



IEHP High Risk Medication: Drug Alternative(s) Reference Guide

In order to better assist our providers to ensure optimal outcomes for our elderly members, IEHP provided the **High Risk Medication Drug Alternative(s) Guide**, which included the American Geriatrics Society (AGS) Beers Criteria recommendations and potentially safer alternatives.

If medically appropriate, please consider prescribing a safer alternative for your patients over 65 years old.

What are High-Risk Medications (HRMs)?

- HRMs, identified by the AGS Beers Criteria and the Pharmacy Quality Alliance, have been associated with poor health outcomes in the elderly, including cognitive impairment, falls and mortality.
- HRMs are best avoided in older adults (i.e. age \geq 65) in general.
- Both the Centers for Medicare and Medicaid Services (CMS) and the Healthcare Effectiveness Data and Information Set (HEDIS) have quality measures that focus on decreasing the use of HRMs in the elderly.

Summary of 2019 American Geriatrics Society Beers Criteria Update

- Guidance on avoiding a list of potentially inappropriate medications and 17 harmful drug-drug interactions for people aged 65 and older
- List of 21 medications to avoid or adjust based on kidney function
- Two medications were removed, three medications were added, and six medications or medication classes underwent modification of their recommendation

Please also refer to the 2019 AGS Beers Criteria for further information:

- www.americangeriatrics.org → 2019 AGS Beers Criteria



High Risk Medications to Avoid in the Elderly: Beers Recommendations and Potential Drug Alternatives

Drug Class/ Therapeutic Category	Drug Names	Precaution/Risk ¹	Beers Recommendation ¹	Medicare Formulary Alternatives and OTC Alternatives ^{2,3,4} OTC= available over the counter
Analgesics	<ul style="list-style-type: none"> ▪ Meperidine 	Oral analgesic not effective in dosages commonly used; may have higher risk of neurotoxicity; safer alternatives available	Avoid	Mild Pain: <ul style="list-style-type: none"> ▪ acetaminophen (OTC) ▪ NSAID (OTC) Moderate or Severe Pain: <ul style="list-style-type: none"> ▪ hydrocodone/ acetaminophen ▪ oxycodone/ acetaminophen ▪ tramadol
Anti-Anxiety Agents	<ul style="list-style-type: none"> ▪ Meprobamate ▪ Meprobamate-Aspirin 	High rate of physical dependence; sedating	Avoid	General Anxiety Disorder: <ul style="list-style-type: none"> ▪ buspirone ▪ sertraline ▪ venlafaxine Panic Disorder: <ul style="list-style-type: none"> ▪ fluoxetine, sertraline, venlafaxine OCD: <ul style="list-style-type: none"> ▪ fluoxetine, sertraline
Antiarrhythmics	<ul style="list-style-type: none"> ▪ Disopyramide 	May induce heart failure in older adults because of potent negative inotropic action; strongly anticholinergic; other antiarrhythmic drugs preferred	Avoid	Alternatives based on diagnosis: <ul style="list-style-type: none"> ▪ propafenone ▪ dofetilide (Tikosyn ®) ▪ flecainide ▪ mexiletine ▪ quinidine ▪ sotalol



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Antihistamines	<ul style="list-style-type: none"> ▪ Brompheniramine ▪ Carbinoxamine ▪ Chlorpheniramine ▪ Clemastine ▪ Cyproheptadine ▪ Dexbrompheniramine ▪ Diphenhydramine (Oral) ▪ Doxylamine ▪ Doxylamine/ pyridoxine ▪ Hydroxyzine ▪ Promethazine ▪ Triprolidine/ pseudoephedrine 	Highly anticholinergic, clearance reduced with age	<p>Avoid</p> <p>Use of diphenhydramine in situations such as acute severe allergic reaction may be appropriate</p>	<p>Allergic Rhinitis:</p> <ul style="list-style-type: none"> ▪ levocetirizine ▪ cetirizine ▪ fexofenadine (OTC) ▪ azelastine <p>Allergic Dermatoses:</p> <ul style="list-style-type: none"> ▪ oatmeal baths (OTC) ▪ calamine lotion ▪ loratadine
Antiparkinsonian Agents	<ul style="list-style-type: none"> ▪ Benztropine (Oral) ▪ Trihexyphenidyl 	Not recommended for prevention or treatment of extrapyramidal symptoms with antipsychotics; more effective agents available for treatment of Parkinson disease	Avoid	<ul style="list-style-type: none"> ▪ carbidopa/ levodopa (alone or in combination with entacapone/ tolcapone) ▪ Dopamine agonists <ul style="list-style-type: none"> ○ rotigotine (Neupro®), apomorphine (Apokyn®), bromocriptine, ropinirole, pramipexole ▪ MAO-B inhibitors <ul style="list-style-type: none"> ○ rasagiline (Azilect), selegiline
Antipsychotics	<ul style="list-style-type: none"> ▪ Mesoridazine ▪ Perphenazine-Amitriptyline ▪ Thioridazine 	Increased risk of cerebrovascular accident (stroke) and greater rate of cognitive decline and mortality in persons with dementia.	Avoid, except for Schizophrenia, bipolar disorder, or short-term use as antiemetic during chemotherapy	<ul style="list-style-type: none"> ▪ aripiprazole ▪ risperidone ▪ olanzapine ▪ quetiapine ▪ ziprasidone <p>¹Avoid antipsychotics in dementia or delirium unless nonpharmacological interventions have failed or not possible</p>



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				AND older adult is threatening substantial harm to self or others
Antispasmodics	<ul style="list-style-type: none"> ▪ Atropine (excludes ophthalmic) ▪ Belladonna alkaloids ▪ Hyoscyamine ▪ Scopolamine 	Highly anticholinergic; uncertain effectiveness	Avoid	GI disorders: <ul style="list-style-type: none"> ▪ glycopyrrolate Urinary System Disorder <ul style="list-style-type: none"> ▪ oxybutynin ▪ tolterodine ▪ trospium
Antithrombotics	<ul style="list-style-type: none"> ▪ Dipyridamole, oral short- acting (does not apply to extended release combination with aspirin) 	May cause orthostatic hypotension; more effective alternative available	Avoid	<ul style="list-style-type: none"> ▪ clopidogrel ▪ ticagrelor ▪ aspirin (OTC) ▪ aspirin/ dipyridamole (Aggrenox®)
Anti-infective	<ul style="list-style-type: none"> ▪ Nitrofurantoin 	Potential for pulmonary toxicity, hepatotoxicity, and peripheral neuropathy, especially with long term use; safer alternative available	Avoid in patients with CrCl<30mL/min or for long term bacteria suppression	UTI: <ul style="list-style-type: none"> ▪ SMX/TMP ▪ ciprofloxacin, levofloxacin ▪ cephalexin, cefuroxime
Barbiturates	<ul style="list-style-type: none"> ▪ Amobarbital ▪ Butabarbital ▪ Butalbital (in combination with acetaminophen/ caffeine/ aspirin/ codeine) ▪ Mephobarbital ▪ Pentobarbital ▪ Phenobarbital ▪ Secobarbital 	High rate of physical dependence, tolerance to sleep benefits, greater risk of overdose at low doses	Avoid	Sleep: <ul style="list-style-type: none"> ▪ trazodone ▪ ramelteon (Rozerem®) Anxiety: <ul style="list-style-type: none"> ▪ Refer to anti-anxiety section
Benzodiazepines	<ul style="list-style-type: none"> ▪ Chlordiazepoxide (alone or in combination with amitriptyline or 	May be appropriate for seizure disorders, rapid eye movement sleep	Avoid	Sleep: <ul style="list-style-type: none"> ▪ trazodone ▪ ramelteon (Rozerem®)



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	clidinium)	disorders, benzodiazepine withdrawal, ethanol withdrawal, severe generalized anxiety disorder, and periprocedural anesthesia		<p>Anxiety:</p> <ul style="list-style-type: none"> Refer to anti-anxiety section <p>¹All benzodiazepines increase risk of cognitive impairment, delirium, falls, fractures, and motor vehicle crashes in older adults</p>
Calcium Channel Blocker	<ul style="list-style-type: none"> Nifedipine, immediate release 	Potential for hypotension; risk of precipitating myocardial ischemia	Avoid	<ul style="list-style-type: none"> nifedipine ER felodipine ER amlodipine
Cardiac Glycosides	<ul style="list-style-type: none"> Digoxin 	Use in atrial fibrillation but not as a first-line agent. More effective alternatives exist; may be associated with increased mortality	<p>Avoid as first-line Therapy for heart failure</p> <p>Avoid dosages >0.125 mg/d for atrial fibrillation or heart failure</p>	<p>Atrial Fibrillation:</p> <ul style="list-style-type: none"> Refer to the antiarrhythmic section Re-evaluate dosage Use digoxin at dose $\leq 0.125\text{mg}$ <p>Heart Failure:</p> <ul style="list-style-type: none"> Re-evaluate appropriateness and dosage for this medication Use digoxin at dose $\leq 0.125\text{mg}$
		Use in heart failure, questionable effects and may be associated with increased mortality; higher dosages not associated with additional benefit and may increase risk of toxicity		
		Decreased renal clearance, may need further dose reduction in patients with Stage 4 or 5 chronic kidney disease		
Central alpha-blockers	<ul style="list-style-type: none"> Guanfacine Methyldopa Reserpine (>0.1 mg/d) 	High risk of adverse CNS effects; may cause bradycardia and orthostatic hypotension; not recommended as routine treatment for hypertension	Avoid	<ul style="list-style-type: none"> Alternative hypertensive medications available on formulary <ul style="list-style-type: none"> ACE-I, ARB, hydrochlorothiazide, beta-blocker, calcium channel blocker <p>ADHD:</p> <ul style="list-style-type: none"> methylphenidate ER,



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				dextroamphetamine/amphetamine XR
Hormones	<ul style="list-style-type: none"> ▪ Estrogens with or without progestins (oral and topical patch) 	Evidence of carcinogenic potential (breast and endometrium); lack of cardioprotective effect and cognitive protection in older women. Evidence indicates that vaginal estrogens for the treatment of vaginal dryness are safe and effective	Avoid oral and topical patch	<ul style="list-style-type: none"> ▪ Conjugated estrogen vaginal cream (Premarin®)
	<ul style="list-style-type: none"> ▪ Megestrol 	Minimal effects on weight; increases risk of thrombotic events and possibly death in older adults	Avoid	<ul style="list-style-type: none"> ▪ Treatment of cachexia: <ul style="list-style-type: none"> ○ oxandrolone, dronabinol
Hypnotics	<ul style="list-style-type: none"> ▪ Eszopiclone ▪ Zolpidem ▪ Zaleplon 	Similar adverse events to benzodiazepines in older adults (e.g., delirium, falls, fractures); minimal improvement in sleep latency and duration	Avoid	<ul style="list-style-type: none"> ▪ trazodone ▪ ramelteon (Rozerem®)
Nonsteroidal Anti-inflammatory Agent	<ul style="list-style-type: none"> ▪ Indomethacin ▪ Ketorolac, includes parenteral 	Indomethacin more likely to cause adverse CNS effects and the most adverse effects compared to other NSAIDs Increased risk of	Avoid	<ul style="list-style-type: none"> ▪ acetaminophen (OTC) ▪ celecoxib ▪ flurbiprofen



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		gastrointestinal bleeding, peptic ulcer disease, and acute kidney injury in older adults		
Peripheral Vasodilator	<ul style="list-style-type: none"> ▪ Isoxsuprine 	Lack of efficacy	Avoid	<ul style="list-style-type: none"> ▪ Non-pharmacological therapy: <ul style="list-style-type: none"> ○ Exercise rehabilitation
Psychotherapeutic and Neurological Agents	<ul style="list-style-type: none"> ▪ Ergoloid Mesylates 	Lack of efficacy	Avoid	Alzheimer's Disease: <ul style="list-style-type: none"> ▪ galantamine ▪ memantine ▪ donepezil ▪ rivastigmine
Skeletal Muscle Relaxants	<ul style="list-style-type: none"> ▪ Carisoprodol (alone or in combination with aspirin or codeine) ▪ Chlorzoxazone ▪ Cyclobenzaprine ▪ Metaxalone ▪ Methocarbamol ▪ Orphenadrine (alone or in combination with aspirin or caffeine) 	Poorly tolerated by older adults; questionable effectiveness at dosages tolerated by older adults	Avoid	Spasticity: <ul style="list-style-type: none"> ▪ baclofen ▪ dantrolene ▪ tizanidine
Sulfonylureas, long duration	<ul style="list-style-type: none"> ▪ Chlorpropamide ▪ Glimepiride 	Prolonged half-life in older adults; can cause prolonged hypoglycemia; causes syndrome of inappropriate antidiuretic hormone secretion	Avoid	<ul style="list-style-type: none"> ▪ glipizide



	<ul style="list-style-type: none"> ▪ Glyburide (alone or in combination with metformin) 	Higher risk of severe prolonged hypoglycemia in older adults	Avoid	
Thyroid Hormones	<ul style="list-style-type: none"> ▪ Desiccated Thyroid 	Concerns about cardiac effects; safer alternative available	Avoid	<ul style="list-style-type: none"> ▪ levothyroxine (Levoxyl ®, Synthroid ®)
Tricyclic agents	<ul style="list-style-type: none"> ▪ Amitriptyline ▪ Clomipramine ▪ Doxepin >6 mg/day ▪ Imipramine ▪ Nortriptyline ▪ Trimipramine 	Highly anticholinergic, sedating, and causes orthostatic hypotension; safety profile of low-dose doxepin (≤ 6 mg/d) comparable with that of placebo	Avoid	<p>Depression:</p> <ul style="list-style-type: none"> ▪ citalopram, fluoxetine, sertraline, venlafaxine, bupropion <p>Neuropathic Pain:</p> <ul style="list-style-type: none"> ▪ pregabalin (Lyrica ®), gabapentin, duloxetine <p>OCD:</p> <ul style="list-style-type: none"> ▪ fluoxetine, fluvoxamine, sertraline <p>Insomnia:</p> <ul style="list-style-type: none"> ▪ trazodone ▪ ramelteon (Rozerem®)

References:

1. The American Geriatrics Society 2019 Beers Criteria Update Expert Panel. American Geriatrics Society 2019 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc* 00:1-21, 2019.
2. The National Collaborating Centre for Chronic Conditions. Parkinson’s Disease: National Clinical Guideline for Diagnosis and Management in Primary and Secondary Care. NICE Guidelines, 2009
3. The American Heart Association Conference Proceedings. Atherosclerotic Vascular Disease Conference. *American Heart Association* 2004;109:2634-2642
4. American College of Obstetricians and Gynecologists. ACOG Releases Clinical Guidelines on Management of Menopausal Symptoms. *Am Fam Physician*, 90(5):338-340, 2014