



# INJURY BULLETIN

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## Falls in Older People

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### Background

Injuries resulting from falls are the major cause of death, hospitalisation and emergency department presentation in persons aged 65 years and over in our community. More than half of all injury deaths in this age group is due to falls. During 1997, 214 deaths<sup>1</sup> and approximately 7,000 hospitalisations of persons aged 65 years and over in Queensland were attributed to falls.

The direct cost to the health care system of falls in the elderly, Australia-wide, has been estimated to be \$406m or 56% of the injury cost for the 65+ age group and 16% of the cost for all ages<sup>2</sup>. With the ageing of the Australian population the number of hip fractures, based on the current incidence rate, is expected to double by 2026 and increase fourfold by 2051<sup>3</sup>.

### Data Issues

Australia's rate of hospitalisation from falls in older people continues to increase and while mortality has declined over the last ten years, there is evidence that this decline is not being sustained<sup>4</sup>. However it is probable that mortality due to falls in older people is grossly under counted. A four-year study of all hip fracture hospitalisations in Western Australia found amongst those who died within 30 days of admission, official statistics attributed only 30% to a fall<sup>5</sup>. While an article examining hip fracture incidence and mortality in England found that official statistics under counted hip fracture deaths by nearly 50%<sup>6</sup>.

In Australia, the advent of multiple cause coding for deaths by the Australian Bureau of Statistics in 1997 may improve



\* QISU data is based on emergency department presentations to the following hospitals: Mater Children's Hospital, Mater Adult Hospital, Mater Private Emergency Care Centre, Queen Elizabeth II Jubilee Hospital, Redland Hospital, Logan Hospital, Royal Children's Hospital, Mt Isa Hospital, Mackay Base Hospital, Proserpine Hospital, Sarina Hospital, Clermont Hospital, Dysart Hospital and Moranbah Hospital

the identification of fall-related deaths. In 1997 35% of deaths following a hip fracture, of persons over 64 years in Queensland, had their underlying cause of death attributed to an injury<sup>7</sup>.

### QISU Data

During 1998 the Queensland Injury Surveillance Unit collected data from participating Hospital Emergency Departments\* on 1,940 injuries involving persons aged 65 years and over of which 1172

External Cause	Males (%)	Females (%)
Transport related	8.7	5.4
Fall – low (<1m)	40.6	66.7
Fall – high (>1m)	5.2	3.5
Burns	1.0	1.3
Poisoning	2.3	1.9
Animal related	5.2	4.6
Machinery	2.2	0.3
Cutting, piercing object	12.7	4.1
Struck by/collision with object	8.5	4.6
Struck by/collision with person	2.1	1.1
Other/unspecified ext. cause	11.5	11.6
Total	100.0	100.0
Total cases	773	1167

Table 1: Injuries to persons aged 65+ presenting at participating ED's by external cause and gender, Queensland, 1998.

Region	Rate <sup>1</sup>		Number
	Males	Females	
South Brisbane <sup>2</sup>	126	184	1230
Mackay	109	155	153
Mt Isa	307	322	40
Total Regions	89	132	1423

Table 2 Fall injury rate of persons aged 65+ presenting at participating EDs by region, Queensland, 1998

<sup>1</sup> per 100,000 person years.

<sup>2</sup> Includes Level 1 IS data from Princess Alexandra Hospital.

or 60% were the result of falls. The majority of these (93%) were reported as being low falls (from a height of one metre or less) (Table 1).

### Regional analysis

The rate of ED attendance for falls for the population aged 65 years and over in the three QISU Regions is presented in Table 2. These figures must be interpreted with some caution, as the rates may vary markedly between regions due to factors other than real differences in injury incidence, for example access to services.

Residents of South Brisbane have far greater access to alternative sources of medical care such as 24 hour medical centres than those in Mt Isa. Also the data have not been corrected for under ascertainment, with the ascertainment rate for South Brisbane being estimated at 75%, for Mackay at 75%, and for Mt Isa at 60%.

Notwithstanding these problems there is a much higher rate of ED attendance for falls in the older population of Mt Isa than for the other two regions.

### Age, Gender

Fall injuries among older females made up a much greater proportion of all injury presentations in the 65 years and over age group than males (Table 1).

Amongst fall injuries in this age group females outnumbered males more than two to one. The females were predominantly older with only one-third of the female fall presentations aged 65 to 74 while 47% of the males injured were under 75 (Figure 1).

### Activity

In the majority of cases activity while injured was recorded as resting, sleeping, eating or other personal activity (27%), other type of work (10%) or other leisure activity (6%). On examination of the injury description the type of activity being engaged in were normal day to day activities around the home such as cleaning, cooking, gardening etc.

### Nature and body location

The most common injury suffered as a result of a fall was a fracture to either the hip, forearm or wrist (Table 4). Other injuries recorded were sprain or strain (18%), open wound (15%) and superficial injury (11%) (Figure 2). Other major sites of injury were head (10%), knee (6%), face (6%) and shoulder (5%).

### Admission Rate

A greater proportion of persons 65 years and over were hospitalised as a result of a fall compared with all injury presentations for this age group. This was largely due to hip fractures which almost always result in hospital admission (Table 3).

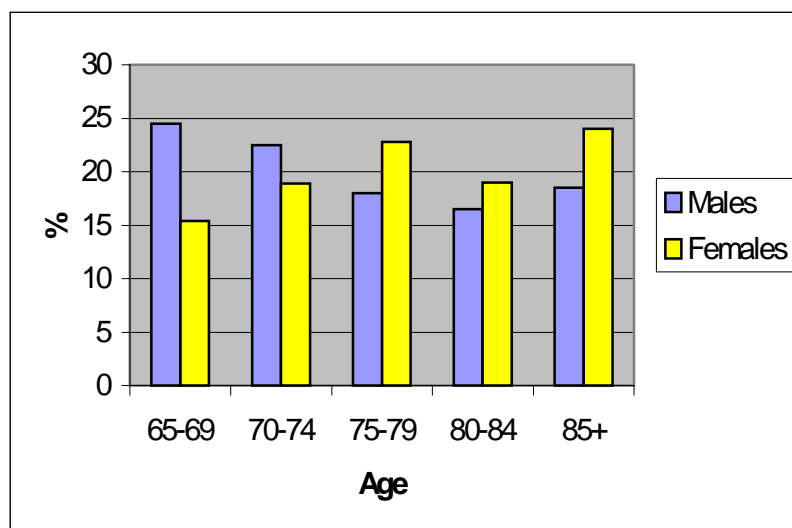


Figure 1 Fall injuries to persons aged 65+ presenting at participating EDs by age and gender, Queensland, 1998

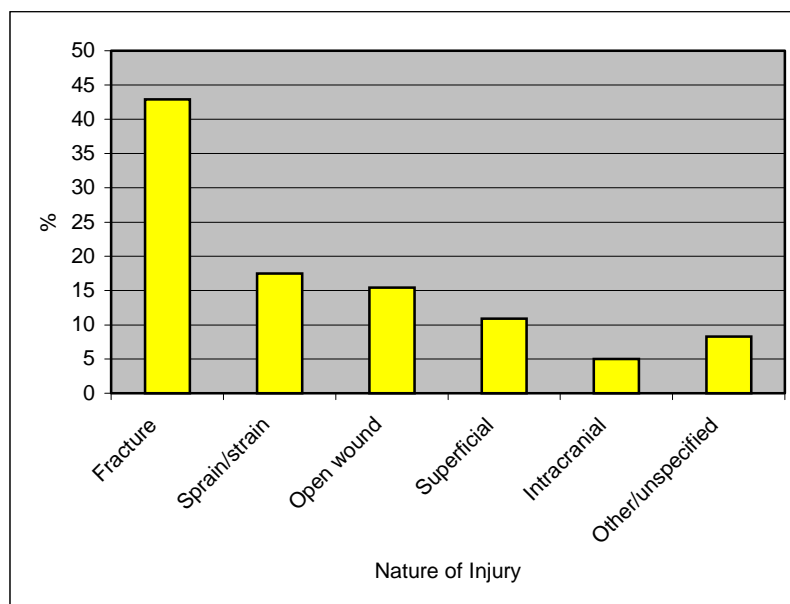


Figure 2 Fall injuries to persons aged 65+ presenting at participating EDs by nature of injury, Queensland, 1998

Mode of separation	Falls (%)	Hip fracture (%)	All injuries(%)
Admission	31.0	82.2	24.4
Transfer	5.2	16.3	4.6
Did not wait	1.0	-	1.2
Home	62.5	1.6	69.7
Total	100.0	100.0	100.0
Total cases	1172	129	1940

Table 3: Fall injuries to persons aged 65+ presenting at participating EDs by mode of separation, Queensland, 1998

Part of body	Nature of injury				Total
	Fracture	Spain or strain	Open wound	Superficial	
Hip	25.6	14.2	0.6	4.7	15.4
Forearm/wrist	24.8	4.9	9.9	10.9	14.6
Head (excl. face)	0.2	0.0	33.2	18.8	9.9
Knee	2.6	14.6	7.7	6.2	6.4
Face (excl. eye)	2.4	0.0	24.3	10.2	6.1
Shoulder	3.0	11.7	0.0	4.7	4.9
Ankle	4.6	14.6	0.0	0.0	4.6
Upper arm	8.2	0.5	2.2	1.6	4.1
Thorax & upper back	4.8	6.3	0.0	7.0	4.1
Thigh	3.0	0.0	1.1	9.4	2.5
Lower leg	3.8	2.9	8.3	3.9	4.0
Lower back	1.8	14.2	0.0	2.3	3.7
Hand	2.6	2.4	5.0	0.8	2.8
Elbow	3.6	2.0	3.9	2.3	2.7
Pelvis	5.6	0.5	0.0	1.6	2.6
Foot	2.2	4.4	2.2	1.6	2.3
Multiple injuries	1.2	4.4	1.1	10.2	3.6
Body location not required	0.0	0.0	0.0	0.0	3.7
Other and unspecified	0.0	2.4	0.5	3.8	2.0
Total	100.0	100.0	100.0	100.0	100.0
Total	42.9	17.5	15.4	10.9	86.7

Table 4: Fall injuries to persons aged 65+ presenting at participating EDs by part of body injured and nature of injury, Queensland, 1998

#### Location and place of injury

Two-thirds of falls occurred in private homes (Table 5) and the bedroom was the most frequent place of injury (16%). This was followed by the living/dining/family room (9%), footpath (8%), garden, bathroom/toilet, garage/carport (7%), and stairs (6%) (Table 6).

Location	(%)
Private home	65.4
Road/street	9.4
Residential institution	6.9
Hospital	4.7
Commercial premises	4.5
Other specified location	6.6
Unspecified	2.5
Total	100.0
Total cases	1172

Table 5: Fall injuries to persons aged 65+ presenting at participating EDs by location, Queensland, 1998

Part of place	(%)
Bedroom	15.5
Living/dining/family	8.9
Footpath	7.5
Garden etc	7.4
Bathroom/toilet	7.4
Garage/carport	7.3
Stairs	5.9
Kitchen	5.8
Roadway	3.4
Hall/foyer	3.2
Car park/driveway	2.4
Other interior	13.6
Other exterior	6.9
Unspecified	4.8
Total	100.0
Total cases	1172

Table 6: Fall injuries to persons aged 65+ presenting at participating EDs by part of place, Queensland, 1998

Major injury factor	(%)
Floor	16.4
Natural surface	10.5
Brick, concrete	6.0
Chair, stool	2.6
Rug, mat, carpet	2.3
Bed	1.8
Door	1.4
Other furnishing	4.4
Other structure	10.7
Other or unspecified	43.9
Total	100.0
Total cases	1172

Table 7: Fall injuries to persons aged 65+ presenting at participating EDs by major injury factor, Queensland, 1998

### Injury mechanism and factors

Two-thirds of fall injuries were reported as having involved slipping, tripping or stumbling on the same level (Table 8). The most common major injury factors reported were floor (16%), natural surface (10%), brick or concrete (6%), chair or stool (2%), rug, mat or carpet (2%) and bed (2%) (Table 7).

### Prevention

The predisposing factors associated with falls in the elderly are complex but the following risk factors have been identified:

- age-related decline in physical ability;
- certain medical conditions including stroke, arthritis and Parkinson's disease;
- disturbances of balance and gait;
- use of certain types of medications, such as sedatives and anti-depressants;
- alcohol (particularly in males);
- poor steps, stairway design and repair;
- inadequate lighting;
- slippery floors;
- furniture;
- unsecured mats and rugs; and
- lack of non-skid surfaces in bathtubs and bathrooms<sup>8</sup>.

Mechanism of injury	(%)
Fall by slipping, tripping or stumbling on same level	60.3
Fall on or from stairs	6.7
Fall from <1m	5.4
Fall from >1m	2.5
Other fall	18.4
<b>Total falls</b>	<b>93.3</b>
Contact with static object	3.9
Other or unspecified	2.8
Total	100.0
Total cases	1172

Table 8: Fall injuries to persons aged 65+ presenting at participating EDs by mechanism, Queensland, 1998

While the role of each of these risk factors and how they inter-relate needs further research, it is recognised that falls prevention requires multiple strategies addressing the issues of physical impairment, drug effects and environmental conditions<sup>9</sup>.

Prevention of falls in older people is one of the priority areas identified by Commonwealth and State health authorities in *Better Health Outcomes for Australians*<sup>10</sup> and more recently in *National Health Priority Areas Report: Injury Prevention and Control 1997*<sup>11</sup>. In Queensland a falls prevention audit has just been completed as part of a state-wide approach being developed to address this issue.



## FALLS PREVENTION CONTACT POINTS

In order to explore opportunities to maintain or regain optimal health contact may be made with:

- ◆ General Practitioner: he/she may be able to refer to other services
- ◆ Local Allied Health or Community health services
- ◆ Pharmacist for medication advice

### For Home Modification advice:

1. Home assist/secure (HAS)- provides free information and advice to people who are 60 years and over and live in their own home or private rental housing. Subsidised assistance with modifications and repairs is available to eligible clients. (For more information and phone list visit QISU's web site – [www.qisu.qld.gov.au](http://www.qisu.qld.gov.au))
2. DVA Home front program – provides a home hazard assessment and modification program for veterans.
3. Independent Living Centres

### For Physical Activity programs and advice:

1. Walking groups
2. Exercise classes
3. National Heart Foundation
4. Shopping Centre activities
5. Tai Chi Academy
6. Arthritis Foundation
7. Private hospitals (particularly for aqua-robics and physio advice)
8. Queensland Keep Fit Association
9. Local Councils

### For medication advice:

1. General Practitioner
2. Pharmacist
3. Pharmacy Guild - falls prevention booklet linking medication and falls

### Conclusion

Minor falls in older persons often have serious consequences including hospitalisation or even death, whereas the same event in a younger person would not. As these data have shown falls in older women in particular are a major problem facing our community particularly with the ageing of our population.

Strategies to prevent these falls need to be identified and evidence of their efficacy evaluated. The factors which have been identified as being associated with these injuries are many and varied thus necessitating a multifaceted approach to their prevention.

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