# High Risk Medications in the Elderly (Age≥65) and Suggested Alternatives

**The medications listed below reflect the most recent High Risk Medication (HRM) list, developed and endorsed by the Pharmacy Quality Alliance (PQA) in June 2012. The safer treatment options provided represent potential alternatives to HRMs. Providers should evaluate whether these alternatives can be used in place of HRMs for their patients.**

| Therapeutic Class | High Risk Medications | Potential Risks | Safer Treatment Options |
|---|---|---|---|
| **First Generation Antihistamines**[1,2,3] | - Brompheniramine<br>- Carbinoxamine (Arbinoxa, Palgic)<br>- Chlorpheniramine<br>- Clemastine<br>- Cyproheptadine<br>- Dexbrompheniramine<br>- Dexchlorpheniramine<br>- Diphenhydramine (Benadryl)<br>- Doxylamine (Doxytex)<br>- Hydroxyzine (Vistaril)<br>- Promethazine (Phenergan)<br>- Triprolidine<br>- All combination products containing one of these medications | Elderly patients are more susceptible to anticholinergic adverse events including urine retention, confusion, and sedation. | **For Allergic Rhinitis:** Levocetirizine and Desloratadine<br>**For N/V:** Ondansetron (QL = 90/30)<br>**For Pruritus:** Emollients, Ammonium lactate, Levocetirizine, Desloratadine, Topical steroids<br>**For Anxiety:** SSRIs<br><br>In addition, there are **OTC Options** for which coverage may vary depending on benefit plan design:<br>- Cetirizine (Zyrtec), Loratadine (Claritin), Fexofenadine (Allegra) |
| **Skeletal Muscle Relaxants**[1,2,4] | - Carisoprodol (Soma)<br>- Cyclobenzaprine (Flexeril)<br>- Methocarbamol (Robaxin)<br>- Orphenadrine (Norflex)<br>- Metaxalone (Skelaxin)<br>- Chlorzoxazone (Parafon Forte)<br>- All combination products containing one of these medications | Most muscle relaxants are poorly tolerated in the elderly due to anti-cholinergic effects, sedation and cognitive impairment. In addition, these agents have abuse potential. | **For Spasticity:** Baclofen, Tizanidine, and Dantrolene<br><br>**For Muscle Spasms**: consider non-pharmacologic treatments, such as cryotherapy, heat, massage, stretching/exercise, and transcutaneous electrical nerve stimulation (TENS) |
| **Non-Narcotic Analgesics**[1,2] | - Indomethacin<br>- Ketorolac (Toradol)<br>- Ketorolac nasal (Sprix) | Among available NSAIDs, indomethacin produces the highest rates of CNS adverse events, including confusion and (rarely) psychosis.<br>Ketorolac is associated with a high risk of GI bleeds in the elderly. | **For Moderate to Severe Pain:** Other NSAIDs, Tramadol, Hydrocodone/ acetaminophen, Oxycodone/acetaminophen |
| **Narcotic Analgesics**[1,2] | - Meperidine (Demerol)<br>- Pentazocine / APAP (Talacen)<br>- 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, Tramadol, Hydrocodone/APAP, APAP with codeine<br>**For Severe Pain:** Oxycodone, Oxycodone/APAP, 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<br>- Dronabinol (requires PA for indication) |

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| **Estrogens and Estrogen / Progesterone Products**[1,2,6] | - Conjugated estrogen (Premarin)<br>- Conjugated estrogen / medroxyprogesterone (Prempro, Premphase)<br>- Estradiol, oral (Estrace, Femtrace)<br>- Estradiol patch (Alora, Climara, Estraderm, Estradiol, Menostar, Vivelle-Dot)<br>- Estradiol / drospirenone (Angeliq)<br>- Estradiol / levonorgestrel (ClimaraPro)<br>- Estradiol / norethindrone (CombiPatch)<br>- Estradiol / norgestimate (Prefest)<br>- Estropipate (Ogen, Ortho-Est)<br>- Esterified estrogen (Menest)<br>- Esterified estrogen / methyltestosterone (Covaryx, Estratest)<br>- Ethinyl estradiol / norethindrone (Activella, FemHRT) | 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:**<br>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.<br>SSRIs, Gabapentin, and Venlafaxine have non-FDA labeled indications (medically accepted use) for hot flashes.<br>**For Bone Density:** Alendronate, Ibandronate, Actonel, Atelvia, Evista, Prolia |
| **Urinary Anti-Infectives**[1,2,7] | ***Greater than 90 days cumulative supply during the plan year:***<br>- Nitrofurantoin (Furadantin)<br>- Nitrofurantoin monohydrate/ macrocrystals (Macrobid)<br>- 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. | **For Treatment of Acute UTI:** Ciprofloxacin, Trimethoprim / Sulfamethoxazole (TMP/SMX), Amoxicillin/clavulanate, Cefdinir, Cefaclor, Cefpodoxime<br>**For Prevention of Recurrent UTIs:**<br>Non-prescription options include practicing good personal hygiene, avoiding baths, and wearing cotton underwear.<br>Prescription: Methenamine hippurate, TMP/SMX |
| **Anti-emetics**[1,2] | - Promethazine<br>- Trimethobenzamide (Tigan) | Elderly patients are more susceptible to anticholinergic adverse events including urine retention, confusion, and sedation. | **For N/V:** Ondansetron (QL = 90/30) |
| **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<br>- SSRIs (Fluoxetine, Citalopram, Paroxetine)<br>- SNRIs (venlafaxine, Cymbalta) |
| **Alpha-Blockers, Central**[1,2] | - Guanabenz<br>- Guanfacine<br>- Methyldopa<br>- Reserpine (>0.1 mg/day) | May cause bradycardia, sedation, orthostatic hypotension, and exacerbate depression. | - ACE inhibitors / ARBs<br>- Beta-blockers<br>- Calcium channel blockers<br>- Thiazide diuretics |

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| **Calcium Channel Blockers**[1,2] | - Nifedipine immediate-release (Adalat, Procardia) | Immediate release nifedipine may cause excessive hypotension and constipation in the elderly. | - Amlodipine, Felodipine, Isradipine, Nicardipine, Nisoldipine<br>- Extended-release Nifedipine |
| **Cardiovascular, Other**[1,2] | - Disopyramide<br>- 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, there is an increased risk of toxicity at doses exceeding 0.125 mg/day. | - **For disopyramide:** Beta-blockers, Calcium channel blockers, Flecainide<br>- **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. |
| **Sedative Hypnotics**[1,2] | - Chloral hydrate<br><br>***Greater than 90 days cumulative supply during plan year:***<br>- Eszopiclone (Lunesta)<br>- Zolpidem (Ambien, Ambien CR)<br>- Zaleplon (Sonata) | Impaired motor and/or cognitive performance after repeated exposure. | 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. |
| **Barbiturates**[1,2] (*Currently covered only for select plans; however, on January 1, 2013, this class will be included in the Part D benefit.*)[8] | - Phenobarbital (Luminal)<br>- Mephobarbital (Mebaral)<br>- Secobarbital (Seconal)<br>- Butabarbital (Butisol)<br>- 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.***<br>**For seizures:** Divalproex, Levetiracetam, Lamotrigine, Carbamazepine<br>**For sleep:** 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. |
| **Tertiary Amine Tricyclic Antidepressants (TCAs)** [1,2] | - Amitriptyline<br>- Chlomipramine<br>- Doxepin (>6 mg/day)<br>- Imipramine<br>- Trimipramine | Elderly patients are more susceptible to anticholinergic adverse events including urine retention, confusion, and sedation. | **For Depression / Anxiety / OCD:**<br>- Secondary Amine TCAs (Nortriptyline, Protriptyline, Desipramine, Amoxapine)<br>- SSRIs (Fluoxetine, Citalopram, Paroxetine)<br>- SNRIs (Venlafaxine, Cymbalta)<br>- Bupropion<br><br>**For neuropathic pain / fibromyalgia:**<br>- Gabapentin, Valproic acid, Lyrica<br><br>**For prevention of migraine:**<br>- Propranolol, Divalproex sodium, Topiramate |

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| **Anti-Psychotics**[1,2] | - Thioridazine (Mellaril)<br>- Mesoridazine | Thioridazine has a high potential for CNS and extrapyramidal adverse events. It has been associated with tremor, slurred speech, muscle rigidity, dystonia, bradykinesia, and akathisia. | - Atypical antipsychotics (Risperidone, Olanzapine, Quetiapine)<br><br>(Please note, all antipsychotics have been associated with increased mortality when used to treat psychosis related to dementia.) |
| **Antiparkinson Agents**[1,2] | - Benztropine<br>- 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 cardiovascular events in the elderly, especially those with coronary artery disease. | - Levothyroxine, Levoxyl, Levothroid, Unithroid<br><br>Current guidelines recommend starting at a low dose and, once cardiovascular tolerance is established, slowly increasing until adequate replacement is achieved. |
| **Oral Hypo-glycemics**[1,2] | - Chlorpropamide (Diabinese)<br>- 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. | - Glimepiride, Glipizide |
| **Antithrombotics**[1,2] | - Dipyridamole (Persantine, NOTE: does NOT include combination product with aspirin)<br>- Ticlopidine (Ticlid) | These agents 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 increased risk of hematologic effects (e.g., neutropenia, thrombocytopenia, aplastic anemia), increased cholesterol and triglycerides, and GI bleed). | **For prevention of thromboembolic complications of cardiac valve replacement:** Warfarin, Jantoven<br>**For prevention of stroke:** Clopidogrel, Aggrenox, Aspirin |
| **Peripheral Vasodilators**[1,2] | - Ergoloid mesylates<br>- Isoxsuprine | These agents are associated with increased risk of orthostatic hypo-tension in the elderly. In addition, they have not been shown to be effective for stroke prevention. | **For prevention of stroke:** Clopidogrel, Aggrenox, Aspirin<br>**For treatment of Alzheimer's / dementia:**<br>- Galantamine<br>- Rivastigmine<br>- Donepezil |

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