

**A Guide to Potentially
Inappropriate Medications
for the Elderly:
Description of Beers Criteria 2003**



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December 2004

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The following information was compiled to serve as a quick reference document for researchers working with the Beers Criteria. This compilation should not be considered or used as a substitute for medical advice, diagnosis, or treatment. The first section lists medications that are potentially inappropriate medications for individuals over the age of 65 regardless of health condition or medical diagnoses. The generic name or category is listed first, followed by phonetic pronunciation, and then followed by an example of trade name(s) for the drug. Some explanation follows of what the drug may be prescribed for (many medications are prescribed for a variety of purposes or indications) and finally, a reason that the medication is considered potentially inappropriate. A second section lists drugs that have a maximum dosage or duration according to the Beers Criteria. An additional list of medications that are potentially inappropriate dependent on diagnosis or condition is not included here. These may be found through reference to the original journal article listed at the end of this document.

Independent of Diagnosis or Condition:

Amiodarone (a mee' oh da rone) *Cordarone*

Used to treat arrhythmias such as atrial fibrillation. Lack of effectiveness in older people and has been associated with negative cardiac side effects.

Amitriptyline (a-mee-TRIP-ti-leen) *Elavil, Norpramin*

Antidepressant, prescribed for depression, chronic pain. Amitriptyline has anticholinergic side effects that lead to sedation. Other medications are available for treatment of depression that do not sedate. Anticholinergic side effects: sedation, difficulty with urination or constipation, dizziness, dry mouth, increased pulse, confusion, worsening cognitive and memory impairment.

Amobarbital (am oh bar' bi tal) *Amytal*

Prescribed for anxiety and as a sleep aid. Can be addictive and cause confusion, may lead to falls and fractures, shorter-acting agents may be safer.

Amphetamines and Anorexic Agents excluding methylphenidate

(am-FET-a-meens) *Dexedrine, Adderall, Adipost, Phentercot*

Used to suppress appetite, to treat Attention Deficit Disorder, and to treat narcolepsy. These drugs stimulate the central nervous system and may cause dependence and have been associated with hypertension, angina and heart attacks in older people.

Barbiturates (bar-BI-tyoo-rates) *Seconal, Nembutal, Tuinal, Alurate*

(All barbiturates except Phenobarbital, except when to control seizures.)

Used for sedation or as a sleep aid. These drugs have more adverse side effects such as falls than most sedatives or hypnotics for the elderly and are highly addictive.

Belladonna Alkaloids (bell a don' a) *Butabel, Donnatal, Barbidonna*

Used for intestinal cramping and decreasing stomach activity. Has high anticholinergic side effects and uncertain effectiveness.

Butabarbital (byoo-ta-BAR-bi-tal) *Butasol, Busodium*
Same as barbiturates.

Carisoprodol (kar eye soe proe' dole) *Soma, Vanadom*
Used as a muscle relaxant. Is considered minimally effective at doses tolerated by the elderly and has significant side effects such as weakness and sedation.

Clorazepate (klor az' e pate) *Tranxene*
Used for the treatment of panic disorder. Has significant risks of sedation and increase in falls and stays active in the body a long time.

Chlordiazepoxide (klor dye az e pox' ide) *Librium, Librax, Limbitrol*
Used to treat anxiety and irritable bowel syndrome. Causes sedation and increased risk of falls.

Chlorpheniramine (klor fen ir' a meen) *Allerest, Chlor-Trimeton*
Antihistamine used to treat allergies. Has negative side effects such as dry mouth, sedation and dizziness.

Chlorpropamide (klor proe' pa mide) *Diabinese*
Oral medication used to treat diabetes. Has been associated with increased cardiovascular mortality.

Chlorzoxazone (klor zox' a zone) *Remular, Paraflex, Parafon*
Used to treat muscle aches and stiffness. Is considered minimally effective at doses tolerated by the elderly and has side effects such as sedation and weakness.

Cimetidine (sye met' i deen) *Tagamet*
Available both as a prescription and over-the-counter, used to treat heartburn, stomach ulcers. Has CNS adverse effects including confusion. Other drugs available with less side effects.

Clidinium (kli-DI-nee-um) *Quarzan*
This is an anticholinergic drug that is used to treat nausea, cramps, and spasms of the bladder, stomach and intestines. May cause confusion, drowsiness, constipation and dry mouth.

Clonidine (kloe' ni deen) *Catapres*
Used to treat high blood pressure. Medication has high potential for central nervous system side effects such as memory loss, sedation and depression. It also has been associated with orthostatic hypotension (a fall in blood pressure when a person stands up).

Cyclandelate (sye-KLAN-de-late) *Cyclospasmol*
A vasodilator that enlarges the blood vessels and is used to treat problems from poor blood circulation. The effectiveness of this drug has been questioned and it may cause dizziness.

Cyclobenzaprine (sye kloe ben' za preen) *Flexeril*
Muscle relaxant that is minimally effective at doses tolerated by the elderly, with central nervous system effects, sedation and weakness.

Cyproheptadine (si proe hep' ta deen) *Periactin*

Antihistamine used to treat allergies. May cause dizziness and confusion, other non-sedating antihistamines are available.

Dessicated thryoid *Armour Thyroid, S-P-T, Thymar*

A hormone used to treat hypothyroid, or enlarged thyroid (goiter). There are concerns about cardiac effects of this drug, safer alternatives are available.

Dexchlorpheniramine (dex-klor-fen-EER-a-meen) *Dexchlor, Polaramine*

Antihistamine used to treat allergies. May cause dizziness and confusion, other non-sedating antihistamines are available.

Diazepam (dye az' e pam) *Valium*

Used to treat anxiety. Stays active in the body a long time, chronic use leads to sedation and increased risk of falls in the elderly.

Dicyclomine (dye sye' kloe meen) *Bentyl*

Used to treat irritable bowel syndrome. May cause sedation and effectiveness at doses tolerated by the elderly is not well established.

Diphenhydramine (dye fen hye' dra meen) *Benadryl*

Antihistamine, used for allergies, insomnia, common ingredient in over-the-counter cold and allergy products and sleep aids. May cause confusion and sedation, safer alternatives are available.

Dipyridamole (dye peer id' a mole) *Persantine*

Antiplatelet that promotes blood vessel dilatation. Causes orthostatic hypotension (low blood pressure upon standing) in the elderly, lack of effectiveness except in patients with artificial heart valves.

Disopyramide (dye soe peer' a mide) *Norpace*

Antiarrhythmic, used to treat abnormal heart rhythms. Significant side effects and can induce heart failure in elderly.

Doxazosin (dox ay' zoe sin) *Cardura*

Antihypertensive agent, high potential for side effects and may increase risk for cardiovascular events. Other medications available with less risk.

Doxepin (dox' e pin) *Sinequan*

Antidepressant used to treat depression and anxiety. Has sedating properties, other medications available with less side effects.

Ergot mesylates *Gerimal, Hydergine*

Used to treat mood or behavior. There is a lack of evidence that this medication is effective.

Estrogens – oral (ess' troe jen) *Premarin, Estrace*

Used to treat symptoms of menopause. Recent evidence shows association with increased risk of breast and uterine cancer and lack of cardioprotective effect in older women.

Ethacrynic acid (eth a krin' ik) *Edecrin*

“Water pill”, diuretic used to treat high blood pressure and fluid retention. Potential for fluid imbalances, safer alternatives available.

Fluoxetine (floo-OX-e-teen) *Prozac*

Used to treat depression. Medication stays active in the body a long time and carries a risk of sleep disturbance and excessive stimulation of the central nervous system, safer alternatives are available.

Flurazepam (flure az' e pam) *Dalmane*

Sedative, used as a sleep aid, prolonged sedation in the elderly with increased risk of falls and fracture.

Guanadrel (GWAHN-a-drel) *Hylorel*

Antihypertensive, may cause orthostatic hypotension (a drop in blood pressure upon standing) in the elderly.

Guanethidine (gwahn eth' i deen) *Ismelin*

Used to treat high blood pressure. Safer alternatives exist.

Halazepam (hal-AZ-e-pam) *Paxipam*

Benzodiazepine, a central nervous system depressant, used to treat anxiety. Stays active in the body a long time, leading to an increased risk of sedation and increased risk of falls.

Hydroxyzine (hye drox' i zeen) *Atarax*

Used to treat allergies. Significant anticholinergic effects, safer alternatives for the elderly available.

Hyoscyamine (hye oh sye' a meen) *Anaspaz, Levsin*

Antispasmodic, uncertain effectiveness and significant side effects.

Indomethacin (in doe meth' a sin) *Indocin*

Nonsteroidal anti-inflammatory, produces most central nervous system side effects of all drugs in this class, safer alternatives available.

Isoxsuprine (eye-SOX-syoo-preen) *Vasodilan*

Vasodilator that increases size of blood vessels, used for circulatory problems. There is lack of evidence of its effectiveness and other alternatives are available.

Ketorolac tromethamine (kee toe role' ak) *Toradol*

Anti-inflammatory used to treat pain and swelling. There is a high incidence of serious gastrointestinal side effects in the elderly with the use of this drug.

Meperidine (me per' i deen) *Demerol*

Narcotic pain medication. Not considered an effective oral analgesic in doses commonly used. May cause confusion and has disadvantages similar to other narcotics.

Meprobamate (me proe ba' mate) *Equanil, Miltown*

Anti-anxiety medication, considered highly addictive with sedating properties.

Mesoridazine (mez oh rid' a zeen) *Serentil*

Antipsychotic with undesirable adverse effects such as sedation and cardiac arrhythmia.

Metaxalone (me tax' a lone) *Skelaxin*

Muscle relaxant that is considered minimally effective at doses tolerated by the elderly, with significant sedation.

Methocarbamol (meth oh kar' ba mole) *Carbacot, Robaxin, Skelax*

Muscle relaxant that is considered minimally effective at doses tolerated by the elderly, with significant sedation.

Methyldopa (meth ill doe' pa) *Aldomet, Aldoril*

Used to treat high blood pressure. May cause slow heartrate and worsen depression in the elderly.

Methyltestosterone (meth-il-tes-TOS-te-rone) *Android, Virilon, Testrad*

Synthetic male hormone that has potential to cause prostate enlargement and also cardiac problems.

Mineral oil

Used as a laxative, potential danger if aspirated (breathed in) during swallowing and has significant side effects, safer alternatives available.

Nifedipine (nye fed' i peen) *Procardia, Adalat* – short-acting

Calcium channel blocker, used for diabetic nephropathy, hypertension and angina. Carries a significant potential for low blood pressure and constipation, other agents available.

Nitrofurantoin (nye troe fyoor an' toyn) *Macrochantin, Macrobid*

Oral antibiotic prescribed for urinary tract infection. Nitrofurantoin carries significant risk for toxicity due to renal (kidney) function in the elderly, safer alternatives are available.

Orphenadrine (or fen' a dreen) *Norflex, Myolin*

Muscle relaxant sometimes used to treat leg cramps. Is considered minimally effective and toxic because of sedation and other side effects.

Oxbutynin (ox i byoo' ti nin) *Ditropan* – not extended-length version

Used to treat urinary incontinence. Minimally effective at does that are tolerated by the elderly and has both central nervous system and anticholinergic effects.

Pentazocine (pen-TAZ-oh-seen) *Talwin, Talacen*

Narcotic pain medication that causes more adverse effects such as confusion and hallucinations than other narcotic drugs.

Pentobarbital (pen toe bar' bi tal) *Nembutal*

Used as a narcotic pain medication and is considered addictive. Has been associated with increased risk of falls, fractures and confusion.

Promethazine (proe meth' a zeen) *Phenergan*

Antihistamine used for allergies or for sedation. Has anticholinergic side effects and sedating effects, as well as, potential for extrapyramidal side effects that impair voluntary movement, safer alternatives are available.

Propantheline (proe pan' the leen) *Pro-Banthine*

Used to treat ulcers, antispasmodic. Its effectiveness is uncertain and has significant side effects.

Propoxyphene (proe-POX-i-feen) *Darvon, Darvocet*

Prescribed for pain control. Studies show that propoxyphene offers no analgesic advantage over aspirin or Tylenol, yet has adverse narcotic effects.

Quazepam (KWA-ze-pam) *Doral*

Possibly habit-forming, a benzodiazepine used to treat anxiety or insomnia. Active in the body for a long time and has a high risk of sedation and increased falls.

Secobarbital (see koe bar' bi tal) *Seconal*

Barbiturate that can be addictive, used as a sedative to treat insomnia or anxiety. Increased risk of falls and fractures, and confusion.

Thioridazine (thye oh rid' a zeen) *Mellaril*

Antipsychotic with high incidence of sedation, orthostatic hypotension and anticholinergic side effects.

Ticlopidine (tye kloe' pi deen) *Ticlid*

Antiplatelet, antithrombotic that is used to prevent stroke. No better than aspirin in preventing clotting, but considerably more toxic, safer, more effective alternatives available.

Trimethobenzamide (trye meth oh ben' za mide) *Tigan, Tebamide*

Controls nausea and vomiting. Lack of evidence of its effectiveness and may cause significant side effects.

Drugs That Have a Maximum Dosage or Duration:

Alprazolam (al pray' zoe lam) *Xanax*

Used to treat anxiety and panic disorders. Due to increased sensitivity to benzodiazepines, smaller doses may be more effective and safer in the elderly. Daily dosage not to exceed 2 mg.

Digoxin (di jox' in) *Digitek, Lanoxicaps, Lanoxin*

Used to improve the strength and efficiency of the heart, most often in treatment of heart failure. Daily dosage not to exceed 0.125 mg (except when treating atrial arrhythmias).

Ferrous Sulfate

Iron supplements. Doses greater than 325 mg do not dramatically increase the amount absorbed but do increase constipation. Daily dosage not to exceed 325 mg.

Lorazepam (lor a' ze pam) *Ativan*

Anti-anxiety medication that can become habit-forming. Daily dosage not to exceed 3mg.

Non-Cox-selective NSAIDS *Naprosyn, Anaprox, Aleve, Daypro, Feldene*

Used to relieve pain and inflammation. These drugs have the potential to produce gastrointestinal bleeding, kidney failure, high blood pressure and heart failure. Short-term use only.

Oxazepam (ox a' ze pam) *Serax*

Used to treat anxiety, irritable bowel syndrome. May cause drowsiness, dizziness. Can be habit-forming and become less effective over time. Daily dosage not to exceed 60 mg.

Reserpine (re ser' peen) *Serpalan, Serpasil*

Used to treat high blood pressure and also agitation associated with mental disorders. May cause depression, sedation, impotence and orthostatic hypotension. Daily dosage not to exceed 0.25 mg.

Stimulant Laxatives *Dulcolax, cascara sagrada, castor oil*

Long-term use may increase bowel dysfunction. Short-term use is advised, except in the presence of opiate analgesic use.

Temazepam (te maz' e pam) *Restoril*

Short-acting benzodiazepine used as a sleep aid. Daily dosage should not exceed 15 mg.

Triazolam (trye ay' zoe lam) *Halcion*

Short-acting benzodiazepine used as a sleep aid. Daily dosage should not exceed 0.25 mg.

Resources:

Fick DM, Cooper JW, Wade WE, Waller JL, Maclean JR, Beers MH. Updating the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *Arch Intern Med* 2003; 163:2716-2724.

MedlinePlus, U.S. National Library of Medicine and the National Institutes of Health
<http://www.nlm.nih.gov/medlineplus/druginformation.html>