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<td><strong>High-Risk Medications to Avoid</strong></td>
<td>• Hydroxyzine • Promethazine • Diphenhydramine</td>
<td>Nitrofurantoin (for chronic use or in patients with CrCl &lt; 30)</td>
<td>Digoxin &gt; 0.125 mg/day</td>
<td>• Amitriptyline • Clomipramine • Doxepin (&gt; 6 mg/day) • Imipramine • Trimipramine • Nortriptyline • Desipramine</td>
<td>• Lunesta (eszopiclone) • Zaleplon • Zolpidem</td>
<td>Estrogen</td>
<td>Glyburide • Glimepiride</td>
<td>Indomethacin • Ketorolac</td>
<td>Carisoprodol • Chlorzoxazone • Cyclobenzaprine • Metaxalone • Methocarbamol • Orphenadrine</td>
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<td><strong>Possible Alternatives</strong></td>
<td>Nausea/Vomiting: • Ondansetron • Prochlorperazine Anxiety: • Buspirone • Escitalopram • Sertraline Pruritus: • OTC non-sedating antihistamines • Desloratadine • Levocetirizine</td>
<td>Cephalexin • Doxycycline • Amoxicillin/Clavulanate • Trimethoprim/ Sulfamethoxazole</td>
<td>Lower dose of digoxin and monitor level.</td>
<td>Depression: • Venlafaxine • Bupropion • Sertraline • Escitalopram</td>
<td>Neuropathic pain: • Gabapentin • Pregabaline • Duloxetine</td>
<td>Belsomra • Melatonin • Rozerem • Silenor</td>
<td>Alendronate • Calcium • Vitamin D Vaginal Symptoms: • Estradiol cream • Premarin cream</td>
<td>Hot Flashes: • Femring • Citalopram • Desvenlafaxine • Venlafaxine</td>
<td>Spasticity: • Baclofen Muscle Spasm: • Tizanidine</td>
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## Reasons for the Recommendations

### Anticholinergics–First-Generation Antihistamines:
Anticholinergic side effects: worsened cognition and behavioral problems; urinary retention or incontinence; confusion; delirium; enhanced sedation, blurred vision, dry mouth, constipation, orthostatic hypotension.

### Anti-infective:
Nitrofurantoin should be avoided in patients with CrCl < 30mL/min because of potential for pulmonary toxicity, peripheral neuropathy and hepatotoxicity, especially when given long-term. Trimethoprim/sulfamethoxazole should be used cautiously in patients 65 years and older with decreased CrCl and on ACE-inhibitors or ARBs due to increased risk for hyperkalemia. FQs (ciprofloxacin and levofloxacin) side effects, including hepatotoxicity, tendon rupture, QT changes, aortic dissection may be increased in aging populations.

### Cardiovascular:
Digoxin dosages > 0.125 mg/day have been associated with no additional benefit and may have increased toxic effects.

### Tricyclic Antidepressants:
Highly anticholinergic (dry mouth, blurred vision, constipation), sedation and causes orthostatic hypotension.

### Nonbenzodiazepine Hypnotics:
Adverse events similar to those of benzodiazepines in aging adults (like delirium, falls, fractures); minimal improvement in sleep latency and duration.

### Estrogen:
Increased risk of breast and/or endometrial cancer; **not** cardioprotective or cognitive protective in aging women; **not** effective for incontinence.

### Sulfonylureas, Long-Duration:
Prolonged hypoglycemia; risk of SIADH.

### Non-COX-selective NSAIDs:
Increases risk of GI bleeding/peptic ulcer disease in high-risk groups. Of all the NSAIDs, indomethacin has most adverse effects.

### Skeletal Muscle Relaxants:
Most muscle relaxants are poorly tolerated by aging adults because of anticholinergic adverse effects, sedation, increased risk of fractures; effectiveness of dosages tolerated by aging adults is questionable.

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The Centers for Medicare & Medicaid Services (CMS) has developed a list of high-risk medications (HRMs) that should be avoided in the aging. These HRMs are considered by medical experts to have a high risk of side effects when used in aging populations and can increase morbidity and mortality, decrease quality of life and increase healthcare costs. HRM use is a CMS patient safety measure that contributes to our Star Rating. For more information about HRMs, please visit CMS.gov.