

Chapter 5: Falls in the Elderly in Residential Aged Care Facilities.

5.1. Demographics

The number of people in Australia aged 65 or greater is projected to increase from 2.3 million in 1998 to 5.1 million by 2031. The age group considered most likely to require residential aged care accommodation, that is those aged 80 years or more, is projected to increase from 520,000 to 1.4 million people (167). On June 30, 2000 there were 3,005 occupied aged care homes in Australia that provided a total of 141,162 residential care beds (168). In SWSAHS we have 2,606 nursing home beds. Many beds are culturally specific beds and attract residents from other parts of NSW. Aged care facility beds across the area are increasing to meet population growth demands.

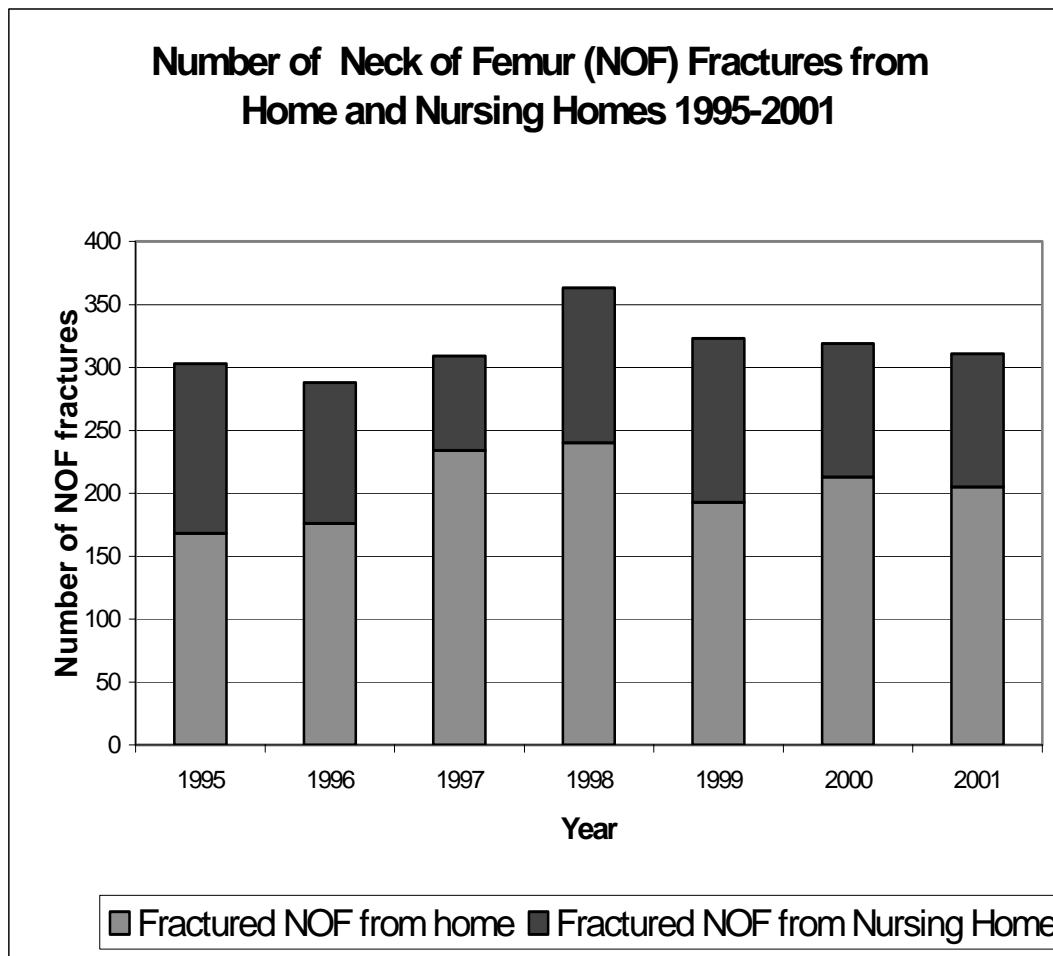
Table 1: Residential Care Beds in SWSAHS

Bankstown	Nursing Home	Hostel
Total	669	446
Respite	8	not known
Dementia	18	0
Fairfield-Liverpool	Nursing Home	Hostel
Total	1141	453
Respite	10	8
Dementia	302	105
Macarthur	Nursing Home	Hostel
Total	606	402
Respite	5	9
Dementia	90	14
Wingecarribee	Nursing Home	Hostel
Total	186	135
Respite	Not known	6
Dementia	0	11
Licensed Residential Centres		145 beds

Obtained from Relevant Aged Care Assessment Teams February 2002.
Mental health plan for older people SWSAHS

Falls in residential aged care facilities in Australia pose significant concerns of national proportions. In Liverpool Hospital alone there have been 630 hip fractures treated in the elderly for the years 2000-2001, with 34% of these patients from nursing homes. The elderly in institutions are at an increased risk of falling, with many studies concluding that between 30-50% of institutionalised elderly fall within 12 months of their admission to an aged care facility. The majority of these falls occur in the resident's bedroom or bathroom (6, 169-171). Five percent of these falls result in fractures whilst 20% can be classed as minor falls.

Falls in residential aged care settings ultimately result in a functional decline with less than 15% of those patients who suffer hip fractures returning to their pre-morbid state (172).



From (22).

5.2. Cost implications of falls in residential aged care facilities

Almost 5% (5,570 out of 112,181) of all falls in Australia in 1998-1999 that required hospital admission occurred in residential institutions (168). In 1998-1999, 688 elderly people in South Western Sydney sustained neck of femur fractures, at an approximated cost of \$1.6 million dollars. As approximately 34 percent of fractured neck of femurs are patients from nursing homes (22), femoral fractures due to falls in nursing homes alone equates to costing the area health service well over half a million dollars (173).

Although fractures may be one of the most severe and costly injuries suffered by residents who fall, they make up the minority of injuries sustained (174). Significant but immeasurable cost to the health service must be associated with the treatment of the numerous falls that occur in residents in residential care settings that do not sustain fractures. Due to Australia's rapidly aging population the number of falls related injuries in residential aged care facilities will undoubtedly increase if left unchecked (21).

5.3. Risk factors

Those who live in residential aged care facilities are at greater risk of falls than those living in private residences, with falls being a major predictor in admission to a residential aged care facility (175). A larger proportion of those who fall in residential aged care facilities also sustain a greater number, and more severe injuries, than those who fall in private homes (172, 176, 177).

Research has found that falls are multifactorial, usually involving both intrinsic and extrinsic factors. The greater the number of risk factors present the greater the falls risk (6). Residents in Aged Care Facilities have multiple comorbid conditions and are on multiple medications, placing them at high risk of falls. In addition protective reflexes are impaired by conditions such as dementia, stroke or Parkinson's disease. As most people in aged care facilities have osteoporosis, impaired nutritional status or Vitamin D deficiency the risk of fracture following falls is also increased (6). Risk factors associated with falls in residential aged care facilities encompass the following intrinsic and extrinsic phenomena.

Intrinsic risk factors:

- Acute health status (178);
- History of previous falls (170);
- Wandering behaviour;
- Cognitive impairment (171);
- Maximal drop in post-prandial systolic blood pressure (169);
- Deterioration in activities of daily living performance;
- Reduced lower extremity strength or balance (179);
- Unsteady gait/use of a gait aid (170);
- Use of psychotropic medication/polypharmacy (180, 181);
- Independent transfers/wheelchair mobility (170)
- Osteoporosis
- Vitamin D deficiency
- Special toileting needs (80).

Extrinsic risk factors:

- Relocation between settings (182); and
- Environmental hazards

5.4. Geriatric Assessment & Identification of Fallers & at Risk Fallers

The acute injury in people who fall in aged care facilities is often well managed. However the reason for the fall, the functional consequences of the fall and the issue of future prevention are currently rarely addressed. Rubenstein, in a randomised controlled trial found that geriatric assessment in ambulatory nursing home residents who had fallen reduced the need for hospitalisation (76). Preventative measures taken to eliminate or diminish risk factors, and the ultimate resultant falls associated with them, are most successful when taking a multifaceted approach. Targeted interventions by health professionals, trained to identify intrinsic and environmental risk factors are likely to reduce falls occurrence by as much as 19% (183).

There have been no systematic reviews of falls prevention intervention in aged care facilities. However elderly in these facilities have similar risk factors to community dwelling elderly with the exception that the risks are increased and manifold. The Cochrane review found significant benefits from interventions that targeted multiple, identified, risk factors in individual patients (odds ratio 0.77; 95% confidence interval 0.64 to 0.91), and from interventions that focused on behavioural interventions targeting environmental hazards plus other risk factors (odds ratio 0.81; 95% confidence interval 0.71 to 0.93) (34). Therefore, multidisciplinary staff in aged care facilities, and General Practitioners need to identify fallers or those at risk of falls. Collaborative work with a multidisciplinary Aged Care team may be required to ensure detailed assessment of people who have fallen and the implementation of preventative measures.

GUIDELINE

Elderly nursing home residents who have previously fallen should be assessed to identify all individual risk factors, and strategies need to be implemented to decrease or eliminate these risk factors.

Level II evidence

5.5. Hip Protectors

Randomised controlled trials have demonstrated the effectiveness of hip protectors in reducing hip fracture risk in residents of Nursing Homes (184-186). Due to the high mortality associated with hip fractures in the elderly, the implementation of wearing hip protection is a valuable intervention. As most hip fractures occur as a result of direct trauma to the hip, protection of this area reduces the amount of energy absorbed by the bone, decreasing the incidence of fracture (6). A systematic review found that hip protectors appear to reduce the risk of hip fracture within residential aged care settings although the cost effectiveness and compliance with wearing this protection remains unclear (187).

GUIDELINE

Hip protection should be offered to those elderly who are at high risk of falling in residential aged care facilities.

Level I evidence

5.6. Psychotropic Drug/Chemical Restraint use in Residential Aged Care Facilities

There is evidence recognising that psychotropic use in residential aged care facilities needs to be modified. A large number of residents in these facilities have behavioural problems and the subsequent use of psychotropic medications often results in the resident sustaining falls related injuries such as hip fractures (76, 183). The population profile of older people in nursing homes has changed significantly over the last five to ten years.

Residents in nursing homes have more acute illness with a shorter length of stay, and high proportions of residents have a diagnosis of dementia. A report by the Commonwealth Department of Health and Family Services identified that up to 80% of nursing home residents had a diagnosis of dementia and that 36% had a moderate to severe challenging behaviour thus resulting in increased administration of psychotropic drugs (188). This proportion will rise over time as residential aged care facilities care for increasingly dependent patients.

A number of studies have found psychotropic drug use in nursing homes to be a concern. Snowden identified that 58.9% of residents were taking one or more psychotropic drugs regularly and recommended prescribing practices in Australian nursing homes need to be reviewed (189). Several studies have shown that academic detailing as well as an intervention by General Practitioners could reduce psychotropic use and reduce medications overall (190, 191). Medications and in particular psychotropic drugs can add to falls risk by affecting an individual's gait and balance, vision, cognition and strength (6). In a systematic review, Leipzig et al., determined that psychotropic medications were associated with an increased falls risk that further escalates if more than one psychotropic drug is administered (192).

GUIDELINE

Medication needs to be reviewed as an integral part of falls risk assessment for residents in aged care facilities.

Level IV evidence

5.7. Education

There is little evidence to suggest that education as a single strategy is effective in falls reduction. Combined with a multifaceted plan of interventions however, education of staff, residents and family/visitors can be an effective component of the minimisation of falls risk and injury prevention (46). Thapa et al., found that injurious falls in non-ambulant residents often involved equipment, and were more likely to occur whilst the resident was sitting or being transferred (176). Ray et al., in a randomised controlled trial incorporated falls risk education of staff, safety checks of environment and wheelchairs, a checklist for adverse effects of psychotropic drugs and extensive training in transferring techniques. The results of this study showed a 19% reduction in the number of residents falling and a 31% decline in injurious falls in the intervention group compared to the control group (183).

GUIDELINE

Staff in residential aged care facilities should be exposed to regular education on falls risk minimisation and issues of safety as part of a multi-factorial falls prevention programme.

Level II evidence

5.8. Physical Restraint use in Aged Care Residential Facilities

The use of physical restraints in residential care facilities is extremely controversial. Physical restraints were once thought to prevent falls in the elderly although some studies suggest that the use of physical restraints significantly contributes to falls in the elderly in residential aged care settings (193, 194). Confused, ambulatory individuals have been found to have both a high falls rate and high restraint use, with more falls occurring while the restraints were in place (195).

A study by Tinetti et al., indicates that the number of falls and restraint use in the elderly correlates positively with the rates of serious injury (196). A further study by Hanger et al., found that reducing the use of bedrails was associated with a reduction in serious injuries (159). Neufeld et al., examined physical restraint use in nursing home residents and concluded that when restraint orders were discontinued in patients previously restrained, there was a significant decline in serious injury sustained by residents (197). Evans et al in a randomised controlled trial found that educating nursing home staff about restraints and providing ongoing consultative support led to the reduction in restraint use without increasing fall-related injuries (162).

GUIDELINE

Programs for restraint reduction should be implemented in aged care facilities.

Level II evidence

5.9. Vitamin D and Calcium

Calcium supplementation plays a role in the maintenance of bone density particularly if dietary intake is insufficient (198). As the elderly who reside in aged care facilities often receive insufficient sunlight, they are more likely to suffer from a deficiency in vitamin D (6). Lips et al., found that vitamin D and Calcium supplements decreased the incidence in falls related fractures in those living in residential aged care facilities(199). Dawson-Hughes found that Calcium and Vitamin D reduced total bone loss over 3 years (198). The group taking the calcium and Vitamin D had 5.9% fracture rate compared to 12.95% in controls. Chapuy also showed that 1.2g of calcium and 800IU of cholecalciferol over 3 years substantially decreased the risk of hip fractures and other non-vertebral fractures in elderly women living in nursing homes (200).

GUIDELINE

Elderly residents of aged care facilities should be assessed for Vitamin D deficiency and poor calcium intake and given supplements where appropriate.

Level II evidence

5.10. Effectiveness of Exercise

Although exercise alone has not been found to decrease the number of falls in the elderly in residential aged care settings, it is effective as part of a multidimensional intervention strategy targeting several risk factors associated with falling (34). Exercise can minimise the effects of intrinsic falls risk factors by improving gait, balance, coordination, proprioception, reaction time, function, and muscle strength even in frail older people (40, 201-207).

GUIDELINE

Exercise programmes that aim to improve strength, reaction time and balance should be included in multifaceted falls programs in aged care facilities.

.Level II evidence

5.11. Assistive Devices

For the elderly who become unsteady on their feet, the introduction of a walking aid or a change in a present ambulatory aid is commonplace (46). There is limited evidence to suggest that assistive walking devices such as canes, crutches and walkers contribute significantly to falls injuries in residential aged care settings (6). It is proposed that lack of appropriate education on correct selection of the aids, and a further lack of staff and resident education on the correct use of the device, actually increases the individual's risk of falls injury more than the initial unsteadiness (46).

GUIDELINE

Residents and carers should be educated on the correct use of walking aids. The initiation of or change in assistive walking devices should involve medical and/or physiotherapy consultation.

Level IV evidence