

Part 3 Falls in Older Community-Dwelling People

3. Falls in Older Community-Dwelling People

3.1 Definition of a Fall

For the purpose of the *Community Guidelines*, the definition of a fall is that adopted by the World Health Organisation ^[33].

A fall is an event which results in a person coming to rest inadvertently on the ground or floor or other lower level.

This definition excludes falls resulting from an intentional change in position, but does include those where the person inadvertently comes to rest on furniture, against a wall or other objects ^[32].

3.2 Epidemiology of Falls and Fall-Related Injuries

3.2.1 Incidence of Falls

Valid data on the rate of falls in the community is difficult to obtain because of reliance on self-reporting which may underestimate the true incidence ^[33, 34]. Despite these limitations, Australian and overseas prospective studies have reported that between 30 percent and 50 percent of community dwelling older adults fall each year, with up to half experiencing multiple falls ^[35, 36]. In community-dwelling older people about 50 percent of falls occur within their homes and the remainder in public places ^[35]. Fall rates are higher in older community-dwelling women (40 percent) than in older men (28 percent) ^[35].

3.2.2 Incidence and severity of Fall-Related Injuries

Within the older age group, the risk of falling increases with age and the outcomes take on greater significance ^[4]. The concern is not simply the high incidence of falls in older people, but rather the combination of high incidence and high susceptibility to injury. The propensity for fall-related injury is caused by the high prevalence of clinical diseases (e.g. osteoporosis) and age-related physiological changes (e.g. slowed

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protective responses) that make falls from a standing height (or even lower) potentially injurious ^[37].

Although most falls produce no serious injury, between five percent and 15 percent of community-dwelling older persons who fall each year do sustain a serious injury such as a fracture, head injury, or serious laceration ^[35, 38]. An Australian study reported that, of people aged 65 years and over attending an Emergency Department in Sydney, 18 percent presented as a direct consequence of a fall and over half (58 percent) were subsequently admitted ^[39]. The rate of fall-related injuries requiring hospital admission increases exponentially from the age of 65 years, with age adjusted incidence rates approximately twice as high in women than in men ^[40]. National data on hospitalisations due to falls among older people in 2003-04 ^[41] showed that 4.3 percent of all hospitalisations in people aged 65 and over were fall-related. The total burden was disproportionately higher, representing 10.9 percent of all hospital bed-days for the population ^[41].

It is estimated that one percent of people who fall sustain a hip fracture ^[35, 37] which in terms of morbidity and mortality is one of the most serious consequences of falls. As the population ages, the number of hip fractures in Australia is expected to double by 2026 and increase four fold by 2051, based on current incidence rates ^[42]. In international comparisons of ten-year probabilities for hip fracture, Australia was classified as a high risk country ^[43].

In addition to physical injuries, falls can produce other serious consequences for older people. Post-fall anxiety syndrome (fear of falling) is recognised as a negative consequence of falls. The resultant self-imposed activity restrictions and loss of confidence in the ability to ambulate safely can lead to further functional decline, depression, feelings of helplessness and social isolation ^[37]. This in-turn is likely to place an individual at higher risk of another fall.

Multiple falls are a common reason for the admission of previously independent older persons to long term care institutions ^[37]. Since any loss of ability to live independently in the community has detrimental effects, quality of life is profoundly threatened by falls and fall-related injuries ^[44].

3.2.3 Queensland Data

In Queensland in the past two decades, there has been a slight reduction in the rate of deaths from falls in people aged 65 and over ^[45]. Rates of hospitalisation in a similar period have increased by 100 percent for males and 70 percent for females ^[9]. In 2002-04 the rate of deaths from falls in older Queenslanders was higher than the national rate (24.3 deaths per 100,000 persons, compared with 21.8 deaths per 100,000 persons) ^[9].

Falls are among the leading causes of avoidable admission to Queensland hospitals ^[9]. In 2005/06 in Queensland for people aged 65 years and over there were:

- 19,074 hospital separations for falls, of which 67 percent were for females
- 3916 separations per 100,000 persons for fall-related hospitalisation. ^[9]

Compared with other States and Territories, in Queensland in 2003/04 rates of hospitalisation for fall-related injury in people aged 65 years and older were significantly lower than national rates. These data excludes hospital separations which involve transfer from another acute hospital ^[41].

The lifetime cost of falls in Queensland has been estimated to be \$750 million, twice that of road trauma ^[46]. In the next 50 years, total health costs attributable to fall-related injury are projected to increase more than three fold ^[31].

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Based on Queensland Trauma Registry (QTR)² data for the period July 2005 to June 2006, there were 2400 people aged 65 and over who were admitted to QTR hospitals (Cairns, Mackay, Rockhampton, Toowoomba, Townsville, Gold Coast, Royal Brisbane and Women's, Princess Alexandra, Nambour, Ipswich, Redcliffe and Caboolture) for 24 hours or more for treatment of a fall-related injury. Of these, 698 (29 percent) occurred in a residential institution and 1702 (71 percent) occurred in a community setting. Of the 1702 community-dwellers admitted with a fall-related injury, 82 (five percent) died in hospital and 738 (43 percent) were transferred out to another health facility (including rehabilitation, nursing home, hospice and palliative care) following their hospital stay. It is assumed that the remainder (52 percent) returned to their place of residence. The impact on health services required for the treatment and rehabilitation of fall-related injury has been characterised as a potential future 'epidemic', creating resource demands that will be difficult to meet ^[4, 30, 31].

3.2.4 Falls Incidence in Special Population Groups

3.2.4.1 CALD Communities

For older people from culturally and linguistically diverse (CALD) communities, the rate of hospitalisation due to injurious falls conforms to the 'healthy migrant' hypothesis: rates are highest in the Australian-born segment and lowest among older people from CALD backgrounds ^[47]. Rates differ considerably between immigrants born in different countries and regions. For Queensland the highest age standardised rates of hospitalisations for fall related injuries are in migrants from Oceania, North Africa and the Middle East ^[47].

2 Queensland Trauma Registry, Centre of National Research on Disability and Rehabilitation Medicine, Medical School, The University of Queensland

3.2.4.2 Aboriginal and Torres Strait Islander Peoples

The effect of an increasing rate of falls with age is observed from an earlier age for Aboriginal and Torres Strait Islander people than for other Australians ^[48]. In this population, deaths due to falls are at lower rates than other injuries, but are still two and a half times higher in this population than for non-Indigenous people ^[48]. Falls are the second most common cause of injury requiring hospitalisation and contribute to 15 percent of all injury presentations for Aboriginal and Torres Strait Islanders ^[49]. Hip fracture injury is thought to be uncommon, because it is usually assumed that (as they have a life span considerably less than non-Indigenous Australians) Aboriginal and Torres Strait Islander people do not live long enough to sustain such an age-related fracture ^[50]. MacIntosh and Pearson (2001) showed that Aboriginal and Torres Strait Islander patients have a lower incidence of these fractures than might be expected on an overall population basis and that Aboriginal and Torres Strait Islander females develop osteoporotic type fractures of the femoral neck at a later age than non-Indigenous females ^[50].

3.2.4.3 People with cognitive impairment

People with dementia have almost twice the risk of falling compared with cognitively normal older people ^[37] at an annual incidence rate of around 70-80 percent ^[51]. They have a threefold increase in risk of fall-related fractures ^[52]. Poor cognitive functioning and cognitive decline are independent risk factors for falls ^[53]. Factors specific to people with cognitive impairment include wandering, agitation and perceptual difficulties which contribute to increased falls risk ^[54]. People with dementia are particularly vulnerable if their attention is divided: even simple additional tasks impair postural control ^[52].

3.2.4.4 Rural and Remote

About 13 percent of older Australians live in outer regional and remote areas ^[12]. Generally, people who live in remote and rural areas have a

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poorer health status than those in major cities ^[16]. Age standardized hospital separation rates for falls in Queensland for persons aged 65 and over for the years 2002/03 to 2005/06 showed that those in remote areas had a significantly higher rate than for Queensland as a whole, while those in outer regional areas had a significantly lower rate than for Queensland as a whole ^[9]. (See the Glossary for definitions of *Rural* and *Remote*).

3.3 Falls Data Monitoring

Several issues should be considered when recording falls data including accuracy of self-reporting and recall of previous falls ^[34], and differing definitions of what constitutes a ‘fall’^[55, 56]. Depending on the length of the recall period, falls may be forgotten ^[57]. Falls are often unwitnessed and unreported, and there may even be disincentives for reporting falls, including embarrassment, perceptions that a fall will be seen as a marker of ageing, and fear of consequences such as loss of independence (e.g. loss of driver’s licence) and control (e.g. of finances) and risk of institutionalisation. Many falls go undetected until an injury or disability has occurred.

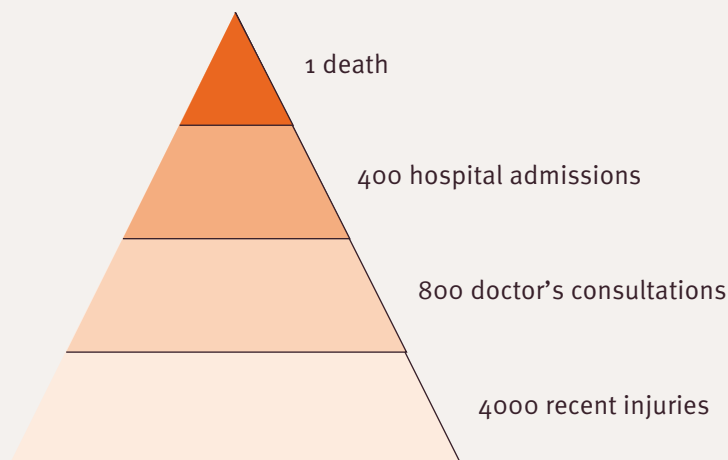
In community studies, various methods for measuring falls are used, including self reports using daily diaries, monthly calendars or monthly telephone interviews ^[35, 55]. However, at the population level there are few practical methods for monitoring falls. Routine surveillance of health care records is of little use since fewer than 30 percent of fall events are reported to a health practitioner ^[55, 58]. Administrative data sets such as hospital admissions are most likely to record falls resulting in injury.

Therefore, self reports, despite their limitations, are the only practical option at the population level in the community setting for collecting falls related data. To minimise recall bias, such data should be collected prospectively ^[35]. Strategies are required to increase reporting of falls by older people by increasing awareness of older people of the value of reporting (e.g. early detection of risk and strategies that

can be implemented to reduce future risk). Also needed are health professional initiatives to encourage asking all older patients at least once each year whether they have had a fall ^[59].

Harrison (1995) ^[60] has described the injury experience of a population as a pyramid. The apex represents the relatively small number of fatal cases, and the broader, lower parts of the pyramid represent the more numerous injuries of lesser severity (Figure 3.1). Injury data availability is in direct proportion to case *severity*, and in inverse proportion to *case frequency*. Quite a lot is known about the relatively small number of injury deaths, less about hospital inpatient cases, and still less about cases resulting in neither death nor hospital admission.

Figure 3-1: The Injury Pyramid



Note: Not to scale. These figures are approximate and representative of all injury and all ages.

Source: Harrison, 1995, (p.4-7) ^[60]

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Good Practice Points

- › The WHO definition for falls should be consistently used in all settings throughout Queensland.
- › In evaluating community projects/programs for prevention of falls for older people, prospective recording is the recommended method for data collection.
- › Falls data to be used in planning and evaluating population-based interventions needs to be readily accessible, timely, and widely distributed.
- › An agreed core set of fall indicators is required to evaluate falls interventions, including number of falls, number of fallers, the severity of fall related injury and fall-related hospital separations and deaths.



Part 4 **Guiding Principles for Preventing Falls**

4. Guiding Principles for Preventing Falls

A number of approaches can be adopted for preventing falls amongst older people living in the community (refer to the Health Continuum Model in Appendix A). A summary of the guiding principles is shown in Figure 4.1.

Figure 4-1: Guiding Principles for Preventing Falls

Population	Well-Aged	Vulnerable	High Risk
Prevention Level	Primary	Secondary	Tertiary
Prevention Models	Public health	→	Personal health
	Population	→	Individual
Prevention Program	Health promotion for healthy ageing	→	Primary health care assessment and management
Interventions	Multi-strategy, untargeted multifactorial	→	Targeted, single or multifactorial

4.1 Prevention – Primary, Secondary, Tertiary

Primary prevention programs aim to keep people healthy and prevent diseases and disorders from developing. Secondary prevention programs target those who are at risk but have not yet developed adverse health. Tertiary prevention aims to manage existing health problems and to ameliorate the risk condition or retard its progression ^[61].

4.2 Prevention Models

A public health model targets the population as a whole, while the personal health model targets the individual. The aim in the personal health or medical model is to identify those at high risk and tailor

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individual care plans to reduce risk. The public health model, in contrast, aims to shift the whole population's distribution of risk through community-wide interventions, since small shifts in some risks in the population can translate into major public health benefits ^[62].

Most of the current activity in the prevention of falls is based on the medical model of individual clinical assessment proximate to the time of risk ^[30], followed by interventions that target identified risk factors ^[63]. While treating risk factors can substantially reduce an individual's risk of falling, it is argued that interventions that target high-risk individuals should be only one part of a much wider preventive strategy. The greatest potential for prevention may be through population-based interventions that target universal risks across the life course ^[62].

4.3 Prevention Programs

4.3.1 Health Promotion

Health promotion is the process of enabling people to increase control over their health and its determinants. This process is a combination of strategies (educational, organisational, economic, environmental and political actions) that enable individual people and communities to bring about attitudinal, behavioural, knowledge, social and environmental changes ^[64]. Recommended good practice for health promotion approaches to preventing falls in community settings are multi-strategy. They need to involve older people in the design and implementation of strategies, foster partnerships with multiple stakeholders, and access local knowledge, expertise and resources ^[65]. A successful example of a community development approach to health promotion was the *Stay on Your Feet*® program in Northern Rivers NSW in the 1990s which demonstrated a reduction in fall-related hospitalisation rate ^[66].

4.3.2 Healthy Ageing

A number of community programs are based on the ‘healthy ageing’ model. These take a holistic approach to health with the aim to preserve and promote physical, social and mental wellness, independence and quality of life of older people. A range of programs based on the community development model have been developed to promote healthy ageing and have been initiated by government, charitable organisations or local community groups ^[67]. One such example is the *60 and Better Healthy Ageing Program* sponsored by Queensland Health and located throughout Queensland. Such programs promote self-care and preventive care practices and encourage individuals to take responsibility for their own health through physical activity, good nutrition and health promoting behaviours as well as social interaction and opportunities for new learning. At the local government level examples include programs to promote age-friendly, safe and positive ageing communities and reduce social isolation. Other programs for seniors include chronic disease self-management, support groups, peer education (e.g. *COTA Queensland Falls Prevention, Quality Use of Medicines, and Beyond Maturity Blues Programs*) lifelong learning (e.g. U3A), seniors’ fitness classes (e.g. *Living Longer, Living Stronger; Life Steps*), volunteering, walking schemes and other physical activity groups (e.g. *Tai Chi for Arthritis*). Some of these programs have a specific emphasis on preventing falls.

One way to engage older people in programs to prevent falls is through the promotion of healthy ageing ^[68]. To increase the relevance of preventing falls and therefore support from older people, interventions need to be communicated as a lifestyle-enhancing measure and as a means for staying independent for longer ^[69, 70]. There is evidence that older people can significantly improve health and quality of life through participation in healthy ageing programs ^[61], and that healthy ageing strategies play a role in preventing adverse health outcomes such as falls and fall-related injury ^[71]. The evidence shows that the

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benefits of healthy active ageing extend beyond falls prevention to other chronic conditions and disabilities associated with ageing.

Queensland Health has developed the *Stay On Your Feet® Community Good Practice Toolkit* to provide an evidence-based approach to investigate, plan, implement and review actions to promote healthy active ageing and reduce falls and related harm in older people. (<http://www.health.qld.gov.au/stayonyourfeet>)

4.3.3 Preventive Primary Care

Risk factor screening, assessment and management will be discussed in Section 5.0 (Risk Factors) and Section 6.0 (Awareness Raising, Screening and Assessment).

In the last decade a number of studies have reviewed the effectiveness of preventive primary care interventions that involve health assessments and/or home-based follow-up care, to prevent or delay the onset of functional decline and geriatric syndromes in community-dwelling older people ^[72-74]. Based on this evidence, recommended current good practice for preventive health care of older people includes the use of structured health assessment protocols, an integrated multidisciplinary approach, targeting patient groups with intermediate levels of disability and handicap, in-home assessments, and carefully structured follow up mechanisms ^[75]. Although many of the studies reviewed did not examine falls as a specific outcome, comprehensive health assessments and in-home follow-up care of older people are potentially an important component of community-based falls prevention strategies ^[36], since many geriatric conditions (including falls) share common risk factors ^[76].

Good Practice Points

- › Health care practitioners should use the Guiding Principles for Preventing Falls (Figure 4.1) to determine the prevention models, programs and associated interventions that are appropriate to their practice.
- › The Queensland *Stay On Your Feet*[®] *Community Good Practice Toolkit* should be used to guide the development, implementation and evaluation of falls prevention and healthy active ageing interventions and programs.



