



Senior Whole Health.  
BY MOLINA HEALTHCARE

Quick Reference Guide

# Guide to High-Risk Medications and their Alternatives

High Risk Medications	Notes	Indications	Alternatives
<b>Anticholinergics (excludes TCA)</b>			
<b>First-generation antihistamines (alone or in combination)</b> <ul style="list-style-type: none"> <li>• Brompheniramine<sup>OTC</sup></li> <li>• Carbinoxamine<sup>NF</sup></li> <li>• Chlorpheniramine<sup>OTC</sup></li> <li>• Clemastine<sup>NF</sup></li> <li>• Cyproheptadine<sup>NF</sup></li> <li>• Dexchlorpheniramine<sup>NF</sup></li> <li>• Diphenhydramine (oral)<sup>OTC</sup></li> <li>• Doxylamine<sup>OTC</sup></li> <li>• Hydroxyzine<sup>PA</sup></li> <li>• Promethazine (oral)</li> <li>• Triprolidine<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Highly anticholinergic and clearance reduced with advanced age</li> <li>• Greater risk of confusion, dry mouth, constipation, and other anticholinergic effects</li> <li>• Use of diphenhydramine in special situations such as acute treatment of severe allergic reaction may be appropriate</li> </ul>	• Allergic rhinitis	<ul style="list-style-type: none"> <li>• Cetirizine<sup>OTC</sup></li> <li>• Loratadine<sup>OTC</sup></li> <li>• Fexofenadine<sup>OTC</sup></li> </ul>
		• Insomnia	<ul style="list-style-type: none"> <li>• Trazodone<sup>F</sup></li> <li>• Ramelteon<sup>QL</sup></li> </ul>
		• Motion sickness	<ul style="list-style-type: none"> <li>• Meclizine<sup>F</sup></li> <li>• Prochlorperazine<sup>F</sup></li> <li>• Non-pharmacological therapy</li> </ul>
<b>Antiparkinson agents</b> <ul style="list-style-type: none"> <li>• Benztropine (oral)<sup>PA</sup></li> <li>• Trihexyphenidyl<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Not recommended for prevention of extrapyramidal symptoms with antipsychotics</li> </ul>	• Parkinson disease	<ul style="list-style-type: none"> <li>• Dopamine Agonists</li> <li>• Carbidopa-levodopa<sup>F</sup></li> <li>• Pramipexole<sup>F</sup></li> <li>• Ropinirole<sup>F</sup></li> <li>• MAO-Inhibitors</li> <li>• Selegiline<sup>F</sup></li> </ul>
<b>Antithrombotics</b>			
<ul style="list-style-type: none"> <li>• Dipyridamole, oral short acting<sup>F</sup></li> <li>• Ticlopidine<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• May cause orthostatic hypotension (dipyridamole)</li> <li>• Thrombotic thrombo-cytopenic purpura, neutropenia (Ticlopidine)</li> </ul>	• Thrombo-embolic disorder	<ul style="list-style-type: none"> <li>• Aspirin plus extended-release dipyridamole<sup>F</sup></li> <li>• Clopidogrel<sup>FQL</sup></li> </ul>
<b>Anti-infective</b>			
<ul style="list-style-type: none"> <li>• Nitrofurantoin<sup>F</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Potential for pulmonary toxicity</li> <li>• Lack of efficacy in patients with CrCl &lt;60 mL/min due to inadequate drug concentration in the urine</li> </ul>	• UTI	<ul style="list-style-type: none"> <li>• Ciprofloxacin(oral)<sup>F</sup></li> <li>• TMP-SMX (oral)<sup>F</sup></li> </ul>

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<b>Cardiovascular</b>			
<b>Alpha agonists, central</b> <ul style="list-style-type: none"> <li>• Guanfacine<sup>NF</sup></li> <li>• Methyldopa<sup>F</sup></li> <li>• Reserpine<sup>NF</sup> (&gt;0.1 mg/d)</li> </ul>	<ul style="list-style-type: none"> <li>• High risk of adverse CNS effects</li> <li>• May cause bradycardia and orthostatic hypotension</li> <li>• Not recommended as routine treatment for hypertension</li> </ul>	<ul style="list-style-type: none"> <li>• Hypertension</li> </ul>	Thiazide-type diuretics <ul style="list-style-type: none"> <li>• Hydrochlorothiazide<sup>F</sup></li> <li>• Chlorthalidone<sup>F</sup></li> </ul> ACEIs <ul style="list-style-type: none"> <li>• Lisinopril<sup>F</sup></li> <li>• Enalapril<sup>F</sup></li> </ul> ARBs <ul style="list-style-type: none"> <li>• Losartan<sup>F</sup></li> <li>• Valsartan<sup>F</sup></li> </ul> CCBs <ul style="list-style-type: none"> <li>• Amlodipine<sup>F</sup></li> <li>• Nifedipine (extended release)<sup>F</sup></li> </ul>
<ul style="list-style-type: none"> <li>• Disopyramide<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Disopyramide is a potent negative inotrope and therefore may induce heart failure in older adults</li> <li>• Strongly anticholinergic</li> </ul>	<ul style="list-style-type: none"> <li>• Ventricular arrhythmia, Life-threatening</li> </ul>	<ul style="list-style-type: none"> <li>• Amiodarone<sup>F</sup></li> <li>• Epinephrine<sup>F</sup></li> </ul>
<ul style="list-style-type: none"> <li>• Digoxin<sub>F</sub> (&gt;0.125 mg/d)</li> </ul>	<ul style="list-style-type: none"> <li>• In heart failure, higher dosages associated with no additional benefit and may increase risk of toxicity</li> <li>• Slow renal clearance may lead to risk of toxic effects</li> </ul>	<ul style="list-style-type: none"> <li>• Atrial fibrillation</li> </ul>	CCBs <ul style="list-style-type: none"> <li>• Diltiazem<sup>F</sup></li> <li>• Verapamil<sup>F</sup></li> </ul> BBs <ul style="list-style-type: none"> <li>• Metoprolol<sup>F</sup></li> <li>• Atenolol<sup>F</sup></li> </ul>
		<ul style="list-style-type: none"> <li>• Heart failure</li> </ul>	ACEIs <ul style="list-style-type: none"> <li>• Lisinopril<sup>F</sup></li> <li>• Enalapril<sup>F</sup></li> </ul> ARBs <ul style="list-style-type: none"> <li>• Losartan<sup>F</sup></li> <li>• Valsartan<sup>F</sup></li> </ul>
<ul style="list-style-type: none"> <li>• Nifedipine, immediate release<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Potential for hypotension</li> <li>• Risk of precipitating myocardial ischemia</li> </ul>	<ul style="list-style-type: none"> <li>• Angina</li> </ul>	Nitrates <ul style="list-style-type: none"> <li>• Isosorbide<sup>F</sup></li> <li>• Nitroglycerin<sup>F</sup></li> </ul>

High Risk Medications	Notes	Indications	Alternatives
Nifedipine, immediate release <sup>NF</sup> (continued)			BBs <ul style="list-style-type: none"> <li>• Metoprolol<sup>F</sup></li> <li>• Atenolol<sup>F</sup></li> </ul>
<b>Central nervous system</b>			
<b>Tertiary TCAs (alone or in combination)</b> <ul style="list-style-type: none"> <li>• Amitriptyline</li> <li>• Clomipramine</li> <li>• Doxepin &gt;6 mg/d</li> <li>• Imipramine</li> <li>• Trimipramine</li> </ul>	<ul style="list-style-type: none"> <li>• Highly anticholinergic, sedating, and cause orthostatic hypotension</li> </ul>	<ul style="list-style-type: none"> <li>• Depression</li> <li>• Obsessive-compulsive disorder</li> </ul>	SSRIs <ul style="list-style-type: none"> <li>• Citalopram<sup>QL</sup></li> <li>• Sertraline<sup>QL</sup></li> </ul> SNRIs <ul style="list-style-type: none"> <li>• Duloxetine<sup>QL</sup></li> <li>• Venlafaxine<sup>QL</sup></li> </ul>
		<ul style="list-style-type: none"> <li>• Insomnia</li> </ul>	<ul style="list-style-type: none"> <li>• Trazodone<sup>F</sup></li> <li>• Ramelteon<sup>QL</sup></li> </ul>
<ul style="list-style-type: none"> <li>• Thioridazine<sup>F</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Increased risk of cerebrovascular accident (stroke) and mortality in persons with dementia</li> <li>• Highly anticholinergic</li> <li>• Risk of QT-interval prolongation</li> </ul>	<ul style="list-style-type: none"> <li>• Schizophrenia</li> </ul>	<ul style="list-style-type: none"> <li>• Risperidone<sup>QL</sup></li> <li>• Quetiapine<sup>QL</sup></li> </ul>
<b>Barbiturates</b> <ul style="list-style-type: none"> <li>• Amobarbital<sup>NF</sup></li> <li>• Butabarbital<sup>NF</sup></li> <li>• Butalbital<sup>NF</sup></li> <li>• Pentobarbital<sup>NF</sup></li> <li>• Phenobarbital(oral tab)<sup>PA</sup></li> <li>• Secobarbital<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• High rate of physical dependence</li> <li>• Tolerance to sleep benefits</li> <li>• Risk of overdose at low dosages</li> </ul>	<ul style="list-style-type: none"> <li>• Insomnia</li> </ul>	<ul style="list-style-type: none"> <li>• Trazodone<sup>F</sup></li> <li>• Ramelteon<sup>QL</sup></li> </ul>
		<ul style="list-style-type: none"> <li>• Sedation/Anesthesia</li> </ul>	<ul style="list-style-type: none"> <li>• Fentanyl<sup>QL</sup></li> <li>• Propofol<sup>NF</sup></li> </ul>
		<ul style="list-style-type: none"> <li>• Seizure</li> </ul>	<ul style="list-style-type: none"> <li>• Lamotrigine<sup>F</sup></li> <li>• Levetiracetam<sup>F</sup></li> <li>• Phenytoin<sup>F</sup></li> </ul>

High Risk Medications	Notes	Indications	Alternatives
<ul style="list-style-type: none"> <li>Meprobamate<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>High rate of physical dependence</li> <li>Very sedating</li> </ul>	<ul style="list-style-type: none"> <li>Anxiety</li> </ul>	SNRI <ul style="list-style-type: none"> <li>Duloxetine<sup>QL</sup></li> <li>Venlafaxine<sup>QL</sup></li> </ul> SSRI <ul style="list-style-type: none"> <li>Citalopram<sup>QL</sup></li> <li>Sertraline<sup>QL</sup></li> </ul> BBs <ul style="list-style-type: none"> <li>Nadolone<sup>F</sup></li> <li>Atenolol<sup>F</sup></li> </ul>
<b>Nonbenzodiazepine hypnotics</b> <ul style="list-style-type: none"> <li>Eszopiclone<sup>QL</sup></li> <li>Zolpidem<sup>QL</sup></li> <li>Zaleplon<sup>QL</sup></li> </ul>	<ul style="list-style-type: none"> <li>Benzodiazepine-receptor agonists Nonbenzodiazepine hypnotics are benzodiazepine receptor agonists that have adverse events similar to those of benzodiazepines in older adults (e.g., delirium, falls, fractures)</li> <li>Minimal improvement in sleep latency and duration</li> </ul>	<ul style="list-style-type: none"> <li>Insomnia</li> </ul>	<ul style="list-style-type: none"> <li>Trazodone<sup>F</sup></li> <li>Ramelteon<sup>Q</sup></li> </ul>
<ul style="list-style-type: none"> <li>Ergoloid<sup>F</sup></li> <li>Isoxsuprine<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>Lack of efficacy</li> </ul>	<ul style="list-style-type: none"> <li>Dementia</li> </ul>	<ul style="list-style-type: none"> <li>Donepezil<sup>F</sup></li> <li>Rivastigmine<sup>F</sup></li> <li>Memantine<sup>PA</sup></li> </ul>
<b>Endocrine</b>			
<ul style="list-style-type: none"> <li>Desiccated thyroid<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>Concerns about cardiac effects</li> </ul>	<ul style="list-style-type: none"> <li>Hypo-thyroidism</li> </ul>	<ul style="list-style-type: none"> <li>Levothyroxine<sup>F</sup></li> </ul>
<ul style="list-style-type: none"> <li>Estrogens (with or without progestins)<sup>F</sup></li> </ul>	<ul style="list-style-type: none"> <li>Evidence of carcinogenic potential (breast and endometrium)</li> <li>Lack of cardioprotective effect and cognitive protection in older women</li> <li>Evidence that vaginal estrogens for treatment of vaginal dryness is safe and effective in women with breast cancer, especially at dosages of</li> </ul>	<ul style="list-style-type: none"> <li>Hormone replacement therapy for menopause</li> </ul>	<ul style="list-style-type: none"> <li>Raloxifene<sup>F</sup></li> <li>Niacin<sup>F</sup></li> </ul>

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	estradiol <25 mg twice weekly		
<ul style="list-style-type: none"> <li>• Megestrol<sup>PA</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Minimal effect on weight; increases risk of thrombotic events and possibly death in older adults</li> </ul>	<ul style="list-style-type: none"> <li>• Appetite stimulant</li> </ul>	<ul style="list-style-type: none"> <li>• Dexamethasone<sup>F</sup></li> <li>• Dronabinol<sup>PA</sup></li> </ul>
<b>Sulfonylureas</b> <ul style="list-style-type: none"> <li>• Chlorpropamide<sup>NF</sup></li> <li>• Glyburide<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Chlorpropamide: prolonged half-life in older adults; can cause prolonged hypoglycemia; causes syndrome of inappropriate antidiuretic hormone secretion</li> <li>• Glyburide: greater risk of severe prolonged hypoglycemia in older adults</li> </ul>	<ul style="list-style-type: none"> <li>• Diabetes</li> </ul>	<ul style="list-style-type: none"> <li>• Glimepiride<sup>QL</sup></li> <li>• Glipizide<sup>QL</sup></li> <li>• Metformin<sup>QL</sup></li> </ul>
<b>Gastrointestinal</b>			
<ul style="list-style-type: none"> <li>• Trimethobenzamide<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• One of the least effective antiemetic drugs</li> <li>• Can cause extrapyramidal adverse effects</li> </ul>	<ul style="list-style-type: none"> <li>• Antiemetic</li> </ul>	<ul style="list-style-type: none"> <li>• Low dose ondansetron<sup>PA</sup></li> <li>• Meclizine<sup>F</sup></li> </ul>
<b>Pain</b>			
<ul style="list-style-type: none"> <li>• Meperidine<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Not an effective oral analgesic in dosages commonly used</li> <li>• May cause neurotoxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Pain</li> </ul>	<ul style="list-style-type: none"> <li>• Tramadol<sup>QL</sup></li> </ul>
<ul style="list-style-type: none"> <li>• Pentazocine<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Opioid analgesic that causes CNS adverse effects, including confusion and hallucinations, more commonly than other narcotic drugs</li> <li>• Is also a mixed agonist and antagonist</li> </ul>		<ul style="list-style-type: none"> <li>• Low dose opioids</li> <li>• Codeine<sup>QL</sup></li> <li>• Oxycodone<sup>QL</sup></li> <li>• Hydromorphone<sup>QL</sup></li> </ul>
<b>Non-COX selective NSAIDs, systemic</b>	<ul style="list-style-type: none"> <li>• Increases risk of GI bleeding and</li> </ul>		<ul style="list-style-type: none"> <li>• Acetaminophen<sup>OTC</sup></li> <li>• Celecoxib</li> </ul>

High Risk Medications	Notes	Indications	Alternatives
<ul style="list-style-type: none"> <li>• Indomethacin<sup>NF</sup></li> <li>• Ketorolac<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• peptic ulcer disease in high-risk groups, including those aged &gt;75 or taking oral or parenteral corticosteroids, anticoagulants, or antiplatelet agents</li> <li>• Use of proton pump inhibitor or misoprostol reduces but does not eliminate risk</li> <li>• Upper GI ulcers, gross bleeding, or perforation caused by NSAIDs occur in approximately 1% of patients treated for 3–6 months and in approximately 2–4% of patients treated for 1 year. These trends continue with longer duration of use</li> <li>• Of all the NSAIDs, indomethacin has most adverse effects</li> </ul>		<ul style="list-style-type: none"> <li>• Meloxicam<sup>F</sup></li> </ul>
<p><b>Skeletal muscle relaxants</b></p> <ul style="list-style-type: none"> <li>• Carisoprodol<sup>NF</sup></li> <li>• Chlorzoxazone<sup>NF</sup></li> <li>• Cyclobenzaprine<sup>PA</sup></li> <li>• Metaxalone<sup>NF</sup></li> <li>• Methocarbamol<sup>NF</sup></li> <li>• Orphenadrine<sup>NF</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Most muscle relaxants are poorly tolerated by older adults because of anticholinergic adverse effects, sedation, risk of fracture</li> <li>• Effectiveness at dosages tolerated by older adults is questionable</li> <li>• Glyburide: greater risk of severe prolonged hypoglycemia in older adults</li> </ul>	<ul style="list-style-type: none"> <li>• Musculo-skeletal pain</li> </ul>	<ul style="list-style-type: none"> <li>• Tizanidine<sup>F</sup></li> <li>• Dantrolene<sup>F</sup></li> <li>• Baclofen<sup>F</sup></li> </ul>

Use of High-Risk Medications in the Elderly (HRM) [Internet]. Pharmacy Quality Alliance [cited 2014 Nov 5]. American Geriatrics 2012 Beers Criteria Update Expert Panel. American Geriatrics Society updated Beers Criteria for potentially inappropriate medication use in older adults. J Am Geriatr Soc.2012;60 (4);616-21.