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Alternatives for High Risk Medications in the Elderly

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The High Risk Medication Patient Safety measure addresses medication management to prevent the harms associated with certain medications in the elderly. It identifies high risk medications (HRMs) that should be avoided in the elderly population. The HRM rate was first developed by the National Committee for Quality Assurance (NCQA), through its Healthcare Effectiveness Data and Information Set (HEDIS), and then adapted and endorsed by PQA. The safer treatment alternatives section provides potential alternatives to high risk medications. Providers should evaluate whether these alternatives can be used in place of HRMs for their patients.

Therapeutic Class	High Risk Medications	Potential Risks	Treatment Alternatives
First Generation Antihistamines [1,2,3]	- Brompheniramine - Carbinoxamine (Arbinoxa, Palgic) - Chlorpheniramine - Clemastine - Cyproheptadine - Dexbrompheniramine - Dexchlorpheniramine - Diphenhydramine (Benadryl) - Doxylamine (Doxytex) - Hydroxyzine (Vistaril) - Promethazine (Phenergan) - Triprolidine - All combination products containing one of these medications	Elderly patients are more susceptible to anticholinergic adverse events which include dry mouth, urinary retention, constipation, confusion, and sedation.	**For Allergic Rhinitis:** Levocetirizine and Desloratadine **For Nausea and Vomiting:** Ondansetron **For Pruritus:** Ammonium lactate, Levocetirizine, Desloratadine, Topical steroids **For Anxiety:** SSRIs, buspirone, venlafaxine In addition, there are **OTC Options** for which coverage may vary depending on benefit plan design: - Cetirizine (Zyrtec), Loratadine (Claritin), Fexofenadine (Allegra)

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Skeletal Muscle Relaxants [1,2,4]	- Carisoprodol (Soma) - Cyclobenzaprine (Flexeril) - Methocarbamol (Robaxin) - Orphenadrine (Norflex) - Metaxalone (Skelaxin) - Chlorzoxazone (Parafon Forte) - All combination products containing one of these medications	Most muscle relaxants are poorly tolerated in the elderly due to anticholinergic effects, sedation and cognitive impairment which could increase the risk of falls/fractures. In addition, these agents have abuse potential.	**For Spasticity:** Baclofen, Tizanidine, and Dantrolene **Musculoskeletal Pain:** Acetaminophen, oral NSAIDs (i.e. meloxicam: Avoid chronic use unless other alternatives are not effective and patient can take a gastro-protective agent such as a proton pump inhibitor or misoprostol), Voltaren gel, Cymbalta; May consider non-pharmacologic treatments such as cryotherapy, heat, massage, stretching/ exercise, and transcutaneous electrical nerve stimulation (TENS)
Non-Narcotic Analgesics [1,2]	- Indomethacin - Ketorolac (Toradol) - Ketorolac nasal (Sprix)	Among available NSAIDs, indomethacin produces the highest rates of CNS adverse events, including confusion and (rarely) psychosis. Ketorolac is associated with a high risk of GI bleeds in the elderly.	**For Moderate to Severe Pain:** Acetaminophen, Other NSAIDs (i.e. meloxicam: Avoid chronic use unless other alternatives are not effective and patient can take a gastro-protective agent such as a proton pump inhibitor or misoprostol), Tramadol, Hydrocodone/ acetaminophen, Oxycodone/acetaminophen

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Narcotic Analgesics[1,2]	- Meperidine (Demerol) - Pentazocine / APAP (Talacen) - Pentazocine / naloxone (Talwin NX)	These specific medications are less effective than other narcotics and have more CNS adverse effects such as confusion and hallucinations. Also, their use increases the risk of falls and seizures.	**For Moderate Pain:** NSAIDs (i.e. meloxicam: Avoid chronic use unless other alternatives are not effective and patient can take a gastroprotective agent such as a proton pump inhibitor or misoprostol), Tramadol, Hydrocodone/APAP, APAP with codeine **For Severe Pain:** Oxycodone, Oxycodone/APAP, Hydromorphone, Morphine
Progestins[1,2,5]	- Megestrol (Megace, Megace ES)	Megestrol is substantially excreted by the kidney. Because elderly patients are more likely to have decreased renal function, there is an increased risk of toxicity, including adrenal suppression and thrombosis.	- Medroxyprogesterone - Dronabinol

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Estrogens and Estrogen/ Progesterone Products (Oral and Transdermal) [1,2,6]	- Conjugated estrogen (Premarin) - Conjugated estrogen / medroxyprogesterone (Prempro, Premphase) - Estradiol, oral (Estrace, Femtrace) - Estradiol patch (Alora, Climara, Estraderm, Estradiol, Menostar, Vivelle-Dot) - Estradiol / drospirenone (Angeliq) - Estradiol / levonorgestrel (ClimaraPro) - Estradiol / norethindrone (CombiPatch) - Estradiol / norgestimate (Prefest) - Estropipate (Ogen, Ortho-Est) - Esterified estrogen (Menest)	Elderly patients on long-term oral estrogens are at increased risk for breast and endometrial cancer. In addition, results from the Women's Health Initiative (WHI) hormone trial suggest these medications may increase the risk of heart attack, stroke, blood clots, and dementia.	**For Hot Flashes:** Continuously re-evaluate the need for long-term estrogen therapy; evaluate non-drug therapy. Postmenopausal women should avoid using oral estrogens for more than 3 years. After 3 years patients should be titrated off therapy due to the risks outweighing the benefits. SSRIs, Gabapentin, and Venlafaxine have non-FDA labeled indications (medically accepted use) for hot flashes. **For Vaginal Symptoms:** Premarin Cream, Estring, Femring, Vagifem **For Bone Density:** Alendronate, Actonel, Atelvia, Evista, Prolia

Therapeutic Class	High Risk Medications	Potential Risks	Treatment Alternatives
(continued)	- Esterified estrogen / methyltestosterone (Covaryx, Estratest) - Ethinyl estradiol / norethindrone (Activella, FemHRT)		
Urinary Anti-Infectives[1,2,7]	**Greater than 90 days cumulative supply during the plan year:** - Nitrofurantoin (Furadantin) - Nitrofurantoin monohydrate/ macrocrystals (Macrobid) - Nitrofurantoin macrocrystals (Macrodantin)	Nitrofurantoin is substantially excreted by the kidney. Since elderly patients are more likely to have decreased renal function, nitrofurantoin can result in nephrotoxicity; lack of evidence in patients with CrCl <60 mL/min due to inadequate concentration in urine; potential for pulmonary toxicity;avoid long-term use.	**For treatment of acute UTI:** Ciprofloxacin, Trimethoprim / sulfamethoxazole (TMP/SMX), Amoxicillin/clavulanate, Cefdinir, Cefaclor, Cefpodoxime, Suprax **For prevention of recurrent UTIs:** Prescription options include: TMP/SMX, Methenamine hippurate Non-prescription options include practicing good personal hygiene, avoiding baths, and wearing cotton underwear.

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Anti-emetics[1,2]	- Promethazine - Trimethobenzamide (Tigan)	Elderly patients are more susceptible to anticholinergic adverse events including urine retention, confusion, and sedation.	**For Nausea and Vomitting:** Ondansetron
Anti-Anxiety Agents[1,2]	- Meprobamate	Meprobamate has a high risk of abuse, and is highly sedating. Use in the elderly may result in confusion, falls/fractures, and respiratory depression.	- Buspirone - SSRIs (Fluoxetine, Citalopram, Paroxetine) - SNRIs (Venlafaxine, Cymbalta)
Alpha-Blockers, Central[1,2]	- Guanabenz - Guanfacine - Methyldopa - Reserpine (>0.1 mg/day)	May cause bradycardia, sedation, orthostatic hypotension, and exacerbate depression.	- ACE inhibitors / ARBs - Beta-blockers - Calcium channel blockers - Thiazide diuretics

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Calcium Channel Blockers[1,2]	- Nifedipine immediate-release (Adalat, Procardia)	Immediate release (short acting) nifedipine may cause excessive hypotension and constipation in the elderly.	- Extended-release Nifedipine - Amlodipine, Felodipine, Isradipine, Nicardipine, Nisoldipine - Beta-Blockers - Non-dihydropyridine Calcium Channel Blockers
Cardiovascular, Other[1,2]	- Disopyramide - Digoxin (>0.125 mg/day)	**Disopyramide** may induce heart failure in elderly patients. It is also strongly anticholinergic, and may cause urine retention, confusion, and sedation. **Digoxin** is substantially excreted by the kidney. Because elderly patients are more likely to have decreased renal function, low lean body mass, and electrical conduction abnormalities, there is an increased risk of toxicity at doses exceeding 0.125 mg/day.	**For disopyramide:** Beta-blockers, Calcium channel blockers, Flecainide **For digoxin > 0.125 mg/day:** In heart failure, digoxin dosages > 0.125 mg/day have been associated with no additional benefit and may have increased toxic effects.

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Sedative Hypnotics[1,2]	- Chloral hydrate **Greater than 90 days cumulative supply during plan year:** - Eszopiclone (Lunesta) - Zolpidem (Ambien, Ambien CR) - Zaleplon (Sonata)	Impaired motor and/or cognitive performance after repeated exposure, delirium, falls and fractures.	Consider non-pharmacologic interventions, focusing on proper sleep hygiene. When sedative hypnotic medications are deemed clinically necessary, use should be at the lowest possible dose for the shortest possible time. - trazodone - temazepam - triazolam - Doxepin 3mg or 6 mg (Silenor) - Ramelteon 8 mg (Rozerem)
Barbiturates[1,2] *(Currently covered if used in the treatment of epilepsy, cancer, or a chronic mental health disorder.)* [8]	- Phenobarbital (Luminal) - Mephobarbital (Mebaral) - Secobarbital (Seconal) - Butabarbital (Butisol) - Pentobarbital (Nembutal)	These medications are highly addictive and cause more adverse effects than most other sedatives in the elderly, greatly increasing cognitive impairment, confusion, and risk of falls.	***PLEASE NOTE: Patients being switched off barbiturates should be tapered slowly over a prolonged period of time.*** **For seizures:** Divalproex, Levetiracetam, Lamotrigine, Carbamazepine **For sleep:** Consider non-pharmacologic interventions, focusing on proper sleep hygiene. When sedative hypnotic medications

Therapeutic Class	High Risk Medications	Potential Risks	Treatment Alternatives
(continued)			are deemed clinically necessary, use should be at the lowest possible dose for the shortest possible time. -Doxepin 3mg or 6 mg (Silenor) -Ramelteon 8 mg (Rozerem) -trazodone
Tertiary Amine Tricyclic Antidepressants (TCAs) [1,2]	- Amitriptyline - Clomipramine - Doxepin (>6 mg/day) - Imipramine - Trimipramine	Elderly patients are more susceptible to anticholinergic adverse events including urine retention, confusion, and sedation.	**For Depression / Anxiety / OCD:** - Secondary Amine TCAs (Nortriptyline, Protriptyline, Desipramine, Amoxapine) - SSRIs (Fluoxetine, Citalopram, Paroxetine, Sertraline) - SNRIs (Venlafaxine, Cymbalta) - Bupropion **For neuropathic pain / fibromyalgia:** - Gabapentin, Cymbalta, Lyrica **For prevention of migraine:** - Propranolol, Divalproex sodium, Topiramate

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Anti-Psychotics[1,2]	- Thioridazine (Mellaril) - Mesoridazine	Thioridazine has a high potential for CNS and extra-pyramidal adverse events. It has been associated with tremor, slurred speech, muscle rigidity, dystonia, bradykinesia, and akathisia.	- Atypical antipsychotics: Risperidone, Olanzapine, Abilify, Geodon, Saphris, Seroquel (Please note, all antipsychotics have been associated with increased mortality when used to treat psychosis related to dementia.)
Antiparkinson Agents[1,2]	- Benztropine - Trihexyphenidyl	Elderly patients are more susceptible to anticholinergic adverse events including urine retention, confusion, hallucinations and psychotic-like symptoms.	- Carbidopa / levodopa, Pramipexole, Ropinirole, Bromocriptine, Amantadine, Selegiline
Thyroid Hormones[1,2,9]	- Dessicated thyroid (Armour thyroid, NP Thyroid, Nature-Throid, Westhroid)	Dessicated thyroid may increase the risk of cardio-vascular events in the elderly, especially those with coronary artery disease.	- Levothyroxine, Levoxyl, Levothroid, Unithroid Current guidelines recommend starting at a low dose and, once cardiovascular tolerance is established, slowly increasing until adequate replacement is achieved.

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Oral Hypoglycemics[1,2]	- Chlorpropamide (Diabinese) - Glyburide (Diabeta)	Associated with an increased risk of hypoglycemia compared to other oral diabetes agents. Chlorpropamide has also been associated with hyponatremia and SIADH in the elderly.	- Glipizide - Glimepiride
Antithrombotics[1,2]	- Dipyridamole (Persantine, NOTE: does NOT include combination product with aspirin) - Ticlopidine (Ticlid)	These agents have been shown to be no better than aspirin in preventing clotting and may be considerably more toxic. Dipyridamole is associated with an increased risk of orthostatic hypotension in the elderly. Ticlopidine is associated with an	**For prevention of thromboembolic complications of cardiac valve replacement:** Warfarin, Jantoven **For prevention of stroke:** Clopidogrel, Aggrenox, Aspirin

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(continued)		increased risk of hematologic effects (e.g., neutropenia, thrombocytopenia, aplastic anemia), increased cholesterol and triglycerides, and GI bleed).	
Peripheral Vasodilators[1,2]	- Ergoloid mesylates - Isoxsuprine	These agents are associated with increased risk of orthostatic hypotension in the elderly. In addition, they have not been shown to be effective for stroke prevention.	**For prevention of stroke:** Clopidogrel, Aggrenox, Aspirin Peripheral **Vascular Disease:** cilostazol **For treatment of Alzheimer's / dementia:** - Galantamine - Rivastigmine - Donepezil

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