ABOUT THE BEERS CRITERIA

In 1991 gerontologist Dr. Mark H. Beers developed a list of potentially avoidable, high-risk medications to be avoided in the elderly, based on the literature and consensus from a panel of experts. This list was subsequently updated in 1997, 2001, and most recently in 2003. We have used a modified version of the Beers drugs, based on Saskatchewan's formulary. The chart includes alternatives that are safer, yet equally effective.

INDICATOR	COMMENTS (Beers rationale)	ALTERNATIVES
Propoxyphene & combo products	Offers few analgesic advantages over acetaminophen, yet has the adverse effects of other narcotic drugs.	Acetaminophen, various NSAID's acetaminophen with codeine, morphine
Indomethacin	Of all available nonsteroidal anti-inflammatory drugs, this drug produces the most CNS adverse effects.	Other NSAIDs such as naproxen or ibuprofen
Amitriptyline	Because of its strong anticholinergic and sedation properties, amitriptyline is rarely the antidepressant choice for elderly patients.	SSRIs (if treating depression), nortriptyline or desipramine (alternative TCAs with less anticholinergic effects) or gabapentin (for treating pain).
Doxepin	Because of its strong anticholinergic and sedation properties, doxepin is rarely the antidepressant choice for elderly patients.	Same as list for amitriptyline
Flurazepam	This benzodiazepine hypnotic has an extremely long half-life in elderly patients (often days), producing prolonged sedation and increasing the incidence of falls and fracture. Shorter acting benzodiazepines are preferable.	Lorazepam, oxazepam, temazepam
Doses of short-acting/ultra short-acting benzodiazepine, doses greater than: **lorazepam** (3mg); **oxazepam** (60mg); **alprazolam** (2 mg); **temazepam** (15mg); and **triazolam** (.25mg).	Because of its increased sensitivity to benzodiazepines in elderly patients, smaller doses may be effective as well as safer. Total daily doses should rarely exceed the suggested maximums.	Try to slowly reduce dosage over time.
Long-acting benzodiazepine: **Chlordiazepoxide** (Librium) **diazepam** (Valium), **clorazepate** (Tranxene)	These drugs have a long half life in elderly patients (often several days), producing prolonged sedation and increasing the risk of falls and fractures. Shorter acting benzodiazepines are preferred if a benzodiazepine is required.	Lorazepam, oxazepam, temazepam, clonazepam
Disopyramide (Norpace and Norpace CR)	Of all antiarrhythmic drugs, this is the most potent negative inotrope and therefore may induce heart failure in elderly patients. It is also strongly anticholinergic. Other antiarrhythmic drugs should be used.	Depends highly on clinical scenario - consult cardiology or internal medicine if needed.
Digoxin (Lanoxin) (should not generally exceed >0.125mg/d)	Decreased renal clearance may lead to increased risk of toxic effects. In frail elderly, toxicity is also more likely with blood levels in upper therapeutic range.	Consider periodic digoxin serum levels to ensure appropriateness of dosage as the patient ages (reduced renal clearance with age may necessitate periodic dosage reduction.)
Methyldopa (Aldomet) and **methyldopa-hydrochlorothiazide**	May cause bradycardia and exacerbate depression in elderly patients. Also greater risk of orthostatic hypotension.	Dependant on clinical scenario and comorbidities, but may include: thiazide diuretics, ACE inhibitors, calcium channel blockers, beta-blockers, or angiotensin receptor blockers.
Chlorpropamide (Diabinese)	It has prolonged half-life in elderly pataients and could cause prolonged hypoglycemia. Additionally it is the only oral hypoglycemic agent that causes SIADH	Glyburide, glimepiride, gliclazide, or other non-sulfonylurea oral hypoglycemic agents.

INDICATOR	COMMENTS (Beers rationale)	ALTERNATIVES
Gastrointestinal antispasmodic drugs: **dicyclomine** (Bentyl) **propantheline** (Pro-banthine)	GI antispasmodic drugs are highly anticholinergic and have uncertain effectiveness. These drugs should be avoided (especially for long-term use).	Dependent on clinical scenario - consult GI or internal medicine if needed.
Anticholinergics and antihistamines: **hydroxyzine** (Atarax)	All non prescription and many prescription antihistamines may have potent anticholinergic properties. Non-anticholinergic antihistamines are preferred in elderly patients when treating allergic reactions.	Cetirizine (Reactine), fexofenadine (Allegra), loratadine(Claritin), desloratadine(Aerius)
All barbiturates (except Phenobarbital) except when used to control seizures = 1)amobarbital sodium, 2) pentobarbital sodium, and 3) secobarbital sodium.	Are highly addictive and cause more adverse effects than most sedative or hypnotic drugs in elderly patients.	Non-drug measures for sleep, anxiety, behaviour. Drugs: Zaleplon (Starnoc), Zopiclone (Imovane), various benzodiazephines.
Meperidine (Demerol)	Not an effective oral analgesic in doses commonly used. May cause confusion and has many disadvantages relative to other narcotic drugs.	Morphine, codeine, topical fentanyl patches
Ticlopidine (Ticlid)	Has been shown to be no better than aspirin in preventing clotting and may be considerably more toxic. Safer, more effective alternatives exist.	ASA (Aspirin), clopidogrel (Plavix), Aggrenox, Warfarin
Daily Flouoxetine (Prozac)	Long half-life of drug and risk of producing excessive CNS stimulation, sleep disturbances, and increasing agitation,. Safer alternatives exist.	Shorter acting SSRIs include: citalopram (Celexa), paroxetine (Paxil), sertraine (Zoloft)
Orphenadrine (Norflex)	Causes more sedation and anticholinergic adverse effects than safer alternatives.	Dependent on clinical scenario
Thioridazine (Mellaril)	Greater potential for CNS and extrapyramidal adverse effects.	Depends on clinical scenario - high potency or alypical antipsychotics (haloperidol, risperidone, queliapine olanzapine)
Mesoridazine (Serentil)	CNS and extrapyramidal adverse effects.	See thioridazine
Short acting Nifedipine (Procardia and Adalat)	Potential for hypotension and constipation. 5 & 10 mg capsule (I.e. not sustained or extended release tablets)	Long acting nifedipine (Adalat XL), felodipine (Renedil), amlodipine (Norvasc)
Clonidine (Catapres)	Potential for orthostatic hypotension and CNS adverse effects.	Dependent on clinical scenario and comorbidities, but may include: thiazide diurectic, ACE - inhibitors, calcium channel blockers, beta-blockers, or angiotensin receptor blockers.
Cimetidine (Tagamet) H2 blocker	CNS adverse effects including confusion.	Ranitidine (zantac) or others (dose may need to be decreased if reduced renal function).
Thyroid (Desiccated thyroid)	Concerns about cardiac effects. Safer alternatives available.	Levothyroxine (Eltroxin, Synthroid)
Estrogens only (oral)	Evidence of the carcinogenic (breast and endometrial cancer) potential of these agents and lack of cardioprotective effects in older women.	Depends on reason for use.