

## Drugs and the Risk of Falling

### ***Which drugs can increase the risk of falls?***

In theory ANY drug that causes one of the following effects can increase the risk of falling:

- Drowsiness
- Dizziness
- Hypotension
- Parkinsonian effects
- Ataxia/gait disturbance
- Vision disturbance

As well, theoretically ANY drug that causes the following effects can increase the risk of a serious outcome if the resident falls:

- Osteoporosis or reduced bone mineral density: Increased risk of fracture if a fall occurs
- Bleeding risk: Increased risk of a cerebral hemorrhage if a fall occurs

### ***What can be done if a resident is taking a drug that can increase the falls risk?***

Individualize treatment. Drugs are just one of many factors that can increase the risk of falling.

#### **Assessment: Is this resident at high risk?**

- Has the resident had a slip, trip, near fall or fall in the last six months?**
- Is the resident **taking a drug that can cause the effects listed above?** (see list of drugs on page two)
- Is the resident taking a **high dose of the drug?**
- Is the resident **displaying any of the adverse effects listed above**, such as drowsiness?
- Is the resident **elderly**? Elderly residents may be more sensitive to adverse drug effects because of alterations in the way that the body absorbs, distributes or eliminates the drug.
- Is the resident **taking more than one drug that increases the falls risk?**
- Is the resident at **high risk of falling for other, non-drug reasons?**
- Is it **difficult to monitor** the resident for an adverse drug effect?



Consider intervention, especially if you have assessed the resident as high risk:

- Consider risk/benefit ratio: Does the benefit of the drug outweigh a possible risk of falling?
- Is there a safer drug or non-drug alternative?
- Is it possible to minimize the dose without losing the benefit of the drug?

## Examples of drugs that can increase the risk of falling, or of a serious outcome if a fall occurs (and possible mechanisms)

<p><b>ACE Inhibitors</b> (3)</p> <p>Benazepril Captopril Cilazapril Enalapril/enalaprilat Fosinopril Lisinopril Perindopril Quinapril Ramipril Trandolapril</p> <p><b>Alcohol</b> (1,5)</p> <p><b>Alpha Receptor Blockers</b> (2,3, especially initial doses)</p> <p>Alfuzosin Doxazosin Prazosin Tamsulosin Terazosin</p> <p><b>Anticoagulants</b> (8)</p> <p>Dalteparin Danaparoid Enoxaparin Heparin Nadroparin Nicoumalone Tinzaparin Warfarin</p> <p><b>Anticonvulsants</b> (1,2,5,6,7)</p> <p>Carbamazepine (1,2,6) Ethosuximide (1,2,5) Fosphenytoin (1,2,5,7) Gabapentin (1,2,5,6) Lamotrigine (1,2,6) Levetiracetam (1,2,5) Methsuximide (1,2,5)</p>	<p>Oxcarbazepine (1,2,5,6) Phenobarbital (1,2) Phenytoin (1,2,5,7) Primidone (1,2) Topiramate (1,2) Valproic acid (1,2,5) Vigabatrin (1,2)</p> <p><b>Antidepressants</b> (1,2,3,6)</p> <p>Amitriptyine Bupropion Citalopram Clomipramine Desipramine Doxepin Escitalopram Fluoxetine Fluvoxamine Imipramine Maprotiline Mirtazapine Moclobemide Nortriptyline Paroxetine Phenelzine 1,2,3 Sertraline Tranlycypromine 2,3 Trazodone Trimipramine Venlafaxine</p> <p><b>Antihistamines, sedating</b> (1) <i>Cold Medications that contain sedating antihistamines</i> (1)</p> <p>Azatadine Brompheniramine Cetirizine Chlorpheniramine Clemastine Cyproheptadine Diphenhydramine Hydroxyzine</p>	<p>Meclizine Promethazine Trimeprazine</p> <p><b>Antipsychotics</b> (1,3,4)</p> <p>Chlorpromazine Clozapine Flupenthixol Fluphenazine Haloperidol Loxapine Methotrimeprazine Olanzapine Paliperidone Perphenazine Pimozide Pipotiazine Prochlorperazine Quetiapine Risperidone Thiopropazine Thiothixene Trifluoperazine Zuclopenthixol</p> <p><b>Corticosteroids, oral</b> (7) <i>Corticosteroids, inhaled, high-dose</i> (7)</p> <p>Beclomethasone Betamethasone Budesonide Cortisone Dexamethasone Fludrocortisone Fluticasone Hydrocortisone Methylprednisolone Prednisolone Prednisone Triamcinolone</p> <p><b>Digoxin</b> (mechanism unknown)</p>	<p><b>Eye drops</b> (6)</p> <p><b>Herbal and Natural health products</b> <b>Natural sleep aids</b> <b>Natural products for sexual enhancement</b> (possible adulteration with undeclared drugs)</p> <p><b>Metoclopramide</b> (1,2,4)</p> <p><b>Muscle Relaxants</b> (1,2)</p> <p>Baclofen Carisoprodol Chlorzoxazone Cyclobenzaprine Dantrolene Methocarbamol Orphenadrine Tizanidine</p> <p><b>Nitrates</b> (2,3)</p> <p>Isosorbide dinitrate Isosorbide mononitrate Nitroglycerin</p> <p><b>NSAIDs</b> ASA/acetysalicylic acid (8)</p> <p><b>Opiates/narcotics</b> (1,2,3)</p> <p>Alfentanil Butorphanol Codeine Fentanyl Hydromorphone Meperidine Methadone</p>	<p>Morphine Oxycodone Oxymorphone Nalbuphine Pentazocine Propoxyphene Sufentanil</p> <p><b>Proton Pump Inhibitors</b> (9)</p> <p>Esomeprazole Lansoprazole Omeprazole Pantoprazole Rabeprazole</p> <p><b>Sedative/hypnotics Benzodiazepines Barbiturates</b> (1,2,5)</p> <p>Alprazolam Bromazepam Chloral hydrate Clorazepate Diazepam Diphenhydramine Doxylamine Flurazepam Lorazepam Midazolam Nitrazepam Oxazepam Pentobarbital Phenobarbital Temazepam Triazolam Zopiclone</p> <p><b>Thiazolidinediones</b> (7)</p> <p>Pioglitazone Rosiglit</p>
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**Possible mechanisms (often unclear):** (1) Drowsiness; (2) Dizziness; (3) Hypotension; (4) Parkinsonian effects; (5) Ataxia/gait disturbance; (6) Vision disturbance; (7) Osteoporosis or reduced bone mineral density increases the fracture risk if a fall occurs; (8) Risk of serious bleeding if a fall occurs.

Drugs are listed by generic (chemical) name under each drug group. For Brand (manufacturer's) names, check in the CPS to find the generic name.

This list includes only those drugs for which there is evidence of increased risk of falls or their consequences. There may be other drugs that increase this risk in certain residents.

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Barbara Cadario and B.C. Falls and Injury Prevention Coalition. *Drugs and the Risk of Falling: Guidance Document. Revised May 2011; adapted for use in the B.C. BPSD Consensus Algorithm, April 2013 with permission.*