High Risk Medications in the Elderly

High-risk medications are those identified by American Geriatrics Society (AGS) Beers Criteria and by the Pharmacy Quality Alliance as having the potential to cause adverse drug events in older adults due to their pharmacologic properties and the physiologic changes of aging.

The Centers for Medicare and Medicaid Services (CMS) considers the use of high-risk drugs in the elderly an actionable quality concern. Both CMS and the Healthcare Effectiveness Data and Information Set (HEDIS) have quality measures that focus on decreasing the use of high-risk medications in the elderly. The CMS measure is defined as the percentage of members age 65 or older who receive more than two prescription fills of a high-risk medication.

Buckeye Health Plan would like to work with providers to avoid prescribing drugs that may be inappropriate for our members over the age of 65 and work to utilize safer alternatives where possible. The following table displays a list of commonly prescribed high-risk medications and their safer alternatives. A complete list of high-risk medications and their impact on CMS stars ratings can be found on the Pharmacy Quality Alliance website at **http://pqaalliance.org/measures/cms.asp**.

Buckeye Health Plan is committed to the safety of our Medicare members, which includes providing the most appropriate medications available. Please carefully evaluate whether any of the medications on this list are appropriate for your elderly patients and consider safer alternatives when prescribing.

High Risk Medications and Alternatives List

Description	High Risk Medications	Reason for Risk	Alternatives*
ANTICHOLINERGICS (EXCLUDES TCAS)			
First-generation antihistamines (as single agent or combination product)	Brompheniramine Carbinoxamine[PA] Chlorpheniramine Clemastine[PA] Cyproheptadine[PA] Diphenhydramine (Oral) Dimenhydrinate Doxylamine Hydroxyzine[PA] Meclizine Promethazine Triprolidine	Highly anticholinergic; clearance reduced with advanced age and tolerance develops when used as hypnotic; greater risk of confusion, dry mouth, constipation, and other anticholinergic effects and toxicity	***Anxiety:*** **SSRI** Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac) Sertraline (Zoloft) **SNRI** Desvenlafaxine ER (Pristiq) Duloxetine (Cymbalta) Venlafaxine Venlafaxine ER (Effexor XR) **BUSPIRONE** ***Second Generation Antihistamines:*** Azelastine (Astepro) Cetirizine (Zyrtec) Fexofenadine (Allegra) Levocetirizine (Xyzal) Loratadine (Claritin) ***Intranasal Steroids:*** Budesonide (Rhinocort) Flunisolide nasal spray Fluticasone (Flonase) Mometasone (Nasonex) Triamcinolone (Nasacort) ***Nausea/vomiting:*** Ondansetron (Zofran) ***Cough*** Guaifenesin Dextromethorphan Dextromethorphan/guaifenesin
Antiparkinson agents	Benztropine[PA] Trihexyphenidyl[PA]	Not recommended for prevention of extra-pyramidal symptoms with antipsychotics; more effective agents available for treatment of Parkinson's disease	***Drug-induced extrapyramidal symptoms:*** Amantadine ***Parkinson's Disease:*** Amantadine Carbidopa/Levodopa (Sinemet) Carbidopa/Levodopa ER (Sinemet CR) Carbidopa/Levodopa ODT (Parcopa)

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Antispasmodics	Atropine (excludes ophthalmic) Dicyclomine Scopolamine Belladonna alkaloids[PA] Hyoscyamine[PA] Clidinium-chlordiazepoxide Propantheline[PA]	Highly anticholinergic (e.g., confusion, cognitive impairment, delirium, dry mouth, constipation, urinary retention). Uncertain effectiveness.	***Irritable bowel syndrome:*** **DIARRHEA:** Loperamide Cholestyramine Colestipol **CONSTIPATION** Fiber laxative Metamucil Polyethylene glycol ***Nausea/vomiting:*** Ondansetron (Zofran) ***Reduction of secretions:*** Glycopyrrolate ***Duodenal/gastric ulcer:*** Methscopolamine
ANTITHROMBOTICS			
Antithrombotics	Dipyridamole[PA], oral short-acting (does not apply to the extended-release combination with aspirin)	May cause orthostatic hypotension; more-effective alternatives available; intravenous form acceptable for use in cardiac stress testing	Aspirin/Dipyridamole (Aggrenox) Clopidogrel (Plavix) Prasugrel (Effient) Ticagrelor (Brilinta)
ANTI-INFECTIVE			
Anti-infective	Nitrofurantoin (include when cumulative day supply >90 days)	Potential for pulmonary toxicity, hepatoxicity, and peripheral neuropathy, especially with long-term use; safer alternatives available	Ciprofloxacin (Cipro) Trimethoprim (Proloprim) Trimethoprim/Sulfamethoxazole (Bactrim) Trimethoprim/Sulfamethoxazole (Bactrim DS)
CARDIOVASCULAR			
Central alpha blockers	Guanfacine[PA] Methyldopa[PA] Reserpine[PA] (>0.1mg/day) Guanabenz[PA]	High risk of adverse CNS effects; may cause bradycardia and orthostatic hypotension; not recommended as routine treatment for hypertension	***Thiazide-type diuretics:*** Chlorthalidone (Thalitone) Hydrochlorothiazide (Microzide) Indapamide (Lozol) Metolazone (Zaroxolyn) ***ACE inhibitors:*** Benazepril (Lotensin) Captopril (Capoten) Enalapril (Vasotec) Fosinopril (Monopril) Lisinopril (Prinivil, Zestril) Quinapril (Accupril) Ramipril (Altace) Trandolapril (Mavik) ***Angiotensin Receptor Blockers (ARBs):*** Candesartan (Atacand) Eprosartan (Teveten) Irbesartan (Avapro) Losartan (Cozaar) Telmisartan (Micardis) Valsartan (Diovan)

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Cardiovascular, other	Digoxin (>0.125 mg/day) Disopyramide[PA] Nifedipine, immediate release[PA]	***Digoxin use in heart failure:*** Questionable effects on risk of hospitalization and may be associated with increased mortality in older adults with heart failure; higher dosages not associated with additional benefit and may increase risk of toxicity; decreased renal clearance may also lead to increased risk of toxic effects ***Digoxin use in atrial fibrillation:*** Should not be used as first-line agent because more-effective alternatives exist and it may be associated with increased mortality ***Disopyramide:*** Potent negative inotrope and therefore may induce heart failure in older adults; strongly anticholinergic; other antiarrhythmic drugs preferred ***Nifedipine IR:*** Potential for hypotension; risk of precipitating myocardial ischemia	***Heart failure:*** Optimize the following drug classes before using digoxin: ACE inhibitors Aldosterone antagonists Beta blockers ***Atrial fibrillation rate control:*** Digoxin <0.125mg/day Diltiazem (Cardizem) Diltiazem CD (Cardizem CD) Diltiazem ER (Cardizem LA, Tiazac) Diltiazem XT (Diltia XT) Metoprolol tartrate Verapamil (Calan, Isoptin) Verapamil ER (Calan SR, Isoptin SR) Verapamil SR (Verelan) ***Atrial fibrillation rhythm control:*** Dofetilide (Tikosyn) Flecainide (Tambocor) Propafenone (Rythmol) ***Nifedipine IR alternatives:*** Amlodipine (Norvasc) Felodipine ER (Plendil) Nifedipine ER (Procardia XL)
CENTRAL NERVOUS SYSTEM			
Antidepressants (alone or in combination)	Amitriptyline[PA] Nortriptyline Protriptyline Doxepin[PA] Amoxapine Trimipramine[PA] Imipramine[PA] Desipramine Clomipramine[PA] Paroxetine	***TCAs:*** Highly anticholinergic, sedating, and cause orthostatic hypotension; safety profile of low-dose doxepin (6mg/day) is comparable with that of placebo ***Paroxetine:*** Highly anticho-linergic: sedating and can cause orthostatic hypotension	***Depression:*** **BUPROPION** Bupropion (Wellbutrin) Bupropion SR (Wellbutrin SR) Bupropion XL (Wellbutrin XL) **SSRI** Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac) Sertraline (Zoloft) **SNRI** Desvenlafaxine ER (Pristiq) Duloxetine (Cymbalta) Venlafaxine Venlafaxine ER (Effexor XR) ***Neuropathic pain or pain:*** Capsaicin topical Gabapentin (Neurontin) Lidocaine Pregabalin (Lyrica) **SNRI** Desvenlafaxine ER (Pristiq) Duloxetine (Cymbalta) Venlafaxine Venlafaxine ER (Effexor XR)

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Barbiturates	Amobarbital[PA] Pentobarbital[PA] Phenobarbital[PA] Butabarbital[PA] Secobarbital[PA] Butalbital[PA]	High rate of physical dependence; tolerance to sleep benefits; risk of overdose at low dosages	***Headache/migraines:*** Acetaminophen (Tylenol) Ibuprofen** (Advil, Motrin) Naproxen** (Aleve) Sumatriptan ***Epilepsy:*** Lamotrigine (Lamictal) Levetiracetam (Keppra)
Nonbenzodiazepine hypnotics (include when day supply is >90 days)	Ezopiclone[PA] Zolpidem[PA] Zaleplon[PA]	Benzodiazepine-receptor agonists have adverse events similar to those of benzodiaz-epines in older adults (e.g. delirium, falls, fractures); minimal improvement in sleep latency and duration	Trazodone Rozerem (Ramelteon)
Vasodilators for CNS disorders	Ergoloid mesylates[PA] Isoxsuprine[PA]	Lack of efficacy	Donepezil (Aricept) Galantamine (Razadyne) Rivastigmine (Exelon) Memantine (Namenda) Memantine XR (Namenda XR)
Central Nervous System, other	Meprobamate[PA]	***Meprobamate:*** High rate of physical dependence; very sedating	***Anxiety:*** **SSRI** Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac) Sertraline (Zoloft) **SNRI** Desvenlafaxine ER (Pristiq) Duloxetine (Cymbalta) Venlafaxine Venlafaxine ER (Effexor XR) **BUSPIRONE**
ENDOCRINE			
Endocrine	Dessicated thyroidPA (Armour Thyroid) Megestrol[PA] Estrogens* (with or without progester-one) [PA] Climara Pro[PA] Alora[PA] Oral Estradiol Estropipate[PA] Premarin tablets,[PA] Premphase[PA] Prempro[PA] Vivelle-Dot[PA] *Oral and topical patch products only	***Desiccated thyroid:*** Risk of adverse cardiac effects ***Megestrol:*** Minimal effect on weight; increases risk of thrombotic events and possibly death in older adults ***Estrogens:*** Evidence of carcinogenic potential (breast and endometrium); lack of cardioprotective effect and cognitive protection in older women	***Genitourinary symptoms:*** Estrace Vaginal Cream Premarin Vaginal Cream ***Vasomotor symptoms:*** **SSRIS** Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac) Sertraline (Zoloft) **SNRIS** Desvenlafaxine ER (Pristiq) Duloxetine (Cymbalta) Venlafaxine Venlafaxine ER (Effexor XR) ***Thyroid:*** Levothyroxine (Synthroid) Liothyronine (Cytomel) Thyrolar ***Anorexia:*** Dronabinol

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Sulfonylureas, long-duration	Chlorpropamide[PA] Glyburide[PA] (as a single agent or in combination product)	***Chlorpropamide:*** Prolonged half-life in older adults; can cause prolonged hypoglycemia; causes syndrome of inappropriate antidiuretic hormone secretion ***Glyburide:*** Greater risk of severe prolonged hypoglycemia in older adults	Glimepiride (Amaryl) Glipizide (Glucotrol) Glipizide ER (Glucotrol XL) Metformin (Glucophage)
ANALGESICS			
NSAIDS	Indomethacin[PA] Ketorolac (Oral & parenteral)[PA]	***Indomethacin:*** More likely than other NSAIDs to have adverse CNS effects. Of all NSAIDS, indomethacin has the most adverse effects ***Ketorolac:*** Increases risk of GI bleeding, peptic ulcer disease, and acute kidney injury in older adults	Acetaminophen (Tylenol) Diclofenac Ibuprofen** (Advil, Motrin) Naproxen** (Aleve)
SKELETAL MUSCLE RELAXANTS			
Skeletal Muscle Relaxants (as a single agent or in combination product)	Carisoprodol[PA] Cyclobenzaprine[PA] Methocarbomol[PA] Chlorzoxazone[PA] Metaxolone[PA] Orphenadrine[PA]	Most muscle relaxants are poorly tolerated by older adults because some have anticholinergic adverse effects, sedation, increased risk of fractures; effectiveness at dosages tolerated by older adults questionable	Baclofen (Lioresal) Tizanidine*** (Zanaflex)

Abbreviations: TCAs = Tricyclic Antidepressants; ODT = Orally dissolving tablet; ER = Extended-release; CR = Controlled-release; CD = Controlled-delivery; XT = Extended-release; LA = Long-acting; SR = Sustained-release; XL = Extended-release; XR = Extended-release; SSRI=Selective Serotonin Reuptake Inhibitor; SNRI=Serotonin Norepinephrine Reuptake Inhibitors, PA = Prior authorization required for coverage consideration; NSAIDS = Non-steroidal anti-inflammatory drugs

* Listed alternatives covered on formulary without prior authorization; other available alternatives not listed. For most up to date formulary, refer to website **https://mmp.buckeyehealthplan.com/content/dam/centene/Buckeye/mmp/pdfs/2018_OH_MMP_Formulary.pdf**

** Use only if GFR>30 ml/min and no heart failure; administer with a proton pump inhibitor (PPI) for gastroprotection

*** Avoid in men due to urinary retention

Sources:

1. 2017 Use of High-Risk Medications in the Elderly (HRM). **http://pqaalliance.org/images/uploads/files/2017_HRM.pdf.**
2. **American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults.** ***Journal of the American Geriatrics Society*****. 2015;63(11):2227-2246. doi:10.1111/jgs.13702.**
3. Alternative Medications for Medications in the Use of High-Risk Medications in the Elderly and Potentially Harmful Drug-Disease Interactions in the Elderly Quality Measures. ***Journal of the American Geriatrics Society***. 2015;63:e8-18. doi:10.1111/jgs.13807.
4. ***Clinical Pharmacology***. Tampa (FL): Elsevier. 2017. Available from: **http://www.clinicalpharmacology.com**