We greatly hope you find this resource useful!

- Alex Crawley, RxFiles Associate Director

www.RxFiles.ca
A FALL is an event that results in a person coming to rest inadvertently on the ground or floor or other lower level. WHO

### Falls Matter
- 1 in 5 people over the age of 65 fall each year.¹
- Falls cause 9% of all emergency room visits.⁴
- Falls cause 95% of all hip fractures.⁵
- 20-30% of hip fracture patients die within 1 year of the fracture.⁶

### Falls Can Be Prevented
- Any medication that can cause hypotension, sedation, dizziness, vision changes, cognition changes, or movement disorders ... can contribute to a fall.
- The more medications a patient is on, the higher the risk of a fall.⁷

### % ↑ in risk of a fall, by medication

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>Risk of Fall (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antidepressants</td>
<td>68%</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>59%</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td>57%</td>
</tr>
<tr>
<td>Sedatives &amp; Hypnotics</td>
<td>47%</td>
</tr>
<tr>
<td>Antihypertensives</td>
<td>24%</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>21%</td>
</tr>
<tr>
<td>Diuretics</td>
<td>7%</td>
</tr>
<tr>
<td>Beta-Blockers</td>
<td>1%</td>
</tr>
</tbody>
</table>

![CNS meds!](chart.png)

(results from a 2009 meta-analysis; pooled odds ratios Woolcott)

Note: Opioids have been associated with falls in other studies ISMP²⁰¹⁵ Top Meds Associated with Falls: opioids 25%, psychotropics 21%, CV meds 17%, hypoglycemics 14%

### What can be done to help reduce the risk of falls?

#### 1. Use non-pharmacologic approaches.
- **Exercise** has been shown to reduce the risk of fractures related to falls by up to 66%.¹⁰
- **Optimize eyesight** – cataract surgery can reduce the risk of falls by up to 37%.¹⁰ Ensure individuals wear glasses if indicated. Vision in older adults should regularly be assessed by an optometrist.

#### 2. Consult occupational therapy to do a home visit.
- **Remove clutter** from around the house, and other tripping hazards.
- **Consider wearing shoes around the house**, instead of slippery socks.
- **Recommend canes or walkers** if indicated.
- **Ensure sufficient lighting** in the home.
- **Secure mats & carpets** to prevent slippage. Examine the height of thresholds between rooms; add a ramp if needed.

#### 3. Target medications that increase fall risk.
- Withdrawing psychotropic medications has been shown to decrease the risk of falls.¹¹,¹²
- **BEERS Criteria** suggests limiting patients to 2 or less CNS-affecting medications.¹³ Ensure all CNS-affecting medications are still clinically indicated.
- See the next page of this newsletter for more.

#### 4. Consider Vitamin D supplementation & adequate calcium intake.
- Vitamin D has only mixed evidence at best in fall prevention, but may decrease the risk of a fracture if a fall does occur (5 fewer fractures per 1000 patients treated).¹⁴

#### 5. Educate patients.
- A guide to fall prevention: [www.saskatoonhealthregion.ca/locations_services/Services/Falls-Prevention/providers/Documents/Community%20Tools/A%20guide%20to%20fall%20prevention.pdf](http://www.saskatoonhealthregion.ca/locations_services/Services/Falls-Prevention/providers/Documents/Community%20Tools/A%20guide%20to%20fall%20prevention.pdf)
- A handout of exercises that can be done around the home: [www.in-motion.ca/uploads/tools/Exercises_for_fridge.pdf](http://www.in-motion.ca/uploads/tools/Exercises_for_fridge.pdf)
### Antidepressants

e.g.: citalopram, sertraline, paroxetine, duloxetine, venlafaxine, bupropion, amitriptyline, nortriptyline

*particularly problematic BEERS*  

- **Risk:** In general, antidepressants may increase the risk of a fall by up to 68%.  
- **Mechanism:** Antidepressants can cause sedation, dizziness, and anticholinergic effects. Even SSRIs & SNRIs are implicated in falls.
- **Are some antidepressants safer than others?** This is unclear. However, it may be prudent to avoid paroxetine in older adults, as this is the most anticholinergic SSRI.
- **What can be done?**
  - Ensure an antidepressant is still indicated (e.g. has the patient been on therapy for a long time without reassessment?).  
  - Use the lowest effective dose (e.g. a particular antidepressant dose may be appropriate for a 60-year-old, but 15 years later be inappropriate for a 75-year-old).  
  - Avoid paroxetine in older adults.  
  - Try to avoid combining more than 2 CNS-affecting drugs (e.g. an antidepressant alone may be OK, but risk increases if also combined with an opioid & an antipsychotic).  
  - Consider non-pharmacological therapy (e.g. cognitive behavioural therapy as offered through Regina’s Online Therapy Unit [www.onlinetherapyuser.ca](http://www.onlinetherapyuser.ca)).

### Hypnotics

e.g.: lorazepam, temazepam, diazepam, clonazepam, zopiclone

- **Risk:** Hypnotics (e.g. benzodiazepines, zopiclone) may increase the risk of a fall by up to 57%.  
- **Mechanism:** Hypnotics commonly cause sedation and dizziness.
- **Are some hypnotics safer than others?** This is unclear. Previous guidance was to favour short-acting benzodiazepines in order to limit exposure, but new evidence suggests that even short-acting agents increase fall risk.
- **What can be done?**  
  - Offer non-pharmacological approaches for difficulty sleeping (see page 146 of the *Geri-RxFiles*).
  - If considering medications for sleep, an alternative to a benzodiazepine or zopiclone, such as melatonin, may have less fall risk.
  - Use PRN dosing and the lowest effective dose. (Note: zopiclone now comes in a 2.5mg tab.)  
  - Increase monitoring in the period after a dose increase.
  - Try to avoid combining more than 2 CNS-affecting drugs (especially when one of the CNS drugs is a benzodiazepine or zopiclone). Beers: QE=high; SR=strong  
  - See the BZRA deprescribing algorithm on page 151 of the *Geri-RxFiles*.
  - A patient handout is available: [www.criugm.qc.ca/fichier/pdf/BENZOeng.pdf](http://www.criugm.qc.ca/fichier/pdf/BENZOeng.pdf)

### Antipsychotics

e.g.: risperidone, haloperidol, olanzapine, quetiapine

*particularly problematic BEERS*  

- **Risk:** Antipsychotics may increase the risk of a fall by up to 59%.  
- **Mechanism:** Antipsychotics can cause movement disorders, sedation, and dizziness.
- **Are some antipsychotics safer than others?** All appear to connote some risk. However, olanzapine may have a greater risk than risperidone, haloperidol, or quetiapine.
- **What can be done?**  
  - Use non-pharmacological approaches for dementia behaviours (see page 124 of the *Geri-RxFiles*).
  - If using an antipsychotic in older adults, use the lowest effective dose & titrate slowly.
  - Avoid olanzapine in older adults.  
  - Evidence supports attempting a taper of antipsychotics for behavioural and psychological symptoms of dementia after ≤3 months of therapy. In many cases, dementia behaviours may have resolved after a therapy course, and a lower dose (or discontinuation) may be possible.  
  - See the antipsychotic deprescribing algorithm on page 136 of the *Geri-RxFiles*.
  - A patient handout is available: [www.criugm.qc.ca/fichier/pdf/ANTIPSYCHOTIC.pdf](http://www.criugm.qc.ca/fichier/pdf/ANTIPSYCHOTIC.pdf)

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Note: Opioids are also associated with falls and fractures. Optimize suitable non-opioid approaches to pain, and if using an opioid, be cautious in dosing and vigilant in monitoring for fall risk after initiation or dose adjustment. See previous RxFiles Pain & Opioid Newsletters.
Older adults are DIFFERENT

**Polypharmacy is common.**

Up to 25% of adults > 65 years old take more than 10 medications.\(^\text{15}\) There are several implications to this:
- Drug interactions become more likely.
- Adverse effects can be additive (e.g., cognitive impairment from multiple CNS-affecting drugs).
- Financial burden can escalate.

**Prescribing cascades can occur.**

A prescribing cascade means that the adverse effects of one drug are being treated by a second drug. For example, calcium channel blockers can cause ankle swelling, so furosemide is added, which causes low potassium levels, requiring a potassium supplement. The solution is often to change or adjust a suspected medication, rather than adding on an additional one.

**Tool:** Geri-RxFiles Drug Interactions page 166

**Tool:** BEERS Criteria, STOPP Criteria, & Deprescribing Algorithms throughout the book

**Therapeutic momentum can occur.**

For better or worse, adherence rates are often higher among older adults than younger adults.\(^\text{16}\) This can be good news when there's adherence to useful, clinically indicated medications. But sometimes it means that older adults don't question their medications, even if those medications may be doing more harm than good. Regular reassessment is valuable.

**Tools:** BEERS Criteria, STOPP Criteria, & Deprescribing Algorithms throughout the book

**Renal function is often impaired.**

Kidney function declines with increasing age. This means that medication doses should be regularly reassessed and potentially adjusted. For example, digoxin, apixaban, gabapentin, tramadol, and many antibiotics require dose adjustments in renal impairment.

**Tool:** Geri-RxFiles Renal Insufficiency page 82

**Consider frailty.**

Older adults who are “frail” are more likely to experience adverse effects from medications. This means an extra-cautious approach should be taken to prescribing (see “start low and go slow” below). It also means that **targets can sometimes be relaxed.** For example, it is reasonable to only target an A1c of <8.5% in frail adults with diabetes (see page 57).

**Tool:** Clinical Frailty Scale page 5

**Start low and go slow.**

Since older adults are more likely to have impaired kidneys, reduced liver function, less lean muscle mass, frailty, and other age-related changes, **drug dosing should often be less aggressive.** For example, in older adults, opioids should be started at half the usual dose to help minimize harmful adverse effects.

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