



Fall Prevention in NSW

White Paper 2023



CLINICAL
EXCELLENCE
COMMISSION

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Clinical Excellence Commission

Board Chair: Prof Andrew Wilson AO

Chief Executive: Adjunct Professor Michael C. Nicholl

Any enquiries about or comments on this publication, including suggested improvements, should be directed to:

Clinical Excellence Commission

Locked Bag 2030

St Leonards NSW 1590

Phone: (02) 9269 5500

Email: CEC-SPC@health.nsw.gov.au

"We pay respect to the Traditional Custodians and First Peoples of NSW and acknowledge their continued connection to their country and culture."

Contents

Foreword	4
Executive summary	5
Recommendations for NSW	7
At a glance	9
Part 1. The growing problem of falls in NSW	11
The burden and cost of falls	12
Looking ahead	15
Impact of falls on individuals and families: Bob's story	17
The complexity of falls	18
Evidence-based interventions	22
Part 2. Insights on falls and actions for fall prevention in NSW from CEC Roundtable	27
Part 3. Examples of local solutions	33
Examples of current fall prevention initiatives from NSW	34
Examples of fall prevention models from overseas and other Australian states	44
Authors and advisors	46
Appendices	49
Appendix 1. Australian Fall Prevention Guidelines update: Draft Recommendations	50
Aged Care settings	50
Community settings	50
Hospital settings	52
Appendix 2: Examples of programs to prevent falls and enhance mobility found to be effective in research studies in NSW	53

Foreword

Falls in older age pose a significant challenge that demands our immediate attention and concerted efforts.

Each day over 100 people aged over 65 years are admitted to NSW hospitals after a fall.

The projected increase in the number of older people in NSW underscores the urgency of action. This demographic shift, coupled with the vulnerability of older individuals to falls, will significantly burden our healthcare system, which is why we must act now.

The sobering reality is that falls also contribute to over 1200 deaths among older residents of NSW each year.

This white paper on fall prevention, developed in collaboration with experts, researchers, policymakers, consumers and other stakeholders, presents actionable strategies to address this issue. It provides evidence-based practices and best-in-class approaches to guide healthcare providers, organisations, and policymakers in our shared mission to reduce falls and their associated harms.

I express my deepest appreciation to all those who contributed to this white paper, as your expertise and unwavering commitment have been instrumental in shaping this document. I urge all stakeholders within the healthcare community to unite and implement the recommendations outlined here. By establishing a strong collaborative approach, ensuring best evidence is reflected in policy and practice, and prioritising fall prevention, we can make a significant impact on improving patient outcomes and ensuring the safety and well-being of our ageing population.

Together, let us confront the challenge of falls head-on, alleviate the burden on our healthcare system, and create a future where older individuals in NSW can live with reduced risks and enhanced quality of life.



Adjunct Professor Michael C. Nicholl
MBBS MBA(PubSecMgt) PhD
FRANZCOG(Ret) FRCOG FCHSM
FAAQHC
Chief Executive
Clinical Excellence Commission

Executive summary

Falls in older people are a major burden in NSW

In 2021 in NSW there were 41,619 people over 65 who were hospitalised due to a fall at home or in the community. This number increased by 60 per cent in a decade from 25,982 in 2010 and the incidence of falls is set to increase further as the population ages. In 2021 the cost to the NSW health system from falls by older people in the community was around \$752 million. These costs are projected to grow to \$1.09 billion by 2041 – the result of around 60,300 hospitalised falls projected for that year.

Equally as important is the human cost to the older person and their family following a fall incident. A spiralling sequence of events can include extended hospitalisation and rehabilitation, increased care needs including potential admission to aged care services, and far too commonly, death. The impact of these incidences on the health care system is vast: from ambulance callouts to Emergency Department presentations, hospital admissions and extended hospital patient care days.

Putting this into context, falls account for the highest health system costs for injury and are more than double that of road trauma.

There is robust evidence that falls can be prevented. Fall prevention is a complex area as there are multiple risk factors that may contribute as to why a person may fall. A systems thinking approach acknowledges the complexity of fall prevention, seeks to understand the interactions between components, and identifies what interventions work best.

The evidence of cost-effective prevention

There is evidence that exercise prevents falls in the community and in aged care settings. It is recommended that all older people engage in ongoing exercise targeting balance and mobility, which may include strength training. These exercise programs should be undertaken two to three hours per week and should be ongoing. It is advisable for these programs to be designed and delivered by a health professional or appropriately trained instructor.

There is also evidence for multifactorial interventions in aged care and hospital settings.

By preventing falls, we can eliminate avoidable suffering, negative health outcomes, and avoid a spiralling of health costs. In fact, there is strong evidence that falls can be reduced by up to 34 per cent in 12 months when there is coordinated action on fall prevention. If we use a similar economic analysis to that used when evaluating drug interventions, we see that investment in fall prevention is cost-effective using accepted thresholds. Coordinated action on fall prevention will have quick returns.

The need for a fall prevention strategy and coordinated approach

Evidence-based interventions are available and there are local examples of good practice. The lack of a comprehensive plan to tackle falls means that such actions are isolated and uncoordinated.

In April 2023, the Clinical Excellence Commission hosted a roundtable workshop that brought together key representatives from across NSW Health, fall researchers and consumers. The event reviewed the problem of falls in NSW, overviewed evidence-based solutions and explored options for progress in NSW. The workshop and subsequent discussions generated key recommendations for action, including the need for a comprehensive approach to fall prevention in NSW.

Recommendations focus on the need for co-ordinated action on fall prevention if we are to reduce the strain on human health and health services from falls. The recommendations include action on:

- The individual level – activities on the front line with individuals, local clinical teams, and community services.
- The organisational level – coordinated efforts across organisations and facilities to create supportive environments and ensure effective fall prevention practices.
- The policy level – system changes to support fall prevention efforts.

This report has three distinct sections and offers insights and solutions to reduce falls in the community.

Part 1

- Provides data on the growing problem of falls in NSW, describes the impact on individuals and their loved ones, describes the complexity of falls, and overviews evidence-based interventions;

Part 2

- Summarises the insights on falls and actions for fall prevention arising from the April 2023 Roundtable hosted by the Clinical Excellence Commission;

Part 3

- Gives examples of local solutions already being undertaken around NSW;

Recommendations

- Draws on the data and experiences reported in Parts 1 to 3 and makes the below recommendations for feasible and cost-effective action on falls.

Recommendations for NSW

1. **Articulate a Falls Action Plan for NSW** that outlines a five-year strategy to ensure a coordinated and comprehensive approach to fall prevention.
2. **Establish a mechanism to better coordinate and link fall prevention actions** undertaken across NSW Health entities and by other government and non-government agencies. Such a mechanism would ensure that action is co-ordinated, lessons are learned, resources are shared, and stakeholders are kept informed of changing evidence and new initiatives.
3. **Deliver fall prevention actions that reflect the Australian Commission on Safety and Quality in Health Care National Guidelines for Fall Prevention** (release early 2024) to address the needs of diverse groups of older people who are at lower, intermediate, and higher risk of falls.

Lower-risk individuals. Active older people in the general community who rarely fall but still contribute importantly to fall-injury health service use at a population level. NSW Health can:

- i. provide health promotion messaging about fall prevention and the importance of lifelong physical activity, including activities targeting balance and strength;
- ii. support community exercise providers to deliver evidence-based interventions
- iii. enhance referrals to community exercise and other services and support transition from NSW Health services and programs;
- iv. sustain and enhance an on-line database of fall prevention exercise opportunities, such as the NSW Health Active & Healthy website.

Intermediate-risk individuals. Older people at some increased risk of falls (i.e., not the general older community or those with multiple risk factors for falls) who have fallen one to two times in the past year. NSW Health can provide or make referrals to:

- i. tailored exercise interventions from physiotherapists and exercise physiologists;
- ii. home safety interventions tailored to fall prevention from occupational therapists
- iii. cataract surgery when indicated;
- iv. vision assessment and careful prescription of glasses
- v. podiatry services for those with foot pain;
- vi. fall prevention education to support behaviour change, such as the Stepping On program.

Higher-risk individuals. Older people at increased risk of falls and injury due to multiple risk factors who fall two or more times a year. NSW Health staff can provide or make referrals to comprehensive multifactorial assessments and tailored interventions addressing specific risk factors delivered by healthcare professionals (e.g., doctors, nurses, allied health staff, or multidisciplinary teams). These interventions can include:

- i. interventions listed under Intermediate-risk individuals above;
- ii. medication reviews by pharmacists and/or General Practitioner.
- iii. strategies to address concerns about falling, anxiety, and depression.

4. **Provide education and training for NSW Health staff and others** to deliver and implement evidence-based fall prevention interventions effectively. To do this NSW Health could:
 - i. sustain and expand the training activities of the NSW Healthy Ageing and Fall Prevention Network;
 - ii. seek opportunities to collaborate with Primary Health Networks to facilitate and provide education for GPs and Allied Health Professionals within their geographical areas.
5. **Provide a “one stop shop” for access to resources and program information for consumers and health professionals**, within and outside of NSW Health, and other agencies.
6. **Collate and track data** on the numbers of people presenting to NSW Health Emergency Departments and being admitted to NSW Health facilities after falls to monitor the impact of actions taken.
7. **Seek opportunities for collaborative implementation research** to better understand how to deliver effective fall prevention programs and interventions in NSW Health settings.
8. **Advocate and collaborate for national action on falls** (as there is no current national policy or plan to address falls) and better funding of fall prevention activities under the remit of the Commonwealth, e.g., Medicare rebates for evidence-based exercise and occupational therapy home safety, funding of fall prevention activities in residential and community aged care services, and a national education/awareness campaign for fall prevention.
9. **Collaborate with other relevant government departments, agencies, and community and aged care organisations** (e.g., service providers and advocacy organisations) to ensure a whole-of-sector approach to fall prevention. By fostering cross-sector partnerships and sharing resources, it will be possible to develop and implement a more comprehensive and impactful strategy for fall prevention in older people.

At a glance

Falls are a growing problem

Falls are a common reason that older people are admitted to hospital. It can take a long time for a person to recover from a fall, which may include long stays in hospital. Sometimes they may not recover at all, they may need to move to aged care, or they may even die. The healthcare costs due to falls is more than double the costs due to road trauma.

The number of people over 65 admitted to hospital because of a fall is increasing. In 2010 in NSW, 25,982 people aged over 65 went to hospital following a fall. In 2021 this grew to 41,619. This is not just because there are more people over 65. It is becoming more likely that an older person has to go to hospital because of a fall.

Falls in older people are increasing

due to an ageing population and increasing frequency



In 2021, there were **1.4 million** people aged over 65 years or over living in NSW.

By 2041 there will be **over 2 million** older people in NSW.

Fall injuries among older people are a large and growing problem in NSW.



Every day, there are **114** new hospital admissions of people aged 65+ in NSW because of a fall.

Injuries from falls are a huge burden on health services.

In 2021, treatment of injuries from falls in older people come to a price tag of **over \$750 million**. There were multiple flow-on effects for ambulance services, loss of independence by older people, and family impact.

Older people in NSW **HOSPITALISED** yearly because of a fall:



41,600

IN 2021

60,300

BY 2041



Each year over **26,000** cases of falls are attended by **NSW Ambulance**.

Yearly **DEATHS** of older people in NSW because of a fall:



1,200

IN 2021

1,800

BY 2041



Each year over **395,000** fall-related **PATIENT-CARE DAYS** are needed by people over 65 years.



ADMISSION TO AGED CARE is **twice as likely** for those hospitalised for a fall than for other reasons.



Currently NSW has no falls prevention strategy.

Coordinated action on fall prevention will have quick returns.

Strong evidence suggests that falls can be reduced by 34% in 12 months.

The falls white paper – three areas to improve

The Clinical Excellence Commission held a meeting with experts and wrote this paper about falls. The paper talks about the size of this worsening problem, solutions that we know work and what is already being done. It gives advice to government as well as to organisations and older people themselves on ways to improve the situation. The paper suggests:

- **Each person** can do things to lower the chance of a fall.
- **Organisations and governments** should work to make falls less likely in the community and the healthcare system. Working together, training staff and improving issues that make a fall more likely are important.
- Wider **policy changes** to include advocacy, awareness raising and research.

What can someone do to lower the chance of a fall?

There are many reasons why a person might fall.

- **Mobility, strength and balance.** A person might not have enough strength or balance or be able to react quickly to things around them. Special exercise programs may help. A doctor can review a person's medicines. Sometimes medicines or a combination of medicines can impair one's balance.
- **The environment.** Removing trip hazards, improving lighting or changing poor-fitting shoes can help.
- **State of mind.** A person who cannot think clearly has a higher chance of a fall. Awareness of the risk of falls is also important. A person can lower the chance of a fall by changing the way they go about their daily activities. Avoiding daily activities is not necessarily a good idea. It can mean a person loses the ability to do the activity and may end up increasing the chance of a fall.

What can government and other organisations do?

Government and other organisations are already doing things to help people at risk of a fall. The services are not the same across NSW. We need a state-wide approach to lower the risk of falls. We need to improve and offer more services and enable better coordination. Campaigns can help people in the community to understand risks related to falls.

Reducing falls – good value for money

Adopting the suggestions in this paper could stop many people falling and they are also good value for money. Lots of people take medicines to lower the chance of a heart attack. These medicines can keep people healthy and also save money for the health system. Adopting the suggestions in this paper could stop many people falling and they are also good value for money. The same as using medicines, these suggestions can save money for the health system while addressing the growing number of falls and greatly improving the health of older people in New South Wales.

Part 1.

The growing problem of falls in NSW

Part 1. The growing problem of falls in NSW

This section highlights the problem of falls in NSW, from the perspective of the costs to our health system, as well as the impact on community members and NSW Health staff, and what is forecast as our population continues to age. This is followed by an overview of the complex causes of falls, the evidence for effective interventions, findings from the Falls Roundtable discussion workshop (Part 2), and a brief overview of current and previous initiatives undertaken in Local Health Districts (LHDs) and Specialty Health Networks (Part 3). Eight case studies provide examples of effective programs and activities and, finally, a brief summary of examples from overseas and interstate that have elements that may be adapted to the NSW context.

The burden and cost of falls

The size of the problem

Falls are a significant cause of hospitalisation and death of older people. The impact of these events on the health care system is vast: from ambulance callouts to Emergency Department presentations, hospital admissions, total patient care days and ensuing care including rehabilitation and often, admission to aged care services.

Starting to illustrate the growing problem, the graph below shows the rise in fall injury hospital admissions (as an example, Figure 1) for those aged 65 to 84 years, 85 years and older and both groups combined, over the most recent decade for which data are available.¹

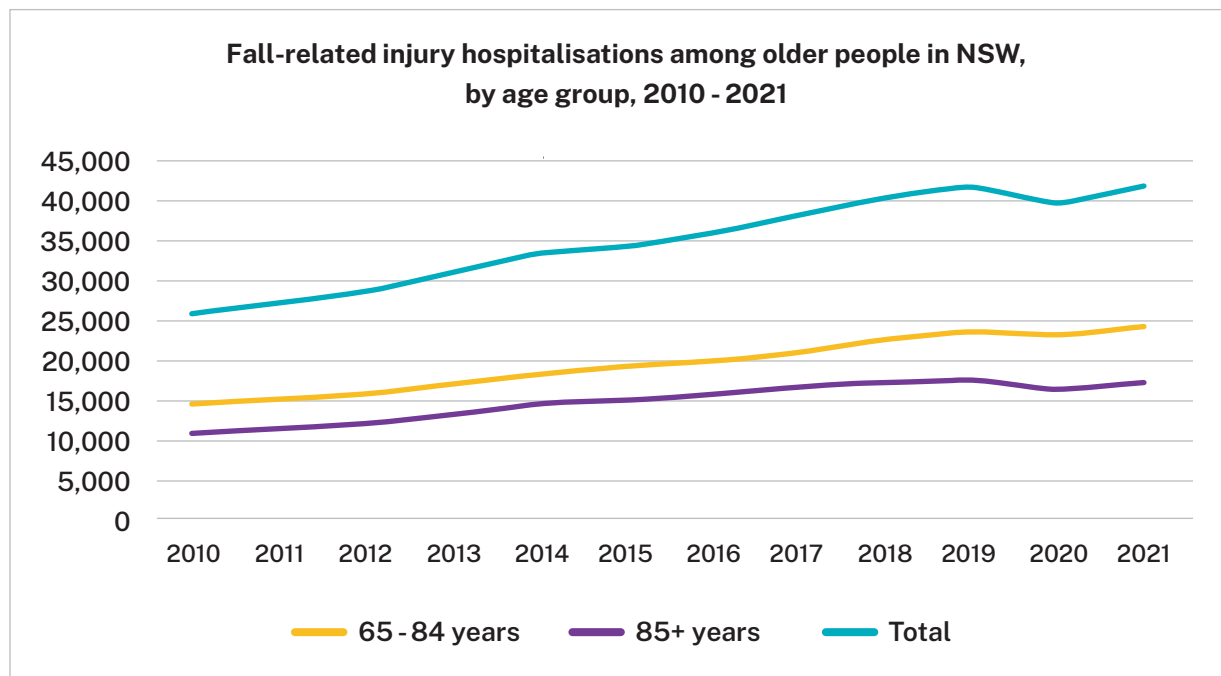


Figure 1: Fall-related injury hospitalisations among older people in NSW, by age group, 2010 to 2021

¹ Data provided by NSW Ministry of Health, Centre for Epidemiology and Evidence

Except for a slight drop in 2020, likely explained by the impact of the COVID-19 pandemic, fall-related hospital admissions have steadily increased from 2010 to 2021. In 2010, there were 25,982 people aged 65 year and over hospitalised in NSW with a fall-related injury. By 2021, this number had increased by over 60% to 41,619 cases. This represents a greater increase than can be explained by the population increase over this time.

Brain injuries associated with a fall are seldom a focus of fall injury statistics for older people and older people are excluded from NSW specialist brain injury services. Yet the increase in the number of people experiencing this serious outcome is even greater than for all fall-related injury hospitalisations over that period. In 2010, there were 1,199 such admissions by older people and by 2021 the number had increased to 2,610, a startling increase of 115% (Figure 2).

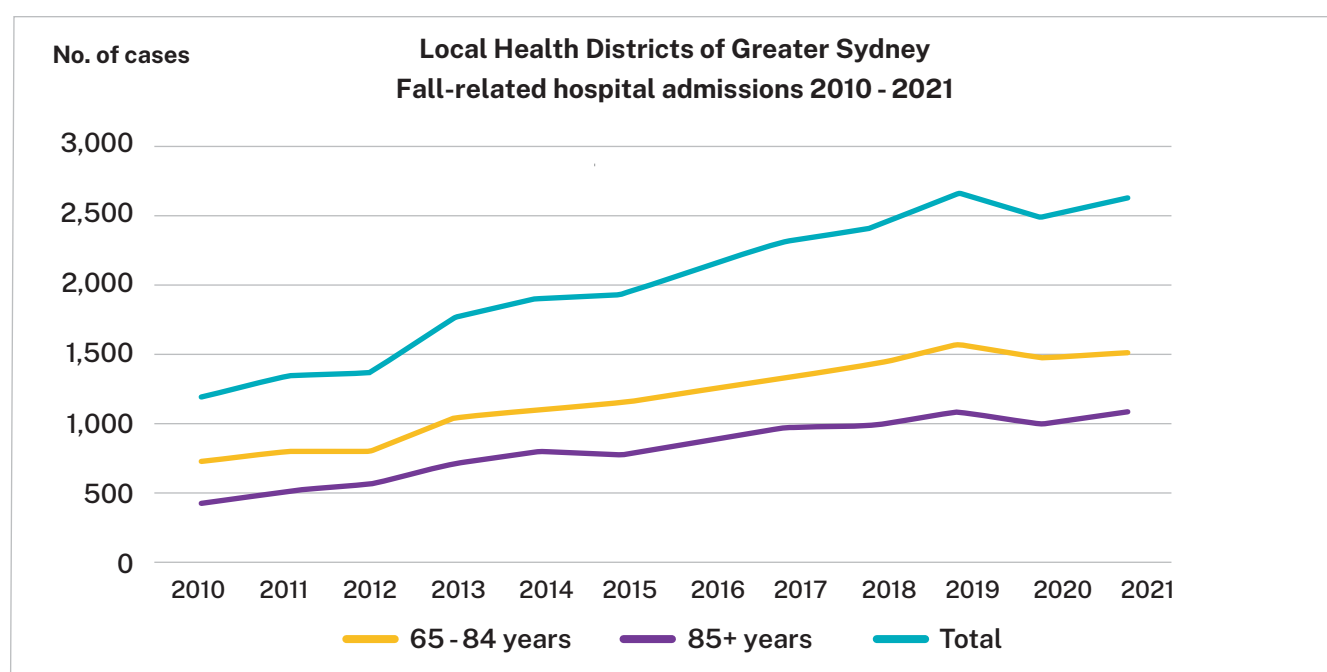


Figure 2: Fall-related traumatic brain injury hospitalisations among older people in NSW, by age group, 2010 to 2021

As shown in Figure 3, the Greater Sydney LHDs have mostly experienced a steady increase in the number of fall-related hospital admissions over the period 2010-2021.

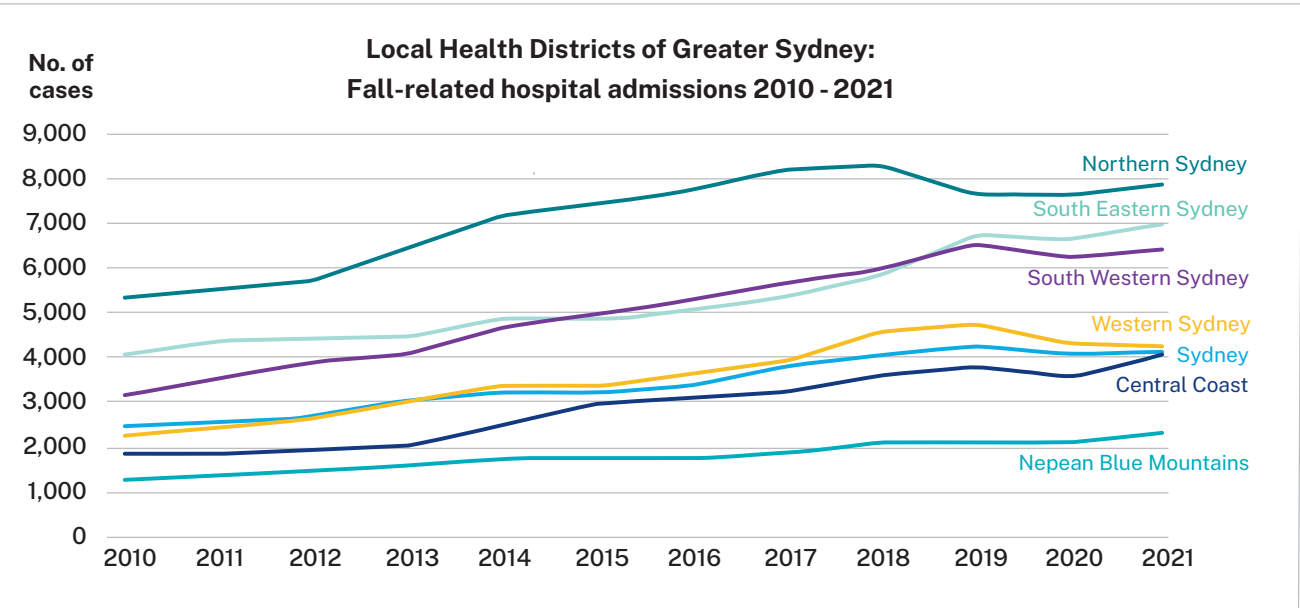


Figure 3: Fall-related injury hospitalisations among older people in Greater Sydney, by Local Health District, 2010 to 2021

NSW regional and rural LHDs, except for Hunter New England, have lower case numbers than Greater Sydney LHDs (associated with smaller population sizes), but they too have seen a steady increase in case numbers over the past decade (Figure 4). Hunter New England saw fall-related hospital admissions among older people rise from 4,349 admissions in 2010 to 7,347 in 2021 (an alarming increase of over 70%). While case number were much smaller in the Far West, this largely remote LHD also experienced an increase of over 70% of fall-related hospital admissions among older people during this period (from 113 to 197 admissions).

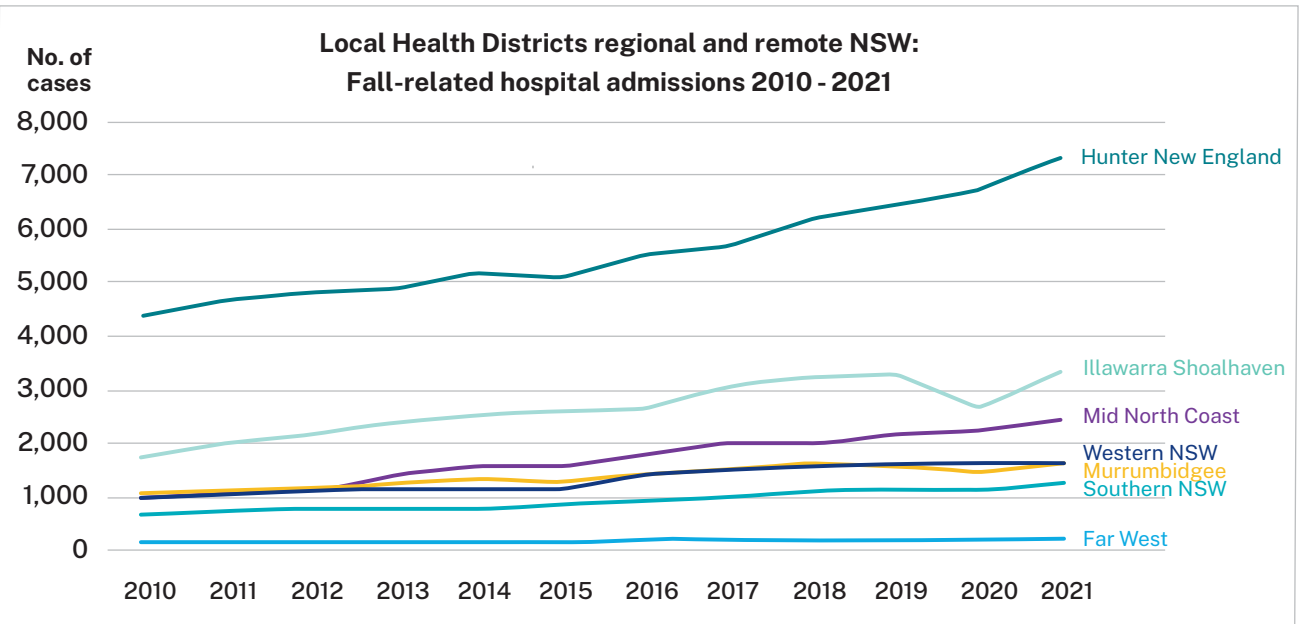


Figure 4: Fall-related injury hospitalisations among older people in regional and rural NSW, by LHD, 2010 to 2021

Looking ahead

The projected increase in the number of people aged 65 years and over is a cause for concern. In 2021, NSW had 1.40 million people aged 65 years or over. By 2031 this is projected to be 1.77 million (a 26% increase). By 2041 there is expected to be 2.02 million in this age group (a 44% increase).² Importantly for fall-related hospital admissions, the most dramatic increase in numbers will be among those aged 85 years and over. In 2021, NSW had 179,000 admissions in this age group. By 2031 this is forecast to grow by 37% to 246,000 and by 2041 to increase by 95% (nearly double) to 350,000. Figure 5 illustrates some of the burden of falls projected to 2041, including hospitalisations, direct health care costs and deaths.





Among people aged 65+ years		2021	2041*
Fall-related injury hospitalisations		41,600	60,300
Total annual bed days		395,200	543,400
Direct health care costs		\$752 million [#]	\$1.09 billion
Deaths		1,216 [^]	1,764

Figure 5: Projections at a glance: the burden of fall-related injury in NSW among older people in 2021 and projections to 2041

* Estimates are based on projected population increase for Australians 65 and over, from: ABS (Explore data) Projected persons, by living arrangement, Australia, Population Projections by Region 2017-2066.

[#] Estimate based on AIHW factsheet: Falls in Older Australians 65 years and over, 2019-20; and NSW accounting for 32.7% of the Australian population over 65

[^] Estimate based on expected population increase and the 2019 figure of 1,174 deaths from healthstats.nsw.gov.au: Fall-related deaths, 65+ years

² ABS: (Explore data) Projected persons, by living arrangement, Australia, Population Projections by Region 2017-2066

Figure 6, below, shows the number of patients aged 65 years and over in hospital care for a fall-related injury on an average day in NSW and predictions for 2031 and 2041. Predictions are based on hospital admissions in 2021 with the average length of stay of 9.5 days.³ It should be noted that the projections for 2031 and 2041 are based only on expected population increases, discussed above. The predictions do not include other factors that may have contributed to what was a much greater increase in cases from 2010-2021, than can be explained by population increases alone. Figure 6 shows that over 300 additional hospital beds will be needed in NSW by 2031, and close to 500 additional beds by 2041, just to cope with the increase in fall-related admissions of older people.

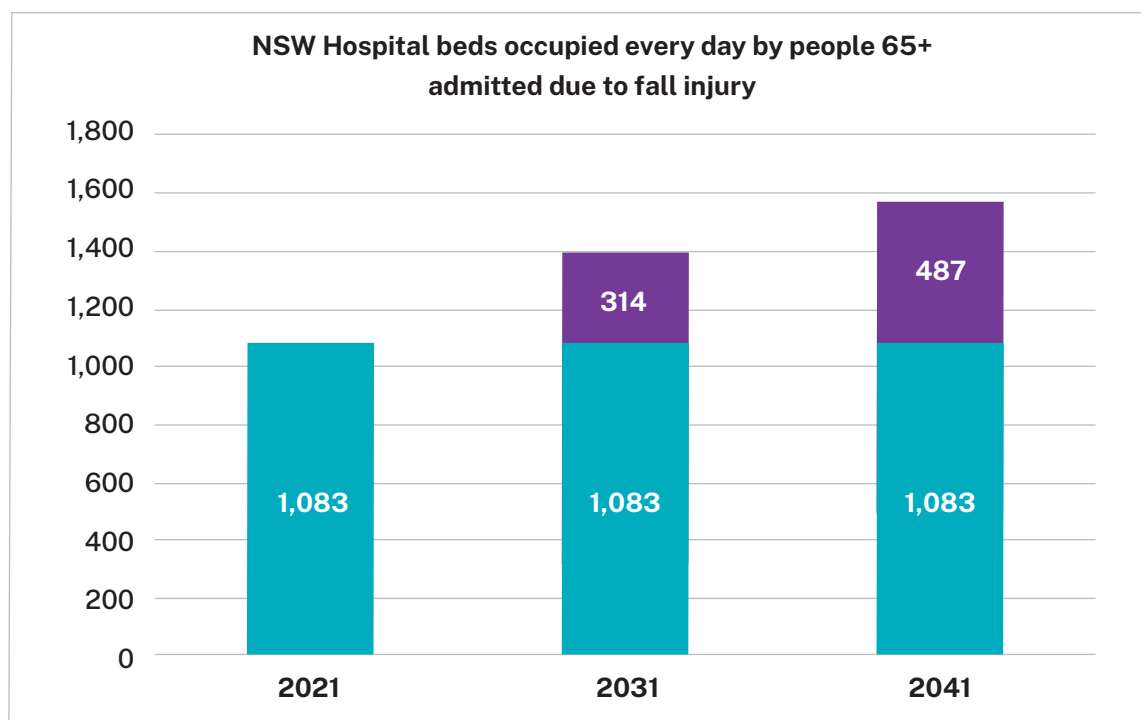


Figure 6: Estimated number of hospital beds in NSW occupied every day by older people admitted with a fall-related injury, 2021 and projected additional cases in 2031 and 2041

Data from NSW Ambulance reveals that there were over 22,000 cases of falls attended by NSW Ambulance in 2018/19, with the subsequent two years seeing a steady increase to over 26,000 cases in 2020/21. Additionally, approximately one in 10 older people hospitalised with a hip fracture are discharged to aged care facilities due to the impact of the fracture.

People falling account for the highest health system costs for injury and are more than double that of road trauma. If we fail to address the issue of falls in older people, the burden on our healthcare system will continue to increase.

³ AIHW fact sheet: *Falls in Older Australians 65 years and over, 2021-22*. Published 6 July 2023.

Impact of falls on individuals and families: Bob's Story

My wife and I have wonderful friends who lived on a small farm just out of town. She was a great hostess, into everything and knew everyone. But one night in hospital, not long after surgery, she had a fall. Things went downhill quickly after that, and she ended up in care. After the fall, a domino effect started, and she never went back to the farm.

It burdens me to tell you that my own dear wife, Helen, became a fall risk. She developed shingles in her eye last February. It really knocked her around and she's still in constant pain. She was on heavy medication and had a couple of busters, and after one of her falls, the ambulance was called.

It's unsettling to be in your pyjamas at 3am with paramedics in your bedroom. Now, I'm not an educated man, but I do know falls don't discriminate.



The family soon realised that a tumble could be the beginning of the end. I tried tying a cord from Helen's wrist to my wrist when we went to bed so that I'd know if she was getting up. A gate was installed at the top of the stairs. A couple of the kids moved back home, and we watched her like a hawk. Things were rough, but we soldiered on and got into fall prevention mode. Trip hazards were removed. We got some night lights. We cleaned up her medication, fine-tuned her diet, and she has physio regularly. We've also recently been to a Stepping On Class. We made great improvements and progress.

You've heard of public health campaigns such as Click, Clack Front and Back and you've also heard about Slip, Slop, Slap. But until a neighbour fell and didn't go home, I hadn't heard of, or even thought about falls. It's obvious that falls are a very significant issue, but they don't get significant attention.



I speak on behalf of the older generations of Aussies and to help get a message to Australia. Falls are a major issue. Helen's fall story is a good story, but sadly, our friend's story is not. Everyone in this country should ask themselves, what will the story be for them and their loved ones? We should shout proactive fall prevention from the rooftops, from Bourke to Bullamakanka, from loved one to loved one, from government to government, until as a nation we do something about it.

The complexity of falls

Falls occur due to a mismatch between physiological function, environmental requirements, neuropsychological function and behaviour.⁴ Recognising the interplay between these factors is crucial for designing effective interventions.

- **Physiological function** plays a vital role in maintaining balance and avoiding falls. This includes having adequate vision to observe environmental challenges, proprioception (awareness of body parts in space) to receive sensory information from the feet, reaction time to respond to unexpected perturbations, and muscle strength to maintain an upright position. The successful coordination of these functions relies on the brain and its ability to ensure postural control (balance). Medications, acute medical problems, and chronic conditions can adversely affect balance control and increase the risk of falls. Cardiovascular and neurological conditions can also directly cause falls.
- **The environmental context** in which individuals perform tasks also influences their fall risk. Challenging environments pose a higher risk. It is important to note that older people with impaired physiological function may experience falls even in seemingly unchallenging environments. Health professionals should consider the context in which falls occur and seek to understand the specific challenges faced by their clients. Factors such as footwear, cluttered environments, and poor lighting can impact how individuals interact with their environment. Inappropriate footwear increases the risk of falls, while compensatory strategies like walking aids or other assistive technologies can help mitigate risk.
- **Neuropsychological factors**, including cognition and psychological state, and behaviour, significantly contribute to the risk of falling. Individuals make choices about which tasks to undertake and how to perform them, influenced by their cognitive abilities, insight, and concerns about falling. Some individuals with a high risk of falling may be able to avoid falls through increased awareness, while others may increase their risk of falling because of long-term avoidance of daily activities and consequent deconditioning. Attitudes and behaviour variations among individuals can explain differences between measured fall risk and actual falls experienced and should be considered in fall prevention efforts.

A systems thinking approach acknowledges the complexity of fall prevention, seeks to understand the interactions between components, and identifies what interventions work best (Figure 7). It is essential to consider the interdependencies between individual (micro), organisational (meso), and policy (macro) level factors, as actions taken at one level can have ripple effects throughout the system. Collaboration, communication, and information sharing between levels are crucial to ensure cohesive and integrated fall prevention efforts.

⁴ Lord SR, Sherrington C, Naganathan V (2022). *Falls in Older People: Risk factors, Strategies for Prevention and implications for practice*. Cambridge University Press (3rd edition).

The **individual** level encompasses individuals, clinical teams at the frontline and community services. Here, targeted actions are necessary to address specific risk factors and enhance fall prevention. Key actions are:

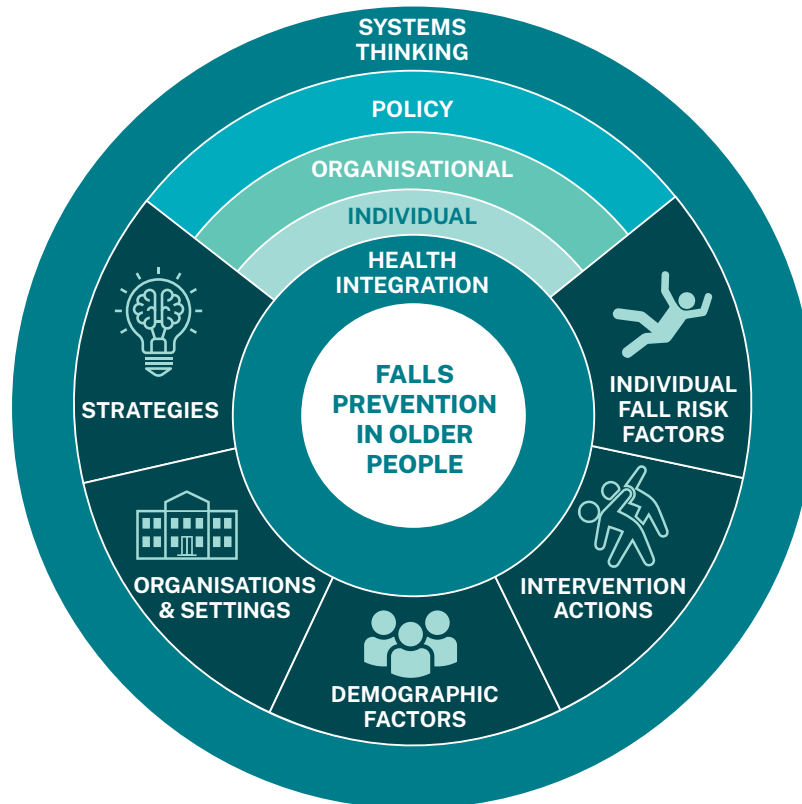
- A life-course approach to physical activity promotion including structured exercise programs to improve balance, functional strength, and mobility among middle aged and older adults.
- Raising awareness in the general community and among health professionals about falls and fall-related injuries.
- Conducting individual fall-risk assessments to identify personal risk factors, and previous falls.
- Conducting clinical assessments to identify impairments in walking speed, balance, muscle strength, and cognition.
- Providing multicomponent programs (e.g., Stepping On) that include home and community safety and fall prevention education in addition to exercise for people at increased risk of falls.
- Providing targeted interventions such as medication review, occupational therapy home fall-hazard interventions, vision assessment, and podiatry services to address specific risk factors.
- Developing referral pathways to ensure appropriate care and follow-up for individuals at high risk of falls.
- Addressing ageist attitudes and stigma around falling among health professionals, exercise providers and older people through education and counselling.

The **organisational** level encompasses organisations and facilities. Here, coordinated efforts are needed to create supportive environments and ensure effective fall prevention practices. Key actions include:

- Collaboration between local, state, and federal governments, non-government organisations, and private entities to develop and implement fall prevention initiatives.
- Integration of fall prevention strategies into primary, secondary, and tertiary healthcare services, aged care settings, and allied health, community exercise and rehabilitation programs.
- Modifying the built environment to reduce hazards, improve lighting, and enhance safety and accessibility.
- Facilitating easy access to evidence-based fall prevention resources for both health professionals and individuals through a central access point. Incorporating fall prevention guidelines into health policies and public policies to promote standardised best practices.
- Capacity building through training programs for healthcare professionals and caregivers on fall prevention strategies and interventions.
- Knowledge mobilisation strategies to actively disseminate evidence-based practices and encourage their adoption within organisations.

The **policy** level encompasses broader health and social care systems. Here, systemic changes are necessary to support fall prevention efforts. Key actions include:

- Developing statewide frameworks or policies to guide investments, responsibilities, and activities in fall prevention.
- Allocation of dedicated funding for allied health professionals in fall prevention and management, addressing funding inequities, and providing funding for coordinated services.
- Advocacy for fall prevention as a public health priority, including the involvement of lobby groups and champions to raise awareness and drive policy changes.
- Research initiatives to expand knowledge on fall prevention, including translational studies on the implementation of effective interventions.
- Engaging with social and mass media to promote fall prevention awareness and education within the community.
- Encouraging commercial participation and innovation to develop technology-driven solutions for fall risk assessment, detection, and prevention.
- Collaboration between policymakers, researchers, healthcare providers, and community organisations to develop comprehensive strategies that address fall prevention across the healthcare system.



STRATEGIES	ORGANISATIONS & SETTINGS	DEMOGRAPHIC FACTORS	INTERVENTION ACTIONS	INDIVIDUAL FALL RISK FACTORS
<ul style="list-style-type: none"> Best practice guidelines Health policy Public policy Capacity building Commercial participation Knowledge mobilisation Social/Mass Media Advocacy Lobby group, champions Research 	<ul style="list-style-type: none"> Local government State government Federal government Non-government organisations Private Aged care Primary, secondary and tertiary healthcare Allied health, rehabilitation Environment, transport Tertiary education 	<ul style="list-style-type: none"> Education Health literacy Age Gender Middle age Socio-economic status Culturally & Linguistically Diverse Aboriginality Rural & remote 	<ul style="list-style-type: none"> Structured exercise Targeted interventions (medication, vision, podiatry, occupational therapy) Educational intervention Clinical assessment Referral pathways Addressing attitudes Built environment 	<ul style="list-style-type: none"> Previous fall Neurological conditions Frailty, sarcopenia Medications Environment & person Slow walking speed Impaired balance Muscle weakness Impaired cognition Concerns about falling Vision

Figure 7. Key elements of fall prevention with the actions needed at individual (micro), organisational (meso), and policy (macro) levels

Evidence-based interventions

Interventions for effective fall prevention include exercise, targeting people with specific risk factors, and multi-factorial assessment and management. Below are some of the strategies for which there is strong evidence of effectiveness.

Fall prevention for older people living independently in the community

Exercise for older people living independently in the community has been extensively studied as a fall prevention intervention. A Cochrane review⁵ of 108 trials confirmed effectiveness of exercise in preventing falls, demonstrating that exercise reduces the rate of falls by an average of 23%.

It is recommended that all older people engage in exercises targeting balance and mobility, which may include strength training. These exercise programs should be undertaken two to three hours per week and should be ongoing. It is advisable for these programs to be designed and delivered by a health professional or appropriately trained instructor. Following these recommendations, exercise can probably reduce the rate of falls by 34%.

People at lower risk of falls can attend community exercise or safely undertake home exercise, while those at increased risk may require individualised programs and supervision or assistance from a health professional or instructor. The review identified different types of exercise programs that were found to be effective in preventing falls, including exercise that primarily targets functional abilities or balance, exercise with multiple components (such as function/balance and strength), and Tai Chi. There is no evidence to support the effectiveness of strength training alone, walking alone, or dance in preventing falls.

In addition to exercise, multi-component interventions have been shown to be effective in preventing falls in community-dwelling older people and residents of aged care facilities. These interventions should include not only exercise but also home and community safety strategies and fall prevention education.⁶ A Cochrane review⁷ focusing on environmental interventions highlighted the importance of reducing fall hazards in the home environment to prevent falls in individuals at high risk. The review emphasised the benefits of tailoring the interventions to meet established criteria and delivering them by occupational therapists.

Furthermore, specific interventions targeted at individuals with particular risk factors have demonstrated effectiveness in preventing falls or fall-related injuries in randomised trials. These interventions include podiatry intervention for people with disabling foot pain, cardiac pacemaker insertion for individuals with cardioinhibitory carotid sinus hypersensitivity, cataract

⁵ Sherrington C, Fairhall NJ, Wallbank GK, Tiedemann A, Michaleff ZA, Howard K, Clemson L, Hopewell S, Lamb SE. Exercise for preventing falls in older people living in the community. *Cochrane Database*. 2019 Jan:1

⁶ Hopewell S, Adedire O, Copsey BJ, Boniface GJ, Sherrington C, Clemson L, Close JCT, Lamb SE. Multifactorial and multiple component interventions for preventing falls in older people living in the community. *Cochrane Database*. 2018 Jul:7

⁷ Clemson L, Stark S, Pighills A, Lamb S, Fairhall N, Jinnat A, Sherrington C. Environmental interventions for preventing falls in older people living in the community. *Cochrane Database*. 2023 Mar:3

removal for those with operable cataracts, gradual reduction in psychoactive medications, vitamin D supplementation for individuals with low vitamin D levels, GP-based medication review, replacement of multifocal glasses with single-lens glasses for outdoor walking, and the use of hip protectors for vulnerable populations. It is important to note that older people with specific health conditions, such as Parkinson's disease or dementia, have a particularly high risk of falls. Therefore, interventions for these populations should be delivered in conjunction with treating healthcare professionals and tailored to the specific stages and symptoms of the disease.

To address the multiple co-existing risk factors for falls, multi-factorial interventions - including a combination of strategies such as medication review, home modifications, exercise programs, vision assessments, and education - can be implemented. Although the effectiveness of different components within these interventions is not fully understood due to the heterogeneity of evaluated programs, some studies have shown positive outcomes.

Fall prevention in aged care settings

People living in residential aged care settings have a particularly high risk of falls. While comparatively less research has been undertaken in such settings, it is now clear that falls can be prevented. The Royal Commission into Aged Care Quality and Safety highlighted the urgent need to address falls in this setting.

Research indicates that routine care for all residents should include multifactorial fall prevention, involving regular reviews of personal and environmental risk factors, as well as staff education and engagement, towards the development of a targeted and individualised fall prevention plan of care based on the findings of the fall risk assessment. By tailoring supervised exercise programs to older people living in aged care settings who are willing and able to participate, the risk of falls can be further reduced. In addition to exercise, the dietary needs of residents should be considered. Dietitians should assess menus to ensure at least three serves of dairy foods each day.

Moreover, daily or weekly vitamin D supplements should be administered to all residents, unless contraindicated. Residents with diagnosed osteoporosis or a history of low-trauma fractures should be prescribed bone protective treatments, unless contra-indicated, to strengthen and protect their bones. Additionally, hip protectors can be considered for reducing the risk of fall-related fractures. Other factors to consider for fall prevention include cognitive impairment, continence management, feet and footwear assessment, syncope evaluation, dizziness and vertigo assessment, medication review, vision assessment, environmental considerations, monitoring, and post-fall management. Each of these areas requires specific attention and intervention based on best practices and guidelines.

Fall prevention in hospital settings

In hospital settings, several recommendations can help prevent falls and promote patient safety.⁸ Firstly, tailored education should be provided to older patients, staff, and families to increase awareness and knowledge about fall risks. Secondly, personalised multifactorial fall prevention interventions should be implemented based on individual risk factors for all older patients, without the need for calculating a fall risk score. For patients with hip fractures, post-operative care in a geriatric orthopaedic service that offers comprehensive assessment, management, and rehabilitation is recommended. Home safety interventions by occupational therapists should be arranged for older people at increased risk of falls after hospital discharge. Other good practice points include identifying fall risk factors, addressing balance and mobility limitations, managing cognitive impairment, continence issues, feet and footwear problems, syncope, dizziness and vertigo, medication review, nutrition, vision problems, environmental considerations, monitoring, restraint alternatives, vitamin D supplementation, osteoporosis management, and post-fall management. Implementing these recommendations can contribute to comprehensive fall prevention and enhance patient safety in hospital settings.

Cost-effectiveness of fall prevention

Falls are very costly for our health systems. Provision of fall prevention programs would require investment as all interventions have costs. Cost-effectiveness analysis considers both costs and outcomes and enables us to compare different intervention approaches. These methods are well developed and are used explicitly in the public funding of pharmacological interventions. Yet there is little explicit investment in preventive interventions that involve non-pharmacological strategies. Use of similar economic analysis methods to those used to guide decisions regarding the funding of drug interventions reveals that investment in fall prevention would be considered cost-effective using accepted thresholds, particularly for exercise⁹ and home safety¹⁰ interventions.

⁸ Sherrington C, Lord S, Menant J, Dyer S. Australian Fall Prevention Guidelines update. Draft recommendations and Good Practice Points, Prepared for the Australian Commission for Quality and Safety in Healthcare based on evidence updates. April 2023.

⁹ Pinheiro MB, Sherrington C, Howard K, Caldwell P, Tiedemann A, Wang B, Oliveira JS, Santos A, Bull F, Willumsen J, Michaleff ZA, Ferguson S, Mayo E, Fairhall N, Bauman A, Norris S. Economic evaluations of fall prevention exercise programs: a systematic review. *Br J Sports Med*. 2022 Dec;56(23):1353-1365.

¹⁰ Clemson L, Stark S, Pighills A, Lamb S, Fairhall N, Jinnat A, Sherrington C. Environmental interventions for preventing falls in older people living in the community. *Cochrane Database*. 2023 Mar:3.

International and national guidelines

The 2022 World Guidelines for Falls Prevention and Management for Older People¹¹ overview the extensive evidence base and provide a comprehensive perspective on fall prevention and management. These guidelines describe a continuum of individual risk: from low risk (primary prevention in the community), Intermediate risk (some health service input required) to high risk (multifactorial health input required).

The Australian Commission on Safety and Quality in Healthcare will launch a revised version of the Australian Fall Prevention Guidelines in early 2024. The current version circulated for consultation is shown in Appendix 2. This draft version of the updated Australian Fall Prevention Guidelines also defines individuals as being at low, intermediate or high risk of falls but have suggested additional interventions for the intermediate group based on further evidence reviews and adaptation to the Australian context. The recommendations in this document are closely aligned with the draft Australian guidelines.

Related concepts

Frailty

Frailty occurs from de-conditioning and illness on a background of existing functional decline that is often under-recognised. Frailty is not an inevitable result of ageing and can be treated and in some cases, even reversed. People who are frail are at increased risk of falls. The NSW Agency for Clinical Innovation has a Taskforce on Frailty with a website providing resources on assessment and management including nutrition and resistance training for people with frailty.

Sarcopenia

Sarcopenia is a “progressive and generalised skeletal muscle disorder involving the accelerated loss of muscle mass and function that is associated with adverse outcomes including falls...”¹². It is linked with health conditions as well as genetic and lifestyle factors across the lifecourse. Exercise and nutrition are core to the management of sarcopenia.

Mobility impairment

Mobility refers to “bodily movement in daily activities” according to the World Health Organisation’s International Classification of Functioning, Disability and Health (ICF) and has sub-domains of “rolling over, sitting, standing, and walking.” Difficulty or inability to walk 200 metres is reported by 1.2 million Australians¹³. Impaired mobility is one of the strongest risk factors for falls.

¹¹ Manuel Montero-Odasso and others, *World guidelines for falls prevention and management for older adults: a global initiative*, *Age and Ageing*, Volume 51, Issue 9, 2022, afac205.

¹² A.J. Cruz-Jentoft, A.A. Sayer. *Sarcopenia*. *Lancet*, 393 (2019), pp. 2636-2646.

¹³ *People with disability in Australia. 2022. Canberra: Aust. Institute of Health and Welfare.*

Dementia and delirium

Dementia is a syndrome that can be caused by a number of diseases that typically leads to deterioration in cognitive function (i.e., the ability to process thought) beyond what might be expected from the usual consequences of biological ageing. Delirium is a sudden change in thinking and behaviour often caused by an infection, surgery or a medication change. People with dementia or delirium should receive evidence-based interventions as outlined in the Australian Clinical Practice Guidelines for the Management of Delirium in Older People and Australian Clinical Practice Guidelines and Principles of Care for People with Dementia.

Physical activity

Physical activity refers to “bodily movement produced by skeletal muscles that requires energy expenditure”. There is strong evidence that exercise, a type of physical activity, has a role in the prevention and management of falls, frailty, sarcopenia and mobility impairment as well as many other health conditions. The World Health Organisation recommends that older adults undertake 150-300 minutes of moderate intensity physical activity each week or 75-150 minutes of vigorous activity, and strength training at least 2 days per week and include activity that emphasises functional balance and strength on at least 3 days per week.

Part 2.

Insights on falls and actions for fall prevention in NSW from CEC Roundtable

Part 2. Insights on falls and actions for fall prevention in NSW from CEC Roundtable

In April 2023 the NSW Clinical Excellence Commission (CEC) hosted a roundtable on falls with NSW Health leaders and key experts. Insights from the participants can be grouped into five themes: People and Society, Policy and Leadership, Co-ordination and Linkages, Programs and Services, and Active Environments. These are summarised in Table 1 and discussed below.

Table 1. Summary of roundtable discussions

People & Society	<ul style="list-style-type: none"> • Ageist attitudes and the belief that falls are inevitable in ageing persist and need to be eliminated. • Older adults to understand the importance of exercise and nutrition and are open to adopting new technology with support. • "Fall prevention is everyone's business" remains relevant. Societal views can be changed.
Policy & Leadership	<ul style="list-style-type: none"> • Lack of a state framework or policy for guiding investment and activities in fall prevention. • Funding, resources, and support for fall prevention are uneven across LHDs and PHNs. • Focus needs to shift back to community fall prevention and management for older people.
Coordination & Linkages	<ul style="list-style-type: none"> • Efforts and evidence-based programs exist, but overall coordination is lacking. • Consumers face challenges navigating the complex healthcare system to access services. • Bridging the gap between acute care and secondary care requires targeted interventions, strengthened networks, and integrated pathways. • One site for easy access to resources, practical information, and for health professional upskilling.
Programs & Services	<ul style="list-style-type: none"> • Integration of fall services into healthcare and the community are sparse and need to be developed, including dedicated funding for allied health. • Access and referral pathways to evidence-based programs and interventions for fall prevention should be increased. • Regional health faces challenges with workforce retention and recruitment - technology-based solutions offer potential opportunities. • Fall prevention should adopt a life course approach.
Safe Active Environments	<ul style="list-style-type: none"> • Prioritise safe environments and walkability in local communities to promote physical activity. • Enhance access to community transport to facilitate participation in programs and initiatives.



I think sometimes in health there is as an ideological divide about what our role is when it comes to supporting our ageing community ... We have a large focus on safety and risk avoidance but potentially need to strengthen our emphasis on what we will be doing outside of the acute hospital setting. We need a strategy around how we manage this not just because the numbers tell us it's a smart thing to do, but because as a society, it's an incredibly important thing to do.

Deb Willcox, AM

Deputy Secretary for Health System Strategy and Patient Experience

People and Society

Ageist attitudes of health professionals and older people themselves continue to persist, along with the belief that falls are an inevitable part of ageing. Efforts must be made to eliminate the stigma of falling and to proactively address and challenge such stereotypes within the healthcare system. Older people need to recognise the importance of strengthening their legs, improving their balance, assessing their nutrition and learn to be aware of hazards in their environments. They are also open to embracing new technologies when there is a need and with appropriate support. Societal perceptions can be shifted through various means; such as implementing public education campaigns (e.g., audio-visual, TV advertisements, advertising on buses); incentivising exercise programs for older people; involving men in prevention activities; and promoting intergenerational engagement by educating children about safety measures for their grandparents. “Fall prevention is everyone’s business” continues to hold relevance and significance.

Policy and Leadership

There was agreement that there is a lack of a state framework or policy to guide investment, responsibilities, or activities in fall prevention. The last NSW Health strategy for Prevention of Falls and Harm from Falls among Older People ended in 2015 (PD2011_029). The policy set out actions for fall prevention in three key domains: health promotion, NSW Health clinical services and NSW Health residential aged care services (multi-purpose services and State Government Residential Aged Care Facilities). The increasing costs of hospitalisations and well-documented burden of falls underscore the need for action. The current Australian fall prevention guidelines were released in 2009 (National Best-Practice Guidelines, Preventing Falls and Harm from Falls in Older People for hospital, community and residential aged care settings) but the Australian Commission on Safety and Quality in Healthcare (ACSQHC – the Commission) will launch their revised version in early 2024.

The current version circulated for consultation is shown in Appendix 2. The evidence strongly supports the effectiveness and cost savings of the proposed interventions. However, the magnitude and complexity of the problem and competing priorities pose challenges. There is inequity of funding, resources, and support within and across LHD/Specialty Health Networks (SHNs) and Public Health Networks (PHNs). Policy shifts have resulted in reduced funding,

especially for co-ordinated services for people living in the community. There is a pressing need to refocus on community fall prevention and management services for older people. The current political impetus, both the Australia and New Zealand Falls Prevention Society's call for action ("Why investing in falls prevention across Australia can't wait") and the CEC and NSW Ministry of Health in this white paper present an important opportunity for addressing these issues and calls for transformative change.

Co-ordination and Linkages

There are pockets of excellence and evidence-based programs in place, but overall co-ordination is lacking. Consumers face challenges navigating our complex health care system to locate fall prevention and management services when needed. Bridging the gap between acute care and secondary care requires targeted interventions. Strengthening networks across the healthcare system is crucial to establish integrated pathways and referral systems. It is recommended to have a centralised site for access to resources, similar to what NSW Health achieved during the COVID-19 pandemic, providing easy access to practical information, resources and opportunities for health professional upskilling.

There is an opportunity to review and clarify roles and responsibilities in fall prevention and management across services. For example, at present community allied health professionals primarily focus on assessment rather than intervention. This is exacerbated due to limitations in availability of staff and long waiting lists for follow-up of people at risk. Organisations need to take responsibility for understanding the gaps and seeking opportunities for engagement in fall prevention and management within the healthcare system and across services. Thinking innovatively at a local level can also involve partnerships and collaborations to ensure integration and linkages.

“

Paramedics routinely walk into people's homes in an unplanned way and see that person's house as is. It gives them a really unique opportunity to be identifying issues and some of those psychosocial aspects that perhaps you don't normally see. So, I think there are some unique opportunities there.

Stephanie Looi

Associate Director, Clinical Programs, NSW Ambulance

There are opportunities for GP practices to engage in fall prevention. For example, North Sydney's PHN engagement with the iSOLVE project which included practical outcomes such as the online GP Fall Risk Assessment Tool¹⁴, integration into HealthPathways and suggested options such as Chronic Disease Management Plans. Further, the RACGP report on Social Prescribing supports GP engagement in early recognition of comorbidities and access to a range of local community services. These initiatives enable GPs to discuss with their patients about their risk of a fall and refer to other alternatives such as balance and strength exercise programs to prevent falls.

A NSW Health Value Based Health Care initiative aims to support a more integrated and co-ordinated approach to preventing deterioration, reducing avoidable hospital presentations and admissions for people with chronic health conditions and improving the health of older people. The CEC Older Persons Patient Safety Program is actively participating and contributing to this initiative.

There is a need for more accessible processes and data to inform gains, particularly in areas like re-hospitalisations and Emergency Department presentations.

Programs and Services

It was agreed that there is a need for better integration of fall prevention services into the healthcare system and the community. Services available vary from place to place and there is a lack of knowledge of available services or of referral pathways. Dedicated funding for allied health in fall prevention and management would help address equity concerns. The forthcoming release of the Commission's National Fall Prevention Guidelines will help ensure that delivered programs are evidence-based. However, assessing and referring individuals alone is insufficient when there are a lack of secondary prevention, management and intervention programs. Access to evidence-based programs including targeted exercise and other initiatives needs to be improved for populations at risk of falls or those who have already experienced a fall. There is a call to increase the availability of programs like Stepping On, which offer comprehensive multicomponent education and intervention programs. A practical solution could include implementing a voucher system through Service NSW to increase access and uptake of these services.

There is a need to increase the availability of multidisciplinary assessment and tailored interventions for individuals at high risk, such as those with frailty or a history of multiple falls in the past year. This could be accomplished through dedicated teams or formal multidisciplinary clinics. Developing rapid and practical risk assessment tools that can be used in an out of the hospital environment, such as during ambulance visits, could expand early pathways to services.

¹⁴ GP Fall Risk Assessment Tool. Available: Falls Prevention & Healthy Ageing Network: <https://fallspreventiononlineworkshops.com.au/>



It is important to tap into those resources we have already like integrated care services. We need to work at how we can bring in GPs and our aged care providers to identify those people [at risk] and have the necessary supporting services. For example, how do we provide the dietetics or exercise physiologist services or others like occupational therapy, pharmacy, and nursing? These are all essential to prevent falls. We know there's a significant amount of evidence to support that.

Andrew Davison

Chief Allied Health Officer, Ministry of Health

Expanding the scope of practice of allied health professionals to work with community exercise groups would cater better for frail older people and ensure their focus on fall-specific exercises, such as balance training. The availability of community groups to support ongoing exercise engagement is essential for many people transitioning from a targeted program, such as Stepping On.

Regional health has specific challenges, including workforce retention and recruitment. The integration of fall prevention programs and services may look different in regional locations due to challenges with workforce retention and recruitment and access to local services. It is important to consider the replicability of integrated programs and services in regional locations including the use of digital/virtual care delivery models.

Group programs were seen as ways of increasing social connectedness and the use of technology and virtual/hybrid programs was seen as an opportunity.

Fall prevention should not only focus on preventing falls but also adopt a life course approach embedded in the National Injury Prevention Strategy and prioritised in health promotion efforts. The NSW Future Health Strategic Framework provides the strategic framework and priorities for the whole system over the next decade. Strategy 3 states: Investment is made in keeping people healthy to prevent ill health and tackle health inequality in our communities. One aspect of this strategy is to: Support healthy ageing ensuring people can live more years in full health and independently at home.

Safe Active Environments

Creating safe environments that promote physical activity should be a key focus when striving to improve walkability in local communities, including the incorporation of green spaces. Additionally, ensuring access to community transport can greatly facilitate participation in various programs and initiatives.

Part 3.

Examples of local solutions

Part 3. Examples of local solutions

Examples of current fall prevention initiatives from NSW

The **NSW Fall Prevention and Healthy Ageing Network** is managed by Neuroscience Research Australia (NeuRA)¹⁵ under contract with the Clinical Excellence Commission (CEC). The purpose of the Network is to support practitioners to improve the lives of older Australians through healthy ageing initiatives with a focus on preventing falls and fall-related injuries. It provides information, state forums and networking opportunities, and has been a crucial source of understanding the gaps as well as regular updates on evidence-based practice by both researchers and clinicians. The Network provides educational resources and online learning modules including i-Solve (for GPs) and runs on-line exercise training programs and face-face workshops for fitness leaders, physiotherapists, exercise physiologists and health professionals. Each year the Network supports the promotion of April Falls Day/Month and the development of resources.

Most LHDs have appointed a **Fall Prevention Co-ordinator** (many of these positions are part-time), to provide support for the implementation of the Australian Commission on Safety and Quality in Healthcare (ACSQHC) Commission's National Standard 5: Comprehensive Care within LHD/SHNs. Their focus is on improved intervention to prevent falls in hospitals. Some roles also provide support for community-based initiatives and programs such as Stepping On. There is variability in the how these positions function, having been moved away from Health Promotion into areas such as Clinical Governance and Nursing and Midwifery, resulting in a lack of focus on community fall prevention activities.

The CEC, as part of the NSW Ministry of Health, Leading Better Value Care (LBVC) initiatives used the Institute for Healthcare Improvement (IHI) collaborative methodology to deliver the Falls in Hospital Collaborative. Forty-three multidisciplinary teams representing hospitals from across 16 LHD/SHNs were guided to implement a variety of evidence-based and best practice strategies. From November 2017 – March 2019 the average number of falls per month resulting in serious injury for the 70-years and older cohort **reduced by 25% in the participating hospitals**. At an individual ward level, 32 teams participating in the collaborative experienced greater than 100 days without a serious fall injury and 10 teams had greater than 400 days without a serious fall injury.

The CEC Older Persons' Patient Safety Program (OPPSP) has evolved from the work of the CEC Pressure injury Prevention Project and the NSW Fall Prevention Program including the LBVC Falls in hospital collaborative. A model of care, OPPSP Comprehensive Care – Minimising Harm (CC-MH) has been developed to align with the Commission's Comprehensive Care Standard. This model has a focus on safe care for older people especially those with frailty, cognitive impairment and decreased mobility. There is a shift to identifying individual patient risk factors and implementing multidisciplinary patient focused interventions (fall and pressure injury risks have been included in the model as component of safe care). To support implementation of the CC-MH model a CC-MH Quality Improvement toolkit has been developed. The OPPSP team works with LHDs/SHNs to implement QI initiatives to drive improvements in the delivery of safe care.

¹⁵ <https://fallsnetwork.neura.edu.au>

Stepping On is a community-based multicomponent intervention (Level 1A evidence – the strongest category of evidence) that has been offered in many LHDs since 2012. Stepping On is a fall prevention program underpinned by behaviour change and exercise, involving seven weekly group education sessions on a variety of fall prevention topics and home exercise. It is targeted at community-dwelling people aged >65 years with intact cognition and who walk unaided but who are at risk of falls. Stepping On has been found to reduce falls by 31% in a randomised trial in Australia¹⁶. Recent studies suggest that Stepping On mitigates fall related healthcare costs, particularly in the short term^{17, 18}.

Across the state there are service gaps in community settings that provide follow-up for people who have had a fall or are at risk of a fall, including for those patients discharged from hospital. There are few **multidisciplinary falls clinics** and long waiting lists for occupational therapy and physiotherapy intervention. In some LHDs rehabilitation services provide fall prevention exercise interventions. There is work to be done to establish appropriate follow-up and access to multidisciplinary intervention for people at risk of a fall.

The NSW Health **Active and Healthy website** provides searchable links to a range of exercise programs (with a search filter for fall prevention) in local areas as well as information and resources on how to stay active and healthy. A free information booklet, *Staying Active and On Your Feet* is available to order online¹⁹.

Aged Care Service Models or Geriatric Outreach services provide rapid access to medical and nursing care for people experiencing rapid decline and are living in residential aged care facilities (RACF) or in the community. These services can alleviate unnecessary referrals to hospitals. Most provide either a geriatrician-led multidisciplinary team or a nurse triage/led model.

Case examples of successful solutions

NSW has witnessed several successful programs and collaborations making a significant impact on reducing fall-related incidents and improving the well-being of older people. This section highlights a selection of fall prevention initiatives and successful collaborations that have been well received in NSW. By examining these activities, we can gain valuable insights into best practices, evidence-based interventions, and successful partnerships that have proven effective in mitigating falls and promoting the safety and independence of older people. These examples are all local initiatives rather than co-ordinated actions but provide valuable insights into programs that could be adopted elsewhere and scaled up.

¹⁶ Cumming RG, Kendig H, Swann M, Heard R, Taylor K. The effectiveness of a community-based program for reducing the incidence of falls among the elderly: A randomized trial. *Journal of American Geriatrics Society*. 2004;52(9):1487-94.

¹⁷ Paul S, Khalatbari-Soltani S, Dolja-Gore X, Clemson L, Lord SR, Harvey L, Tiedemann A, Close JCT, Sherrington C. Fall-related health service use in Stepping On program participants and matched controls: A non-randomised observational trial within the 45 and Up Study. *Age & Ageing*. 2022 Dec 5;51(12).

¹⁸ Sherrington C., Lord S., & Clemson L. (2023) *Stepping On scale up in NSW: evaluation studies and related publications*. Report available: Centre of Research Excellence in the Prevention of Fall Related Injuries. <https://crepreventfallsinjuries.org.au/>

¹⁹ <https://www.activeandhealthy.nsw.gov.au>

CASE EXAMPLE 1:

Implementation and Pathways in a metropolitan Local Health District

Northern Sydney Local Health District (NSLHD) and Sydney North Primary Health Network (SNHN) joined forces to establish a comprehensive care pathway focused on Healthy Ageing and Frailty. Integral to success was pooling of funds to commission services from suitable providers. Margaret Armstrong, who has served as the Fall Prevention Co-ordinator for NSLHD for over a number of years has enabled numerous projects and partnerships within her LHD teams. She has also successfully garnered support and funding for fall prevention initiatives.



One such initiative, the Stepping On program, a multi-component fall prevention education and exercise program, has run in NSLHD since 2009. NSLHD has a partnership with Royal Ryde, which provides management and administrative support for Stepping On. Nadia Williams, their dedicated Stepping On Coordinator has been a strong advocate for these programs. She remains committed to building capacity through staff training and support, which translates into sustained staff engagement and positive outcomes for participants.

Recognising that the benefits of exercise are lost if they are not continued following programs such as Stepping On and outpatient-based fall prevention groups, NSLHD has long aspired to reinstate physical activity classes tailored to frailer older adults. This became a reality through a partnership with the Sydney North Health Network Collaborative Commissioning Project, which provided additional funding. This funding served the dual purpose: reducing wait lists for Stepping On and implementing follow-up Healthy Lifestyle Physical Activity classes.

As a result, graduates of Stepping On and outpatient-based fall prevention groups, are now offered two free terms at the newly developed Tone and Balance classes, for those at higher risk of falls or frailty. Outpatient fall prevention programs are short-term, group-based exercise programs offered post discharge, and facilitated via hospital or community allied health departments, funded by the LHD and are integral components of Rehabilitation and Aged Care Departments.

Facilitators and Current Challenges

Margaret Armstrong also convenes the NSLHD Community and Supported Care Falls Prevention Committee, a multidisciplinary body including a wide range of stakeholders. This committee actively develops and promotes collaborative fall prevention initiatives for community and supported care settings. It also facilitates opportunities for cross-agency activities aimed at reducing fall-related hospital admissions.

Margaret's strategic positioning of her coordination role within the Population Health Promotion Department has been instrumental in sustaining fall prevention activities. This positioning has allowed her to maintain vital links with acute hospitals, community service providers, allied health professionals and other stakeholders.

The unpredictable nature of program funding, which often operates on a year-to-year basis, has been challenging. Margaret believes that coordinated community-based fall prevention activities should be integrated into a broader action plan for NSW.

CASE EXAMPLE 2:

Falls, Balance and Bone Health Clinic

The Falls, Balance and Bone Health Clinic at Prince of Wales Hospital in Sydney has been providing care since 2005 to older people living in the community with the aim of reducing the risk and consequences of falls. This clinic operates based on strong evidence supporting the benefit of multifactorial fall risk assessment and tailored interventions.

Referrals to the clinic come from various sources including GPs, the Emergency Department, Endocrine Department, and fracture/orthopaedic clinics. All referred people undergo a comprehensive evaluation by a geriatrician and physiotherapist.

- Many people are then directed towards an exercise intervention or participation in the Stepping On program. The link with the Stepping On program is strong, with many patients completing program and then being encouraged to continue with another exercise program upon its conclusion. For those requiring supervised exercise, referrals are made to the Staying On program which is run by physiotherapists. However, most people are linked up with existing community exercise groups, such as AIM for Fitness and WAVES. These programs promote lifelong commitment to exercise.
- Patients with complex needs and multiple issues that require ongoing attention are often referred to the Integrated Rehabilitation and Enablement Program (iREAP) at the War Memorial Hospital.
- Assessing bone health is a core component of the evaluation by the geriatrician, with many people already identified as having sustained a fracture or be at high risk of future fracture. Diagnostic tests for osteoporosis are conducted and treatment options are discussed before recommendations for longer-term management are provided to the GP.



*(Left to Right): Ms Danielle Clarke,
Dr Catherine McVeigh & Professor Jacqui Close*

The ethos of the clinic is centered around empowering patients to make informed decisions for themselves by providing them with advice based on best available evidence. Consequently, the team collaborates with each individual to prioritise interventions based on their likely benefits and the person's willingness to undertake them.

For example, the team may recommend reducing or discontinuing centrally acting medications where possible, modifying medications that contribute to postural hypotension, avoiding the use of multifocal glasses outdoors, or making home environment modifications with safety in mind.

CASE EXAMPLE 3:

Managing falls and frailty in the divide between hospital and home

Able and Stable is a fall prevention program developed to reduce the risk of frailty and falls in older people in South Western Sydney Local Health District. It was initiated 15 years ago by Minh Pham, a dedicated physiotherapist at Fairfield Hospital. Minh recognised the pressing need to bridge the gap in supporting frailer at-risk people post discharge. Referral to the program come from various sources, including the hospital emergency department, inpatient acute wards, occupational therapists and other allied health professionals and local general practices.



The program runs four times a year, over nine weeks with a 3-month booster session. Its core components are functional balance training activities, individualised strength training and fall prevention education covering topics such as home hazards, vision and lighting, nutrition, continence, injury prevention and safety outdoors. The exercise sessions are run as a circuit or group exercise, often engaging student support and medical doctors. Emphasis is placed on fostering a sense of enjoyment and engagement, considering them key elements. Clinical assessments, such as sit to stand, tandem stance, timed up & go, grip strength and concerns about falling, consistently demonstrate a reduction in fall risk following the program. These assessments are used to provide feedback to participants and to advocate for the program. GPs always receive a letter reporting their patients' engagement in the program.

The program's sustainability over the years can be attributed to Minh's commitment and passion, supplemented by the recent addition of physiotherapist Happy Chua, along with administrative funding. Critical to its success has been top-down support from the medical director and a close partnership with the NSW Fall Prevention Network and Healthy Ageing Network. The program has evolved through continuous engagement with the Network, which serves as a reliable source of evidence-based knowledge, inspiration and ideas through newsletters and forums. Minh actively promotes the program and its participants, seizing opportunities from in-services to health professional forums. Notably, a Patient Journey video, Colin's Story, was developed by the Clinical Excellence Commission to advocate and share their work.

Graduates of the Able and Stable program are introduced to the NSW Health Active and Healthy website and encouraged to take part in community activities. Minh's role has evolved to include coaching local community groups in evidence-based fall prevention. She has identified the lack of suitable community exercise groups for frailer older people to support ongoing exercise. Able and Stable has expanded to other major hospitals in the area, using an 'apprentice' model with the Fairfield team providing training and guidance.

CASE EXAMPLE 4:

Community Allied Health delivering evidence-based interventions

Allied Health offer a range of evidence-based interventions, often delivered through community health or aged care service or as part of multidisciplinary teams. Three illustrative examples exemplify their impact:



Implementing functional exercise

Lyndell, a community physiotherapist, has implemented the *Lifestyle Functional Exercise (LiFE)* program to prevent falls into her everyday clinical work with older people. LiFE is an evidence-based fall prevention program where functional balance and lower-limb strength exercises are embedded into daily activities and routines. This approach encourages incidental exercise, addressing modern day decline in mobility. It is particularly suited to those with sedentary lifestyles, enabling them to

exercise safely and independently.



Occupational therapy home visits with a focus on fall hazards

Genevieve, a community occupational therapist, understands the efficacy of *home safety assessments in reducing falls in older at-risk adults*. She tailors her interventions to each individual and their unique home environment. Many older people may not “see” hazards or behavioural risks within the homes due to changing strength and mobility. Home safety assessment provide an objective review of their ability, suggesting simple changes such as removing hazards or setting up

assistive equipment to enhance safety and restore confidence. A collaborative approach is key, prioritising changes based on the person’s and family’s perceived risks and feasibility, ultimately fostering engagement and acceptance of necessary modifications.



Home Medicine Reviews

Lisa, an experienced pharmacist, conducts *Home Medicine Reviews (HMR)*. Through HMRs, pharmacists identify various medication-related fall risks for older people living at home, ranging from misunderstanding why they are taking a medication to potentially dangerous drug interactions. By improving medication compliance and health literacy, HMRs empower patients to manage their health and medications safely.

Simple interventions, like questioning the necessity of long-standing medications, can have profound effects. Lisa frequently encounters issues such as redundant blood pressure medications, unnoticed interactions between over-the-counter products and prescribed medications, miscommunication between specialists and GPs regarding treatment rationale and unaddressed health and lifestyle priorities.

CASE EXAMPLE 5:

Collaborations and partnerships

Aunty Roma's is a grassroots Aboriginal culturally specific fall prevention program developed to address the risk of frailty and falls in older Aboriginal people in South Western Sydney Local Health District. Launched in 2018, Aunty Roma's adopts a multidisciplinary approach, representing a collaborative fall prevention project jointly led by the Aboriginal Chronic Care Program (ACCP)



team and Fairfield hospital's Aboriginal Liaison Officer and Physiotherapy department. Referrals come from wider distances within the region rather than just the local area.

Aunty Roma's program was initiated by physiotherapist Minh Pham, who was inspired to take action after reading a newsletter from the NSW Fall Prevention Network newsletter reporting the elevated fall risk; yet lack of resources for managing falls in this underserved population. The collaboration between ACCP and Fairfield Hospital resulted in the development of the program, with

ongoing involvement from the ACCP team in staffing and transport support while Fairfield Hospital provides its expertise and facilities.

Aunty Roma's is a nine-week program adapted from Able and Stable. The program focuses on functional balance training activities, individualised strength training and fall prevention education covering topics such as nutrition, home hazards, vision and lighting, continence, injury prevention and safety outdoors.

Group sizes range from 5 to 16 participants, with two program cycles running annually. Pre-and post-program assessments indicate a 40-60% gain in balance and strength with 65% of graduates opting to continue their individually tailored home exercises.

The program's distinctiveness lies in its culturally specific approach. Sessions include yarning circles on relevant fall prevention topics, featuring guest speakers and often led by one of the elders. This culturally safe environment fosters a sense of ownership among participants, leading to additional benefits such as participants forming a weekly 'coffee club and walk in the park.' The Aunty Roma program is offered as a rolling program recognising participants' other community and family commitments. Graduation is determined by the participants themselves, allowing them to decide if they wish to attend additional sessions or undertake another program. Essential to the program's success is the provision of transport organised to and from the venue and the collaboration between Aboriginal Health and Fairfield Hospital.

Future plans include exploring the feasibility of an Elders'-led program to further consolidate the culturally safe approach, with a particular focus on assessing Aunty Roma's impact on reducing frailty within the Indigenous population and hospital readmission rates. In 2019, Aunty Roma's received the prestigious the NSW Health award, affirming its significance and effectiveness in promoting health and well-being among older Aboriginal individuals.

CASE EXAMPLE 6:

Active, Stronger, Better, an initiative of the Hunter Ageing Alliance

Active, Stronger Better (ASB) is a comprehensive range of low to moderate intensity exercise programs designed for older people in the Hunter region. Prior to 2016, numerous exercise programs for older people operated in the Hunter under the banners of Heartmoves and Active over Fifties. However, funding constraints led to the closure or rebranding of these programs, severing ties with their managing organisations. In response to this gap in services, ASB, supported a grant from NSW Ministry of Health was established exercise programs that incorporate aerobic, strength and balance components. This approach is recognised as effective in managing chronic disease experienced by older people and in preventing the loss of mobility and independence, with a focus on reducing the risk of falls.



ASB²⁰ is coordinated through the Hunter Ageing Alliance and is overseen by NovaCare, an aged care provider, with Deb Moore as the program manager. Deb, an experienced Fitness Professional, is tasked with recruiting Fitness Leaders and supervising their initial training to ensure they possess the requisite skills to lead exercise programs for older participants. Her background includes program development, health promotion, education, and quality assurance. ASB offers tailored exercise sessions suitable for various groups:

- Frail older people accessing Day Centres and Residential Aged Care Facilities, through chair-based and general gentle exercise.
- Older people living in the community who are generally well, through aerobic, strength and balance exercises to optimise health, mobility, and independence.
- People with particular health problems, through specific exercise programs to enhance health management in conjunction with their health professional program.

The program places a strong emphasis on quality, safety and leader adherence with ongoing in-service education, training, and support. Deb Moore collaborates with an Advisory Group, working in tandem with an established Consortium, led by Professor John Ward, a Geriatrician and Co-Chair of the Hunter Ageing Alliance. This Consortium comprises academics, fitness experts, physiotherapists, occupational therapists and specialists in dementia, Parkinson's Disease, oncology, population health and rehabilitation, ensuring that ASB remains current and relevant.

Pathways and sustainability are integral to the ASB model, with streamlined referral options for GPs and standardised pathways for Allied Health Professionals to engage with local Fitness Professionals to refine programs as part of affordable ongoing management. The ultimate aim is to establish a sustainable business model for Fitness Professionals that encourages communication with healthcare teams, delivers safe and effective ASB sessions for older people, and offers continued education opportunities to provide best-practice exercise experiences. For participants, the aim is to provide low-cost yet effective exercise programs to enhance their wellbeing and reduce the risk of injury. By the end of the third year of the project, the goal is to be able to offer at least 30 ASB sessions to older people, further advancing the program's reach and impact.

²⁰ <https://activestrongerbetter.net>

CASE EXAMPLE 7:

Bob, a proactive advocate



Bob Barnes is a dedicated and influential member of the Lismore community, passionate about raising awareness and promoting fall prevention. Together with his son David, he took the initiative to establish the **Rotary Nightlights and Fall Prevention Committee**.

“With friends from Rotary in Lismore and Ballina, we started an information drive about fall prevention. We learned that 14 Aussies aged 65 and over die from a fall every day. Out of curiosity, we also added up how many Aussies die daily from car accidents, cycling, drowning, death by suicide and melanoma combined. It came to 16

in total, just two more than falls for those 65 years and over! When I tell this to people, they’re absolutely amazed! Every year falls cost the country billions and have a huge domino effect on families and the community.”

Their commitment to fall prevention led to the organisation of a major event on ‘April Falls Day’ aimed at raising awareness about preventing falls at home among older people. This event was run by the Rotary Clubs of Lismore West and Ballina and supported by the health promotion team from Northern NSW Local Health District (NNSW LHD). They had an information table at Bunnings offering valuable tips and displaying relevant products. Visitors had the opportunity to engage in a balance test, access information about fall prevention programs, and benefit from the generosity of Bunnings which provided free raffle tickets and nightlights to give away to the public as this often-piqued interest. Bob’s personal outreach efforts complemented these activities. The presence and involvement of the NNSW LHD lent credibility and encouragement, including CEC fall prevention resources and Staying Active and on Your Feet booklets.

Bob’s vision extends beyond local initiatives. He aspires to collaborate with Rotary Clubs across Australia to get a proactive message out to the community, urging them to take action in preventing falls. His dedication to fall prevention exemplifies the positive impact that committed individuals can have in creating awareness and fostering change in their communities.



CASE EXAMPLE 8: Volunteer Tai Chi

The **Physical Activity Leader Network** has implemented a region-wide Tai Chi program across Southern NSW, featuring volunteer leaders who received subsidised training by accredited Tai Chi Master Trainers. In return, these volunteers commit to delivering a minimum of 40 weekly classes, complying with program requirements.



The program is facilitated with the support of Local Health District (LHD) Health Service Health Development Officers (HDOs), strategically located geographically within proximity, to volunteer leaders. These HDOs assist leaders in various aspects, including setting up and promoting classes, securing venues, recruiting participants, and ensuring compliance with program procedures as outlined in the leader's kit.

An extensive evaluation was conducted by the Australian National University (ANU) incorporating data collection, survey, interview, and Story Books. The disseminated and largely devolved nature of the program is one of its strengths. It enables the program to be integrated into community, and for Tai Chi leaders to adapt their teaching methods in response to the needs of their participants. At the time of the evaluation 119 classes were operating across 49 sites. Tai Chi leaders demonstrated commitment, positive attitudes, initiative, and skill. Participants experienced various benefits, including improved physical function, psychological well-being, and social engagement, addressing a range of challenges by older people in rural communities.

However, managing a program reliant on volunteers to deliver complex services entails a substantial administrative workload. The success and reach of the program exceeded assumptions made in cost-effectiveness models for Tai Chi, with 1.7% of the population over 65 years engaging in classes, and 43% having three or more fall risk factors. An independent review supported the program's value, prompting the LHD to showcase it as a promoter of community health.

Nonetheless, the program encounters ongoing leader attrition making succession planning a key consideration for sustainability. Less than half of the original leader cohort is likely to remain active after a two-year period. Stable Tai Chi groups can serve as a source of new leaders and exploring opportunities for cost-sharing with local councils or community partnerships is recommended. Additionally, addressing the varying support needs of leaders and the responsiveness of staff to these needs, despite competing demands, is a challenge. Nevertheless, the program is a cost-effective intervention with the potential to renew itself once established.

Improved resource utilisation and decision-making prioritising its impact on high-risk fallers would enhance program efficiency. There is a philosophical tension regarding the program's placement relative to what might be considered 'core business' such as mainstream health service delivery. Unfortunately, the COVID-19 pandemic significantly disrupted this beneficial community program, leading to extended class suspensions and staff redirection to other services.

Examples of fall prevention models from overseas and other Australian states

Several Organisation for Economic Co-operation and Development (OECD) nations have invested and implemented national fall prevention strategies to a greater extent than in Australia. In this section, we explore four different models from the UK, USA, New Zealand, and Western Australia, which have been in place for several years and offer valuable elements that can be adapted to the NSW context.

United Kingdom model

The National Falls Prevention Coordination Group was established in 2016 and is currently hosted by the NHS England and NHS Improvement. This group comprises representatives from over 40 organisations and provides national direction and leadership on fall prevention. It offers a consensus statement, community resources, professional training materials, and progress reports, all of which contribute to a coordinated and evidence-based strategy for preventing falls and fractures in older people.

Additional UK models:

1. Royal Society for the Prevention of Accidents: A not-for-profit organisation focused on reducing the risk of accidents in various settings. The Society aims to enable individuals to live their lives safely and offers resources and initiatives to help prevent falls.
2. Fall Fighter: By joining the Fall Fighter movement as an employer, charity, or community group, individuals can contribute to preventing falls among employees, volunteers, and the community. The initiative provides awareness sessions, equipping participants with prevention skills and knowledge, and offers a Fall Fighter certificate and digital toolkit to spread awareness and inspire others.
3. The Office for Health Improvement & Disparities offers guidance for health professionals on fall prevention, including taking action, understanding local needs, and measuring impact. The guidance supports a comprehensive approach to fall prevention.
4. The Chartered Society of Physiotherapy resource: “GET UP and Go – a guide to staying steady”: This 32-page guide is designed for the public and patients and provides information on preventing falls. It offers practical advice and strategies to stay steady and reduce the risk of falls.

United States model

In 2015, the US National Council on Ageing released the Falls Free® National Action Plan, incorporating 12 goals, 40 evidence-based strategies, and over 240 action steps. The plan is managed by the National Falls Prevention Resource Center and funded by the U.S Department of Health and Human Services. Many states in the US have developed their own fall prevention plans, legislation, and statutes aligned with the national plan.

The Center for Disease Control and Prevention (CDC) provides resources including a compendium of effective fall prevention interventions and a “how-to” guide for community-based

organisations. The CDC's Stopping Elderly Accidents, Deaths and Injuries (STEADI) initiative integrates fall prevention into routine clinical practice for older patients in primary care. The STEADI algorithm, designed for General Practice, screens for fall risk using three key questions and has been adapted for different settings. CDC-funded state-driven projects in Colorado, New York, and Oregon, along with STEADI implemented evidence-based fall prevention programs, Otago exercises, Tai Chi and Stepping On, show significant improvements in mobility and increased screening rates. State departments of health play a crucial role in implementing fall prevention initiatives by connecting stakeholders, identifying local gaps, and partnering with local organisations.

In NSW, the Integrated Solutions for Sustainable Fall Prevention (iSOLVE) project collaborated with GP practices to implement a version of the STEADI algorithm, integrating fall prevention into routine GP practice. This resulted in the development of an online learning module and improved access to fall prevention interventions.

The module and algorithm are accessible from the NSW Fall Prevention and Healthy Network²¹

New Zealand model

In New Zealand, the Accident Compensation Corporation (ACC), the Ministry of Health, and the Health Quality and Safety Commission together support the development of national and local strategies to deliver fall prevention schemes for older New Zealanders. This is coordinated by a fracture liaison who works with GPs to identify patients who are at risk of fractures related to osteoporosis. There is GP screening for falls and referral to home-based fall prevention exercise interventions. The *Live Stronger for Longer* lead agency model was developed and funded by ACC in 2016 as a single point of contact for fall prevention by developing and supporting existing and new community strength and balance classes. This is in place in most District Health Board regions, and they work closely with other community services to ensure people get access to the appropriate intervention.

Western Australia model

The Western Australia Injury Matters program, funded by the Department of Health Western Australia, focuses on prevention to recovery for older adults. One of their key initiatives is Stay On Your Feet®, which aims to provide information and strategies to prevent slips, trips, and falls. They offer resources for individuals over 60 years, including simple steps to prevent falls such as building balance and strengthening legs. They also provide resources for health and community workers, covering risk factors, prevention strategies, falls screening, referral pathways, and grant opportunities for community fall prevention projects. Injury Matters offers Stay On Your Feet community talks and maintains an eDirectory with information on various fall prevention services and clinics.

²¹ <https://fallspreventiononlineworkshops.com.au>

Authors and advisors

Name	Affiliation	Contribution
Ms Lorraine Lovitt, Post Grad Gerontology, RN, Grad AICD	Senior Improvement Lead, Clinical Excellence Commission Older Persons' Patient Safety Program.	Author
Prof Emeritus Lindy Clemson, FOTARA, PhD, MAppSc (Research), BAppSc (OT)	Sydney School of Health Sciences, Faculty Medicine & Health, The University of Sydney.	Author
Prof Kim Delbaere, PhD, MSc (Rehab/PT)	Director of Innovation and Translation, Falls, Balance and Injury Research Centre, Neuroscience Research Australia. Professor, School of Population Health, University of New South Wales President, Australia and New Zealand Falls Prevention Society.	Author
Prof Cathie Sherrington, FAAHMS, FACP, PhD, MPH, BAppSc (Physio)	Professor, School of Public Health, The University of Sydney. Deputy Director, Institute for Musculoskeletal Health, The University of Sydney and Sydney Local Health District. Lead Chief Investigator, NHMRC Centre of Research Excellence in the Prevention of Falls Injuries.	Author
Dr Jane Elkington, MPH, PhD.	Consultant Injury Epidemiologist	Author
Dr Daina Sturnieks, BAppSc, PhD	Senior Lecturer, Faculty of Medicine and Health, University of New South Wales. Senior Research Scientist, Falls, Balance and Injury Research Centre, Neuroscience Research Australia. Vice-President, Australia and New Zealand Falls Prevention Society.	Author
Prof Stephen Lord, PhD, DSc	Director, Falls, Balance and Injury Research Centre, Neuroscience Research Australia Founder, Australia and New Zealand Falls Prevention Society.	Advisor
Prof Emeritus Adrian Bauman, PhD, FAFPHM	Emeritus Professor, School of Public Health, The University of Sydney.	Advisor

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Appendices

Appendix 1.

Australian Fall Prevention Guidelines update.

Draft Recommendations ²²

Aged Care settings

1. Multifactorial fall prevention should be routine care for all residents.
2. This should include regular reviews of personal and environmental risk factors and education/ engagement of staff. (Level 1A)
3. A targeted and individualised fall prevention plan of care based on the findings of the fall risk assessment should be developed. (Level 1A)
4. Tailored supervised exercise should be provided for older people living in aged care settings who are willing and able to participate. (Level 1B)
5. Continuation of exercise is required for fall prevention as the effect of structured exercise programs diminishes over time once the program has ended. (Level 1A)
6. Menus should be assessed by dietitians to ensure adequate provision of dairy foods that reflect residents' preferences, this may involve at least three serves of dairy foods each day. (Level 1B)
7. Daily or weekly vitamin D supplements should be administered to all residents unless contraindicated. (Level 1A)
8. High monthly doses or once yearly mega doses of vitamin D should be avoided as they have been shown to increase the risk of falls. (Level 1A)
9. Residents with diagnosed osteoporosis or a history of low-trauma fractures should be prescribed bone protective treatments unless contra-indicated. (Level 1A)
10. Hip protectors can be considered for reducing the risk of fall-related fractures. (Level 2A)

Community Settings

1. All older people should undertake exercises to prevent falls. Exercise programs should target balance and mobility and can also include strength training. Exercise programs should be undertaken 2-3 hours per week and should be ongoing. Programs should be designed and delivered by a health professional (e.g., physiotherapist or exercise physiologist) or appropriately trained instructor. (Level 1A)
2. People at "lower" risk of falls (e.g., people who fall less than once a year) should attend community exercise or safely undertake home exercise. (Level 1A)

²² Sherrington C, Lord S, Menant J, Dyer S. Australian Fall Prevention Guidelines update. Draft recommendations and Good Practice Points, prepared for the Australian Commission for Quality and Safety in Healthcare based on evidence updates. April 2023 (currently under consultation, for release early 2024).

3. People at an increased risk of falls (e.g., people who fall 1+ times per year) should receive individualised programs and may require supervision or assistance from a health professional (e.g., physiotherapist or exercise physiologist) or appropriately trained instructor to exercise safely and effectively. (Level 1A)
4. People at increased risk of falls (e.g., people who fall 1-2 times per year) should receive home and community safety and education in addition to exercise. (Level 1A)
5. People at high risk of falls (e.g., people who fall 2+ times per year) should receive individualised assessment from a health professional leading directly to tailored interventions, including exercise, home safety, assistive devices, medication reviews, podiatry and strategies to address concerns about falling, anxiety and depression. (Level 1B)
 - Home safety interventions delivered by an occupational therapist should be provided for older people at increased risk of falls, including those with severe visual impairment and those who have fallen in the past year and either need help with everyday activities or have been recently discharged from hospital. (Level 1A)
 - Single interventions should be provided for older people at increased risk of falls with particular risk factors.
 - People with visual impairment primarily due to cataracts should undergo cataract surgery as soon as practicable. (Level 1A)
 - People with foot problems or disabling foot pain should be provided with multifaceted podiatry interventions. (Level 1A)
 - People diagnosed with the cardioinhibitory form of carotid sinus hypersensitivity may be treated with insertion of a dual-chamber cardiac pacemaker. (Level 2B)
 - The use of psychoactive medications and other fall risk increasing drugs should be minimised by collaborative medication reviews undertaken by general practitioners and pharmacists in conjunction with the older person. (Level 2B)
 - Single-lens distance glasses (rather than bifocal, multifocal or progressive lenses) should be used by active older people when undertaking outdoor activities. (Level 2B)
 - People with a change in spectacle prescription should be advised to take care mobilising while adjusting to the change. (Level 2B)
 - Daily or weekly vitamin D supplements should be provided to older people if they are deficient in vitamin D or have little sunlight exposure (i.e., less than 5-15 min exposure, four to six times per week) unless contraindicated. (Level 1B). High monthly doses or once yearly mega doses of vitamin D should be avoided as they have been shown to increase the risk of falls. (Level 1A)
 - People with diagnosed osteoporosis or a history of low-trauma fractures should be prescribed bone protective treatments unless contra-indicated. (Level 1A)

Hospital Settings

1. Tailored education should be provided to older patients without significant cognitive impairment, all staff and families. (Level 1B)
2. Personalised multifactorial fall prevention interventions based on assessment of individual risk factors should be provided for all older patients. (Level 2B)

Calculating a fall risk score is not necessary. (Level 2B)
3. Post-operative care in a geriatric orthopaedic service providing multidisciplinary comprehensive geriatric assessment, management, and rehabilitation is recommended after hip fracture. (Level 1B)
4. Home safety interventions delivered by an occupational therapist should be arranged for older people at an increased risk of falls after discharge from hospital, as part of discharge planning. (Level 1A).

Appendix 2:

Examples of programs to prevent falls and enhance mobility found to be effective in research studies in NSW

Program name	Population	Program overview	Outcomes, published article	Contact
Stepping On	Community dwelling older people	Group-based discussion and teaching home exercise	Prevented falls. RCT, n=310 https://pubmed.ncbi.nlm.nih.gov/15341550/	Prof Lindy Clemson
LIFE	Community dwelling older people	Teaching home program incorporates functional exercises into daily tasks	Prevented falls. RCT, n=317 https://www.bmj.com/content/345/bmj.e4547	Prof Lindy Clemson
Standing Tall	Community dwelling older people	Digital program to teach balance exercise at home	Prevented falls. RCT, n=503 https://www.bmj.com/content/373/bmj.n740	Prof Kim Delbaere
Group exercise	Community dwelling older people	Group exercise program taught by an experienced instructor with referral from health, 12 months	Prevented falls. RCT, n=163 https://pubmed.ncbi.nlm.nih.gov/12851185/	Prof Stephen Lord
Tai Chi	Community dwelling older people	Group Tai Chi	Prevented falls. RCT, n=702 https://pubmed.ncbi.nlm.nih.gov/17661956/	Dr Alex Voukelatos
Sunbeam	Aged care residents	Group exercise with strength machines and balance	Prevented falls, improved mobility. Cost effective. RCT, n=221, https://pubmed.ncbi.nlm.nih.gov/29402651/ https://pubmed.ncbi.nlm.nih.gov/30375234/	Dr Jennie Hewitt
Ironbark	Community dwelling older Aboriginal and Torres Strait Islander people	Group-based discussion and exercise	Improved mobility. RCT, n=98 https://pubmed.ncbi.nlm.nih.gov/30159986/	Prof Rebecca Ivers
AMOUNT	People undergoing rehabilitation during and after hospital stays	Supervised and home exercise using technology.	Improved mobility. Cost effective. RCT, n= 300. https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003029 https://pubmed.ncbi.nlm.nih.gov/36408722/	A/Prof Leanne Hassett

Program name	Population	Program overview	Outcomes, published article	Contact
Balance circuit classes	People undergoing rehabilitation during hospital stays	Additional group classes targeting balance.	Improved mobility. Cost saving. RCT, n= 150. https://pubmed.ncbi.nlm.nih.gov/25758408/ https://pubmed.ncbi.nlm.nih.gov/29289583/	Dr Daniel Treacy
RESTORE	People after hip fracture	Home visits from a physiotherapist to teach home exercise	Improved mobility. RCT, n= 336 https://pubmed.ncbi.nlm.nih.gov/32016702/	Prof Cathie Sherrington
HIPFIT	People after hip fracture	Supervised resistance training plus other interventions supervised by geriatrician	Improved mobility. RCT, n= 124 https://pubmed.ncbi.nlm.nih.gov/21944168/	Prof Maria Fiatarone
Frailty Intervention Trial	People with frailty	Home visits from an interdisciplinary team including teaching home exercise	Reduced frailty, improved mobility, RCT, n= 216 https://pubmed.ncbi.nlm.nih.gov/23497404/ https://pubmed.ncbi.nlm.nih.gov/23067364/	Prof Ian Cameron, Prof Sue Kurrle
iFOCUS	People with cognitive impairment	Home visits from physio and OT including teaching home exercise	Prevented falls in those with better physical function, RCT, n= 309 https://pubmed.ncbi.nlm.nih.gov/32949456/	Dr Morag Taylor, Prof Jacqui Close
Occupational Therapy home safety visits	Community residing	Home visit by OT, tailored to fall prevention	Prevented falls in those with a history of a fall in past year, CT, n = 206 https://pubmed.ncbi.nlm.nih.gov/10591231	Prof Bob Cumming
iSOLVE	Primary Health	GP educational detailing; use of GP risk assessment tool	GP Practice change to engage in fall prevention. Implementation study, qualitative, n = 24 https://doi.org/10.1071/PY21022	Prof Emeritus Lindy Clemson, Prof Lynette Mackenzie
Health and exercise professional education	Health and exercise professionals	One day face to face workshop	Improved self-reported knowledge, confidence and behaviour on prescription of exercise for fall prevention, RCT, n=200 https://pubmed.ncbi.nlm.nih.gov/34494076/	Prof Anne Tiedemann



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