PHARMACIST'S LETTER

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PHARMACIST'S LETTER / PRESCRIBER'S LETTER
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PRESCRIBER'S LETTER

STARTing and STOPPing Medications in the Elderly

In the U.S., almost 40% of people age 60 years and older take at least five medications.[1] Age-related physiologic changes (e.g., decreased renal function, reduced muscle mass) put the elderly at risk for adverse effects.[2] Although only about 14% of the U.S. population is 65 years of age or older, the elderly account for about 25% of emergency department visits due to adverse drug events.[3,4] And about half of hospitalizations due to adverse drug events are in the elderly.[4] There have been several attempts at making a "hit list" of medications to be avoided in the elderly. The Beers list is often used.[2] There are also "Canadian criteria."[5] The "Canadian criteria" give more consideration to indication, comorbidities, and duration of therapy than the Beers list. Concerns about using a "hit list" approach include lack of allowance for exceptions (e.g., palliative care), and misuse resulting in patient harm.[6] Also, there are medications that should be avoided in the elderly but that are not included in these lists. Drug interactions, duplications, and underprescribing are not addressed. And the lists are poorly organized.[7] The STOPP (Screening Tool of Older Persons' potentially inappropriate Prescriptions) and START (Screening Tool to Alert doctors to Right Treatment) criteria address some of these concerns. STOPP might work better than Beers to identify meds that result in negative outcomes, such as hospital admission.[8] But as with Beers and the Canadian criteria, there is no convincing evidence that using the START/STOPP criteria reduces morbidity, mortality, or cost. Use these lists to identify red flags that might require intervention, not as the final word on medication appropriateness; look at the total patient picture. The following chart of potentially inappropriate medications, their therapeutic alternatives, and medications to consider initiating in the elderly incorporates the STOPP and START criteria.

NOTE: Most therapeutic sections begin with recommendations for appropriate drug use from the START criteria. **Consider current guidelines**.

Drug or Drug Class	**Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]**	**Clinical concern[8]**	**Therapeutic alternative**
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Analgesics and Anti-inflammatory Medications Consider STARTing the following, assuming no contraindication:[9] • DMARD: for patients with moderate-severe rheumatoid arthritis			
Colchicine	• Long-term use for gout	• Not preferred treatment, increased risk of toxicity	• Allopurinol[8]
Corticosteroids, systemic	• COPD maintenance • Over three months' use for arthritis	• Systemic corticosteroid side effects	• For rheumatoid arthritis: DMARD[9] • For osteoarthritis: acetaminophen, topicals[6] • For COPD: inhaled corticosteroid and/or bronchodilator[6,9]

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Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
NSAIDs	• With history of ulcer or GI bleed, not receiving PPI, H2-blocker, or misoprostol • With blood pressure 160/100 mmHg or higher • With heart failure • Use over three months for mild osteoarthritis pain • With GFR<50 mL/min • Long-term use for gout • With warfarin	• Risk of ulcer or GI bleed • Worsening hypertension • Worsening heart failure • Safer, effective alternatives available • Worsening renal function • Not preferred treatment • GI bleed	• With peptic ulcer disease history: add gastroprotective agent[8] • For gout: allopurinol with short-term colchicine or NSAID during initiation[8] • With cardiac, renal issues; osteoarthritis: acetaminophen, topicals[6] • With warfarin: acetaminophen, topicals[6]
Opioids	• With tricyclic antidepressant • Codeine for diarrhea of unknown etiology • Codeine for severe gastroenteritis (e.g., bloody diarrhea, fever) • Long-term in patients with recurrent falls • Long-term use of strong opioids (e.g., morphine) first line for mild to moderate pain • Use for more than two weeks with chronic constipation without laxative • With dementia unless needed for palliative care or moderate-severe pain	• Constipation • Delayed diagnosis, delayed recovery from gastroenteritis, constipation with overflow diarrhea, toxic megacolon in inflammatory bowel disease • Worsening infection or delayed recovery • Falls • Not indicated • Worsening constipation • Worsening cognitive impairment	• For mild/moderate pain: APAP, short-acting NSAID (e.g., ibuprofen); Topicals (neuropathic pain, arthritis): lidocaine (*Lidoderm* [U.S.]), capsaicin[6] • For diarrhea: aluminum hydroxide, cholestyramine, diet change[6]

Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Cardiovascular Medications Consider STARTing the following, assuming no contraindication:[9] • ACEI or ARB: for patients with heart failure, post-MI, diabetic nephropathy • Antihypertensives: for patients with SBP repeatedly >160 mmHg • Aspirin: for patients with atrial fibrillation (if warfarin, but not aspirin, contraindicated); cardiovascular, cerebrovascular, or peripheral vascular disease, in sinus rhythm; primary prevention in diabetes with at least one major cardiovascular risk factor (hypertension, hyperlipidemia, smoking history) • Beta-blocker: for patients with chronic stable angina • Clopidogrel (as an option to aspirin): for patients with cardiovascular, cerebrovascular, or peripheral vascular disease, in sinus rhythm • Statin: for patients with cardiovascular, cerebrovascular, or peripheral vascular disease, independent functional status for activities of daily living, and expected to live more than five years; diabetes plus additional cardiovascular risk factors • Warfarin: for patients with chronic atrial fibrillation			
Aspirin	• With warfarin or peptic ulcer disease history, not receiving PPI or H2-blocker • Dose over 150 mg • Without cardiovascular, cerebrovascular, or peripheral vascular indication or occlusive arterial event • With bleeding disorder	• GI bleed • Bleeding; no additional benefit • Bleeding; no indication • Bleeding	• With peptic ulcer disease history: add gastroprotective agent[8] • Dose over 150 mg: reduce dose to 81 mg[10,13] • With bleeding disorder: assess risk/benefit
Beta-blocker	• In COPD (noncardioselective) • With verapamil • In diabetes with one or more hypoglycemic episodes monthly	• Bronchospasm • Heart block • Masking of symptoms of hypoglycemia	• Cardioselective agents (for COPD): atenolol, bisoprolol, nebivolol, and to a lesser extent, metoprolol[11] • Alternate antihypertensive, nitrate, or calcium channel blocker[6]

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Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Calcium channel blocker	• With chronic constipation • With tricyclic antidepressant • Diltiazem or verapamil with NYHA class III or IV heart failure • Verapamil with a beta-blocker	• Worsening constipation • Constipation • Worsening heart failure • Heart block	• For heart failure: Diuretic, ACE inhibitor, appropriately titrated beta-blocker (not with verapamil)[6] • For constipation: Diet therapy (fiber, fluids), psyllium, polyethylene glycol (*Miralax* [U.S.], *Lax-A-Day* [Canada]), stool softener (e.g., docusate)[6]
Cimetidine	• With warfarin	• Increased warfarin levels	• Alternate H2-blocker
Clopidogrel	• With bleeding disorder	• Bleeding	• Assess risk/benefit
Digoxin	• >0.125 mg/day (long term, GFR <50 mL/min)	• Toxicity	• Dose reduction, with monitoring[6]
Dipyridamole	• Monotherapy for secondary cardiovascular prevention • With bleeding disorder	• Ineffective • Bleeding	• For secondary prevention: aspirin, clopidogrel (aspirin intolerance), aspirin plus clopidogrel (e.g., recent stent or ACS), *Aggrenox* (dipyridamole/aspirin; stroke)[12,13] • With bleeding disorder: assess risk/benefit

Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Loop diuretic	• Dependent edema without heart failure • Initial monotherapy for hypertension	• Ineffective • Safer, more effective medications available	• Dependent edema: Compression stockings • For hypertension: See *PL Detail-Document, Hypertension in the Elderly: Pharmacotherapy Focus*
Thiazide	• With gout history	• Worsening gout	• For hypertension: See *PL Detail-Document, Hypertension in the Elderly: Pharmacotherapy Focus*
Vasodilators known to worsen postural hypotension (e.g., hydralazine, alpha-blockers)	• With orthostatic hypotension (more than 20 mmHg drop in SBP upon standing)	• Falls	• For hypertension or heart failure: ACEI, ARB, beta-blocker[14] • For BPH: 5-alpha-reductase inhibitor (finasteride [*Proscar*], dutasteride [*Avodart*])[6]
Warfarin	• Over six months' use for first uncomplicated DVT • Over 12 months' use for first uncomplicated PE • With bleeding disorder • With NSAID • With aspirin but without an H2-blocker or PPI	• No additional benefit • No additional benefit • Bleeding • GI bleed	• Bleeding disorder: assess risk/benefit • NSAID alternatives: acetaminophen, topicals[6]

Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Central Nervous System Medications Consider STARTing the following, assuming no contraindication:[9] • Antidepressant: for patients with depressive symptoms for three months or more • Levodopa: for patients with Parkinson's disease with functional impairment and disability			
Anticholinergics	• To treat neuroleptic extrapyramidal side effects • Bladder antispasmodics with dementia • Bladder antispasmodics with chronic constipation • Bladder antispasmodics with BPH • Bladder antispasmodics with glaucoma	• Anticholinergic side effects • Agitation, confusion • Worsening constipation • Urinary retention • Worsening glaucoma	• For extrapyramidal side effects: decrease antipsychotic dose or discontinue; switch to atypical antipsychotic[6,a] • With constipation: Diet therapy (fiber, fluids), psyllium, polyethylene glycol (*Miralax* [U.S.], *Lax-A-Day* [Canada]), stool softener (e.g., docusate)[6] • With BPH: 5-alpha-reductase inhibitor (finasteride [*Proscar*], dutasteride [*Avodart*])[6]
Antihistamines, first generation (e.g., chlorpheniramine, diphenhydramine, promethazine [see separate entry below])	• Use for more than one week • With one or more falls in the past three months	• Sedation and anticholinergic side effects • Falls	• Cetirizine (*Zyrtec* [U.S.], *Reactine* [Canada], etc), fexofenadine (*Allegra*), loratadine (*Claritin*, etc.), desloratadine (*Clarinex* [U.S.], *Aerius* [Canada]), levocetirizine (*Xyzal* [U.S.])[6]

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Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Benzodiazepines	• Use of long-acting agent (e.g., chlordiazepoxide, clorazepate, diazepam, flurazepam, nitrazepam) for more than one month • With one or more falls in past three months	• Sedation, confusion, falls • Falls	• <u>For anxiety</u>: shorter acting benzodiazepines appropriately dosed (alprazolam [*Xanax*], lorazepam [*Ativan*], oxazepam [*Serax*]), buspirone (*Buspar*)[6], SSRI, SNRI[15] • <u>For sleep</u>: nondrug therapy; temazepam (*Restoril*) 7.5 mg (15 mg Canada)*, zolpidem[b] (U.S.) (*Ambien*) 5 mg*, (*Ambien CR*) 6.25 mg, zaleplon (U.S.) (*Sonata*) 5 mg*, ramelteon (*Rozerem*) 8 mg, eszopiclone (U.S.) (*Lunesta*) 1 mg* for difficulty falling asleep, 2 mg for difficulty staying asleep; zopiclone (Canada) (*Rhovane*, etc) 3.75 mg*[6,15] *Initial dose
Neuroleptics (antipsychotics) *Continued…*	• As a hypnotic, over one month • With parkinsonism, over one month • With epilepsy (phenothiazines) • With one or more falls in past three months	• Hypotension, extrapyramidal effects, confusion, falls • Worsening parkinsonism • Seizures • Falls	• <u>For sleep</u>: nondrug therapy; temazepam (*Restoril*) 7.5 mg (15 mg Canada)*, zolpidem[b] (U.S.) (*Ambien*) 5 mg*, (*Ambien CR*) 6.25 mg, zaleplon (U.S.) (*Sonata*)

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Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Neuroleptics, (antipsychotics), *continued*			5 mg*, ramelteon (*Rozerem*) 8 mg, eszopiclone (U.S.) (*Lunesta*) 1 mg* for difficulty falling asleep, 2 mg for difficulty staying asleep; zopiclone (Canada) (*Rhovane*, etc) 3.75 mg*[6,15] *Initial dose • With parkinsonism: low dose of clozapine or quetiapine[16,a] • With epilepsy: Risperidone (*Risperdal*), haloperidol (*Haldol*)[6,a] • With fall risk: Dosage decrease or discontinuation[17,a]
Promethazine *Continued…*	• With epilepsy • Use over one week as an antihistamine • As a hypnotic, over one month • With parkinsonism, over one month • With one or more falls in the past three months	• Seizures • Sedation and anticholinergic side effects • Hypotension, extrapyramidal effects, confusion, falls • Worsening parkinsonism • Falls	• For nausea: ondansetron (*Zofran*), granisetron (*Kytril*), dolasetron (*Anzemet*)[6] • Alternative antihistamines: Cetirizine (*Zyrtec* [U.S.], *Reactine* [Canada]), fexofenadine (*Allegra*), loratadine (*Claritin*), desloratadine (*Clarinex* [U.S.], *Aerius* [Canada]), levocetirizine (*Xyzal* [U.S.])[6]

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Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Promethazine, *continued*			• <u>For sleep</u>: nondrug therapy; temazepam (*Restoril*) 7.5 mg (15 mg Canada)*, zolpidem[b] (U.S.) (*Ambien*) 5 mg*, (*Ambien CR*) 6.25 mg, zaleplon (U.S.) (*Sonata*) 5 mg*, ramelteon (*Rozerem*) 8 mg, eszopiclone (U.S.) (*Lunesta*) 1 mg* for difficulty falling asleep, 2 mg for difficulty staying asleep; zopiclone (Canada) (*Rhovane*, etc) 3.75 mg*[6,15] *Initial dose
SSRIs	• With history of sodium <130 mEq/L (mmol/L) within the past two months	• Hyponatremia	• Trazodone, mirtazapine, bupropion[6]
Tricyclic Antidepressants	• With dementia • With glaucoma • With arrhythmias • With constipation • With opioids • With calcium channel blocker • With BPH • With urinary retention	• Worsening cognitive impairment • Worsening glaucoma • Pro-arrhythmic • Worsening constipation • Constipation • Constipation • Urinary retention • Worsening urinary retention	• <u>For depression</u>: trazodone (for insomnia), SSRI (avoid fluoxetine), bupropion (*Wellbutrin*) (for cardiac patient), mirtazapine (*Remeron*) (for insomnia or anorexia)[6] • <u>For neuropathic pain</u>: topicals (lidocaine [*Lidoderm* [U.S.], capsaicin)[6]

Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Endocrine Medications Consider STARTing the following, assuming no contraindication:[9] • Bisphosphonate: for patients on chronic systemic glucocorticoid • Calcium and vitamin D: for patients with osteoporosis • Metformin: for patients with type 2 diabetes			
Chlorpropamide	• With type 2 diabetes	• Prolonged hypoglycemia	• Glimepiride (*Amaryl*), glipizide (*Glucotrol* [U.S.])[6]
Estrogens	• With history of breast cancer or VTE • With intact uterus, without progestin	• Recurrence • Endometrial cancer	• For hot flashes: nondrug therapy (cool environment, layered clothing, cool compress), SSRIs, gabapentin, venlafaxine[6] • For bone density: calcium, vitamin D, bisphosphonates, raloxifene (*Evista*)[6]
Glyburide	• With type 2 diabetes	• Prolonged hypoglycemia	• Glimepiride (*Amaryl*), glipizide (*Glucotrol* [U.S.])[6]
Gastrointestinal Medications Consider STARTing the following, assuming no contraindication:[9] • Fiber: for patients with chronic symptomatic diverticular disease and constipation • Proton pump inhibitor: for patients with chronic severe GERD or peptic stricture needing dilatation			
Antispasmodics with anticholinergic effects (e.g., dicyclomine)	• With chronic constipation • Also see "Anticholinergics" in the Central Nervous System Medications section	• Worsening constipation	• Diet therapy (fiber, fluids), psyllium, polyethylene glycol (*Miralax* [U.S.], *Lax-A-Day* [Canada]), stool softener (e.g., docusate)[6]

Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Diphenoxylate	• For diarrhea of unknown etiology • For severe gastroenteritis (e.g., blood, fever)	• Delayed diagnosis, delayed recovery from gastroenteritis, constipation with overflow diarrhea, toxic megacolon in inflammatory bowel disease • Worsening infection or delayed recovery	• Aluminum hydroxide, cholestyramine, diet change[6]
Loperamide	• For diarrhea of unknown etiology • For severe gastroenteritis (e.g., blood, fever)	• Delayed diagnosis, delayed recovery from gastroenteritis, constipation with overflow diarrhea, toxic megacolon in inflammatory bowel disease • Worsening infection or delayed recovery	• Aluminum hydroxide, cholestyramine, diet change[6]
Metoclopramide	• With parkinsonism	• Worsening parkinsonism	• For nausea: ondansetron (*Zofran*), granisetron (*Kytril*), dolasetron (*Anzemet*)[6]
Prochlorperazine	• With parkinsonism • Also see "Neuroleptics" in the Central Nervous System Medications section	• Worsening parkinsonism	• Ondansetron (*Zofran*), granisetron (*Kytril*), dolasetron (*Anzemet*)[6]
Promethazine	• See Central Nervous System Medications section	• See Central Nervous System Medications section	• See Central Nervous System Medications section
Proton pump inhibitor	• Full dose for over eight weeks	• Long-term use at full dose not indicated for peptic ulcer disease, esophagitis, or GERD	• Adjust dose[8]

Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Respiratory Medications Consider STARTing the following, assuming no contraindication:[9] • Anticholinergic, inhaled: for patients with mild to moderate COPD or asthma • Beta-2 agonist, inhaled: for patients with mild to moderate COPD or asthma • Corticosteroid, inhaled: for patients with moderate to severe COPD or asthma			
Corticosteroids, systemic	• COPD maintenance	• Systemic corticosteroid side effects	• For COPD: Inhaled corticosteroid and/or bronchodilator[6,9]
Ipratropium, nebulized	• With narrow angle glaucoma	• Worsening glaucoma	• Use metered-dose inhaler and avoid getting drug in eyes
Theophylline	• Monotherapy for COPD	• Safer, more effective medications available	• For COPD: Inhaled corticosteroid and/or bronchodilator[6]
Urinary Tract Drugs			
Alpha-blockers	• With urinary incontinence one or more times daily in men • With urinary catheter for over two months • With orthostatic hypotension (more than 20 mmHg drop in SBP upon standing)	• Urinary frequency or worsening incontinence • Not indicated • Falls	• For hypertension: ACEI, ARB, beta-blocker[14] • For urge incontinence: Behavioral therapy (e.g., urge suppression, bladder retraining)[6] • For BPH: 5-alpha-reductase inhibitor (finasteride [*Proscar*], dutasteride [*Avodart*])[6]
Urinary antispasmodics, anticholinergic (e.g., oxybutynin) *Continued…*	• With dementia • With glaucoma • With chronic constipation • With BPH	• Agitation, confusion • Worsening glaucoma • Worsening constipation • Urinary retention	• For urge incontinence: Behavioral therapy (e.g., urge suppression, bladder retraining)[6] • With constipation: Diet therapy (fiber, fluids),

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Drug or Drug Class	Potentially inappropriate use in elderly (i.e., 65 years and older) per STOPP[8]	Clinical concern[8]	Therapeutic alternative
Look for therapeutic duplication (e.g., two NSAIDs, two SSRIs, two ACEI). Optimize monotherapy, then add drug from different class.			
Urinary antispasmodics, *continued*			psyllium, polyethylene glycol (*Miralax* [U.S.], *Lax-A-Day* [Canada]), stool softener (e.g., docusate)[6] • With BPH: 5-alpha-reductase inhibitor (finasteride [*Proscar*], dutasteride [*Avodart*])[6]

a. All antipsychotics associated with increased mortality risk when used to treat behavioral problems in elderly with dementia[6]
b. Zolpidem (*Sublinox*), manufactured by Med Valeant, was recently approved by Health Canada. This new sublingual tablet formulation is expected to be available in Canada by the end of 2012.

Users of this PL Detail-Document are cautioned to use their own professional judgment and consult any other necessary or appropriate sources prior to making clinical judgments based on the content of this document. Our editors have researched the information with input from experts, government agencies, and national organizations. Information and internet links in this article were current as of the date of publication.

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