



Government of Western Australia
Department of Health

Falls Prevention Model of Care

Falls Prevention Health Network
February 2014

Obsolete - for reference use only

© Department of Health, State of Western Australia (2014).

Copyright to this material produced by the Western Australian Department of Health belongs to the State of Western Australia, under the provisions of the Copyright Act 1968 (Commonwealth Australia). Apart from any fair dealing for personal, academic, research or non-commercial use, no part may be reproduced without written permission of the Health Strategy and Networks, Western Australian Department of Health. The Department of Health is under no obligation to grant this permission. Please acknowledge the WA Department of Health when reproducing or quoting material from this source.

Suggested citation:

Department of Health, Western Australia. Falls Prevention Model of Care. Perth: Health Strategy and Networks, Department of Health, Western Australian, 2014.

Important disclaimer:

All information and content in this Material is provided in good faith by the WA Department of Health, and is based on sources believed to be reliable and accurate at the time of development. The State of Western Australia, the WA Department of Health and their respective officers, employees and agents, do not accept legal liability or responsibility for the Material, or any consequences arising from its use.

Contact information:

For further information contact Health Strategy and Networks, WA Department of Health on (08) 9222 9200 or healthpolicy@health.wa.gov.au.

Obsolete - for reference use only

Table of contents

Acknowledgements	5
Executive summary	7
1. Introduction.....	10
1.1 Vision	10
1.2 Objectives.....	10
1.3 Guiding principles.....	10
1.4 Scope	11
2. Methodology	12
2.1 Initial Model of Care development.....	12
2.2 Model of Care review process.....	12
3. Progress since the release of the 2008 Model of Care	13
3.1 Achievements.....	13
3.2 Ongoing challenges.....	14
4. Falls Prevention Model of Care	15
4.1 Create a robust and healthy population (Recommendations 1 to 2).....	17
4.1.1 Healthy lifestyle behaviours for falls prevention.....	18
4.1.2 Education and raising awareness.....	20
4.1.3 Supportive environments.....	22
4.2 Apply falls prevention interventions (Recommendations 3 to 9).....	23
4.2.1 Background to falls prevention evidence in different settings	24
4.2.2 Special considerations	25
4.2.3 Single interventions.....	25
4.2.4 Multifactorial interventions.....	31
4.2.5 Interventions in the hospital setting	35
4.3 Optimise care pathways and communication (Recommendations 10 to 15)	38
4.3.1 Screening, referral and assessment for falls prevention.....	38
4.3.2 Current falls prevention services in WA.....	40
4.3.3 Enablers for falls prevention services and pathways.....	44
4.4 Support research into practice (Recommendations 16 to 17)	51
4.4.1 Research priorities for the future	51
4.4.2 Partnerships in research	52
4.4.3 Translation of research into practice	53
5. Horizon scanning.....	54
Glossary	55
Acronyms	56
References	57
Appendices	64
Appendix 1: Description of current falls prevention services and pathways in WA	64

Obsolete - for reference use only

Appendix 2: New and current falls prevention research projects occurring in WA	69
Appendix 3: Incidence and burden of falls in WA	70
Appendix 4: Organisations, services and institutions to involve in Falls Prevention MoC implementation	72

Index of tables

Table 1. People at high risk of falls who may benefit from Falls Clinic or multifactorial intervention to prevent falls	32
Table 2. Evidence for fall prevention strategies in the community and residential care settings ⁹⁶	34
Table 3. Evidence for fall prevention strategies in hospitals ⁹⁶	37

Index of figures

Figure 1. Maintaining functional capacity over the life course	15
Figure 2. Representation of the relationship between the Falls Prevention Model of Care components	16
Figure 3. Decision making tool for new benzodiazepine prescription for older adults for insomnia ^{64, 65, 67}	28
Figure 4. Distortion of lower vision field in an individual wearing multifocal spectacles ⁸⁰	30
Figure 5. Flow diagram for preventing falls in community-dwelling older people ⁴⁷	39
Figure 6. WA Falls Action Plan	40
Figure 7. Age-specific rates of hospitalisation due to falls by sex, WA, 2000-2008	70

Obsolete - for reference use only

Acknowledgements

The Falls Prevention Health Network would like to acknowledge the individuals, groups and organisations who contributed their time, experience and future vision for the prevention of falls in Western Australia.

Falls Prevention Model of Care Review Working Group members

Name	Position and organisation
Ms Felicity Beaulieu	Occupational Therapist and Therapy Services Manager, The Bethanie Group
Mr Nik Booker	Nurse Unit Manager, Nannup Multipurpose site, WA Country Health Service - South West
Mr Khye Davey	Senior Physiotherapist (Falls), Safety and Quality Investment for Reform, Royal Perth Hospital (RPH)
Dr Erica Davison	Principal Policy Officer, Injury Prevention, Chronic Disease Prevention, System Policy and Planning, Department of Health WA (DOH WA)
Ms Nicole Deprazer	Senior Policy Officer, Health Strategy and Networks Branch, System Policy and Planning, DOH WA
Ms Kathryn Devereux	A/Coordinator, Community Physiotherapy Services, Public Health and Ambulatory Care, North Metropolitan Health Services (NMHS)
Ms Shelley Harwood/ Ms Ailsa Dinnes	Manager Falls Prevention Programs, Injury Control Council of WA (ICCWA)
Mr Tony Petta	Senior Physiotherapist and Community Falls Specialist, Area Rehabilitation and Aged Care, Sir Charles Gairdner Hospital (SCGH)
Dr Nick Waldron	Network Lead; Geriatrician, Department of Aged Care and Rehabilitation, Armadale Health Service

Additional Falls Prevention Health Network Executive Advisory Group members

Name	Position and organisation
Ms Emily Andrews	Coordinator Falls Prevention Programs, ICCWA
Ms Heather Baumbach	Clinical Nurse Specialist, Special Restorative Unit, Swan Health Campus
Ms Rachel Dennis	Senior Programs Officer, Performance Activity and Quality, Office of Safety and Quality, DOH WA
Mr Luke Hays	Senior Policy Officer, Aged and Continuing Care Directorate, DOH WA
Dr Anne-Marie Hill	Senior Lecturer, School of Physiotherapy, The University of Notre Dame; Australian Physiotherapy Association Gerontological Physiotherapist
Dr Katherine Ingram	Geriatrician, Rehabilitation and Aged Care, SCGH

Name	Position and organisation
Ms Nicole Joubert/ Mr Phil Airey	Projects Manager, Living Longer Living Stronger, Council on the Ageing Western Australia (COTA WA)
Dr Aru Moodley	Royal Australian College of General Practitioners representative
Ms Judy Wenban	Program Director, Public Health and Ambulatory Care, NMHS
Mr Graeme Pascoe	Nurse Director, Medical Specialties, RPH
Ms Beth Solich	Consumer representative, Health Consumers Council WA
Ms Jenny Stevens	Area Director, Aged Care, WA Country Health Service (WACHS)
Ms Kim Watkins	Pharmacist, Pharmaceutical Society of Western Australia
Ms Carol Watson	A/Head of Department, Physiotherapy, RPH

External reviewers

Name	Position and organisation
Professor Keith Hill	Head of Physiotherapy and Exercise Science, Faculty of Health Sciences, Curtin University
ANZFPS TRIPP Sub-committee	<p>Australian & New Zealand Falls Prevention Society (ANZFPS) Translation of Research Into Practice & Policy (TRIPP) Sub-Committee.</p> <p>Chair: Professor Stephen Lord, Senior Principal Research Fellow, National Health and Medical Research Council</p> <p>Conjoint Professor, University of New South Wales</p>

Obsolete - for reference use only

Executive summary

Falls are a significant issue in WA, ranking as the fourth most common cause of community injury death (11%) and the second most common cause of community injury hospitalisation (31%).¹ The Falls Prevention Model of Care (MoC) aims to address this issue through articulating a best practice approach to reducing falls risk, fall incidents, and falls-related injuries, whilst recognising the positive achievements and work in this field over the last 18 years. The vision for the MoC is for people to maintain their independence and a good quality of life for as long as possible by reducing their risk of falls and fall related injuries.

The Falls Prevention MoC for the Older Person in Western Australia was first developed in 2008 by the Falls Prevention Health Network Executive Advisory Group. Five years later, a small working party was convened to update this Model to align with contemporary literature and current clinical practices. This revised MoC takes on a broader, across-the-lifespan approach, with the name now simplified as the Falls Prevention Model of Care. The Model of Care does discuss children in terms of advocating for the adoption of healthy lifestyles during early life but the discussion of specific falls prevention interventions for children is considered out of scope.

To ensure a consistent approach to falls prevention, the MoC is informed by a number of key documents including national best practice guidelines²⁻⁴, recent Cochrane Reviews^{5,6}, other related WA Models of Care⁷⁻¹⁰, WA health promotion frameworks¹¹ as well as international frameworks for falls prevention.¹²

The MoC has used evidence based literature, consumer and carer need and the experience and expertise of health professionals in WA to identify the following four main areas of focus for the future:

1. Create a robust and healthy population
2. Apply falls prevention interventions
3. Optimise care pathways and communications
4. Support the translation of research into practice

Key recommendations and strategies for implementation for each of the MoC focus areas are outlined below:

Section 4.1 Create a robust and healthy population

Rec 1: Increase planning and investment to improve the general population's ability to adopt healthy behaviours.

- Increase planning and investment to support increased physical activity during early and adult life and the uptake of good nutrition throughout life, in alignment with the [WA Health Promotion Strategic Framework 2012-2016](#).¹¹

Rec 2: Maintain and develop a coordinated approach to the development and delivery of falls prevention messages, resources and activities through the Stay On Your Feet WA® program.

- Create links between falls prevention and other general healthy lifestyle campaigns.
- Explore innovative ways of delivering health messages, which expand beyond dissemination of printed resources utilising adult education principles.

Section 4.2 Apply falls prevention interventions

Rec 3: Target our older age population at risk of falls, or those who have fallen, with an evidence based exercise program to prevent falls.

- Build and improve on existing directories of appropriate exercise programs targeting adults and older adults who are at risk of falling.
- Increase availability and range of appropriate exercise programs based on population needs and modelling, achieved through expansion of existing services and a primary care strategy engaging Medicare Locals.
- Identify and address barriers to uptake of exercise in older adults and support implementation of programs that are effective in achieving this.

Rec 4: Promote strategies to reduce inappropriate prescriptions of psychoactive medication (including benzodiazepines) and other medications strongly associated with falls, to adults and older adults.

- Support the provision of information about the risks and benefits of benzodiazepine prescription to consumers through multiple communication channels - including peak body organisations, pharmacists, primary care and active ageing consumer groups.

Rec 5: Improve the provision of adequate vitamin D supplementation (>800 units/day) for older adults with proven vitamin D deficiency in the community and for all those in residential care settings.

- Advocate for a state and national approach to implementation of Vitamin D for those in residential care, including development of a quality indicator reported by care settings.

Rec 6: Provide education to older adults considering purchasing or renewing multifocal glasses to support falls prevention.

- Engage ophthalmology peak bodies and services providers to support appropriate optical prescriptions and advice in relation to falls.

Rec 7: Maintain and improve access to occupational therapy home visits and intervention to high-risk populations, such as those with visual impairment or those recently hospitalised.

Rec 8: Target high risk populations, including those who have fallen, with an evidence based multifactorial assessment and intervention program delivered through aged care and rehabilitation health services.

Rec 9: Support WA health services to meet National Safety and Quality Health Service (NSQHS) Standard 10, attaining a high level of achievement by utilising contemporary evidence.

- Continue to recognise and maintain WA Health's commitment to the Safety and Quality Investment for Reform (SQulRe) Inpatient Falls Prevention Program, including health service level resourcing.

Section 4.3 Optimise care pathways and communications

Rec 10: Integrate falls prevention as an explicit element of primary care screening, assessment and referral.

Rec 11: Optimise the role of Falls Specialist Coordinator model in WA to address gaps in care, including support to the WA Country Health Service (WACHS) and delivery of patient driven health care.

Rec 12: Foster partnerships with residential care settings and networks to assist improved transitions of care and knowledge transfer.

- Consolidate links from Emergency Departments to falls prevention services, utilising Care Coordination Teams (CCT) and evolving the role of Falls Specialist Coordinators (FSC).
- Consider a strategy to improve the FSC program to meet the needs of the Aboriginal population, including specific employment sited within Aboriginal Health Services.

Rec 13: Engage broader stakeholders, outside of health, to recognise the importance and address falls prevention in existing activities.

- Advocate for non-health state government departments to consider falls prevention during planning and activity, engaging the Falls Prevention Health Network as required.

Rec 14: Improve methods of data collection and analysis in all settings to capture quality falls data for monitoring, clinical use and service delivery.

- Advocate for the formation of a key performance indicator for residential care related to the percentage of patients prescribed appropriate high-dose Vitamin D preparations.

Rec 15: Foster partnerships with existing education and training providers to improve uptake of falls prevention knowledge and practices in those working with older people.

- Engage with universities, the Central Institute of Technology and other training providers to progress falls prevention education to be included in all relevant programs and courses.

Section 4.4 Support the translation of research into practice

Rec 16: Engage with and facilitate research into areas that address gaps in falls prevention evidence and its translation into clinical practice.

Rec 17: Build partnerships to support the translation of research into service development and delivery.

- Support partnerships between researchers, clinicians and health services to direct the falls research agenda utilising existing forums including the Falls Prevention Health Network Executive Advisory Group, Communities of Practice and other groups.
- Utilise knowledge translation research and fall prevention research to help define how best to deliver meaningful health messages that lead to consumer and practitioner behaviour change.



N. G. Waldron

Dr Nicholas Waldron
Network Lead
Falls Prevention Health Network
Department of Health WA

1. Introduction

The World Health Organization defines a fall as an event which results in a person coming to rest inadvertently on the ground, floor or other lower level.¹² The incidence of falls increases with ageing. An Australian study found 8% of women in their forties, 14% in their fifties, 25% in their sixties and 40% in their seventies had experienced a fall in the previous 12 months.¹³ Most falls are multifactorial in nature resulting from a combination of intrinsic and extrinsic risk factors and can occur in a variety of settings.¹⁴ Up to 30% of falls can lead to moderate to severe injuries, such as fractures, resulting in reduced quality of life, increased risk of early death and avoidance of activities leading to social isolation.¹⁵⁻¹⁸ Some individuals will contact a health service following a fall where a number of interventions may be offered. Given the complex and multifactorial nature of falls, a proactive and systematic approach to prevention is needed.¹²

The aim of this Model of Care is to articulate a best practice approach to reduce falls risk, fall incidents, and falls-related injuries. It aims to achieve this by ensuring individuals receive:

The **right care**, at the **right time**, by the **right team**, in the **right place**, with the **right resources**

1.1 Vision

To reduce the risk of falls and fall related injury allowing people to maintain their independence and good quality of life for as long as possible.

1.2 Objectives

The objectives of the Falls Prevention Model of Care are to:

- reaffirm WA Health's commitment to address falls prevention through key recommendations and strategies for implementation
- assist with directing and coordinating programs and activities in falls prevention across WA for consumers, clinicians, policy makers and researchers
- provide a vision for the future of falls prevention in WA
- inform and educate others on current evidence for falls prevention
- support the translation of research evidence into health care practice.

1.3 Guiding principles

The Falls Prevention Model of Care is underpinned by the following guiding principles:

- provide evidence based and consumer-centred recommendations for care
- enhance the role of the community and all sectors in falls prevention to improve integration, communication and service provision
- provide falls prevention at every opportunity across the continuum of health care, with particular attention to addressing inequalities of access
- foster partnerships between sectors and with consumers, their families and carers to improve the uptake of falls prevention interventions
- facilitate active ageing to "optimise opportunities for health, participation and security in order to enhance quality of life as people age"¹²
- recognise that health behaviours, priorities and decisions are influenced by the social, cultural and physical environment, in alignment with the [Health Promotion Strategic Framework 2012-2016](#)¹¹

- align with the principles and values outlined in the [Model of Care for the Older Person](#)⁷, the [Osteoporosis Model of Care](#)¹⁰ and other related models
- promote the uptake of evidence into practice through the implementation of the [Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Hospitals, Residential Aged Care Facilities and Community Care 2009](#)²⁻⁴ and other emerging best practice evidence.

1.4 Scope

Falls prevention is an issue requiring attention across the lifespan. The revised Model of Care has removed the words “for the older person” from the title of the document in order to reflect this shift in emphasis to a whole-of-life approach for falls prevention, and recognise the importance of healthy lifestyle decisions in early and adult life and into older age (see [Section 4.1 Create a robust and healthy population](#)).

Given the burden of falls amongst the older population, the majority of the evidence and interventions described in this Model refer to people over the age of 60 years. The Model of Care does discuss children in terms of advocating for the adoption of healthy lifestyles during early life but the discussion of specific falls prevention interventions for children is considered out of scope. For information and strategies to prevent falls in children refer to [KidSafe WA](#).

The Model of Care covers a range of interventions from those applicable to the general, well population (see [Section 4.1 Create a robust and healthy population](#)) to individualised tailored interventions for those at risk (see [Section 4.2 Apply falls prevention interventions](#)). These interventions may be applicable across the continuum of care including the community, inpatient and residential aged care settings.

Given the broad nature of a whole-of-life approach across the [continuum of care](#), the Model of Care focuses on the areas for WA where the greatest improvements can be made based on current evidence and the current context of the state. References to existing frameworks and documents are made where possible to avoid duplication of information.

Obsolete - for reference use only

2. Methodology

2.1 Initial Model of Care development

In 2007, the Falls Prevention Health Network Executive Advisory Committee which comprised of a range of key stakeholders across the community, hospital, subacute and residential aged care health settings was tasked to develop the first Falls Prevention Model of Care for the Older Person in WA, as a key component of the Western Australian Health Reform Agenda.

The development of the Model included preliminary consultation with the Department of Health WA's Office of Aboriginal Health and the Aged Care Policy Directorate, and the analysis and integration of a number of national and state policies, frameworks and models of care. The draft document was released for broad consultation before being finalised in April 2008.

2.2 Model of Care review process

In January 2013, several members of the Falls Prevention Health Network Executive Advisory Group came together to form a Working Group to oversee the update of the 2008 Falls Prevention Model of Care (see [Acknowledgements](#) for a list of members).

The purpose of the update was to:

- ensure the Model of Care was consistent with the current evidence based best practice for the prevention of falls and falls related harm
- review the degree to which the 2008 Model of Care recommendations had been implemented and determine their ongoing relevance in the current context in WA.

The Working Group developed a draft document based on research evidence, patient views and clinical experience with input from the Falls Prevention Health Network Executive Advisory Group and broader networks including the Falls Prevention Community of Practice in hospital settings, networks within the residential aged care sector and the Australian and New Zealand Falls Prevention Society (ANZFPS) Translation of Research Into Practice and Policy (TRIPP) Subgroup. To ensure a consistent approach to falls prevention, the Falls Prevention Model of Care is informed by the following key documents:

- [Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Hospitals, Residential Aged Care Facilities and Community Care 2009](#)²⁻⁴
- [2012 Cochrane Review: Interventions for preventing falls in older people living in the community](#)⁶
- [2012 Cochrane Review: Interventions for preventing falls in older people in care facilities and hospitals](#)⁵
- [Osteoporosis Model of Care](#)¹⁰
- [Model of Care for the Older Person in Western Australia](#)⁷ and the other Aged and Continuing Care Directorate Models of Care
- [Western Australian Health Promotion Strategic Framework 2012-2016](#)¹¹
- [WA Chronic Conditions Self-Management Strategic Framework](#)¹⁹
- [World Health Organization Global Report on Falls Prevention in Older Age](#)¹²

The draft document was released for broad consultation to allow for further comments and feedback before it was finalised. The Falls Prevention Health Network Executive Advisory Group endorsed the final draft of the updated Model of Care. The revised Model was then approved by the Executive Director Strategic System Policy and Planning Division of the Department of Health WA and noted by the State Health Executive Forum.

3. Progress since the release of the 2008 Model of Care

According to the [Australian Institute of Health and Welfare's Hospitalisations due to falls in older people, Australia 2008-09](#)²⁰ Western Australia had:

- a stable rate of hospitalisation due to fall injuries where the trend across Australia is of increasing hospitalisation
- a trend of reducing hip fracture rate, whereas the rate of other fractures and fall-related head injuries increased.

3.1 Achievements

There has been significant activity towards the implementation of the 2008 Falls Prevention Model of Care recommendations over the past five years. The following represents major achievements, with a further summary of current services listed in [Appendix 1](#).

New and expanded services

- [Falls Specialists Coordinators](#) have been established in all metropolitan hospital sites, located within Day Therapy Units (DTU), to improve clinical skills of individual clinicians in falls prevention and support training and education across the health continuum.
- Day Therapy Units (DTU) have been expanded in metropolitan and some regional hospital sites improving the capacity of Falls Clinics to deliver clinical care in an equitable manner across Perth.
- The Council on the Ageing WA's (COTA WA) [Living Longer Living Stronger™](#) program has introduced a third tier to direct people to an appropriate program based on their health status.
- The group based falls prevention exercise classes provided by [Community Physiotherapy Services \(CPS\)](#) are serving increasing numbers of people, with 651 group occasions of service in 2007/08 to 1517 in 2011/12. This has allowed for the delivery of falls prevention to more complex patients outside of the hospital setting.

Inpatient falls prevention

- The [Safety and Quality Investment for Reform \(SQuRe\) Clinical Practice Improvement \(CPI\) program](#) has been sustained and recurrently funded yearly since its implementation in 2006, recognising falls prevention as an ongoing priority for WA Health.
- The WA Health Falls Prevention Community of Practice (CoP) for hospital settings was established in 2009 to build on the SQuRE program and focus on inpatient falls prevention in WA through collaborative learning, sharing and support for quality improvement staff. Key achievements include the development of a statewide [Falls Risk Assessment and Management Plan \(FRAMP\)](#)²¹, the [Post-Fall Management Guidelines in WA Healthcare Settings](#)²² and a [Falls Prevention Online Training Package](#).
- The [National Safety and Quality Health Service \(NSQHS\) Standard 10: Preventing Falls and Harm from Falls](#) was endorsed by Australian Health Ministers in September 2011 (with minor revisions in 2012).

Consolidating public health falls prevention strategies

- The Injury Control Council of WA (ICCWA) has continued to deliver the [Stay On Your Feet WA®](#) program under contract with the Department of Health WA. Stay On Your Feet WA® has remained a main point of contact for falls related enquiries and assistance, with a 330% increase in enquiries between 2010 to 2013. Additional [resources](#) have been developed to address gaps in information for use in inpatient settings and Aboriginal populations.

Improved linkages with the health system

- The development of the [Rehabilitation and Restorative Care Services Model of Care](#)⁸ and the [Osteoporosis Model of Care](#).¹⁰
- Improved linkages with subacute sector through partnerships with Training Centre in Subacute Care (TRACS WA) and the Subacute Care Community of Practice (SAC CoP).
- WA has engaged with other states and territories to share information and experiences regarding falls prevention through the:
 - Australian Commission on Safety and Quality in Health Care (ACSQHC) National Falls and Falls Injury Prevention Reference Group
 - Australian and New Zealand Falls Prevention Society (ANZFPS) on Translation of Research Into Practice and Policy (TRIPP) Sub-committee

Research

- The last 5 years has seen a significant expansion of falls prevention research in WA. Academic institutions in WA have made significant progress in building capacity and partnerships within WA and nationally in fall and ageing related research.
- Current research projects which were successfully awarded grants and are underway are summarised in [Appendix 2](#).

3.2 Ongoing challenges

Despite these positive improvements and successes in falls prevention initiatives, the cost and burden of falls in WA is still a significant issue and demand for health services will continue to rise in the future given Australia's ageing population (see [Appendix 3: Incidence and burden of falls in WA](#)). The key gaps and challenges requiring further attention are as follows:

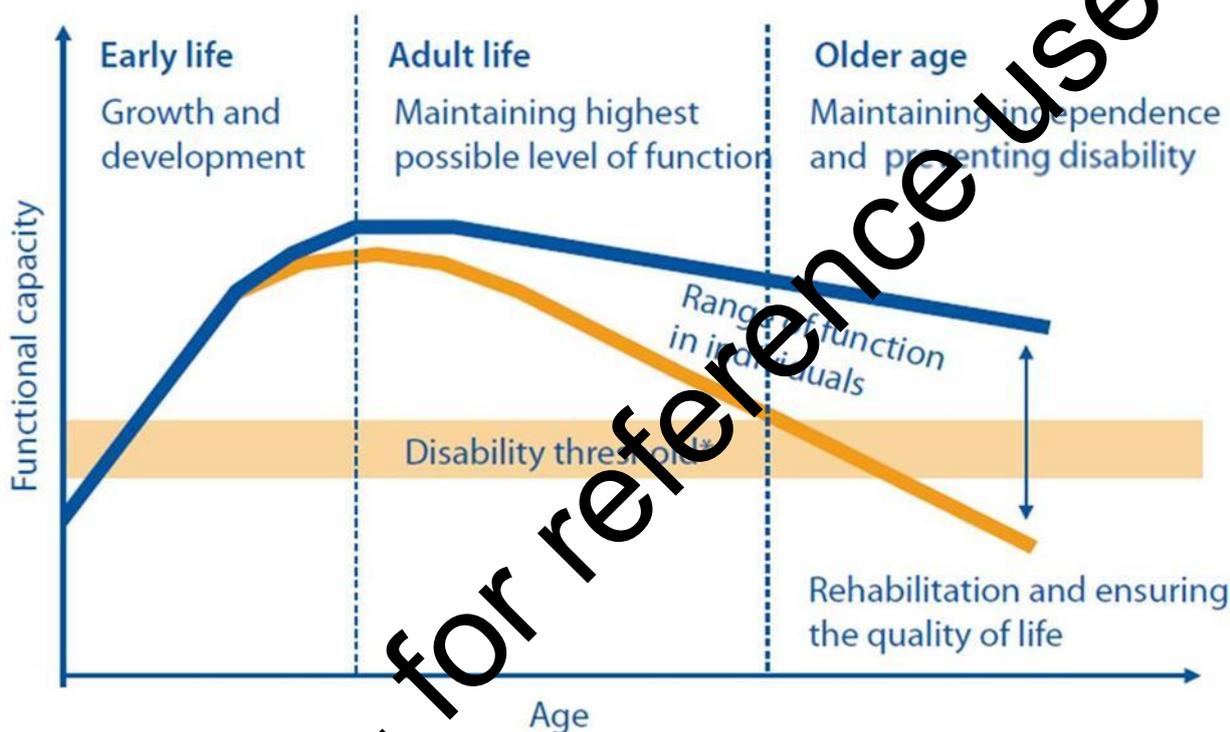
- There needs to be a shift to a whole-of-health approach to delay the onset of the first fall by increasing the period of time that individuals remain healthy and independent with low risk of falls, through health promotion and primary prevention.
- An increased focus is required to implement established falls prevention evidence into practice and reduce the current "evidence-to-practice gaps" that exist.
- WA needs to further improve screening and referral pathways between health and falls prevention services by improving coordination between providers, services and settings.
- Health service stakeholders at state and national levels need to ensure rapid uptake of effective and cost saving falls prevention strategies through improved partnerships and understanding, ensuring research and policy agendas align.

Further gaps and challenges are highlighted throughout the Model of Care at the beginning of each section.

4. Falls Prevention Model of Care

The Model of Care is described below utilising a continuum of care approach, as all aspects of the health system, from community to hospital care, have an important and integral role in falls prevention. The Model of Care uses the terms early life, adult life and older age to provide direction as to which strategies are relevant for different stages of functional capacity over the life course.^{12, 23} Functional capacity (including ventilatory capacity, muscular strength and cardiovascular output) is influenced by lifestyle and environmental factors.^{12, 23} **Figure 1** shows how functional capacity increases in the early years of life, peaks in early adulthood and then begins a period of decline.^{12, 23} Refer to the glossary for a definition of each life stage.

Figure 1. Maintaining functional capacity over the life course



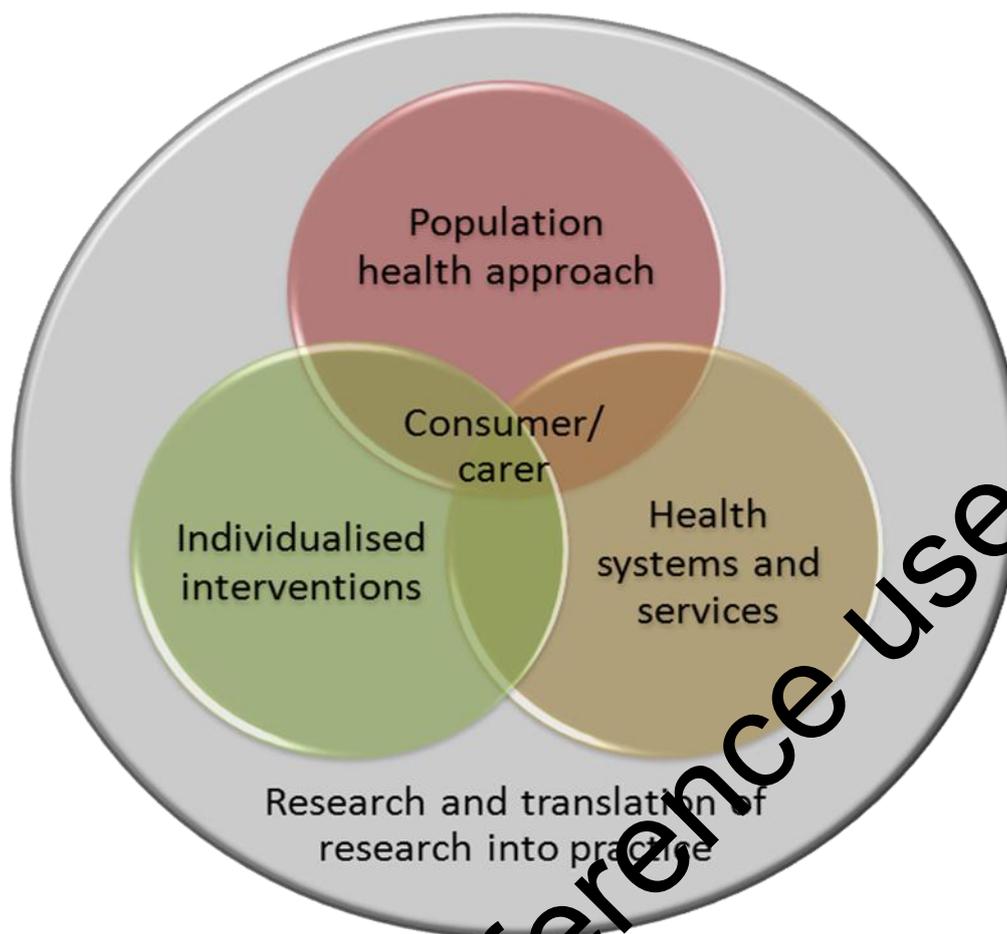
Source: Active Ageing: A Policy Framework, World Health Organization, 2002²⁴

The Model of Care is presented in four main sections to highlight that intervention is needed at a population and health policy level as well as at the individual, service delivery and health system level in order to optimise opportunities for falls prevention for the consumer and carer. Ongoing research and translations of research into practice is required to ensure evidence based practice in all of these areas, as represented in **Figure 2**. The sections of the Model of Care are:

1. Create a robust and healthy population
2. Apply falls prevention interventions
3. Optimise care pathways and communications
4. Support the translation of research into practice

Each section summarises the current service delivery and gaps, outlines the relevant recommendations and supporting evidence and proposes strategies for implementation to facilitate translation of the Model of Care into practice.

Figure 2. Representation of the relationship between the Falls Prevention Model of Care components



Obsolete - for reference use only

4.1 Create a robust and healthy population (Recommendations 1 to 2)

Current activity to create a robust and healthy population	Gaps in creating a robust and healthy population
<ul style="list-style-type: none"> ■ Key framework guiding activity: <ul style="list-style-type: none"> ▪ Health Promotion Strategic Framework 2012-2016¹¹ ■ Awareness-raising programs include: <ul style="list-style-type: none"> ▪ Stay On Your Feet WA® program ▪ Department for Communities An Age-friendly WA: The Seniors Strategic Planning Framework 2012-2017²⁵ and accompanying active ageing resources ▪ COTA WA ▪ Arthritis & Osteoporosis WA ▪ Senior Recreation Council WA, including a directory of sport and recreation activities for seniors ▪ LiveLighter campaign ▪ Preventing Falls For Older Farmers ■ Existing fall preventions programs <ul style="list-style-type: none"> ▪ see section 4.2 for examples ■ Exercise programs - examples include: <ul style="list-style-type: none"> ▪ ICCWA Falls prevention exercise program directory ▪ Local Government Authority – seniors wellbeing/exercise programs ▪ Heart Foundation’s Heartmoves ▪ Regional Stay On Your Feet® exercise groups ■ Revision of the National Physical Activity Guidelines for Australians²⁶ is underway 	<ul style="list-style-type: none"> ■ Need for greater community awareness of the importance of physical activity and nutrition in relation to healthy ageing and motivation to adopt these behaviours. ■ Inconsistent availability and uptake of falls prevention programs during late adult life/early older age. ■ Absence of a national body responsible for advocating and advising on a falls prevention strategy, despite the need for a national approach for implementing strategies. ■ Limited population wide approaches to raising public awareness about falls prevention, vitamin D deficiency and physical activity including falls programs. ■ Minimal inclusion of evidence based exercise for falls prevention, such as balance exercises, within some current seniors programs.

Creating a robust and healthy population will reduce the risk of falls and ensure people remain independent for as long as possible in life. There is evidence to support that the application of a population approach to falls prevention in the community can promote change on a mass level, creating a culture where falls prevention behaviours are the norm.²⁷ Appropriate health promotion strategies for the prevention and management of bone loss in addition to those discussed below are outlined by the [Osteoporosis Model of Care](#)¹⁰ and Osteoporosis Australia’s [Building healthy bones throughout life strategy](#).²⁸

4.1.1 Healthy lifestyle behaviours for falls prevention

Recommendation

1. Increase planning and investment to improve the general population's ability to adopt healthy behaviours.

Strategies

- Increase planning and investment to support increased physical activity during early and adult life and the uptake of good nutrition throughout life, in alignment with the [WA Health Promotion Strategic Framework 2012-2016](#).¹¹
- Support programs which improve physical activity and optimal peak bone mass during early life, through delivery of a common message related to healthy active ageing and falls prevention.
- Support physical activity programs applicable during adult life to include balance exercises required for falls prevention. This can be through education about the dose and type of exercise and partnerships.
- Explore options for introducing other multifactorial programs which target older adults and empower them to improve health and maintain independence (such as [Stepping On](#)) in WA.
- Advocate for a state and national approach to address vitamin D deficiency in the general population.
- Advocate for a state and national approach to address the quality use of medicines in the general population.

There are a number of potentially modifiable behaviours which can impact on a person's risk of falling. Several of these behaviours should be promoted across the lifespan at a population level and these behaviours are discussed below. Other behaviours which can be targeted as falls prevention interventions are discussed in [Section 4.2 Apply falls prevention interventions](#).

Exercise

Physical inactivity is responsible for 6% of the total burden of disease and injury in WA.²⁹ In relation to falls, sedentary behaviour and impaired physical capacities are considered to be significant risk factors.¹² Inactivity increases with age, with only 39% of people aged 65 and over participating in 30 or more minutes of moderate exercise over five or more sessions a week, compared to 57% of adults aged 16 to 44 years.³⁰

The [Health Promotion Strategic Framework 2012-2016](#)¹¹ identifies "active living" as an important lifestyle change required for our population and refers to the [National Physical Activity Guidelines for Australians](#).²⁶ To create a healthy population, increased physical activity in younger years will lead to increased likelihood of maintenance in older age.³¹ Furthermore, physical activity is important for building and maintaining bone density throughout the lifespan as outlined in the [Osteoporosis Model of Care](#)¹⁰ and Osteoporosis Australia's [Building healthy bones throughout life strategy](#).²⁸ An example of an international approach is the Toronto Charter for Physical Activity which highlights [Seven Investments that work for Physical Activity](#)³² that provide a useful framework for a comprehensive approach that relies on the implementation of multiple concurrent strategies.

For older adults, the current [Physical Activity Recommendations for Older Australians](#)^{26, 33} were released in 2009 to support the [National Physical Activity Guidelines for Australians](#).²⁶ The recommendations outline important principles such as being active daily, continuing and starting a new activity in a safe manner within capabilities and accumulating 30

minutes every day. They note that particular exercise types may be suitable for individuals, such as balance exercises for those at risk of falling.

Functional based exercise programs such as the Lifestyle Functional Exercise Program (LiFE) have demonstrated the benefits of embedding balance and lower limb strength training into habitual daily routines to ultimately reduce falls.³⁴ Successful examples of population-level delivery of group-based programs that target balance exercises exist, such as the delivery of Otago Tai Chi across New Zealand.³⁵

Healthy eating

Nutritious foods in addition to an active lifestyle can help achieve optimal health throughout life. In particular, a diet rich in calcium can improve bone mass. Insufficient calcium causes thinning and weakening of bones, which increases the risk of developing osteoporosis and experiencing a bone fracture as a result of a fall. Other foods which may increase falls risk include alcohol as it impairs judgement, coordination and concentration, and salt as it can contribute to calcium loss. Furthermore, not drinking enough water may lead to dehydration, confusion and dizziness, and inadequate protein can make it difficult to maintain muscle mass. Malnutrition is an issue of importance amongst older adults which should be addressed. The National Health and Medical Research Council (NHMRC) has developed [Australian Dietary Guidelines 2013](#)³⁶ and the [Nutrient Reference Values for Australia and New Zealand](#)³⁷ to provide information on the types and amounts of foods, food groups and dietary patterns for optimal health throughout all stages of life.

Vitamin D

Having adequate vitamin D levels throughout life is important as it promotes the optimal absorption of calcium from the diet to build and maintain strong and healthy bones. This is a key action to help prevent falls as vitamin D deficiency is a common and emerging health problem. Nearly one-third of the Australian population has vitamin D deficiency (<50nmol/l).³⁸ Daly et al 2012 recommends "there is a need to develop national strategies across the whole population for both safe sun exposure and adequate vitamin D intake for people who are unable to obtain sufficient sunlight to improve the vitamin D status".³⁸ Additional information is available from the [Vitamin D and health in adults in Australia and New Zealand: a position statement](#)³⁹. See section [4.2.3 Single Interventions](#) for strategies specific to older age individuals.

Quality use of medicines

Inappropriately prescribed or unmanaged medication use increases the risk of falls. A population approach to reducing the initial uptake of psychoactive medications, specifically benzodiazepines, and other medications associated with an increase falls risk is needed. Other strategies to ensure the quality use of medicines include linking with programs to support people through sleep changes with non-drug alternatives. See section [4.2.3 Single Interventions](#) for strategies specific to older age individuals.

Risk taking behaviours

An individual's day-to-day decision about the activities they choose to do may put them at risk of falling. Behaviours associated with an increased risk of falling include climbing ladders, standing on unsteady chairs, bending, rushing or not using prescribed mobility aids.¹² Efforts should be made to educate people in a meaningful way that leads to changes in behaviours associated with falling. These changes should take in to consideration the individual's desire for maintaining their independence.

4.1.2 Education and raising awareness

Recommendation

- 2. Maintain and develop a coordinated approach to the development and delivery of falls prevention messages, resources and activities through the Stay On Your Feet WA® program.**

Strategies

Create links between falls prevention and other campaigns that deliver general healthy lifestyle messages (including physical activity and nutrition) across all ages to ensure a consistent health message to the community.

- Promote the use of health messages, resources and educational tools that are meaningful and have engaged the target group (ie. consumers and carers) in their development.
- Explore innovative ways of delivering health messages, which expand beyond dissemination of printed resources utilising adult education principles.
- Develop a specific carer education strategy as part of broader education and awareness-raising strategies.
- Partner with Aboriginal and culturally and linguistically diverse (CaLD) groups to develop tailored health promotion that delivers falls prevention messages in a culturally appropriate manner.
- Evolve the Stay On Your Feet WA® program to support coordination of information and resources for residential and inpatient care settings.
- Support primary care practitioners, including optometrists and pharmacists to engage individuals in falls prevention education and intervention, through the development of educational tools.

In order to create a robust and healthy population, a whole-of-life approach to education and awareness raising is needed. The consistent delivery of healthy lifestyle messages to the general population across the lifespan will help to normalise these behaviours. This will ensure that people are empowered and educated at a time when they are well positioned to adopt positive lifestyle-related behaviours that optimise bone health as well as muscle strength and balance.

Types of messages

■ Youth and young adults

The [WHO Global Report on Falls Prevention in Older Age](#)¹² recognises the need to build awareness of falls prevention amongst a number of target groups beyond just the individuals or groups at risk of falls. For example, there is a need to invest in sustained, high-quality statewide public education campaigns that motivate and support those in early and adult life to increase physical activity, reduce sedentary behaviour and maintain good nutrition. A major barrier to the uptake of falls prevention activities, is the perception that such activities are only for elderly or frail people, and many individuals are reluctant to categorise themselves in that way.^{40, 41} Taking a whole-of-life approach and creating links between falls prevention and healthy lifestyle behaviours in early life will encourage people to become familiar with falls prevention at an earlier age to help combat negative connotations later in life.

■ Older people and those at risk

The development and delivery of meaningful population falls prevention messages that will lead to consumer behaviour change should be guided by research. The development of suitable messages should be informed by discussion and feedback

with consumer bodies, older people and their carers. General population messages that aim to increase the uptake of falls prevention interventions should highlight the range of possible benefits of these interventions from a reduction in an individual's risk of falls, to improvements in balance. This may help to capture a broader audience including individuals who may not relate falls prevention to themselves but would still benefit from the uptake of such behaviours or interventions.¹² In addition, education should ultimately empower at risk individuals to be proactive about falls prevention by raising the issue with their health professional if they feel they would benefit from falls prevention interventions. Efforts should be directed to creating an aware and informed community by increasing the proportion of people who:

- are aware that falls can be prevented and are not an inevitable part of ageing
- can accurately identify falls prevention strategies
- report falls as a personal health priority
- report intention to make positive behaviour changes.

Targeted messages and information should be tailored for other groups who are at an increased risk of falling including:

- Aboriginal people
- culturally and linguistically diverse populations
- populations living in regional and remote areas
- people with disabilities
- people with mental illness
- people with dementia
- people with other neurological impairments such as stroke and Parkinson's Disease
- people with vision impairment.

Methods of communication

Falls prevention messages should be delivered through a variety of communication channels discussed below.

■ Resources

Printed and online information resources are one form of education and awareness raising that should be accessible to all. Information should be presented in a consistent and simple manner using appropriate and easy to understand language with terminology explained as required. The evidence relating to the provision of educational materials alone for preventing falls is inconclusive and therefore it should be provided as part of a more comprehensive intervention where possible.⁶ Resources should be regularly reviewed to ensure they are meeting the needs of both the providers and end users.

There are a number of [resources](#) currently available as part of the Stay On Your Feet WA[®] program. Stay On Your Feet WA[®] is a main point of contact for community and health professionals for falls related enquiries and assistance and should continue to be promoted as such. Having a central place to access falls prevention information and resources for all settings supports a coordinated approach to quality information and activity.

The Stay On Your Feet[®] program should review existing resources and ensure health messages are current and appealing. Innovative ways of delivering the messages and resources should be explored, guided by adult learning principles. The resources should be promoted in all settings (health and non-health related) that interact with target populations such as:

- Community and subacute setting (local and state government, fitness industry, General Practice, private allied health services, Aboriginal Community Controlled Health Services, Home and Community Care (HACC), Department of Veteran's Affairs, Aged Care Assessment Teams (ACAT))
- Hospital setting
- Residential care setting

■ Media

The media has an important role to play in delivering falls prevention messages, and strategies should be put in place to promote the delivery of consistent, positive messages. One method of delivery is through mass media campaigns. In addition to campaigns that are specific to falls prevention, consideration should also be given to supporting and incorporating falls prevention messages in other campaigns and programs which contribute indirectly to falls prevention through the promotion of a healthy lifestyle and healthy ageing (such as [LiveLighter](#)). This will increase understanding of the association between exercise and falls prevention, creating a common dialogue. Champions or ambassadors can be identified to further promote messages.^{42, 43} The promotion of falls prevention and healthy lifestyle messages through the use of social media and applications for mobile phones and tablet devices should be explored.

■ Community

Community organisations should be encouraged to take an active role in awareness raising through activities such as peer education⁴⁴, volunteer promotions and hosting local falls prevention activities to support state and national efforts (i.e. during falls prevention 'weeks'). The use of peer role models is also recommended.¹² Community organisations should also consider supporting more specific programs, such as [Stepping On](#), that assist older people to maintain their independence, confidence and ability to undertake everyday activities safely.⁴⁵

4.1.3 Supportive environments

Strategies

- Advise of strategies to assist the development of supportive environments, in alignment with the [WA Health Promotion Strategic Framework 2012-2016](#).¹¹

Evidence suggests that media campaigns are more successful in achieving behaviour change when supported by availability and access to services, products, legislation and policy.⁴⁶ Therefore communities should focus on the development of supportive environments through environmental design to reduce the risk of falls and encourage physical activity. Many government departments play a role in creating well-maintained footpaths, spaces for physical activity and safe homes. These roles are discussed further in [section 4.3](#).

In addition, public health policies provide vision and direction for activity at a local and individual level.^{40, 41} Those responsible for health and social services are well placed to influence the development of environments supportive of healthy lifestyles through their policies. Ensuring access to appropriate services is another important factor which requires cross-governmental collaboration to ensure a comprehensive and consistent approach.

4.2 Apply falls prevention interventions (Recommendations 3 to 9)

Current activities that apply evidence based falls prevention interventions	Gaps in applying evidence based falls prevention interventions
<ul style="list-style-type: none"> ■ Established falls prevention services targeting community dwelling older adults in WA. ■ Primary care – Care plans, health checks, bone health and allied health input. ■ Home Medicines Review ■ Residential care falls prevention <ul style="list-style-type: none"> ▪ pharmacy review ▪ residential care networking activity ▪ accreditation requirements ■ Inpatient falls prevention <ul style="list-style-type: none"> ▪ NSQHS Standard 10: Preventing Falls and Harm from Falls ▪ Safety and Quality Investment for Reform (SQIRe) ▪ WA Community of Practice for hospital settings ▪ Falls Risk Assessment and Management Plan²¹ ▪ Post-Fall Management Guidelines for WA Healthcare Settings²² ■ National networks <ul style="list-style-type: none"> ▪ ACSQHC National Falls and Falls Injury Prevention Reference Group ▪ ANZFPS TRIPP working group ■ ACSQHC Guidelines in all settings. 	<ul style="list-style-type: none"> ■ Unknown size of “evidence-practice gap” in the WA population for effective interventions. ■ Ongoing barriers to exercise program uptake including availability, cost, range and acceptability to consumers. ■ No or few appropriate falls prevention interventions (e.g. suitable exercise programs) designed specifically for Aboriginal people, CaLD groups or those with mental health disorders. ■ Importance of vitamin D for fall prevention and bone health not well appreciated in community and by health care providers. ■ Lack of systematic approach to vitamin D prescription in residential care and for those at high risk of deficiency. ■ Lack of societal, government and practitioner awareness of probable harm caused by poor sedative prescription habits. ■ Lack of supported sedative withdrawal programs in primary care including access to appropriately skilled clinical psychologists. ■ Inconsistent information provided about bifocal and multifocal use during adult life. ■ Lack of systemic engagement of optometrists and ophthalmologists in falls prevention efforts. ■ Communication between residential care settings and state and local government bodies is inconsistent. ■ Limited evidence of effective interventions in residential care, especially in terms of exercise. ■ Cataract surgery prioritisation systems are not consistent with the evidence base relating to reducing falls risk.

In the last decade the evidence for falls prevention has expanded significantly such that a suite of effective interventions to prevent falls now exist for multiple settings. This section is not intended to exhaustively represent the evidence already outlined in multiple guidelines, instead it identifies some key interventions that if applied in WA could lead to improved health outcomes.^{3-6, 47-51} The interventions are directed to the individual level, with those that are relevant for community and residential care settings discussed in [4.2.3](#) and [4.2.4](#) and summarised in [Table 2](#). Interventions for the hospital setting are discussed in [4.2.5](#) and summarised in [Table 3](#).

4.2.1 Background to falls prevention evidence in different settings

The problem of falls is not uniform across different settings, so evidence from one setting can not simply be applied to another. Therefore, it is important to consider the current and usual living location of any individual who may require fall preventative measures. When people move from one setting to another, such as hospital and their home, falls prevention evidence should be applied using the evidence applicable in each setting. It should be noted that osteoporosis diagnosis and management is not addressed as a separate entity in this Model but should be considered for all patients for whom falls prevention is considered (see the [Osteoporosis MoC¹⁰](#)).

Community setting

As most falls result from an interaction of multiple intrinsic and extrinsic risk factors, many falls prevention trials focused on identifying multiple risk factors then providing interventions to address these. This multifactorial intervention approach remains effective, particularly for those at highest risk, such as those identified by screening questions (see [Figure 5](#)) or those with certain clinical features (see [Table 1](#)).

As not all patients are high risk or may prefer less complex interventions, another approach is to target a single risk factor called a “single intervention”, such as exercise for balance deficit (see [Table 2](#)). For some patients this approach will be effective and may be preferable in terms of patient preference and cost.⁵²

Hospital setting

People in hospital fall more frequently than those in the community.⁵³ This is attributable to the fact that people in hospital are often adjusting to being unwell, experiencing unfamiliar environments and routines, feeling a loss of personal control and having increased physical dependency on staff. Effective falls prevention requires the individual and staff to make adjustments to each others’ expectations and behaviours. Prior to 2008, trials had significant methodological problems, however, since this time a number of quality randomised controlled trials have been carried out and recently summarised.⁵³ Although a number of effective interventions exist (see [Table 3](#)), substantial gaps in hospital falls prevention evidence still remains (see [4.4.1 Research priorities for the future](#)).

Residential care setting

Falls rates are high in residential aged care (RAC) facilities with 1 in 2 residents falling within a 6-month period.⁵⁴ Residents have an increased rate of cognitive impairment, continence problems, comorbidities and polypharmacy which contributes to an increased falls risk³. The evidence for falls prevention in a RAC setting is outlined in [Table 2](#), however it should be noted that substantial gaps in key areas of evidence still exists. An example of an area requiring further evidence is the current caution around exercise as an intervention. However for an appropriately selected patient, trained practitioners prescribing exercise can be effective. A review of hip protector evidence revealed a lack of compliance and acceptability impacting on effectiveness, however if practitioners can address compliance and target people at high risk then they should be encouraged to do so.³ Despite evidence limitations, RAC settings should be encouraged to follow care recommendations outlined in relevant guidelines ([Best Practice Guidelines for Australian Residential Aged Care Facilities³](#)).

4.2.2 Special considerations

Certain populations have either not been the subject of research or not had the effectiveness of falls prevention interventions demonstrated in trials. These populations should still have falls prevention interventions made available, but may need to have programs adjusted to the individual's needs. Examples of populations who may be at increased risk of falls includes:

- Aboriginal people and CaLD populations
- people with neurological conditions e.g. Parkinsons disease, stroke, cerebral palsy
- people with dementia
- people with chronic conditions e.g. arthritis
- people in hospital in some settings such as mental health wards.

4.2.3 Single interventions

Recommendation

3. Target our older age population at risk of falls, or those who have fallen, with an evidence based exercise program to prevent falls.

Strategies

- Improve identification of those at risk of falling through screening at multiple health contact points (ambulance, primary care, pharmacy, hospital, emergency department etc).
- Build and improve on existing directories of appropriate exercise programs targeting adults and older adults who are at risk of falling.
- Increase availability and range of appropriate exercise programs based on population needs and modelling, achieved through expansion of existing services and a primary care strategy engaging Medicare Locals.
- Identify gaps and develop falls prevention exercise programs for target groups including younger adults at risk of falls and those with certain neurological conditions.
- Communicate to practitioners and consumers about which programs will prevent falls (based on characteristics which have been found to be effective⁵⁰).
- Identify and address barriers to the uptake of exercise in older adults and support implementation of programs that achieve good exercise uptake.
- Encourage exercise programs delivered to groups to include education and strategic links to other effective interventions.
- Consider how best to assist older adults to maintain ongoing participation in exercise, linking existing programs to Medicare Locals, local government and other services.

Exercise

The evidence for exercise in preventing falls in the community is now well established.^{4, 6, 49-54} Systematic reviews have also identified that tai chi can reduce falls by 37% and the New Zealand developed, Otago Exercise Program, by 32%.^{6, 51} Exercise uptake can be hampered by concerns about increased pain or lack of efficacy, however recommendation from the General Practitioner (GP) can overcome these barriers and significantly increase uptake.^{55, 56} Exercise is a common component of a multifactorial intervention and can also be prescribed as a single intervention. The approach of combined exercise with education to groups in centre-based rehabilitation settings is also effective.⁵⁷

A [meta-analysis by Sherrington et al](#)⁵⁰ found the characteristics or components of exercise programs that are associated with larger reductions in falls in older adults to be:

- moderate or high challenge to balance
- minimum of 2 hours per week on an ongoing basis
- home or group setting
- strength and walking training may be included in addition to balance (however, brisk walking is not recommended for high risk individuals)

Individual or group based exercise programs can be delivered by health and non-health related professionals in a community or primary care setting. Non-government organisations, local governments, private allied health specialists and the fitness industry should be encouraged to provide this service, with the appropriate training and support. An easily accessible directory of falls prevention programs in WA should be available. Known falls prevention exercise programs currently available in WA include:

- [Living Longer Living Stronger™](#) (community/group based)
- [Community Physiotherapy Services \(CPS\)](#) (community/group based)
- Medicare Local programs
- Falls Clinics and [Falls Specialist Coordinators](#) based in DTUs (metropolitan aged care services) (hospital or home / small group or individual)
- [Arthritis & Osteoporosis WA - Dr Paul Lam's Tai Chi for Arthritis & Osteoporosis program](#)

Currently, there is no definitive evidence that exercise as a single intervention reduces falls in residential care facilities, but it may be effective in less frail residents.⁵ Balance training using mechanical apparatus in intermediate level care facilities was the only exercise type tested that was found to be effective.⁵ Residential care facilities should show caution when prescribing programs avoiding a “one size fits all” approach, instead targeting certain individuals assessed by a physiotherapist with expertise in assessment of older adults.

Medications

Recommendation

- 4. Promote strategies to reduce inappropriate prescriptions of psychoactive medication (including benzodiazepines) and other medications strongly associated with falls, to adults and older adults.**

Strategies

- Support the provision of information about the risks and benefits of benzodiazepine prescription to consumers through multiple communication channels – including peak body organisations, pharmacists, primary care and active ageing consumer groups.
- Advocate for and support strategies aiming to ensure quality use of medications, including consideration of falls risk and falls prevention during pharmacist reviews (including Home Medicine Reviews and pharmacist reviews in residential care).
- Improve access to effective treatment for insomnia such as cognitive behavioural therapy.
- Perform research to investigate other strategies to assist older people themselves and their carers to improve their use of medication and overcome barriers to benzodiazepine withdrawal.
- Perform research to improve knowledge about the effects on older adults of deprescribing to advise on better medical care, reducing polypharmacy and medication costs.
- Advocate for a state and national approach to support withdrawal from inappropriate psychoactive medication prescriptions, including the delivery of stepped withdrawal programs in primary care.

The association between drugs and falls has been widely studied with robust evidence supporting a causal link.⁵⁸ Specific classes of drugs and the total number of drugs taken are associated with falls. Interventions to prevent falls have been effective when psychoactive medications withdrawal has been undertaken and also when medication review is applied as part of a multifactorial intervention.⁶

Psychoactive medications

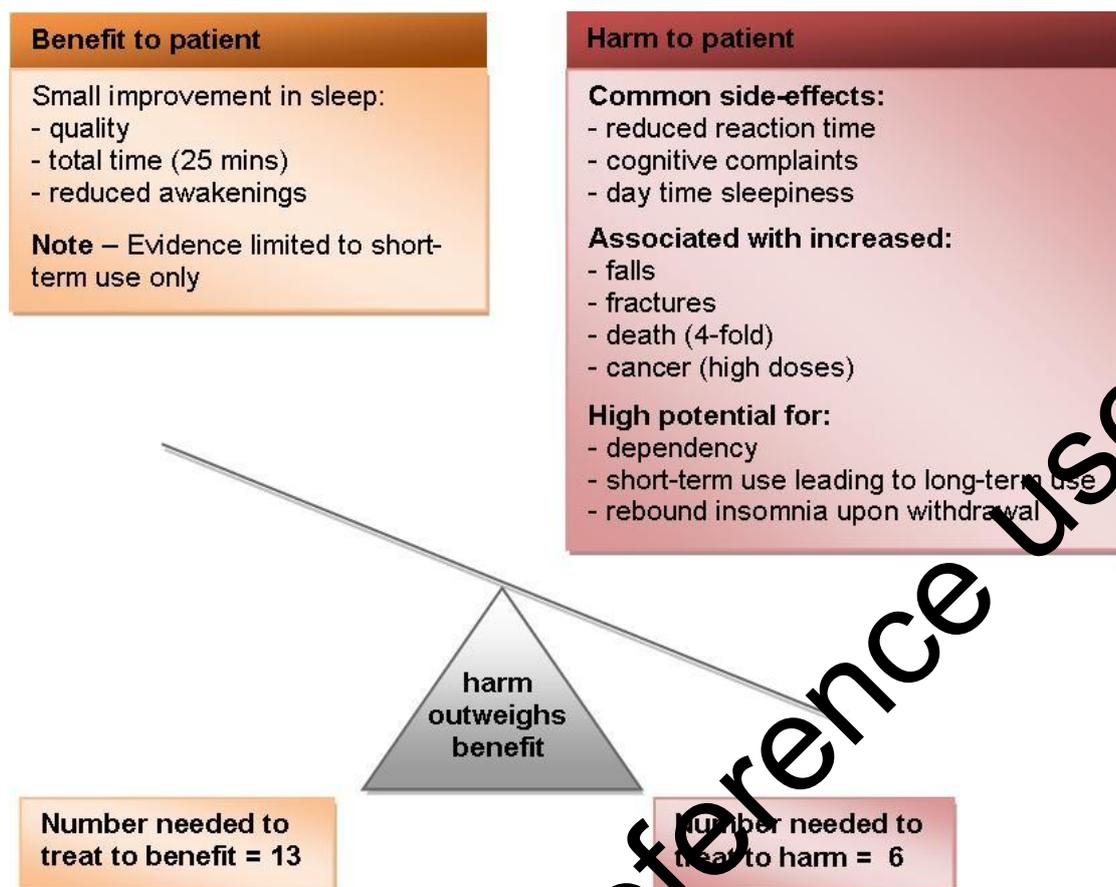
Psychoactive medication (also referred to as central nervous system-active or psychotropic drugs) includes antidepressants, antipsychotics, and sedative drugs. Psychoactive medications are taken by 22% of community-dwelling older people and there is strong evidence they are an independent intrinsic risk factor for falls.^{59, 60} The main class of sedatives are benzodiazepine drugs. Unfortunately newer benzodiazepine-like receptor agonists (e.g. zolpidem and zopiclone) do not have a safer side effect profile than earlier generation drugs. The same risk of falls also applies to newer antidepressants (e.g. selective serotonin reuptake inhibitor) and atypical antipsychotics (e.g. Risperidone), when compared to older drugs.⁵⁸

Psychoactive drug withdrawal has been demonstrated to reduce falls by 66%.⁶¹ Of the drugs withdrawn, sedatives are the most important class with the highest prevalence as almost 1 in 5 older adults take benzodiazepines long term (>4.5 years) despite no evidence of long term efficacy for insomnia.^{62, 63} The harms of these drugs have been outlined in a meta-analysis demonstrating that the small sleep benefits are outweighed by adverse effects including fractures (see [Figure 3](#)).^{58, 60, 64, 58, 60, 64, 58, 60, 64} Recent data shows an increasing association of benzodiazepines with increased falls, fracture, mortality and an increased cancer risk at high dosage.^{65, 66} In contrast, cognitive behavioural therapy and sleep restriction are effective strategies for treating long term insomnia in older people.⁶⁷

Although benzodiazepine withdrawal is challenging, 18% of older adults quit by themselves after receiving written advice from their GP.⁶⁸ If this is insufficient for successful withdrawal then enrolment in a stepped withdrawal program assists patients to achieve cessation in 62% of cases.⁶⁹ Patients who participate in these stepped withdrawal programs are transferred to equivalent diazepam dose, then this dose is reduced by 25% per week with 5 consultations. Meta-analysis of published research supports this two-step approach.⁷⁰

Obsolete - for reference use only

Figure 3. Decision making tool for new benzodiazepine prescription for older adults for insomnia^{64, 65, 67}



Notes:

- Studies include new Z-compounds which work at the benzodiazepine receptor (including Zolpidem and Zopiclone).
- Cognitive behavioural therapy and sleep restriction therapy is effective in treating insomnia in older people⁶⁷

Quality medicines use

Minimising the harm of inappropriate prescribing in older populations (persons aged 65 years or more) is a major urgent concern for modern healthcare systems.⁷¹ Australia spends around 14% of total health budget on medicines, however medicine use is suboptimal with underuse, overuse and misuse common.⁷² Over a 5-year period, one in four older persons are hospitalised for medication-related problems.⁷³ Older adults are prone to polypharmacy (>5 medications) and adverse drug reactions, which may result in hospitalisation and mortality. Compliance is also poor, often intentionally.

Medicine review is effective when included as part of a multifactorial falls prevention approach and efforts should be made so that recommendations are implemented and medication use is optimised following the assessment. Although current evidence does not confirm the effectiveness of medication review and modification alone as a falls prevention intervention, more complex interventions involving education of general practitioners through academic detailing, feedback and financial rewards has been shown to be effective in reducing the risk of falls.⁷⁴ Home medicine reviews provide an opportunity for medication review.

Changing medication prescription may reduce falls in RAC facilities. One randomised control trial using a pharmacist review followed by written recommendations to the GP resulted in drug changes and decreased falls.⁷⁵ Recommendations were made in 77% of

patients, with 75% of the changes accepted by the GP. Although regular pharmacist reviews occur in Australia, studies suggest 43% of RAC facility residents are prescribed at least one inappropriate medication.⁷⁵

Vitamin D supplementation

Recommendation

5. Improve the provision of adequate vitamin D supplementation (>800 units/day) for older adults with proven vitamin D deficiency in the community and for all those in residential care settings.

Strategies

- Advocate for a state and national approach to implementation of Vitamin D provision for those in residential care, including development of a quality indicator reported by care settings.
- Support strategies that provide appropriate Vitamin D testing and / or prescription in those who are community based and at risk of falls, avoiding unnecessary and repeat testing.
- Improve availability of higher dose Vitamin D preparations for routine use such as Cholecalciferole 50,000 unit tablets to reduce cost, improve compliance and options for consumers (mega doses should not be routinely administered).

Vitamin D supplementation for older adults with deficiency is an effective and simple strategy for fall and fracture prevention.^{49, 76-78} As discussed in [section 4.1 Create a robust and healthy population](#), vitamin D deficiency has re-emerged as a major public health problem worldwide. Vitamin D deficiency increases with age and female sex, affecting 57% of females above 75-years living at home (cut off of 25-hydroxyvitamin D <50nmol per litre).³⁸ Levels of deficiency also increase in those with obesity, low levels of physical activity and those of non-European descent.³⁸

Although Vitamin D supplementation given broadly to older adults in the community is not effective in preventing falls, it is when given to those with deficiency.^{6, 49, 76, 77} The benefits also comprise hip fracture prevention with benefits persisting with increasing age. Vitamin D supplementation can reduce falls by 17% (95%CI: 11-23%) and a 30% reduction in hip fracture risk has been demonstrated with higher doses (cholecalciferol 800 - 2000 IU).^{49, 77} Daily, weekly or 4-monthly regimes appear effective, however annual high-dose administration should be avoided.^{61, 77} A Vitamin D level of >60 nmol per litre is required for falls and fracture prevention and the benefit of additional calcium supplementation uncertain.^{61, 76, 77}

Vitamin D deficiency is very high in Australian RAC facility residents with 89% having a 25-hydroxyvitamin D level < 60nmol per litre.⁷⁹ Fractures can be prevented with cholecalciferol supplementation (800 - 2000 IU per day) given to all residents, with the requirement for calcium supplementation uncertain.^{77, 79} In Australia, there is no uniform approach to implementation of cholecalciferol supplementation in RAC; New Zealand's approach has been the routine administration of oral cholecalciferol 50,000 IU monthly (not routinely available in Australia)³⁵ without vitamin D level testing or monitoring.

Recommendation

6. Provide education to older adults considering purchasing or renewing multifocal glasses to support falls prevention.

Strategies

- Develop a strategy and approach to improving delivery of information and advice to older adults using, or considering using, multifocals (includes bifocals, transition glasses, trifocals). The role of optometrists, ophthalmologists and others who provide information on the use of eyewear should be considered in this education.
- Engage ophthalmology peak bodies and service providers to support appropriate optical prescriptions and advice in relation to falls.
- Develop patient centred education material about vision, multifocal use and falls.
- Review cataract extraction prioritisation systems and monitor waiting times to ensure timely access to first cataract procedure for those at risk of falls.

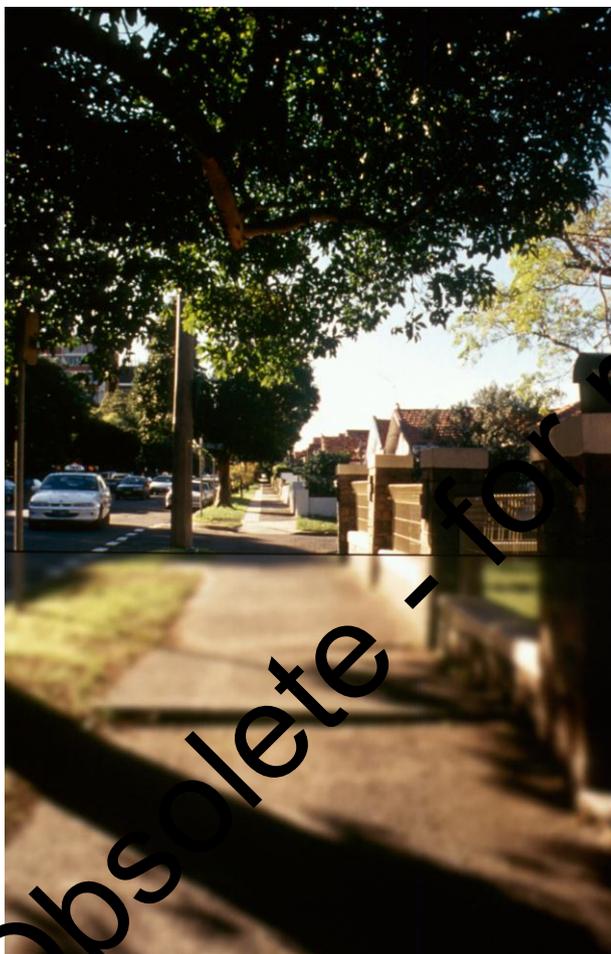


Figure 4. Distortion of lower vision field in an individual wearing multifocal spectacles⁸⁰

Visual impairment is an independent risk factor for falls and fractures. Multifocal glasses increase falls risk by distorting the lower visual field.⁸⁰ Falls prevention has been demonstrated through the use of an additional pair of single lens distance glasses when going outside or in unfamiliar environment.⁸¹ This advice only applies to those who undertake regular outdoor activity with changes to multifocal use increasing falls risk in less active adults. Older people with minimal correctable distance refractive error should use reading glasses for near vision and remove them when walking. Those with existing bifocals and minimal refractive error should also remove these when walking.

The provision of new spectacles alone is not an effective falls prevention strategy.⁸² Older people may also be at increased risk of falling while adjusting to new spectacles or major changes in prescription.⁶

Short waiting time (within 4 weeks) for first eye cataract surgery is effective in preventing falls and fracture, although not effective for second cataract surgery.⁸³ In 2012 in WA, 97% of cataract surgeries were performed within their allocated boundary, with the average waiting time of 11 weeks.⁸⁴⁻⁸⁷

Photograph used with permission from Prof Stephen Lord, Neuroscience Research Australia

It should be noted that the majority of cataract surgery cases were not deemed to be clinically urgent with 2% classified as category 1 (admission within 30 days), 12% classified as category 2 (admission within 90 days) and 86% classified as category 3 (admission within 365 days).⁸⁴⁻⁸⁷ Given that the majority of cases are classified as category 3, this may suggest that WA's prioritisation system does not take into account falls risk, therefore there may be opportunity for WA to improve performance by expediting cataract surgery for a selected patient group. A study of cataract operations in WA from 1996 to 2001 showed a growing inequity in the rates of cataract surgery for rural and poorer patients, partly reflecting the increasingly two-tiered Australian health system with more privately provided cataract surgery in urban areas.⁸⁸

Home modification

Recommendation

- 7. Maintain and improve access to occupational therapy home visits and intervention to high-risk populations, such as those with visual impairment or those recently hospitalised.**

Strategies

- Ensure a high quality of occupational therapy home visiting services optimised to provide falls prevention interventions. This will include the development of Falls Specialist Coordinator (FSC) roles linking to other providers such as Department of Veteran's Affairs occupational therapists and private providers.

Home safety modifications reduce the rate of falls and risk of falling, particularly amongst people with poor vision or those recently hospitalised.^{89, 90} These interventions are more effective in people at higher risk of falling.⁶ They are also more effective when they include follow up and when they are delivered by an occupational therapist.⁶ A recent analysis of the cost effectiveness of falls prevention interventions utilising epidemiological modelling and designed for policy and decision-makers, demonstrated that occupational therapy delivered home assessment and modification represented the best falls prevention investment.⁹¹ The degree to which this care is provided is unknown in WA.

4.2.4 Multifactorial interventions

Recommendations

- 8. Target high risk populations, including those who have fallen, with an evidence based multifactorial assessment and intervention program delivered through aged care and rehabilitation health services.**

Strategies

- Review current Falls Clinic and fall specialist service delivery models in WA with an aim of developing a consistent and efficient model of delivery, utilising existing evidence and acknowledging the variation of effective models.
- Recommend as part of [NSQHS Standard 10](#) accreditation that pathways from hospital and emergency department settings to Falls Clinics be established and monitored as an institutional requirement.
- Improve referral rates from areas with known evidence-practice gaps, such as fracture clinics and orthopaedic services.
- Improve access to podiatry as part of a multidisciplinary falls prevention service.
- Improve availability and access to podiatry clinics and ensure those with disabling foot pain are delivered multifaceted podiatry interventions targeting falls prevention.
- Support development of effective community based programs delivering multiple interventions in group settings, such as [Stepping On](#).

The **multifactorial intervention** approach involves a detailed patient risk-assessment by a clinician (or clinicians), followed by the development of a tailored multifactorial intervention to address modifiable risk factors.

Key components of a multifactorial assessment include:

- a detailed falls history, medication review, risk factor assessment including osteoporosis, urinary incontinence and cardiovascular disease
- physical examination including gait and balance, neurological and cognitive function, lower limb strength, visual acuity, feet and footwear
- functional assessment such as activities of daily living, perceived functional ability and fear of falling.

WA applies this approach through Falls Clinics based in Day Therapy Units (DTUs) and this is now assisted by utilising Falls Specialist Coordinators (FSC) working in the same setting. This approach benefits those at highest risk based on screening (see **Figure 6**) or clinical features (see **Table 1**). Due to the overlap between falls and syncope, consideration should be made for referral to cardiology services. Falls Clinic services have demonstrated that high-risk patients benefit in terms of falls reduction, improved mobility and confidence.⁹²⁻⁹⁴ Multifactorial interventions are most effective when delivered by the assessing team, supporting the current approach in service delivery in WA.⁶ In WA, an enhanced primary care plan may facilitate implementing falls prevention strategies when using a multifactorial approach.⁹⁵ Given Falls Clinics are not available in all rural settings, local aged care services should aim to adapt services to address this gap with support from links to metropolitan services.

Table 1. People at high risk of falls who may benefit from Falls Clinic or multifactorial intervention to prevent falls

Target population = community-dwelling older adults
Frequency
<ul style="list-style-type: none"> ■ recurrent falls (two or more falls in past 12 months)
Clinical features
<ul style="list-style-type: none"> ■ Unexplained falls with syncope, dizziness or poor recall* ■ falls as part of downward spiral (physical, social, psychological) ■ falls occurring at low threshold (such as basic activities or daily activities) ■ falls with injury, head injury, low trauma fracture, or on the floor >1 hour) ■ gait disturbance or unsteadiness present ■ fall related hospital or Emergency Department or ambulance utilisation ■ recent hospitalisation or visual impairment (occupational therapist home visit alone may be adequate)
* Consider cardiologist referral if cardiogenic syncope is suspected

Multifactorial programs for residents in care facilities may be effective with 7 trials suggesting possible benefit, however the evidence was not conclusive.⁵ Referral to falls prevention services, including FSC, may be beneficial for residents, but are not considered routine practice.

Podiatry warrants special mention as it makes up part of some multifactorial interventions. Recent evidence demonstrates a "multifaceted podiatry" intervention reduces falls rate. This intervention was delivered to people with foot pain who are at risk of falls and comprised of customised orthoses, footwear review, foot and ankle exercises and fall prevention education.⁶

An effective falls prevention program which delivers multiple interventions, not specifically tailored to an individual's risk, is the successful Australian community based program Stepping On.⁴⁵ This program aims to improve self efficacy and encourage behaviour change around a number of key aspects of falls prevention including improving lower-limb balance and strength, improving home safety and encouraging regular visual screening and medication review. This is achieved through a combination of group-based learning and individualised follow-up. Such programs are complimentary to the multifactorial and single approach, creating a suite of effective services that can be accessed across the health continuum.

Obsolete - for reference use only

Table 2. Evidence for fall prevention strategies in the community and residential care settings⁹⁶

Community-dwelling older people			
Strategy	Rating	Individuals who benefit	Practice points
Exercise		Effective for both high falls risk and general older adult populations. Adaptation may be required if cognitive impairment present.	May be home or group program, requires balance component. Needs to be performed for 2 hours/week on an ongoing basis.
Psychoactive medication withdrawal		Those taking benzodiazepine or other psychoactive medication.	GP supported, stepped withdrawal, average 5 visits.
Vitamin D in high dose		Those with low Vitamin D level (<60 nmol per litre).	Cholecalciferol > 800 IU/day, prevents fractures and falls.
Restricted multifocal spectacle use		Active older people using multifocal lenses (caution - may harm inactive older adults).	Use an additional pair of single-lens spectacles when outside. Provide falls education.
Expedited cataract surgery		First cataract appropriate for surgery.	Wait time less than 4 weeks.
Occupational therapy home visit		High-risk individuals especially those with visual impairment or recent hospitalisation.	Hazard reduction, training and education. Best as part of a multifactorial strategy.
Podiatry intervention		Disabling foot pain attending podiatry clinic.	May include orthoses, footwear advice, foot and ankle exercises, falls education.
Multifactorial assessment with targeted interventions		High-risk individuals such as those with recurrent unexplained falls or those who have suffered a fall injury.	Effective if interventions provided or arranged directly by assessment team.
Older people living in residential care			
Strategy	Rating	Residents who benefit	Practice points
Vitamin D in high dose		All, unless known hypercalcaemia.	Cholecalciferol > 800 IU/day, Serum Vitamin D monitoring not required.
Medication review by pharmacist		All residents.	Comprises multiple changes to regime and increasing tests for monitoring.
Multifactorial assessment with targeted Interventions		High-risk patients such as those with recurrent unexplained falls or those who have suffered a fall injury.	Effective if interventions provided or arranged directly by assessment team.
Hip Protectors	Good practice point	Mobile residents who will be compliant.	Acceptability and adherence a major challenge, but effective in preventing fractures if worn.
Exercise	Good practice point	Less frail residents assessed by physiotherapy as suitable (exercise may increase falls in some residents)	Balance program should weigh up exercise intensity versus safety taking into account resident's cognitive status.
<p> = Strongly recommended based on high quality evidence (NHMRC level A), relevant to most older adults, easily implementable.</p> <p> = Strongly recommended based on high quality evidence (NHMRC level A), relevant to sub-population of older adults, implementation dependant on service availability.</p> <p> = Recommended based on good evidence (NHMRC level B), relevant to sub-populations of older adults, implementation requires application of practice points.</p> <p>Good practice point = Recommendation based on expert opinion with limited evidence, relevant to sub-population, complex to implement.</p>			

4.2.5. Interventions in the hospital setting

Recommendation

9. Support WA health services to meet National Safety and Quality Health Service (NSQHS) Standard 10, attaining a high level of achievement by utilising contemporary evidence.

Strategies

- Continue to recognise and maintain WA Health's commitment to the SQulRe Inpatient Falls Prevention Program, including health service level resourcing.
- Assist in the development of the WA Safety and Quality Point Prevalence Survey to collect appropriate data to drive quality improvement activity and monitor WA's ability to meet NSQHS Standard 10 in terms of quality of care and consumer knowledge and participation.
- Endorse a standardised approach to screening, assessment and multifactorial prevention across WA hospitals with rapid updates as the evidence base develops.
- Support and contribute to monitoring falls prevention activity at a national level through participation on the ACSQHC National Falls and Falls Injury Prevention Reference Group, which has links to the national safety and quality Inter-Jurisdictional Committee.
- Support reporting systems to accurately capture and analyse falls events in WA hospitals, including computer based reporting systems.
- Improve the feedback loop of knowledge attained from existing incident data relating to falls in WA hospitals so providers can learn and improve care based on incidence.
- Support statewide uptake of targeted educational interventions to prevent falls and empower people in hospitals to direct their care.
- Develop a single contact point for resources and guidance related to Standard 10 for health care providers and quality improvement staff.
- Measure and monitor referral rates to preventative care following discharge for those admitted to hospital for a fall. Recognise this relates directly to implementation of recommendation 8, 11 and 12.

Current programs and practice related to inpatient falls prevention in WA public hospitals are outlined in sections [4.3.2.4 Hospital setting](#) and [3.1 Achievements](#). The evidence for hospital strategies is summarised in [Table 3](#).

The endorsement of NSQHS Standard 10, Preventing Falls and Harm from Falls, provides a significant opportunity for WA to improve inpatient falls prevention and link patients to falls prevention services following discharge. The cost and magnitude of falls combined with an incomplete evidence base means that this is a complex task requiring a coordinated approach based on a consensus and current evidence. The WA Health Falls Prevention CoP should be endorsed and supported as a key enabler with representation from areas within the Department of Health WA including Office of Safety and Quality and Health Strategy and Networks. Health services should ensure adequate resourcing and governance are provided to allow improvements through changes at a clinical level to occur.

Careful consideration of data collection methods is required to monitor the effect of falls prevention measures. A WA study demonstrated hospital falls reporting systems underestimate the true incidence of falls.^{97, 98} Problems that prevent accurate reporting include barriers to reporting falls, inefficient falls reporting mechanisms and reduced staff awareness about reporting falls.^{99, 100} Ongoing efforts are required to train all staff in falls

reporting and to monitor and evaluate falls reporting systems for compliance and efficiency.

Falls risk screening, assessment and management of risk factors within the hospital setting is an important component of falls prevention.⁵ Falls risk tools are not more accurate about falls risk than clinical judgment and there is no consensus about what items should be included in falls risk tools.^{5, 101} Recent guidelines also recommend the age cut off for screening should be reduced to 55 years.¹⁰² It is recommended that falls risk assessment in hospital should be incorporated into an individualised management plan regardless of risk score.⁵ Since older patients are known to be at increased risk of falls⁵, all patients should receive a basic management plan which is further tailored according to their individual risk profile. Intrinsic and extrinsic risk factors should be addressed. WA currently screens all patients using the [Falls Risk Assessment and Management Plan](#) which is a tool that does not create a score or stratify patients.

Multifactorial interventions based on assessment in hospitals reduce the rate of falls; however the effect on risk of falling is inconclusive.⁵ One trial in a subacute setting reported the effect was not apparent until after 45 days in hospital.¹⁰³ The trials to date are small in number and have too many different components to allow sub-analysis. Therefore more trials are required to determine the effectiveness of multifactorial interventions and which particular components are the most important.⁵

An effective single intervention comprised of patient education is of particular importance and can assist services to address Standard 10 as it recommends improved communication with patients and carers and their involvement in developing their care plan. Multimedia patient education with trained health professional follow-up has been shown to reduce falls when directed to those with normal cognition.¹⁰⁴ This education was provided in addition to routine care, predominantly in subacute settings but also for some people in the acute settings.

Both [Standard 10](#) and recent [National Institute for Clinical Excellence guidelines](#) recommend people at risk of falls, such as those admitted with a fall or high risk features, should be referred for falls prevention measures including home visits and multifactorial intervention.^{102, 105} WA's performance in referring appropriate individuals for falls prevention measures is unknown, but has been demonstrated to be inadequate when the emergency department setting is examined.¹⁰⁶ Data collection does not routinely collect data on referrals therefore Health Services will need to audit their own performance.

Obsolete - for reference use only

Table 3. Evidence for fall prevention strategies in hospitals⁹⁶

Older people in hospitals			
Strategy	Rating	Patients who benefit	Practice points
Risk assessment and targeted management plan (multifactorial intervention)		All older hospital patients	Address each risk factor identified with an individualised plan. Consider environmental modification, education, exercise, medication changes, delirium and continence management.
Theoretically-driven patient education with health professional follow-up		Older adults with normal cognition	Educators require training, uses DVD lead education and goal setting 4-5 visits required.
<p> = Strongly recommended based on high quality evidence (NHMRC level A), relevant to sub-population of older adults, implementation dependant on service availability.</p> <p> = Recommended based on good evidence (NHMRC level B), relevant to sub-populations of older adults, implementation requires application of practice points.</p>			

Obsolete - for reference use only

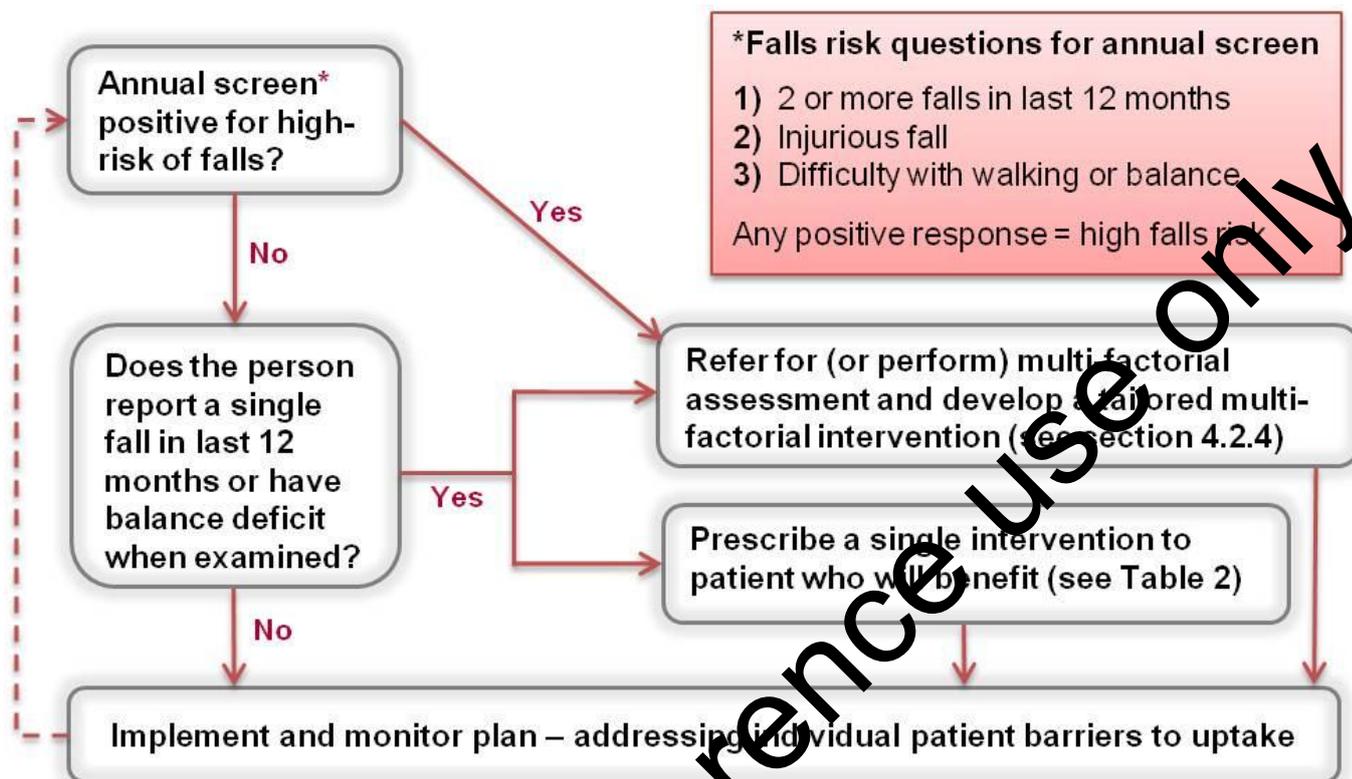
4.3 Optimise care pathways and communication (Recommendations 10 to 15)

Current services, pathways and communication forums	Gaps in services, pathways and communication
<ul style="list-style-type: none"> ■ Suite of falls prevention services (see Appendix 1) <p>Communication/collaboration</p> <ul style="list-style-type: none"> ■ Community of Practice (CoP) for inpatient falls prevention ■ Falls Prevention Health Network and Executive Advisory Group <p>Coordination</p> <ul style="list-style-type: none"> ■ Falls specialist coordinator hub ■ Referral criteria for some services ■ Care Coordination Teams in ED and Acute Medical Units identifying needs of older adults ■ Aged care funding sources (eg. National Partnership Agreement) and associated reform e.g standardised documentation for DTUs, trials of single point of referral for rehabilitation settings <p>Workforce development</p> <ul style="list-style-type: none"> ■ Training Centre in Subacute Care (TRACS WA) ■ Falls Prevention Online Training Package ■ ICCWA's health professional education sessions 	<ul style="list-style-type: none"> ■ Lack of uniform approach to falls prevention in primary care requiring improved engagement with Medicare Locals, GPs, practice nurses and older people themselves. ■ Lack of referral pathways both within services and criteria for referrers. ■ Lack of a post-fall management plan with WA ambulance services. ■ Lack of pathways and engagement from the ambulance sector. ■ Variations in patient care provision within same services across sites (eg. DTUs, Falls Clinics). ■ Limited access to specialist falls services for older people in rural and regional areas and residential aged care facilities. ■ Lack of knowledge translation tools to support uptake of evidence by consumers. ■ Poor coordination of community falls prevention interventions between community setting, hospital setting and carers. ■ Limited access to falls prevention education for staff as well as issues in education in sectors with high staff turnover such as in residential aged care facilities.

4.3.1 Screening, referral and assessment for falls prevention

Screening for falls prevention is the responsibility of all health professionals. Older people who live in the community (or their carers) should be asked by health care professionals whether they have fallen in the past year or if they experience difficulties with walking or balance.⁴⁷ The details and circumstances of any fall should be ascertained. These screening questions can be used to determine if a community dwelling person is at high risk for further falls (represented in [Figure 5](#)). A multifactorial intervention approach is usually indicated for high risk patients, whilst for others, a single intervention may be adequate. Other screening tools relevant in particular settings are outlined in the [2009 Australian Best Practice Falls Prevention Guidelines](#).²⁻⁴

Figure 5. Flow diagram for preventing falls in community-dwelling older people⁴⁷



- Adapted from 2010 AGS/BGS Falls Prevention Guidelines

A comprehensive network of people to 'screen and refer' individuals identified as being at risk of falls is required. Opportunities to 'screen and refer' are discussed below:

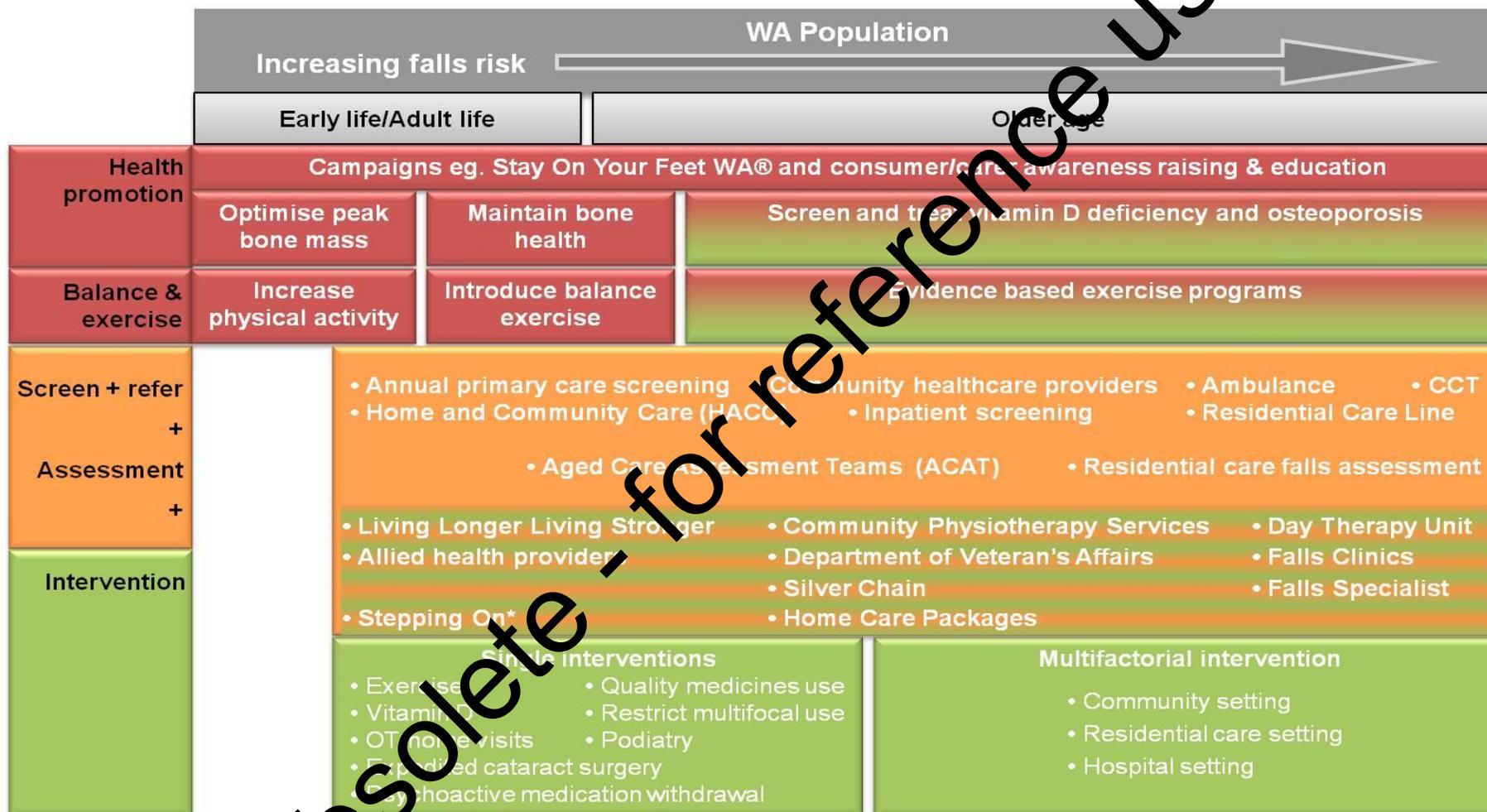
- General practices, by GPs or practice nurses - this should occur at the 75 year old health assessment, during visits after a fall, if a patient appears unsteady or providing opportunity to complete a self-screen in the waiting room then discussing the results with the GP
- bone services including fracture clinics, densitometry services, endocrinologists
- allied health professionals and services provided to those with conditions associated with an increased falls risk such as people with diabetes, Parkinson's disease and dementia
- during emergency and inpatient service delivery:
 - attendance at emergency department for treatment but not admitted
 - part of discharge (handover) from wards
 - part of discharge (handover) from rehabilitation services
- support services provided in the home such as Silver Chain, home-based nursing, Home and Community Care (HACC) services, as well as day therapy services, community physiotherapy and dialysis services.

All people who live in residential care and all people who are hospitalised should be screened for falls risk and an individualised management plan should be developed in response to the identified risk (see tables 2 and 3 for possible strategies). In WA public hospitals, the FRAMP or tools endorsed through the WA Health Falls CoP are recommended. For residential care, a range of tools exist and are outlined in [2009 Australian Best Practice Falls Prevention Guidelines](#).²⁻⁴

4.3.2 Current falls prevention services in WA

A range of services are available in WA to deliver falls prevention interventions. Figure 6 represents an overarching approach to falls prevention in different settings. The red items demonstrate population health strategies, the orange items are services involved in screening, referring and assessing and the green items are the types of available interventions and where they are delivered. Multicoloured items are an indication of the dual role of these behaviours or services i.e. exercise can be promoted as both a general population health strategy and also an individualised intervention for people at risk of falls.

Figure 6. WA Falls Action Plan



* Stepping On is not currently available in WA

Obsolete - for reference use only

A brief discussion of the roles of the services in [Figure 6](#), focusing on their strengths and areas for improvement in order to achieve the desired Model of Care are described in this section. See [Appendix 1](#) for a more detailed description of each service.

4.3.2.1 Community setting

General practice

General practice provides an important role in falls prevention including screening, assessing and treatment planning. They also have a pivotal role in improving uptake of falls prevention interventions and the associated behaviour change required, which is of particular importance for exercise and benzodiazepine withdrawal. General Practitioners will continue to be primary health care coordinators and require access to varying services depending on the complexity of preventative care required. They should be encouraged to utilise relevant Medicare Benefits Schedule Items to assist with delivering this complex care including [Chronic Disease Management \(CDM\) Items](#), the lifestyle review for people aged 75 years and over and items for [Allied Health Individual Services for patients with a chronic medical condition and complex care needs](#).

More effort towards raising GP awareness of the importance and evidence related to falls prevention and support to delivering preventative interventions with a system wide approach is needed in the future. Involving practice nurses may help identify individuals at risk of falls and closer partnerships with allied health will ensure ongoing management once they are screened.

Multidisciplinary care and support services

Falls prevention interventions require community based allied health providers to deliver appropriate care, often coordinating with other care providers and the patient's GP. This process can be difficult to achieve in the primary care setting due to knowledge deficits, inadequate financial remuneration and communication methods. Clearer pathways to and from falls services as well as educational strategies and communication networks may assist these professions.

Allied health professionals require access to a simple screening tool to promote opportunistic identification of those at risk of falls. Many service providers already provide exercise and programs to improve an older persons' functional status. This role within health and linkages to other services should be consolidated. Providers include [Day Therapy Centres](#), the [HACC program](#), [Department of Veteran's Affairs](#), [Home Care Packages Program](#) and Silver Chain's [Home Independence Program \(HIP\)](#) or the [Personal Enablement Program \(PEP\)](#) (post acute discharge only). Additional updates of falls prevention knowledge and program development may assist program improvements.

Carers also play a vital role in identifying if the person they care for is at risk and supporting them to minimise their risk factors for falling. Formal linkages and better engagement with [Carers WA](#) will increase opportunities to engage with and provide education for carers.

Living Longer Living Stronger™

The [Living Longer Living Stronger™ \(LLLS\) program](#) is run by COTA WA with funding from the Department of Health WA. LLLS is a program that provides quality, individualised and progressive strength training for people aged 50 years and over. Opportunities to engage participants in falls prevention awareness and education should be maximised and the links between exercise and falls prevention should be emphasised. Strong linkages between other falls education and other awareness-raising programs such as [Stay On Your Feet WA®](#), are important to ensure the delivery of consistent and comprehensive falls prevention messages.

4.3.2.2 Sub acute setting

Day Therapy Units

Day Therapy Units (DTUs) are located in the Departments of Geriatric Medicine in most hospitals across WA and provide multidisciplinary therapy services to non-admitted patients over 65 years, with some flexibility around this age limit. Most DTUs also have a Falls Clinic.

Falls Clinics

Falls Clinics are located within the DTU at most metropolitan hospitals throughout Perth. These Clinics treat older people who are at a high risk of falls, are experiencing recurrent or injurious falls or have balance, walking or medical conditions.

A list of the locations and [contact details of Falls Clinics](#) across WA is available. Patients who are unable to come into a Falls Clinic or require a home assessment can be seen by a Falls Specialist Coordinator. In WA, variation exists between Falls Clinics in relation to their configuration and the number of disciplines available. Furthermore, routine data related to the activity of these Clinics is not collected.

Falls Specialist Coordinators

The [Falls Specialist Coordinator \(FSC\)](#) role is unique to WA and was created to improve clinical skills of individual clinicians in falls prevention to assess and treat consumers but also to support training and education across the health continuum. A FSC (physiotherapist or occupational therapist) visits individuals in their own home and conducts a detailed assessment to determine why they have fallen previously and/or identify those risk factors that may contribute to future falls.

FSC positions exist in all metropolitan hospital sites and form part of a suite of services offered by DTU. A list of the [location and contact details of the falls specialist services](#) across WA is available. Linkages with WA Country Health Service (WACHS) regional sites have been established, however require further development to determine how best clinical knowledge and skills can be diffused into rural settings. Communication on a routine or proactive basis will support development.

A FSC hub and clinical lead role has been established, based at Sir Charles Gairdner Hospital, to coordinate FSC group activity and support program development including education and training. The role of the FSC requires further development to improve linkages between care providers in hospital, community and residential care settings. Creating linkages with Medicare Locals could improve the reach of their education efforts.

Rehabilitation in the Home

Rehabilitation in the Home (RITH) provides short to medium term allied health therapy, allowing early hospital discharge and prevention of readmission to hospital. Clarification around the scope of RITH programs to deliver falls prevention interventions directly or how the service links to existing services would assist in ensuring seamless and efficient patient care.

Community Physiotherapy Services

The falls prevention [Community Physiotherapy Service \(CPS\)](#) program is a community based rehabilitation program that incorporates physical activity and education for adults who are at risk of or have experienced a fall. For longer term effectiveness, the exercise program requires ongoing participation by the individual upon class completion. Many people do not continue independently and methods to address the lack of adherence to these exercises should be explored, including step down or maintenance programs and whether ongoing coordination would assist long term maintenance.

4.3.2.3 Residential care setting

The residential aged care (RAC) sector leads falls prevention and management for older people in care settings. WA Health supports the RAC sector in this role through the provision of initiatives such as the Residential Care Line (RCL) and the Falls Specialists Coordinators, who provide education and clinical support through referral for individuals and also a formal education network delivered by the RCL Service.

Challenges in the RAC settings include, large numbers of providers, variations in documentation and tools across sites, a high turnover in the workforce, limited access to allied health and inconsistencies in knowledge of the support available for people who have a fall. The prescription of exercise programs in residential care is complex and consequently those delivered in RAC are not always evidence based.

Opportunities exist when a resident is discharged from hospital to recommend falls prevention interventions relevant to the setting. Education for hospital staff on the types of intervention that are realistic in RAC facilities will help to ensure achievable care plans are recommended on discharge.

4.3.2.4 Hospital setting

Emergency departments

People presenting to ED following a fall represent a high risk population where secondary falls prevention are indicated to prevent falls and hospital utilisation. Older patients should be screened by Care Coordination Teams (CCT) who are present in EDs across WA and refer to an appropriate local service. All patients presenting with a fall or fracture should be offered referral for falls and fracture prevention with those at higher risk referred for multifactorial intervention.¹⁶

Inpatient

Many older people who are admitted to hospital will be identified as at risk of a fall. In WA, patients are screened for falls risk using the [Falls Risk Assessment and Management Plan](#).²¹ Minimum standards are implemented for all patients, whilst those who screen positive for falls risk receive additional tailored falls prevention interventions. If a fall does occur, the [Post-Fall Management Guidelines in WA Healthcare Settings](#)²² should be adhered to in order to minimise injury and prevent further falls. Patient care assistants can be assigned to patients at risk of falls requiring constant supervision. However there is no uniform approach to the level of training or education required or provided to people in these roles.

Referral to appropriate services on discharge is vital to ensuring continuity of care and the implementation of falls prevention interventions in the patient's home. Consolidation of the Safety and Quality Investment for Reform (SQiRe) Clinical Practice Improvement Falls Prevention Program has allowed for standardised falls prevention care to be delivered with ongoing commitment required for continued quality improvement.

Engaging and empowering patients through tailored education should be made available for appropriate inpatients.

4.3.3 Enablers for falls prevention services and pathways

There are a number of key enablers across the services discussed in 4.3.2 that if addressed, will help to improve coordination and quality of care for people who are at risk or experience a fall. Each of these enablers are discussed below.

Enabler 1: Develop clear service responsibilities and pathways

Recommendations

- 10. Integrate falls prevention as an explicit element of primary care screening, assessment and referral.**
- 11. Optimise the role of Falls Specialist Coordinator model in WA to address gaps in care, including support to WACHS and delivery of patient driven health care.**
- 12. Foster partnerships with residential care settings and networks to assist improved transitions of care and knowledge transfer.**

Strategies

- Define and communicate referral pathways for established falls prevention services.
- Collate information to develop a service directory clarifying roles and function of existing falls prevention services in WA for dissemination to key stakeholders.
- Develop pathways from ambulance services to falls prevention services for high risk patients, building on evidence and learning from other states in Australia.
- Consolidate links from Emergency Departments to falls prevention services, utilising CCT and evolving the role of FSC.
- Engage with Aboriginal Health Services to adapt existing services to provide falls prevention services in a culturally appropriate manner.
- Identify a simple, validated falls prevention screening tool for allied health professionals to identify those at risk of falling and provide access to a 'toolkit' to guide appropriate referrals for intervention.
- Partner with Medicare Locals to assist routine screening for older adults for falls, developing a systematic and supported approach.
- Provide educational opportunities for those in primary care related to falls prevention evidence.
- The Falls Specialist Coordinator Group to partner with rural and regional aged care settings to develop a strategy to assist delivery of falls prevention care equivalent to metropolitan regions, considering the role of research in this step.
- Consider a strategy to improve the Falls Specialist Coordinator program to meet the needs of the Aboriginal population, including specific employment sited within Aboriginal Health Services.
- Improve partnerships between the hospital and residential care setting, including the role of Residential Care Line, and explore whether a central discharge liaison point for all RAC providers is required.
- Form partnerships to assist with the work of RAC facilities in developing a toolkit for residential care including: risk assessment tools, advice on appropriate interventions and post-fall management tools.
- Inform the [Australian Aged Care Quality Agency](#) of service pathways and resources for RAC settings to help facilitate improvements across the RAC sector, as appropriate.
- Partner with key industry groups such as Leading Aged Services Australia WA (LASAWA) and Aged and Community Services WA (ACSWA) to assist with forming communication networks and the development of knowledge tools.

In primary care, annual screening of older adults is recommended and discussed in [section 4.3.1](#). FSC roles exist in WA and target high risk patients for delivery of multifactorial interventions. This role also includes education and training with a focus on reaching out across traditional health silos. Addressing the needs of Aboriginal populations is of importance to address a widening hip fracture health gap.¹⁰⁷ FSC should evaluate and trial how best falls prevention services can be adapted to meet the needs of Aboriginal population. In WA some referral criteria and pathways do currently exist, however further work is needed to collate and more clearly define this information. Once documented, the pathways and criteria should be well-communicated amongst those in a position to refer. This will facilitate the delivery of appropriate care, smooth the patient's transition through the system and avoid duplication of roles between services. The development of an easily accessible service directory outlining the roles of existing services will also facilitate better understanding of the system.

Some work has been done in [mapping WA subacute services](#) with web based links to referral information for each service. The development of this tool was facilitated by TRACS WA and includes Falls Specialist Services and Falls Clinics.

Enabler 2: Creative approach to collaboration

Recommendations

- 13. Engage broader stakeholders, outside of health, to recognise the importance and address falls prevention in existing activities.**

Strategies

- Promote the engagement of patients and carers in care planning so falls prevention strategies are suitable and acceptable with improved adherence.
- Recognise the contribution of and provide ongoing support for the WA Health Community of Practice for falls prevention in the hospital setting.
- Support the creation and function of a community of practice for falls prevention in residential care.
- Partner with primary care and Medicare Locals to develop shared strategies for improved delivery of preventative care in the sector.
- Ensure WA has representation of the ACSQHC National Falls and Falls Injury Prevention Reference Group and the ANZFPS subgroups as required.
- Advocate for non-health state government departments to consider falls prevention during planning and activity, engaging the Falls Prevention Health Network as required.

The [WHO Global Report on Falls Prevention in Older Age](#) recognises that the most important collaborators in developing effective falls prevention policies and services are those most directly impacted by the issue.¹² This includes the individual at risk of falling, those who care for them and those who provide services to them.¹² Identifying and engaging these partners in falls prevention planning will ensure a comprehensive approach for creating integrated falls prevention activities. Another benefit of partnerships is that they assist in clarifying roles and avoid duplication of effort or gaps in services and planning.¹²

A number of areas for collaboration are outlined below. A list of organisations, services and institutions that could be involved in Falls Prevention MoC implementation are outlined in [Appendix 4](#).

■ Between the patient/carer/family and health professional

A partnership approach to care planning between the health professional and the patient, their carer and their family, encourages shared responsibility in health care and leads to high-quality and accountable health services.² Furthermore, providing patients and their carers with information that enables them to take part in discussions and make informed decisions about preventing falls may lead to better adherence to interventions.^{102, 108} It is also important for the health professional to determine what changes the patient is willing to make so that the recommendations for interventions are both suitable and acceptable.^{2, 102, 108} Similarly, the carers' ability to continue providing care should be assessed and that alternative care provision and information regarding support services is discussed if necessary.

■ Between professionals working in falls prevention

Providing forums and opportunities for engagement between those responsible for delivering care to patients is a key strategy to improve communication, learning and information sharing. The WA Health Falls Prevention CoP is an example of a successful collaboration creating important links and allowing standardisation of key processes at a state-wide level (see [3.1 Achievements](#)). Residential care has informal networks as does the community sector and applying "communities of practice" methodology for these settings is likely to further improve collaboration.

Falls prevention experts should contribute to other collaborations that overlap into falls prevention. An example includes the [Subacute Care Community of Practice \(SAC CoP\)](#), facilitated by [Training Centre in Subacute Care \(TRACS WA\)](#). Within this group, there is scope to reach clinicians across subacute care settings in WA Health, as well as external stakeholders.

Engagement at a national level for falls prevention activity is of importance (see [3.1 Achievements](#)) and opportunities to improve links to government and national strategy development should be sought.

■ Between care settings

The [Falls Prevention Health Network](#) has played a key role in bringing together a range of people from different backgrounds involved in falls prevention since its establishment in 2008. The network process involves connecting people with similar interests to share their expertise and experience to enhance the knowledge and skills that exist within the system. This collective knowledge is put towards creating improvements across the health system. The Network is a positive example of engagement between care settings will be continued into the future.

The [Perth North Metro Medicare Local \(PNMML\)](#) and COTA WA have recently formed a partnership whereby PNMML have become a provider of the Living Longer Living Stronger™ program to accommodate those with chronic conditions who may require a higher level of supervision. This is a positive example of how existing organisations can link in with new organisations to broaden the scope of those they can assist.

Another example is the clinical knowledge and skills exchange between the metropolitan based FSCs and the WACHS DTUs. Clinical staff in the regions can contact metropolitan colleagues with regards to clinical issues pertaining to falls. Opportunities exist for video and case conferencing of complex patients, providing an opportunity to enhance care of patients and learning for clinicians.

Although there are a number of positive examples in this area, further efforts are required to improve collaboration between community, residential care and hospital settings to ensure a smooth transition of care for the patient.

■ Between non-government organisations

There are a number of non-government organisations who provide services and support to individuals at risk of falls. Both those directly involved with falls prevention, such as ICCWA, and those indirectly involved through a related condition, such as the Arthritis Foundation WA, should be considered for partnering opportunities both with each other and with government departments.

■ Between government departments

This Model of Care highlights the importance of adopting a holistic approach to falls prevention to address all risk factors and social determinants of health. This approach requires engagement from several government departments including:

- [Department of Local Government and Communities](#) – to promote the development of communities that support physical activity through availability of recreation facilities, community centres, safe pathways and increased seating in community and recreational outdoor areas. Also promotes [active ageing](#) as outlined by [An Age Friendly WA: Seniors Strategic Planning Framework 2012-2017](#).
- [Department of Planning](#) – to focus on supporting sustainable urban development including increased support for walking and cycling through the Liveable Neighbourhoods Initiative.
- [Department of Housing](#) and [Disability Services Commission](#) – to encourage homes to be built with universal access to ensure people of all ages and abilities can live in or visit with comfort. e.g. the Liveable Homes Initiative.
- [Department of Sport and Recreation](#) – to ensure the availability of exercise opportunities for all ages and promote these opportunities.
- [Department of Transport](#) – to design public transport systems that are accessible and safe for older adults and people with impaired mobility.

Enabler 3: Enhance information and communication technology

Recommendations

- 14. Improve methods of data collection and analysis in all settings to capture quality falls data for monitoring, clinical use and service delivery.**

Strategies

- Advocate for and contribute to further development of [national indicator 25](#) “Falls resulting in patient harm in hospitals and residential aged care facilities”, as recommended by the National Indicators Project.
- Support expansion of a WA key performance indicator (KPI) in relation to falls prevention and reporting. The current indicator for WA is the rate of hospitalisation for falls in older persons. Current target is a 0.5 per cent reduction annually per 1,000 population by age group (55-64, 65-79, 80+).
- Recommend incident reporting systems be converted to electronic systems away from current paper systems.
- Advocate for the formation of a KPI for residential care related to the percentage of patients prescribed appropriate high-dose Vitamin D preparations.
- Ensure activity and service developments in falls prevention align with Activity Based Funding and Management and are captured in future investment plans for WA Health.
- Improve use of existing data, including analysis of incident reporting related to death due to falls in hospitals. This information should be linked to clinical practice change across the system to improve care.

Effective data systems are required for community, hospital, subacute and residential care settings to ensure that the services supported by this Model of Care are effective and reduce the incidence of falls and fall related injuries. Data can also be used to improve service efficiency and improve quality of care. An example of this in WA is the use of a tailor made database used by FSC which records patient level clinical data to demonstrate the service performance and data modelled to population demographics to advise service delivery. Accurate recording and monitoring systems are of particular importance as WA moves to an [Activity Based Funding and Management](#) model for all services.

The [National Indicators Project](#), funded by the Australian Commission on Safety and Quality in Health Care, recommended a set of 55 national indicators of safety and quality.¹⁰⁹ Falls in hospitals and residential care was identified as a key indicator however further work on developing this indicator has been slow. A range of key issues related to the indicator development exist, from staff recognition and reporting of falls to data analysis. These issues should be identified and systematically addressed. In WA, the current KPI “Rate of hospitalisation for falls in older persons” has a number of significant issues, including under-reporting, which may be compounded by time consuming incident reporting paper based systems.

For data to be effective in improving care, processes should be put in place in order to analyse and disseminate data to learn from experience and assist in the development of policies, programs and services that will reduce the risk of falls. This includes sharing learnings from clinical incident reporting. As those receiving falls prevention interventions frequently move between settings, an electronic patient data system is required to ensure adequate communication and the effective transition of information and patients.

The adoption of Telehealth as a key service delivery mechanism, particularly to support the rural and regional settings is supported by this Model of Care.

Enabler 4: Improve education and development opportunities

Recommendations

15. Foster partnerships with existing education and training providers to improve uptake of falls prevention knowledge and practices in those working with older people.

Strategies

- Provide opportunities for observational learning where allied health professionals can attend falls specialist clinics and other falls prevention programs with patients.
- Engage with universities, the Central Institute of Technology and other training providers to progress falls prevention education to be included in all relevant programs and courses.
- Provide training for HACC staff to identify patients at risk of falls and to deliver basic education as part of their service.
- Engage with Carers WA to improve the uptake of knowledge and practice when working with people at risk of falls.
- Improve access to existing quality educational and training resources through collaboration with non-government organisations, educators, researchers, clinicians and national forums.
- Link and support other national activities, including ANZFPS Translation of Research Into Practice and Policy (TRIPP) Subgroup, that promote resources and educational activities.

- Partner with TRACS WA and the SAC CoP to reinforce the falls prevention messages and add learning outcomes around managing patient falls risk to the Subacute Care Curriculum currently being developed.
- Develop a strategy to provide falls prevention training and education to patient care assistants/ specials and standardise the required levels of training for these roles.

Having an adequately educated and trained health workforce and a population of consumers and carers who are empowered to manage their risk of falls is essential for appropriate interventions to be prescribed and undertaken. The education required for each of these groups is discussed below.

Consumers, carers and families

In addition to the general population education and awareness raising discussed in [4.1.2](#), individuals identified at risk will also require more targeted education to promote self-management. Self-management involves consumers adopting attitudes and learning skills that facilitate a partnership with carers, general practitioners, and health professionals in treating monitoring and managing their condition.¹¹⁰ Increasing patients' awareness of their falls risk and teaching risk reduction strategies may also reduce risk of falling in the acute setting.⁵ Individuals may develop a fear of falling, particularly those who have experienced a fall, which can negatively impact on their confidence, independence and willingness to remain mobile and active. Educational messages should aim to address this although some individuals may need more specialised falls prevention services.

Family, friends and carers of those who are at risk of falling have an important role in falls prevention and should also be provided with information as part of a comprehensive intervention.¹² Carers are trusted sources of information and are well-positioned to engage and motivate the individual at risk in prevention programs.¹¹¹ Carer education is of particular importance when the person at risk of falling is cognitively impaired. There is evidence to suggest there is an increased burden on the carer of individuals who experience a fall, therefore additional support and education may be required for carers during these times.¹¹²

Consumer and carer education can be delivered in a one-on-one setting with a health professional or in a group based setting such as the [Stepping On](#) program.⁴⁵ Stepping On is a 7-week community-based program offering weekly small group workshops using adult education principles and mutual support to build older adults' confidence in their ability to reduce falls.

Health professionals

Education by health professionals is a key method of communication perceived positively by older people. Providers of health services should be aware of the importance of falls prevention so they provide adequate and appropriate advice and care. All health professionals have a role in delivering falls prevention messages, particularly those working in primary care. For example, community pharmacists and optometrists who interface regularly with consumers are in an ideal position to provide and reinforce falls prevention messages. Health professionals should be encouraged to publicise falls prevention information to consumers e.g. in pharmacies, waiting rooms and other venues.

In order to deliver education, health professionals themselves require ongoing education and development opportunities. Falls prevention education should be delivered through higher education institutions (ie. universities and the Central Institute of Technology) to capture undergraduate health professionals and other professions primarily working with older people. Where possible, this should be incorporated as a mandatory component of curriculums. Health professional associations and bodies (such as the Australian

Physiotherapy Association) should be approached to support efforts to incorporate falls prevention training into undergraduate training. In particular, efforts should be made to increase physiotherapist, optometrist and pharmacist training in falls prevention as they are primary care providers. Partnering with groups such as TRACS WA will provide opportunity to add learning outcomes around managing patients' falls risk to the Subacute Care Curriculum currently being developed.

Given the increasing rate of head injury from falls in Australia, a heightened awareness of the urgency of a head trauma and monitoring for slow or fast bleeds is critical. Therefore post-fall management should be a core component of falls prevention education and training for falls prevention service providers and all those who screen and refer people who have recently fallen.

Ongoing opportunities for training, education and professional development of evidence based falls prevention should be made available in both face-to-face and online programs. The WA produced [Falls Prevention Online Training Package](#) is a valuable resource for those working in the hospital setting and is based on [Australian Guidelines](#).² A similar online, accessible training package which addresses falls prevention for HACC and others in the community setting (including health professionals) would be beneficial. Where training manuals for relevant professions and roles currently exist (i.e. [HACC manual](#), Silver Chain training manual), advice on identifying people at risk of falls and providing basic falls prevention education should be incorporated.

The Injury Control Council of WA (ICCWA), funded by the Department of Health WA, currently organises regular educational videoconference sessions for rural and remote areas as part of the Stay On Your Feet WA[®] program. Similarly, some of the hospitals in the Perth metropolitan area organise educational presentations for staff to attend, and recordings of the sessions are made available [online](#). Flexible arrangements and online learning packages are beneficial as they can capture a larger number of people.

Training packages and programs which cover all aspects of falls prevention, including evidence based multicomponent exercise (such as Otago Exercise Programme¹¹³) should be developed where needed and incorporate some degree of central coordination to facilitate delivery. They should be well publicised and made available for health and non-health related professionals who can deliver these programs. Packages and programs need to be suitable for:

- All stages of life and functional capacity (early life, adult life and older age)
- Individuals and groups
- Targeted populations (Aboriginal and CaLD)
- Across metropolitan and rural and remote settings
- Different care settings i.e. residential aged care environment including residents, family visitors and staff

Obsolete, for reference use only

4.4 Support research into practice (Recommendations 16 to 17)

Current activity in review and evaluation	Gaps in research and evaluation
<ul style="list-style-type: none"> ■ Recent reviews recommending research priority areas.^{6,5} ■ Publication targeting policy maker to assist with decision making, implementation and program planning.⁹¹ ■ Recent evaluation of the Best Practice Falls Prevention Guidelines for Australian Hospitals.¹¹⁴ ■ A number of WA and Australian based research projects are underway to address some of the identified evidence gaps. See Appendix 2 for full project details. 	<ul style="list-style-type: none"> ■ Gaps identified in recent Cochrane reviews.^{6 5} ■ Minimal evidence base for effective methods for translating research into practice in relation to falls prevention. ■ Lack of evidence relating to effective education for preventing falls in the community and residential care setting. ■ Lack of evidence about reducing falls in the post discharge period. ■ Lack of evidence of the effectiveness of interventions amongst subgroups eg. CaLD and Aboriginal populations, people with dementia, people with disabilities. ■ A minimal number of cost effectiveness studies. ■ Uncertainty about best methods to improve engagement with falls prevention interventions.

In the last decade the evidence for falls prevention has expanded and multiple guidelines now exist.^{2-4, 6, 48-51, 95, 115-118, 119} Despite this, fall-related hospitalisations in WA are not reducing and if this trend is unchanged, escalating healthcare costs are anticipated.^{116, 117} The 2014 Falls Prevention MoC uses current research to guide recommendations and future research should align to service and policy agendas to optimise health service delivery and evidence uptake.

4.4.1 Research priorities for the future

The following areas requiring further research and evaluation have been identified by the 2012 Cochrane Reviews^{6 5} and through engagement with Australian based researchers:

Community

- Older peoples' (and their carers) role in falls prevention, including their understanding, knowledge, engagement and ability to participate.
- Determining the minimum effective dose of balance and strength exercises and determining the delivery mode that is cost effective; scalable to wider implementation and attractive to older people.
- Methods for increasing uptake and adherence to effective programs by older people.
- Types of exercise activities that are effective in promoting balance and strength and in reducing falls and fractures, particularly in older populations.
- Different methods for delivering proven programs (e.g. peer exercise instructors, academic detailing, electronic media).
- The impact of management programs for risk factors such as cognitive impairment and urinary incontinence.

- Evaluating the effectiveness of falls prevention interventions amongst subgroups where current data is limited including people with dementia, CaLD populations, older people with common health conditions associated with high falls risk (such as stroke and Parkinson's Disease) and Aboriginal people.
- Conducting economic evaluations alongside randomised controlled trials to establish the cost-effectiveness of each intervention being tested utilising a standardised approach.

Care facilities and hospital settings

- Further research into supervised exercise programs in both settings.
- Further randomised controlled trials to strengthen the evidence for multifactorial interventions in both settings.
- Further trials testing sensor technology to improve staff response when high risk patients start to move from a bed or a chair.
- Trials with interventions incorporating approaches based on the circumstances of falls in addition to individual risk factors, e.g. regular assisted toileting in both care facilities and hospitals.^{120, 121}
- Further trials testing the routine use of validated falls risk assessment tools and falls risk management tools specific to settings i.e. RAC facilities.
- Further research is required testing interventions targeting staff, and changes to the organisational system in which an intervention is delivered or the introduction of new healthcare models.

Translational research

- Research translation activity directed towards gaps in care identified in the MoC, including recommendations 3 to 10. Research questions should be identified to answer pertinent questions which will allow system change and evidence uptake.
- A variety of methods should be applied including qualitative, mixed and quantitative methodology and target health professionals, consumers and carers or health services themselves.

4.4.2 Partnerships in research

WA Health places priority on developing structured ways of sharing and building on knowledge with key partners and stakeholders.¹¹ The importance of strong partnerships within the healthcare community is understood and actively supported by WA Health.¹²²

A collaborative approach should be adopted for the translation of research into practice in order to maximise learnings from previous experiences, minimise duplication in roles and efforts and to ensure patients have access to consistent and coordinated care across the continuum of care. The WA Health Falls Prevention CoP is an example of this collective approach which has partnered with a number of research initiatives to improve falls prevention in people in mental health settings in addition to improving delivery of tailored inpatient education to prevent falls (see [Appendix 2](#)).

Other current falls prevention projects have local and national research centres working collaboratively (e.g. [WA Centre for Health & Ageing](#), [University of Queensland Research Institutes](#), The [University of Notre Dame Australia Institute for Health Research](#), [Monash University research centres](#)). Improved ability for researchers to collaborate between institutions fosters and expands the capacity of clinicians to engage in research and research translation into practice.

Collaboration at a national level can be achieved through the ACSQHC National Falls and Falls Injury Prevention Reference Group and the ANZFPS Translation of Research Into Practice and Policy (TRIPP) Subgroup. These networks and others should be

expanded to include areas of the health system that are involved with falls prevention and are not currently engaged.

4.4.3 Translation of research into practice

In determining priorities, research into cost effectiveness and population modelling targeting policy-makers is encouraged and should be utilised.^{91, 123, 124} Western Australia recognises the importance of translation of research into practice, demonstrating it as a priority and has shown leadership in this area with recent activities. Examples include the SQuIRE CPI program and the WA Health CoP which provide the resources and forum for uptake of evidence into practice at the clinical level by creating a culture of evidence use and supporting adaptation as knowledge changes.

The development of FSC positions has allowed delivery of evidence based care out also a network of experts who can provide education and training, improving practitioner practice.⁵¹ Other translational activities include further support of the [Living Longer Living Stronger™](#) program to provide “younger” older people with exercise interventions consistent with current evidence.

It is important for smaller regional and remote centres to participate in research with locally driven targeted projects. Support from larger metropolitan centres should be provided. TRACS WA can provide support for the training and development for staff working in the falls area in subacute settings with a strong focus on supporting clinicians to translate evidence into practice.

Recommendations

16. Engage with and facilitate research into areas that address gaps in falls prevention evidence and its translation into clinical practice.
17. Build partnerships to support the translation of research into service development and delivery.

Strategies

- Seek opportunities and partnerships to attain funding to address key research questions through existing research funding sources including:
 - [State Health Research Advisory Council \(SHRAC\) Research Translation Projects](#)
 - [WA Department of Health Targeted Research Fund](#)
 - [National Health and Medical Research Council Australia \(NHMRC\) Grants](#)
 - [Department of Health and Ageing grants](#)
 - [Healthy](#)
 - [Western](#)
- Support partnerships between researchers, clinicians and health services to direct the falls research agenda utilising existing forums including the Falls Prevention Health Network Executive Advisory Group, Communities of Practice and other groups.
- Maintain and support new networks and communities of practice to involve researchers, creating a culture of enquiry and knowledge use, and assist refining knowledge tools and evidence use.
- Utilise knowledge translation research and fall prevention research to help define how best to deliver meaningful health messages that lead to consumer and practitioner behaviour change.
- Incorporate economic evaluation and consumer participation in falls prevention research activity.
- Support broad strategies to improve training for health professionals in research and translation of research into practice.

5. Horizon scanning

At the time of producing this Model of Care, the information presented reflected the state of evidence and health policy at that time. Users should be aware that as evidence changes constantly, further evidence may have emerged since publication. Furthermore, the current context in WA and the significance of the falls prevention may change in the future based on present trends such as the increasing population which will include a higher proportion of people aged 65 years and over, increasing demand on aged care facilities, health workforce shortages, increases in health spending and technological advances and a greater emphasis on independent living.

The content and recommendations of the Model of Care should be reviewed within 5 years. Findings from the implementation of other health service Models of Care for falls prevention should also be considered for Western Australia.

Obsolete - for reference use only

Glossary

Adult life	The period of maintenance of the highest possible level of function. ²³
Carer	A person providing unpaid ongoing care and support to a family member or friend with care needs due to chronic physical or mental ill health, intellectual or physical disability or age related disability. ¹²⁵
Community of practice	Groups of people who share a concern, set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. ^{126, 127}
Continuum of care	A continuum of care is a concept involving an integrated system of care that guides and tracks patients over time through a comprehensive array of health services spanning all levels of intensity of care and stage of disease. ¹²⁸
Early life	The period of growth and development in life in terms of reaching peak functional capacity. For example, building bone mass and muscle strength. ²³
Fall	An event which results in a person coming to rest inadvertently on the ground or floor or other lower level. ¹²
Independence	Independence is commonly understood as the ability to perform functions related to daily living - i.e. the capacity of living independently in the community with no and/or little help from others. ²⁴
Multiple interventions	Consist of a fixed combination of two or more major categories of intervention delivered to all participants in the intervention group. ⁶
Multifactorial interventions	Consist of more than one main category of intervention, but participants receive different combinations of interventions based on an individual assessment to identify potential risk factors for falling. ⁶
Subacute care	Subacute care is time limited, goal-orientated, individualised, multidisciplinary care that aims to help people who are disabled, frail, chronically ill or recovering from traumatic injury to regain and/or maintain optimal function to allow as many people as possible to maximise their independence and return to (or remain in) their usual place of residence. It is available to people of all ages on an admitted or ambulatory basis and may follow an admitted episode, ambulatory care or directly from the community. ¹²⁹
Older age	The period of maintaining independence and preventing disability. ²³

Obsolete - for reference use only

Acronyms

ACAT	Aged Care Assessment Teams
ACSQHC	Australian Commission on Safety and Quality in Health Care
ANZFPS	Australian and New Zealand Falls Prevention Society
CaLD	Culturally and linguistically diverse
CCT	Care Coordination Team
CI	Confidence Interval
CoP	WA Health Falls Prevention Community of Practice for hospital settings
CPI	Clinical Practice Improvement
CPS	Community Physiotherapy Services
DTU	Day Therapy Unit
FRAMP	Falls Risk Assessment and Management Plan
FSC	Falls Specialist Coordinator
HACC	Home and Community Care
HIP	Home Independence Program
ICCWA	Injury Control Council of Western Australia
IU	International Unit
KPI	Key performance indicator
LLLS	Living Longer Living Stronger™
MoC	Model of Care
NHMRC	National Health and Medical Research Council
nmol	Nanomole
NSQHS	National Safety and Quality Health Service
OT	Occupational therapy
PNMML	Perth North Metro Medicare Local
RAC	Residential aged care
RITH	Rehabilitation in the Home
RCL	Residential Care Line
PEP	Personal Enablement Program
SAC CoP	Subacute Care Community of Practice
SHRAC	State Health Research Advisory Council
SQuIRe	Safety and Quality Investment for Reform
TRACS WA	Training Centre in Subacute Care
WA	Western Australia
WACHS	Western Australian Country Health Service

Obsolete for reference use only

References

1. Ballestas T, Xiao J, McEvoy S, Somerford P. The epidemiology of injury in Western Australia, 2000-2008. Perth: Department of Health WA; 2011.
2. Australian Commission on Safety and Quality in Health Care. Preventing falls and harm from falls in older people: Best practice guidelines for Australian hospitals 2009: Commonwealth of Australia; 2009.
3. Australian Commission on Safety and Quality in Health Care. Preventing falls and harm from falls in older people: Best practice guidelines for Australian residential aged care facilities: Commonwealth of Australia; 2009.
4. Australian Commission on Safety and Quality in Health Care. Preventing falls and harm from falls in older people: Best practice guidelines for Australian community care. Commonwealth of Australia; 2009.
5. Cameron ID, Gillespie LD, Robertson MC, Murray GR, Hill KD, Cumming RG, et al. Interventions for preventing falls in older people in care facilities and hospitals. *Cochrane Database Syst Rev* 2012;12:CD005465.
6. Gillespie LD, Robertson MC, Gillespie WJ, Sherrington C, Gates S, Clemson LM, et al. Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev* 2012;9:CD007146.
7. Department of Health WA. Model of care for the older person in Western Australia. Perth, WA: Aged Care Network, Department of Health WA; 2007.
8. Department of Health WA. Rehabilitation and restorative care services model of care. Perth, WA: Aged Care Network, Department of Health WA; 2008.
9. Department of Health WA. Orthogeriatric Model of Care. Perth, WA: Aged Care Network, Department of Health WA; 2008.
10. Department of Health Western Australia. Osteoporosis Model of Care. Perth: Health Networks Branch, Department of Health Western Australia; 2011.
11. Department of Health Western Australia. WA Health Promotion Strategic Framework 2012-2016. Perth: Chronic Disease Prevention Directorate, Department of Health Western Australia; 2012.
12. World Health Organization. WHO global report on falls prevention in older age. Geneva: WHO; 2007.
13. Nitz JC, Choy NL. Falling is not just for older women: support for pre-emptive prevention intervention before 70. *Climacteric* 2008;11(6):461-6.
14. Rubenstein LZ. Falls in older people: epidemiology, risk factors and strategies for prevention. *Age Ageing* 2006;35 Suppl 2:ii37-ii41.
15. Delbaets K, Crombez G, Vanderstraeten G, Willems T, Cambier D. Fear-related avoidance of activities, falls and physical frailty. A prospective community-based cohort study. *Age Ageing* 2004;33(4):368-73.
16. Mellas BJ, Wayne SJ, Romero LJ, Baumgartner RN, Garry PJ. Fear of falling and restriction of mobility in elderly fallers. *Age Ageing* 1997;26(3):189-93.
17. Wu MQ, Weintraub N, Rubenstein LZ. Falls in the nursing home: are they preventable? *J Am Med Dir Assoc* 2006;7(3 Suppl):S53-8, 2.
18. Sterling DA, O'Connor JA, Bonadies J. Geriatric falls: injury severity is high and disproportionate to mechanism. *J Trauma* 2001;50(1):116-9.
19. Department of Health Western Australia. WA Chronic Conditions Self-Management Strategic Framework. Perth: Health Networks Branch, Department of Health Western Australia; 2011.
20. Australian Institute of Health and Welfare., Bradley C. Hospitalisations due to fall by older people, Australia 2008-09. Injury research and statistics series no. 62. Cat. no. INJCAT 138. Canberra: AIHW; 2012.
21. Department of Health Western Australia. Falls Risk Assessment and Management Plan. Perth: Department of Health WA; 2012.

22. Department of Health Western Australia. Post-Fall Management Guidelines in WA Healthcare Settings. Perth: Department of Health WA; 2013.
23. Kalache A, Kickbusch I. A global strategy for healthy ageing. *World Health* 1997;4(July-August):4-5.
24. World Health Organization. Active Ageing: A Policy Framework. Spain: WHO; 2002.
25. Department for Communities Western Australia. An Age-friendly WA: The Seniors Strategic Planning Framework 2012-2017. Perth: Department for Communities; 2012.
26. National Health and Medical Research Council. National physical activity guidelines for Australians. Canberra: Commonwealth of Australia; 2005.
27. McClure R, Turner C, Peel N, Spinks A, Eakin E, Hughes K. Population-based interventions for the prevention of fall-related injuries in older people. *Cochrane Database Syst Rev* 2005(1):CD004441.
28. Ebeling PR, Daly RM, Kerr D, Kimlin MG. Building healthy bones throughout life: An evidence-informed strategy to prevent osteoporosis in Australia. *Medical Journal of Australia Open* 2013;2, Supplement 1:1-10.
29. Hoad V, Somerford P, Katzenellenbogen J. The burden of disease and injury attributed to preventable risks to health in Western Australia, 2006. Perth: Department of Health Western Australia; 2010.
30. Tomlin S, Joyce S, Patterson C. Health and wellbeing of adults in Western Australia 2011, overview and trends. Perth: Department of Health Western Australia; 2012.
31. Craigie AM, Lake AA, Kelly SA, Adamson AJ, Mathers JC. Tracking of obesity-related behaviours from childhood to adulthood: A systematic review. *Maturitas* 2011;70(3):266-84.
32. Global Advocacy for Physical Activity (GAPA) the Advocacy Council of the International Society for Physical Activity and Health (ISPAP). NCD Prevention: Investments that Work for Physical Activity. Available from: www.gapalpa.org.uk/investmentsthatwork; February 2011.
33. Sims J, Hill K, Hunt S, Haralambous B. Physical activity recommendations for older Australians. *Australas J Ageing* 2010;29(2):81-7.
34. Clemson L, Fiatarone Singh MA, Buddy A, Cumming RG, Manollaras K, O'Loughlin P, et al. Integration of balance and strength training into daily life activity to reduce rate of falls in older people (the LIFE study): randomised parallel trial. *BMJ* 2012;345:e4547.
35. Campbell AJ, Robertson MC. Comprehensive approach to fall prevention on a national level: New Zealand. *Clin Geriatr Med* 2010;26(4):719-31.
36. National Health and Medical Research Council. Eat for health - Australian Dietary Guidelines: Providing the scientific evidence for healthier Australian diets. Canberra: National Health and Medical Research Council; 2013.
37. National Health and Medical Research Council. Nutrient reference values for Australia and New Zealand including recommended dietary intakes. Canberra: Commonwealth of Australia; 2006.
38. Daly RM, Gagnon C, Lu ZX, Magliano DJ, Dunstan DW, Sikaris KA, et al. Prevalence of vitamin D deficiency and its determinants in Australian adults aged 25 years and older: a national, population-based study. *Clin Endocrinol (Oxf)* 2012;77(1):26-35.
39. Nowson CA, McGrath JJ, Ebeling PR, Haikerwal A, Daly RM, Sanders KM, et al. Vitamin D and health in adults in Australia and New Zealand: a position statement. *Med J Aust* 2012;196(11):686-7.
40. Yardley L, Bishop FL, Beyer N, Hauer K, Kempen GI, Piot-Ziegler C, et al. Older people's views of falls-prevention interventions in six European countries. *Gerontologist* 2006;46(5):650-60.
41. Yardley L, Donovan-Hall M, Francis K, Todd C. Older people's views of advice about falls prevention: a qualitative study. *Health Educ Res* 2006;21(4):508-17.
42. Barrett LL, Plotnikoff RC, Raine K. Organizational leadership and its relationship to regional health authority actions to promote health. *J Health Organ Manag* 2007;21(3):259-82.

Obsolète / for reference use only

43. O'Loughlin J, Renaud L, Richard L, Gomez LS, Paradis G. Correlates of the sustainability of community-based heart health promotion interventions. *Preventive Medicine* 1998;27(5):702-12.
44. Peel NM, Warburton J. Using senior volunteers as peer educators: What is the evidence of effectiveness in falls prevention? *Australas J Ageing* 2009;28(1):7-11.
45. Clemson L, Cumming RG, Kendig H, Swann M, Heard R, Taylor K. The effectiveness of a community-based program for reducing the incidence of falls in the elderly: a randomized trial. *J Am Geriatr Soc* 2004;52(9):1487-94.
46. Wakefield M, Loken B, Hornik R. Use of mass media campaigns to change health behaviour. *Lancet* 2010;376(9748):1261-71.
47. American Geriatrics Society & British Geriatrics Society. Clinical Practice Guideline: Prevention of Falls in Older Persons: American Geriatrics Society & British Geriatrics Society; 2010.
48. Chase CA, Mann K, Wasek S, Arbesman M. Systematic review of the effect of home modification and fall prevention programs on falls and the performance of community-dwelling older adults. *Am J Occup Ther* 2012;66(3):284-91.
49. Michael YL, Whitlock EP, Lin JS, Fu R, O'Connor EA, Gold R, et al. Primary care-relevant interventions to prevent falling in older adults: a systematic evidence review for the U.S. Preventive Services Task Force. *Ann Intern Med* 2010;153(12):815-25.
50. Sherrington C, Tiedemann A, Fairhall N, Close JC, Lord SR. Exercise to prevent falls in older adults: an updated meta-analysis and best practice recommendations. *N S W Public Health Bull* 2011;22(3-4):78-83.
51. Thomas S, Mackintosh S, Halbert J. Does the 'Otago' exercise programme' reduce mortality and falls in older adults?: a systematic review and meta-analysis. *Age Ageing* 2010;39(6):681-7.
52. Campbell AJ, Robertson MC. Rethinking individual and community fall prevention strategies: a meta-regression comparing single and multifactorial interventions. *Age Ageing* 2007;36(6):656-62.
53. Haines TP, Waldron NG. Translation of falls prevention knowledge into action in hospitals: what should be translated and how should it be done? *J Safety Res* 2011;42(6):431-42.
54. Barker AL, Nitz JC, Low Choy NL, Haines T. Measuring fall risk and predicting who will fall: clinimetric properties of four fall risk assessment tools for residential aged care. *J Gerontol A Biol Sci Med Sci* 2009;64(8):916-24.
55. Hill AM, Hoffmann T, McNeil S, Beer C, Hill KD, Brauer SG, et al. Factors associated with older patients' engagement in exercise after hospital discharge. *Arch Phys Med Rehabil* 2011;92(9):1395-403.
56. Whitehead CH, Wundke R, Crotty M. Attitudes to falls and injury prevention: what are the barriers to implementing falls prevention strategies? *Clin Rehabil* 2006;20(6):536-42.
57. Comans RA, Brauer SG, Haines TP. Randomized trial of domiciliary versus center-based rehabilitation: which is more effective in reducing falls and improving quality of life in older fallers? *J Gerontol A Biol Sci Med Sci* 2010;65(6):672-9.
58. Boyle N, Naganathan V, Cumming RG. Medication and falls: risk and optimization. *Clin Geriatr Med* 2010;26(4):583-605.
59. Bloch F, Thibaud M, Dugue B, Breque C, Rigaud AS, Kemoun G. Psychotropic drugs and falls in the elderly people: updated literature review and meta-analysis. *J Aging Health* 2011;23(2):329-46.
60. Preville M, Hebert R, Boyer R, Bravo G. Correlates of psychotropic drug use in the elderly compared to adults aged 18-64: results from the Quebec Health Survey. *Aging Ment Health* 2001;5(3):216-24.
61. Sanders KM, Stuart AL, Williamson EJ, Simpson JA, Kotowicz MA, Young D, et al. Annual high-dose oral vitamin D and falls and fractures in older women: a randomized controlled trial. *JAMA* 2010;303(18):1815-22.
62. Jorm AF, Grayson D, Creasey H, Waite L, Broe GA. Long-term benzodiazepine use by elderly people living in the community. *Aust N Z J Public Health* 2000;24(1):7-10.

Obsolète for reference use only

63. Morin CM, Benca R. Chronic insomnia. *Lancet* 2012;379(9821):1129-41.
64. Glass J, Lanctot KL, Herrmann N, Sproule BA, Busto UE. Sedative hypnotics in older people with insomnia: meta-analysis of risks and benefits. *BMJ* 2005;331(7526):1169.
65. Kripke DF, Langer RD, Kline LE. Hypnotics' association with mortality or cancer: a matched cohort study. *BMJ Open* 2012;2(1):e000850.
66. van der Hooft CS SM, Ziere G, Hofman A, Pols HA, Sturkenboom MC, et al.,. Inappropriate benzodiazepine use in older adults and the risk of fracture. *British journal of clinical pharmacology* 2008;66(2):276-82.
67. McCurry SM, Logsdon RG, Teri L, Vitiello MV. Evidence-based psychological treatment for insomnia in older adults. *Psychol Aging* 2007;22(1):18-27.
68. Cormack MA, Sweeney KG, Hughes-Jones H, Foot GA. Evaluation of an easy, cost-effective strategy for cutting benzodiazepine use in general practice. *Br J Gen Pract* 1994;44(378):5-8.
69. Voshaar RC, Gorgels WJ, Mol AJ, van Balkom AJ, van de Lisdonk EH, Bretzke MH, et al. Tapering off long-term benzodiazepine use with or without group cognitive-behavioural therapy: three-condition, randomised controlled trial. *Br J Psychiatry* 2013;182:498-504.
70. Voshaar RC, Couvee JE, van Balkom AJ, Mulder PG, Zitman FG. Strategies for discontinuing long-term benzodiazepine use: meta-analysis. *Br J Psychiatry* 2006;189:213-20.
71. Scott IA, Gray LC, Martin JH, Pillans PI, Mitchell CA. Deciding when to stop: towards evidence-based deprescribing of drugs in older populations. *Evid Based Med* 2012.
72. Mabbott V, Robinson M, Segrave A, Brennan Q. Australian statistics on medicines 2010: Australian Government Department of Health and Ageing; 2012.
73. Kalisch LM, Caughey GE, Barratt JD, Ramsay EJ, Kifer G, Gilbert AL, et al. Prevalence of preventable medication-related hospitalizations in Australia: an opportunity to reduce harm. *Int J Qual Health Care* 2012;24(3):219-29.
74. Pit SW, Byles JE, Henry DA, Holt L, Hansen M, Bowman DA. A Quality Use of Medicines program for general practitioners and older people: a cluster randomised controlled trial. *Med J Aust* 2007;187(1):23-30.
75. Stafford AC, Alswayan MS, Tenni FC. Inappropriate prescribing in older residents of Australian care homes. *J Clin Pharm Ther* 2011;36(1):33-44.
76. Bischoff-Ferrari HA, Dawson-Hughes B, Staehelin HB, Orav JE, Stuck AE, Theiler R, et al. Fall prevention with supplemental and active forms of vitamin D: a meta-analysis of randomised controlled trials. *BMJ* 2009;339:b3692.
77. Bischoff-Ferrari HA, Willett WC, Orav EJ, Lips P, Meunier PJ, Lyons RA, et al. A pooled analysis of vitamin D dose requirements for fracture prevention. *N Engl J Med* 2012;367(1):42-9.
78. Gillespie WJ, Gillespie LD, Parker MJ. Hip protectors for preventing hip fractures in older people. *Cochrane Database Syst Rev* 2010(10):CD001255.
79. Flicker L, MacInnis RJ, Stein MS, Scherer SC, Mead KE, Nowson CA, et al. Should older people in residential care receive vitamin D to prevent falls? Results of a randomized trial. *J Am Geriatr Soc* 2005;53(11):1881-8.
80. Lord SR, Dayhew J, Howland A. Multifocal glasses impair edge-contrast sensitivity and depth perception and increase the risk of falls in older people. *J Am Geriatr Soc* 2002;50(11):1760-6.
81. Haran MJ, Cameron ID, Ivers RQ, Simpson JM, Lee BB, Tanzer M, et al. Effect on falls of providing single lens distance vision glasses to multifocal glasses wearers: VISIBLE randomised controlled trial. *BMJ* 2010;340:c2265.
82. Lord SR, Smith ST, Menant JC. Vision and falls in older people: risk factors and intervention strategies. *Clin Geriatr Med* 2010;26(4):569-81.
83. Harwood RH, Foss AJ, Osborn F, Gregson RM, Zaman A, Masud T. Falls and health status in elderly women following first eye cataract surgery: a randomised controlled trial. *Br J Ophthalmol* 2005;89(1):53-9.

Obsoleto for reference use only

84. Department of Health Western Australia. Western Australian Elective Surgery Wait List Report, December 2012 Quarter. Perth: Performance Reporting Branch, Department of Health WA; 2013.
85. Department of Health Western Australia. Western Australian Elective Surgery Wait List Report, September 2012 Quarter. Perth: Performance Reporting Branch, Department of Health WA; 2013.
86. Department of Health Western Australia. Western Australian Elective Surgery Wait List Report, June 2012 Quarter. Perth: Performance Reporting Branch, Department of Health WA; 2013.
87. Department of Health Western Australia. Western Australian Elective Surgery Wait List Report, March 2012 Quarter. Perth: Performance Reporting Branch, Department of Health WA; 2013.
88. Ng JQ, Morlet N, Semmens JB. Socioeconomic and rural differences for cataract surgery in Western Australia. *Clin Experiment Ophthalmol* 2006;34(4):317-23.
89. Campbell AJ, Robertson MC, La Grow SJ, Kerse NM, Sanderson GF, Jacobs RJ, et al. Randomised controlled trial of prevention of falls in people aged > or =70 with severe visual impairment: the VIP trial. *BMJ* 2005;331(7520):817.
90. Cumming RG, Thomas M, Szonyi G, Salkeld G, O'Neill E, Westbury C, et al. Home visits by an occupational therapist for assessment and modification of environmental hazards: a randomized trial of falls prevention. *J Am Geriatr Soc* 1999;47(12):1397-402.
91. Day L, Hoareau E, Finch C, Harrison J, Segal L, Bolton T, et al. Modelling the impact, costs and benefits of falls prevention measures to support policy-makers and program planners. Melbourne: Monash University Accident Research Centre; 2009.
92. Comans T, Brauer S, Haines T. A break-even analysis of a community rehabilitation falls prevention service. *Aust N Z J Public Health* 2009;33(3):240-5.
93. Hill KD, Moore KJ, Dorevitch MI, Day LM. Effectiveness of falls clinics: an evaluation of outcomes and client adherence to recommended interventions. *J Am Geriatr Soc* 2008;56(4):600-8.
94. Palvanen M, Kannus P, Piirtola M, Nieminen S, Parkkari J, Jarvinen M. Effectiveness of the Chaos Falls Clinic in preventing falls and injuries of home-dwelling older adults: A randomised controlled trial. *Injury* 2013.
95. Monagle S. Reducing falls in community dwelling elderly. The role of GP care planning. *Aust Fam Physician* 2002;31(12):1111-5.
96. Waldron N, Hill AM, Barker A. Falls prevention in older adults - assessment and management. *Aust Fam Physician* 2012;41(12):930-5.
97. Hill AM, Hoffmann T, Hill K, Oliver D, Beer C, McPhail S, et al. Measuring falls events in acute hospitals: a comparison of three reporting methods to identify missing data in the hospital reporting system. *J Am Geriatr Soc* 2010;58(7):1347-52.
98. Shorr RI, Mion LC, Chandler AM, Rosenblatt LC, Lynch D, Kessler LA. Improving the capture of fall events in hospitals: combining a service for evaluating inpatient falls with an incident report system. *J Am Geriatr Soc* 2008;56(4):701-4.
99. Evans SM, Berry JG, Smith BJ, Esterman A, Selim P, O'Shaughnessy J, et al. Attitudes and barriers to incident reporting: a collaborative hospital study. *Qual Saf Health Care* 2006;15(1):39-43.
100. Haines TP, Cornwell P, Fleming J, Varghese P, Gray L. Documentation of in-hospital falls on incident reports: qualitative investigation of an imperfect process. *BMC Health Serv Res* 2008;8:254.
101. Healey F, Haines TP. A pragmatic study of the predictive values of the Morse falls score. *Age Ageing* 2013.
102. National Institute for Health and Care Excellence. CG161 Clinical Guideline, Falls: assessment and prevention of falls in older people. Manchester: NICE; June 2013.
103. Haines TP, Bennell KL, Osborne RH, Hill KD. Effectiveness of targeted falls prevention programme in subacute hospital setting: randomised controlled trial. *BMJ* 2004;328(7441):676.

Obsolète for reference use only

104. Haines TP, Hill AM, Hill KD, McPhail S, Oliver D, Brauer S, et al. Patient education to prevent falls among older hospital inpatients: a randomized controlled trial. *Arch Intern Med* 2011;171(6):516-24.
105. Australian Commission on Safety and Quality in Health Care (ACSQHC). National Safety and Quality Health Service Standards. Sydney; September 2011.
106. Waldron N, Dey I, Nagree Y, Xiao J, Flicker L. A multi-faceted intervention to implement guideline care and improve quality of care for older people who present to the emergency department with falls. *BMC Geriatr* 2011;11:6.
107. Wong YY, Flicker L, Draper G, Lai MM, Waldron N. Hip fractures among Indigenous people in Western Australia from 1999-2009. *Intern Med J* 2012.
108. National Institute for Clinical Excellence. Clinical practice guideline for the assessment and prevention of falls in older people. London: Royal College of Nursing; 2004.
109. Towards national indicators of safety and quality in health care. Cat. no. HSE 75. AIHW, 2009. (Accessed 7 June, 2013, at <http://www.aihw.gov.au/publication-detail/?id=6442468285>.)
110. Centre for Research into Disability and Society. Scoping Document. Western Australia State Wide Chronic Disease Self-Management Strategy: Implementation and Evaluation. Perth: Curtin University of Technology; 2006.
111. Faes MC, Reelick MF, Joosten-Weyn Banningh LW, Gier M, Esselink RA, Olde Rikkert MG. Qualitative study on the impact of falling in frail older persons and family caregivers: foundations for an intervention to prevent falls. *Aging Ment Health* 2010;14(7):834-42.
112. Dow B, Meyer C, Moore KJ, Hill KD. The impact of care recipient falls on caregivers. *Aust Health Rev* 2013;37(2):152-7.
113. University of Otago. Otago exercise programme to prevent falls in older adults. New Zealand: Accident Compensation Corporation (ACC); 2003.
114. Centre of Research Excellence in Patient Safety. An evaluation of the preventing falls and harm from falls in older people best practice guidelines for Australian hospitals: Insights into quality, implementability, awareness and uptake of key recommendations in Australian acute hospitals: Australian Commission on Safety and Quality in Health Care; 2012.
115. Cameron ID, Murray GR, Gillespie LD, Robertson MC, Hill KD, Cumming RG, et al. Interventions for preventing falls in older people in nursing care facilities and hospitals. *Cochrane database of systematic reviews* 2010(1):CD005465.
116. Kreisfeld R, Harrison J. Hospital separations due to injury and poisoning 2005-06. Canberra: Australian Institute of Health and Welfare; 2010.
117. Moller J. Current costing models: are they suitable for allocating health resources? The example of fall injury prevention in Australia. *Accid Anal Prev* 2005;37(1):25-33.
118. Panel on Prevention of Falls in Older Persons AGS, British Geriatrics S. Summary of the Updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. *J Am Geriatr Soc* 2011;59(1):148-57.
119. Davis JC, Robertson MC, Comans T, Scuffham PA. Guidelines for conducting and reporting economic evaluation of fall prevention strategies. *Osteoporos Int* 2011;22(9):2449-59.
120. Dohse GR, Leopold SS, Theiler S, Sayre C, Cizik A, Lee MJ. Systems-based safety intervention: reducing falls with injury and total falls on an orthopaedic ward. *J Bone Joint Surg Am* 2012;94(13):1217-22.
121. Schnelle JF, Kapur K, Alessi C, Osterweil D, Beck JG, Al-Samarrai NR, et al. Does an exercise and incontinence intervention save healthcare costs in a nursing home population? *J Am Geriatr Soc* 2003;51(2):161-8.
122. Department of Health Western Australia. Working together - WA Health Strategic Intent 2010-2015. In. Perth: Department of Health WA; 2010.
123. Davis JC, Robertson MC, Ashe MC, Liu-Ambrose T, Khan KM, Marra CA. Does a home-based strength and balance programme in people aged > or =80 years provide the best value for money to prevent falls? A systematic review of economic evaluations of falls prevention interventions. *Br J Sports Med* 2010;44(2):80-9.

Obsolète, for reference use only

124. Robertson MC, Devlin N, Scuffham P, Gardner MM, Buchner DM, Campbell AJ. Economic evaluation of a community based exercise programme to prevent falls. *J Epidemiol Community Health* 2001;55(8):600-6.
125. Carers Recognition Act. Government of Western Australia, 2004. (Accessed at [http://www.austlii.edu.au/au/legis/wa/consol_act/cra2004197/.](http://www.austlii.edu.au/au/legis/wa/consol_act/cra2004197/))
126. Li LC, Grimshaw JM, Nielsen C, Judd M, Coyte PC, Graham ID. Evolution of Wenger's concept of community of practice. *Implement Sci* 2009;4:11.
127. Li LC, Grimshaw JM, Nielsen C, Judd M, Coyte PC, Graham ID. Use of communities of practice in business and health care sectors: a systematic review. *Implement Sci* 2009;4:27.
128. Evashwick CJ. Creating a continuum. The goal is to provide an integrated system of care. *Health Prog* 1989;70(5):36-9, 56.
129. Department of Health Western Australia. Admission, Readmission, Discharge and Transfer Policy for WA Health Services. Perth: Performance Activity and Quality Division, Department of Health WA; Version 3 July 2012.
130. Slawomirski L, Waldron N, Seymour H, David L. Safety and Quality Investment for Reform (SQulRe) Inpatient Falls Prevention Initiative. In: Australian New Zealand Falls Prevention Society Conference. Dunedin, New Zealand; 2010.
131. Australian Bureau of Statistics. 3222.0 - Population projections, Australia, 2006 to 2101. Canberra: ABS; 2008.
132. Department of Health Western Australia. Learning from Clinical Incidents: A Snapshot of Patient Safety in Western Australia 2010-2011. Perth: Department of Health WA; 2012.
133. Department of Health Western Australia. Learning from Clinical Incidents: A Snapshot of Patient Safety in Western Australia 2010-2011. Perth: Department of Health WA; 2012.
134. Hendrie D, Hall SE, Arena G, Legge M. Health system costs of falls of older adults in Western Australia. *Aust Health Rev* 2004;28(2):363-73.

Obsolete - for reference use only

Appendices

Appendix 1: Description of current falls prevention services and pathways in WA Community setting

Stay On Your Feet WA[®] program

Stay On Your Feet WA[®] aims to promote healthy, active ageing in Western Australia (WA) to reduce falls and fall-related injuries among seniors. The program aims to achieve this by raising awareness that falls are preventable and not a consequence of ageing. Awareness-raising activities including events, grants for community organisations and newsletters are attracting increasing levels of attention and the volunteer program has seen positive engagement of older people. Community and health professional training is being offered, with a Falls Prevention Summit held to over 300 participants. The Stay On Your Feet[®] program is committed to evaluation with a program wide evaluation conducted in 2012 along with the support and involvement in a number of research projects. WA has continued to attract interest from national and international organisations interested in using the Stay On Your Feet[®] brand and resources in their local area.

General practitioner

General practice provides an important role in falls prevention including screening, assessment and treatment plans. Identifying patients who should be referred to aged care services (including falls specialists) or other specialists such as cardiology and ophthalmology is also important.

Multidisciplinary care and support services

Due to the multiple factors associated with falls risk, which are often compounded by associated chronic and complex conditions in the later stages of adult life, people at risk of falling should be supported by specialised health professionals in areas such as podiatry, pharmacy based medication review, nutrition and hydration, home hazard assessment, eye health and aids and equipment.

There are multiple points of referral to access allied health services in the community. For example, Aged Care Assessment Teams (ACAT) can be utilised in community settings to determine the extent to which individuals are able to cope with daily living activities and their own care and advise what services are available to assist individuals. GPs, community nurses and social workers can refer appropriate individuals for an ACAT assessment (if they themselves are not ACAT accredited) or self-referrals are also accepted. The location of ACATs are listed at the ACAT finder.

An example of a type of service people may be referred to are Day Therapy Centres. They are funded by the Australian Government and offer physiotherapy, occupational and speech therapy, podiatry and other therapy services to older people in a community setting or Australian Government funded residential care facility. The aim is to assist them to maintain, or recover, a level of independence that will allow them to remain either in the community or in low level residential care. Individuals can be referred to Day Therapy Centres by a number of ways including by:

- GP
- Aged Care Assessment Teams (ACAT)
- social workers
- geriatricians
- hospitals
- community health workers.

Self referrals or referrals by carers and families are also accepted.

Another example of a service available is the [Home and Community Care \(HACC\) program](#) which aims to help individuals to stay at home for as long as possible by providing a range of basic support and maintenance services including domestic assistance, personal care, social support, respite care, assessment, case management, nursing care, allied health care and home modifications. A HACC Service Provider will assess an individual's eligibility to access the program and identify which services they require.

Those who are eligible may access program-based allied health services through the Silver Chain's [Home Independence Program \(HIP\)](#) or the [Personal Enablement Program \(PEP\)](#) (post acute discharge only). Individuals identified at risk of falls may benefit from some of these services, however they are not available in most rural regions. Silver Chain also offer a number of other services, such as fall detectors.

[Home Care Packages Program](#) have replaced the former community and flexible packaged care from 1 August 2013. It is a coordinated package of services tailored to meet the consumer's specific care needs to assist them to remain living at home for as long as possible. The package is coordinated by a home care provider with funding provided by the Australian Government. Support and care is also available through the [Department of Veterans' Affairs \(DVA\)](#) who provide an extensive range of benefits and services to eligible veterans, current and former serving members and their families.

People with a long-term disability living at home in the community may be eligible for aids and equipment through the Disability Services Commission [Community Aids and Equipment Program](#) and can be referred by their General health professional.

Carers WA is the peak body representing people who provide ongoing care to a family member or friend with ongoing care needs due to disability or chronic illness, including age-related disability and mental illness. They are a key organisation to engage in falls prevention activity as carers commonly provide daily care to individuals who are at risk of falls.

Living Longer Living Stronger™

The [Living Longer Living Stronger™ \(LLLS\) program](#) is run by the COTA WA with funding from the Department of Health WA. It encourages and supports change in the health and fitness sectors to achieve improved health, quality of life and fitness for people aged 50 years and over. LLLS is an evidence based program that provides a quality, individualised progressive strength training for its participants. Research suggests that to achieve optimal results 2 to 3 fully supervised sessions per week are recommended for its participants.

GPs and other allied health professionals can refer patients directly to an appropriate LLLS provider depending upon their patients contraindications and health ailments. Tier One providers of the program are exercise physiologists or physiotherapists who have the skills and experience to deal with those participants who have chronic conditions or are in need of rehabilitation services. Tier two providers are professional fitness instructors who have completed extra LLLS training and are equipped to deal with those participants with minor health conditions. A 12-week program to accommodate those with chronic conditions who may require a higher level of supervision in order to exercise safely is available from [Perth North Metro Medicare Local](#).

Sub acute setting

Day Therapy Units

Day Therapy Units (DTU) provide multidisciplinary therapy services such as physiotherapy, occupational and speech therapy, podiatry and other therapies to non-admitted patients over the age of 65 years, or over 45 years for Aboriginal and Torres Strait Islander people. Younger adults with neurological disabilities and/or multiple health problems will be considered on an individual basis. Referrals are received from GPs, other departments within the hospital or other hospitals, provided the patient lives in the health service catchment area. All referrals are managed at a single point where they are triaged to the most appropriate service within the unit.

Falls Clinics

The original work around both Falls Clinics and the falls specialist came out of the WA Aged Care Community Rehabilitation Initiative (WAACCRI) in 1999, based at Sir Charles Gairdner Hospital. Falls Clinics treat older people who have had a fall or at high risk of falling. The staff who work at a Falls Clinic may include a geriatrician, physiotherapists (to assess strength, balance and mobility and prescribe strength and balance exercises and mobility training and advice), occupational therapists (to assess capabilities in daily tasks, concerns about falling and whether any home modifications may be required) and clinical nurses (to coordinate the patient's visit and screen for other health problems common in older adults).

In order to attend a clinic, patients must be:

- over 65 years old, or over 45 years for Aboriginal and Torres Strait Islander people; younger adults with neurological disabilities and/or multiple health problems will be considered on an individual basis
- referred through a GP, ACAT or hospital professional
- live mainly in the hospital's catchment area.

A list of the locations and [contact details of Falls Clinics \(PDF 50KB\)](#) across WA is available.

Falls Specialists Coordinators

The success of the [Falls Linkage Independence Program \(FLIP\)](#) has led to funding for the Falls Specialist roles under the National Partnership Agreement WA Subacute Care Program 2009-2013. Falls Specialist roles have been established across all major health service sites within the metropolitan area. The [Falls Specialists Coordinator \(FSC\)](#) role is unique to WA, with positions now established in all metropolitan hospital sites, located within DTU. A FSC (physiotherapist or occupational therapist) will visit individuals in their own home and conduct a detailed assessment to determine why the person has fallen previously and/or those risk factors that may contribute to future falls.

A FSC hub and clinical lead role has been established, based at Sir Charles Gairdner Hospital, to coordinate FSC group activity, promote consistent and equitable practice and support program development, education and training as well as research and innovation. The FSC group meet quarterly. Linkages with WA Country Health Service (WACHS) regional sites have been established to facilitate the exchange of clinical knowledge and skills. A list of the [location and contact details of the falls specialist services](#) across WA is available.

Rehabilitation in the Home

Rehabilitation in the Home (RITH) provides short to medium term allied health therapy, allowing early hospital discharge, assistance in the hospital to home transition and prevention of readmission to hospital. RITH is designed to improve patient flow and patient outcomes as well as support demand management. It is provided through North Metropolitan Health Service (Homelink) and South Metropolitan Health Service (RITH) with teams based at all major metropolitan hospitals.

Patients eligible for RITH services meet the following criteria:

- require allied health services which would require hospitalisation and cannot be provided in an outpatient or community setting
- are medically stable
- have adequate home support
- have an accessible and safe home environment
- are able to actively participate in goal orientated rehabilitation program
- consent to home management.

Referrals are accepted from:

- emergency departments including CCT
- all inpatient wards
- community referrals if they are specifically to prevent admission (a small number are considered).

Patients who receive care through RITH may then be referred on to services such as Community Physiotherapy Service or DTH for ongoing care.

Treatment programs are generally short term, and specific to the home and community environment. Patients requiring longer term exercise programs need to be referred onto Day Therapy Units or CPS. Patients requiring home modifications need to be referred back to the referring hospital for these to be done. Patients requiring medical assessment for medications and other contributing factors can be seen by the RITH registrar who would consult with the patient's GP.

Community Physiotherapy Services

The falls prevention [Community Physiotherapy Service \(CPS\)](#) program is a community based rehabilitation program that incorporates physical activity and education for adults requiring subacute care and is designed to minimise falls risk and optimise balance, physical ability and function.

Individuals are able to use walking aids but must be able to stand independently for short periods. The programs are group based and are staffed by senior physiotherapists at community venues across the Perth metropolitan area. To attend CPS programs, a [CPS referral form](#) completed by a health professional is required. More information on referral criteria is available from the [CPS website](#).

Other

Falls prevention may also be addressed by general outpatient clinics and hospital allied health outpatient clinics, particularly in sites which may not have access to the services discussed above.

Residential care setting

The RCL provides support and advice to staff in approximately 200 metropolitan residential aged care facilities through a 24 hour, 7 days a week RCL Triage and Advice Line and a specialist nurse outreach service.

The RCL provides:

- 24/7 access to telephone advice that uses a suite of aged care pathways (algorithms and dispositions)
- Direct RACF site visits, offering clinical advice and technical support.
- Care planning advice and support for residents with complex health care needs.
- Coordination and support for hospital wards and emergency departments to assist with timely and safe discharge.
- Coordinated approach to accessing additional outreach service specific to the residents care needs.
- “One on one” education sessions designed to meet the individual resident needs.
- Formal education designed as requested by RACF staff.

Currently, when a resident of a RACF is referred for assessment and intervention, Falls Specialist Staff see this as an ideal opportunity to offer an education session for the facility staff. Falls Specialists are in the planning phase of developing an education program to ensure that Falls Specialist Staff deliver consistent information during education and training sessions.

Hospital setting

The [Safety and Quality Investment for Reform \(SQiRe\) Clinical Practice Improvement \(CPI\) program](#) was implemented in 2006 to strengthen the Department of Health’s clinical governance and patient safety management systems. Fall prevention in hospitals is one of the eight clinical practice improvement areas and aims to ensure all patients admitted to WA Hospitals have a falls risk assessment. The program successfully resulted in 9.6% reduction in falls over a three year period 2005/06 – 2008-09.¹³⁰ Building on the SQUIRE program, the WA Health Falls Prevention Community of Practice (CoP) for hospital settings was established in 2009 to create a supportive forum for quality improvement staff.

Obsolete - for reference use only

Appendix 2: New and current falls prevention research projects occurring in WA

Name of project	Funded by	Principal/Chief investigator or Project Lead	Status
<i>Preventing falls after discharge using tailored patient education randomised trial</i>	The Menzies Foundation	Dr Anne-Marie Hill (Chief Investigator), The University of Notre Dame Australia	Trial completed and results in progress
<i>Improving older patients' safety in Western Australian hospitals - reducing falls in rehabilitation units</i>	2012 SHRAC Research Translation Projects	Chief Investigators – AM Hill, N Waldron, T Haines, C Beer, L Flicker, J Ingram, S McPhail	2013-2015
<i>Preventing falls in older inpatient mental health settings</i>	2011/12 Quality Incentive Program (QulP) Clinical Integration and Innovation Grants	Karen Heslop, Project Lead, Department of Psychiatry Royal Perth Hospital and Curtin University	Ongoing
<i>RESPOND Emergency Department project reducing falls in older people after presentation to Emergency Department</i>	NHMRC 2013-2016 Partnership grant	Dr Anna Barker (Chief Investigator) Monash. Partners: DOH WA, Curtin University, UWA, ICCWA, George Institute for Global Health, Alfred Health	Ongoing
<i>Reducing injurious falls using a staff model community of practice for falls prevention</i>	2013-2017 Collaborative research network grant funded by the Federal Government Australia	Dr Anne-Marie Hill (Chief Investigator), The University of Notre Dame Australia	Ongoing
<i>Evaluation of "Stay On Your Feet[®]" Peer Education Program</i>	2013-2017 Collaborative research network grant. Funded by the Federal Government Australia	Dr Anne-Marie Hill (Chief Investigator), The University of Notre Dame Australia	Ongoing

Obsolete - for reference use only

Appendix 3: Incidence and burden of falls in WA

These following statistics are results from a detailed analysis of injury data in WA from 2000 to 2008¹:

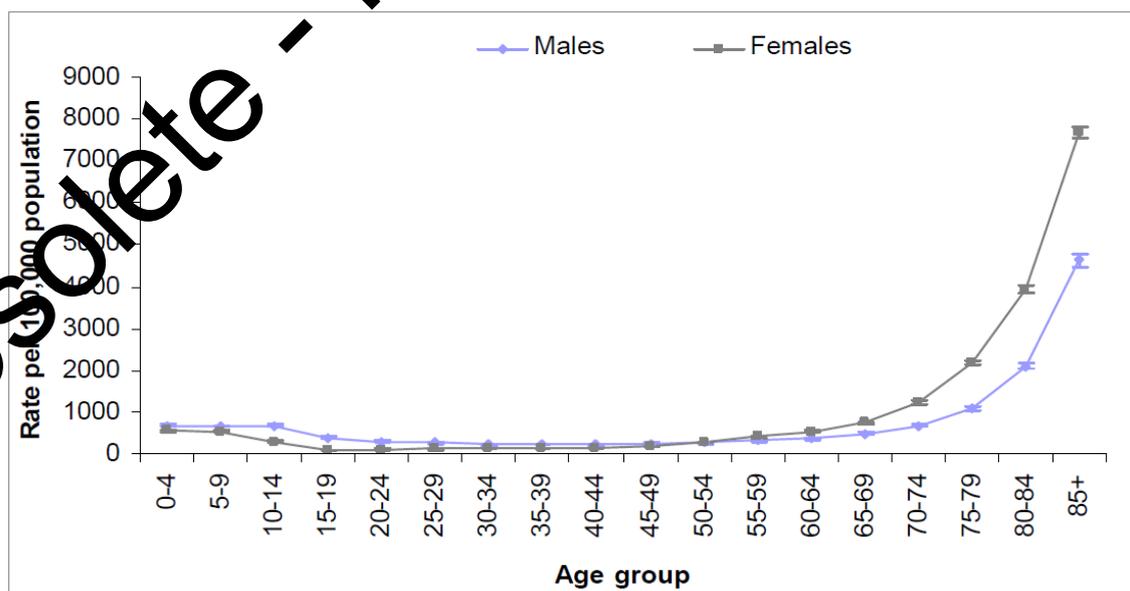
Falls in relation to other injuries

- ranked fourth as a cause of community injury death (11%) and second as a cause of community injury hospitalisation (31%).
- ranked seventh as a cause of premature death accounting for 3,706 Potential Years of Life Lost (PYLL)
- ranked fourth as a cause of injury burden for an estimated 2,329 Disability-Adjusted Life Years (DALY) (12.1% of total injury burden)
- were the leading contributor to the cost of community injuries.
- accounted for 613 deaths
- averaged 9,575 hospitalisations per year for non-Aboriginal people.

Age

- The highest age-specific death rates due to falls were observed for people aged 70 years and over.
- Rates for males younger than 44 years of age were significantly higher than for females. Conversely, the rates for females older than 55 years were significantly higher than males (see Figure 7).
- WA's demographic profile is changing as the proportion of older people increases and the population continues to grow. The Australian Bureau of Statistics estimates that the percentage of the Australian population aged 65 and older could increase from 13% in 2007 to 23% by 2056.¹³¹ (These projections are largely based on current trends in fertility, life expectancy at birth, net overseas migration and net interstate migration.)

Figure 7. Age-specific rates of hospitalisation due to falls by sex, WA, 2000-2008



Source: Ballestas T, Xiao J, McEvoy S and Somerford P (2011). The Epidemiology of Injury in Western Australia, 2000-2008. Perth: Department of Health WA.¹

Sex

- Males were 1.5 times more likely to die as a result of a fall than females.
- In contrast, females were 10% more likely to be hospitalised than males.

Aboriginal people

- Aboriginal people were 3.6 times more likely to die and 1.9 times more likely to be hospitalised due to fall injuries than non-Aboriginal people.
- The average number of fall hospitalisations was 498 cases per year for Aboriginal people. Aboriginal males were 2.0 times more likely to be hospitalised due to falls than their non-Aboriginal counterparts. This figure was 1.8 times for Aboriginal females.

Diagnosis

- The most common diagnosis for hospitalisations due to falls was injuries to the head for males (24.4%) and injuries to the elbow and forearm for females (21.1%)¹.
- Females were almost twice as likely to be diagnosed with a hip and thigh injury than males, while the reverse was true for injuries to the wrist and hand and injuries to the neck¹.

Place

- The home was the most common place of occurrence reported for hospitalised falls¹.
- The hospital setting itself is associated with an increased risk of falling among older people due to additional falls risk factors from being in a new environment¹³². Accordingly, falls were the second most frequently reported clinical incident in WA hospitals in 2010-11 with a total of 4,941 incidents, averaging 3 falls incidents per 1,000 bed days¹³². Two percent (or 120) of all fall incidents in 2010-11 were associated with significant (Level 7 outcome) or severe harm (Level 8 outcome) based on the Clinical Incident Management System (CIMS) outcome levels (Refer to [Appendix A of the Learning from Clinical Incidents: A Snapshot of Patient Safety in WA 2008-2010 report](#) for a description of the outcome levels)^{132, 133}.

Length of stay and costs of hospitalisations

- Falls accounted for a total of 585,532 hospital bed-days between 2000 and 2008¹
- The total cost of hospitalisations due to falls was \$617.8 million which equates to an average of \$68.6 million per year¹.

As the population grows so too does the demand for health services. It is projected that in the absence of effective prevention and lower treatment costs for falls related injuries, the cost to the Western Australian health system will be \$174 million in 2021¹³⁴.

Appendix 4: Organisations, services and institutions to involve in Falls Prevention MoC implementation

Community health organisations	Health professional organisations	Other organisations
<ul style="list-style-type: none"> • Alzheimers Australia • Arthritis Foundation WA (AFWA) • Association of the Blind of WA • Australian and New Zealand Bone and Mineral Society (ANZBMS) • Cancer Council WA • Carers WA • Commonwealth Respite & Carelink Centres – access to Aged Care Assessment Teams (ACAT) providers and carers • Continenace WA • COTA WA • Day Therapy Centres • Diabetes WA • Health Consumers Council WA • Heart Foundation • Independent Living Centre • Injury Control Council of WA (ICCWA) • Kidney Health Australia • Macular Disease Foundation • National Prescribing Service • Osteoporosis Australia • Silver Chain • Stay On Your Feet WA® • Stroke Foundation 	<ul style="list-style-type: none"> • Australian Aged Care Quality Agency • Allied Health Professions Australia • Australian & NZ Society for Geriatric Medicine • Australian & NZ Society of Nephrology • Australian Association of Practice Managers • Australian Medical Association (AMA) • Australian Health Practitioner Regulation Agency • Australian Institute of Radiography (AIR) • Australian Physiotherapy Association (APA) • Australian Podiatry Association WA • Australian Rheumatology Association (ARA) • Dietitians Association of Australia (DAA) • Endocrine Society of Australia • Exercise & Sports Science Australia (ESSA) • Local Hospital Networks • Medicare Locals • Occupational Therapy Australia • Optometrists Association Australia • Pharmaceutical Society of Western Australia • Rural Health West • Royal Australasian College of Physicians • Royal Australian & NZ College of Radiologists • Royal Australian College of General Practitioners (RACGP) • Australian College of Nursing • Society of Hospital Pharmacists of Australia • Sports Dietitians Australia • WA Occupational Therapy Association (WAOTA) • WA Practice Nurses Association 	<ul style="list-style-type: none"> • Association for Tertiary Education Management • Association of Independent Schools of WA • Australian Council of Deans of Education • Catholic Education Office of WA • Country Women’s Association of WA • Connections Australia • NPS MedicineWise • Probus South Pacific • Returned & Services League of Australia WA • Rotary Australia • Universities in WA • WA Council of State School Organisations (WACSSO) • WA Men’s Shed Association <p>Government departments</p> <ul style="list-style-type: none"> • Department of Veteran’s Affairs • Department of Education & Training • Department of Housing • Department of Local Government and Communities • Department of Planning • Department of Sport and Recreation • Department of Transport • Disability Services Commission • Medicare • Office of Multicultural Interests

Obsolete - for reference use only

Obsolete - for reference use only

This document can be made available in alternative formats on request for a person with a disability.

© Department of Health 2014