin caps

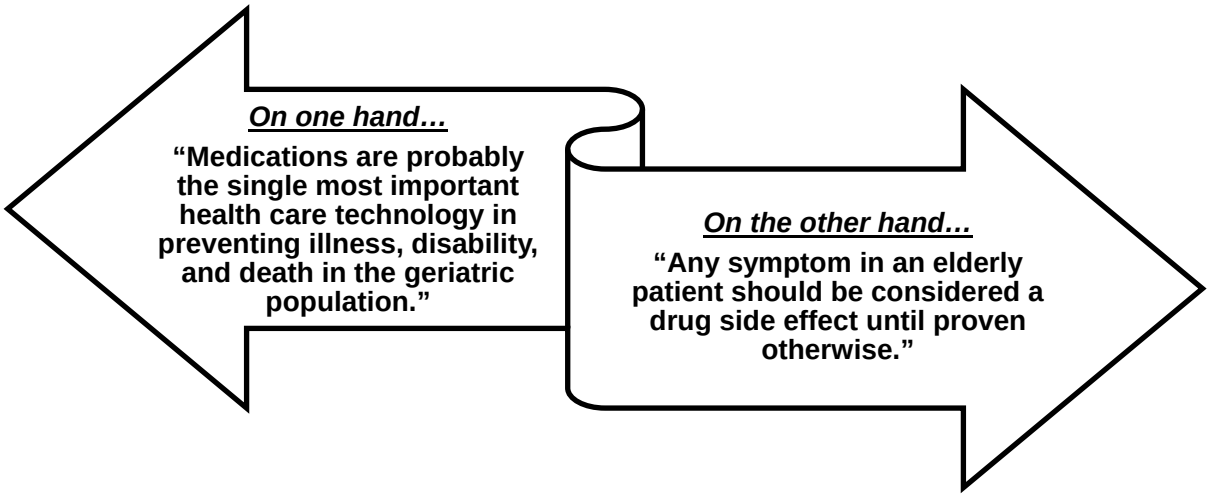
Tiotropium inhaler

Ibuprofen 400 mg tabs

Lansoprazole 15 mg caps

Amitriptyline 10 mg tabs

Polypharmacy: From the Patient's View



Miller SW. *Consult Pharm* 2008;23:538-47.
Avorn J. *Health Aff* 1995;14(1):276-86.
Gurwitz J, et al. Brown University Long-term Care Quarterly Letter. 1995.

Medication-related Problem (MRP)

- An event or circumstance involving medication therapy that actually or potentially interferes with an optimum outcome for a specific patient
- Common in older adults
- Associated with bad outcomes (morbidity, mortality, $)

- ***Can you think of an example of a MRP in an older adult?***

American Society of Hospital Pharmacists. Am J Hosp Pharm. 1993; 50:1720–3.

Categories of MRPs

- Underuse
  - Presence of a disease/condition without evidence-based medication
  - Example: osteoporosis but no bisphosphonate
- Overuse
  - Presence of more medications than clinically indicated
  - Example: insulin + sulfonylurea
- Inappropriate Use
  - Presence of medication(s) where risk outweighs benefit
  - Example: benzodiazepine use for insomnia

Why is inappropriate medication use important in older adults?

- Increases mortality, morbidity, and risk of adverse drug events
- Increases healthcare costs and utilization
- Is increasing in use in the oldest and most vulnerable adults
- Is common and often preventable

Risk Factors for MRPs

- Changes in the body that occur with aging
- Multiple illnesses and multiple medications
- Multiple prescribers and multiple pharmacies
- Inappropriate identification and treatment of MRPs
- Lack of health professional expertise in aging
- Lack of time
- Patient non-adherence
- Limited evidence

Miller SW. *Consult Pharm* 2008;23:538–47.
Hanlon JT, et al. *J Am Geriatr Soc* 2001;49:200-9.

Section 2

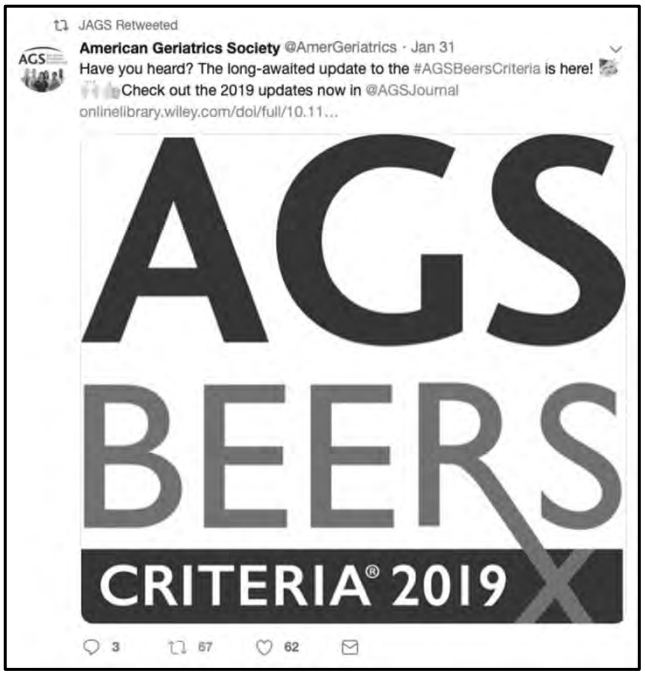
AGS Beers Criteria

AGS Beers Criteria

CLINICAL INVESTIGATION

American Geriatrics Society 2019 Updated AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults

*By the 2019 American Geriatrics Society Beers Criteria® Update Expert Panel**



Originator of the Beers Criteria
Mark Beers: 1955-2009

- MD, Univ of Vermont
- First medical student to do a geriatrics elective at Harvard‘s new Division on Aging
- Geriatric Fellowship, Harvard
- Faculty, UCLA/RAND
- Co-editor, Merck Manual of Geriatrics
- Editor in Chief, Merck Manuals

Intent of the AGS Beers Criteria

Goals:

- Improve care by ↓ exposure to PIMS
- Educational tool
- Quality measure
- Research tool

Prescribing measure vs. Quality measure

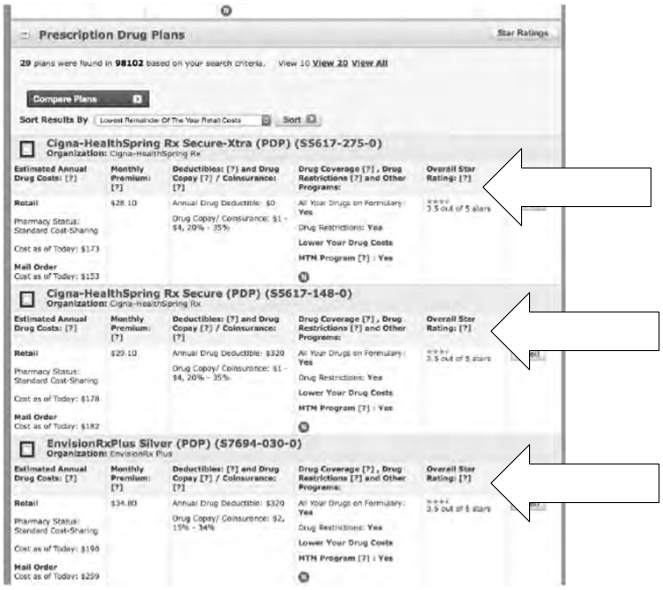
Uses of the AGS Beers Criteria

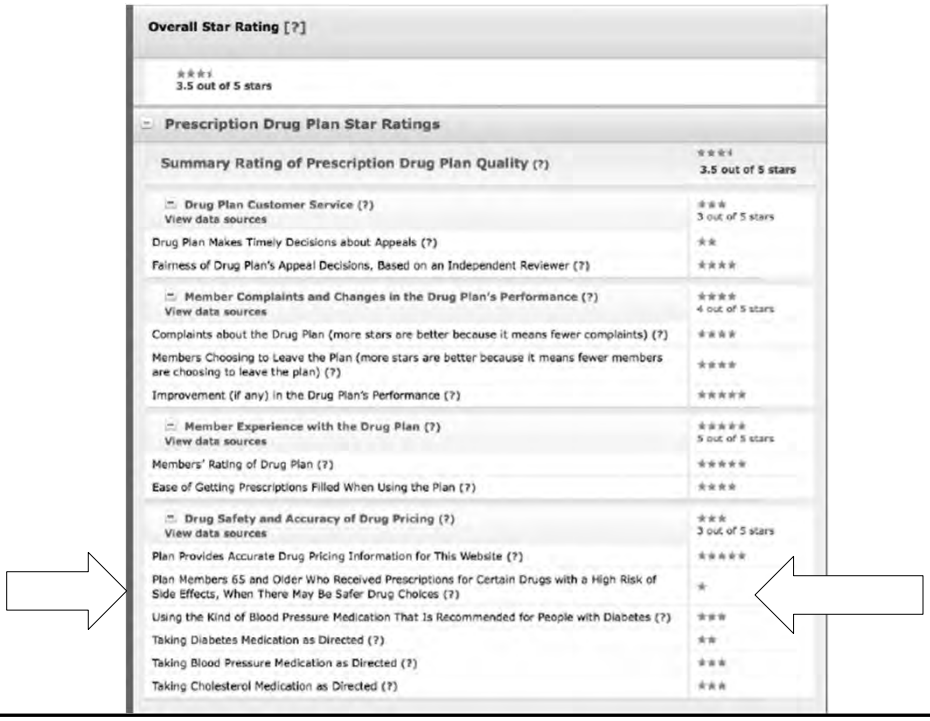
Quality Prescribing	Quality Performance Measurement
▪ Patient-centered	▪ Population-centered
▪ Patient-specific goals	▪ Benchmark goals
▪ Tolerance for deviation from EBM care guidelines	▪ Less tolerance for deviation from EBM care guidelines
▪ Requires system-level approaches	▪ Requires system-level approaches

AGS Beers Criteria: Only Part of Quality Prescribing

- Quality prescribing includes
  - Correct drug for correct diagnosis
  - Appropriate dose (dose adjustments for comorbidity, drug-drug interactions)
  - Avoiding underuse of potentially important medications (e.g., bisphosphonates for osteoporosis)
  - Avoiding overuse (e.g., antibiotics)
  - Avoiding potentially inappropriate drugs
  - Avoiding withdrawal effects with discontinuation
  - Consideration of cost

Medicare Star Ratings





5 Types of Criteria

- Medications that are potentially inappropriate in most older adults (Table 2)
- Those that should typically be avoided in older adults with certain conditions (Table 3)
- Drugs to use with caution (Table 4)
- Drug-drug interactions (Table 5)
- Drug dose adjustment based on kidney function (Table 6)

Additional Tables

- Drugs with strong anticholinergic properties (Table 7)
- ***Medications/criteria removed since 2015 (Table 8)***
- ***Medications/criteria added since 2015 (Table 9)***
- ***Medications/criteria modified since 2015 (Table 10)***

Medications/Criteria Removed Since 2015

- Medications that lower seizure threshold in older adults with chronic seizures
  - *Not unique to older adults*
- H2-receptor antagonists
  - *Weak evidence and to avoid overly restricting therapeutic options for older adults with dementia who have GERD or similar issues (given a coexisting criterion advising against chronic use of PPIs)*
- Aripiprazole in PD
  - *Removed as a preferred antipyschotic in older adults with PD because of safety and efficacy concerns*
  - *Preferred antipsychotics in PD: clozapine, pimavanserin, and quetiapine*

Medications/Criteria Added Since 2015

- Glimepiride
  - *Severe, prolonged hypoglycemia*
- SNRIs in those with hx of falls/fx
  - *Associated with increase risk*
- Use with Caution
  - Rivaroxaban: *bleeding risk*
  - Tramadol: *risk of SIADH/hyponatremia*
  - Dextromethorphan/quinidine: *limited efficacy and increased risk of falls, drug-drug interactions*
  - TMP/SMX: *increased risk of hyper[K] in combo with ACEIs and ARBs in patients with reduced kidney function*

Medications/Criteria Modified Since 2015

- Sliding-scale insulin
  - *Higher risk of hypogylcemia without improvement in hyperglycemia management regardless of care setting. Avoid insulin regimens that include **only** short- or rapid-acting insulin dosed according to current BG levels without concurrent use of basal or long-acting insulin. This recommendation **does not apply** to regimens that contain basal insulin or long-acting insulin.*
- Use aspirin with caution in adults ≥70 years as primary prevention
  - *Lack of net benefit when used for primary prevention. Does not apply to secondary prevention.*

Use of Caveats

- Amiodarone is to be avoided as first-line therapy for atrial fibrillation unless the patient has heart failure or substantial left ventricular hypertrophy.
- Patients enrolled in palliative or hospice care excluded.

Application to Clinicians

- Think of Beers Criteria as a warning light
  - Why is patient taking the drug; is it truly needed?
  - Safer and/or more effective alternatives?
  - Does patient have particular characteristics that increase or mitigate risk of this medication?
  - At time of initial Rx and at follow-up
- Actively assess for symptoms, and assess whether these could be related to meds
- Don't automatically defer to colleagues

Anticholinergic Medications

Table 2. 2019 American Geriatrics Society Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults[a]

Organ System, Therapeutic Category, Drug(s)	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation
Anticholinergics[b]				
First-generation antihistamines Brompheniramine Carbinoxamine Chlorpheniramine Clemastine Cyproheptadine Dexbrompheniramine Dexchlorpheniramine Dimenhydrinate Diphenhydramine (oral) Doxylamine Hydroxyzine Meclizine Promethazine Pyrilamine Triprolidine	Highly anticholinergic; clearance reduced with advanced age, and tolerance develops when used as hypnotic; risk of confusion, dry mouth, constipation, and other anticholinergic effects or toxicity Use of diphenhydramine in situations such as acute treatment of severe allergic reaction may be appropriate.	Avoid	Moderate	Strong
Antiparkinsonian agents Benztropine (oral) Trihexyphenidyl	Not recommended for prevention or treatment of extrapyramidal symptoms with antipsychotics; more effective agents available for treatment of Parkinson disease	Avoid	Moderate	Strong
Antispasmodics Atropine (excludes ophthalmic) Belladonna alkaloids Clidinium-chlordiazepoxide Dicyclomine Homatropine (excludes opthalmic) Hyoscyamine Methscopolamine Propantheline Scopolamine	Highly anticholinergic, uncertain effectiveness	Avoid	Moderate	Strong

Anticholinergic Medications

Central nervous system					
Delirium	Anticholinergics (see Table 7 and full criteria available on www.geriatricscareonline.org.) Antipsychotics[b] Benzodiazepines Corticosteroids (oral and parenteral)[c] H2-receptor antagonists Cimetidine Famotidine Nizatidine Ranitidine Meperidine Nonbenzodiazepine, benzodiazepine receptor agonist hypnotics: eszopiclone, zaleplon, zolpidem	Avoid in older adults with or at high risk of delirium because of potential of inducing or worsening delirium Avoid antipsychotics for behavioral problems of dementia and/or delirium unless nonpharmacological options (eg, behavioral interventions) have failed or are not possible *and* the older adult is threatening substantial harm to self or others. Antipsychotics are associated with greater risk of cerebrovascular accident (stroke) and mortality in persons with dementia.	Avoid	H2-receptor antagonists: low All others: moderate	Strong
Dementia or cognitive impairment	Anticholinergics (see Table 7 and full criteria available on www.geriatricscareonline.org) Benzodiazepines Nonbenzodiazepine, benzodiazepine receptor agonist hypnotics Eszopiclone Zaleplon Zolpidem Antipsychotics, chronic and as-needed use[b]	Avoid because of adverse CNS effects Avoid antipsychotics for behavioral problems of dementia and/or delirium unless nonpharmacological options (eg, behavioral interventions) have failed or are not possible *and* the older adult is threatening substantial harm to self or others. Antipsychotics are associated with greater risk of cerebrovascular accident (stroke) and mortality in persons with dementia.	Avoid	Moderate	Strong

Table 3 (Contd.)

Disease or Syndrome	Drug(s)	Rationale	Recommendation	Quality of Evidence	Strength of Recommendation

Anticholinergic Medications

Table 7. Drugs With Strong Anticholinergic Properties

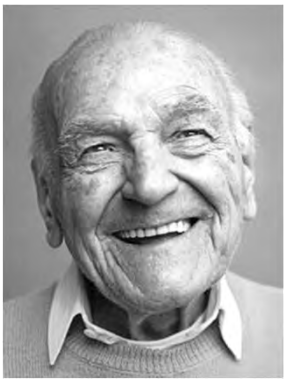
Antiarrhythmic	Promethazine
Disopyramide	Pyrilamine
	Triprolidine
Antidepressants	
Amitriptyline	
Amoxapine	
Clomipramine	Antimuscarinics
Desipramine	(urinary incontinence)
Doxepin (>6 mg)	Darifenacin
Imipramine	Fesoterodine
Nortriptyline	Flavoxate
Paroxetine	Oxybutynin
Protriptyline	Solifenacin
Trimipramine	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
Cidinium-chlordiazepoxide	Scopolamine (excludes ophthalmic)
Dicyclomine	
Homatropine (excludes ophthalmic)	Skeletal muscle relaxants
Hyoscyamine	Cyclobenzaprine
Methscopolamine	Orphenadrine
Propantheline	

Patient Case

"Pt. takes zolpidem at home for sleep and would like it or its equivalent ordered for here."

Thanks

- HK, an 88-year-old male reports to the ED due to falling at home
- Admitted to the medical floor
- PMH: dementia, anxiety, hypertension
- Current meds: donepezil, paroxetine, zolpidem
- Sticky note from RN

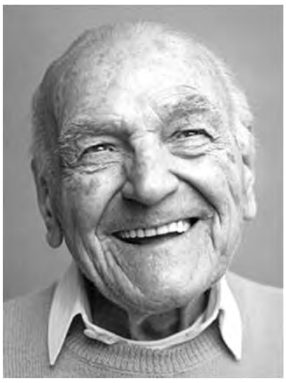


HK

- AGS Beers Criteria:
  - ❑ Paroxetine – AVOID
  - ❑ Non-BZD hypnotics – AVOID
  - ❑ Drug-disease interactions:
    - ✓ Dementia + non-BZD hypnotics
    - ✓ History of falls + non-BZD hypnotics & SSRIs

What Do We Do Now?

- Prioritize patient goals of care in order to identify first steps
- Coordinate close follow up to ensure treatment plan is enacted
- Communicate plan to patient, caregiver, and rest of the medical team
- Assess areas for improvement on a routine basis



HK

- ❑ Nursing interventions:
  - ✓Pt asking for sleeping pill
  - ✓Admitted for falls
  - ✓Communicate alternatives to team
- ❑ PT/OT interventions:
  - ✓Pt falling asleep during therapy
- ❑ Social Work interventions:
  - ✓Contact with family/caregiver

Non-pharm Sleep Protocol

Agostini JV, et al. J Am Geriatr Soc 2007;55:43-48.
McDowell JA, et al. J Am Geriatr Soc 1998; 46:700-705.

Non-pharm Alternatives

- Sleep protocol (Agostini et al, 2007)
- Bright Light Therapy for delirium, sleep, depression (Taguchi et al, 2007)
- Physical Activity/Exercise
- Diet
- Cognitive Stimulation, Music
- Olfactory Stimulation (Sakamoto et al, 2012)

Interventions to Decrease Use of Potentially Inappropriate Medications

- Education
- Geriatric Medicine services
- Pharmacist interventions
- Computerized support systems
- Regulation

EDITORIAL

Using Wisely: A Reminder on the Proper Use of the American Geriatrics Society Beers Criteria®

Table 1. Key principles to guide optimal use of the American Geriatrics Society Beers Criteria®

1 Medications in the 2019 AGS Beers Criteria® are potentially inappropriate, not definitely inappropriate.
2 Read the rationale and recommendations statements for each criterion. The caveats and guidance listed there are important.
3 Understand why medications are included in the AGS Beers Criteria®, and adjust your approach to those medications accordingly.
4 Optimal application of the AGS Beers Criteria® involves identifying potentially inappropriate medications and where appropriate offering safer nonpharmacologic and pharmacologic therapies.
5 The AGS Beers Criteria® should be a starting point for a comprehensive process of identifying and improving medication appropriateness and safety.
6 Access to medications included in the AGS Beers Criteria® should not be excessively restricted by prior authorization and/or health plan coverage policies.
7 The AGS Beers Criteria® are not equally applicable to all countries.

What are the Challenges of Using the AGS Beers Criteria in Clinical Care?

- Family Request
- Lack of Tested Non-pharm Alternatives
  - Non-pharm alternatives not covered by Part D, but may be by Part B
- Multiple prescribers/pharmacies
- Risk of drug is less than risk of condition
- Palliative Care and other special cases and populations

Conclusions

- Beers Criteria should be used with clinical judgment and common sense
- Keep in mind key principles to help you best use Beers Criteria in practice
  - *Warning light*
- Use resources (and direct your patients to them too)

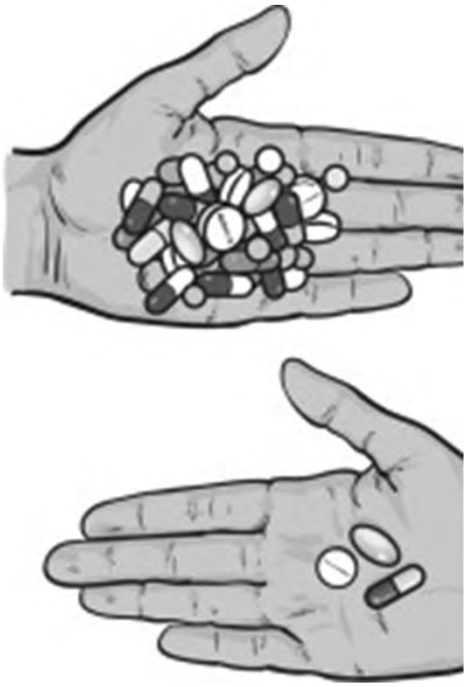
Clinical Judgment > Beers Criteria

- Take a few minutes to think about the Beers Criteria
- Identify 1 clinical scenario for which your clinical judgment would supersede the Beers Criteria
- Explain your rationale

Survey Monkey: Question 2

- https://www.surveymonkey.com/r/DMX99VW

- Which of the following medications is NOT on the AGS Beers Criteria?
  - Diphenhydramine
  - Loratadine
  - Paroxetine
  - Zolpidem



Section 3

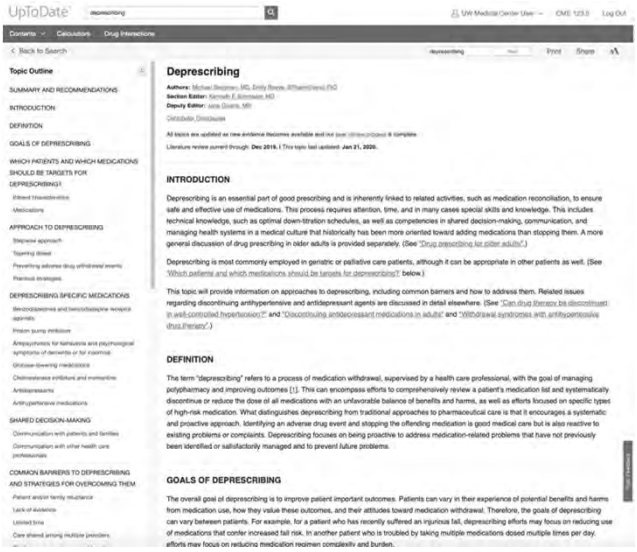
Deprescribing

Deprescribing

- The systematic process of identifying and discontinuing or reducing the dose of medications in instances in which existing or potential harms outweigh existing or potential benefits within the context of an individual patient's care goals, current level of functioning, life expectancy, values, and preferences.

Scott IA, et al. JAMA Intern Med. 2015 May;175(5):827-34.

New UpToDate Chapter

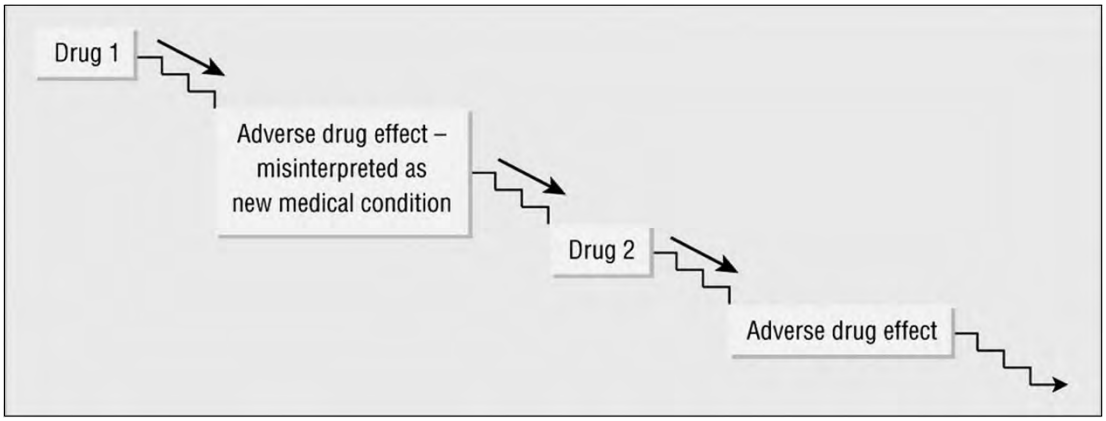


Deprescribing: Consider when medications…

- Have clear harms
  - Potential adverse effect
  - High risk or inappropriate medications
- Have uncertain benefits
  - Multimorbidity and polypharmacy
  - Life-limiting or debilitating illness
  - Change in goals of care
- Are part of a prescribing cascade

Scott. JAMA Intern Med. 2015;175(5):827-34.

A Prescribing Cascade



- Acetylcholinesterase inhibitor use and risk of use of an anticholinergic drug for urinary incontinence (HR 1.55, 95% CI 1.39-1.72)
- NSAIDs and hypertension

Rochon, P. A et al. *BMJ* 1997;315:1096-1099.
Gill SS et al. Arch Intern Med 2005;165:808-813.

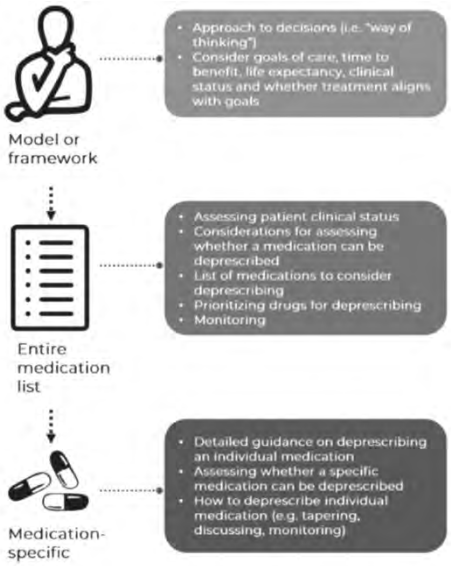
The Process of Deprescribing

1. Ascertain that all drugs the patient is currently taking and the reasons for each one.
2. Consider overall risk of drug-induced harm in individual patients in determining the required intensity of deprescribing intervention.
3. Assess each drug for its eligibility to be discontinued.
4. Prioritize drugs for discontinuation.
5. Implement and monitor drug discontinuation regimen.

Scott. JAMA Intern Med. 2015;175(5):827-34.

How to become a “Deprescriber”

1. Use a model or framework
2. “Own” the list
3. Use a specific strategy
   - Pick a drug
   - Pick a tool
   - Use an algorithm



Thompson, et al. J Am Geriatr Soc 2019;67:172-180.

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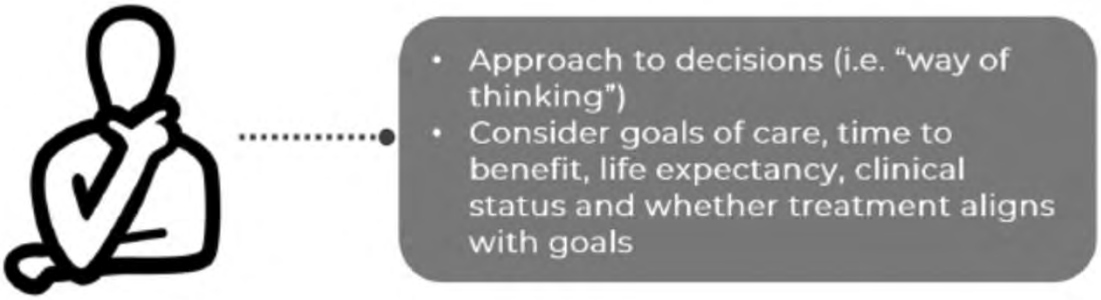

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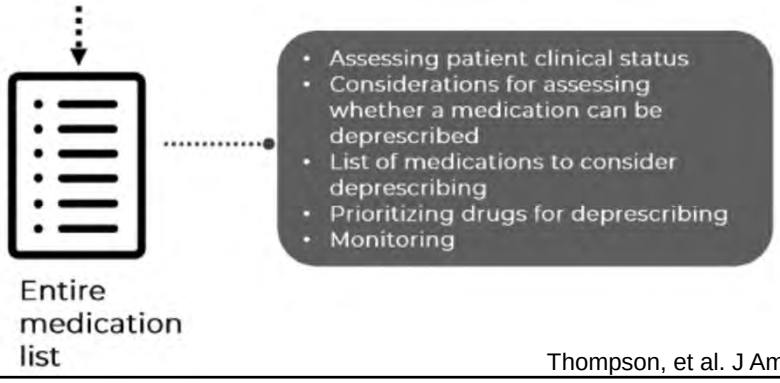

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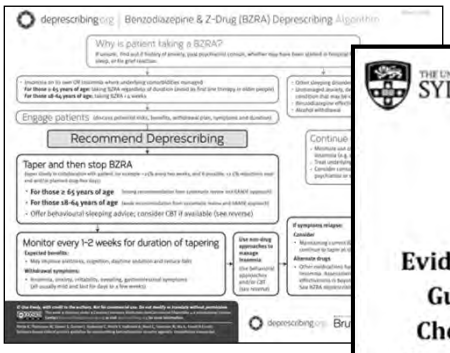
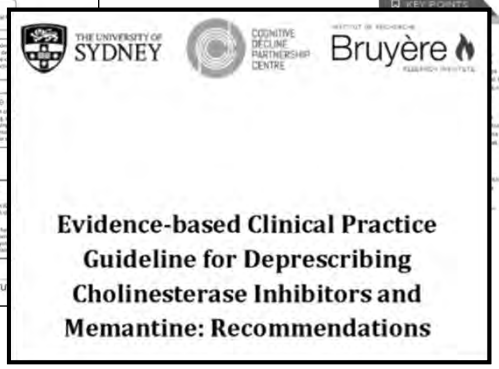
Tools that Aid in Deprescribing

- Criteria/lists of inappropriate medications
- Deprescribing algorithms and pamphlets





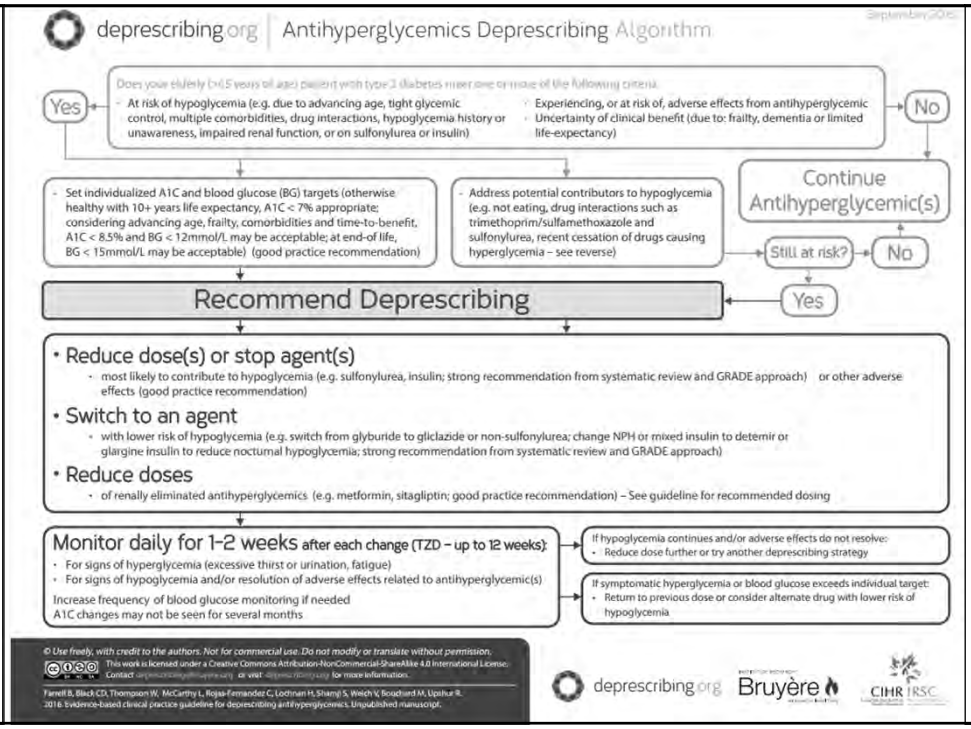
https://deprescribing.org/
http://sydney.edu.au/medicine/cdpc/resources/deprescribing-guidelines.php
https://www.primaryhealthtas.com.au/resources/deprescribing-guides/

https://deprescribing.org

RESOURCES

- For patients and health care providers:
  - Evidence-based deprescribing algorithms
  - Deprescribing information pamphlets
  - Deprescribing patient decision aids
  - Helpful links
  - Case reports and testimonials
  - Publications

Antihyperglycemics Deprescribing Algorithm



The Barriers of Deprescribing

Unclear Patient Population

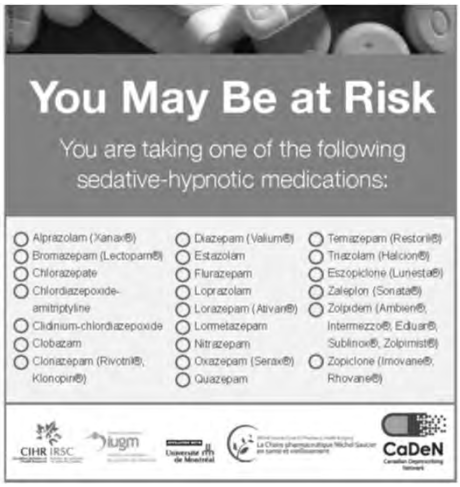
Psychological Connections with Medications

Risk of Adverse Withdrawal Events

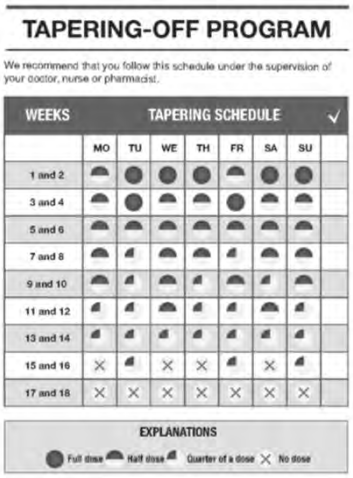
Time, and Confusion Over Discipline/ Specialty

Lack of Evidence

Sedative Deprescribing: EMPOWER Study

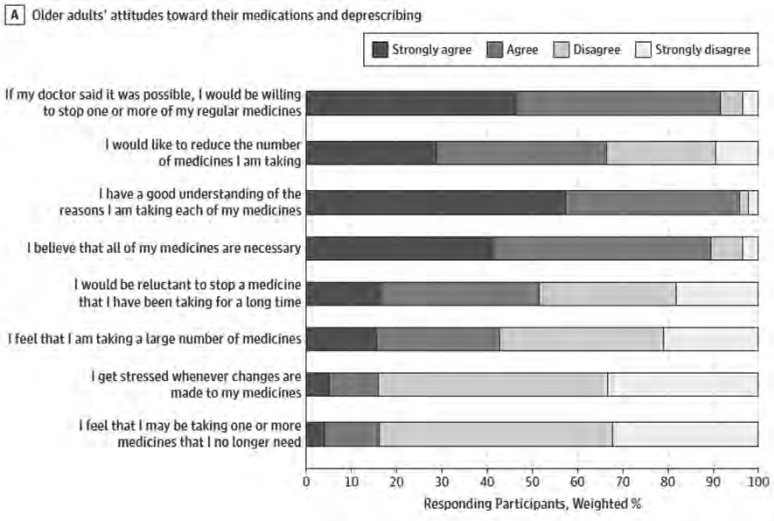


- 261 participants taking benzodiazepines recruited from 30 community pharmacies in Canada
- 86% completed 6 month follow up
- 27% stopped the benzo in the intervention group compared to 5% of the control group



Tannenbaum C et al. JAMA Intern Med 2014.

Most people would like to reduce their medication



Reeve E, *et al. JAMA Intern Med.* 2018;178(12):1673-1680.

The Deprescribing Rainbow

Todd A, *et al*. *BMC Geriatr.* 2018;18(1):295.

Example Questions to Ask Yourself

- **Are there any medications that are important for the patient to take for a clinical benefit? What about harms?**
- **What are the patient's beliefs and understanding about the aims, benefits and harms of their medications? Have they previously asked about reducing or stopping medications?**
- **Are there any other partners that need to be involved in the deprescribing process? Who is the gatekeeper of care regarding the patient's medications?**
- **Are there any financial aspects that influence the patient taking medications/future care?**
- **Does this patient have a high pill burden? Are there any physical barriers that prevent the patient from using their medication?**

Todd A, *et al*. *BMC Geriatr.* 2018;18(1):295.

…. And Your Patients

- **Are there any medications that are really important to you? And if so, why are they important?**
- **What are the main reason(s) for taking your medicines?**
- **How does your family feel about your medicines?**
- ***Are you worried about the financial cost of your care?***
- ***Are there any medications that are a burden to you? And if so, why are they burdensome?***

Todd A, *et al*. *BMC Geriatr.* 2018;18(1):295.

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Deprescribing: Communication is Key

- Taking advantage of opportune moments
- Contextualizing patient attitudes, goals, preferences
- The importance of “priming the pump”
- Negotiating prescriber priorities
- Understanding that stopping omeprazole is different from stopping oxycodone

Turner JP et al. *Ther Adv Drug Saf* 2018;9:687-698

The Power of the Pharmacist

JAMA | Original Investigation

Effect of a Pharmacist-Led Educational Intervention on Inappropriate Medication Prescriptions in Older Adults
The D-PRESCRIBE Randomized Clinical Trial

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- 489 patients 65 and older recruited in community pharmacies
- Pharmacist gave brochure to patient and note to physician
- Goal to reduce 4 Beers drugs: glyburide, sedative-hypnotics, first-gen. antithistamines, or NSAIDs
- 6 month follow up: 43% of intervention group stopped the meds compared to 12% control group

JAMA. 2018;320:1889-1898.

Survey Monkey: Question 3

- https://www.surveymonkey.com/r/DX8K7KR

- What is one way that you can implement a deprescribing principle in your clinical practice?

Objectives

1. Describe the core components of prescribing quality in older adults
2. Understand the key aspects of the updated AGS Beers Criteria in older adults
3. Assess an older adult's medication regimen for potential deprescribing opportunities

****Introduce you to key resources for future use****

Thank You