



# Therapeutic brief

# 20



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## Reviewing medications to reduce risk of falls

Each year 30 – 40% of community-dwelling people aged over 65 years will fall. This increases to 50% in those aged over 80 years. Five to ten percent of these falls will result in major injuries – fracture, head trauma or lacerations.<sup>1</sup> In 2006, 14 000 Australian veterans and war widows (approximately 1 in 20) were hospitalised as the result of a fall.<sup>2</sup>

Consequences of a fall can also include fear of falling, loss of independence, chronic disability, lower quality of life, and premature admission to residential care. Co-morbid diseases e.g. osteoporosis, and age-related physiological decline can make even a relatively minor fall dangerous. One half of those who fall are unable to get up without help.<sup>1</sup> Within the ageing veteran population, strategies to identify falls risk factors and targeted interventions to reduce those risks are increasingly important.

This module aims to help LMOs and pharmacists identify risk factors, particularly those related to medications, and target further interventions as needed.

### ✔ Assess risk factors for falls

It is important to identify individual risk factors (Table 1) and appreciate their interaction. Few falls have a single cause and the risk of falling increases dramatically with the number of risk factors.

A survey of community-dwelling elderly persons reported the percentage of those falling increased from 27% for those with one or no risk factors to 78% for those with four or more.<sup>3</sup> Older people are often unaware of their risks of falling and may not view traditional fall-prevention messages as personally relevant.<sup>4</sup> They may be reluctant to report falls, so it is important to routinely ask about them.

**Table 1: Risk factors for falls**

Risk factors for falls		
<b>Intrinsic</b>	History of previous fall	Postural hypotension
	Chronic disease	Depression
	Balance/gait problems	Increasing age
	Arthritis	Visual/hearing impairment
	Cognitive impairment	Incontinence
<b>Extrinsic</b>	Psychotropic drug use	
	History of heavy alcohol use*	
	Use of 4 or more medications	
<b>Environmental</b>	Unsafe footwear	Poor lighting
	Absence of stair rails	Pets
	Rugs/cords	

\*A history of heavy alcohol use, even in current abstainers, is associated with increased falls risk.<sup>5</sup>

### Key points

- ✔ Assess risk factors for falls and associated injuries
- ✔ Modify medications as appropriate
- ✔ Target strategies to reduce falls risk



## Falls risk assessment tools

There are numerous falls risk assessment tools available that cover a wide range of risk factors. Many have good validity and reliability but no single tool can be recommended for use in all settings or across all populations. The clinical context of the fall is important and risk profiles are not the same for all seniors as can be seen in the examples in Table 2.

**Table 2: Different risk profiles for falls** <sup>6</sup>

Population	Risk Factors
<b>Active seniors</b>	Mobility, hazard exposure (e.g. bushwalking), risk taking (e.g. climbing ladders)
<b>Community supported</b>	Arthritis, depression, psychotropic drugs
<b>Hospitalised</b>	Acute illness, delirium, unfamiliar surroundings
<b>Aged Care residents</b>	Cognitive impairment, wandering, low staffing levels, psychotropics, urinary incontinence and urgency

The **Peninsula Falls Risk Assessment Tool** <sup>7</sup> is a rapid screening tool. It has been validated in sub-acute aged care settings and has a high predictive accuracy of 80%. A version of the tool for LMOs can be found on the accompanying patient information sheet.

The **'Get up and Go' (or 'Timed Up and Go')** test is a useful quick office assessment of strength, balance and mobility which can be used as a screening test or a descriptive tool. The patient is observed rising from an armchair (without use of arm rests), walking across the room approximately 3 metres, turning around, walking back to the chair and sitting down. Factors to note – sitting balance, transfer from sitting to standing, pace and stability of walking, ability to turn without staggering. The test should normally be completed in less than 15 seconds; observation of the different components of the test may help to identify deficits in:

- leg strength
- balance
- vestibular function
- gait

and may isolate areas for targeted intervention. <sup>8</sup>

## Modify medications as appropriate

Optimising drug therapy in the elderly presents unique challenges as potential harm may outweigh benefits. Medication use is one of the most modifiable risk factors for falls, with polypharmacy and recent dose changes both associated with an increased falls risk. <sup>1</sup> Evidence shows that when implemented as part of a multi-faceted approach, reducing the total number of any medications to 4 or less reduces the risk of falling. <sup>9</sup>

**Table 3: A stepwise approach to prescribing in the elderly**

A stepwise approach to prescribing in the elderly
Review current drug therapy
Cease unnecessary therapy
Substitute with safer alternatives
Reduce the dose
Consider adverse drug events as a cause of new symptoms
Consider non-pharmacological approaches
Consider home medicines review (HMR) and DVA Dose Administration Aid

## Drugs which increase falls risk

Analysis of the DVA database shows that 70 000 veterans were dispensed 3 or more medications commonly implicated in falls. <sup>2</sup>

### Antipsychotics

Often used to treat neuropsychiatric symptoms of dementia. Older antipsychotics such as chlorpromazine and haloperidol are highly sedating and their anticholinergic activity can worsen memory and cognition. Systematic reviews of the newer 'atypical' antipsychotics such as risperidone, clozapine and olanzapine show adverse effects are common and dose related. They include extrapyramidal symptoms, somnolence, confusion and falls. <sup>10</sup>

## Benzodiazepines

Frequently used in the elderly, particularly in those aged over 85 years. They can cause ataxia, short term memory impairment, slowed reaction time, sedation and falls.<sup>11</sup> In one study benzodiazepine use (both short acting and long acting) doubled the risk of injurious falls in patients 80 years or older. Over 9% of the falls in this study were fatal.<sup>12</sup> Use of zolpidem (a non-benzodiazepine imidazopyridine) by the elderly also doubled the risk of hip fracture.<sup>13</sup>

## Antidepressants

The increased use of antidepressants reflects the increased recognition of depression in the elderly.<sup>11</sup> Selective serotonin reuptake inhibitors (SSRIs) are associated with an increased risk of falls not significantly different from tricyclic antidepressants (TCAs).<sup>14</sup> Sedation, postural hypotension and syncope have been proposed as possible explanations for increased falls risk with SSRIs but the exact cause is unknown. TCAs have strong anticholinergic and sedating properties and are used more by the elderly than younger age groups.<sup>11</sup> Duloxetine and venlafaxine can cause somnolence, blurred vision and dizziness.<sup>15</sup>

## Antihypertensives

Postural hypotension is a common problem, with a reported prevalence of 5-15% in community-dwelling older people and up to 60% in those in residential care.<sup>16</sup> There is conflicting evidence regarding the role of individual antihypertensive drugs however all vasodilators will increase the risk of postural hypotension and a subsequent fall. Diuretic use and inadequate fluid intake will predispose to postural hypotension.

Other drugs implicated in postural hypotension are TCAs, antipsychotics and anti-Parkinson medication. The risk is further increased by low body mass index (BMI), smoking and bed rest.

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\* Exercise is the only single-intervention strategy shown to reduce rate and risk of falls.<sup>20</sup>

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## Target strategies to reduce falls risk

The most consistently successful approach to reducing the risk of falls is multifactorial assessment followed by interventions targeting the identified risk factors. Components of these interventions include:

### ➤ Minimise use of medications known to increase falls risk

Consider alternatives.

### ➤ Review and reduce medication - aim for 4 items or less

Take a stepwise approach to prescribing in the elderly (See Table 3).

### ➤ Implement strategies to minimise risk from postural hypotension

Consider whether dose of antihypertensive can be reduced and educate patient to avoid precipitants of postural drop in blood pressure, for example by standing up more slowly. Ensure patient understands the need for adequate hydration when taking diuretics.

### ➤ Target medical and cardiovascular assessments and treatments

Optimise treatments of chronic conditions in particular osteoarthritis, diabetes, chronic heart failure, arrhythmias, Parkinson's disease, dizziness and vertigo. Consider vitamin D and calcium supplementation to improve bone mineral density and muscle function.<sup>17</sup> Consider the use of hip protectors.

### ➤ Refer patients for exercise classes - particularly balance and gait training and muscle-strengthening exercise

Exercise\* has been found to reduce the risk of falling by 17% and most benefit is seen with exercises that challenge balance, such as tai chi.<sup>18, 19</sup>

### ➤ Refer for home hazard modification assessment

Effective in reducing falls risk when used in combination with other targeted strategies, particularly for those with visual impairment.<sup>20</sup> Consider a home visit by occupational therapist to assess for falls prevention items available through the Rehabilitation Appliances Program (or DVA assessor through the HomeFront service).

### Practice points

Identify patients with an increased risk of fall-related injury e.g. those with osteoporosis, a very low BMI or on anticoagulant therapy.

### Suggested further reading

#### Peninsula Falls Risk Assessment Tool

<http://www.safetyrisk.net/falls-risk-assessment-tool-frat/>

#### DVA Rehabilitation Appliances Program (RAP), HomeFront service, Home Medication Reviews, DVA Dose Administration Aids

[www.dva.gov.au](http://www.dva.gov.au)

### What to discuss with your patients

- Falls are **NOT** an inevitable result of ageing
- Reducing the risk of falls can preserve independence
- Report any fall or near fall
- Report symptoms of dizziness or loss of balance
- Wear safe shoes with slip-resistant soles - avoid slippers or thongs
- Wear prescribed glasses or hearing aid particularly when out and about
- Discuss any over-the-counter medicines used
- Consider a tailored exercise program to strengthen muscles and improve balance
- Consider a personal alarm monitor (OT home assessment and subsequent recommendation required)
- A walking aid may be recommended by a physiotherapist

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