Preventing Falls in Older Patients in the Community – Provider Resources

iSOLVE Integrated SOLutions for sustainable fall preVEntion

THE UNIVERSITY OF SYDNEY

SYDNEY NORTH Health Network

CLINICAL EXCELLENCE COMMISSION

This work is produced by iSOLVE research project (team members on last page) at the University of Sydney in partnership with Sydney North Health Network and Clinical Excellence Commission, NSW Health.

The iSOLVE tools and this resource is adapted from STEADI (Stopping Elderly Accidents, Deaths & Injuries) Tool Kit for Health Care Providers, with permission from Centers for Disease Control and Prevention, United States.

Fall prevention recommendations in this resource were developed based on evidence, in particular the **Cochrane review on '*Interventions for preventing falls in older people living in the community*'** (Gillespie *et. al.* 2012).

Recommendations also drew from the American Geriatrics Society and British Geriatrics Society **(AGS/BGS) clinical practice guideline for prevention of falls in older persons** and the Royal Australian College of General Practitioners **(RACGP) guidelines for preventive activities in general practice.**

Gillespie, L., Robertson, M. C., Gillespie, W. J., Sherrington, C., Gates, S., Clemson, L. M., Lamb, S. E. (2012). Interventions for preventing falls in older people living in the community. *Cochrane Database of Systematic Reviews, Issue 9*, Art. No.: CD007146. doi: 007110.001002/14651858.CD14007146.pub14651853.

FACT: One in three people living in the community aged 65 years and over fall every year.

FACT: Three-quarters of hospitalised injury cases for people aged 65 and over are associated with fall(s).

FACT: One in five older people with an injurious fall went to residential aged care post-discharge from hospital.

FACT: Falls cause more injury-related deaths than transport crash fatalities in Australia.

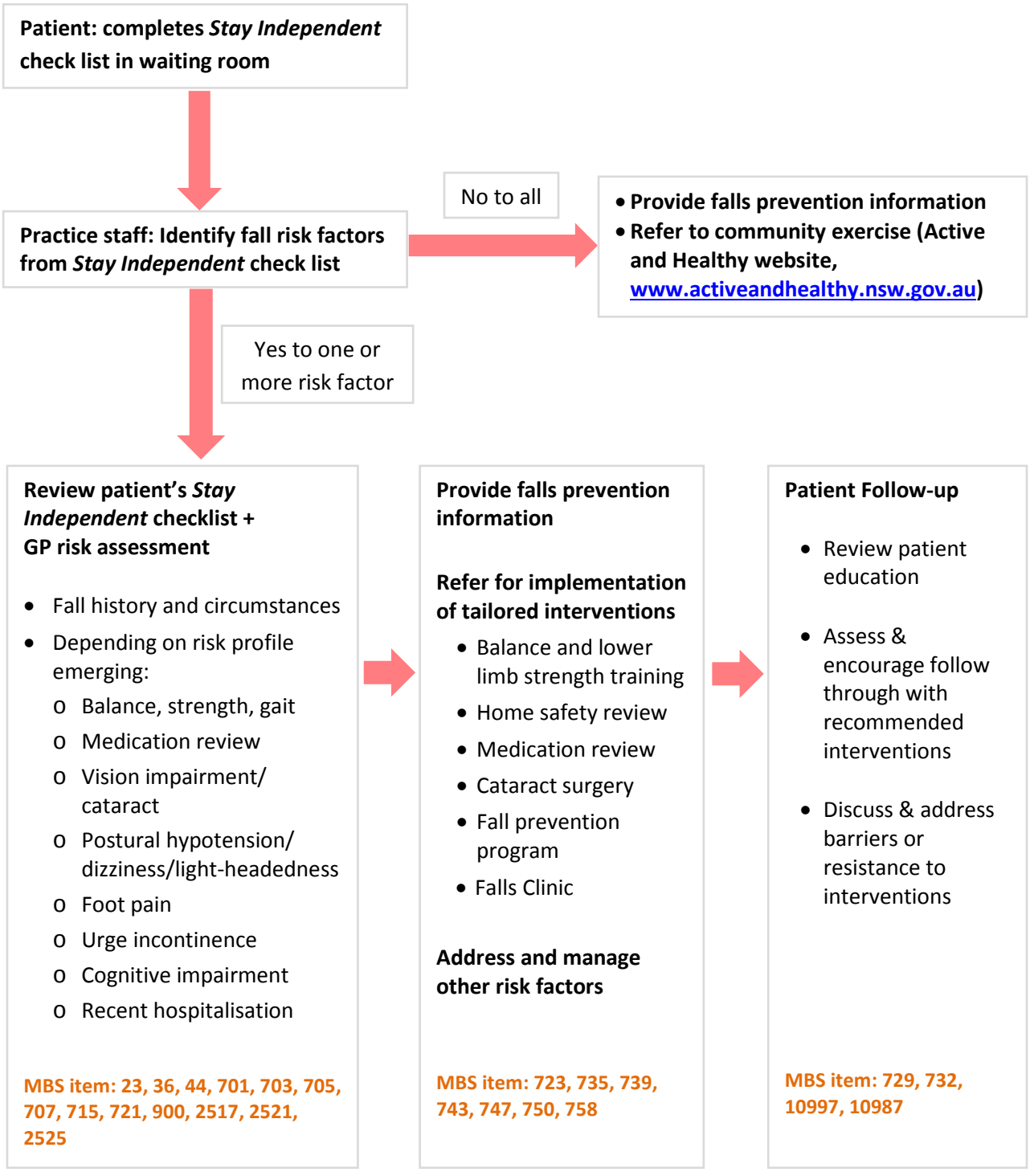
FACT: Falls can be prevented – you can help your patients prevent falls and stay independent.

Research has found that patients commonly do not report a fall to their GP. On the other hand, GPs may find it challenging to assess falls and discuss about fall prevention considering the co-morbidities and acute conditions presenting to general practice.

The iSOLVE resources and tools are intended to help you:

- ✓ Talk to your patients about falls.
- ✓ Identify patients at risk of falling and determine why they have fallen.
- ✓ Reduce or prevent future falls and consequences of falls by introducing evidence-based interventions tailored to your patients.

Algorithm for Fall Risk Assessment and Intervention for Patients 65 and Over



Risk Factors & Guidelines for Fall Prevention

Fall prevention online learning module

Clemson, L., Naganathan, V., Brock, K., & Hill, K. (2013). Falls in older people: prevention and management. BMJ Learning. BMJ Publishing Group. Available from: http://learning.bmj.com/learning/module-intro/falls-older-people-prevention-management.html?moduleId=10043450

An easy read book for you or your patients

Clemson, L. & Swann-Williams, M. (2008). Staying power: Tips and tools to keep you on your feet. Sydney: Sydney University Press.

For more background information on fall prevention

Lord, S. R., Sherrington, C., Menz, H. B., & Close, J. C. T. (2007). Falls in older people – risk factors and strategies for prevention. 2nd ed. Melbourne: Cambridge University Press.

Research has identified many risk factors that contribute to falling – some of these are modifiable.

Falls risk factors are categorised as intrinsic or extrinsic

Intrinsic	***Extrinsic***
Advanced age	Psychotropic medications
Previous falls	Improper use of assistive device
Muscle weakness	Obstacles and tripping hazards
Gait and balance problems	Dim lighting or glare
Poor vision	Lack of stair handrails
Postural hypotension	Lack of bathroom grab bars
Chronic conditions including arthritis, diabetes, stroke, Parkinson's, incontinence, dementia	Slippery or uneven surfaces
Fear of falling	Loose floor mats

Most falls are caused by the interaction of multiple risk factors. **The more risk factors a person has, the greater their chances of falling.**

Health providers can lower a person's risk by reducing or minimising that individual's risk factors. Modifiable risk factors were chosen as part of the iSOLVE multifactorial risk assessment for GPs to focus on:

- Lower body weakness
- Difficulties with gait and balance
- Use of psychotropic medications
- Polypharmacy
- Vision impairment
- Postural dizziness
- Disabling foot pain
- Urge incontinence
- Home hazards

'Cognitive impairment' and 'recent hospitalisation' are included as part of the risk assessment to enable GPs to tailor interventions according to patient's condition.

Deandrea, S., Lucenteforte, E., Bravi, F., Foschi, R., La Vecchia, C., & Negri, E. (2010). Risk factors for falls in community-dwelling older people: a systematic review and meta-analysis. Epidemiology, 21, 658-668.

Exercise

Evidence

- Exercise as a single intervention is effective in reducing falls (Gillespie et. al. 2012).
- Meta-analysis has shown that more effective programs include balance training (Sherrington et. al. 2011).
- Successful exercise programs have been home and group-based. For example:
    - The *Otago Strength and Balance* home-based exercise program taught by physiotherapist or nurse: ↓ falls up to **32%** (Campbell et. al. 1997).
    - The *LiFE* home-based program taught by a physiotherapist, occupational therapist or exercise physiologist to incorporate simple balance and strength exercises into daily activities: ↓ falls up to **31%** (Clemson et. al. 2012).
    - A group based exercise program designed by a physiotherapist, conducted by trained exercise instructors, and included a balance component: ↓ falls up to **40%** (Barnett et. al. 2003).
    - Tai Chi: ↓ falls up to **33%** (Voukelatos et. al. 2007).

Key points

- To protect against falls, exercise should safely provide a moderate to high challenge to balance.
- Lower limb strength training may be included in addition to balance training.
- Walking training may be included in addition to balance training but high risk individuals should not be prescribed brisk outdoor walking programs.
- Fall prevention exercises may be undertaken in home based or group settings. Giving choice may support uptake and adherence
- Exercise duration and intensity should be tailored to the patient's ability and fitness level. It should be ongoing and progressive.
- Patients who report unsteadiness or are at higher risk of falls should be referred to a health professional for individual exercise prescription. Referral should specify fall prevention.
- Fall prevention exercise should be offered to the general community as well as those at high risk for falls.

Referral and patient resources

- Find a fall prevention exercise program: www.activeandhealthy.nsw.gov.au. The Active and Healthy website is a web-based directory for finding physical activity programs that have a fall prevention component.

Referral and patient resources (continued)

- For patients requiring individual exercise prescription, a physiotherapist or exercise physiologist can assess gait and balance, design an individually-tailored program, provide one-on-one progressive exercises and recommend correct use of assistive devices.
    - Find a physiotherapist (treatment: gerontology or musculoskeletal)
    - Find an exercise physiologist (specialty: older adult)
- Some occupational therapists may be trained in fall prevention exercise programs.
- A podiatrist or physiotherapist can advise on foot and ankle exercises (see foot pain).
- NSW Health consumer falls prevention resource: Staying Active and On Your Feet (Active and Healthy website).
- Patient education leaflet: Falls Prevention – Strength and Balance Exercises (click here for other patient flyers on the CEC website).

References

Barnett, A., Smith, B., Lord, S. R., Williams, M., & Baumand, A. (2003). Community-based group exercise improves balance and reduces falls in at-risk older people: A randomized controlled trial. Age and Ageing, 32(4), 407-414.

Campbell, A. J., Robertson, M. C., Gardner, M. M., Norton, R. N., Tilyard, M. W., & Buchner, D. M. (1997). Randomised controlled trial of a general practice programme of home based exercise to prevent falls in elderly women. BMJ, 315(7115), 1065-1069.

Clemson, L., Fiatarone Singh, M. A., Bundy, A., Cumming, R. G., Manollaras, K., O'Loughlin, P., & Black, D. (2012). Integration of balance and strength training into daily life activity to reduce rate of falls in older people (the LiFE study): randomised parallel trial. BMJ, 345, e4547.

Rose, D. J., & Hernandez, D. (2010). The role of exercise in fall prevention for older adults. Clinics in Geriatric Medicine, 26(4), 607-631.

Sherrington, C., Tiedemann, A., Fairhall, N., Close, J. C., & Lord, S. R. (2011). Exercise to prevent falls in older adults: an updated meta-analysis and best practice recommendations. NSW Public Health Bulletin, 22(3-4), 78-83.

Voukelatos, A., Cumming, R. G., Lord, S. R., & Rissel, C. (2007). A randomized, controlled trial of tai chi for the prevention of falls: the Central Sydney tai chi trial. Journal of the American Geriatrics Society, 55(8), 1185-1191.

Fall Prevention Program

Evidence

- Multi-component educational programs have overall had inconclusive results (Gillespie et. al. 2012).
- One successful program is Stepping On: ↓ falls up to **31%** (Clemson et. al. 2004). This multifaceted small-group (n = 12) fall prevention program uses decision-making theory and a variety of learning strategies. It aims to enhance self-efficacy and encourage behaviour change to adopt strategies to reduce falls.

Key points

- An indication for referral is a history of a fall or if the person is very concerned about falling.
- The Stepping On program is a seven-week group-based activity for older people at risk of falling.
- The program looks at a range of issues, from exercises to lifestyle choices, and explains how to overcome personal risk factors contributing to falls.
- It is an interactive program allowing participants to reflect on their fall risks, discuss what they need to work on and encourage each other to take action to address their fall risks.

Referral and patient resources

- Find a Stepping On program: www.activeandhealthy.nsw.gov.au (Active and Healthy website).
- Patient brochure: Stepping On (Northern Sydney Local Health District)

References

Clemson, L., Cumming, R. G., Kendig, H., Swann, M., Heard, R., & Taylor, K. (2004). The effectiveness of a community-based program for reducing the incidence of falls in the elderly: a randomized trial. Journal of the American Geriatrics Society, 52(9), 1487-1494.

Home Safety

Evidence

- Home safety in high risk population: ↓ falls up to **38%** (Gillespie et. al. 2012).
- Home safety assessment and adaptation conducted by an occupational therapist are more effective in people at higher risk of falling, such as:
    - those who are frail
    - those with multiple falls or injurious falls
    - those with multiple morbidities
    - those with severe visual impairment
    - those who have been recently hospitalised

Key points

- Environmental adaptations include: raising awareness of potential hazards, removing hazards, adding protective features (such as non-slip stair strips) or assistive devices, moving furnishings and other strategies to create clear pathways, and using safer behaviours when doing tasks or just walking about.
- A crucial role for occupational therapists includes educational and behavioural change support in facilitating patients to raise awareness and make adaptations to the environment.
- Community safety, by an occupational therapist or physiotherapist, can include correct use of mobility aids, training in protective walking strategies, and coping with low vision.

Referral and patient resources

- Find an occupational therapist (speciality: aged care)
- Patient education leaflet: Falls Prevention – Home Safety (click here for other patient flyers on the CEC website)
- Home safety checklist for you or your patients (Active and Healthy website)

References

Clemson, L., Mackenzie, L., Ballinger, C., Close, J. C., & Cumming, R. G. (2008). Environmental interventions to prevent falls in community-dwelling older people: a meta-analysis of randomized trials. Journal of Aging and Health, 20(8), 954-971.

Nikolaus, T., & Bach, M. (2003). Preventing falls in community-dwelling frail older people using a home intervention team (HIT): results from the randomized Falls-HIT trial. Journal of the American Geriatrics Society, 51(3), 300-305.

Pynoos, J., Steinman, B. A., & Nguyen, A. Q. D. (2010). Environmental assessment and modification as fall-prevention strategies for older adults. Clinics in Geriatric Medicine, 26(4), 633-644.

Medications

Older people tend to be more sensitive to both the therapeutic and adverse effects medications. Polypharmacy to address comorbidities is also more common in older people, which may cause undesirable drug interactions. Although many medication classes have been linked to falls, the evidence is strongest for psychotropic medications and other medications with effects on the central nervous system and cardiovascular system.

Evidence

- Withdrawal of psychotropic medication by GPs: ↓ falls up to **66%** (Campbell et. al. 1999).
- GP-led medication review: ↓ falls up to **39%** (Pit et. al. 2007).
- Withdrawal of medications associated with fall risk: ↓ falls up to **52%** (van der Velde et. al. 2006).
- A risk factor study showed an increase risk of falls by **1.5-fold** with anticholinergic medications and sedatives (Nishtala et. al. 2014) giving additional practice guidelines.

Key points

- Use non-pharmacological treatments first.
- Use a low dose and increase slowly.
- Use the lowest number of medications, including non-prescription medication.
- Regularly review treatment. Reduce dose to address side effects and dose sensitivity, and stop medications no longer indicated.
- Advise patient and carer(s) on the effects of medications that may cause falls.
- Monitor and advise on management of side effects.
- Check that patient is taking the medications as intended, as non-adherence and incorrect use of medications can contribute to unwanted effects.
- Consider current medications as the cause of new symptoms before looking elsewhere. This would avoid prescribing cascade i.e. when a medication is added to combat the unwanted effects of another.
- Alleviate anticholinergic burden by avoiding prescribing of multiple medications with anticholinergic activity.
- Monitor the bleeding risk (e.g. with anticoagulants) in patients at risk of falling.
- See page 12-13 for adverse effects associated with falls and practice points.

Referral for medication review

- Consider discussion or liaison with your local pharmacist, who can advise the patient on correct use of medications and management strategies for side effects of medications.
- Find an accredited pharmacist. A Home Medicines Review pharmacist can provide comprehensive medication review at your patient's home and recommend changes to medication(s) contributing to falls.
- Consider consulting a geriatrician when managing an older patient with complex care needs.

Patient resources

- Patient education leaflet: Falls Prevention and Medications (click here for other patient flyers on the CEC website)
- Patient medicines list: NPS Medicines List
- Patient information on managing sleep problems: NPS Sleep Right Sleep Tight
- Sleeping tablet reduction plan template for you and your patients: Reduction plan for sleeping tablets

References:

Boyle, N., Naganathan, V., & Cumming, R. G. (2010). Medication and falls: risk and optimization. Clinics in Geriatric Medicine, 26(4), 583-605.

Campbell, A. J., Robertson, M. C., Gardner, M. M., Norton, R. N., & Buchner, D. M. (1999). Psychotropic medication withdrawal and a home-based exercise program to prevent falls: a randomized, controlled trial. Journal of the American Geriatrics Society, 47(7), 850-853.

Nishtala, P. S., Narayan, S. W., Wang, T., & Hilmer, S. N. (2014). Associations of drug burden index with falls, general practitioner visits, and mortality in older people. Pharmacoepidemiol Drug Safety, 23(7), 753-758.

Pit, S. W., Byles, J. E., Henry, D. A., Holt, L., Hansen, V., & Bowman, D. A. (2007). A Quality Use of Medicines program for general practitioners and older people: a cluster randomised controlled trial. The Medical Journal of Australia, 187(1), 23-30.

van der Velde, N., Stricker, B. H. C., Pols, H. A. P., & van der Cammen, T. J. M. (2007). Risk of falls after withdrawal of fall-risk-increasing drugs: a prospective cohort study. British Journal of Clinical Pharmacology, 63(2), 232-237.

ANTIDEPRESSANTS

Tricyclic, TCA *(amitriptyline, dothiepin, doxepin, imipramine, nortriptyline)*

Tetracyclic *(mianserin, mirtazapine)*

Selective serotonin reuptake inhibitor, SSRI *(citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline)*

Serotonin and noradrenaline reuptake inhibitor, SNRI *(desvenlafaxine, duloxetine, venlafaxine)*

Adverse effects:
Drowsiness (TCA, Tetracyclic, SNRI)
Anticholinergic (TCA, mianserin, SNRI)
Orthostatic hypotension (TCA, Tetracyclic, SNRI)
Impaired sleep quality causing daytime drowsiness, nocturia (SSRI)
Insomnia (SSRI, SNRI)
Agitation (SSRI)

Practice points:

- Non-pharmacological treatments first (e.g. exercise, cognitive behavioural therapy, supportive counselling).
- Use a low dose and increase slowly.
- Taper and withdraw gradually to avoid withdrawal symptoms.

HYPNOTICS OR SEDATIVES

Benzodiazepines, BZD: short-acting *(oxazepam, temazepam)*, medium-acting *(lorazepam)*, long-acting *(diazepam, nitrazepam)*

Z class *(zolpidem, zopiclone)*

Adverse effects: Drowsiness, oversedation, impaired balance and coordination, impaired alertness

Practice points:

- Treat underlying condition disrupting sleep.
- Non-pharmacological treatments first (e.g. behavioural techniques, relaxation techniques, sleep hygiene principles, environmental modifications).
- If medication is required for insomnia, consider melatonin or a short-acting BZD (e.g. temazepam). If BZD is required, use lowest dose for the shortest time possible, and agree to a time limit with the patient.
- For treatment of anxiety, consider an SSRI or buspirone instead of BZD.
- Permanent withdrawal may be difficult and patients may need post-withdrawal support.
- Review additive sedation effects from other medications (e.g. psychotropics, opioids, antiepileptics, sedating antihistamines).

ANTIPSYCHOTICS

Atypical, second generation *(quetiapine, risperidone, olanzapine, clozapine, aripriprazole, amisulpride, ziprasidone)*

Typical, first generation *(haloperidol, chlorpromazine, trifluoperazine, pericyazine)*

Adverse effects:
Drowsiness, extrapyramidal side effects (less with atypical), anticholinergic, orthostatic hypotension

Practice points:

- Non-pharmacological treatments first (e.g. behavioural therapies, changes to the environment).
- If medication is required, atypical is preferred.
- Use a low dose and increase slowly if required.
- Regularly review treatment (3 monthly).
- Taper and withdraw gradually to avoid rapid relapse and withdrawal symptoms.

ANTICHOLINERGIC MEDICATIONS

Adverse effects: Dizziness, blurred vision, urinary retention/incontinence, confusion, cognitive impairment

Practice points:

- Avoid medications with anticholinergic activity and withdraw those not indicated.
- If indicated, choose a medication with lower anticholinergic activity and/or reduce other anticholinergic medications.
- Avoid prescribing anticholinergic medications to compensate for the cholinergic effects of anticholinesterases (donepezil, galantamine, rivastigmine, pyridostigmine).

Depression: SSRIs and SNRIs have less anticholinergic effects than TCAs. Nortriptyline is less likely to cause hypotension, sedation and anticholinergic effects compared to other TCAs.

Urinary incontinence: Non-pharmacological treatments first (e.g. lifestyle, physical and/or behavioural therapies). Review medications as a cause of incontinence. Darifenacin and solifenacin may be less likely to cause cognitive impairment or dry mouth.

Antihistamines: Intranasal corticosteroids for allergic rhinitis instead of antihistamines. Less sedating antihistamines (less anticholinergic effects) such as loratadine or fexofenadine for urticaria. Also review use of sedating antihistamines for sleep.

Pain: Non-pharmacological treatment or paracetamol before opioids, which have anticholinergic effects. For neuropathic pain, consider gabapentin or pregabalin instead of amitriptyline.

Psychotic disorders: Risperidone or haloperidol (short-term use only) have lower anticholinergic effects than chlorpromazine, clozapine and trifluoperazine.

COPD: If prescribing anticholinergics, consider ipratropium before tiotropium as it has less anticholinergic effects (avoid prescribing both). Consider long-acting beta2 agonists with corticosteroids to reduce exacerbations.

Parkinson's disease: Most Parkinson's medications have anticholinergic effects. Use a low dose and increase slowly. Advise falls risk and fall prevention strategy.

ANALGESICS

Opioids *(codeine, morphine, tramadol, oxycodone, hydromorphone, methadone, fentanyl, tapentadol, dextropropoxyphene)*

Adverse effects: Drowsiness, impaired coordination, cognitive impairment, dizziness, urinary retention, orthostatic hypotension

Practice points:

- Opioid dose sensitivity increases progressively with age, hence, an increased risk of adverse effects.
- Use a low dose and increase slowly to effect.
- Patients may need support during and after withdrawal to alleviate drug dependence.

OTHER MEDICATIONS ASSOCIATED WITH FALLS

Hypoglycaemic medications: Relaxed glycaemic control is reasonable in frail elderly to reduce risk of hypoglycaemic events.

Diuretics: Review potential for urge incontinence contributing to falls.

Digoxin: Monitor side effects (drowsiness, dizziness, blurred vision) and use lower dose.

Anticoagulants: Review risk of bleeding (e.g. history of bleeding, falls/ injury, NSAIDs use) in patients with falls risk.

COMMON MEDICATIONS CAUSING ORTHOSTATIC HYPOTENSION

Cardiovascular medications: beta blockers, nitrates, potassium-sparing diuretics *(amiloride)*, alpha-blockers *(prazosin, terazosin)*
Antidepressants: TCAs, tetracyclics, SNRIs
Antipsychotics: See antipsychotics
Opioids: See Opioid
Parkinson's medications: levodopa, dopamine agonists, MAOI-B inhibitors, amantadine, entacarpone

Practice points:

- Advise patient of orthostatic hypotension, risk of falling and management strategies.
- Avoid prazosin if possible and consider tamsulosin if needed for BPH symptoms.

COMMON MEDICATIONS CAUSING HYPOTENSION

Cardiovascular medications: ACE-inhibitors, beta blockers, calcium channel blockers, thiazides, ARBs (sartans)

Practice points:

- To reduce hypotension at initiation of therapy (first 45 days), start at a lower dose.
- Review dose and monitor for side effects when continuing therapy.
- Consider splitting dose or changing administration times for antihypertensives.

Recommended resources

Australian Medicines Handbook. (2014). Adelaide: Australian Medicines Handbook Pty Ltd. Available from: http://www.amh.net.au

Older people and medicines. (2013). Sydney: NPS MedicineWise. Available from: http://www.nps.org.au/topics/ages-life-stages/for-individuals/older-people-and-medicines.

Veterans' Medicines Advice and Therapeutics Education Services. **Topic 39: Thinking clearly about the anticholinergic burden**. Australian Government Department of Veterans' Affairs; 2014. Available from: https://www.veteransmates.net.au/VeteransMATES/documents/module_materials/M39_TherBrief.pdf, and

https://www.veteransmates.net.au/VeteransMATES/documents/module_materials/M39_TherBriefInsert.pdf.

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Butt, D. A., Mamdani, M., Austin, P. C., Tu, K., Gomes, T., & Glazier RH. (2013). The risk of falls on initiation of antihypertensive drugs in the elderly. Osteoporosis International, 24(10), 2649–2657.

Darowski, A., Chambers, S. C. F., & Chambers, D. J. (2009). Antidepressants and falls in the elderly**.** Drugs & Aging, 26(5), 381-394.

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Hill, K. D., & Wee, R. (2012). Psychotropic drug-induced falls in older people: a review of interventions aimed at reducing the problem. Drugs & Aging, 29(1), 15–30.

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Iaboni, A., & Flint, A. J. (2013). The complex interplay of depression and falls in older adults: a clinical review. The American Journal of Geriatric Psychiatry, 21(5), 484–492.

MacKnight, C., Triscott, J. A. C., & Rolfson, D. (Eds.). (2006). National guidelines for seniors' mental health. The Canadian Journal of Geriatrics, 9(supp2), s34-s71.

Paquin, A. M., Zimmerman, K., & Rudolph, J. L. (2014). Risk versus risk: a review of benzodiazepine reduction in older adults. Expert Opin Drug Saf, 13(7), 919-934.

Topic 8: Medicines: balancing benefits and falls risks. (2014). Wellington: Health Quality & Safety Commission New Zealand. Available from: http://www.hqsc.govt.nz/our-programmes/reducing-harm-from-falls/10-topics/topic-8/.

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Woolcott, J. C., Richardson, K. J., Wiens, M. O., Patel, B., Marin, J., Khan, K. M., & Marra, C.A. (2009). Meta-analysis of the impact of 9 medication classes on falls in elderly persons. Archives of Internal Medicine, 169(21), 1952-1960.

Vision Impairment

Evidence

- Cataract surgery: ↓ falls up to **34%** (Harwood et. al. 2005).
- Home safety assessment and adaptation: ↓ falls up to **41%** (Campbell et. al. 2005).

Key points

- Older people with poor vision as a result of eye disease (e.g. cataract, macular degeneration, glaucoma, diabetic retinopathy) are at high risk of falls.
- Older people with vision impairment have difficulty in identifying obstacles, which in turn decreases the chances of making visuomotor responses in order to avoid or negotiate obstacles.
- Patients with cataracts who have a fall risk will benefit from expedited cataract surgical removal. Include your patient is a fall risk in the referral letter.
- An occupational therapy home safety visit is recommended for patients with severe and irreversible vision impairment.
- Older people should be advised to routinely have their prescription glasses checked. They should also be advised to take particular care with new corrective glasses to allow time to adjust to distant-contrast and depth perception.

Referral and patient resources

- Find an occupational therapist (speciality: aged care)
- Patient education leaflet: Falls Prevention - Eyesight (click here for other patient flyers on the CEC website)
- Low vision mobility training: Guide Dogs NSW/ACT
- For more information on eye diseases in the elderly: Macular Disease Foundation Australia and Optometry Australia

References

Campbell, A. J., Robertson, M. C., La Grow, S. J., Kerse, N. M., Sanderson, G. F., Jacobs, R. J., Sharp, D.M., & Hale, L. A. (2005). Randomised controlled trial of prevention of falls in people aged ≥75 with severe visual impairment: the VIP trial. BMJ, 331(7520), 817.

Harwood, R. H., Foss, A. J., Osborn, F., Gregson, R. M., Zaman, A., & Masud, T. (2005). Falls and health status in elderly women following first eye cataract surgery: a randomised controlled trial. Br J Ophthalmol, 89(1), 53-59.

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Postural Hypotension/Dizziness

Practice guidelines

- Risk factor studies show hypotension increases fall risk by **1.5-fold** in recurrent fallers (meta-analysis) (Deandrea et. al. 2010).
- Risk factor studies show dizziness and vertigo increase fall risk by **two-fold** in recurrent fallers (meta-analysis) (Deandrea et. al. 2010).

Key points

- Many patients have more than one contributory cause of dizziness which warrants further investigation, including:
    - Cardiovascular disease
    - Peripheral vestibular disease
    - Adverse effect to medication(s)
    - Joint and muscle problems
    - Neurological disease
    - Metabolic or endocrine conditions
    - Impaired vision
    - Mental health problems (e.g. anxiety, depression)
- Diagnosis requires careful history for clarification, because the description of dizziness means different things to different people and arises from diverse causes:
    - Description of dizziness
    - Onset nature (sudden or gradual)
    - Frequency of dizziness attacks
    - Duration of the dizziness attack
    - Factors triggering, worsening or improving the dizziness attack
- Unexplained loss of consciousness or episodes of collapse should be referred as per usual practice for specialist review for further assessment or investigation.

Patient resources

- Patient education leaflets (click here for other patient flyers on the CEC website):
    - Falls Prevention – Postural Hypotension
    - Falls Prevention – Dizziness

References

Cronin, H., & Kenny, R. A. (2010). Cardiac causes for falls and their treatment. Clinics in Geriatric Medicine, 26(4), 539-567.

Maarsingh, O. R., Dros, J., Schellevis, F. G., van Weert, H. C., van der Windt, D. A., ter Riet, G., & van der Horst, H. E. (2010). Causes of persistent dizziness in elderly patients in primary care. Annals of Family Medicine, 8(3), 196-205.

Rubenstein, L. Z., & Josephson, K. R. (2002). The epidemiology of falls and syncope. Clinics in Geriatric Medicine, 18(2), 141-158.

Disabling Foot Pain

Evidence

- An intervention in older people with disabling foot pain: ↓ falls up to **36%** (Spink et. al. 2011).

Key points

- Foot pain affects between 20-30% of community-dwelling older people.
- Foot problems, particularly disabling foot pain, can impair balance and gait and decrease mobility, leading to increased risk of falls.
- The intervention described by Spink et. al. (2011) consisted of:
    - A foot and ankle exercise program
    - Foot orthoses
    - Advice on footwear
    - General fall prevention education

Referral and patient resources

- A physiotherapist or exercise physiologist may also recommend appropriate foot and ankle exercises.
    - Find a physiotherapist (treatment: gerontology or musculoskeletal)
    - Find an exercise physiologist (specialty: older adult)
- Find a podiatrist
- Patient education leaflet: Falls Prevention - Foot care and Footwear (click here for other patient flyers on the CEC website)

References

Spink, M. J., Menz, H. B., Fotoohabadi, M. R., Wee, E., Landorf, K. B., Hill, K. D., & Lord, S. R. (2011). Effectiveness of a multifaceted podiatry intervention to prevent falls in community dwelling older people with disabling foot pain: randomised controlled trial. BMJ, 342, d3411.

Urge Incontinence

Practice guidelines

- Risk factor studies show urinary incontinence increases fall risk by **1.75-fold** in recurrent fallers (meta-analysis) (Deandrea et. al. 2010).
- Risk factor studies show urge incontinence increases fall risk by **two-fold** (meta-analysis) (Chiarelli et. al. 2009).

Key points

- Up to 41% of older men and 31% of older women may be affected by symptoms of overactive bladder such as urinary urgency and nocturia.
- The cognitive demands of performing multiple tasks simultaneously such as walking, concentrating on controlling the urge and negotiating household hazards, while getting to the toilet quickly may have a detrimental effect on maintaining balance.
- The frequency of night time journeys to the toilet often combined with poor lighting, the effects of disturbed sleep, and rapid changes in body position from lying to standing and walking, can significantly increase the odds of falling.
- While there is limited evidence-based intervention for fall prevention, management should include investigation into underlying cause(s) to address incontinence issues with appropriate interventions, in addition to home safety and environmental considerations.
- There may be continence nurse specialists in your area who can assist with management of urge incontinence.

Referral and patient resources

- Find a continence service provider: Continence Foundation of Australia directory (or call the National Continence Helpline on 1800 330 066)
- Patient education leaflet: Falls Prevention – Urge Incontinence (click here for other patient flyers on the CEC website)
- For more information on incontinence: Continence Foundation of Australia

References

Chiarelli, P. E., Mackenzie, L. A., & Osmotherly, P. G. (2009). Urinary incontinence is associated with an increase in falls: a systematic review. Australian Physiotherapy Association, 55, 89-95.

Cognitive Impairment

Practice guidelines

- Risk factor studies show cognitive impairment increases fall risk by up to **three-fold** (meta-analysis) (Deandrea et. al. 2010).

Key points

- It is important to inform service providers of your patient's cognitive status to allow implementation of appropriate strategies.
- Older people with dementia have higher prevalence and greater severity of risk factors for falls, including:
    - Impairments of gait and balance (partially attributed to central neurodegenerative processes).
    - Decreased motor performance and attentional control particularly when performing an additional cognitive task.
    - Orthostatic hypotension (attributed to medications or dysautonomia).
    - Increased behavioural risk factors e.g. wandering and agitation.
    - Increased risk with environmental fall hazards (e.g. clutter, poor lighting).

GP and patient resources

- The GPCOG screening tool for cognitive impairment designed for the primary care setting: http://www.detectearly.org.au/gpcog/
- Background information on dementia for you: Alzheimer's Australia
- A list of education resources for patients and carers

References

Taylor, M., Delbaere, K., Close, J. C. T., & Lord, S. R. (2012). Managing falls in older patients with cognitive impairment. Aging Health, 8(6), 573-588.

Recent Hospitalisation

Practice guidelines and evidence

- A risk factor study showed recent hospitalisation increases fall risk by up to **three-fold** (Hill et. al. 2013).
- Home safety visits post-hospitalisation for older people who have a history of falls: ↓ falls up to **36%** (meta-analysis) (Clemson et. al. 2008).

Key points

- Up to 40% of patients fall in the six months after discharge and up to 15% of unplanned hospital readmissions during this period are due to a fall.
- Specific risk factors for falls in post-discharge older patients include: requiring assistance with activities of daily living, depressed mood at discharge, using a gait aid and changes in medications.
- Recently discharged patients with limitations in functional activities may need to be prescribed exercise programs and hence may benefit from individualised physiotherapy.
- Assistance with daily living and examination of home safety within six months of discharge (particularly if the patient had been hospitalised due to falls) have been shown to reduce risk of injurious falls.

Patient resources

- For individual exercise prescription:
  - Find a physiotherapist (treatment: gerontology or musculoskeletal)
  - Find an exercise physiologist (specialty: older adult)
- For home safety review: Find an occupational therapist (speciality: aged care)
- Patient education leaflet: Discharge and falls (click here for other patient flyers on the CEC website)

References

Hill, A. M., Hoffmann, T., & Haines, T. P. (2013). Circumstances of falls and falls-related injuries in a cohort of older patients following hospital discharge. Clinical Interventions in Aging, 8, 765-774.

Clemson, L., Mackenzie, L., Ballinger, C., Close, J. C., & Cumming, R. G. (2008). Environmental interventions to prevent falls in community-dwelling older people: a meta-analysis of randomized trials. Journal of Aging and Health, 20(8), 954-971.

Other Key Points

- High risk patients with multiple risk factors and co-morbidities may benefit from a Falls Clinic or complex healthcare team assessment, enabling an individual and comprehensive approach to fall prevention.
    - It should be noted that Falls Clinic services are often provided as an additional hospital service and therefore waiting times and comprehensiveness of allied health services may vary. We recommend you initiate other fall prevention options while your patient waits for this service.
    - The iSOLVE algorithm not only provide a range of fall prevention options to target the general population of older people in the community, but also enable a structured approach for general practitioners to provide ongoing support for patients who attended or are waiting to attend a Falls Clinic.

- Research has shown that Vitamin D does not reduce rate of falls or risk of falling in most community-dwelling older people; but supplementation may be beneficial when administered to people with lower vitamin D levels (serum 25(OH)D <75 nmol/L), who are frail, home-bound or based in residential aged care (Gillespie et. al. 2012).

Checklists

Stay Independent Checklist

Multifactorial Risk Assessment

Tailoring Interventions to Risk Factors

List of Service Providers for Referral (Template)

Key points for completing *Stay Independent* checklist

- Patient completes checklist in their own time while waiting.
- Checklist can be used as an education tool for patient.
- Checklist is simple for practice staff to review before referring to GP.

iSOLVE Integrated SOLutions for sustainable fall preVEntion

Check your risk for falling

	Tick 'Yes' or 'No' here	
These are about your history of falls		
I have fallen in the past year.	□ Yes	□ No
I am worried about falling.	□ Yes	□ No
These are about balance, strength and mobility		
I use or have been advised to use a walking stick or walker to get around safely.	□ Yes	□ No
Sometimes I feel unsteady when I am walking.	□ Yes	□ No
I steady myself by holding onto furniture when walking at home.	□ Yes	□ No
I need to push with my hands to stand up from a chair.	□ Yes	□ No
I have some trouble stepping onto a curb.	□ Yes	□ No
These are about medications use		
I am taking medication to help me sleep or improve my mood.	□ Yes	□ No
I am taking five or more medications.	□ Yes	□ No
This is about eyesight		
Because of my eyesight, I am finding it difficult to see where I am stepping.	□ Yes	□ No
These are about other conditions associated with falls		
I sometimes feel light-headed or dizzy.	□ Yes	□ No
I have foot pain that lasts for at least a day.	□ Yes	□ No
I often have to rush to the toilet.	□ Yes	□ No
I have been in hospital in the past six months.	□ Yes	□ No

Unsteadiness and needing support are signs of poor balance or weak leg muscles, which are major reasons for falling.

Side effects from medicines such as drowsiness and dizziness can increase your chances of falling.

Painful feet make it difficult to walk and may cause you to stumble or trip.

Rushing to the bathroom, especially at night, increases your chances of tripping or falling.

Version 13 April 2015 (iSOLVE trial 2015-2017). Checklist adapted from STEADI (Stopping Elderly Accidents, Deaths & Injuries) Tool Kit for Health Care Providers, with permission from Centers for Disease Control and Prevention, United States.

THE UNIVERSITY OF SYDNEY | SYDNEY NORTH Health Network | CLINICAL EXCELLENCE COMMISSION

Speak to your GP using the answers you have provided in this checklist.

Your doctor may suggest:

- Attending a fall prevention program or exercise class.
- Seeing a physiotherapist or occupational therapist to help you prevent falls.
- Changing your medicines and speaking to your pharmacist.
- Having your eyesight checked.
- Having your feet checked.
- Having other medical tests.

How to fall-proof yourself

Things you can do to prevent falls and stay independent:

- Be physically active and involved in an exercise program to improve your leg strength and balance. www.activeandhealthy.nsw.gov.au
- Ask your doctor or pharmacist to review your medicines.
- Is your vision changing? Get annual eye check-ups.
- Make your home safer by:
  - Removing clutter, slipping (e.g. moss) and tripping hazards.
  - Installing railings on stairs and grab bars in the bathroom.
  - Having good lighting, especially on stairs.

This brochure was produced in collaboration by:
The University of Sydney
Sydney North Health Network
NSW Clinical Excellence Commission

Stay Independent

Falls are common in older people

But falls can be prevented!

Do this quick screen and speak to your doctor about what you can do to prevent falls.

13 April 2015 (iSOLVE trial 2015-2017)

Key points for performing multifactorial assessment

- A GP may assess risk factors in one consultation or over several consultations.
- A GP only needs to focus on risk factors relevant to the patient.
- A practice nurse may assist in performing assessments.

GP Fall Risk Assessment

This assessment checklist is to be used in conjunction with the patient's Stay Independent checklist.

Patient details/sticker:

Date	Ask the patient about their fall history	
	Have you had any falls in the past year?	☐ Yes ☐ No
	How many?	☐ 1 ☐ 2 or more
	Did you injure yourself?	☐ Yes ☐ No
	What do you think is the cause of the fall(s)?	
	Are you worried about falling?	☐ Yes ☐ No

Date	Risk factors	
	Balance, Strength and Gait	
	Using walking aid or have been advised to use walking aid	□ Yes □ No
	Unsteady	□ Yes □ No
	Weakness, balance and mobility problems	□ Yes □ No
	Medications	
	Sedatives, antidepressants or antipsychotics	□ Yes □ No
	5 or more medications	□ Yes □ No
	Vision	
	Severe impairment (macular degeneration, glaucoma, diabetic retinopathy)	□ Yes □ No
	Cataract formation	□ Yes □ No
	Postural Hypotension, Light-Headedness or Dizziness	
	A decrease in systolic BP ≥20 mm Hg or a diastolic BP of ≥10 mm Hg from lying or sitting to standing?	□ Yes □ No
	Light-headedness or dizziness	□ Yes □ No
	Other Medical Conditions	
	Foot pain	□ Yes □ No
	Urge incontinence	□ Yes □ No
	Recent hospitalisation	□ Yes □ No
	Cognitive impairment	□ Yes □ No

Key points for tailoring interventions

- A GP or practice nurse may select interventions appropriate for the patient.
- A GP or practice nurse may refer to other health professionals to help prevent and manage falls for the patient.

Tailoring Interventions to Fall Risk Factors

The following is a guide that can be used to develop a tailored management plan for your patient.

Date	Risk Assessment	Intervention/Management	Referral To/Follow-Up
	0 fall in past year + no other fall risk factor	Refer patient to information on the Stay Independent brochure.	Community exercises (with balance component). www.activeandhealthy.nsw.gov.au
	1 fall in past year, or worried about falling	• Group exercise with balance component (e.g. Tai Chi), or • Fall prevention program (e.g. Stepping On).	Community exercises (with balance component) or fall prevention programs. www.activeandhealthy.nsw.gov.au
	Problems with balance/strength/gait	Consider individual prescription for balance and lower limb strength exercise.	Physiotherapist or exercise physiologist for exercise prescription.
	≥ 2 falls in past year, *or* **Injurious falls,** *or* **1 fall + unsteadiness,** *or* **1 fall + recent hospitalisation**	• Refer for individual prescription for balance and lower limb strength exercise. • Review home safety. • Consider Falls Clinic for high risk patients.	Physiotherapist or exercise physiologist for exercise prescription. Occupational therapist for home safety assessment. Falls Clinic for high risk patients.
	Taking sedatives, antidepressants or antipsychotics, or ≥ 5 medications	Review indication, side effects and use of medication(s). Consider discussion with a pharmacist.	HMR pharmacist for comprehensive medication review.
	Severe vision impairment	Review home safety.	Occupational therapist for home safety assessment.
	Cataract(s)	Assess for cataract(s) surgery.	Ophthalmologist.
	Postural hypotension, dizziness, or light-headedness	Investigate underlying cause(s).	GP action: medical and/or medication management.
	Disabling foot pain	Assess foot pain. Consider foot and ankle exercises.	Podiatrist, physiotherapist, or exercise physiologist for exercise prescription.
	Urge incontinence	Investigate underlying cause(s).	GP action: medical and/or medication management.
	Cognitive impairment	Select falls prevention activity suited to patient's cognitive ability.	Inform referred provider(s) of patient's cognitive status.

Key points for referral

- The providers list prepared by iSOLVE is intended to increase awareness of fall prevention service providers in your local area.
- This is not a comprehensive list and additional services can be added.

REFERRAL OPTIONS FOR FALL PREVENTION (NAME OF AREA)

iSOLVE Integrated SOLutions for sustainable fall preVEntion

[Area suburbs]

Exercise/Fall Prevention Program

Physiotherapist/Exercise Physiologist

Falls Clinic/Multidisciplinary

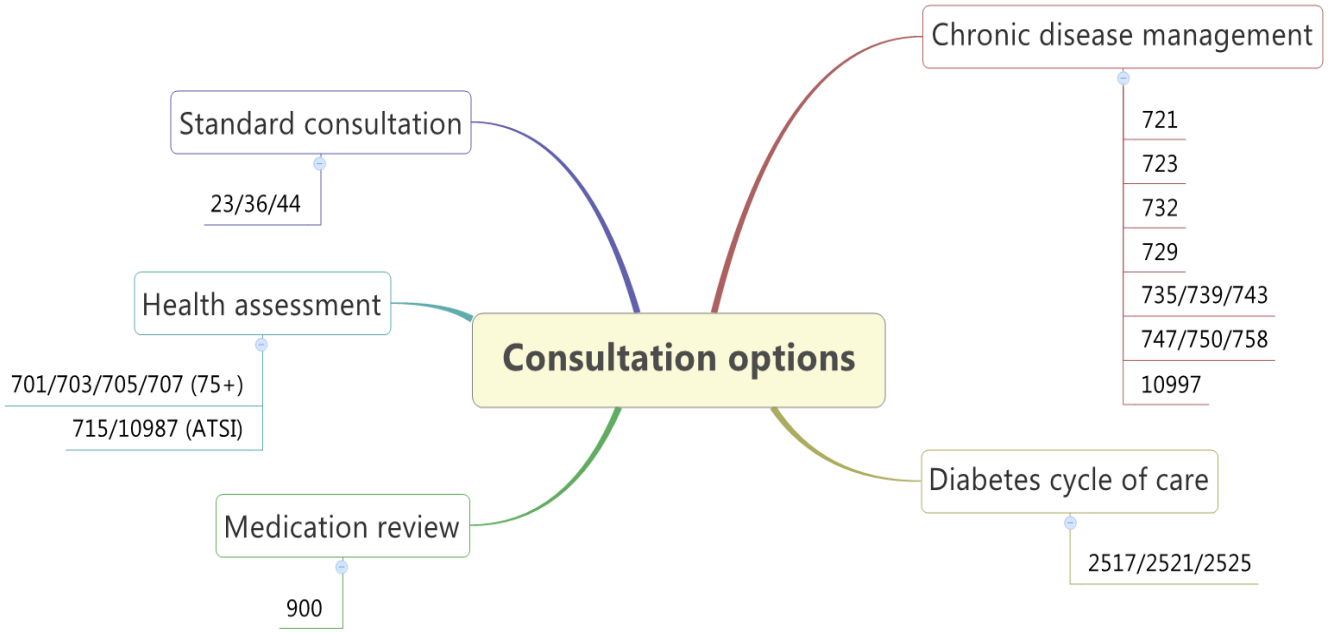
Occupational therapist

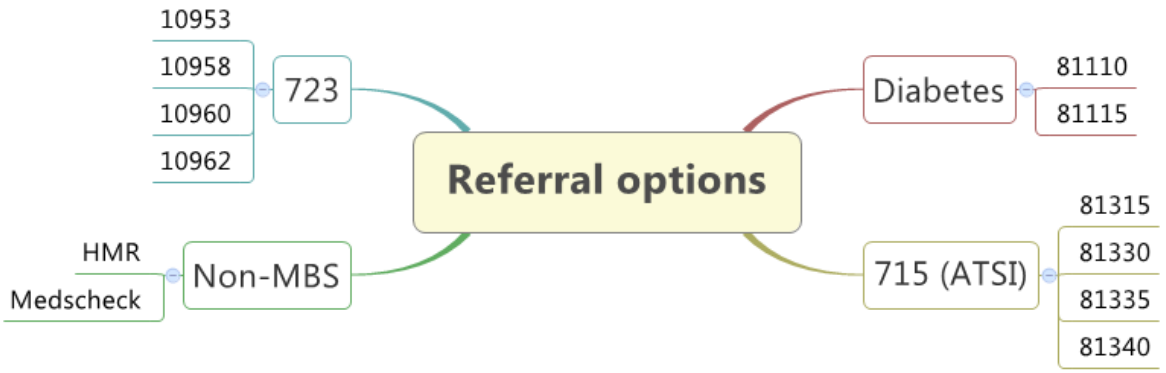
HMR Pharmacist

Podiatrist

Other services

MBS Items
& Options for Fall Prevention Services





STANDARD CONSULTATION AND PREVENTIVE CARE

MBS item	Description	MBS fee/rebate	Notes
Standard consultation			Fall prevention can be charged as part of **professional attendance** items because it is part of providing **appropriate preventive health care**.
23	Level B Standard (*<20 minutes*)	$37.05	
36	Level C Long (*20-39 minutes*)	$71.70	
44	Level D Prolonged (*≥40 minutes*)	$105.50	
Annual health assessment (for patients 75 years and over)			
701	Brief (*<30 minutes*)	$59.35	
703	Standard (*30-44 minutes*)	$137.90	
705	Long (*45-59 minutes*)	$190.30	
707	Prolonged (*≥60 minutes*)	$268.80	
Health assessment (Aboriginal and Torres Strait Islander)			
715	Every 9 months	$212.25	
10987	Follow up by a practice nurse or ATSI health practitioner on behalf of GP after 715 (*10 services per patient per year*)	$24.00	

CHRONIC DISEASE MANAGEMENT AND FALL PREVENTION

MBS item	Description	MBS fee/rebate	Notes
Care planning by a GP			Many chronic conditions are associated with falls e.g. diabetes, stroke, arthritis, osteoporosis, Parkinson's Disease and chronic pain. **MBS items relevant to chronic disease management may enable patients with chronic medical conditions to access relevant care planning and services for fall prevention**. For example, a GPMP diabetes plan could include referral to an exercise physiologist to encourage exercise to improve balance and lower limb strength, which would also reduce the risk of falls for the patient.
721	GP management plan (GPMP) (*annual*)	$144.25	
723	Team care arrangement (TCA) (*annual*)	$114.30	
732	GPMP review and/or TCA review (*three-six monthly after 721/723*)	$72.05	
729	GP contribution to a care plan prepared by another provider (*three-six monthly*)	$70.40	
Case conferencing organised and coordinated by a GP (*five case conferences per patient per year*)			
735	15-19 minutes	$70.65	
739	20-39 minutes	$120.95	
743	≥40 minutes	$201.65	
GP participation in case conferencing organised and coordinated by another provider (*five case conferences per patient per year*)			
747	15-19 minutes	$51.90	
750	20-39 minutes	$89.00	
758	≥40 minutes	$148.20	
Practice nurse or registered Aboriginal Health Worker monitoring and support			
10997	Monitoring and support on behalf of GP (*five per patient per year*)	$12.00	

OTHER MBS ITEMS FOR GENERAL PRACTITIONERS

MBS item	Description	MBS fee/rebate
Diabetes annual cycle of care: Items for diabetes cycle of care (e.g. eye examination, feet examination, blood pressure measurement, self-care education, physical activity review, medication review) may be relevant to fall prevention.		
2517	Level B (*<20 minutes*)	$37.05 + $40 SIP
2521	Level C (*20-39 minutes*)	$71.70 + $40 SIP
2525	Level D (*≥40 minutes*)	$105.50 + $40 SIP
Involvement and referral for medication management (*every 12 months*)		
900	Participation by a GP in a Domiciliary Medication Management Review in discussion with a pharmacist	$154.80

REFERRAL ITEMS

MBS item	Description	MBS fee/rebate
Referral after 723 (*five services per patient per year*)		
10953	Exercise physiology health service	$62.25
10958	Occupational therapist health service	
10960	Physiotherapy health service	
10962	Podiatry health service	
Referral after 715 for Aboriginal and Torres Strait Islander patient (*five services per patient per year in addition to TCA*)		
81315	Exercise physiology health service	$52.95
81330	Occupational therapy health service	
81335	Physiotherapy health service	
81340	Podiatry health service	
For diabetes patients only		
81110	Assessment for group services by exercise physiologist	$79.85
81115	Exercise physiologist group services	$19.90
Options for referral for pharmacist medication review (non-MBS)		
	Domiciliary Medication Management Review (*every 24 months*)	
	Community pharmacy Medscheck or Diabetes Medscheck service at a community pharmacy.	

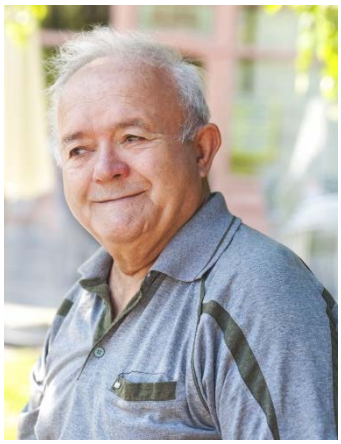
Case Studies

Mrs Jones

Mrs Chandran

Mr Lee

Ms Rossi



Mr Murphy

Mrs Jones

Mrs Jones is a 66-year-old woman who lives with her husband. Occasionally they walk their two dogs to the park located a few streets from their house.

She suspects that she has a cold and presents with a congested and runny nose, sore throat and chesty cough. She's also taking Nordip® (amlodipine) for her high blood pressure which is well-controlled at this stage.

Mrs Jones completes the *Stay Independent* brochure in the waiting room.

Check your risk for falling	Tick 'Yes' or 'No' here	
These are about your history of falls		
I have fallen in the past year.	□ Yes	☑ No
I am worried about falling.	□ Yes	☑ No
These are about balance, strength and mobility		
I use or have been advised to use a walking stick or walker to get around safely.	□ Yes	☑ No
Sometimes I feel unsteady when I am walking.	□ Yes	☑ No
I steady myself by holding onto furniture when walking at home.	□ Yes	☑ No
I need to push with my hands to stand up from a chair.	□ Yes	☑ No
I have some trouble stepping onto a curb.	□ Yes	☑ No
These are about medications use		
I am taking medication to help me sleep or improve my mood.	□ Yes	☑ No
I am taking five or more medications.	□ Yes	☑ No
This is about eyesight		
Because of my eyesight, I am finding it difficult to see where I am stepping.	□ Yes	☑ No
These are about other conditions associated with falls		
I sometimes feel light-headed or dizzy.	□ Yes	☑ No
I have foot pain that lasts for at least a day.	□ Yes	☑ No
I often have to rush to the toilet.	□ Yes	☑ No
I have been in hospital in the past six months.	□ Yes	☑ No

Medical conditions and medications

- Hypertension → Nordip® (amlodipine)

Consultation

After addressing Mrs Jones' presenting complaints, you reviewed her answers on the Stay Independent brochure – she has no known risk of falling. You check that her blood pressure is controlled and she is not having any side effects from the medication.

Using the iSOLVE guidelines, you encourage Mrs Jones to consider additional exercise to stay independent and to protect her from falls. You compliment her as she is a considerably healthy person for her age, but explain that walking is not enough to prevent falls. You offer to discuss further about fall prevention if Mrs Jones has any questions, and that the practice nurse can go through the Active and Healthy Website with her to recommend a local community exercise class at some stage.

Fall prevention recommendations

Community exercises (with balance component) – www.activeandhealthy.nsw.gov.au

Follow-up

After 3 months, Mrs Jones has come to your practice to obtain a new prescription for Nordip® (amlodipine). A note on your computer reminds you that you have spoken to her about considering community exercise and to follow-up. Mrs Jones says that the practice nurse suggested two different groups that she may be interested in, both were free to attend and were close to her home. She did not like the first group because she thought that it was too gentle for her, but enjoyed the other group. She has not fallen since the previous consultation.

Mrs Chandran

Mrs Chandran is a 69 year old woman who lives with her son, daughter-in-law and grandchildren. She maintains an active social life with a group of older men and women at the community centre. She has come in to your practice for an annual flu vaccine. She has asthma which has been well-controlled for many years.

Mrs Chandran completes the *Stay Independent* brochure in the waiting room.

Check your risk for falling	Tick 'Yes' or 'No' here	
These are about your history of falls		
I have fallen in the past year.	☑ Yes	□ No
I am worried about falling.	☑ Yes	□ No
These are about balance, strength and mobility		
I use or have been advised to use a walking stick or walker to get around safely.	□ Yes	☑ No
Sometimes I feel unsteady when I am walking.	□ Yes	☑ No
I steady myself by holding onto furniture when walking at home.	□ Yes	☑ No
I need to push with my hands to stand up from a chair.	☑ Yes	□ No
I have some trouble stepping onto a curb.	□ Yes	☑ No
These are about medications use		
I am taking medication to help me sleep or improve my mood.	□ Yes	☑ No
I am taking five or more medications.	□ Yes	☑ No
This is about eyesight		
Because of my eyesight, I am finding it difficult to see where I am stepping.	☑ Yes	□ No
These are about other conditions associated with falls		
I sometimes feel light-headed or dizzy.	□ Yes	☑ No
I have foot pain that lasts for at least a day.	□ Yes	☑ No
I often have to rush to the toilet.	□ Yes	☑ No
I have been in hospital in the past six months.	□ Yes	☑ No

Medical conditions and medications

- Asthma → Pulmicort Turbuhaler® (budesonide)
  → Asmol® (salbutamol)
- Gastroesophageal reflux disease → Acimax® (omeprazole)

Consultation

You review Mrs Chandran's answers on the Stay Independent brochure. You noticed that she shuffle a little as she walked into the consultation room. Upon further questioning using your multifactorial risk assessment checklist, you find out that Mrs Chandran slipped and fell once a few months' ago in her living room but she was not injured. She is worried that she will fall again and lose her independence as she has heard of many stories at the community centre of falls and injury in older people.

Using the iSOLVE guidelines, you believe that Mrs Chandran may benefit from attending a group exercise class (focusing on balance and strength) or a community fall prevention program. You highlight that there is an increasing number of exercise classes for people in a similar age group as Mrs Chandran in the community. Some of these classes, such as Tai Chi, are designed to optimise leg strength and balance, which is important to stay active and independent. Mrs Chandran's other option is to attend a fall prevention program like Stepping On. You explain that Stepping On may be suitable as it is a structured program and that she can connect with others who have fallen or are worried about falling. Mrs Chandran prefers the latter option.

You examine her eyes but find no abnormality. You believe that she may also benefit from further eye examination and offered to refer to the local optometrist.

Fall prevention recommendations

- Fall prevention program (Stepping On)
- Referral to local optometrist to review eyesight

Follow-up

After 2 months, Mrs Chandran made a follow-up appointment.

You ask how she is finding the Stepping On group. She says she is feeling more confident now in staying on her feet. She says her son notices how much better she is at walking and this made her feel more confident and more positive about the program.

You ask if she is still finding it difficult to see where she is stepping. She says that after updating her pair of glasses she finds her eyesight has improved.

Mr Lee

Mr Lee is 71 years old; he lives independently in the next suburb on his own; his wife passed away two years ago. His daughter visits regularly with her husband and children. Mr Lee made an appointment today to obtain a new prescription for Osteomol 665® (paracetamol). His blood pressure was checked and stable during his previous appointment.

Mr Lee completes the *Stay Independent* brochure in the waiting room.

Check your risk for falling	Tick 'Yes' or 'No' here	
These are about your history of falls		
I have fallen in the past year.	□ Yes	☑ No
I am worried about falling.	□ Yes	☑ No
These are about balance, strength and mobility		
I use or have been advised to use a walking stick or walker to get around safely.	□ Yes	☑ No
Sometimes I feel unsteady when I am walking.	□ Yes	☑ No
I steady myself by holding onto furniture when walking at home.	☑ Yes	□ No
I need to push with my hands to stand up from a chair.	☑ Yes	□ No
I have some trouble stepping onto a curb.	☑ Yes	□ No
These are about medications use		
I am taking medication to help me sleep or improve my mood.	☑ Yes	□ No
I am taking five or more medications.	□ Yes	☑ No
This is about eyesight		
Because of my eyesight, I am finding it difficult to see where I am stepping.	□ Yes	☑ No
These are about other conditions associated with falls		
I sometimes feel light-headed or dizzy.	□ Yes	☑ No
I have foot pain that lasts for at least a day.	□ Yes	☑ No
I often have to rush to the toilet.	□ Yes	☑ No
I have been in hospital in the past six months.	□ Yes	☑ No

Medical conditions and medications

- Depression → Celapram® (citalopram)
- Hypertension → Micardis Plus® (telmisartan/hydrochlorothiazide)
- Osteoarthritis → Osteomol 665® (paracetamol)

Consultation

After you've given Mr Lee a new prescription for Osteomol 665® (paracetamol), you proceed to talk to him about fall prevention after checking his answers in the Stay Independent brochure.

Using your multifactorial risk assessment checklist, you identify that Mr Lee is unsteady, and has weakness, balance and mobility problems. Mr Lee thinks that it's a normal part of ageing and he has also seen gradual decline in his peers who have fallen before. Mr Lee has tripped a few times and thinks that a fall in the future will be inevitable.

You explain to Mr Lee that people do not notice slow changes in their own body as they age, including changes in balance and how they walk. And people don't realise that balance can be improved with practice and can reduce chances of falling.

Using the iSOLVE guidelines, you think that Mr Lee may benefit from an individual prescription for balance and lower limb strength exercise by a physiotherapist or exercise physiologist as he has problems with his balance, strength and gait. You have flagged on your computer to review Mr Lee's depression and Celapram® (citalopram) prescription in the next appointment.

Fall prevention recommendations

- Physiotherapist/exercise physiologist for exercise prescription
- Review antidepressant Celapram® (citalopram) in the next appointment

Follow-up

Mr Lee comes back to you for a follow up appointment in a few weeks. With encouragement from his daughter, he went to see a physiotherapist who prescribed him a weekly exercise regimen. Mr Lee states that he has not felt depressed for over 6 months since his daughter moved to live close by. You discuss with him the possibility of reducing or ceasing his antidepressant treatment as the medication may increase the risk of falls.

Ms Rossi

Ms Rossi is a 82 years old single woman who lives alone at home. Her 50-year-old niece visits occasionally. She was discharged from hospital about a month ago due to a urinary tract infection that has now been resolved. She has come in to your practice, accompanied by her niece, for a follow-up. She is otherwise well and her diabetes condition is stable.

Ms Rossi completes the *Stay Independent* brochure in the waiting room.

Check your risk for falling	Tick 'Yes' or 'No' here	
These are about your history of falls		
I have fallen in the past year.	☑ Yes	□ No
I am worried about falling.	☑ Yes	□ No
These are about balance, strength and mobility		
I use or have been advised to use a walking stick or walker to get around safely.	☑ Yes	□ No
Sometimes I feel unsteady when I am walking.	☑ Yes	□ No
I steady myself by holding onto furniture when walking at home.	☑ Yes	□ No
I need to push with my hands to stand up from a chair.	☑ Yes	□ No
I have some trouble stepping onto a curb.	□ Yes	☑ No
These are about medications use		
I am taking medication to help me sleep or improve my mood.	□ Yes	☑ No
I am taking five or more medications.	☑ Yes	□ No
This is about eyesight		
Because of my eyesight, I am finding it difficult to see where I am stepping.	□ Yes	☑ No
These are about other conditions associated with falls		
I sometimes feel light-headed or dizzy.	□ Yes	☑ No
I have foot pain that lasts for at least a day.	☑ Yes	□ No
I often have to rush to the toilet.	□ Yes	☑ No
I have been in hospital in the past six months.	☑ Yes	□ No

Medical conditions and medications

- Type 2 Diabetes → Diaformin® (metformin)
  → Melizide® (glipizide)
- Osteoarthritis → Osteomol 665® (paracetamol)
- Hypertension → Avapro HCT® (irbesartan/hydrochlorothiazide)
- Hyperlipidemia → Lipitor® (atorvastatin)

Consultation

After you have conducted a standard checkup, you review Ms Rossi's answer on the Stay Independent brochure. Using your multifactorial risk assessment checklist, you found out that she has fallen multiple times in the past year. Once she stumbled on loose pavement and fell as she was walking outside her house to collect her mail, and bruised herself. The fall reminded her of a fall a few years' back for which she ended up in hospital with a large cut on her arm. She admits that she used to be an outgoing person and enjoyed walks to the park with a few of her older neighbours. However, she is now worried about falling every time she goes out and it would be embarrassing if someone sees her fall. She is worried that she will lose her independence as she is noticing her older neighbours are starting to move into nursing homes one by one.

You explain to Ms Rossi that it is not true that the best way to prevent falls is to stay at home and limit activity. There are many things that she can do to reduce her chances of falling, such as exercise and addressing hazards at home. Using the iSOLVE guidelines to tailor interventions to risk factors, you think that Ms Rossi may benefit from an individual prescription for balance and lower limb strength exercise by a physiotherapist or exercise physiologist, and a home safety review by an occupational therapist.

You review her feet and find large bunions but no other lesions. She has some degree of diabetic neuropathy with poor sensation in the toes. There is no evidence of infection and the skin is intact. You previously referred Ms Rossi to a podiatrist as she is a diabetic, however, you explain that you will include in the referral letter to both the podiatrist and physiotherapist about her foot pain that may increase her chances of falling and may require further assessment.

You also check that she has adhered to your advice for annual eye checks as a diabetic. You do not think that a Home Medicines Review is necessary at this stage.

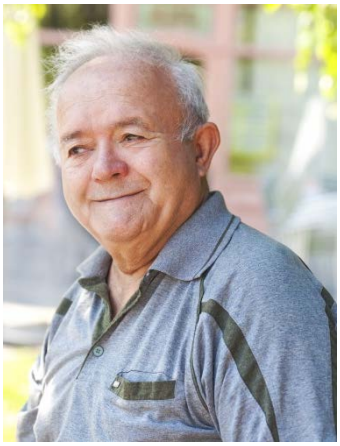
Fall prevention recommendations

- Physiotherapist/exercise physiologist for exercise prescription
- Occupational therapist for home safety review
- Referral and follow up with podiatrist/physiotherapist for foot pain

Follow-up

Ms Rossi comes back to you for a follow up appointment in a few weeks. You ask Ms Rossi how she has been doing and if she has followed any of your recommendations to prevent falls. She replies that she has been slowly working with the physiotherapist, occupational therapist and podiatrist and is feeling positive and safer. Her physiotherapist even invited her to join a group-based exercise class that is suitable for her, and she enjoys the class very much as she is also making new friends.

Mr Murphy



Mr Murphy is a 75 year old man, who lives independently in his own home with his wife and they are regular patients at your practice. He's presenting at your practice because he's been experiencing occasional dizziness and his wife has been nagging him to see you. He was diagnosed with COPD and chronic neck pain many years ago and with angina almost a year ago. He quit smoking two years ago and was well during his last appointment with you.

Mr Murphy completes the *Stay Independent* brochure in the waiting room.

Check your risk for falling	Tick 'Yes' or 'No' here	
These are about your history of falls		
I have fallen in the past year.	☑ Yes	□ No
I am worried about falling.	☑ Yes	□ No
These are about balance, strength and mobility		
I use or have been advised to use a walking stick or walker to get around safely.	□ Yes	☑ No
Sometimes I feel unsteady when I am walking.	☑ Yes	□ No
I steady myself by holding onto furniture when walking at home.	□ Yes	☑ No
I need to push with my hands to stand up from a chair.	□ Yes	☑ No
I have some trouble stepping onto a curb.	□ Yes	☑ No
These are about medications use		
I am taking medication to help me sleep or improve my mood.	□ Yes	☑ No
I am taking five or more medications.	☑ Yes	□ No
This is about eyesight		
Because of my eyesight, I am finding it difficult to see where I am stepping.	□ Yes	☑ No
These are about other conditions associated with falls		
I sometimes feel light-headed or dizzy.	☑ Yes	□ No
I have foot pain that lasts for at least a day.	□ Yes	☑ No
I often have to rush to the toilet.	☑ Yes	□ No
I have been in hospital in the past six months.	□ Yes	☑ No

Medical conditions and medications

- Chronic neck pain → Nurofen® (ibuprofen)
- Chronic obstructive pulmonary disease (COPD)
  - → Asmol® (salbutamol)
  - → Spiriva® (tiotropium)
- Angina
  - → Anginine® (glyceryl trinitrate)
  - → Cardizem® (diltiazem)
- Prevention of cardiovascular events
  - → Astrix® (aspirin)
  - → Coversyl® (perindopril)
  - → Cholstat® (pravastatin)

Consultation

Due to time constraints, you decide to prioritise Mr Murphy's presenting complaints. You explore the dizziness and find that this does not have a rotational component. You perform a dizziness workup and refer him to the practice nurse for testing for postural hypotension (and query the cause could be secondary to his medication). He will need further investigation of his dizziness at the next visit.

You identify that Mr Murphy fell twice in the past year and sustained only bruising from the falls. He says that he was lucky because the one time he fell backwards onto his couch and a second time he fell on a grassy patch in his backyard. He says sometimes he feels unsteady as he walks, but the dizziness spells have made it worse. He also finds that lately he has been needing to rush to the toilet more frequently.

Using your multifactorial risk assessment checklist and the iSOLVE guidelines to tailor interventions to risk factors, there were several issues that need addressing.

You make a double appointment for Mr Murphy to return in two weeks for you to review his urge incontinence issue, as well as review the postural hypotension and dizziness. You emphasise the need for this appointment.

You believe that Mr Murphy may benefit from an individual exercise prescription and a home safety review, and have flagged this for recommendation in the near future, once the dizziness is resolved. You indicate in your notes for the potential of a Home Medicines Review, as you are not sure how adherent Mr Murphy is to his medication. You suspect he may occasionally double up on his cardiovascular medication (causing hypotension) and may need a dose administration aid (e.g. Webster Pak®).

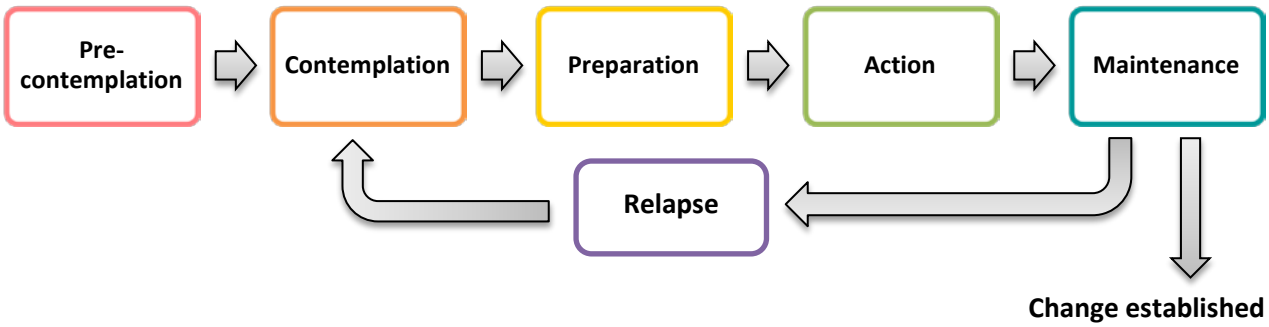
Fall prevention recommendations and follow-up

- Investigate Mr Murphy's presenting complaints i.e. dizziness.
- Investigate Mr Murphy's urge incontinence issue during the current appointment or in a follow-up appointment.
- Consider referral for home safety review by an occupational therapist or flag for action in the follow-up appointment.
- Flag for action in the near future: once the dizziness complaint has been resolved, refer Mr Murphy for individual prescription for balance and lower limb strength by a physiotherapist/exercise physiologist.

Talking with Patients

Many fall prevention strategies call for patients to change their behaviours e.g. by attending a fall prevention program, doing prescribed exercises at home, and changing their home environment. Behaviour change can be difficult – but you are well-placed as a GP to assist your patients to better manage change.

Health behaviour change models such as the 'Stages of Change' model are widely used to determine patient behavior and readiness for change in many clinical settings.



The Stages of Change model: which stage is your patient in?

When talking with a patient, applying the model can help you match your advice about fall prevention to your patient's stage of readiness. The following sections give examples of patient-provider dialogue appropriate for the various stages of change. The examples will also help you work with your patient through the various stages.

Key points to emphasise when talking to your patients

- Falls can be preventable rather than unpredictable. Counter the belief that nothing can be done for falls.
- Life-enhancing aspects of fall prevention such as maintaining independence and control, and preventing functional decline.
- The social benefits of a fall prevention program, rather than social stigma attached to programs targeting 'older people'.
- Addressing the following prior to intervention: activity avoidance, fear of falling, fear of injury, lack of perceived ability and fear of exertion.
- Start with programs pitched at an appropriate level for the patient.
- Emphasis on fall prevention instead of fitness exercise.
- Addressing one problem at a time for patients with multiple risk factors.
- Getting the patient to partner with a peer who has successfully undertaken a fall prevention program, or obtain support from a partner or carer.

Precontemplation stage: The patient doesn't view himself or herself as being at risk of falling.

Action: Understand the patient's motivation to stay independent and active. Explain the reasons for making changes in relation to risk factors relevant to the patient. If the patient is not ready to take action, revisit the conversation in the next session.

Patient says:	**You say:**
Falls just happen when you get old.	It's true that falling can be a common thing for older people, but falling is not a normal part of ageing and it can be prevented. There are things you can do to reduce your chances of falling.
Falling is just a matter of bad luck. I just slipped. That could have happened to anybody.	As we age, falls are more likely for many reasons, including changes in our balance and how we walk. We don't notice slow changes in our body. And people don't realise that balance can be improved with practice.
Falling happens to other people, not to me. My 92 year-old mother is the one I'm worried about.	One in three people 65 years and over fall each year. Taking steps to prevent yourself from falling sooner rather than later can help you stay independent. This way, you can also keep supporting your mother. Perhaps the two of you can do the activities together.
It was an accident. It won't happen again because I'm being more careful.	Being careful is always a good idea but it's usually not enough to keep you from falling. There are many things that you can do to reduce your risk of falling.
I've stopped going out, I won't fall if I stay in.	Some people believe that the best way to prevent falls is to stay at home and limit activity. This is not true. Performing physical activities will actually help you stay independent, as your strength and range of motion benefit from remaining active. Going out is good for your overall health – meeting people, getting fresh air, and getting sunlight which is good for your bones.
As long as I stay at home, I can avoid falling.	Over half of all falls take place at home. I can help you understand how to inspect your home for falls risks and make simple home adaptations. It's also important to keep active so you can move around independently at home.
Muscle strength and flexibility can't be regained.	While we do lose muscle as we age, exercise can partially restore strength and flexibility. It's never too late to start an exercise program. Even if you've been a "couch potato" your whole life, becoming active now will benefit you in many ways—including protection from falls.
Taking medication doesn't increase my risk of falling.	Taking any medication may increase your risk of falling. Medications affect people in many different ways and can sometimes make you dizzy or sleepy. We need to look out for these when starting a new medication or changing your medications.
I don't need to get my vision checked.	Ageing is associated with some forms of vision loss. People with vision problems are more than twice as likely to fall as those without visual impairment. Have your eyes checked at least once a year and update your eyeglasses.

Contemplation stage: The patient is considering the possibility that he or she may be at risk of falling.

Action: Discuss patient-specific strategies to address barriers to change, be encouraging, and enlist support from the family. If the patient is not ready to take action, revisit the conversation in the next session.

Patient says:	**You say:**
My friend down the street fell and ended up in a nursing home.	Preventing falls can prevent broken hips and help you stay independent.
I already walk for exercise.	Walking is terrific exercise for keeping your heart and lungs in good condition, but it may not prevent you from falling. You need different exercises to improve your balance and leg muscle strength to prevent falls.
I'd like to exercise but I don't because I'm afraid I'll get too tired.	You don't have to overexert yourself to benefit. You can reduce your chances of falling by exercising as little as 3 times a week. A physiotherapist or exercise physiologist can help design an exercise program that meets your needs.
I have so many other medical appointments already. I have to take care of my husband. I don't have time for this.	These types of exercises only take a few minutes a day; you don't even have to leave your home and you can do these with your husband or friends.
I saw the modifications that they did at the nursing homes. They look ugly.	There are lots of simple things you can do in your own home to protect yourself from falling such as better lightning at night. If you're open to the idea, there are people who can help you look at some options which address safety and design.
I don't have much money to pay for more appointments and classes.	There are free or low cost classes and programs. Let's look at some near you. Being healthy and independent will save you a lot more money than if you have a fall and have to pay for treatment or medicines.
I don't want to ask someone to drive me to the exercise class. Getting to the community centre is so hard now that I don't drive.	I can recommend you some simple exercises that you can do at home. You can do these exercises at home or I can recommend some exercise classes near you that can help you with transport.
I want to keep my independence but I don't want to talk to my family if I'm concerned about my risk of falling – I don't want to alarm them.	Fall prevention is a team effort. Talking to me (as your GP) is a first step and it might be helpful that you bring it up with your family and anyone else who is in a position to help. I'm sure they would want to help you maintain your mobility and reduce your risk of falling. You may wish to bring your [relative/friend] in with you next time so they understand what we're talking about.

Preparation stage: The patient considers himself or herself to be at risk of falling and is thinking about doing something about it.

Action: Help the patient set specific goals and create an appropriate action plan taking into consideration everything else that is going on in his or her life. Reinforce the progress the patient has made.

Patient says:	You say:
I'm worried about falling. What do you think I can do to keep from falling?	Let's look at some factors that may make you likely to fall and talk about what you could do about one or two of them. Here's a brochure about preventing falls. Why don't you go over it with your partner/friend(s)?
I read that some medicines can make you dizzy. Do you think any of mine might be a problem?	May I suggest that we go over your medicines (or make a time to go over your medicines) and see if we need to change any of them. Make sure you keep a list of your medicines, including those that you bought over the counter, so other health providers will be aware of what you're taking.

Action stage: The patient considers himself or herself to be at risk of falling and is ready to do something about it.

Action: Facilitate patient-centered behaviour change. Provide specific resources, support and encouragement to help the patient to adopt new behaviours.

Patient says:	You say:
I know a fall can be serious. What can I do to keep from falling and stay independent?	It's great that you're thinking that way. • What have you tried to keep you from falling? • What do you think about these choices of things to do? Is there something here you would like to try? Would you like to write down what you would like to try and when you will start? I can also refer you to a [health provider] who can help you [increase your balance/improve your vision/find shoes that make walking easier]. I'll check how you're doing in about a month.
I want to take a fall prevention class. What do you recommend?	I'm glad that you're interested in taking a class. Let's go over the list of recommended programs near you (or please see the nurse before you leave. She'll give you a list of recommended programs near you).
I know I'd feel safer if I had grab bars put in my shower.	I'm glad that you're thinking of installing grab bars. Here's the home safety checklist that can help you identify home hazards and suggest ways to make other changes to prevent falls. An occupational therapist can help you look at more ways to protect you from falls at home.

Maintenance stage: The patient is doing something to prevent himself or herself from falling.

Action: Review the progress the patient has made. Reinforce and compliment positive action. Provide information on improved health outcome relevant to the patient. Address barriers that may lead to relapse.

Patient says:	You say:
I've been attending the exercise class that you've recommended, Doctor.	I'm interested to know how it went for you and what you find works for you. I know you are working hard to take care of yourself and it looks like it has paid off. I see that your posture and the way you walk have improved.
I've been attending the program, but I feel embarrassed that I have to excuse myself to the toilet all the time.	May I suggest that we look at addressing this issue so you can continue to attend the program.
I am finding it harder to sleep at night now that I'm not taking the tablets.	There are many things that we can do to improve sleep other than taking sleeping pills. May I suggest that we go through these today (or let's schedule another appointment to go through these)?

Relapse stage: The patient stopped attending the prescribed fall prevention session and may be feeling demoralised.

Action: Explore reasons and reinforce the positivity in fall prevention activities. Remind patient that change is a process and to learn from the process for continued success. If patient is not ready to take action, revisit the conversation in the next session or reschedule within the next month to maintain momentum.

Patient says:	You say:
I used to [exercise], but I stopped.	It's often hard to start again. Perhaps we can make a plan together which makes it easier to continue.
I don't think [the exercise] works for me.	It takes some time to strengthen your muscles and improve balance. Is there any part of the [class or program] that you like or that works for you? Would you like to look at other options?
I took a Tai Chi class but it was too hard to remember the forms.	Some Tai Chi classes are easier than others. Would you like to look at other exercise options? Here are a number of different ones close to you. Remember, you don't have to do difficult exercises to prevent falls.

Relapse stage (continued)

Patient says:	You say:
The exercise class is scheduled at an inconvenient time.	What about a home exercise program instead? This way you can schedule it at a time convenient for you. Let's look at the schedule for other classes. It's important that you make time to exercise; consider it as a medical appointment.
I don't think I'm fit enough to be in the group.	Everyone has to start somewhere. Remember, some of the people may have been with the group for longer and have developed the necessary fitness. How do you feel about discussing your fitness level with the exercise instructor? Would a note from me help?
It was really boring. I felt that I was still too fit to be in that group. I imagined that that kind of stuff was for people in nursing homes.	There are lots of other things that you can do. May I suggest we look at the list of available programs and find some that are more challenging for you?

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Contact iSOLVE

The iSOLVE project is an NHMRC funded partnership project to be conducted in stages over a five year period (2014-2019). This is a new project supported by the University of Sydney in partnership with the Sydney North Health Network and the NSW State Falls Program (Clinical Excellence Commission).

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