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<th>Rationale for Risk</th>
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<th>Alternative Medication</th>
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</table>
| Antibiotics       | • Nitrofurantoin | May be drug of choice due to allergies, drug interaction, or resistance. | Increased risk of pulmonary toxicity, hepatotoxicity, and peripheral neuropathy. This is high risk in patients with poor renal function (CrCl less than 30ml/min OR for chronic use >90 days). | Urinary tract infection treatment and prophylaxis | • Sulfamethoxazole/trimethoprim DS  
• Amoxicillin-clavulanate  
• Cefdinir  
• Cefpodoxime |
|                   |     |                    |                   |                       | |
| Antidepressants   | • Amitriptyline  
• Amoxapine  
• Clomipramine  
• Desipramine  
• Doxepin  
• Imipramine  
• Nortriptyline  
• Protriptyline  
• Trimipramine  
• Paroxetine | Strong anticholinergic and sedative properties leading to orthostatic hypotension, confusion, and falls. Anticholinergics increase risk for physical, functional, and cognitive decline. Please note this is Protected Class Drug in Medicare. | Depression | • Citalopram  
• Escitalopram  
• Fluoxetine  
• Sertraline  
• Venlafaxine  
• Desvenlafaxine ER² |
|                   |     |                    |                   |                       | |
|                   | • Citalopram  
• Escitalopram  
• Fluoxetine  
• Sertraline  
• Venlafaxine  
• Desvenlafaxine ER² |                    | Headache/migraine prophylaxis | • Propanolol IR  
• Topiramate  
• Divalproex DR |
|                   |     |                    |                   |                       | |
|                   | • Duloxetine  
• Gabapentin alternative  
• Lidocaine patch¹  
• Lyrica⁴ |                    | Neuropathic pain | • Duloxetine  
• Gabapentin alternative  
• Lidocaine patch¹  
• Lyrica⁴ |
|                   |     |                    |                   |                       | |
|                   | • Doxepin (oral liquid) < 6mg/day  
• Melatonin*  
• Trazodone | Sleep Limit treatment to <14 days | | | |

1=Prior authorization required  2=Step Therapy required  3=Nonformulary  4=Quantity limit  
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### High Risk Medications (HRMs) in Older Adults: A Safer Alternative 2019

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| **Antihistamines** | • Chlorpheniramine*  
• Clemastine*  
• Cyproheptadine  
• Dimenhydramine*  
• Diphenhydramine*  
• Doxylamine*  
• Hydroxyzine  
• Meclizine*  
• Promethazine  
• Scopolamine  
• Triprolidine* | Strong anticholinergic and sedative properties leading to orthostatic hypotension, confusion and falls. Anticholinergics increase risk for physical, functional and cognitive decline. | Allergies | • Fluticasone nasal spray  
• Cetirizine*  
• Fexofenadine*  
• Loratadine* |
|                   | • Chlorpheniramine*  
• Clemastine*  
• Cyproheptadine  
• Dimenhydramine*  
• Diphenhydramine*  
• Doxylamine*  
• Hydroxyzine  
• Meclizine*  
• Promethazine  
• Scopolamine  
• Triprolidine* | Strong anticholinergic and sedative properties leading to orthostatic hypotension, confusion and falls. Anticholinergics increase risk for physical, functional and cognitive decline. | Itching/rash | • Cetirizine*  
• Fexofenadine*  
• Hydrocortisone 1% cream*  
• Loratadine*  
• Triamcinolone 0.025% cream |
|                   | • Chlorpheniramine*  
• Clemastine*  
• Cyproheptadine  
• Dimenhydramine*  
• Diphenhydramine*  
• Doxylamine*  
• Hydroxyzine  
• Meclizine*  
• Promethazine  
• Scopolamine  
• Triprolidine* | Strong anticholinergic and sedative properties leading to orthostatic hypotension, confusion and falls. Anticholinergics increase risk for physical, functional and cognitive decline. | Nausea/vomiting | • Ondansetron |
|                   | • Chlorpheniramine*  
• Clemastine*  
• Cyproheptadine  
• Dimenhydramine*  
• Diphenhydramine*  
• Doxylamine*  
• Hydroxyzine  
• Meclizine*  
• Promethazine  
• Scopolamine  
• Triprolidine* | Strong anticholinergic and sedative properties leading to orthostatic hypotension, confusion and falls. Anticholinergics increase risk for physical, functional and cognitive decline. | GI motility disorders/IBS-D | • Loperamide (for IBS-D) |
| **Antispasmodics** | • Dicyclomine  
• Hyoscyamine  
• Methscopolamine | Strong anticholinergic properties leading to orthostatic hypotension, confusion and falls. Anticholinergics increase risk for physical, functional and cognitive decline. Should be used only as-needed basis (short term). | Peptic Ulcer | • Cimetidine  
• Famotidine  
• Nizatidine  
• Ranitidine |
|                   | • Butalbital  
• Phenobarbital | Includes combination products. | Headache | • Ibuprofen (prescription strength)  
• Naproxen (prescription strength) |
|                   | • Butalbital  
• Phenobarbital | Includes combination products. | Seizures | Appropriate alternatives (e.g., levetiracetam, lamotrigine) dependent on type of seizure disorder |

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<td><strong>Benzodiazepines</strong>&lt;br&gt;(short, intermediate, and long-acting)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| • Alprazolam | Older adults have increased sensitivity to benzodiazepines and decreased metabolism of long-acting agents; in general, all benzodiazepines increase risk of cognitive impairment, delirium, falls, fractures, and motor vehicle crashes in older adults. | Anxiety | • Buspirone  
  • Escitalopram  
  • Fluoxetine  
  • Sertraline |
| • Lorazepam* | | | | |
| • Temazepam* | | | | |
| • Triazolam* | | | | |
| • Chlordiazepoxide* | | | | |
| • Clonazepam* | | | | |
| • Diazepam* | | | | |
| • Flurazepam* | | | | |
| May be appropriate for seizure disorders, GAD (generalized anxiety disorder), withdrawal, REM (rapid eye movement) sleep disorders, and periprocedural anesthesia. | | | | |

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<tr>
<td>Cardiovascular</td>
<td><strong>Guanfacine</strong></td>
<td>Increased stroke, heart attack, syncope risk due to rapid decrease in blood pressure with alpha agonists, nifedipine IR, and dipyridamole. Avoid short acting blood pressure drugs due to risk of hypotension (low blood pressure).</td>
<td>Hypertension</td>
<td>• Hydrochlorothiazide</td>
</tr>
<tr>
<td>Agents</td>
<td><strong>Methyldopa</strong></td>
<td></td>
<td></td>
<td>• ACEI/ARBs</td>
</tr>
<tr>
<td></td>
<td><strong>Nifedipine, immediate release</strong></td>
<td></td>
<td></td>
<td>• Beta blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Calcium channel blockers</td>
</tr>
<tr>
<td></td>
<td><strong>Digoxin</strong></td>
<td>Increased risk of toxicity with high-dose digoxin due to slow renal clearance. Digoxin levels above 2 ng/mL (2.6 nmol/L) are associated with increased toxicity.</td>
<td>Heart failure</td>
<td>Optimize ACEI, beta-blocker, aldosterone antagonist and/or ARB before using digoxin. Limit the maintenance dose to 0.125 mg daily or every other day. Before increasing maintenance dose of digoxin to ensure the patient is adherent to current prescribed dose.</td>
</tr>
<tr>
<td></td>
<td>Digoxin is a high risk medication when using more than 1.25mcg/day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dipyridamole, immediate release</strong></td>
<td>A potent negative inotrope and therefore may induce heart failure in older adults; strongly anticholinergic.</td>
<td>Platelet aggregation</td>
<td>• Aspirin*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Clopidogrel</td>
</tr>
<tr>
<td>Endocrine</td>
<td><strong>Megestrol</strong></td>
<td>Increases risk of thrombotic events and possibly death in older adults.</td>
<td>Weight gain</td>
<td>Avoid use due to minimal effect on weight gain.</td>
</tr>
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# High Risk Medications (HRMs) in Older Adults: A Safer Alternative 2019

## Therapeutic Class

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<tr>
<th>Estrogens</th>
<th>Hypoglycemics</th>
<th>Hypnotics/ Sleepers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HRM</strong></td>
<td><strong>HRM</strong></td>
<td><strong>HRM</strong></td>
</tr>
<tr>
<td>• Conjugated estrogen</td>
<td>• Glimepiride</td>
<td>• Eszopiclone*</td>
</tr>
<tr>
<td>• Estradiol</td>
<td>• Glyburide</td>
<td>• Zaleplon*</td>
</tr>
<tr>
<td>• Esterified estrogen</td>
<td>• Premixed Insulins (70/30, 50/50)</td>
<td>• Zolpidem*</td>
</tr>
<tr>
<td>• Estropipate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Includes combination and transdermal products.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Rationale for Risk

- **Increased risk of cancer, cancer related death, and clots with systemic therapy. Lack of cardioprotective effect or cognitive protection. Acceptable to use intravaginal estrogen.**
- **Prolonged half-life in older adults; risk of severe hypoglycemia.**
- **NOT “safer” than benzodiazepines. Increase risk of falls, fractures, delirium, ED visits, hospitalizations, vehicle crashes; minimal improvement in sleep latency and duration.**

## Common Indication

- **Osteoporosis**
- **Diabetes**
- **Sleep**

## Alternative Medication

- **• Alendronate**
- **• Calcium and Vitamin D***
- **• Ibandronate-oral**
- **• Ibandronate-injection**
- **• Raloxifene**
- **• Risedronate**
- **• Prolia**
- **• Glipizide**
- **• Rapid or short-acting insulin with basal or long-acting insulin (Novolin N with Novolog)**
- **• Doxepin (oral liquid) < 6mg/day**
- **• Melatonin***
- **• Rozerem**
- **• Trazodone**

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<td><strong>Narcotics</strong></td>
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<tr>
<td></td>
<td>Meperidine(^3)</td>
<td>CNS effects leading to increased confusion, delirium, neurotoxicity, and poor efficacy when taken orally.</td>
<td>Pain</td>
<td>Morphine (&lt;50 MME/day decreases overdose and death)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ibuprofen (prescription strength) + PPI (gastro-protection)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hydrocodone/APAP (&lt;50 MME/day decreases overdose and death)</td>
</tr>
<tr>
<td><strong>NSAIDs</strong></td>
<td>Indomethacin(^3)</td>
<td>Increases risk of GI bleeding, peptic ulcer disease, CNS effects and acute kidney injury.</td>
<td>Pain</td>
<td>Meloxicam + PPI (gastro-protection)</td>
</tr>
<tr>
<td></td>
<td>Ketorolac(^3)</td>
<td></td>
<td></td>
<td>Naproxen (prescription strength) + PPI (gastro-protection)</td>
</tr>
<tr>
<td></td>
<td>(includes oral and injectable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parkinson Agents</strong></td>
<td>Benztropine</td>
<td>Not recommended for prevention of extrapyramidal symptoms with antipsychotics.</td>
<td>Parkinson disease</td>
<td>Avoid use. Anticholinergics generally not tolerated in older adults</td>
</tr>
<tr>
<td></td>
<td>Trihexyphenidyl</td>
<td></td>
<td></td>
<td>Drug-induced extrapyramidal symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Reduce the dose of offending agent (e.g. antipsychotic) or switch offending agent to an alternative (e.g., quetiapine).</td>
</tr>
<tr>
<td><strong>Skeletal Muscle Relaxants</strong></td>
<td>Carisoprodol(^3)</td>
<td>Poorly tolerated by older adults due to anticholinergic adverse effects, sedation, falls, and risk of fracture.</td>
<td>Pain/muscle spasms</td>
<td>Baclofen</td>
</tr>
<tr>
<td></td>
<td>Chlorzoxazone(^3)</td>
<td></td>
<td></td>
<td>Tizanidine tablet</td>
</tr>
<tr>
<td></td>
<td>Cyclobenzaprine(^3)</td>
<td></td>
<td></td>
<td>Naproxen (Rx strength) + PPI (gastro-protection)</td>
</tr>
<tr>
<td></td>
<td>Metaxalone(^3)</td>
<td></td>
<td></td>
<td>Duloxetine</td>
</tr>
<tr>
<td></td>
<td>Methocarbamol(^3)</td>
<td></td>
<td></td>
<td>Diclofenac topical</td>
</tr>
<tr>
<td></td>
<td>Orphenadrine(^3)</td>
<td></td>
<td></td>
<td>Ibuprofen (prescription strength)</td>
</tr>
<tr>
<td><strong>Thyroid</strong></td>
<td>Desiccated thyroid, pork</td>
<td></td>
<td>Hypothyroidism</td>
<td>Levothyroxine</td>
</tr>
<tr>
<td></td>
<td>Liothyronine (Cytomel, T3)</td>
<td></td>
<td></td>
<td>Synthroid</td>
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**Guidelines:**
- List of high-risk medications and their impact on CMS star ratings can be found on the Pharmacy Quality Alliance website at [pqaalliance.org/measures/](http://pqaalliance.org/measures/).

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