

# Medications to avoid in the elderly



In accordance with the American Geriatrics Society 2015 Beers Updated Criteria for Potentially Inappropriate Medication Use in Older Adults, we are providing this tool to aid in safer medication alternatives for your older adult patients.

Description	Medications to avoid <sup>1, 2</sup>	Adverse side effects/concerns	Drug List alternatives <sup>3, 4, 5</sup>
Alpha agonists, central	<ul style="list-style-type: none"><li>• guanfacine</li><li>• guanabenz</li><li>• methyldopa</li><li>• reserpine (<b>doses greater than 0.1 mg/day</b>)</li></ul>	High risk of central nervous system (CNS) effects; may cause bradycardia and orthostatic hypotension; not recommended for routine treatment of hypertension	<b>Hypertension:</b> amlodipine*, atenolol*, lisinopril*, losartan*, valsartan*, clonidine* <b>ADHD:</b> dextroamphetamine <sup>+</sup> , methylphenidate***
Analgesics	<ul style="list-style-type: none"><li>• indomethacin</li><li>• ketorolac</li></ul>	Potential for gastrointestinal bleeding, renal failure, high blood pressure and heart failure	meloxicam*, ibuprofen*, naproxen <sup>^</sup> , diclofenac**
Anti-anxiety	<ul style="list-style-type: none"><li>• aspirin-meprobamate</li><li>• meprobamate</li></ul>	Addictive and sedating anxiolytic	<b>Anxiety:</b> buspirone**, duloxetine***, escitalopram*, sertraline*, venlafaxine** <b>Insomnia:</b> See the nonbenzodiazepine hypnotic section for insomnia alternatives.
Antidepressants (includes single entity or as part of a combination product)	<ul style="list-style-type: none"><li>• amoxapine</li><li>• amitriptyline</li><li>• clomipramine</li><li>• desipramine</li><li>• doxepin (<b>doses greater than 6 mg/day</b>)</li><li>• imipramine</li><li>• nortriptyline</li><li>• paroxetine</li><li>• trimipramine</li><li>• protriptyline</li></ul>	Highly anticholinergic effects; may cause orthostatic hypotension	<b>Depression:</b> Selective serotonin reuptake inhibitors (SSRIs) <sup>5</sup> – escitalopram*, sertraline*; serotonin and norepinephrine reuptake inhibitors (SNRIs) – duloxetine***, venlafaxine** <b>Insomnia:</b> See the nonbenzodiazepine hypnotic section for insomnia alternatives. <b>Neuropathic pain:</b> gabapentin**
Antihistamines (includes single entity or as part of a combination product)	<ul style="list-style-type: none"><li>• brompheniramine</li><li>• carbinoxamine</li><li>• chlorpheniramine</li><li>• clemastine</li><li>• cyproheptadine</li><li>• dexbrompheniramine</li><li>• dexchlorpheniramine</li><li>• diphenhydramine (oral)</li><li>• dimenhydrinate</li><li>• doxylamine</li><li>• hydroxyzine</li><li>• meclizine</li><li>• promethazine</li><li>• triprolidine</li></ul>	Highly anticholinergic effects, sedation, weakness, blood pressure changes, dry mouth, urinary retention; clearance reduced in advanced age (Tolerance develops when used as hypnotic.)	<b>Pruritus/urticaria:</b> cetirizine oral solution**, levocetirizine*, loratadine <sup>Δ</sup> <b>Nausea/vomiting:</b> ondansetron**, prochlorperazine* <b>Allergic rhinitis:</b> azelastine <sup>Δ</sup> , cetirizine oral solution**, fexofenadine <sup>Δ</sup> , fluticasone nasal spray**, flunisolide nasal spray***, levocetirizine*, loratadine <sup>Δ</sup> <b>Insomnia:</b> See the nonbenzodiazepine hypnotic section for insomnia alternatives. <b>Over-the-counter option:</b> melatonin, if appropriate; regarded as safe in recommended doses (up to 15 mg daily) for up to two years
Anti-infectives ( <b>when cumulative days' supply greater than 90 days</b> )	<ul style="list-style-type: none"><li>• nitrofurantoin</li><li>• nitrofurantoin macrocrystals</li></ul>	Potential for pulmonary toxicity, hepatotoxicity and peripheral neuropathy; nitrofurantoin causes renal impairment; avoid in persons with a CrCl less than 60 mL/min due to inadequate drug concentration in the urine	Dependent on the infection: cephalexin**, ciprofloxacin*, sulfamethoxazole/trimethoprim*, doxycycline**
Anti-Parkinson agents	<ul style="list-style-type: none"><li>• benztropine (oral)</li><li>• trihexyphenidyl</li></ul>	Not recommended for prevention of extrapyramidal symptoms with antipsychotics	carbidopa-levodopa*, pramipexole (Mirapex)**, ropinirole (Requip)**
Antispasmodics (includes single entity or as part of a combination product)	<ul style="list-style-type: none"><li>• atropine (excludes ophthalmic)</li><li>• belladonna</li><li>• clidinium-chlordiazepoxide</li><li>• dicyclomine</li><li>• hyoscyamine</li><li>• propantheline</li><li>• scopolamine</li></ul>	Anticholinergic effects	<b>Constipation:</b> polyethylene glycol oral <sup>Δ</sup> , psyllium <sup>Δ</sup> , stool softener <sup>Δ</sup> <b>Diarrhea:</b> aluminum hydroxide <sup>Δ</sup> , sucralfate**, pantoprazole*, omeprazole*, loperamide**
Anti-thrombotics	<ul style="list-style-type: none"><li>• dipyridamole (oral short-acting only)</li><li>• ticlopidine</li></ul>	Dipyridamole may cause orthostatic hypotension; more effective alternatives are available	cilostazol**, clopidogrel*, low-dose aspirin <sup>Δ</sup>
Barbiturates	<ul style="list-style-type: none"><li>• amobarbital</li><li>• butabarbital</li><li>• butalbital</li><li>• mephobarbital</li><li>• pentobarbital</li><li>• phenobarbital</li><li>• secobarbital</li></ul>	High rate of physical dependence; patients develop tolerance, which reduces sleep benefits; risk of overdose at low dosage due to tolerance and patient choice to over-medicate to achieve therapeutic effect	<b>Anxiety:</b> SSRIs <sup>5</sup> (escitalopram*, sertraline*); SNRIs (duloxetine***, venlafaxine**); buspirone** <b>Insomnia:</b> See the nonbenzodiazepine hypnotic section for insomnia alternatives. <b>Seizure:</b> gabapentin**, lamotrigine**, topiramate** <b>Migraine:</b> sumatriptan**, rizatriptan**, naratriptan***, naproxen*
Calcium channel blockers	<ul style="list-style-type: none"><li>• nifedipine – short-acting only</li></ul>	Potential for hypotension; risk of causing myocardial ischemia	Use long-acting formulation to avoid adverse effects: felodipine***, amlodipine*
Cardiovascular	<ul style="list-style-type: none"><li>• digoxin (<b>doses greater than 0.125 mg/day</b>)</li><li>• disopyramide</li></ul>	<b>Digoxin:</b> In heart failure, higher doses have increased risk of toxicity; decreased renal clearance <b>Disopyramide:</b> Potent negative inotrope that may induce heart failure in older adults; anticholinergic effects	Digoxin does not decrease morbidity or mortality. Optimize angiotensin-converting enzyme inhibitors (ACEI), angiotensin receptor blockers (ARB), beta blockers and/or aldosterone antagonist prior to digoxin use. Options from each class include: ACEI – lisinopril*, enalapril*, ARB – losartan*, valsartan*; beta blocker – metoprolol succinate XL*, carvedilol*, atenolol*; aldosterone antagonist – spironolactone** Antiarrhythmics – quinidine**, flecainide**, diltiazem**

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Endocrine	<ul style="list-style-type: none"><li>• megestrol</li></ul>	Increases risk of thrombotic event and possibly death in older adults	Consider nutritional support and treatment of potential cause (e.g., depression, certain medications); consider dronabinol <sup>+</sup> for anorexia associated with weight loss in patients with AIDS or for nausea and vomiting in chemotherapy patients who failed to respond adequately to conventional treatments.
Nonbarbiturate or nonbenzodiazepine hypnotic ( <b>when cumulative days’ supply greater than 90 days</b> )	<ul style="list-style-type: none"><li>• Lunesta (eszopiclone)</li><li>• Sonata (zaleplon)</li><li>• Ambien (zolpidem)</li></ul>	Benzodiazepine-receptor agonists have adverse events similar to those of benzodiazepines in older adults (e.g., delirium, falls, fractures); they produce minimal improvement in sleep latency and duration <sup>1</sup>	Consider only short-term or intermittent use (less than 90 days per year).  Ambien IR: Do not exceed 5 mg orally at bedtime in geriatrics. <sup>6</sup>  suvorexant (Belsomra) <sup>+</sup>  Discuss sleep hygiene and avoidance of caffeine, alcohol, nicotine and medications that cause insomnia.  Evaluate for depression, a common cause of insomnia in the elderly. Secondary insomnia can be treated with trazodone* 50 mg (may cause orthostatic hypotension) or doxepin <sup>+</sup> (less than 6 mg per day).  Over-the-counter option: melatonin <sup>Δ</sup> , if appropriate; regarded as safe in recommended doses (up to 15 mg daily) for up to two years.
Oral estrogens and estradiol transdermal patch	<ul style="list-style-type: none"><li>• conjugated estrogen</li><li>• conjugated estrogen-medroxyprogesterone</li><li>• drospirenone-estradiol</li><li>• esterified estrogen</li><li>• estradiol-norethindrone</li><li>• esterified estrogen-methyltestosterone</li><li>• estropiate</li><li>• estradiol</li><li>• estradiol-levonorgestrel</li></ul>	Cardio-protective properties are absent; high carcinogenic effects (breast cancer and endometrial cancer)	<b>Hot flashes:</b> nondrug comfort therapy  <b>SSRIs<sup>Δ</sup>:</b> escitalopram*, sertraline*; SNRIs: venlafaxine**  <b>Vaginal dryness:</b> Estrace vaginal cream***, Premarin vaginal cream***  <b>Bone density:</b> alendronate*, calcium <sup>Δ</sup> , raloxifene***, vitamin D <sup>Δ</sup>
Hypoglycemics	<ul style="list-style-type: none"><li>• chlorpropamide</li><li>• glyburide</li></ul>	Prolonged half-life causing prolonged hypoglycemia; also causes syndrome of inappropriate anti-diuretic hormone secretion (SIADH)	glimepiride*, glipizide*
Skeletal muscle relaxants	<div><ul style="list-style-type: none"><li>• ASA/caffeine/orphenadrine</li><li>• ASA/carisoprodol/orphenadrine</li><li>• aspirin-carisoprodol</li><li>• carisoprodol</li></ul><ul style="list-style-type: none"><li>• chlorzoxazone</li><li>• cyclobenzaprine</li><li>• metaxalone</li><li>• methocarbamol</li><li>• orphenadrine</li></ul></div>	Anticholinergic effects, sedation, weakness and increased risk of fractures  Poorly tolerated; effectiveness at doses tolerated by older adults is questionable	baclofen**, tizanidine*  <b>Nonpharmacologic treatment for muscle spasms:</b> heat, massage, stretching/exercise
Thyroid	<ul style="list-style-type: none"><li>• thyroid desiccated</li></ul>	Cardiac concerns	levothyroxine*
Vasodilators	<ul style="list-style-type: none"><li>• dipyridamole – short-acting only</li><li>• ergot mesyloid</li><li>• isoxsuprine</li></ul>	Orthostatic hypotension	<b>Stroke prevention:</b> clopidogrel*, low-dose aspirin <sup>Δ</sup>  <b>Coronary artery disease:</b> amlodipine*  <b>Alzheimer’s disease/dementia:</b> donepezil*, galantamine <sup>+</sup> , rivastigmine <sup>+</sup>

\* = Tier 1; \*\* = Tier 2; \*\*\* = Tier 3; + = Tier 4; Δ = OTC medication; ^ = Only 250 mg, 375mg and 500 mg dosages are Tier 1  
**Note:** Tier information is based on Drug List: National-5 MAPD 18258  
\$ = Selective serotonin reuptake inhibitors can be considered a clinical alternative for patients older than 65 years old on a high-risk medication (HRM), but they should not be considered an alternative or used in patients with a history of falls or dementia.

References:  
<sup>1</sup>The American Geriatrics Society 2015 Beers Criteria Update Expert Panel (2015). American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. Journal of the American Geriatrics Society. DOI: 10.1111/jgs.13702. <http://onlinelibrary.wiley.com/doi/10.1111/jgs.13702/full>. Accessed Nov 27, 2017.  
<sup>2</sup>The Pharmacy Quality Alliance Technical Specifications for PQA Approved Measures. July 2017 Edition. Print.  
<sup>3</sup>Joseph T. Hanlon, Todd P. Semla and Kenneth E. Schmader. “Alternative Medications for Medications in the Use of High-Risk Medications in the Elderly and Potentially Harmful Drug–Disease Interactions in the Elderly Quality Measures.” Journal of the American Geriatrics Society 63.12 (2015): e8-e18.  
<sup>4</sup>Source: PL Detail-Document, Potentially Harmful Drugs in the Elderly: Beers List. Pharmacist’s Letter/Prescriber’s Letter. June 2012.  
<sup>5</sup>Starting and Stopping Medications in the Elderly. Pharmacist’s Letter/Prescriber’s Letter. (2011): 270906  
<sup>6</sup>DRUGDEX. Micromedex, Greenwood Village, CO: Truven Health Analytics Inc. 2013. Accessed Nov. 27, 2017. Available from: <http://www.micromedexsolutions.com>.