

Falls in the Older Queensland Population

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Summary

- ⊙ Almost 300 older Queenslanders die per year as the result of a fall;
- ⊙ Fall injuries comprises 60% of all injury presentations in older people;
- ⊙ Females outnumbered males 2:1;
- ⊙ Two thirds of falls occurred at home;
- ⊙ Two thirds were the result of slipping, tripping or stumbling on the same level;
- ⊙ 40% of falls resulted in a fracture;
- ⊙ One in ten resulted in a hip fracture;
- ⊙ A third of fall presentations resulted in admission to hospital;

Introduction

It has been estimated that 1 in 3 older persons in Queensland will fall each year and between 5 and 10% of these will require medical attention¹. Frequently the outcome of such a fall is a fractured hip, and large numbers of people who sustain such fractures never recover fully². There can be chronic pain and a fear of falling again which results in decreased mobility and increased frailty which in turn increases the likelihood of another fall. This makes falls an important issue in our aging population.

In 2002 269 persons aged 65 years and over died in Queensland as the result of a fall, comprising 58% of all injury deaths in this age group. For the period 2002/2003 15,912 persons aged 65 years and over were admitted to a hospital in Queensland following a fall.

The aging process can make us more prone to falls. Our walking pattern and gait change. We tend to set our feet further apart for stability, our toe clearance is reduced so we become more likely to trip. Our eyesight tends to diminish and our reaction time can slow, making it more difficult to accommodate unexpected changes in our environment. Side effects of some medications or some diseases that more commonly manifest themselves in the older population, may mean that we are less stable on our feet.

The consequences of these falls may be mitigated by conditions like osteoporosis and medications that make our bones more brittle³.

Costs

As the Queensland population continues to age the problem of falls in older persons is of increasing concern, requiring additional allocation of resources. In a recent report it was estimated that the direct health system costs of falls in Queensland in 2001 was \$85 million, greater than that for traffic related injury, increasing to \$318 million by 2051 (3.75 times)⁴. The lifetime cost of falls in Queensland has been estimated to be \$750 million, or twice as much as that for road trauma⁵. This cost is expected to rise to more than \$1billion by 2021 and \$1.5 billion by 2051.

These resources don't account for the social costs associated with decreasing mobility and requirements on carers (frequently family) who are left to deal with older family members who may be frightened

by the prospect of another fall and so restrict their own independence.

Methods

Information was collected from QISU participating hospital emergency departments on injury presentations from 1998 to 2003. Data on those over 65 years was analysed for injuries due to falls.

Results

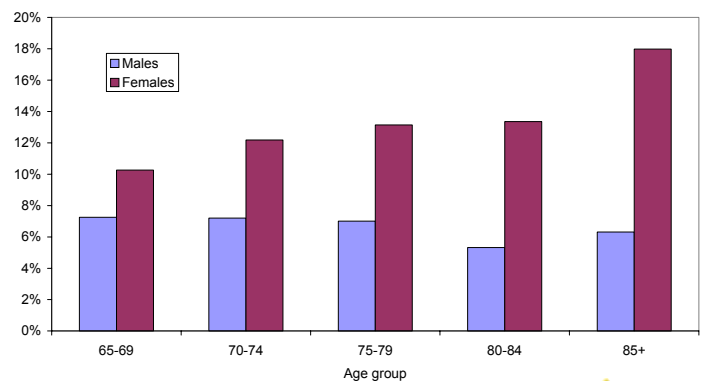
For the period 1998 to 2003, 5640 persons aged 65 years and over presented to a participating hospital ED in Queensland as the result of a fall. This comprises almost 60% of all presentations at this age.

Age and gender

In persons aged 65 years and over presenting to an ED following a fall females outnumbered males 2:1. This ratio is not uniform over all ages but increasing from 1.4 at aged 65 to 69 to 2.9 for persons 85 years and over.

This change in the gender ratio with age

Figure 1: Falls in older persons by age and sex, QISU Emergency Department presentations 1998-2003



not only reflects the difference in life expectancy between males and females but also the increased risk of osteoporotic fractures amongst older women.

The number of presentations increases with age from less than 20% of cases aged 65 to 69 years to 25% in those aged 85 and over, although this trend is only evident in females, with males showing a slight decline. (Fig 1)

Location and place

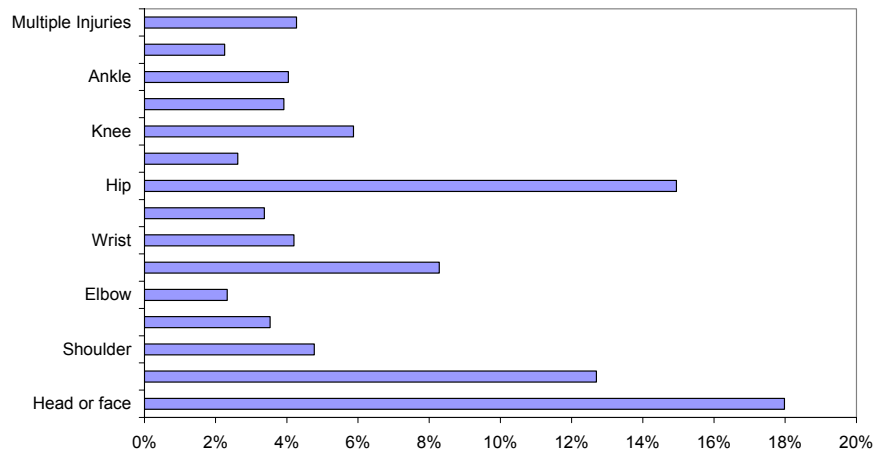
As would be expected, the majority of falls in older persons occurred in or around the home (64%). Other places where falls occurred were in an institution (9%), on or near a road (8%), in hospital (5%) or in a shop or commercial premises (5%).

The place most commonly reported as being where the fall occurred was the bedroom (16%) followed by living/family/dining room (9%), garden (8%), footpath (8%), stairs or steps (7%), bathroom (6%) and kitchen (6%).

Injury factor

Injury factors most commonly reported as being associated with falls were the floor (19%), natural surface (11%), chairs

Figure 4: Falls in older persons by body part injured, QISU Emergency Department presentations 1998-2003



Nature of injury

The most frequent injury sustained as a result of a fall was a fracture or dislocation (39%), followed by a sprain or strain (16%), open wound (16%), superficial injury (14%) and intracranial (4%).

The head or face was the most common part of body sustaining injury comprising almost one fifth of all fall injuries in this age group.

The other parts of body frequently injured were the hip (15%), trunk (13%), forearm or wrist (12%), lower leg, ankle or foot (10%), knee (6%) and shoulder (5%).

Nature of injury varies markedly depending on the part of body involved. Two thirds of the hip, forearm and wrist injuries were fractures while 70% of injuries involving the head or face were superficial or open wounds. Sprains and strains typically involved the ankle, knee, trunk or shoulder. One in ten falls resulted in a hip fracture and almost 90% of fractures in this age group were the result of a fall.

Injury severity

A third of fall injuries in older persons resulted in an admission to hospital compared to 25% in all

injury presentations for this age group.

Almost 40% of fall presentations had a triage category of urgent or above reflecting the high proportion of fractures in this group.



Discussion

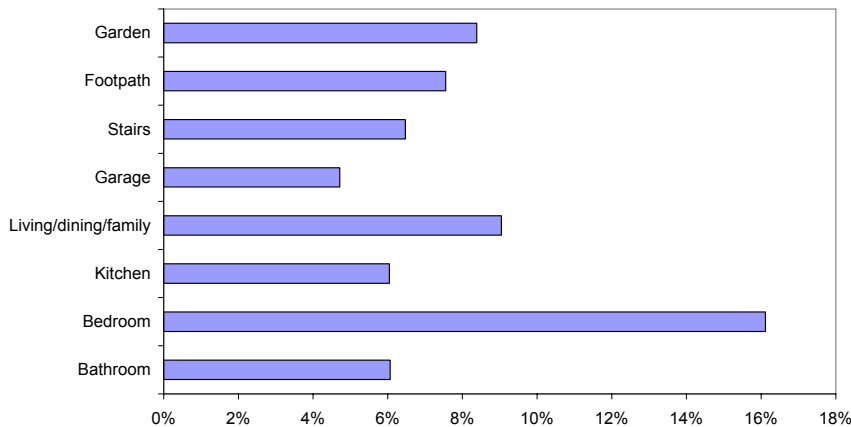
The AIHW has shown that the trend for age standardised falls requiring hospitalisation in the elderly has remained relatively stable over the past decade but the actual numbers of falls are increasing because of the proportion of the population at risk⁶.

The literature identifies a number of risk factors for falls in the elderly. These include:

Biological Factors

Those most at risk for falls are female, elderly, frail, suffering a chronic or acute illness, have

Figure 2: Falls in older persons by part of place, QISU Emergency Department presentations 1998-2003.

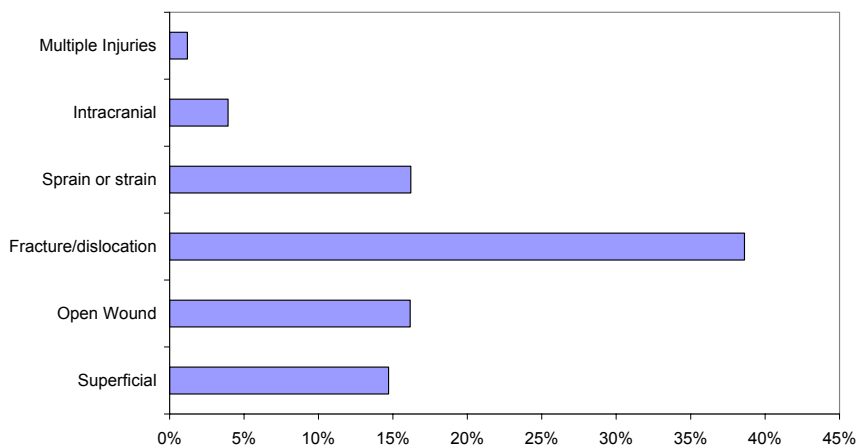


(3%), beds (3%), rugs or mats (2%) and ladders (2%).

Mechanism of injury

Almost 60% of cases were described as being caused by stumbling, slipping or tripping on the same level, with 7% described as stair related, 4% low falls (<1m) and 2% high falls (>1m).

Figure 3: Falls in older persons by nature of injury, QISU Emergency Department presentations 1998-2003



muscle weakness, osteoporosis, poor vision, balance and coordination and decreased mobility. Those with cognitive impairment like Alzheimer's disease are also more likely to suffer a fall.

Behavioural Factors

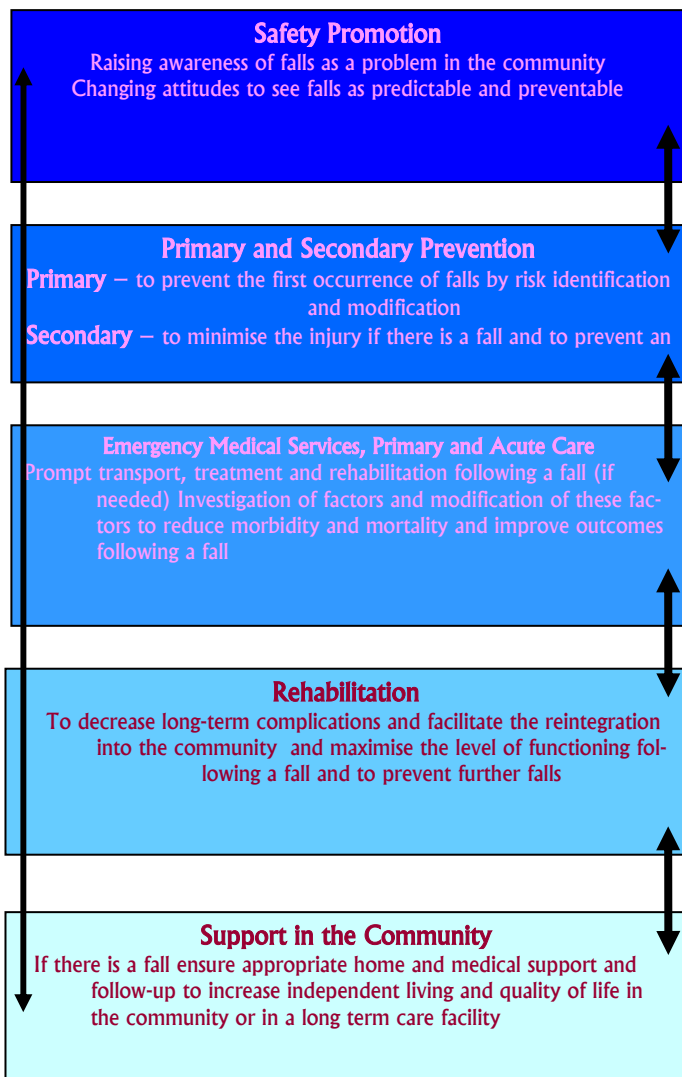
Older persons who wear inappropriate footwear or carry heavy cumbersome handbags or those who try to perform tasks that are beyond their capabilities (eg pruning trees, cleaning out gutters or the tops of high shelves) are more likely to suffer a fall. The misuse of prescription drugs (eg tranquillisers) and alcohol have also been shown to have an association with increased numbers of falls. Those who are on a number of prescription and/ or over the counter medications may suffer side effects caused by combined drug effects that may cause increased instability that may lead to falls.

Social and Economic Factors

Those who are socially isolated with fewer social contacts are more likely to sustain a fall.

Environmental Factors

The home environment has the potential to be a hazardous place. Loose rugs, poor lighting, cluttered floors, slippery showers and a lack of grab rails have all been shown to be associated with falls. In the wider community, examples of factors likely to cause a fall include tree roots, cracked or poorly maintained and uneven footpaths and poorly marked/lit steps⁷.



Over the years a number of prevention campaigns have been implemented at community, state and national levels. Generally these employ one of the following methods:

Exercise

Moderate strength training and exercise such as Tai Chi have been shown to be successful in reducing fall related injury.

Environmental Modification

Decreasing the risk factors in the home by installing stair rails and grab bars, removing loose rugs, cords and clutter. In the wider community to reduce falls there has been modification of the built environment by improving lighting on stairs and dimly lit passageways and the removing of street obstacles or highlighting their presence by painting them bright colours.

Education

Helping older people and their families identify whether or not they are at risk for falls.

Medication Awareness

Decreasing the levels of benzodiazepines prescribed. Monitoring drug interactions. Check with your GP or chemist.

The use of bone enhancing medications like Calcium and Vitamin D.

Clinical Interventions

Home modifications can be carried out by those at risk or by their families and reduce the likelihood of a fall BEFORE it occurs. Ask your local council or health department for a checklist

Assessment by a home visitor (eg community nurse or OT) to those who are identified as being at high risk and then, assistance to modify their home environment.

Protective Devices

If using a cane, walker or scooter ensure that it is in good working order, that the cane has a solid rubber base in good condition and is the correct height for safe use.

The use of hip protectors may provide some protection in the event of a fall

Prevention of Fractures

Lifestyle factors like inactivity, poor diet, smoking and alcohol abuse may increase your risk of a fracture if you fall.

As alarming as the numbers and risk factors are, falls are very much a preventable injury. Considerable research has been done on the problem and there are a number of successful programs that have been implemented to deal with the issues.

The following interventions have been shown to be effective: Targeted multiple interventions strategies, based on comprehensive assessment. Such programs may include assessments of blood pressure, vision, balance and gait, medications, activities of daily living, cognitive ability, and environmental hazards^{8,9,10};



From: Office of the Provincial Health Officer. Prevention of falls and injuries among the elderly: A special report from the Office of the Provincial Health Officer. Victoria: Ministry of Health and Planning BC, 2004.

Exercise programs particularly those incorporating some degree of balance training^{8,9,10};
 Vitamin D supplementation with or without calcium^{8,11};
 Home hazard assessment and modification that is professionally prescribed^{8,10};
 There is no evidence for the independent effectiveness of education programs^{8,9,10}.

It is also important that interventions do not only target older persons but also those who will make up the older population in the next 20 years. By keeping or adopting an active lifestyle now the 45 to 64 age group can help prevent falls in the future.



Programs

Queensland Health has developed a Statewide Action Plan aimed at Falls Prevention. This plan is designed to reduce falls and their consequences in older people by “promotion of optimal health, prevention of falls-related risk factors and management and contingency planning for older people at risk of falls”

Stay on Your Feet - Wide Bay Falls in Older Persons, a project undertaken by Central Public Health Unit, Queensland Health, aims to develop a best-practice model for community intervention, building on an existing and sophisticated base of research and program infrastructure concerning community-based falls prevention in older persons.

<http://www.ipca.com.au/www/index.aspx?ItemID=66>

The Queensland Health HACC Workforce and Organisational Development Falls Prevention Project aims to coordinate a state-wide approach to falls prevention. This project will provide workforce development, policy development and service redesign, to promote a sustainable approach to healthy ageing and falls prevention that will benefit all current and future HACC clients.

<http://www.health.qld.gov.au/hacc/projects.asp>

Many similar programs operate around the state and can be accessed via the Falls prevention in older persons resources on the Queensland Health website.

<http://www.health.qld.gov.au/fallsprevention/default.asp>

References

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QISU collects and analyses data from emergency department injury presentations. Participating hospitals represent three distinct areas of Queensland. QISU publications and data are available on request for research, prevention and education activities.

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