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Section 5: Injury prevention interventions

To give older people additional protection, facility staff should consider the risks and advantages of implementing injury prevention strategies. These may be applied after a fall or systematically to the at risk population.

Some older people in hospitals and residential aged care facilities will continue to have falls despite efforts to reduce their fall risk. When persistent falling is a problem, it is vital that the person and their family/carers are involved in deciding on the appropriate action. It may be that a level of risk of falling needs to be accepted in the interest of maintaining as much mobility and independence as possible. Restricting opportunities for movement will result in physical deconditioning. It may also result in social isolation and loss of freedom.

The injury prevention interventions discussed in this section of the Guidelines include:

5.1 Hip protectors
5.2 Vitamin D and calcium levels
5.3 Osteoporosis management.

Although nutrition management is good gerontological practice, it is not evidenced as a core fall-prevention activity and is therefore incorporated as an appendix.

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Points of interest

Use of helmets and limb protectors
Australia-wide consultation in development of these Guidelines revealed that helmets and limb protectors were occasionally being worn by older people who fell frequently.

Use of low beds to reduce risk of injury from falls
In addition to the reduction in the use of bed rails, the use of high/low beds, low/low beds, bean bag chairs and the occasional practice of people sleeping on mattresses on the floor have been identified by some Australian health care practitioners as a means of reducing the injury risk of older people who fall frequently.

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5.1: Hip Protectors

**Recommendation**

Hip protector use should be considered for people living in residential aged care facilities with a high risk of hip fracture (defined as having limited independent mobility, a history of falls and osteoporosis). There needs to be commitment from the facility to introduce training for staff and continuing support for the use of hip protectors.

—Level of evidence I II III IV
—Strength of recommendation A B C D.

**Recommendations**

- Older people who are at high risk of hip fracture (defined as greater than 80 years of age with a history of falls and/or osteoporosis), and who believe that they will be able to use hip protectors and see no barriers to their use, should be offered hip protectors.

- Hip protector use should be considered for patients in sub-acute hospital wards who are at high risk of falls. There needs to be commitment from the facility to introduce training for staff and continuing support for the use of hip protectors.

—Level of evidence I II III IV
—Strength of recommendation A B C D.

5.1.1 Background information

Hip protector use should be considered as part of a multifactorial fall and injury prevention intervention. The wearing of a pair of hip protectors is an injury prevention strategy; however they will not prevent falls or protect other parts of the body. Hip protectors may also be referred to as ‘hip protector pads’, ‘protector shields’ or ‘external hip protector pads’. These Guidelines refer to them as hip protectors. There are three main types of hip protectors available commercially in Australia.

**How do hip protectors work?**

Hip protectors work by absorbing and dispersing the energy created by a fall away from the hip joint. The soft tissues and muscles of the surrounding thigh absorb the energy instead. Hip protectors must be worn over the greater trochanter of the femur to be effective.

More than 95 per cent of hip fractures occur due to a fall with direct impact on the hip with only a small number of spontaneous fractures occurring due to osteoporosis or other bone pathology. Other hip fractures may occur if a person falls onto the buttock or if a rotational force through the neck of the femur is applied.

The force generated by a fall from a standing height is very large and has the potential to break the hip of a person of almost any age. The force applied to the femur near the hip in a fall from standing height is approximately 6000 newtons with the most effective padding system reducing this to approximately 2000 newtons in a laboratory test.

The hard plastic hip protector shields are energy diverting and aim to divert the force of the fall from the bones of the hip to the surrounding muscles of the thigh. The soft hip protectors seem to work mainly by absorbing the energy of the fall.
**Published benefits of hip protector use**

A 1993 study of the use of hip protectors for nursing home residents was reported to have reduced hip fractures by 53 per cent. A more recent study in 2000 reported a 60 per cent reduction in hip fractures through the use of hip protectors among residential aged care facility residents and other frail older people. Additionally, a program of providing hip protectors appears to reduce the incidence of hip fractures for those living in institutional care with a high background incidence of hip fracture. There is good evidence to suggest that, if hip protectors are worn as directed, they will prevent approximately 80 per cent of hip fractures. However some still occur despite the correct use of hip protectors. It is also established that other fractures, such as pelvic fractures, still occur while wearing hip protectors.

Several studies have now reported use of hip protectors as part of a multifactorial program of fall and injury prevention in residential aged care facilities or hospitals. The positive effect of hip protectors in reducing fear of falling has also been reported.

It is not necessary to wear a hip protector over a hip that has been surgically repaired with internal fixation or hip replacement because the neck of the femur has either been replaced or reinforced (hemiarthroplasty, pin and plate etc.).

A recent study by O’Halloran et al. (2004) in 127 residential aged care facilities in Ireland evaluated the effectiveness of a policy of making hip protectors available free of charge and employing a nurse facilitator to encourage staff in homes to promote their use over a 72-week period. There was no significant hip fracture reduction and the research did not support the introduction of a policy of providing hip protectors to residents. They speculated that the very clients at highest risk were those least likely to wear the hip protectors (i.e. those with agitation, dementia, frailty etc.).

Hip protectors are likely to have a positive effect in reducing hip fractures in older people who have a high fracture risk if they are worn at the time of the fall. They are best used in conjunction with other fall and injury prevention interventions.

**Compliance with use of hip protectors**

A recurring theme has been concern about adequate compliance with use of the hip protectors due to discomfort, practicality or other factors. Correct compliance with use of hip protectors is crucial to their effectiveness. In the first reported randomised trial only 24 per cent of a sub-group of participants were reported as wearing hip protectors when they fell. Only 30 per cent of participants in an English residential aged care facility study wore their hip protectors every day.

It has been suggested there is a need to match the person’s needs and preferences with the availability of different types of undergarment material, removable or sewn-in hip protectors shields and different styles of undergarments including those allowing use of continence aids. In many cases it is a person’s motivation to wear the hip protectors that affects their compliance as well as staff advocacy for and compliance with use of the hip protectors.

The social environment and external support are also very important, particularly for older people living in residential aged care and the attitudes of staff in these facilities may have a substantial effect on whether an older person wears hip protectors.

**What are the risks of using hip protectors?**

Adverse effects were noted in five per cent of people in one large study of hip protectors. Bruises may occur if the person falls onto the hip protector. Also, skin infections and decubitus ulceration may occur under or around the area where a hip protector is worn.
For frail older people, hip protector use can cause difficulties with toileting. For example, independence in activities of daily living can be compromised because of the extra time and effort needed to put on and take off the hip protectors, which may cause some people to become incontinent.

\[\text{Cochrane review of hip protector use and compliance}\]

A 2004 Cochrane Collaboration review contains tables that summarise each of the published research studies of hip protectors that are randomised trials. Another systematic review lists and discusses each study related to compliance with hip protectors.

5.1.2 Principles of care

Because of the diversity of older people, service settings and climates there should be a choice of types and sizes of hip protectors available. Soft energy absorbing shields may be more suitable for wearing in bed, and energy diverting shields may be more acceptable for day wear. A choice of underwear styles and materials means that problems with hot weather, discomfort and appearance can be addressed.

Types of hip protectors

One type (type A) is made of soft crated foam with a removable cotton cover. They can be held in place using Velcro attached to a cotton belt or disposable stretch net pants. The hip protectors must be kept over the great trochanter to be of any benefit should the person fall. Stretch pants maintain the hip protectors in place over the greater trochanter. Continence pads can be comfortably worn with these types of hip protectors. A continence pad if necessary is fitted first, next to the person’s skin, and then the stretch net pants containing the hip protector pads are applied.

The second type (type B) consists of a firmer curved shell, sewn or slipped into a pocket in a Lycra undergarment similar to underpants or ‘bike pants’. The pocket holds the shield in the correct place over the hip, so there is protection, should the person fall. Sizes are available from small to extra large and there are designs for both males and females. These are fitted depending on the size of the person (see manufacturers’ guidelines). Continence pads can be worn in separate pants, underneath the garments holding the hip protector shields.

A third type (type C) is the adhesive hip protector pad which uses an adhesive type glue to attach directly to the skin of the wearer. Most published evidence did not use this type of hip protector in trials.

Assessment of the use of hip protector pads

The fitting and logistical management of hip protector pads may be a responsibility of a particular discipline. In the past, nurses and physiotherapists have initiated hip protector use, as have occupational therapists and medical practitioners. Relatives of older people and older people themselves have also been advocates for the use of hip protectors.

Nurses are a key profession in facilities who can encourage compliance with hip protectors as they assist frail older people with dressing, bathing and toileting. Nurses should have education and support in developing strategies to encourage compliance with and correct application of hip protectors.
Methods of assessment of the need for hip protector wearers have varied and include: history of falls; older age; greater disability; unsteady transfers and mobility; and the presence of osteoporosis/osteomalacia. An assessment of the person’s cognition and independence in daily living skills may assist in appropriate prescription of hip protector pads. More complex fall-risk assessment tools can be used. Hip protectors can be recommended for people at very high risk of hip fractures.

Night use guidelines
The occurrence of falls may increase throughout the evening and night, so hip protectors should be worn at night if there is any possibility that the person will get out of bed. The soft, loose pads (type A) are relatively comfortable when correctly positioned and can be worn more easily by the person in bed, as they are less obtrusive than the stiff shell protectors (type B).14

Cost of hip protector pads
Cost of hip protectors appears to be a factor influencing uptake, particularly where they are supplied by the facility. Reimbursement by private health funds or by appliance supply schemes may address this problem. It is unclear to what degree cost interacts with compliance as it may prohibit access for some people. However it has been identified that a higher level of compliance may be achieved where people make some financial contribution.

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**Point of interest**

**Hip protectors for low-care residents**

The Department of Veteran Affairs (DVA) will provide hip protectors to eligible residents of low-care residential aged care facilities in Australia. The DVA through local contractors will supply two pairs of shields and four undergarments per year. Prescription may be made by a specialist medical officer, local medical officer, registered nurse, physiotherapist or occupational therapist. No prior approval is required. For more information call 133254.

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**Training in hip protector pad use**

Several teams have researched the benefits of training staff in the correct application, rationale for use and importance of supporting and encouraging the use of hip protectors.275 276 Training of the individual wearer may also improve compliance, including addressing any barriers that the person sees in wearing hip protectors as well as precise instructions and demonstration on how to wear them.277 Whilst education might be reasonable, given that the majority of people at high risk are likely to have some cognitive impairment it is important that ‘education’ does not become coercion.17

Arrangements for laundering of hip protectors should be discussed prior to commencement of wearing. Washing in domestic washing machines and dryers is feasible, but hip protectors in some cases will not withstand commercial laundering. Use of self-adhesive hip protectors may assist the user in wearing the hip protectors, but it is unclear whether these can be used in the long term.

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**Point of interest**

**Importance of not sharing hip protectors**

Hip protectors are a personal garment. It is important that hip protectors are not shared among people.
**Review and monitoring**

The effectiveness of implementation of hip protectors is best measured by the number of people at high risk of hip fracture who are regularly wearing hip protectors. A standard definition of compliance with use of hip protectors should be used. The most easily measured marker of compliance is the number of ‘protected falls’, which is the proportion of falls in which a hip protector is worn.

**5.1.3 Case studies**

### Hospital

**Mrs J** was hospitalised after a fall in which she sustained a fractured pelvis. In the rehabilitation ward she agreed to use hip protectors. The ward nurses showed her how to use the hip protectors and encouraged their use in hospital. She continued to wear them at home after discharge from hospital. Mrs J’s compliance with use of the hip protectors was checked when she attended the clinic for a follow-up visit. While watering her garden Mrs J fell onto the hip protectors. It is likely a fracture was prevented as she had a bruise on her upper thigh under the hip protector.

### Residential aged care

In a high-care residential aged care facility, Mr E was identified as being at high risk of hip fracture because his gait was unsteady and he had a history of injurious falls as well as osteoporosis. He was fitted with soft shield hip protectors that were purchased by his family. He wore the hip protectors at all times (except when bathing and toileting). Staff members used a check sheet to record his compliance with hip protector use each day.

### Queensland Health

Feedback elicited by focus groups and surveys from health professionals in Queensland Health’s fall-prevention program sites provided the following perceptions as to why hip protector pads were difficult to implement as standard practice:

- they promoted the development of skin rashes, and increased perspiration
- they are uncomfortable to sleep in and are of concern for pressure areas
- they are difficult to launder, particularly for people with incontinence
- there is an expense associated with replacement of hip protectors
- there are infection control issues
- some older people refuse to wear, or pull out, hip protector pads
- hip protectors are too big/bulky, particularly with incontinence pads, catheters and dressings
- hip protectors move
- there is a lack of information regarding the appropriate fit of the hip protectors
- there are problems with staff compliance and scepticism about efficacy
- there are problems with price, style and comfort for the wearer, including image perception.
As a general observation type A was preferred in acute facilities, because type B was difficult to implement due to laundering difficulties. Aged care facilities had greater acceptance of type B, as these were less bulky.

The key issue in successful sites would appear to be the commitment of staff to patient care and quality improvement, particularly where this is supported by senior staff. Acceptance was also higher by people in longer-term care. A feature of these is lower acuity, an increased familiarity with the person, and a slower rate of population turn over. Compliance of both the older person and staff is an issue in all environments and is influenced by warmer climates.

5.1.4 Special considerations

Cognitive impairment

People with cognitive impairment have a higher prevalence of falls and fractures and are a group who should be considered for hip protector use. These people will often need help with both the use of and compliance with hip protectors. Hip protector pads may provide an additional risk-management strategy for people known to have balance difficulties and who wander.

Indigenous and culturally and linguistically diverse groups

This area has not been specifically researched. Firmly fitting underwear may be unfamiliar in some cultures, but the extent to which this may influence compliance with use of hip protectors is unknown.

Climate

Much of the research in relation to hip protector pads has been conducted in cooler climates. Compliance in warmer and more humid areas may be problematic.

5.1.5 Additional information

The following appendices and website provide additional information:

- Appendix H1 contains a checklist of issues to consider before using hip protectors. 
- Appendix H2 is a sample hip protector pad care plan.
- Appendix H3 is a sample hip protector pad observation record.
- The description of the educational program used in the study of Meyer and colleagues provides a guide to hip protector implementation in residential aged care facilities (Appendix H4).
- Cochrane Collaboration Website—The Cochrane Library: [www.thecochranelibrary.org](http://www.thecochranelibrary.org) and search for ‘hip protectors’.
5.2: Vitamin D and calcium

This section should be reviewed in conjunction with Section 5.3—Osteoporosis management.

**Recommendation**

Vitamin D and calcium supplementation should be considered as a routine management strategy as it appears to significantly reduce the risk of falls and fall-related fractures among ambulatory or institutionalised older people.

—Level of evidence I II III IV
—Strength of recommendation A B C D.

5.2.1 Background information

Low vitamin D levels have been associated with reduced bone mineral density, high bone turnover and increased risk of hip fracture.\(^{279}\) There is evidence that vitamin D may prevent falls through improved muscle strength, independent of any other role in maintenance of bone mineral density.\(^{280,281}\)

**Point of interest**

*How vitamin D reduces the risk of falling*

A physiological explanation for the fact that vitamin D reduces the risk of falling is that 1,25-hydroxyvitamin D, the active vitamin D metabolite, binds to a highly specific nuclear receptor in muscle tissue, leading to improved muscle function and reduced risk of falling.\(^{280}\)

Vitamin D levels are measured by blood 25OHD3 levels. Previously recommended levels of 25OHD3 considered indicative of adequate vitamin D stores may be too low.\(^{279,282}\) The incidence of deficiency of vitamin D (levels <25 nmol/L) in Australia has been reported as 22–86 per cent in residential aged care, 67 per cent of geriatric hospital admissions and 61 per cent of people experiencing hip fractures.\(^{279}\) Another study found that in Australia, 86 per cent of women and 68 per cent of men in residential aged care have frank vitamin D deficiency and virtually all the remainder have a level in the lower half of the reference range.\(^{283}\)

People at high risk of vitamin D deficiency include older people, particularly in residential aged care, those with skin conditions where avoidance of sunlight is required, dark skinned people, particularly if veiled, and patients with malabsorption.\(^{279}\) Vitamin D deficiency has been found to be significantly more common among people with dementia and people from culturally and linguistically diverse groups.\(^{284}\)

Intervention approaches to improving the levels of vitamin D in patients and residents have utilised a range of options with varying success levels, including vitamin D supplementation alone, vitamin D supplementation together with calcium supplementation, as well as exposure to sunlight.

**Vitamin D supplementation alone**

It was found in a 2004 meta-analysis that vitamin D supplementation appears to reduce the risk of falls among ambulatory or institutionalised older people with stable health by more than 20 per cent.\(^{280}\) Although not looking at the same outcome, an earlier Cochrane review of vitamin D for the prevention of fractures associated with osteoporosis reported uncertainty about the efficacy of regimens.\(^{285}\) In this review, vitamin D without any calcium co-supplementation was not associated with a reduced risk of hip fracture or other non-vertebral fractures.\(^{285,286}\)
**Vitamin D combined with calcium supplementation**

In a landmark study by Chapuy et al. (1993)\(^\text{287}\), when vitamin D was combined with calcium supplementation taken daily for three years by frail older people over 80 years of age in a residential aged care facility or sheltered accommodation, the incidence of hip fracture was reduced.\(^\text{287}\) It was concluded that the administration of vitamin D with calcium co-supplementation appears effective and may be considered.

A study of the alfacalcidol form of vitamin D supplementation in non-vitamin D deficient older people in the community supports the hypothesis that treatment with vitamin D (or its analogues) requires a minimum daily calcium intake of more than 500 mg/day to produce clinically significant results.\(^\text{292}\) The Australian recommended daily intake (RDI) for calcium in older people is 800 mg for men and 1000 mg for women.\(^\text{288}\) However there is some suggestion that this level is too low with other sources recommending daily intake of 1500 mg for both men and women.\(^\text{289}\)

The Nottingham Neck of Femur study concluded that vitamin D administered orally, or injected, increases bone mineral density and decreases falls and that calcium co-supplementation may assist.\(^\text{290}\)

**Vitamin D, sunlight and winter**

The main source of vitamin D is from sunlight.\(^\text{288}\) There is good evidence to suggest that sourcing vitamin D from dietary intake alone is not sufficient.\(^\text{279}\) Compounding this fact is that nutrient intake in residential care is often limited.\(^\text{291}\)

If the skin of older adults does not convert cholesterol precursors to vitamin D well, sun exposure recommendations may not work. Additionally, sun exposure recommendations are difficult to implement in frailer people, which may increase their level of risk. Sunlight exposure and/or vitamin D supplementation is the only reasonable option until the food supply becomes fortified with vitamin D.

The Geelong Osteoporosis Study found that in winter there was reduced serum vitamin D, increased bone resorption and an increase in the proportion of falls resulting in fracture.\(^\text{292}\) The role of vitamin D supplementation during the Australian winter has yet to be investigated.

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**Point of interest**

**Vitamin D and latitude**

Little vitamin D is produced beyond latitudes of about 35° (i.e. Victoria and Tasmania) in winter, especially in older people. This is because of an increase in the zenith angle of the sun resulting in more photons being absorbed by the stratospheric ozone layer.\(^\text{293}\)

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**Toxicity and dose**

Toxicity of vitamin D cannot be caused by prolonged sun exposure; however it can occur from supplementation with vitamin D.\(^\text{288}\) As a minimum, vitamin D levels should be reviewed. Incidence of abnormally high blood calcium (hypercalcaemia) occurs more frequently when vitamin D is given.\(^\text{285}\) There is no Recommended Dietary Intake (RDI) for vitamin D, though 400 IU has been proposed for older people not exposed to 1–2 hours of direct sunlight per week in summer.\(^\text{288}\) The United State Institute of Medicine’s Food and Nutrition Board proposes a daily intake of 600 IU of vitamin D in people over 71 years of age.\(^\text{279}\)
5.2.2 Principles of care

Nutrition Information

Information on eating habits, food preferences, meal patterns, food intake and sunlight exposure may be conducted by a dietitian, nutrition and dietetic support staff, nursing or medical staff. The tools and indicators for this assessment are:

- food preference record
- food and fluid intake records
- 25OHD3 blood levels.

Provide minimum sun exposure to prevent vitamin D deficiency

Osteoporosis Australia (in association with the Cancer Council Australia) recommends that for most older Australians, vitamin D deficiency can be prevented by 5–15 minutes exposure of the face and upper limbs to sunlight 4–6 times per week; though deliberate exposure to sunlight between 10 am to 3 pm in the summer months for more than 15 minutes is not advised.

If this modest sunlight exposure is not possible, then a vitamin D supplement of at least 400 IU (10 g) per day is recommended.

Consider vitamin D and calcium supplementation

Consider the high likelihood of vitamin D deficiency in people living in residential aged care facilities and supplement without doing routine blood tests. Measure 25OHD3 if there is uncertainty. Testing may be more appropriate in the hospital population.

In the case of established vitamin D deficiency cases, supplementation with 3000–5000 IU per day for at least one month is required to replenish body stores. Increased availability of larger dose preparations of vitamin D3 (cholecalciferol) would be a useful therapy in the case of severe deficiencies.

For most older adults in long-term care, it is appropriate to supplement with 800 to 1000 IU vitamin D without measuring 25OHD3 vitamin D blood levels. This is based on the prevalence of deficiency, low risk and benefit shown when doing it in this untargeted way for hip fracture prevention.279 287 294

Encourage people to include foods high in calcium in their diet

The food guidelines in the appendix, which outlines calcium and vitamin dietary suggestions and hints295, may be useful in this process. Also referral to a dietitian may be appropriate if a person is having difficulties in consuming adequate calcium, has lactose intolerance, if calcium is not a normal part of their diet (culturally) or they will not consume dairy foods (e.g. they follow a vegan diet).

Discourage inhibitors of calcium absorption.

Oral calcium intake needs to meet the Recommended Dietary Intake. To do this, discourage or minimise inhibitors of calcium absorption (e.g. caffeine) and encourage people to include foods high in calcium in their diet.

Analysis of food intake records/diet history should show a daily intake of calcium of 800 mg for males and 1000 mg for females.295

Review and monitoring

Desired outcomes with regards to the use of vitamin D and calcium supplementation in the reduction of harm from falls are: 25OHD3 blood levels within reference range and vitamin D and calcium supplementation being ordered. Consequently decreased falls and injury from falls and increased muscle strength may be expected.
To achieve the above outcomes vitamin D deficiency needs to be prevented. This may be achieved by providing adequate sun exposure. However, it is difficult to judge the dose and be sure of adequacy. Therefore blood tests for 25OHD3 levels are probably reasonable in winter if the person is getting some regular sun, but there is uncertainty if it is enough.

However, in residential aged care this may prove expensive and may not be cost effective given there is a vast need for supplementation in this setting. In such cases, supplementation may be considered without the need for blood tests. Although vague, medical records could be used to show direct sun exposure pre and post supplementation. As a result of the above actions, decreased falls and injury from falls and increased muscle strength may be expected.

5.2.3 Case studies

**Case study**

**Hospital**

Mrs F is admitted to hospital following a fall. In accordance with her culture and religious beliefs she only allows her face, hands and feet to be exposed. Blood tests reveal a vitamin D deficiency, which is reversed with vitamin D supplements. Mrs F continues with lower dose vitamin D supplements to prevent further deficiency. She experiences improved muscle strength and has no further falls as the result of vitamin D supplementation and a multifactorial fall-prevention program, including a tailored individualised exercise program, medication review and modification. She also has a visit to her home by an occupational therapist on discharge.

**Case study**

**Residential aged care**

Mrs Q has been falling frequently. Fall-risk assessment reveals a nutritionally balanced diet. She doesn’t go outside but does ‘catch some rays’ in the sunroom, which has large glass windows. Unfortunately glass absorbs nearly all UVB photons. Blood tests reveal low vitamin D levels, which are corrected with supplementation. Mrs Q’s vitamin D level is maintained by going outside for small time periods for exposure to direct sunlight. Other interventions were also included as part of a targeted multifactorial fall-prevention program in response to the fall-risk assessment. Mrs Q’s incidence of falling has not increased.

5.2.4 Special considerations

**Cognitive impairment**

Cognitive impairment may result in reduced oral intake; therefore reduced calcium intake. Close monitoring of oral intake; is required and referral to a dietitian should be instituted if intake is reduced.

People with a mental illness often have high intakes of caffeine-containing drinks (i.e. cola, tea, coffee), which decreases calcium absorption. Refer the person to a dietitian if you observe excessive caffeine intake.
Indigenous and culturally and linguistically diverse groups

Increased skin pigment reduces the amount of vitamin D production after sun exposure, so dark skinned people (e.g. Indigenous Australians) are more susceptible to reduced vitamin D levels. People who are heavily clothed and veiled for religious or cultural reasons are also at increased risk of reduced vitamin D levels.

5.2.5 Additional information

The following are two useful publications:

- National Health and Medical Research Council. Dietary Guidelines for Older Australians. ACT: Commonwealth of Australia, 1999

- National Health and Medical Research Council. Eat well for life: A practical guide to the dietary guidelines for older Australians, 2001. It provides practical ideas for increasing calcium intake and reducing salt intake. Copies can be obtained from Commonwealth Department of Health and Aged Care.
  PH: 1800 020 103
5.2: Vitamin D and Calcium
5.3: Osteoporosis management

This section should be reviewed in conjunction with Section 5.2—Vitamin D and calcium.

**Recommendation**

To decrease subsequent fracture rates, appropriate treatment of those who have previously sustained a fracture and who have osteoporosis with bisphosphonates should be undertaken.

—Level of evidence I II III IV
—Strength of recommendation A B C D.

**Recommendation**

Hospitals should establish protocols that increase osteoporosis treatment rates in people who have sustained their first osteoporotic fracture.296

—Level of evidence I II III IV
—Strength of recommendation A B C D.

5.3.1 Background information

**Falls and Fractures**

Only a small proportion of falls result in fractures and most if not all fractures occur after falls.297 Bone mineral density (BMD) is an important measure in predicting fractures in both men and women. The Dubbo Osteoporosis Epidemiology Study found that quadriceps strength and postural sway are of similar importance in predicting fractures.298 No therapy is likely to normalise bone mineral density, but even small improvements can reduce fracture risk.299

With this in mind, interventions that reduce fall risk may prevent fractures, even if bone density is not altered. This is of particular relevance to the very old, in whom low bone density places them at particular risk, and each additional fall increases the likelihood of a fracture.

**Good practice point**

Older people with a history of recurrent falls should also be considered for investigation of bone health. Also, those who sustain a minimal trauma fracture should have a fall-risk assessment. In both cases, strategies for optimising function, minimising a long lie on the floor, protecting bones, enhancing environmental safety and vitamin D prescription should be considered.

**How osteoporosis is diagnosed**

Osteoporosis Australia state that the presence of osteoporosis can be recognised, in some cases, by a fracture, usually of the wrist, hip or spine; an increased curve of the thoracic (mid) spine or loss of height.300

Osteoporosis is diagnosed by having a bone mineral density test (BMD) and there are several methods for testing bone density. The most reliable and accurate test is the DEXA (dual energy X-ray absorptiometry), which is widely available in Australia. All bone mineral density tests measure the amount of mineral in a specific area of bone. The DEXA test will give results as the following two scores300.
■ T score: which compares bone density with that of an average young adult of the same sex. A T score equaling zero means bones are the same density as the average younger population and no treatment is necessary. A T score above one means bones are denser than the average younger population. A T score below zero means bones are less dense than the average younger population. If the score is below one (Osteopaenia: –1 to –2.5) treatment should be considered if there are several risk factors. If the score is below –2.5 this signals osteoporosis and treatment is strongly recommended to stop further bone loss.

■ Z score: which compares bone density with the average of people in a person’s age group and gender. If the Z score is zero, bones are average for their age and sex. Below zero indicates bones are below average density and above zero indicates bones are above average density for age. A Z score below –2 means bone is being lost more rapidly than matched peers, so treatment needs to be monitored carefully.

Good practice point

Hospital staff (particularly in emergency departments) should be vigilant in detecting anyone who has obvious manifestations of osteoporosis (e.g. thoracic kyphosis, low-trauma fracture etc.). Also, people with multiple risk factors for osteoporosis may be opportunistically detected in hospitals or by routine screening in residential aged care facilities (e.g. people on long-term steroids).

Interventions for falls and fall-related injuries relevant to osteoporosis

A previous fracture is one of the strongest risk factors for future fracture. However, recent studies suggest many people who sustain fractures do not undergo investigation or treatment for osteoporosis, or are not treated adequately to reduce future fracture risk, even when a diagnosis of osteoporosis has been made.

Several barriers to the treatment of osteoporosis have been identified, including attitudes of providers of treatment post fracture, such as orthopaedic surgeons.

Bisphosphonates

The bisphosphonates are a relatively new class of medication, which are a non-hormonal type of treatment. They stick to the bone surface and make cells that break down and destroy bone tissue less effective allowing bone re-building cells to work more effectively, resulting in increased bone density. Currently there are three main bisphosphonates available on the Pharmaceutical Benefits Scheme (PBS) to treat osteoporosis. The following two medications are available for postmenopausal women with an osteoporotic fracture and men with an osteoporotic fracture:

■ risedronate (Actonel) shown to increase bone density and reduce risk/frequency of fractures at the spine and hip.

■ alendronate (Fosamax) shown to increase bone density and reduce frequency of fractures at the hip and spine.

A third medication is also available for osteoporosis:

■ etidronate (Didrocal) shown to increase bone density and reduce risk of fractures in the spine, but not the hip.

Selective Oestrogen Receptor Modulators (SERMs)

SERMs are a special class of drug with many features similar to oestrogen in hormone replacement therapy (HRT); however they do not stimulate the breast and uterus tissues. As a result, SERM’s have the positive effect of oestrogens on bone without increasing the risk of breast and uterine cancer. Raloxifene (Evista) is shown to increase bone density and reduce risk of fractures in the spine. There is also evidence to suggest it may reduce breast cancer.
Osteoporosis in residential aged care

There is evidence of under-treatment of osteoporosis in older people in residential aged care facilities. For example, in one study 37 per cent of female residential aged care facility residents were known to have previous osteoporotic fractures; however calcium supplementation was prescribed in only 14 per cent of residents and specific anti-osteoporosis therapy was prescribed in only three per cent of residents.214

Older people are more likely to have several risk factors for fracture, including previous fractures.299 In these frail older people, osteoporosis treatments must take account of the likelihood of comorbidity and the use of multiple other medications.

5.3.2 Principles of care

It is important to recognise that people sustaining low-trauma fractures after the age of 60 years probably have osteoporosis and an increased risk of subsequent fracture. Bone densitometry and specific anti-osteoporosis therapy should be considered in these people.

Good practice point

In order to modify the risk of injurious falls, bones should be strengthened and protected and falls should be prevented.

Review and monitoring

A good clinical indicator among residential care populations may be to review medication charts to see if vitamin D supplements are being ordered and adjust for the number of residents who go outside regularly and for the latitude of the facility. Also, identify whether older people sustaining fractures are reviewed with regard to the possible diagnosis of osteoporosis. Finally, if it is possible to match those with and without anti-osteoporosis therapy on a number of other key domains such as age, gender and fall risk, a comparison of fracture rates in people treated with specific anti-osteoporosis therapy with those not receiving them may be made.

5.3.3 Case studies

Hospital

Mrs E is a 75-year-old lady who fell, fracturing her humerus (upper arm), while walking in her hostel. Specific questioning reveals she had an early menopause and that she rarely goes outside because of concern about skin cancer. She had her fracture treated in the local hospital by the orthopaedic surgeon. The nurse at the clinic asked the doctor whether it was a fracture related to osteoporosis and questioned if there was some way to reduce the chance of further similar falls and fractures. As a result of their discussion, the surgeon suggested she commence calcium and vitamin D and referred her to the osteoporosis clinic for consideration of a weekly bisphosphonate as well as a nutritional review and implementation of strength and balance training.
Case study

Residential aged care
Mrs N is an 85-year-old lady who fell in her residential aged care facility, fracturing her hip. She thinks she has a family history of osteoporosis. Mrs N also falls frequently. She had her hip fracture treated surgically by the orthopaedic surgeon. In the postoperative period the physiotherapist noted her high fall risk and the need to consider specific measures to prevent another fracture. Because she is considered frail, physiotherapy was commenced using a graduated exercise program, commencing at a low intensity, with a goal of safe ambulation with the use of a frame. Mrs N commenced vitamin D and calcium supplementation and was educated about the use and availability of hip protector pads. Because she has no contraindications, Mrs N may also be a suitable candidate for bisphosphonate therapy.

5.3.8 Special considerations

Cognitive impairment
Supervision of the correct and safe manner of taking some bisphosphonates needs to be undertaken in people with cognitive impairment due to restrictions on lying down and oral intake after swallowing the medication.

5.3.5 Additional information
Falls and fractures kit available from:
Osteoporosis Australia
Ph: 02 9518 8140
Fax: 02 9518 6306
Toll Free: 1800 242 141
Section 6: Post-fall management

Recommendation

As part of a multi-component fall-prevention program, post-fall assessment should be completed on all older people who fall whilst in hospital or residential aged care facilities.

—Level of evidence I II III IV
—Strength of evidence A B C D.

Good practice point

All falls should be reported and documented.

Responding to incidents

Responding to fall incidents involves following up all falls that occur, providing immediate and longer-term care and reporting and recording the incident.

It is important that all falls are taken seriously by staff because falls may be the first and main indication of some other underlying and treatable problem in an older person. Also, older people who fall are more likely to fall again. It is important that all staff are aware of what constitutes a fall and when an incident form is required.

These Guidelines recommend the World Health Organisation’s definition of a fall be used by Australian hospitals and residential aged care facilities:

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

This means that any time a person comes to rest inadvertently on a lower surface, whether or not it was on the floor, another piece of furniture or wall, the incident is reported and recorded. It is also vital that staff know what they are required to do in the event of a person falling. Local manual handling guidelines should be consulted to determine appropriate action of staff members who are present when a person is in the act of falling and the process to follow when moving someone who has fallen.

The events immediately before and during a fall are very important. The history is not always easy to obtain and information may need to be gained from other people as opposed to the older person themselves, especially if the older person does not remember the circumstances of the fall.

The following is a guide to what should be included in a facility’s falls incident policy or protocol:

- Reassure and comfort the fallen person.
- Assume that once a person has sustained a fall they automatically become high risk until a reassessment is performed.
- Perform preliminary assessment, including level of consciousness and vital signs.
- Check for signs of injury including abrasion, contusion, laceration, fracture and head injury.
Assess whether it is safe to move the person from their position and any special considerations in moving them. A staff member should not try to pick up the fallen person on their own, rather, use lifting devices if necessary and follow appropriate manual handling procedures.\(^6^3\) \(^3^0^7\)

- Note any details of the fall for reference in reporting the incident including patient/resident description if possible.\(^6^3\) \(^1^1^2\)
- Ensure ongoing monitoring of the person as some injuries may not be apparent at the time of the fall.\(^5\) \(^1^4\)
- Communicate to all relevant staff, family and carers that the person has fallen and is at increased risk of falling again.\(^1^1^2\)
- Report all falls to a medical officer, even if injuries are not apparent.\(^5\) \(^1^1^2\)
- Assess and treat any injury, initiate diagnostic and treatment interventions for contributing causes.\(^6^3\)
- At the earliest convenience, notify the next of kin.\(^6^3\) \(^1^1^2\)
- Complete an incident reporting form for all falls\(^5\) \(^1^4\) \(^6^3\) \(^1^1^2\), regardless of where the fall occurred, or whether the person is injured. The Goulburn Valley (Victoria) falls incident report form is an example of a specific form for recording fall-related incidents.
- Document all details in person’s medical record, including their appearance/response, evidence of injury, location of the fall, notification of medical provider and actions taken.\(^1^4\) \(^1^1^2\)
- Debrief the person on their fall and address their fear of falling.\(^1^4\)

After the immediate sequelae of a fall, determine how and why a fall may have occurred and reduce the risk of another fall. To do this:

- Review the implementation of existing fall-prevention strategies, including standard fall-prevention strategies.\(^5\) \(^1^4\) \(^1^1^2\)
- Undertake a fall-risk assessment.\(^5\) \(^1^4\) \(^1^1^2\)
- Implement a targeted individualised plan for daily care. Multifactorial interventions should be carried out as appropriate and may include, but are not limited to gait, balance and exercise programs, medication modification, hypotension management, environmental hazard modification and cardiovascular disorder treatment.\(^5^9\) This will often involve referral to other members of the health care team.
- Consider the use of injury prevention interventions.\(^5\) \(^1^4\) \(^1^1^2\)
- Consider investigations for osteoporosis in the presence of low-trauma fractures.
- Ensure effective communication of assessment and management recommendations to all involved.\(^5\) \(^1^4\) \(^1^1^2\)

**Root cause analysis**

Root Cause Analysis (RCA) is a more in-depth analysis of adverse outcomes, which may address both individual and broader system issues to provide a greater understanding of causation and future prevention. Depending on the outcome of the fall, an RCA may be indicated (e.g. in the case of a fracture or death).

**Reporting and recording falls**

Prevention of falls requires a just culture. Staff often feel anxious when having to complete an incident form and can associate the incident with feelings of guilt and blame. For accurate reporting of falls to occur, it is necessary for the leaders in the facility to promote incident reporting as a part of the improvement process, rather than a punitive tool to identify potential staff negligence.\(^3^0^8\) This requires a just culture for achieving safe and quality health care services.
It is an essential aspect of quality care and risk management that information about falls is collected and collated to monitor falls incidence, identify fall patterns, identify ways of preventing future falls and provide feedback on the effectiveness of fall-prevention programs. Feedback should also regularly (e.g. monthly) be provided to staff so that local trends can be identified at a ward/unit level, and be addressed as part of the routine continuous quality cycle.

**Minimum data set for the reporting and recording of falls**

A minimum data set is the minimum amount of data that needs to be collected about all falls incidents to lead to improvements in safety and quality of health care. Based on the Australian Incident Monitoring System (AIMS) and the *Queensland Health falls prevention guidelines* (2003), the following list contains the minimum data that could be collected about falls incidents in Australian health care facilities.

<table>
<thead>
<tr>
<th>Minimum data set for reporting falls incidents(^{308}):</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ demographic details of the person (including date of birth)</td>
</tr>
<tr>
<td>■ current and relevant diagnoses/problems</td>
</tr>
<tr>
<td>■ date of incident</td>
</tr>
<tr>
<td>■ time of incident</td>
</tr>
<tr>
<td>■ place where the incident occurred</td>
</tr>
<tr>
<td>■ type of incident (e.g. slip, trip, bumping into/falling on an object)(^5)</td>
</tr>
<tr>
<td>■ activity at time of the incident (e.g. attempting to stand, walking)</td>
</tr>
<tr>
<td>■ independent or dependent on carer, aids or staff</td>
</tr>
<tr>
<td>■ falls risk rating at time of incident if appropriate (low, medium or high falls risk)</td>
</tr>
<tr>
<td>■ if rated as a high falls risk, steps taken previously to reduce falls risk and injury risk</td>
</tr>
<tr>
<td>■ relevant information about clothing, footwear, eyewear and mobility aids, used at the time of incident(^5)</td>
</tr>
<tr>
<td>■ any restraints in use</td>
</tr>
<tr>
<td>■ any staff supervision provided at the time of the incident</td>
</tr>
<tr>
<td>■ factors contributing to the incident—environmental conditions, e.g. floor, lighting, clutter(^5)</td>
</tr>
<tr>
<td>■ status following the incident (e.g. baseline observations, injuries)</td>
</tr>
<tr>
<td>■ interventions to be implemented following the incident and medical treatment required</td>
</tr>
<tr>
<td>■ factors that minimised an adverse outcome (e.g. early detection, good plan/protocol)</td>
</tr>
<tr>
<td>■ way(s) in which the incident could have been prevented (e.g. better communication, equipment check)</td>
</tr>
<tr>
<td>■ person’s perception of the incident, including description of any preceding sensations or symptoms(^5) and what they consider could have prevented the fall</td>
</tr>
<tr>
<td>■ any witnesses to the incident</td>
</tr>
<tr>
<td>■ details of person completing the report</td>
</tr>
<tr>
<td>■ any other comments.</td>
</tr>
</tbody>
</table>
This information should be completed whenever a fall or near miss occurs in a facility. If this information is currently being collected, the facility’s current incident monitoring processes may not need to be altered. If any of this information is not being collected, it can be captured by incorporating it into existing incident reports.

To achieve the most accurate information about the incident, the description of the fall should also allow for free text. There should be room on the incident form for additional comments to be made.

**Fall evaluation**

People who fall repeatedly and people prone to injurious falls require a comprehensive and detailed assessment. For a more detailed assessment refer the person to a specialist (e.g. geriatrician) where possible.

The American Geriatrics Society, British Geriatrics Society, American Academy of Orthopaedic Surgeons Panel on Falls Prevention in *Guideline for the prevention of falls in older persons*, makes two specific recommendations for assessment of older people who have fallen:

- Older people who present for medical attention because of a fall, report recurrent falls in the past year, or demonstrate abnormalities of gait and/or balance should have a fall evaluation performed. This evaluation should be performed by a clinician with appropriate skills and experience, which may necessitate referral to a specialist (e.g. geriatrician).

  - A fall evaluation could be undertaken and is defined as an assessment that includes the following:
    - a history of fall circumstances, medications, acute or chronic medical problems, and mobility levels
    - an examination of vision, gait and balance and lower extremity joint function
    - an examination of basic neurological function, including mental status, muscle strength, lower extremity peripheral nerves, proprioception, reflexes, tests of cortical, extrapyramidal and cerebellar function
    - assessment of basic cardiovascular status including heart rate and rhythm, postural pulse and blood pressure and, if appropriate, heart rate and blood pressure responses to carotid sinus stimulation.

**Fractured neck of femur**

People who have sustained a hip fracture should be referred immediately to an orthopaedic service and treated with reference to hip fracture management guidelines. It must be emphasised that detection of a fractured hip after a fall can be difficult and overlooked fractures are common.

Of all fall-related fractures, hip fractures are the most serious and lead to the greatest number of health problems and deaths. It is estimated that 95 per cent of fractured necks of femur are falls related. Other hip fractures may occur if a person falls onto the buttock or if a rotational force through the neck of the femur is applied. Hip fracture aetiology may be affected by a number of independent factors. These include orientation of the faller (a fall while turning is more likely to result in hip fracture), protective neuromuscular reflexes, local ‘shock’ absorbers and bone strength. The length of stay in an acute-care setting may be decreased if early intervention programs are implemented. This includes interventions such as early surgery, minimal narcotic analgesia, increased daily therapy and close monitoring of a patient’s needs via the multidisciplinary team.

Restrictions in function from fear of falling may limit the long-term success of rehabilitation programs and patient outcomes following a hip fracture. Of those who sustain a hip fracture, 75 per cent develop and maintain a fear of falling. Fear of falling leading to activity restriction is a major consequence for patients along with muscular atrophy/deconditioning and reduced health and physical functioning.
The aims of fracture management aimed at alleviating pain are:

- to achieve fracture healing
- to promote healing in normal alignments
- to restore normal function.

In the case of fractured neck of femur, surgical management is nearly always required. Options, depending on the fracture pattern and displacement, include:

- Internal fixation using a variety of devices combining a screw or pin for the head and a nail or plate for the femur. Fixation is designed to hold the fracture whilst healing progresses. The area is not strong until the bone heals, which is typically six-to-12 weeks. There will always be weight-bearing restriction in this period, whether imposed by the surgeon or due to pain experienced while weight bearing.

- Hemi arthroplasty using a unipolar or bipolar device to replace the head and neck of the fractured femur. This is cemented into the shaft of the femur. Early mobilisation and weight bearing should be possible, but precautions are needed to minimise the risk of dislocation especially in the first six weeks.

- Hip arthroplasty replacing both sides of the hip joint—commonly a metal stem and head with a plastic socket cemented in place—is performed only in exceptional circumstances. Unless hip range of motion precautions are complied with, the risk of dislocation is very high in the first weeks post operatively.

The clinical care should include:

- observations (standard post-surgical observations)
- fluid resuscitation
- possible blood transfusion
- respiratory maintenance/treatment including breathing incentives/exercises
- limb exercising as tolerated
- deep vein thrombosis prophylaxis
- social support
- rehabilitation options.

Nursing care will need to encompass the psychological impact not only of the serious injury, but the likely impact on the patient’s mobility and residential status. Early intervention has been proven to not only lessen this impact but may decrease the hospital stay.234

**Early surgery**

Early surgery (within 24–36 hours) is recommended for most patients once a medical assessment has been made and the patient’s condition has been stabilised appropriately. Undue delay to surgery inevitably increases length of stay and may lead to more complications, including pressure areas, pneumonia and confusion.309

**Urinary catheterisation**

Indwelling catheters should be avoided where possible. Intermittent catheterisation is preferable and has been shown not to increase the incidence of urinary tract infections.309

**Nutritional status**

There is some evidence to support oral protein supplementation for six months after surgery. All patients should have a nutritional assessment, so that protein and energy supplements can be provided as needed. In very thin patients, nasogastric tube feeding could be considered.309
**Mobilisation**

Early assisted ambulation should begin within 48 hours of the operation. No particular mobilisation strategies can be recommended over others.\(^{309}\)

**Rehabilitation**

A coordinated rehabilitation program should be available to patients with hip fracture. It should commence early in the hospital admission and provide opportunities for early supported discharge for patients who can manage this; whereas for more frail patients, a coordinated inpatient rehabilitation program should be provided that is followed by a period of continuing rehabilitation after discharge.\(^{309}\)

Older people who sustained a fracture related to osteoporosis should be assessed for osteoporosis therapy.

**Fall clinics**

**What is a falls clinic?**

Falls clinics are ‘specialist multidisciplinary services, which focus on the assessment and management of patients with falls, mobility and balance problems. Clinics commonly provide time-limited, specialist intervention to the client and advice and referral to mainstream services for ongoing management. They provide education and training to clients, carers and health professionals.’\(^{314}\) Falls clinics should not be the first intervention for an older person who is falling, or at risk of falling.

**Additional information**

The following are useful tools, guidelines and websites:

- Aged care home after hours kit: Clinical information sheet. Managing a resident after a fall (page 98). North West Melbourne Division of General Practice: [www.nwmdgp.org.au/web/doctors/?0,0,a001,192=n](http://www.nwmdgp.org.au/web/doctors/?0,0,a001,192=n)


Glossary

Consumer

Consumer refers to patients, clients and carers in acute and sub-acute settings. It also refers to people receiving care in residential aged care settings and their carers.

Dementia

A condition of deteriorated mentality that is characterised by a marked decline in intellectual capacity and often by emotional apathy.

Extrinsic factors

Relate to a person’s environment or their interaction with the environment.

Delirium

A mental disturbance characterised by confusion, disordered speech and hallucinations.

Facility

Facility is the term used to refer to both hospitals and residential aged care facilities.

Fall

In order to have a nationally consistent approach to fall prevention within Australian facilities, it is important that a standard definition of a fall is used. For the purpose of these Guidelines, the Expert Panel and Taskforce agree on the following definition:

‘A fall is an event which results in a person coming to rest inadvertently on the ground or floor or other lower level.’ World Health Organisation (WHO): [www.who.int/violence_injury_prevention/unintentional_injuries/falls/falls1/en/](http://www.who.int/violence_injury_prevention/unintentional_injuries/falls/falls1/en/).

Fall prevention

For readability, grammatical correctness, and consistency with contemporary literature, ‘fall prevention’ is the term used within the Guidelines to refer to ‘falls prevention’. ‘Prevention of falls’ is the alternative phrase to ‘fall prevention’ used in these Guidelines.

Fall-risk screen

Fall-risk screening provides an efficient means (often less than five items to check) of identifying those at greatest risk of falling who should have a comprehensive fall-risk assessment performed. 13

Fall-risk assessment

Fall-risk assessment is a more detailed and systematic process than a fall-risk screen and is used to identify a person’s risk factors for falling.

Guidelines

Guidelines is used to refer to the full name of the Guidelines: Preventing falls and harm from falls in older people. Best practice guidelines for Australian hospitals and residential aged care facilities.

Hospital

Hospital refers to both acute and sub-acute settings.

Hip protector pad

A device worn over the greater trochanter of the femur designed to absorb and deflect the energy created by a fall away from the hip joint. The soft tissues of the surrounding thigh absorb the energy instead.

Hypotension—orthostatic

Low blood pressure resulting from a change in position from lying to standing.

Hypotension—postprandial

Low blood pressure experienced after eating.

Injurious fall

These Guidelines use the ProFaNE (Prevention of Falls Network Europe) panel definition of an injurious fall. They consider that the only injuries that could be confirmed accurately using existing data sources were peripheral fractures (defined as any fracture of the limb girdles and of the limbs). Head injuries, maxillo-facial injuries, abdominal, soft tissue and other injuries are not included in the recommendation for a core data set.
Intrinsic factors
Relate to a person’s behaviour or condition.

Older person or older people
‘Older person’ or ‘older people’ have been used in favour of the term patient/resident wherever possible. These Guidelines define older people as 65 years of age and over. When considering Indigenous Australians, the term ‘older people’ refers to people 50 years of age and over.¹

Patient
Patient refers to both patients and clients in acute and sub-acute settings.

Pharmacodynamics
The study of the biochemical and physiological effects that medications have on the body.

Pharmacokinetics
The study of the way in which the body handles medications, including the processes of absorption, distribution, excretion and localisation in tissues and biotransformation.

Protein energy malnutrition (PEM)
A pathological depletion of the body’s lean tissues caused by starvation, or a combination of starvation and catabolic stress, which is often accompanied by other nutritional deficiencies.²

Psychotropic medication
A medication that affects the mental state including: antidepressants, anticonvulsants, antipsychotics, mood stabilisers, anxiolytics, hypnotics, antiparkinsonian drugs, psychostimulants and dementia medications.

Resident
Resident refers to people receiving care in residential aged care settings.

Residential aged care facility
Residential aged care facility refers to both high- and low-care settings.

Syncope
A temporary loss of consciousness with spontaneous recovery, which occurs when there is a transient decrease in cerebral blood flow.³

Trial and learning approach
Continuous quality improvement is based upon the trial and learning approach to improvement, which involves trying a change, observing the consequences and learning from those consequences.⁴

Vision
The ability of the unaided eye to see fine detail.

Visual acuity
A measure of the ability of the eye to see fine detail when the best spectacle or contact lens prescription is worn.

Visual acuity (VA) = d/D (written as a fraction) where:
- d = the viewing distance (usually 6 m)
- D = the number under or beside the smallest line of letters that the person is able to see.

Normal visual acuity is 6/6 or better. If someone can only see the ‘60’ line at top of the chart, the acuity is recorded as being 6/60.
Some people can see better than 6/6 (e.g. 6/5, 6/3, etc.), but 6/6 has been established as the standard for good vision.
Appendices

A1 — St Thomas’s risk assessment tool in falling elderly inpatients (STRATIFY) 119
A2 — Admission risk screening tool, Melbourne Health: Generic screening tool for the acute hospital setting 121
A3(i) — Falls Risk Assessment Tool (FRAT) Peninsula Health: Fall Risk Assessment Tool for the sub-acute rehabilitation setting 125
A3(ii) — Fall Risk Assessment for Hospitalised Older People (FRHOP): Risk assessment tool for the sub-acute rehabilitation setting 131
A3(iii) — Peter James Centre Fall Risk Assessment Tool (PJC FRAT): Risk assessment tool for the sub-acute rehabilitation setting 139
A3(iv) — The Northern Hospital modified STRATIFY 143
A4 — Prevention of Falls in the Elderly Trial (PROFET): Fall assessment proforma emergency department 145
B1 — Timed up and go test (TUG) 147
B2 — Modified falls efficacy scale (MFES) 149
C1 — Types of urinary incontinence and their treatment 151
C2 — Assessment of incontinence 153
Cl1 — Mini mental state examination (MMSE) 155
Cl2 — Rowland Universal Dementia Assessment Scale (RUDAS) 157
Cl3 — Abbreviated Mental Test Score (AMTS) 173
Cl4 — Confusion Assessment Method (CAM) 175
DC1 — Food guidelines for calcium intake for the prevention of falls in older people 177
E1 — General environmental checklist 179
E2 — Equipment safety checklist 181
E3 — Specific environmental considerations 183
F1 — Safe shoe checklist 185
H1 — Checklist of issues to consider before using hip protectors 187
H2 — Hip protector pad care plan 189
H3 — Hip protector pad observation record 191
H4 — Description of the educational program for hip protector pads used in the study of Meyer and colleagues 193
I1 — Evidence table of successful intervention strategies, residential care and hospitals 195
N1 — Nutrition 197
N2 — Malnutrition screening tool 203
N3 — Malnutrition action flowchart 205
N4a — Weight monitoring chart 70–130kg 207
N4b — Weight monitoring chart 30–90kg 209
N5 — Food and fluid intake chart 211
PF1 — Post-fall management 213
PF2 — Falls Report—Goulburn Valley Health 215
PF3 — Falls clinics 219
R1 — Restraint documentation forms (Option 1 and 2) 221
S1 — Types of syncope and causes 223
V1 — How to measure distance, vision and visual acuity 225
V2 — Turtle chart 227
### Appendix A1—St Thomas’s risk assessment tool in falling elderly inpatients (STRATIFY)\(^3^4\)

**STRATIFY Risk Screen**

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient presented to hospital with a fall or has fallen on the ward since admission. (Yes = 1, No = 0)</td>
<td></td>
</tr>
<tr>
<td><strong>Do you think the patient is …? (Questions 2–5)</strong></td>
<td></td>
</tr>
<tr>
<td>2. Agitated? (Yes = 1, No = 0)</td>
<td></td>
</tr>
<tr>
<td>3. Visually impaired to the extent that everyday function is affected? (Yes = 1, No = 0)</td>
<td></td>
</tr>
<tr>
<td>4. In need of especially frequent toileting? (Yes = 1, No = 0)</td>
<td></td>
</tr>
<tr>
<td>5. Transfer and mobility score of 3 or 4? (Yes = 1, No = 0) *</td>
<td></td>
</tr>
</tbody>
</table>

Total Score

(* Combined Barthel score for transfers and mobility of 3 or 4)

**BARTHEL**

<table>
<thead>
<tr>
<th>Transfer</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = unable</td>
<td>0 = immobile</td>
</tr>
<tr>
<td>1 = major help needed (1 or 2 people, physical aid)</td>
<td>1 = independent with aid of wheelchair</td>
</tr>
<tr>
<td>2 = minor help (verbal or physical)</td>
<td>2 = walks with help of one person</td>
</tr>
<tr>
<td>3 = independent</td>
<td>3 = independent</td>
</tr>
</tbody>
</table>

A score of greater than 2 indicates a risk of falling. If at risk of falling, a risk assessment needs to be completed and risk factors addressed.
Appendix A2—Admission risk screening tool, Melbourne Health: Generic screening tool for the acute hospital setting

The Admission risk screening tool from Melbourne Health (see next page) is a generic risk screening tool that screens for risk of falls as well as other health risks, e.g. skin integrity, continence and nutrition. The falls section has three questions. This tool was developed for use in the acute hospital setting and has been validated. Permission to reproduce this tool in these Guidelines was granted by Melbourne Health.

NB: Acknowledgement required if the tool is used by your organisation. Contact details for further information:
Ms Anne McGann
Melbourne Extended Care and Rehabilitation Service
PO Box 7000
Carlton South VIC 3053

Tel: 03 8387 2176
Email: Anne.McGann@mh.org.au
## Admission Risk Screening Tool

### Diagnosis

<table>
<thead>
<tr>
<th>Name:</th>
<th>UPR/MR number:</th>
<th>Gender:</th>
</tr>
</thead>
</table>

### Discharge

<table>
<thead>
<tr>
<th>Estimated Date</th>
<th>Expected Destination</th>
</tr>
</thead>
</table>

### Discharge Resources

<table>
<thead>
<tr>
<th>Patient/carer informed of estimated discharge</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>/</td>
<td></td>
</tr>
</tbody>
</table>

### Living Arrangements

- [ ] Lives Alone
- [ ] Lives with
- [ ] Supported
- [ ] Residential Services (SRIS)
- [ ] Low Level (Hostel)
- [ ] High Level
- [ ] Nursing Home
- [ ] Homeless
- [ ] Other

### Support Services Currently Used

- [ ] NO SERVICES currently used
- [ ] PACFU
- [ ] Palliative Care Service
- [ ] RNINS/Domiciliary Nursing Service
- [ ] Homeless Persons Package (CACP)
- [ ] Case Manager/Contact No.
- [ ] DVA
- [ ] TAC
- [ ] Private Insurance
- [ ] WorkCover
- [ ] Yes | Date | / |

### Recommendation

| Designation: | Date | / |

### Contact for Discharge Planning

| Name: | Relationship: |

### Interpreter Required

| Language: | GP | Specialist |

### Initial Screen

- Please sign and date, circle appropriate response

<table>
<thead>
<tr>
<th>Negative Risk</th>
<th>Positive Risk Screen – proceed to detailed Ax</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Y</td>
<td>□ Referrals made &amp; signatures</td>
</tr>
</tbody>
</table>

#### 1. Discharge (MONurse Date)

- Is there a positive risk screen response to: Self – Care (10)?
  - [ ] Yes
  - [ ] No

- Has patient lived alone
  - [ ] Yes
  - [ ] No

- Does patient have caring responsibility for others
  - [ ] Yes
  - [ ] No

- Patient used community services pre to this admission
  - [ ] Yes
  - [ ] No

- Has patient had multiple admissions
  - [ ] Yes
  - [ ] No

#### 2. Skin Integrity (MONurse Date)

- Is there evidence/history of:
  - [ ] Yes
  - [ ] No

- A wound
  - [ ] Yes
  - [ ] No

- Skin ulcer
  - [ ] Yes
  - [ ] No

- Other alteration in skin integrity (i.e. redness, abrasions)
  - [ ] Yes
  - [ ] No

- Does patient have difficulty with bed mobility?
  - [ ] Yes
  - [ ] No

*Inspection of entire body completed

- [ ] Yes
  - [ ] No

#### 3. Cognition (MONurse Date)

- Is there evidence/history of patient/carer concerns re changes to memory, concentration, thinking, decision making?
  - [ ] Yes
  - [ ] No

- Is patient aware of the reason for coming to a hospital?
  - [ ] Yes
  - [ ] No

- Is patient orientated to:
  - [ ] Yes
  - [ ] No

- Time
  - [ ] Yes
  - [ ] No

- Place
  - [ ] Yes
  - [ ] No

### Initial Screen

- Please sign and date, circle appropriate response

<table>
<thead>
<tr>
<th>Negative Risk</th>
<th>Positive Risk Screen – proceed to detailed Ax</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Y</td>
<td>□ Referrals made &amp; signatures</td>
</tr>
</tbody>
</table>

#### 4. Depression (MONurse Date)

- Does patient at times:
  - [ ] Yes
  - [ ] No

- Look sad, miserable, depressed or cry or seem weepy?
  - [ ] Yes
  - [ ] No

- Seem agitated, restless, anxious?
  - [ ] Yes
  - [ ] No

- Appear lethargic or reluctant to mobilise?
  - [ ] Yes
  - [ ] No

- Seem withdrawn/uninterested or need encouragement to do things themselves
  - [ ] Yes
  - [ ] No

- Is there a history of depression?
  - [ ] Yes
  - [ ] No

#### 5. Delirium (MONurse Date)

- Is there a positive risk screen response to: Cognition (3)?
  - [ ] Yes
  - [ ] No

- Is there evidence/history or patient/carer concern regarding:
  - [ ] Yes
  - [ ] No

- Alcohol/substance abuse?
  - [ ] Yes
  - [ ] No

- Previous episodes of delirium, confusion/wandering?
  - [ ] Yes
  - [ ] No
### 6. ANXIETY (MO/NURSE DATE )
- Does patient display an unreasonable level of anxiety: **N**
- Is state of anxiety interfering with patient’s treatment/management: **N**
- Is patient receiving ongoing treatment for anxiety: **N**

**Referred to:** Social Work  Other
By (Name)  (Design)

**Interim plan implemented:**
- **Yes**
- **No**
- Nurse

### 7. CONTINENCE (MO/NURSE DATE )
Is there evidence/history/patient/carer concern of:
- Faecal or Urinary incontinence?: **N**
- Urinary Tract Infection? (Ensure utrination completed): **N**
- Constipation or diarrhoea: **N**
- Frequency and or Urgency: **N**

**Referred to:** Chief Doctor  Other
By (Name)  (Design)

**Interim plan implemented:**
- **Yes**
- **No**
- Nurse

### 8. (a) NUTRITION (MO/NURSE DATE )
- Has patient’s weight changed recently?: **N**
- Does patient ever feel hungry?: **N**
- Does patient have vomiting/diarrhoea/constipation?: **N**
- Is patient on a modified/special diet?: **N**
- Does patient seem malnourished?: **N**

**Referred to:** Dietitian
Speech Therapist  Other
By (Name)  (Design)

**Interim plan implemented:**
- **Yes**
- **No**
- Nurse

### 8. (b) SWALLOW
- History of recurrent chest infections: **N**
- Patient has difficulty chewing: **N**
- Patient/carer reports cough on swallowing: **N**

**Referred to:** Physiotherapy  Other
By (Name)  (Design)

**Interim plan implemented:**
- **Yes**
- **No**
- Nurse

### 9. FALLS & MOBILITY (MO/NURSE DATE )
- Admitted with falls?: **N**
- Falls within last 12 months: **N**
- Unsteady transfer or mobility?: **N**

**Referred to:** Physiotherapy  Other
By (Name)  (Design)

**Interim plan implemented:**
- **Yes**
- **No**
- Nurse

### 10. SELF-CARE (MO/NURSE DATE )
Is there evidence/history/patient carer concern of:
- Problems with self-care?: **N**
- Ability to manage community and financial affairs: **N**
- Current level of supports not being able to continue?: **N**
- A previous ACAS assessment been requested?: **N**

**Referred to:** Social Work  Other
By (Name)  (Design)

**Interim plan implemented:**
- **Yes**
- **No**
- Nurse

### 11. POLYPHARMACY (PHARMACIST DATE )
**Patient:**
- Is older than 65yrs: **N**
- Has >4 regular* medications or 12 doses/day?: **N**
- Has had 4 changes to medication in last 12 months?: **N**
- Has history of non-compliance?: **N**
- Requires medication monitoring?: **N**
- Uses Dosette box/Webster pack?: **N**
- Could current medications contribute to falls?: **N**

*Exclude short-term in-hospital drugs e.g. antibiotics, analgesics, etc.

**Referred to:** Ward Pharmacist
By (Name)  (Design)

**Interim plan implemented:**
- **Yes**
- **No**
- Pharmacist

**Actions**

**Mode**
- **e-referral**
- **Verbal**
Appendix A3(i) — Falls Risk Assessment Tool (FRAT)
Peninsula Health: Fall Risk Assessment Tool for the sub-acute rehabilitation setting

The FRAT, developed by Peninsula Health, is in two parts. Part 1 can be used as a falls risk screen. The complete tool (including the guidelines) is a falls risk assessment tool. Research conducted by Peninsula Health Falls Prevention Service 1999, revised 2000, 2003.

An abbreviated version of instructions for use with the FRAT is included with the tool. For a full copy of the instructions for use please contact the Peninsula Health Falls Prevention Service (details below).

Permission to reproduce this tool was granted by the Peninsula Health Falls Prevention Service. It was developed through funding from the Department of Human Services.

Acknowledgement required if the tool is used by your organisation. Contact details for further information:
Ms Karen Bull
Peninsula Health Falls Prevention Service
Jacksons Road (PO Box 192)
Mt Eliza VIC 3930

Ph: 03 9788 1259
Fax: 03 9788 1212
Email: KBull@phen.vic.gov.au
FRAT—Instructions for use

Part 1: Fall risk status

How to obtain a score:

– Circle one score ONLY in each of the four categories in Part 1.

If the patient/resident’s condition fluctuates you need to circle the score representing their lowest functional level.

Determine the patient/resident’s risk classification level (risk status) by adding the four scores from Part 1:

Low risk 5–11
Medium risk 12–15
High risk 16–20

– Complete the Automatic High Risk Status section.

This section allows for clinical judgement of risk status that would not otherwise be detected. A tick in either box in this section will categorise the patient/residents at automatic high risk. Patients/residents with automatic high-risk status should be reviewed regularly, at intervals deemed appropriate by the assessor, as the risk can change and settle quickly when issues are addressed.

If ticked, circle high risk at the end of Part 1 list in the Action Plan in Part 3.

Risk Classification
(1) Low risk
Provide standard care and follow general patient/resident safety principles.

(2) Medium risk
Provide standard care, but risk factors that have been identified and strategies that have been integrated are to be put in the care plan.

(3) High risk
Commence Fall Alert Protocol. Patient has a high likelihood of a fall occurring.

Part 2: Risk factor checklist

Complete the risk factor checklist by placing a tick in the appropriate boxes.

Risk factors identified need targeting for management by listing in the Action Plan in Part 3.

Part 3: History of falls

Although this section is located at the rear of the tool, it may be useful to do this first before completing Part 1. Information obtained by completing this section will enable accurate completion of the scored section, to establish risk status. The history of falls, particularly if occurring in the donor facility, will highlight whether the falls were associated with particular activities, problems or time of day. Information regarding strategies previously used to reduce risk can also be useful when developing the Action Plan in Part 3.
The following information should be obtained:

− Were falls a problem before entering hospital and how did they occur?
− Information from the donor facility or transfer documents regarding falls in that facility and what seemed to work and not work with regards to risk minimisation.
− The circumstances of the most recent falls, such as time, activity, environment, symptoms and whether a gait aid was used.

It is recommended that the information obtained regarding history of falls is confirmed via a carer or family member.

**Part 4: Action plan**

− In the left column, list problems, as identified in Parts 1 and 2.
− Identify strategies to minimise the risk for each problem.
− Transfer appropriate strategies to the care plan.

**Part 5: Review**

Review does not involve repeating the FRAT tool. The tool is for initial assessment purposes only.

Review should involve discussion with the team regarding whether current status and strategies, should for any reason, be altered.

Questions to ask as a part of the patient review include:

− Have any issues or observations of patient/resident led to a need to alter the current risk status and strategies?
− Are there any additional strategies that need to be considered?
FALLS RISK ASSESSMENT TOOL (FRAT)

(see instructions for completion of FRAT in the FRAT PACK - Falls Resource Manual)

PART 1: FALL RISK STATUS

The FRAT is a validated tool. Changes to Part 1 are therefore not recommended.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Level</th>
<th>Risk Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECENT FALLS</td>
<td>(To score this, complete history of falls, overleaf)</td>
<td></td>
</tr>
<tr>
<td>none in last 12 months</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>one or more between 3 + 12 months ago</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>one or more in last 3 months</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>one or more in last 3 months whilst inpatient/resident</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>MEDICATIONS</td>
<td>(Sedatives, Anti-Depressants, Anti-Parkinson’s, Diuretics, Anti-hypertensives, hypnotics)</td>
<td></td>
</tr>
<tr>
<td>not taking any of these</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>taking one</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>taking two</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>taking more than two</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>PSYCHOLOGICAL</td>
<td>(Anxiety, Depression, Decreased Cooperation, Decreased Insight or Decreased Judgement esp. re mobility)</td>
<td></td>
</tr>
<tr>
<td>does not appear to have any of these</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>appears mildly affected by one or more</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>appears moderately affected by one or more</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>appears severely affected by one or more</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>COGNITIVE STATUS</td>
<td>(m-m: Hodkinson Abbreviated mental Score)</td>
<td></td>
</tr>
<tr>
<td>m-m score 9 or 10 / 10</td>
<td>OR intact</td>
<td>1</td>
</tr>
<tr>
<td>m-m score 7 – 8</td>
<td>mildly impaired</td>
<td>2</td>
</tr>
<tr>
<td>m-m score 5 – 6</td>
<td>mod impaired</td>
<td>3</td>
</tr>
<tr>
<td>m-m score 4 or less</td>
<td>severely impaired</td>
<td>4</td>
</tr>
</tbody>
</table>

(Automatic High Risk Status IF:
- Recent change in functional status and/or medications which may affect safe mobility.
- Dizziness or postural hypotension present

FALL RISK STATUS: [ ] LOW [ ] MEDIUM [ ] HIGH → LIST FALL STATUS ON CAREPLAN/ FLOWCHART

IMPORTANT: IF HIGH RISK, COMMENCE FALL ALERT

PART 2: RISK FACTOR CHECKLIST

<table>
<thead>
<tr>
<th>Vision</th>
<th>Reports/observed difficulty seeing – objects/finding way around/signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>Mobility status unknown or appears unsafe/impulsive/forgets gait aid</td>
</tr>
<tr>
<td>Transfers</td>
<td>Transfer status unknown or appears unsafe re over-reaches, impulsive</td>
</tr>
<tr>
<td>Behaviours</td>
<td>Observed or reported agitation, confusion, disorientation. Difficulty following instructions or non-compliant (observed or known)</td>
</tr>
<tr>
<td>A.D.L.'s</td>
<td>Observed risk-taking behaviours, or reported from donor facility. Observed unsafe use of equipment. Unsafe footwear/appropriate clothing</td>
</tr>
<tr>
<td>Environment</td>
<td>Difficulties with orientation to environment i.e. areas b/w bed/bathroom/dining room</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Underweight/low appetite</td>
</tr>
<tr>
<td>Continence</td>
<td>Reported or known urgency/nocturia/accidents</td>
</tr>
<tr>
<td>Other</td>
<td>Osteoporosis, history of fracture/s</td>
</tr>
</tbody>
</table>

Identify when risk factors are present & record in Part 3
FALLS RISK ASSESSMENT TOOL (FRAT)
CONTINUED

PART 3: HISTORY OF FALLS
Note: For an accurate history, consult patient/family/medical records. Falls prior to this admission (home or donor facility) and/or during current stay. If ticked, detail most recent below

CIRCUMSTANCES OF RECENT FALLS
Information obtained from: ____________________________

(Where?) (Comments) ____________________________

Last fall: Time ago ____

Trip ___ Slip ___ Lost balance ___ Collapse ___ Leg/s gave way ___ Dizziness ___

Previous: Time ago ____

Trip ___ Slip ___ Lost balance ___ Collapse ___ Leg/s gave way ___ Dizziness ___

Previous: Time ago ____

Trip ___ Slip ___ Lost balance ___ Collapse ___ Leg/s gave way ___ Dizziness ___

→ LIST HISTORY OF FALLS ON ALERT SHEET

PART 4: ACTION PLAN
(for Risk factors identified in Part 1 & 2, list strategies below to manage falls risk. See tips in FRAT PACK)

<table>
<thead>
<tr>
<th>Problem List</th>
<th>Intervention Strategies/Referrals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

→ TRANSFER CARE STRATEGIES TO CARE PLAN/FLOW CHART

PLANNED REVIEW Date of Assessment: ____________________________

INITIAL ASSESSMENT COMPLETED BY: ____________________________

PRINT NAME Signed: ____________________________

PART 5: REVIEW
(Falls Review Should occur at scheduled Patient Review meetings or at intervals set by the Initial assessor)

<table>
<thead>
<tr>
<th>Review Date</th>
<th>Risk Status</th>
<th>Revised Care plan (Y or N)</th>
<th>Signed</th>
<th>Review Date</th>
<th>Risk Status</th>
<th>Revised Care plan (Y or N)</th>
<th>Signed</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
Appendix A3(ii) — Fall Risk Assessment for Hospitalised Older People (FRHOP): Risk assessment tool for the sub-acute rehabilitation setting

The FRHOP is a multidisciplinary risk-assessment tool developed by the National Ageing Research Institute (NARI) and Melbourne Extended Care and Rehabilitation Service. It is a comprehensive risk-assessment tool that has accompanying strategies that can be used to develop an action list. It also has some additional actions or strategies for minimising overall risk. Permission to reproduce this tool was granted by Melbourne Health and the National Ageing Research Institute.

NB: Acknowledgement required if this tool is used by your organisation. Contact details for further information:
Dr Keith Hill
National Ageing Research Institute
Poplar Road (PO Box 31)
Parkville VIC 3052

Ph: 03 8387 2639
Fax: 03 8387 2153
Email: k.hill@nari.unimelb.edu.au
Falls Risk for Hospitalised Older People (FRHOP)–
Instructions for use of the tool

General Instructions

These instructions are to be used in conjunction with the ‘Falls Risk for Hospitalised Older People’. They provide a range of definitions and explanatory notes in relation to the rating scores.

Where risk factors have been identified please refer to the ‘Strategies for people at risk of falling’ information sheet for a range of management strategies aimed at reducing older people’s falls and injuries.

When to use risk-assessment form

On admission and after an acute episode (within 72 hours).

General issues (nursing)

Orientation to ward on admission:

− Vision, mission and philosophy of the ward (pre-admission orientation, if possible)
− Suggestions for items to bring to ensure comfort and safety of the individual:
  - Footwear—correctly fitted shoes with adequate grip on soles, fastening mechanism, heels less than 2 cm high/and not less than 3 cm wide. Slippers should be avoided/discouraged wherever possible.
  - Clothing—comfortable clothes for easy application without being too long/too loose fitting
− Valuables
− Costs.

Orientation to ward and routines checklist:

− Where to locate: toilets, bathrooms/showers, nurses station, meals room, activities room and storage location for personal items.
− Orientation to: meals and showering times, shift times/change over of staff, medication rounds (and empowering them to use pain control etc.), rehabilitation schedule.
− Nurses and who is allocated to care for them that shift (Idea: Primary Nursing).
− Introduce staff and other people on the ward.
− Call bell use and the use of other equipment.
− Information brochure/booklet provided (to remain by bedside).

(Idea: White board of daily events, customised to individual’s schedule and named nurse).

Environment assessed and safe checklist

Bed:

− Height adjusted so older person can sit with feet on floor and leg joints at 90 degree angles (unless medically contraindicated).
− Assistive equipment provision: refer to physiotherapist/occupational therapist for assessment as required.
**Chair/commode:**
- Height allows older person to have feet on the floor and leg joints at 90 degree angles (unless medically contraindicated).
- Sturdy enough to prevent tipping during transfer e.g. if older person only able to push up from one armrest.

**Medical staff**

**Recent falls:**
- Minor injury requiring medical attention is defined as an injury requiring a GP visit.
- Severe injury is a fracture or injury that required an overnight hospital stay.

If prior falls and injury information is not recorded in the person’s file, ask them or next of kin (NOK).

**Sensory:**
- Vision or hearing is not impaired if corrected by glasses/hearing aid.
- Somato sensory: should ideally be conducted using Von Freys filaments available on most wards. If not available joint position and touch sensation tests to be used.

**Nursing staff**

**Continence**
- Frequent toileting has been defined as more than four times during the day and two times at night.
- Older persons with catheters score 0.
- Nocturnal toileting: immobile people who do not know how to get out of bed—score 0.

If this information is not recorded in the person’s file—ask person or NOK.

**Nutrition**
If information regarding changes in food intake and weight loss are not recorded in the file, ask the person or next of kin.

**Occupational therapist**

**Functional behaviour**
Observe the person’s behaviour in functional mobility during routine initial and personal Activities of Daily Living (ADL) assessments conducted on admission and/or after an acute episode. People’s behaviours to consider in determining the rating score include:

(0) Good awareness of current capacity and follows staff directions.

(1) Good awareness; however occasional risk-taking behaviour due to e.g. trying out skills learnt in therapy sessions, desire for greater independence, reluctance to bother staff etc.

(2) Reluctant/fearful of activity: anxiety and/or depression may result in e.g. reduced ability to attend to and recall staff directions, rigidity of posture impeding movement, over-reaching to ‘furniture walk’, attempts to sit again prior to completion of transfer, reluctance to stand straight and poor foot lift during mobility etc. even with staff present.

(3) Poor awareness of current capacity, frequent risk-taking behaviour due to e.g. over confidence, poor insight, determination for immediate independence, poor short-term memory, agitation, disorientation, impulsive/poor self monitoring etc.
**Feet, footwear and clothing**

During routine personal ADL assessment:
- Observe foot health status, e.g. corns, bunions, nail care etc.
- Does the person have diabetes? (Refer to podiatry)
- Is there any reports of numbness or tingling in the feet? (Refer to podiatry)
- Observe available footwear according to checklist criteria—shoes preferably should be flat leather shoes with laces or Velcro fastening and a stiff, well enclosed heel area to ensure shoe must be undone before being worn (this prevents people from slipping them on and walking on the back of the shoe).
- Observe available clothing for good fit, e.g.:
  - too long is tripping hazard and obscures view of feet
  - loose fit may snag on furniture, or slip during mobility interrupting concentration or tangling in feet
- If the person does not have any shoes—score 0 if bed bound and score 3 if ambulatory.

**Physiotherapist**

**Balance: Timed Up & Go (TUG)**

This functional assessment tool is a routinely assessed component of inpatient and aged care physiotherapy initial assessments.

The TUG is to be performed as described in:

**Functional Reach (FR)**

This functional assessment tool is a routinely assessed component of inpatient and aged care physiotherapy initial assessments.

The FR is to be performed as described in:

Normal limits for the healthy elderly are >30 cm, however in the frail hospitalised population, the normative range has been extended to 2 SDs below the mean (i.e. 23 cm or more).

**Scores (0 – 3)**

Scores 0–2 are self explanatory.

Score 3 where the individual is able to perform the task but requires hands on e.g. TUG—assistance to stand from chair or steadying on turning; FR—assistance to steady as individual leans forwards.

If older people cannot perform the task e.g. TUG—unable to stand from chair with assist x 1 or cannot walk; FR—requires support to stand upright prior to reaching forward:

- score 3 for older peoples who are likely to improve their mobility
- score 0 for older peoples where there is no expected change to their mobility status.

**Transfers & mobility**

All older peoples are assessed by a physiotherapist for functional ability within 24 hours of admission to MECRS (exception is Gardenview as a physio is 0.5 EFT). This assessment is documented in the Medical Records under ‘Initial contact’.
Where there is a discrepancy between transfers and gait performance, e.g. independent transfers but requires supervision to mobilise, score the lower performance i.e. supervision to mobilise.

If an individual is routinely using a wheelchair to mobilise then they need to be assessed using this mode. Wheelchair transfers include appropriate positioning of chair, locking on both brakes and swinging away footplates.

Scores: (0–3)
Scores 0–3 are self-explanatory.

For individuals who are documented as unable or require hoist:
   – score 3 for older peoples who are likely to improve their mobility
   – score 0 for older peoples where there is no expected change to their mobility status.

Note:
If the TUG and FR assessments have not been completed within 72 hours (although initial contact is within 24 hours, physiotherapy assessments are required to be conducted within seven days), physiotherapy staff should use their clinical judgement.
FALLS RISK FOR HOSPITALISED OLDER PEOPLE (FRHOP)

(To be completed on admission and after an acute episode)

Date of Assessment: / / 

<table>
<thead>
<tr>
<th>GENERAL ISSUES (do not score, but ensure appropriate actions)</th>
<th>NURSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Has the older person been orientated to the ward &amp; routines, and an information brochure/booklet provided?</td>
<td>☐ Yes ☐ No</td>
</tr>
<tr>
<td>- Environment assessed and safe? (seating type and height, bed height and assistive equipment eg monkeybar/bedstick)</td>
<td>☐ Yes ☐ No</td>
</tr>
<tr>
<td>- Is English the older person’s preferred language?</td>
<td>☐ Yes ☐ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medical Staff</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECENT FALLS (0–3)</td>
<td></td>
</tr>
<tr>
<td>- Has the older person fallen recently?</td>
<td>☐ Nil in 12 months (0)</td>
</tr>
<tr>
<td>- Did they sustain an injury?</td>
<td>☐ No (0)</td>
</tr>
</tbody>
</table>

| MEDICATIONS (0–3) | |
| - Is the older person on any medication? | ☐ No medication (0) | ☐ 1-2 medications (1) | ☐ 3 medications (2) | ☐ 4 or more medications (3) |
| - Does the person take any of the following medication? | ☐ sedative | ☐ antiparkinsonian | ☐ antihypertensive | ☐ vasodilator/cardiac |
| | ☐ diuretics | ☐ antihypertensive | ☐ vestibular suppressant |
| | ☐ analgesic | ☐ antidepressants | ☐ vestibular suppressant |
| | ☐ anticonvulsants | ☐ vestibular suppressant | | |
| | None apply (0) | 1-2 apply (1) | 3 apply (2) | 4 or more apply (3) |

| MEDICAL CONDITIONS (0–3) | |
| - Does the older person have a chronic medical condition/s affecting their balance & mobility? | ☐ Arthritis | ☐ Respiratory condition | ☐ None apply (0) |
| | ☐ Parkinson’s Disease | ☐ Lower limb amputation | ☐ 1 – 2 apply (1) |
| | ☐ Dementia | ☐ Peripheral neuropathy | ☐ 3 – 4 apply (2) |
| | ☐ Cardiac condition | ☐ Stroke/TIA | ☐ 5 or more apply (3) |
| | ☐ Diabetes* | ☐ Other neurological conditions | (” refer older persons to Podiatry for a foot care review) |
| | ☐ Vestibular Disorder (dizziness, postural dizziness, Meniere’s Disease…) | | |

| SENSORY LOSS & COMMUNICATIONS | |
| - Does the older person have an uncorrected sensory deficit/s that limits their functional ability? | ☐ Vision | ☐ Hearing | ☐ Somato Sensory |
| | ☐ No (0) | ☐ No (0) | ☐ No (0) |
| | ☐ Yes (1) | ☐ Yes (1) | ☐ Yes (1) |
| | ☐ Is there a problem with communications (e.g. NESB or Dysphasia)? | ☐ No (0) | ☐ Yes (1) |

| COGNITIVE STATUS (score 0–3 points) | |
| - AMTS score | ☐ 0–10 (0 point) | ☐ 7–8 (1 point) | ☐ 5–6 (2 points) |
| | ☐ 4 or less (3 points) | | |

SUB TOTAL FOR THIS PAGE
### FALLS RISK FOR HOSPITALISED OLDER PEOPLE (FRHOP)

#### NURSING STAFF

<table>
<thead>
<tr>
<th>CONTINENCE</th>
<th>SUB TOTAL FROM PREVIOUS PAGE</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Is the older person incontinent?</td>
<td>No (0)</td>
<td>Yes (1)</td>
</tr>
<tr>
<td>o Do they require frequent toileting or prompting to toilet?</td>
<td>No (0)</td>
<td>Yes (1)</td>
</tr>
<tr>
<td>o Do they require nocturnal toileting?</td>
<td>No (0)</td>
<td>Yes (1)</td>
</tr>
</tbody>
</table>

#### NUTRITIONAL CONDITIONS

<table>
<thead>
<tr>
<th>(score 0–3 points)</th>
<th>(score 0–3 points)</th>
<th>(score 0–3 points)</th>
<th>(score 0–3 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Has the older person’s food intake declined in the past three months due to a loss of appetite, digestive problems, chewing or swallowing difficulties?</td>
<td>No (0)</td>
<td>Small change, but intake remains good (1)</td>
<td>Moderate loss of appetite (2)</td>
</tr>
<tr>
<td>o Weight loss during the last 3–12 months.</td>
<td>Nil (0)</td>
<td>Minimal (&lt; 1 kg) (1)</td>
<td>Moderate (1-3kg) (2)</td>
</tr>
</tbody>
</table>

#### OCCUPATIONAL THERAPIST

<table>
<thead>
<tr>
<th>FUNCTIONAL BEHAVIOUR</th>
<th>(score 0–3)</th>
<th>(score 0–3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Observed behaviours in Activities of Daily Living &amp; Mobility indicate:</td>
<td>Consistently aware of current abilities/seeks appropriate assistance as required (0)</td>
<td>Generally aware of current abilities/occasional risk-taking behaviour (1)</td>
</tr>
</tbody>
</table>

#### FEET & FOOTWEAR AND CLOTHING

<table>
<thead>
<tr>
<th>(score 0–3)</th>
<th>(score 0–3)</th>
<th>(score 0–3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Does the older person have foot problems, e.g. corns, bunions etc.</td>
<td>No (0)</td>
<td>Yes (1) (specify):</td>
</tr>
<tr>
<td>o The older person’s main footwear are/are have:</td>
<td>flexible heel counter**</td>
<td>In-accurate fit</td>
</tr>
</tbody>
</table>

#### PHYSIOTHERAPIST

<table>
<thead>
<tr>
<th>TRANSFERS &amp; MOBILITY</th>
<th>(score 0–3 points)</th>
<th>(score 0–3 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Is the the older person independent in transferring and in their gait? (Includes wheelchair mobility)</td>
<td>Independent, no gait aid needed (0)</td>
<td>Independent with a gait aid (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BALANCE</th>
<th>(score 0–3 points)</th>
<th>(score 0–3 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Were the the older person’s scores on the Timed Up and Go test and the Functional Reach test within normal limits?</td>
<td>Both within normal limits (0)</td>
<td>One within normal limits (1)</td>
</tr>
</tbody>
</table>

| Normal limits: | | |
|--------------------------------|--------------------------------|
| Timed Up and Go—less than 18 seconds | Functional reach—23 cm or more |

Score legend: 0–14 = Low Risk; 15 to 22 = medium risk; 23 to 45 = high risk

TOTAL RISK SCORE

Reference:
Appendix A3(iii) — Peter James Centre Fall Risk Assessment Tool (PJC FRAT): Risk assessment tool for the sub-acute rehabilitation setting

The PJC FRAT is a multidisciplinary falls risk assessment tool. It was used as the basis for developing intervention programs in a randomised controlled trial in the sub-acute hospital setting that successfully reduced patient/resident falls. Permission to reproduce this tool was granted by Peter James Centre and BMJ Publishing Group.

Acknowledgement required if the tool is used by your organisation. Contact details for further information:
Peter James Centre
Mahoney’s Road
Burwood East VIC 3151

Ph: 03 9881 1888
Fax: 03 9881 1801
FALLS RISK ASSESSMENT TOOL

(To be completed on admission)
Tick box or add number as appropriate

MEDICAL
Does the patient suffer from frequent falls with no diagnosed cause? □ → Refer for hip protector.

Is the patient suffering from an established medical condition that is currently unable to be adequately managed, that may cause a fall during their inpatient stay (e.g. drop attacks due to vertebro-basilar artery insufficiency)? □ → Refer for hip protector.

Is the patient taking any medications/medication amounts/medication combinations that you anticipate may directly contribute to a fall (e.g. sedatives)? □ → Refer for hip protector.

Signature: Date:

NURSING
Toileting (day) F.I.M. □ Document level of assistance required in patient/resident record/file.

Toileting (night) F.I.M. □ Document level of assistance required in patient/resident record/file.

Would this patient benefit from a Falls Risk Alert Card and a Falls Prevention Information Brochure? □ → Refer for a Falls Risk Alert Card and a Falls Prevention Information Brochure

Signature: Date:

PHYSIOTHERAPY
Gait F.I.M. (Gait aid + distance) □ → (___________ / __________ )

Transfer (bed< - > chair F.I.M) □

Would this patient benefit from attending a Balance Exercise Class? □ → Refer for Balance Exercise Class.

Signature: Date:

OCCUPATIONAL THERAPY
Bathing F.I.M □

Dressing F.I.M □

Would this patient benefit from attending a Falls Prevention Education Program? □ → Refer for Falls Prevention Education Program.

Signature: Date:

ALL DISCIPLINES
Has the patient demonstrated non-compliance or do you strongly anticipate non-compliance with the above prescribed level of aids/assistance/supervision such that the patient becomes unsafe? □ → Refer for hip protector.

Signature: Date:

The Modified Functional Independence Measure (F.I.M.)
(7) Independent with nil aids. (3) Moderate assistance requires (patient performs between 50% and 75% of the task).
(6) Independent with aids.
(5) Supervision/prompting
(4) Minimal assistance required (patient greater than 75% of the task).
(2) Maximal assistance requires (Patient performs between 25%)
(1) Fully dependent (patient performs less than 25% of the task).
This amendment section of the Falls Risk Assessment Tool is to be used when a patient’s condition changes such that the employment of interventions is now indicated or now no longer indicated. For example, if a patient’s confusion due to a UTI is now resolved, they may no longer require a hip protector.

HAS THE PATIENT’S CONDITION CHANGED SUCH THAT THE PATIENT:

- Does now require a hip protector:
  - Refer for hip protector.

- Does no longer require a hip protector:
  - Note in record and make appropriate change

- Would now benefit from balance exercise class:
  - Refer for balance exercise.

- Would now benefit from a falls prevention education class:
  - Refer for falls prevention education.

- Would now benefit from a falls risk alert card and information brochure:
  - Refer for falls alert card.

Signature: Date:

HAS THE PATIENT’S CONDITION CHANGED SUCH THAT THE PATIENT:

- Does now require a hip protector:
  - Refer for hip protector.

- Does no longer require a hip protector:
  - Note in record and make appropriate change

- Would now benefit from balance exercise class:
  - Refer for balance exercise.

- Would now benefit from a falls prevention education class:
  - Refer for falls prevention education.

- Would now benefit from a falls risk alert card and information brochure:
  - Refer for falls alert card.

Signature: Date:
Appendix A3(iv) —The Northern Hospital modified STRATIFY

The Northern Hospital modified STRATIFY is a fall risk screening and assessment tool that has been incorporated into the Northern Hospitals Nursing Care Plan. It is a nine-item tool that also covers a limited number of fall-prevention strategies. Permission to reproduce this tool was granted by The Northern Hospital.

NB: Acknowledgement required if this tool is used by your organisation. Contact details for further information:
Ms Jeanette Kamar
The Northern Hospital
185 Cooper Street
Epping VIC 3076

Ph: 03 8405 8095
Email: Jeanette.Kamar@nh.org.au
The Northern Hospital Modified Stratify

- For use in General wards and Critical Care Department
- Assess patient daily or when change in condition occurs
- Circle risk score if the answer is yes for the question

| RISK SCORE |
|-----------------|------------|
| 1. HAS THE PATIENT HAD ANY FALLS DURING CURRENT ADMISSION? | 3 |
| 2. RECENT PREVIOUS FALLS | 1 |
| Has the patient had any falls in the last 12 months? | |
| 3. ALTERED MENTAL STATE | 1 |
| Is the patient confused, agitated, disorientated, intellectual challenged or has the patient impulsive behaviour? | |
| 4. MOBILITY | 1 |
| Is the patient in need of ‘Supervision’ or ‘Able to Assist’? (Refer to the ‘No Lift’ patient mobility assessment Tool) | |
| 5. IMPAIRED BALANCE | 1 |
| Does the patient have impaired balance/hemiplegia? | |
| 6. AGE | 1 |
| Is the patient 80 years or older? | |
| 7. TOILETING | 1 |
| Is the patient in need of especially frequent toileting? | |
| 8. VISION | 1 |
| Is the patient visually impaired to the extent that everyday function is affected? | |
| 9. DRUG/ALCOHOL | 1 |
| Did the patient present with drug/ alcohol related problems? | |

SCORE OF 3 OR MORE? = HIGH FALLS RISK – SEE FALL PREVENTION PROTOCOL


Fall prevention protocol

1. Ensure you have documented in the CarePlan, Pathway or Observation Chart:
   - Risk score
   - If patient is at low or high risk
   - Prevention strategies (please document if required equipment is not available)

2. Consider referrals to other disciplines eg:
   - Physiotherapy
   - Occupational Therapy
   - Dietician
   - Care Coordination

Excerpt from care plan

Falls

Please document if required equipment is not available

<table>
<thead>
<tr>
<th>Risk Score___ = low / high</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Alert’ sign above bed</td>
</tr>
<tr>
<td>Bathrm: Must supervise patient at all times</td>
</tr>
<tr>
<td>Hi-Low bed</td>
</tr>
<tr>
<td>Walking aid within reach</td>
</tr>
<tr>
<td>................. hourly toileting</td>
</tr>
<tr>
<td>Other:.......................</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk Score___ = low / high</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>Bathrm: Must supervise patient at all times</td>
</tr>
<tr>
<td>Hi-Low bed</td>
</tr>
<tr>
<td>Walking aid within reach</td>
</tr>
<tr>
<td>................. hourly toileting</td>
</tr>
<tr>
<td>Other:.......................</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk Score___ = low / high</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Alert’ sign above bed</td>
</tr>
<tr>
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</tr>
<tr>
<td>Hi-Low bed</td>
</tr>
<tr>
<td>Walking aid within reach</td>
</tr>
<tr>
<td>................. hourly toileting</td>
</tr>
<tr>
<td>Other:.......................</td>
</tr>
</tbody>
</table>
Appendix A4 — Prevention of Falls in the Elderly Trial (PROFET): Fall assessment proforma emergency department

<table>
<thead>
<tr>
<th>Name:</th>
<th>Hosp No</th>
<th>Attending Dr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of attendance: Time:

**Fall History**

First fall: Y / N

*No of falls in previous year: ________ ( >1 = high risk)

* Location of fall: Indoors / Outdoors (indoors = high risk)

Was fall witnessed: Y / N

Definite slip/trip: Y / N

LOC: Y / N

* Able to get self off floor: Y / N (N= high risk) Time on floor (mins):

**Medical History**

*Full Drug History (4+ meds = high risk)

Heart Disease
Stroke
COPD/Asthma
Hypertension
Diabetes
Degenerative joint disease
Cognitive impairment
Syncope
Epilepsy
Incontinence
Other – (please state) __________________________

**Social Circumstances**

Lives in: Flat / House / Bungalow / Maisonette / WCF / Residential Home / Nursing Home

Lives alone: Y / N  Stairs: Yes / No

Lambeth / Southwark / Other  Usually able to go out: Yes / No

Mobility:  Independent  Services:  MOW
Stick
Frame
Wheelchair

HH
Personal Care
District Nurse
Day Centre
Day Hospital

Career: None
Spouse
Other family
Friend/Neighbour

Smoking: no/week
Alcohol: _______ units/week
Examination

GCS: BM
Temp: Pulse: BO: Lying / Standing /

AMT

Injuries Sustained

- Head injury—no laceration
- Head injury—laceration
- Fracture
- Laceration requiring stitches
- Laceration but no stitches
- Superficial bruising
- No injury

Score: /10

Relevant Systems Examination

Indicate site of injury including pressure areas

Current Level of Function

- No change from pre-fall level of function
- Decreased mobility/function but able to go home
- Decreased mobility/function—unable to discharge

Results

Conclusions
Likely cause of fall: simple slip/trip, acute illness, multifactorial, unexplained

Comments

Outcome:
- Home with GP letter
- Admit to CDU
- Refer to Falls Clinic / Day Hospital
- Refer to Rapid Response
- Refer to DHE (Out-Patients)
- Refer for hospital admission

Signature: ______________________  Print Name: _________________________  Date: _____

Reference:
Appendix B1—Timed up and go test (TUG)

The instructions given below are a guide and may need to be modified when performing the assessment in a client’s home. To ensure reliable re-test results, always use the same chair, footwear and walking aid when testing.

− Equipment required: Stopwatch, standard height armchair, marked three-metre course.

− Method:
  - the client begins seated in a standard height armchair with their back against the backrest and arms resting on the armrests
  - the client is tested using their usual footwear
  - the client has their walking aid (if required) within reach
  - a marker is placed on the floor three metres from the chair
  - one practice trial is given to become familiar with the test
  - the standardised instruction is given: ‘On the word “go”, I want you to walk at a comfortable and safe pace to the marker on the floor, turn, walk back to the chair and sit down again’
  - the test is timed from the instruction ‘go’ until the subject achieves sitting again
  - if the subject cannot complete the test without assistance they should be recorded as a ‘3’ on the falls risk assessment tool.

Normative data:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Lower limit (sec)</th>
<th>Upper limit (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>41–50</td>
<td>5.1</td>
<td>10.1</td>
</tr>
<tr>
<td>51–60</td>
<td>5.3</td>
<td>10.8</td>
</tr>
<tr>
<td>61–70</td>
<td>5.3</td>
<td>11.9</td>
</tr>
<tr>
<td>71–80</td>
<td>5.9</td>
<td>12.1</td>
</tr>
</tbody>
</table>

NB: Times higher than the upper limits (in seconds) indicate a possible deficit.
Appendix B2—Modified falls efficacy scale (MFES)

On a scale of 0 to 10, how confident are you that you can do each of these activities without falling, with 0 meaning ‘not confident/not sure at all’, 5 being ‘fairly confident/fairly sure’, and 10 being ‘completely confident/completely sure’?

Note:
- If you have stopped doing the activity at least partly because of being afraid of falling, score a 0.
- If you have stopped an activity purely because of a physical problem, leave that item blank (these items are not included in the calculation of the average MFES score).
- If you do not currently do the activity for other reasons, please rate that item based on how you perceive you would rate if you had to do the activity today.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Not confident at all</th>
<th>Fairly confident</th>
<th>Completely confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Get dressed and undressed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Prepare a simple meal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Take a bath or a shower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Get in/out of a chair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Get in/out of bed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Answer the door or telephone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Walk around inside your house</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Reach into cabinets or closet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Do light housekeeping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Do simple shopping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Use public transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Cross roads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Do light gardening or hang out the washing*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Use front or rear steps at home</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* rate most commonly performed of these activities

Average score / item rated = ……. / ……..

= ……..
Appendix C1—Types of urinary incontinence and their treatment

Urge incontinence

Detrusor instability is a common cause of urinary incontinence in the elderly. This involves early forceful detrusor contractions well before the bladder is full, creating symptoms of urgency and frequency. Urinary incontinence occurs when strong detrusor contractions overcome urethral resistance. Detrusor overactivity can be found in conditions of defective central nervous system or increased afferent sensory stimulation from the bladder. Examples of disorders which impair the ability of the central nervous system to send inhibitory signals include stroke, tumours, multiple sclerosis and Parkinson’s disease.

Management of urge incontinence:

- Anticholinergic medication may be prescribed to suppress early contractions. If a person on anticholinergic medication develops a urinary tract infection or symptoms of outflow obstruction a post-void residual volume should be considered.
- Pelvic muscle exercises strengthen both the periurethral and pelvic floor muscles. Assistance may be required from a physiotherapist or nurse continence adviser.
- Individuals with detrusor overactivity often respond to bladder re-training provided they are motivated to do so and are cognitively intact.
- Regular toileting or bladder training may be helpful for patients/residents with cognitive impairment.
- The location of the toilet is important for a person with urgency, as they need to get to a toilet quickly. If a toilet is not close by, a commode or urinal for men may be required, especially by the bedside at night.
- Continence pads may be required to contain urine.
- Increased fluids should be encouraged as elderly people may have a poor fluid intake. Often people with urinary incontinence restrict their fluids in an attempt to control incontinence.
- Encourage the reduction of caffeine intake to decrease the symptoms of urgency and frequency.

Stress incontinence

Stress incontinence is sometimes referred to as genuine stress and is associated with women. Individuals with stress incontinence have inadequate internal sphincter tone and urethral resistance to prevent urine loss when an increase in bladder pressure occurs. Incontinence occurs when there is a visible leakage of urine with a rise in abdominal pressure such as when coughing or during clinical examination.

Management of stress incontinence:

- oestrogen therapy may be prescribed to improve periurethral and vaginal tissue thickness and quality
- surgical procedures: there are surgical procedures, which may be helpful for stress incontinence due to pelvic relaxation or internal sphincter insufficiency e.g. vaginal or bladder repair. Refer to a gynaecologist for assessment
- pelvic muscle exercises (as above)
- encourage fluids (as above)
- bladder training (as above)
- continence pads may be required.
Overflow incontinence

Overflow incontinence may result from conditions that cause urinary retention, and is generally due to a hypotonic or atonic bladder or obstructed urinary outflow. The bladder becomes distended and there is a high residual with increased pressure in the bladder forcing the urethra to open causing incontinence.

Management of overflow incontinence:

- Intermittent self-catheterisation for chronic management for those individuals who are cognitively intact and have adequate manual dexterity.
- Indwelling catheter or supra pubic catheter may be required for short periods until normal bladder function returns or for chronic management of individuals who are unable to empty their bladders and have not responded to treatment.
- Fluids should be increased unless contraindicated.
- Cranberry juice or cranberry tablets may help to acidify the urine and assist with reducing infection.
- Surgery/TURP, if prostate enlarged.
- If retention is related to constipation, the person may require preventative measures or regular laxatives.

Reflex incontinence

Reflex incontinence is described as urine loss due to involuntary urethral relaxation in a neuropathic absence of sensation, for example, in paraplegia.

Management of reflex incontinence:

- Continence pads or penile sheaths to contain urine and enable the person to achieve social continence.
- Indwelling catheter or suprapubic catheter may be required.
- Skin care to prevent abrasion.

Functional incontinence

Functional incontinence occurs when the person is unable to reach the toilet on time due to physical problems, cognitive problems or environmental barriers.

Management of functional incontinence:

- A physiotherapist can assess the person’s mobility and dexterity and implement a treatment plan.
- An occupational therapist is skilled in assisting the individual to become independent in the activities of daily living including personal hygiene and toileting. The occupational therapist can also assist with clothing management, modifications of the toilet or organising appropriate aids.
- Mobility may be improved by relieving pain and providing appropriate walking aids and footwear for patients suffering from arthritis, contractures, deconditioning and neurologic impairment.
Appendix C2—Assessment of incontinence

The following is an outline of elements that may be included in a continence assessment.

History and examination

A history needs to be obtained from the person, family or other health professionals involved in the care of the person.\(^{153}\)

Risk factors related to incontinence

The following are risk factors related to incontinence:

- medical history: diabetes, renal disorder, recurrent urinary tract infections, neurological disorder, spinal injury, back pain, cerebral vascular accident, dementia, congestive cardiac failure, altered sleep pattern
- surgical history: urinary tract surgery, cystoscopy
- female: hysterectomy (abdominal or vaginal)
- male: urethra stricture, suprapubic prostatectomy, transurethral resection of the prostate (TURP)
- gynaecological/obstetrics history
- cognitive status—normal, mild, moderate or severe altered status
- nutritional status—older people often have a diet low in fibre and fluid
- medications that can either cause urinary incontinence/retention or contribute to it include:
  - anticholinergics—impair detrusor contraction
  - sedatives/hypnotics—can produce confusion
  - narcotics—impair detrusor contraction
  - diuretics—can lead to brisk filling of the bladder and subsequent rush to toilet\(^{319}\)
  - alpha-adrenergic agonists—increase tone of internal sphincter
  - alpha-adrenergic antagonists—decrease tone of internal sphincter
  - calcium channel blockers—decrease detrusor contractions\(^{311}\)
  - alcohol can contribute to increased urinary frequency and urgency\(^{311}\)
  - caffeine can cause bladder instability.\(^{311}\)

Urinary symptoms include:\(^1\)

Urgency, frequency, nocturia, dysuria, haematuria, hesitancy, burning or pain, odour and incomplete voiding.

Continence history

Information from the continence history should include:\(^{150}\):

- the person’s perception of their incontinence, i.e. does it interfere with social activities?
- depression or anxiety
- onset and frequency of incontinence
- detail of whether incontinence is improving, static or worsening?
- use of pads, effectiveness of pads and pad type.

Physical examination

Consent from the person must be obtained prior to the physical examination. A complete physical examination should be performed on all patients with incontinence by a suitably qualified health professional.\(^{152}\)
This examination may include:
- abdominal examination to evaluate bladder distension
- vaginal examination for urethral dryness, urine stress test and discharge
- auscultation of bowel sounds
- identification of prolapses. Prolapse of the uterus, bladder, urethra or rectum can contribute to incontinence
- prostate examination. Prostate enlargement can cause obstruction of urine.

**Diagnostic investigations**
The suitability and efficacy of diagnostic investigations should be addressed on an individual basis. Possible diagnostic investigations include but are not limited to:
- bladder scan or in/out catheter to measure residual urine in bladder post void
- blood tests to measure renal function
- urodynamics post-urologist review. Urodynamics is especially useful in a person whose history is inconsistent or confusing, with more than one type of incontinence, with prior bladder or sphincter procedures or the person who does not improve with standard treatment
- ultrasound of the renal system, bladder and abdomen.

**Bladder chart/continence diary**
A bladder chart should be recorded for a minimum of three days to assist with assessment and diagnosis. A bladder chart should record the following:
- fluid intake, time and type of fluid (especially drinks containing caffeine e.g. coffee, tea, cola, as caffeine stimulates unstable bladder contractions causing frequency or urgency)
- daily output of urine, time, amount and frequency
- the amount of leakage onto a pad, what was occurring when the leakage occurred and the time of pad change
- episodes of incontinence and time they occurred
- nocturia to determine if the patient is being disturbed at night.

**Urinalysis**
If urine contains nitrates, protein, leucocytes or blood report to the doctor, as a micro urine may be required. Recurrent urinary tract infections can indicate that the person is retaining urine so a post-void residual measure should be undertaken.

**Bowel assessment**
The person’s normal bowel habits and any significant change must be determined as constipation can considerably affect bladder function. If constipated, then laxatives, suppositories or possibly an enema may be required to treat the constipation before completing the continence assessment. A person with a history of constipation may need preventative treatment, for example pear juice, prune juice or increased fibre and fluid.

**Functional assessment**
The following functional considerations should be addressed:
- problems with mobility
- difficulties in transfer to toilet
- foot problems affecting mobility
- clothing suitability
- problems with personal hygiene.
Appendix Cl—Mini mental state examination (MMSE)

MMSE Sample Items

Orientation to time:
‘What is the date?’

Registration:
‘Listen carefully. I am going to say three words. You say them back to me.’
Ready? Here they are…
HOUSE (pause), CAR (pause), LAKE (pause). ‘Now repeat those words back to me.’
[Repeat up to 5 times, but score only the first trial.]

Naming:
‘What is this’ [Point to a pencil or pen.]

Reading:
‘Please read this and do what it says.’ [Show examinee the words on the stimulus form.]
CLOSE YOUR EYES
The Mini-Mental State Examination (MMSE)¹

Name: 
UR/MH number: 
Ward/Unit: 
DOB: 
Gender: 
Admission Date: 

<table>
<thead>
<tr>
<th>Score</th>
<th>Maximum Score</th>
</tr>
</thead>
</table>

**ORIENTATION**
What is the (date) (day) (month) (year) (season)?
1 point for each correct.

Where are we: (country) (state) (town) (building) (floor)?
1 point for each correct

**REGISTRATION**
Name three unrelated objects (e.g. apple, table, penny). Allow one second to say each.
Then ask the patient to repeat all three after you have said them.
1 point for each correct
Repeat until all three items are learnt but only score the first attempt.

**ATTENTION & CALCULATION**
Either:
Ask the patient to count backwards from 100 by sevens (93, 86, 79, 72, 65)—Stop after 5 answers
1 point for each correct

Or:
Spell “world” backwards
1 point for each correct

**RECALL**
Ask the patient to recall the three objects previously stated.
1 point for each correct

**LANGUAGE**
Show the patient a wrist watch; ask them what it is.
Repeat for a pencil.
1 point for each correct

Ask the patient to repeat the following: ‘No ifs, ands, or buts.’
1 point if correct

Ask the patient to follow a 3 stage command: ‘Take a piece of paper in your right hand, fold it in half, and put it on the floor.’
1 point for each stage correct

Ask the patient to read and obey the following sentence, which you have written on a piece of paper: ‘Close your eyes.’
1 point if correct

Ask the patient to write a sentence. It must make sense, ignore spelling
1 point if correct

**PRAXIS**
Ask the patient to copy the design below. All ten angles must be present and two must intersect to form a four sided figure. Tremor and rotation are ignored.

Reference:
### Appendix CI2—Rowland Universal Dementia Assessment Scale (RUDAS)

**Rowland Universal Dementia Assessment Scale: A Multicultural Mini-Mental State Examination.**  
(Storey, Rowland, Basic, Conforti & Dickson, 2002)

<table>
<thead>
<tr>
<th>Item</th>
<th>Max Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td></td>
</tr>
<tr>
<td>1. (Instructions) I want you to imagine that we are going shopping. Here is a list of grocery items. I would like you to remember the following items which we need to get from the shop. When we get to the shop in about 5 mins. time I will ask you what it is that we have to buy. You must remember the list for me. <strong>Tea, Cooking Oil, Eggs, Soap</strong> Please repeat this list for me (Ask person to repeat the list 3 times). (If person did not repeat all four words, repeat the list until the person has learned them and can repeat them, or, up to a maximum of five times.)</td>
<td></td>
</tr>
<tr>
<td>2. I am going to ask you to identify/show me different parts of the body. <strong>(Correct = 1)</strong> Once the person correctly answers 5 parts of this question, do not continue as the maximum score is 5.</td>
<td></td>
</tr>
<tr>
<td>(1) show me your right foot</td>
<td>1</td>
</tr>
<tr>
<td>(2) show me your left hand</td>
<td>1</td>
</tr>
<tr>
<td>(3) with your right hand touch your left shoulder</td>
<td>1</td>
</tr>
<tr>
<td>(4) with your left hand touch your right ear</td>
<td>1</td>
</tr>
<tr>
<td>(5) which is (indicate/point to) my left knee</td>
<td>1</td>
</tr>
<tr>
<td>(6) which is (indicate/point to) my right elbow</td>
<td>1</td>
</tr>
<tr>
<td>(7) with your right hand indicate/point to my left eye</td>
<td>1</td>
</tr>
<tr>
<td>(8) with your left hand indicate/point to my left foot</td>
<td>1</td>
</tr>
<tr>
<td>Praxis</td>
<td></td>
</tr>
<tr>
<td>3. I am going to show you an action/exercise with my hands. I want you to watch me and copy what I do. Copy me when I do this . . . (One hand in fist, the other palm down on table - alternate simultaneously.) Now do it with me: Now I would like you to keep doing this action at this pace until I tell you to stop - approximately 10 seconds. (Demonstrate at moderate walking pace). Score as:</td>
<td></td>
</tr>
<tr>
<td>Normal = 2</td>
<td>(very few if any errors; self-corrected, progressively better; good maintenance; only very slight lack of synchrony between hands)</td>
</tr>
<tr>
<td>Partially Adequate = 1</td>
<td>(noticeable errors with some attempt to self-correct; some attempt at maintenance; poor synchrony)</td>
</tr>
<tr>
<td>Failed = 0</td>
<td>(cannot do the task; no maintenance; no attempt whatsoever)</td>
</tr>
<tr>
<td>Visuoconstructional Drawing</td>
<td></td>
</tr>
<tr>
<td>4. Please draw this picture exactly as it looks to you (Show cube on back of page). <strong>(Yes = 1)</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Has person drawn a picture based on a square?</td>
<td>1</td>
</tr>
<tr>
<td>(2) Do all internal lines appear in person’s drawing?</td>
<td>1</td>
</tr>
<tr>
<td>(3) Do all external lines appear in person’s drawing?</td>
<td>1</td>
</tr>
<tr>
<td>Judgment</td>
<td></td>
</tr>
<tr>
<td>5. You are standing on the side of a busy street. There is no pedestrian crossing and no traffic lights. Tell me what you would do to get across to the other side of the road <strong>safely.</strong> (If person gives incomplete response that does not address both parts of answer, use prompt: “Is there anything else you would do?”) Record exactly what patient says and circle all parts of response which were prompted.</td>
<td></td>
</tr>
</tbody>
</table>
Score as:
Did person indicate that they would look for traffic? (YES = 2; YES PROMPTED = 1; NO = 0) ......2
Did person make any additional safety proposals? (YES = 2; YES PROMPTED = 1; NO = 0) ......2

Memory Recall
1. (Recall) We have just arrived at the shop. Can you remember the list of groceries we need to buy?
(Prompt: If person cannot recall any of the list, say “The first one was ‘tea’.” (Score 2 points each for any item recalled which was not prompted – use only ‘tea’ as a prompt.)

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tea</td>
<td>......2</td>
</tr>
<tr>
<td>Cooking Oil</td>
<td>......2</td>
</tr>
<tr>
<td>Eggs</td>
<td>......2</td>
</tr>
<tr>
<td>Soap</td>
<td>......2</td>
</tr>
</tbody>
</table>

Language
6. I am going to time you for one minute. In that one minute, I would like you to tell me the names of as many different animals as you can. We’ll see how many different animals you can name in one minute.
(Repeat instructions if necessary). Maximum score for this item is 8. If person names 8 new animals in less than one minute there is no need to continue.

1. .................................. 5. ..................................
2. .................................. 6. ..................................
3. .................................. 7. ..................................
4. .................................. 8. ..................................

TOTAL SCORE = /30
Table of Contents

Introduction
The Assessment Context – General Guidelines
The Language / Cultural Context
Multilingual Test Administrators
Item 1 – Memory (Registration)
  Notes
  Scoring
Item 2 – Body Orientation
  Notes
  Scoring
Item 3 – Praxis
  Notes
  Scoring
Item 4 – Drawing
  Notes
  Scoring
Item 5 – Judgement
  Notes
  Scoring
Item 1 Revisited - Memory (Recall)
  Notes
  Scoring
Item 6 – Language
  Notes
  Scoring

Introduction

The Rowland Universal Dementia Assessment Scale (RUDAS) - Storey J, Rowland J, Basic D, Conforti D, Dickson H, 2002) is a short cognitive screening instrument designed to minimise the effects of cultural learning and language diversity on the assessment of baseline cognitive performance.

When administering the RUDAS it is important that the respondent is encouraged to communicate in the language with which they are most competent and comfortable.

Test administrators should read the following instructions carefully before using the RUDAS.
The Assessment Context – General Guidelines:

Test Anxiety

- Make sure the test taker is as relaxed as possible, as test anxiety can interfere with performance on cognitive tests.

Hearing

- Conduct the RUDAS in a quiet area and make sure the test taker can hear clearly. It is important to identify at the beginning of the assessment if the test taker has impaired hearing and accommodate for this as much as possible by speaking slowly and clearly. Encourage the test taker to wear any hearing aids. Be careful not to speak too loudly as this may result in distortion. (There is a large print version of the RUDAS for test takers with severe hearing impairment).

Vision

- Ensure that the test taker is using reading glasses where necessary and that there is sufficient light in the room.

Seating

- Sit opposite the test taker. This is important for communication reasons as well as controlling for the difficulty of some items on the RUDAS. Do not sit behind a desk, as this will inhibit the giving of instructions for some items on the RUDAS and may also be intimidating for the test taker.

Recording Responses

- It is important to record the test taker’s full response to each item.

Physical Disability

- For test takers who have a physical disability (e.g. vision, hearing, hemiparesis, amputee, stroke, aphasia) which may affect their ability to perform certain items on the RUDAS, it is important to complete the RUDAS as fully as possible but to interpret any total score less then 22 with caution (further research is necessary to assess validity of the RUDAS in this sub-group of patients)
The Language/ Cultural Context:

Using a Professional Interpreter

If you are utilising a professional interpreter to administer the RUDAS it is important to consider the following:

1. Interpreters should be used in all situations where the test taker’s preferred language is not spoken fluently by the test administrator.

2. Make sure that the language spoken by the interpreter (including the dialect) is the same one with which the test taker is familiar.

3. It is important to explain to the test taker that the interpreter is the facilitator and that you will be asking the questions. This may help to avoid confusion during the assessment.

4. It is better for the interpreter to sit next to the test administrator while the test taker sits opposite. This will reinforce the adjunctive role of the interpreter and make it easier for the test taker to synthesise the non-verbal cues from the test administrator and the verbal cues from the interpreter.

5. It is important to brief the interpreter before starting the assessment:
   - The interpreter should be aware of the general nature of the interaction i.e. that it is a cognitive assessment
   - Remind the interpreter of the importance of concurrent and precise interpreting. Explain that your instructions and the test taker’s responses should be interpreted as exactly as possible.
   - Ask the interpreter to take note of any instances during the assessment where the test taker’s performance may have been affected by subtle or unintended changes to the meaning of the test instructions due to language or cultural factors
   - Inform the interpreter that it may be necessary at the end of the test for you to clarify a concept covered in the assessment to further make the distinction between the test taker’s actual cognitive capacity and potential cultural bias which may arise as a result of the translation process.
Multilingual Test Administrators

If you are multilingual, it is important to consider all of the same issues which are relevant to the use of a professional interpreter, as well as the following:

- You may need to be careful when translating the RUDAS questions as you might find it more difficult when you have to read in one language and speak in another.

- It is important that you translate the RUDAS questions precisely. Be aware of the differences between formal and informal word usage when translating the RUDAS instructions and recording the test taker’s responses.

Grocery List

2. I want you to imagine that we are going shopping. Here is a list of grocery items. I would like you to remember the following items which we need to get from the shop. When we get to the shop in about 5 minutes time I will ask you what it is that we have to buy. You must remember the list for me.

Tea
Cooking Oil
Eggs
Soap

Please repeat this list for me (Ask person to repeat the list 3 times). (If person did not repeat all four words, repeat the list until the person has learned them and can repeat them, or, up to a maximum of five times.)

Notes:

- Important to give enough learning trials so that test taker registers and retains the list as well as they can (max. of 5 learning trials)
• Ask the test taker to repeat the list back to you at least three times until they can repeat it correctly or as well as they are going to

• Use realistic nature of the scenario and a little humour (if appropriate) to build rapport and make the task less confrontational i.e. WE are going shopping; I am relying on YOU to remember the list FOR ME, so don’t forget. When WE get to the shop . . .

• To facilitate learning of the list, use your fingers to list off items on the list when teaching it to the test taker to make the task as concrete as possible e.g. thumb = tea, index finger = cooking oil etc.

**Scoring:**
This is the learning part of the memory question. There are no points for this part of the question but the memory recall component later in the test has a maximum score of 8 points.

---

**Item 2 - Body Orientation**

**Body Orientation**

3. I am going to ask you to identify/show me different parts of the body. *(Correct = 1, Incorrect = 0)*.

Once the person correctly answers 5 parts of this question, do not continue as the maximum score is 5.

(1) show me your right foot ……..1
(2) show me your left hand ……..1
(3) with your right hand touch your left shoulder ……..1
(4) with your left hand touch your right ear ……..1
(5) which is (point to/indicate) my left knee ……..1
(6) which is (point to/indicate) my right elbow ……..1
(7) with your right hand point to/indicate my left eye ……..1
(8) with your left hand point to/indicate my left foot ……..1

**Notes:**

• Important to sit opposite the test taker (controls for difficulty of the tasks)

• There doesn’t need to be a lot of explanation before starting, just say “I am going to ask you to indicate various parts of the body . . .” - the task is explicit as it evolves

**Scoring:**

• Although there are 8 parts, this item has a maximum score of 5 points. Once the test taker has 5 correct answers there is no need to continue.

• Be careful with scoring - remember you are sitting opposite the test taker - it is easy to make mistakes so concentrate to make sure you score the person accurately
• There are no half marks, the test taker must get each task 100% correct to be marked correct (e.g. if
test taker is asked “with your right hand indicate my left eye” and they use their left hand but still
point to your left eye - mark as incorrect)

Item 3 - Praxis

Fist / Palm

4. I am going to show you an action/exercise with my hand. I want you to watch me and
copy what I do. Copy me when I do this . . . (i.e. demonstrate - put one hand in a fist,
and the other hand palm down on the table or your knees and then alternate
simultaneously.) Now do it with me. I would like you to keep doing this action at this
pace until I tell you to stop - approximately 10 seconds or 5 – 6 sequences. (Demonstrate
at moderate walking pace).

Score as:
Normal = 2 (very few if any errors; self-corrected; progressively
better; good maintenance; only very slight lack of
synchrony between hands)
Partially Adequate = 1 (noticeable errors with some attempt to self-correct; some
attempt at maintenance; poor synchrony)
Failed = 0 (cannot do the task; no maintenance; no attempt hatsoever)

Notes:
• It is important to sit opposite the test taker (controls for difficulty of the task)
• When teaching the task use the following steps:

Step 1: I want you to put your hands on your knees like this (i.e. put both your hands palm down on your
knees (i.e. if no table surface)

Step 2: Now watch carefully as I do this (put one hand in a fist in the vertical position and leave the other
hand palm down) - I want you to do this just like I did.

Step 3: Watch me again now as I am doing this (alternate hands simultaneously - one in a fist and the
other palm down and keep alternating for 5 - 6 trials).

Step 4: Ask test taker to copy exactly what you are doing. If test taker is confused and has not learned
the task successfully then repeat Steps 1, 2 and 3

Step 5: Once test taker has learned the task (i.e. understands as well as possible what they are meant to
do - regardless of whether or not they can do it 100%), ask them to repeat the exercise at the pace you
demonstrate until you tell them to stop (now demonstrate task - intervals between change of hands should
reflect moderate walking pace). Do not allow the test taker to copy you when scoring – must demonstrate
the task independently
**Scoring:**

This question has a maximum score of 2 points.

In order to help distinguish between the three levels of competence, refer to the following:

<table>
<thead>
<tr>
<th>Score</th>
<th>Fist / Palm Integrity</th>
<th>No. of Errors</th>
<th>Fluency</th>
<th>Ability to Self-Correct</th>
<th>Progressive Improvement</th>
<th>Synchrony</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Good adherence to ‘palm down’ and ‘fist’ actions with few intrusions or incorrect variations</td>
<td>Minimal</td>
<td>Good</td>
<td>Good</td>
<td>Clearly evident</td>
<td>Only very slight lack of synchrony</td>
</tr>
<tr>
<td>Partially Adequate</td>
<td>Obvious intrusions and incorrect variations in ‘palm down’ and ‘fist’ actions</td>
<td>Noticeable</td>
<td>Some attempt to maintain</td>
<td>Some attempt</td>
<td>Some indication</td>
<td>May be noticeable lack of synchrony</td>
</tr>
<tr>
<td>Failed</td>
<td>Barely able to identify correct ‘palm down’ and ‘fist’ actions because of many intrusions and incorrect variations</td>
<td>Many</td>
<td>Poor or none</td>
<td>None</td>
<td>Very little or none</td>
<td>Little or no synchrony</td>
</tr>
</tbody>
</table>

**Normal**

A person who performs normally on this task should exhibit signs of intact learning and should be able to replicate clearly, the ‘fist in the vertical position’ and ‘palm down’ actions. Their performance on the task should improve with progressive learning trials to a point where they can do the task fluently with minimal errors. The test taker should demonstrate the ability to self-correct, show progressive improvement over the course of the task and have only very slight lack of synchrony between the hands.

**Partially Adequate**

A person whose response is partially adequate will make noticeable errors e.g. occasionally places palm up instead of palm down or may place palm up instead of converting to the fist or may form the fist in the horizontal position. They may have to stop occasionally in order to self-correct but even if they are unable to perform the task perfectly there should be some evidence that they have learned the task, some attempt to self-correct and some indication of an attempt to maintain the fluency of the alternating hands. There may be a noticeable lack of synchrony between the hands.

**Failed**

A person who fails this task shows very little if no ability to understand and execute the task. There are many errors, very little or no evidence of improvement, inability to self-correct, poor maintenance, and obvious inability to emulate correct hand positions and to perform the simultaneous changing of hands with any synchrony. A person who fails may not be able to form a fist or distinguish between palm up and palm down, may not alternate the actions across hands and may not be able to use both hands together at all.
5. Please draw this picture exactly as it looks to you (Show cube on back of page).
   (Yes = 1; No = 0)

Score as:

(1) Has person drawn a picture based on a square? ......1

(4) Do all internal lines appear in person’s drawing? ......1

(5) Do all external lines appear in person’s drawing? ......1

Notes:

This question has a maximum of 3 points.

- Show test taker cue card of cube drawing
- Make sure that test taker can see the drawing clearly (check that they are wearing prescription glasses if applicable)
- Ask test taker to draw the picture of the cube as well as they can

Scoring:

*Has test taker drawn a picture based on a square? (i.e. There is a square somewhere in the drawing)*
YES / NO

Do all internal lines (i.e. dark lines) appear in test taker’s drawing?

YES / NO

i.e.

Do all external lines (i.e. dark lines) appear in test taker’s drawing?

YES / NO

i.e.

---

Item 5 - Judgement

Judgement - Crossing the Street

5. You are standing on the side of a busy street. There is no pedestrian crossing and no traffic lights. Tell me what you would do to get across to the other side of the street safely. (If person gives incomplete answer use prompt: “Is there anything else you would do?”) Record exactly what patient says and circle all parts of response which were prompted.

..................................................................................................................................................
..................................................................................................................................................
Score as:
Did person indicate that they would look for traffic?
(YES = 2; YES PROMPTED = 1; NO = 0) ....2
Did person make any additional safety proposals?
(YES = 2; YES PROMPTED = 1; NO = 0) ....2

Notes:

- If the test taker gives no response to the question or says “I don’t know”, then repeat the question once only.
- Except where the test taker answers both parts of the question on the first attempt, use the prompt ‘Is there anything else you would do’ in all situations. This is to gain as complete a response as possible from the test taker.
- Use only the general prompt ‘Is there anything else you would do’ – do not prompt the person in any other way.
- Record test taker’s response to this question.
- Circle any part of test taker’s response which was prompted and score accordingly.
- If the test taker says that they never cross the road by themselves (e.g. they are in a wheelchair or their eyesight is poor), then ask them the question again but modify as follows:

“What would anyone who wanted to cross the road have to do to get across safely?”

Scoring:

This item has a maximum score of 4 points. Each of the two parts:
1. look for traffic, and
2. additional safety proposal
has a total score of 2 points i.e. Yes = 2; Yes Prompted = 1; No = Zero
i.e.

- **Did test taker indicate that they would look for traffic?**

<table>
<thead>
<tr>
<th>YES / YES PROMPTED / NO</th>
<th>Examples of Correct Responses</th>
<th>Examples of Incorrect Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>I would look for traffic.</td>
<td>Just go across.</td>
</tr>
<tr>
<td>1</td>
<td>Look left and right.</td>
<td>Put my hand up so the traffic knows I want to cross.</td>
</tr>
<tr>
<td>0</td>
<td>Check the cars.</td>
<td>Go to the corner and cross.</td>
</tr>
<tr>
<td></td>
<td>Check that it’s clear.</td>
<td>Wave at the cars so they can see me.</td>
</tr>
<tr>
<td></td>
<td>Go across when there is nothing coming.</td>
<td>I wouldn’t go across.</td>
</tr>
</tbody>
</table>

Examples of Correct Responses Examples of Incorrect Responses
• Did test taker make any additional safety proposals in road crossing scenario?

YES / YES PROMPTED / NO

2  1  0

<table>
<thead>
<tr>
<th>Examples of Correct Responses</th>
<th>Examples of Incorrect Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross to the middle of the road and then look again to make sure there was no traffic before going right across.</td>
<td>Run as fast as I can.</td>
</tr>
<tr>
<td>Keep looking for traffic while crossing.</td>
<td>Cross when the walk sign is green.</td>
</tr>
<tr>
<td>Go across quickly but without running.</td>
<td>Cross at the crossing.</td>
</tr>
<tr>
<td>Be careful.</td>
<td>Just put my head down and go.</td>
</tr>
<tr>
<td>Wait till I could cross with some other people.</td>
<td></td>
</tr>
<tr>
<td>Ask for help.</td>
<td></td>
</tr>
</tbody>
</table>

Scoring Examples:

Example 1

“I don’t know. (Repeat the question).
“I’d look for the cars. I can’t think of anything else except be careful.”

This response would score 3 points out of a total of 4 because the person said that they would look for the cars (2/2) and when prompted (i.e. circle indicates that it was prompted) said that they would be careful (1/2) i.e. 2/2 + 1/2 = 3/4

Example 2

“Just go across. Check for the cars.”

This response would score 1 point only out of a total of 4 because the first part of the answer ‘just go across’ was incorrect (0/2), and the second part of the answer ‘check for the cars’ while correct, was prompted (i.e. because it was circled to indicate that it was prompted) (1/2) i.e. 0/2 + 1/2 = 1/4

Example 3

“Put my hand up so the traffic knows I want to cross and then walk to the middle of the road before going right across.”

This response would score 2 points out of a total of 4 because the first part of the answer is incorrect (0/2) and the second part of the answer ‘then walk to the middle of the road before going right across’ is correct (2/2) i.e. 0/2 + 2/2 = 2/4
Item 1 – Memory

Memory Recall (Item 1 Revisited - 4 Grocery Items)

1.® We have just arrived at the shop. (Can you remember the list of groceries we need to buy? (Prompt: If person cannot recall any of the list, say “The first one was ‘tea’.”)

(Score 2 points each for any item recalled which was not prompted.)

Circle ‘Tea’ if used as a prompt and score as 0 out of 2)

- Tea ......2
- Cooking Oil ......2
- Eggs ......2
- Soap ......2

.../8

Notes:

- Ask test taker to repeat the 4 items on the grocery list
- If after 20 - 30 seconds the test taker cannot remember learning the list OR any of the items on the list then use the prompt - i.e. the first one was ‘tea’ and then circle ‘tea’ or write a ‘P’ in parentheses after it to indicate that it was prompted and score as zero
- Use the prompt ‘the first one was ‘tea’, only if the person cannot remember any of the grocery items
- Do not use any other prompts in this task (e.g. if the person says ‘cooking oil’ but cannot remember any of the other grocery items on the list do not use the ‘tea’ prompt or any other prompt)

Scoring:

The recall component of the memory item has a maximum score of 8 points.

- There are no part marks, the person scores either zero or 2 points for each item on the grocery list
- If ‘tea’ was used as a prompt then the maximum score the person can get on this task is 6/8
- mark as correct if the person says ‘cooking oil’ or ‘oil’
Language Generativity – Animal Naming

6. I am going to time you for one minute. In that one minute, I would like you to tell me the names of as many different animals as you can. We’ll see how many different animals you can name in one minute. (Repeat instructions if necessary). Maximum score for this item is 8. If person names 8 new animals in less than one minute there is no need to continue.

1. ...................................................
2. ...................................................
3. ...................................................
4. ...................................................
5. ...................................................
6. ...................................................
7. ...................................................
8. ...................................................

Notes:

This item has a maximum score of 8 points.

- Time the test taker for one minute ONLY - make sure that it is clear to the test taker when to start i.e. “When I say ‘Go’ you should start listing animals. Don’t worry about me writing them down, say the animals as quickly as you can.”

- If test taker does not speak English make sure that interpreter also understands the instructions and the importance of simultaneous interpreting.

Scoring:

- If test taker says for example – ‘big horse’ and ‘little horse’, then record these as two separate animal names. Then at the end of the assessment, if the person is from an NESB country, check with the interpreter that these two names actually represent different concepts in the relevant language (e.g. in English – ‘big horse’ and ‘little horse’ are not separate animal names therefore an ESB person would score only one point (BUT, if the ESB person had said ‘horse’ and ‘foal’ then these are two separate concepts and the person would score two points). An NESB person depending on the language spoken may score two points if they used the correct two words for ‘big horse’ and ‘little horse’. It is important here to distinguish between perseveration (i.e. repetition of the same animal name) and linguistic peculiarities of different languages which conceptualise/describe animals differently.

Reference:

Appendix CI3—Abbreviated Mental Test Score (AMTS)

ABBREVIATED MENTAL TEST SCORE

Scoring
Each correctly answered question scores 1 point.

Interpretation
Scores of less than 7 indicates likely cognitive impairment although some authors would argue that a score less than 8 may be a better discriminator.

Application
(Re: Question 6) If 2 people are not available then picture cards illustrating commonly identifiable individuals such as police officer and nurse in uniform or member of the clergy or sportsperson or other commonly recognisable position may be used.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Time (to nearest hour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Address (for recall at end of test)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Say to patient/resident: I am going to say an address.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Say: 42 West Street, can you say this address please? I am going to ask you to repeat it for me in a few minutes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Name of your home address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Recognition of two persons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Date of birth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Year of First World War</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Name of present Prime Minister</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Count backwards 20-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Score

Reference:
Appendix Cl4—Confusion Assessment Method (CAM)

Patient’s Name: ___________________  Date: ___________________

Instructions: Assess the following factors.

**Acute onset**
1. Is there evidence of an acute change in mental status from the patient’s baseline?
   - YES  NO  UNCERTAIN  NOT APPLICABLE

**Inattention**
(The questions listed under this topic are repeated or each topic where applicable.)

2A. Did the patient have difficulty focusing attention (for example, being easily distractible or having difficulty keeping track of what was being said)?
   - Not present at any time during interview
   - Present at some time during interview, but in mild form
   - Present at some time during interview, in marked form
   - Uncertain

2B. (If present or abnormal) Did this behaviour fluctuate during interview (that is tend to come and go or increase and decrease in severity)?

2C. (If present or abnormal) Please describe this behaviour.

**Disorganized thinking**
3. Was the patient’s thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?
   - YES  NO  UNCERTAIN  NOT APPLICABLE

**Altered level of consciousness**
4. Overall, how would you rate this patient’s level of consciousness?
   - Alert (normal)
   - Vigilant (hyperalert, overly sensitive to environmental stimuli, startled very easily)
   - Lethargic (drowsy, easily aroused)
   - Stupor (difficult to arouse)
   - Coma (unarousable)
   - Uncertain

**Disorientation**
5. Was the patient disoriented at any time during the interview, such as thinking that he or she was somewhere other than the hospital, using the wrong bed, or misjudging the time of day?
   - YES  NO  UNCERTAIN  NOT APPLICABLE

**Memory**
6. Did the patient demonstrate any memory problems during the interview, such as inability to remember events in the hospital or difficulty remembering instructions?
   - YES  NO  UNCERTAIN  NOT APPLICABLE

**Perceptual disturbances**
7. Did the patient have any evidence of perceptual disturbances, such as hallucinations, illusions, or misinterpretations (for example, thinking something was moving when it was not)?
   - YES  NO  UNCERTAIN  NOT APPLICABLE
Psychomotor agitation
8A. At any time during the interview, did the patient have an unusually increased level of motor activity, such as restlessness, picking at bedclothes, tapping fingers, or making frequent sudden changes in position?

____ YES                       ____ NO                            ____ UNCERTAIN               ____ NOT APPLICABLE

8B. At any time during the interview, did the patient have an unusually increased level of motor activity, such as sluggishness, staring into space, staying in one position for a long time, or moving very slowly?

____ YES                       ____ NO                            ____ UNCERTAIN               ____ NOT APPLICABLE

Altered sleep-wake cycle
9. Did the patient have evidence of disturbance of the sleep-wake cycle, such as excessive daytime sleepiness with insomnia at night?

____ YES                       ____ NO                            ____ UNCERTAIN               ____ NOT APPLICABLE

Scoring:

To have a positive CAM result, the patient must display:

1. Presence of acute onset and fluctuating discourse

AND

2. Inattention

AND EITHER

3. Disorganized thinking

OR

4. Altered level of consciousness

Reference:

Appendix DC1—Food guidelines for calcium intake for the prevention of falls in older people

<table>
<thead>
<tr>
<th>Guidelines</th>
<th>More information and hints</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Men—provide 3 serves of dairy products every day</td>
<td>▪ One serve of dairy products is equal to:</td>
</tr>
<tr>
<td>▪ Women—provide 4 serves of dairy products every day</td>
<td>250 ml milk—whole, reduced fat, skim, fortified soy</td>
</tr>
<tr>
<td></td>
<td>250 ml custard</td>
</tr>
<tr>
<td></td>
<td>200 ml high-calcium milk</td>
</tr>
<tr>
<td></td>
<td>200 g yoghurt</td>
</tr>
<tr>
<td></td>
<td>45 g cheese</td>
</tr>
<tr>
<td></td>
<td>▪ Soft cheeses like cottage &amp; ricotta cheese have less calcium</td>
</tr>
<tr>
<td></td>
<td>▪ Encourage some high-calcium foods (e.g. a glass of milk) before bed as calcium is absorbed best overnight</td>
</tr>
<tr>
<td></td>
<td>▪ Soy milks, oat milk and rice milk are not naturally high in calcium, so check for supplementation with calcium of at least 100 mg of calcium per 100 ml of soy milk.</td>
</tr>
<tr>
<td>▪ Provide a menu low in salt and advise limiting salt use</td>
<td>Sodium chloride (salt) can increase calcium loss.</td>
</tr>
<tr>
<td></td>
<td>▪ Provide lower salt versions of processed foods, canned foods and margarines</td>
</tr>
<tr>
<td></td>
<td>▪ Low-salt foods contain 120 mg or less of sodium per 100 grams of food.</td>
</tr>
<tr>
<td></td>
<td>▪ Do not add salt to cooking</td>
</tr>
<tr>
<td></td>
<td>▪ Discourage addition of salt at meal times</td>
</tr>
<tr>
<td>▪ Avoid providing large amounts of caffeine containing drinks &amp; alcohol</td>
<td>▪ Keep coffee intake to 3–4 small cups of weak coffee a day</td>
</tr>
<tr>
<td></td>
<td>▪ Lower intake of other drinks that contain caffeine (e.g. tea, cola, soft drinks)</td>
</tr>
<tr>
<td></td>
<td>▪ Provide no more than 1–2 standard drinks per day</td>
</tr>
<tr>
<td></td>
<td>▪ Have at least 2 alcohol free days a week</td>
</tr>
</tbody>
</table>
**Appendix E1—General environmental checklist**

**General Environmental Checklist**

<table>
<thead>
<tr>
<th>Surname:</th>
<th>First Name:</th>
<th>U.R.No:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Date of Birth:** / /

*(Please affix Patient ID Label here if available)*

Client Location:  
Bed/Room No:

### Bathroom and Toilets

<table>
<thead>
<tr>
<th>Please tick Appropriate Box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Grab rails are appropriately positioned and secured in the toilet, shower and bath</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Floors are non slip</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Baths/showers have non-slip treatment and/or mats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are areas immediately around the bath and sink marked in contrasting colours?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Raised toilet seats are available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Toilet surrounds and/or grab rails are available in toilets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Soap, shampoo and washers are within easy reach and do not require bending to reach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Do all shower chairs have adjustable legs, arms and rubber stoppers on the legs?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is there room for a seat in AND near the shower?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is the shower base without steps? (not necessary for most patients)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are call buttons accessible from sitting position in shower area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are doors lightweight and easy to use?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Furniture

<table>
<thead>
<tr>
<th>Please Tick Appropriate Box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Is furniture secure enough to support a client should they lean on or grab for balance?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are bedside lockers or tables available to clients so they can put things on safely without undue stretching and twisting?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are footstools in good repair and stoppers in good condition?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is space available for footstool when required?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Floor Surfaces

<table>
<thead>
<tr>
<th>Please Tick Appropriate Box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Are carpets low pile, firmly attached and a constant colour rather that patterned?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are walls a contrasting colour to the floor?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is non-skid wax used on wooden and vinyl floors?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Do floors have a matted finish which is not glary?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are ‘Wet Floor’ signs readily available and used promptly in the event of a spillage?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Do steps have a non-slip edging in contrasting colour to make it easier to see?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is routine cleaning of floors done in a way to minimise risk to residents eg. Well signed, out of hours?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lighting

<table>
<thead>
<tr>
<th>Please Tick Appropriate Box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Is lighting in all areas at a consistent level so that patients are not moving from darker to lighter areas and vice versa?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Do staircases have light switches at the top and bottom of them?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Do patients have easy access to night lights?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are the hallways and rooms well lit (75 watts)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* There is minimal glow from furniture/floorings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are all switches marked with luminous tape for easy visibility?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Passageways

<table>
<thead>
<tr>
<th>Please Tick Appropriate Box</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Are all passageways kept clear of clutter and hazards?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are firm and colour contrasted handrails provided in passageways and stairwells</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is there adequate space for mobility aids?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is there adequate storage space for equipment?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Are ramps/lifts available as an alternative to stairs?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Do steps have a non-slip edging in contrasting colour?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Is there enough room for two people with frames/wheelchairs to pass each other safely?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passageways</td>
<td>Please Tick Appropriate Box</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>Are all passageways kept clear of clutter and hazards?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Are firm and colour contrasted handrails provided in passageways and stairwells</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there adequate space for mobility aids?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there adequate storage space for equipment?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are ramps/lifts available as an alternative to stairs?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do steps have a non-slip edging in contrasting colour?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there enough room for two people with frames/wheelchairs to pass each other safely?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifting Systems</td>
<td>Please Tick Appropriate Box</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Do doors close slowly?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are buttons easily accessible to avoid excessive reaching?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are floor signs at eye level to prevent stretching the neck?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are handrails available?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Areas</td>
<td>Please Tick Appropriate Box</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Are pathways even and with a non-slip surface?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are pathways clear of weeds, moss and leaves?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are steps marked with a contrasting colour and non-slip surface?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there handrails beside external steps and pathways?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there any overhanging trees, branches and shrubs?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are sensor lights installed?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there sufficient numbers of outdoor seats for regular rests?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security of Environment</td>
<td>Please Tick Appropriate Box</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Are all exits from the facility secured to prevent confused patients leaving?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there clear walking routes both inside and outside where patients can wander safely without becoming lost?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the layout of the facility, or allocation of rooms, allow staff to monitor high risk patients?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remedial actions that need to be taken:

Completed by: ___________________________ Date: ___________________________
Appendix E2—Equipment safety checklist

<table>
<thead>
<tr>
<th>Equipment safety checklist:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wheelchairs</strong></td>
</tr>
<tr>
<td>Brakes</td>
</tr>
<tr>
<td>Arm rest</td>
</tr>
<tr>
<td>Leg rest</td>
</tr>
<tr>
<td>Foot pedals</td>
</tr>
<tr>
<td>Wheels</td>
</tr>
<tr>
<td>Anti-tip devices</td>
</tr>
<tr>
<td><strong>Electric Wheelchairs/Scooters</strong></td>
</tr>
<tr>
<td>Speed</td>
</tr>
<tr>
<td>Horn</td>
</tr>
<tr>
<td>Electrical</td>
</tr>
<tr>
<td><strong>Beds</strong></td>
</tr>
<tr>
<td>Side rails</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Wheels</td>
</tr>
<tr>
<td>Brakes</td>
</tr>
<tr>
<td>Mechanics</td>
</tr>
<tr>
<td>Transfer Bars</td>
</tr>
<tr>
<td>Over-bed table</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>IV Poles/Stand</strong></td>
</tr>
<tr>
<td>Pole</td>
</tr>
<tr>
<td>Wheels</td>
</tr>
<tr>
<td>Stand</td>
</tr>
<tr>
<td><strong>Footstools</strong></td>
</tr>
<tr>
<td>Legs</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Top</td>
</tr>
<tr>
<td><strong>Call Bells/Lights</strong></td>
</tr>
<tr>
<td>Operational</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Accessible</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Walkers/Canes</strong></td>
</tr>
<tr>
<td>Secure</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Commode</strong></td>
</tr>
<tr>
<td>Wheels</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Brakes</td>
</tr>
<tr>
<td><strong>Chairs</strong></td>
</tr>
<tr>
<td>Chair</td>
</tr>
<tr>
<td>Wheels</td>
</tr>
<tr>
<td>Brakes</td>
</tr>
<tr>
<td>Footplate</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Positioning</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Tray</td>
</tr>
</tbody>
</table>

Completed by: ___________________________ Date: ___________________________
Appendix E3 —Specific environmental considerations

In regards to the following specific environmental considerations, it is recommended that you refer to the relevant Australian Standards (AS).

Flooring

There is insufficient evidence to conclusively recommend a particular flooring type. However, it should be noted that carpeted flooring has been associated with increased incidence of falls in both hospital settings\(^3\) and residential aged care.\(^320\) Carpeted floors have also been associated with fewer injuries\(^237\)\(^231\), and a similar association was noted in residential aged care with wooden and carpeted flooring.\(^320\)

**Carpeted areas:**
- utilise short-piled carpet
- carpet should be unpatterned and contrast with walls\(^238\)
- padding/backing/underlay should provide a firm surface.

**Non-carpeted areas:**
- ensure all non-carpeted areas are slip resistant when wet or dry (consider unglazed tiles, adhesive strips, antiskid treatments or no-wax vinyl)
- avoid buffing or polishing surfaces and where wax is necessary, use non-skid wax.\(^238\)

**Thresholds:**
- flooring should be flush at thresholds\(^232\)\(^238\)
- transitions from one flooring type to another should be as level as possible and well lit.\(^238\)

**Further information:**
- see AS3661:1994 (existing flooring); AS4663:2002 (new flooring)
- flooring should be considered in conjunction with footwear
- hazard management procedures should enable quick response to spills.

Lighting:

- ensure all areas are well lit\(^232\)
- avoid changes in intensity of light\(^4\)
- ensure lighting is adequate both during the day and to facilitate ambulation to toilet at night\(^238\) (consider night lights, bedside lamps, motion-sensor lights, dimmer switches)
- ensure lighting switches are accessible\(^112\)
- control glare by managing window treatments, floor and furniture surfaces.\(^238\)

**Further information:**
- see AS1428 (set) 2003
- involve lighting specialists where lighting hazards are identified
- lighting should be considered in conjunction with individual vision problems and needs.

Bathrooms/toilets:

- should have appropriately positioned, contrasting, slip-resistant grab rails\(^238\)
- baths/shower bases should have non-slip surfaces (consider adhesive strips, non-slip treatments and mats)
should have adequate seating
should have appropriate receptacles to allow soaps, clothes, towels etc. to be easily accessible
the use of bath oils and talcs should be avoided.

**Further information:**
- see AS1428 (set) 2003
- the safe use of bathrooms may be associated with continence issues and should be considered in conjunction with section 4.3 continence
- individuals may have specific needs for transfer equipment and assistive toileting/bathing devices. Those at risk may benefit from assessment by a health professional skilled in activity of daily living (ADL) assessment.

**Hallways:**
- should be kept clear of clutter
- should have handrails
- provide seating periodically for rest-stops where hallways are lengthy and adequate space exists.

**Stairways/steps:**
- alternatives to stairs e.g. ramps and lifts, should be provided
- steps should have a textured strip at nosing
- stairs/steps should have handrails.

**Furniture:**
- positioning of furniture should allow for easy access to and storage of mobility aids.

**Beds:**
- height-adjustable beds are preferred
- bed height for transfers is appropriate where the person is able to sit with knees at 90° with both feet planted firmly on the floor
- bed mattresses should be firm.

**Chairs:**
- height-adjustable seating with armrests and firm cushioning is preferred
- chair height for transfers is appropriate when the person is able to sit with knees at 90° with both feet planted firmly on the floor.

**Alert/call systems:**
- must be accessible, e.g. within easy reach, visible, from bath/shower, toilet, bed and chair.

**External environments:**
- flooring should be well maintained, even with non-slip texture
- walkways, ramps and landings should comply with Australian Standards.

**Further information:**
See AS1428 (Set)—2003.
Appendix F1—Safe shoe checklist

The requirement for safe, well-fitting shoes vary depending on the individual and their level of activity. The feature outlined may assist in the selection of an appropriate shoe. The shoe should:

**Heel**
- Have a low heel (i.e. less than 2.5 cm) to ensure stability and better pressure distribution on the foot. A straight through sole is also recommended.
- Have a broad heel with good ground contact.
- Have a firm heel counter to provide support for the shoe.

**Sole**
- Have a cushioned, flexible, non-slip sole. Rubber soles provide better stability and shock absorption than leather soles. However, rubber soles do have a tendency to stick on some surfaces.

**Weight**
- Be lightweight.

**Toe Box**
- Have adequate width, depth and height in the toe box to allow for natural spread of the toes.
- Have approximately one centimetre’s space between the longest toe and the end of the shoe when standing.

**Fastenings**
- Have laces, buckles, elastic or Velcro to hold the shoe securely onto the foot.

**Uppers**
- Be made from accommodating material. Leather holds its shape and breathes well; however many people find walking shoes with soft material uppers are more comfortable.
- Have smooth and seam-free interiors.

**Safety**
- Protect feet from injury.

**Shape**
- Be the same shape as the feet, without causing pressure or friction on the foot.

**Purpose**
- Be appropriate for the activity being undertaken during their use. Sports or walking shoes may be ideal for daily wear. Slippers generally provide poor foot support and may only be appropriate when sitting.

**Orthoses**
- Comfortably accommodating orthoses such as ankle foot orthoses or other supports if required. The podiatrist/orthotist or physiotherapist can advise the best style of shoe if orthoses are used.

This is a general guide only. Some people may require the specialist advice of a podiatrist for the prescription of appropriate footwear for their individual needs.
Appendix H1—Checklist of issues to consider before using hip protectors

A checklist of issues to consider before using hip protectors is as follows:

− is the risk of hip fracture high enough to justify their use
− will the user wear them as directed
− will the user be able to put them on and pull them down for toileting; if not, is assistance available
− how will they be laundered
− who will encourage their use
− who will pay for them
− is the potential wearer aware of the different types of hip protector available?

Additionally a checklist of issues when using hip protectors is as follows:

− is the fit adequate
− are they being worn in the correct position
− are they being worn at the correct times and should they be worn at night
− are continence pads worn if needed
− should other underwear be worn under the hip protectors
− is additional encouragement needed to improve compliance
− when should the hip protectors be replaced
− has education been provided to care staff?
### Appendix H2—Hip protector pad care plan

<table>
<thead>
<tr>
<th>Hip Protector Pad Care Plan</th>
<th>Affix ID Label</th>
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<tr>
<td>Date: / /</td>
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<table>
<thead>
<tr>
<th>Identified/Expressed needs</th>
<th>Negotiated outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of hip protector pads (type)</td>
<td>To allow independent mobility with less associated risks due to protective device</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Management plan</th>
<th>Review date</th>
<th>Signature</th>
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<tbody>
<tr>
<td>Hip protector pads to be individually marked and stored with incontinence aids</td>
<td></td>
<td></td>
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<tr>
<td>Two pairs of hip protector pads per person</td>
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<td>Removable cover can be changed if soiled or wet (these are washable)</td>
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<tr>
<td>Stretch pants secure hip protector pads in place. For those people who already wear stretch pants for incontinence pads, a second pair of stretch pants may be needed and worn over the first pair</td>
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<tr>
<td>For type A hip protector pads, position just below the person’s waist with Velcro closure at the top. This allows cover for the entire hip region</td>
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<tr>
<td>Please choose clothing with a loose fit to allow for hip protector pad insertion</td>
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<tr>
<td>Please complete hip protector pad observation form with time applied and removed. Comment on compliance, fit, comfort etc. and any problems</td>
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<tr>
<td>Please contact ________________ if any problems</td>
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This chart was developed by staff at Eventide Nursing Home, Sandgate, Prince Charles Hospital Health Service District, as part of Queensland Health’s Quality Improvement and Enhancement Program.
### Appendix H3—Hip protector pad observation record

<table>
<thead>
<tr>
<th>Affix ID label</th>
<th>Hip Protector Pad Observations</th>
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</table>

**Observations**
(please specify):

<table>
<thead>
<tr>
<th>Date</th>
<th>Time applied</th>
<th>Time removed</th>
<th>Hours in use</th>
<th>Comment</th>
<th>Initials</th>
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Appendix H4—Description of the educational program for hip protector pads used in the study of Meyer and colleagues

‘The education session lasted for 60–90 minutes, took place in small groups (average 12 members of staff from each cluster), and was delivered by two investigators. It covered: information about the risk of hip fracture and related morbidity; strategies to prevent falls and fractures; effectiveness of hip protectors; relevant aspects known to interfere with the use of protectors, such as aesthetics, comfort, fit, and handling; and strategies for successful implementation. The session included experience based, theoretical, and practical aspects. Staff members were encouraged to try wearing the hip protector. Apart from the printed curriculum we also developed and provided 16 coloured flip charts illustrating the main objectives and leaflets for residents, relatives, and physicians.

At least one nurse from each intervention cluster was then responsible for delivering the same education programme to residents individually or in small groups. Nursing staff were encouraged to wear a hip protector during these sessions and to include residents who readily accepted the hip protector as activating group members.

About two weeks later we visited the intervention clusters again to encourage the administration of the programme. Otherwise frequency and intensity of contacts were similar for intervention and control groups.’
<table>
<thead>
<tr>
<th>Author</th>
<th>Population</th>
<th>Intervention</th>
<th>Effect</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Becker 2003</td>
<td>981 residents in 6 residential aged care homes in Germany Inv group – 3 homes, 509 residents Ctrl group – 3 homes 472 residents</td>
<td>3 homes, 509 residents received Organisational level - environmental adaptation - staff education (1 hour) and monthly falls feedback individual level, for those who could stand - individual consultation with nurse and education - balance and strength exercises, hip protectors</td>
<td>Falls reduced, 52% vs 37% RR .75 (.57- .98) Incidence rate for falls reduced Ctrl 2558/1000 resyrs Inv 1399/1000 resyrs RR .55 (.41- .73)</td>
<td>Homes randomised Physiotherapy, nursing resources and hip protectors supplied by research team</td>
</tr>
<tr>
<td>Jensen 2002</td>
<td>384 residents in 9 homes in Sweden Inv group – 4 homes, 188 residents Ctrl group 5 homes, 196 residents</td>
<td>4 homes, 188 residents received Organisational level - staff education, 4 hours - environmental assessment - ongoing post fall conferences - staff guidance from falls nurse Individual level, risk assessment for all – 89 high risk and 19 fallers - strength and balance retraining, repair of aids - change in medications (n = 47), hip protectors (n = 34)</td>
<td>Falls reduced, 56% vs 44% RR .78 (.64- .96) Odds ratio for falls reduced, adj for baseline measures OR .58 (.38- .89) Incidence rate ratio for falls reduced Ctrl 8.3/1000 resyrs Inv 6.7/1000 resyrs IRR .60 (.50-.73) Hip fractures reduced</td>
<td>Homes randomised Physiotherapy, nursing resources and hip protectors supplied by research team</td>
</tr>
<tr>
<td>Healey 2004</td>
<td>8 care of the elderly hospital wards, 4 acute, 2 rehab and 2 specialist wards in northern England Inv group 749 new patients over 6 months Ctrl group 905 new patients over 6 months</td>
<td>Core care plans and guidelines implemented in 4 wards health screening checklist for those admitted with a fall or falling during admission - eyesight, medications, lying and standing blood pressures, urine test, mobility assessment, - environmental checklist, bed rails review, footwear review, bed height review, position in ward review, post fall review standard interventions according to checklist - optician visit, medical review of medications and blood pressure, physiotherapist referral, footwear replacement, - documentation re bed rails, bed lowering, repositioning in ward</td>
<td>Reduction in relative risk of falls RR .79 (.65-.95) in intervention wards, no reduction in control wards</td>
<td>Matched pairs of wards randomised. Groups baseline falls rate differed Level of analysis was at the ward using routinely collected data No additional resources added</td>
</tr>
<tr>
<td>Haines 2004</td>
<td>3 subacute wards in one centre in Australia, inv group 310 patients, ctrl group 316 residents</td>
<td>Targeted falls risk assessment for individuals - falls alert card - individually tailored exercise delivered by physiotherapists - education delivered by occupational therapists - hip protectors</td>
<td>Falls reduced, 149 falls vs 105 falls Falls reduced 71% vs 54% RR .78 (.56-1.06) Reduction in fall using cumulative hazard analysis, esp after 45 days (average LOS 30 days) p = 0.004</td>
<td>Individuals randomised after admission Physiotherapy occupational therapy resources supplied by research team</td>
</tr>
</tbody>
</table>

RR risk ratio, resyrs = resident years, Ctrl = control, inv = intervention, LOS = length of stay
Appendix N1 - Nutrition

This section should be reviewed in conjunction with Section 5.2—Vitamin D and calcium, and Section 5.3—Osteoporosis management.

Although nutrition management is good gerontological practice it is not evidenced as a core fall-prevention activity and is therefore an appendix.

It is recommended that nutrition screening be performed on all older people admitted to hospital and residential aged care facilities to ensure nutrition support is provided in a timely manner.

Background information

Influence of nutritional status on falls
The nutritional status of older people plays a vital role in the prevention of falls, injuries incurred and recovery time after a fall-related injury.

Increased injury risk is associated with age-related bone loss, reaction time, muscle strength and body tissue stores; all of which are influenced by nutritional status. These factors are accentuated by the presence of comorbidities and their treatments. Length of hospital stay, altered immune response, risk of complications and rates of morbidity and mortality are also influenced by nutritional status. There is potential for nutrition to be a marker of more general decline and frailty associated with falls and injury. There is no evidence that nutritional supplementation reduces fall risk, despite trials set up to test it.

Adequate nutrition is recognised as an important adjunct in rehabilitation programs for older people by optimising physical gains.

Anthropometric information—functional indicators and nutritional status
Low body mass index is the only indicator of nutritional status that is an independent risk factor for fall injury and there is no evidence that increasing weight per se prevents falls. Intuitively, this may be because thin frailer older people tend to sustain fractures more than people with a larger mass of soft tissue covering their bones.

The recommended body mass index (BMI) of 20–25 kg/m² (height squared), for Australian adults, is less relevant with increasing age. Studies of older people who have sustained fractures, indicate a BMI of 22–30 kg/m² is associated with reduced risk for fracture and fewer functional and mobility limitations.

Weight loss in older people is associated with increased risk of bone loss, hip fracture and reduced function and mobility. This increased risk is independent of baseline BMI and the intent to reduce weight.

Reduced grip strength, a functional indicator, has been shown to be a possible predictor of future falls. Waist circumference measures have been correlated to decreased function and mobility levels.

Dehydration
Dehydration in older adults is a common health problem leading to confusion, postural hypotension, constipation and delirium, all of which can increase fall risk.

Protein energy malnutrition (PEM)
Self-selected intake of protein and energy by older patients admitted with hip fracture has been shown to be insufficient despite adequate food being offered.
The prevalence of protein energy malnutrition (PEM) in Queensland Health residential aged care facilities has been found to be 40–45 per cent. Overseas studies have reported levels of PEM in older patients admitted to hospital with hip fractures as between 39 and 58 per cent. The risk of PEM is more prevalent for those people in supported accommodation.

A Cochrane systematic review concluded that oral protein energy supplementation may reduce complications and death in older people with hip fractures. It also found that oral protein supplementation may decrease length of stay and decrease complications.

Administration of oral protein energy drinks for older people admitted with hip fracture has been found not to reduce their oral intake from the menu. The use of oral protein energy supplements as part of medication rounds has been found to improve nutritional intake and weight gain and is considered a cost-effective method of administering nutritional supplements. Those patients who were offered oral protein energy supplementation had undergone a nutritional risk identification process or nutrition screening. Completion of a nutrition screen is recommended on admission and should be included as part of a review process.

**Principles of care**

Although, nutrition management has not been part of successful multi-component fall-prevention programs, it is good gerontological practice and may lead to some reduction in fall risk.

**Assessing nutritional status**

Assessment should be undertaken by a health professional skilled in the assessment of nutrition, such as a dietitian. Nutrition and dietetic support, nursing and medical staff also have a role to play. Objectives to strive for in the management of nutritional status include:

- achieving and maintaining optimal nutritional status
- achieving and maintaining ideal body weight and/or waist circumference
- minimising weight loss to < 5 per cent of baseline weight.

Elements of the assessment process include:

- Anthropometric information: the tools and indicators for the assessment of weight, height, BMI, waist circumference, weight history are:
  - weight monitoring charts
  - body mass index: 22–30 kg/m²
  - waist circumference: <102 cm in males, <88 cm in females
  - weight history: loss of 5 kg or more over six months, maximum of 5 per cent of admission weight
  - height: if difficult to measure from standing, use a demispan, knee height or ulna length to calculate.

- Nutritional information: the tools and indicators for assessment of eating habits, food preferences, meal patterns and food intake are:
  - food preference record
  - food and fluid intake records.
Dietary history should be conducted by a dietitian: the tools and indicators for this assessment are:
- dietary adequacy of energy and protein intake
- adequacy of micronutrient intake
- core food groups
- recommended dietary intakes.

If swallowing difficulties arise and texture modification of food items or thickening of fluids is required, a referral to a speech pathologist is recommended where possible.

Psychosocial information: when planning for discharge from hospital into a community setting, information on the person’s living situation, food preparation skills, cooking facilities, access to shops and finances available for food purchases may be collected by the dietitian, nutrition and dietetic support staff, nursing or medical staff.

Referral to other allied health practitioners (such as social work, occupational therapy) or other community organisations (such as Meals on Wheels and Home Care) may be required.

**Reasons for poor nutrition**

Some common specific reasons that nutrition might be poor (some of which can be easily remedied), include:
- poor denture fit
- slow eating
- swallowing problems
- food being taken away before the person is able to finish or difficult to reach
- inadequate posture at meal times
- inadequate aids to facilitate independence, e.g. non-slip mat, plate guard, built-up cutlery handle etc.

**Introducing a nutrition screening procedure**

Nutrition screening assists in identifying people at nutritional risk and determines priorities for nutrition assessment and support.

Recommended screening tools are:
- acute care setting: Malnutrition Screening Tool (MST) (Appendix N2)
- residential aged care setting:
  - A guide to the Malnutrition Universal Screening Tool (MUST) for adults: www.bapen.org.uk/pdfs/Must/MUST-Explanatory-Booklet.pdf
  - MST (Appendix N2) +/- extremes of weight (i.e. obviously frail/underweight or obviously overweight
- additional tool for reference: Malnutrition Action Flowchart (MAF) (Appendix N3).

**Monitor weight of person and act if weight loss is significant**

To appropriately monitor a person’s weight:
- residents of a residential aged care facility should be weighed on a monthly basis
- hospital patients should be weighed on a weekly basis
- weight should be recorded in a sequential manner to the nearest 0.5 kg
- height on admission to the nearest 0.5 cm should be recorded
- loss of 5 kg or more over six months or > 5 per cent since admission would require further investigation and referral to a dietitian
- monitoring charts (Appendix N4 a & b) may be used.
**Indicators of satisfactory weight management**

BMI = weight (kg) / height squared (m) (unit kg/m\(^2\))

Indicators of satisfactory weight management are:

- weight stabilisation if BMI is 22–30 kg/m\(^2\)
- weight increase if BMI < 22 kg/m\(^2\)
- weight loss is < 5 per cent of admission weight.

**Implement a process to monitor oral intake, including fluid intake**

When monitoring food and fluid intake, a three-day period is recommended. Use a food and fluid intake chart (Appendix N5).

**Implement a process of oral nutrition support**

A dietitian can recommend an oral nutrition support program best suited for a specific facility. The Malnutrition Action Flowchart (MAF) (Appendix N3) used with MST (Appendix N2) may be helpful.

**Implement a system for menu review**

A menu should be responsive to a person’s food preferences and their nutritional needs including calcium intake. A menu review should ideally include food services, a dietitian, speech pathologist, clinical staff (e.g. nursing) and consumer representation.

**Review and monitoring**

The desired outcomes from a nutrition-management program targeting fall prevention are a person’s improved ability to participate in rehabilitation, exercise, activities of daily living and a reduction in the frequency of falling, injury and recovery time.

To monitor the quantity and/or quality of oral intake compare three-day food and fluid records pre and post oral nutrition support. Improvement is measured by an increased oral intake of a balanced diet and high protein and energy interventions.

**Case studies**

**Hospital**

Mr Y is a frail man who lives alone and has frequent admissions to hospital for falls. He has a huge appetite in hospital but his admission weight is less each time, and he has been referred to a dietitian to explore reasons for this. The dietitian finds that Mr Y is unable to cook meals. As part of a multifactorial fall-prevention program, Mr Y is provided Meals on Wheels and Home Help on discharge. Mr Y’s weight increases and his admissions for falling reduce.

**Residential Aged Care**

Staff identified that some of the residents who were falling were also undernourished, lethargic, and less able to participate in exercise programs. Appropriate amounts of oral nutritional supplement were provided as part of the medication round. The residents gained weight, were less lethargic and increased their participation in exercise programs.

**Special considerations**

**Cognitive impairment**

Cognitive impairment increases risk of malnutrition. Close supervision and assistance at meal and snack times is required. Referral to a speech pathologist is recommended if there are swallowing difficulties, diet texture is modified or the person is on thickened fluids. People with mental illness who experience delusions with a food-related component require personalised nutrition intervention. Nutrition care plans can be developed for implementation during periods of poor oral intake.
**Rural and remote settings**
Nutrition and dietetic support staff can provide day-to-day support, providing they have access to a dietitian. In preparation for a dietetic consult evidence of the person’s: weight, weight history, height (if available), food and fluid intake record over three days, food and drink preferences should be ready.

**Indigenous and culturally and linguistically diverse groups**
Nutrition care, dining arrangements and menu planning should consider the cultural, religious and ethnic profile of the patients and residents. The following ideas may help:

- compile a list of recipes that other residents from the same background have enjoyed
- ask family to provide recipes and the occasional traditional meal for resident’s favourite dishes
- identify special days and celebrations where food is important
- exchange ideas with other facilities
- buy in meals from food services that can cater for diverse cultures
- develop a pantry and provide condiments at the table that are traditionally used (e.g. soy sauce, olive oil, fish sauce, chilli, Tabasco sauce as well as the traditional salt, pepper, tomato sauce and vinegar)
- provide a menu in the language the person is accustomed to.

**Additional information**

  Copies can be purchased by contacting Australian Nursing Home and Extended Care Association on telephone: 02 9212 6922
- Dietitian’s Association of Australia (DAA) [www.daa.asn.au](http://www.daa.asn.au)
- *Food for Health*
  Copies can be obtained from:
  Telephone: 1800 020 208 (ext 8645)
  Email: phd.publications@health.gov.au
  Copies can be obtained from Australian Government Department of Health and Aged Care.
  Telephone: 1800 020 103
  Well for Life is a package aimed to improve the health, independence and well being of residents living in aged care facilities, developed by the National Ageing Research Institute and the Dietitian’s Association of Australia (Victorian Branch). It aims to support residential aged care staff to increase nutrition and physical activity opportunities for older residents.
Appendix N2—Malnutrition screening tool

Malnutrition
Is your patient at risk?

Malnutrition Screening Tool

1. Have you / the patient lost weight recently without trying?
   - No: 0
   - Unsure: 2
   - Yes, how much (kg)?
     - 1 - 5: 1
     - 6 - 10: 2
     - 11 - 15: 3
     - > 15: 4
     - Unsure: 2

2. Have you / the patient been eating poorly because of a decreased appetite?
   - No: 0
   - Yes: 1

Total Score

If your patients have lost weight and / or are eating poorly they may be at risk of malnutrition i.e. score 2 or more.

Malnutrition occurs in approximately 30-35% of acute and 40-45% of residential patients in Queensland Health Institutions.

Action

1. Refer to Malnutrition Action Flowchart and / or refer to Dietitian for full assessment and intervention
2. Document
3. Weigh patients on admission and:
   - (a) weekly (acute)
   - (b) monthly (long-term care)
4. Rescreen patients:
   - (a) weekly (acute)
   - (b) monthly (long-term care)

Small weight losses weekly add up to significant weight loss and malnutrition

Note: Overweight / obese patients who have unexplained weight loss and illness can become protein depleted / malnourished too.

Kindly supplied by Merrilyn Banks – Manager Nutrition and Dietetics. Princess Alexandra Hospital, Queensland Health, Brisbane, Australia
Appendix N3—Malnutrition action flowchart

Kindly supplied by Merrilyn Banks – Manager Nutrition and Dietetics. Princess Alexandra Hospital, Queensland Health, Brisbane, Australia.
Appendix N4a—Weight monitoring chart 70–130 kg

Weight monitoring chart 70–130 kg

Height: _________ cm  Weight (___ / ___ / ___) : ________ kg (on admission)

Body Mass Index (BMI) : ________ (on admission)

<table>
<thead>
<tr>
<th>Date:</th>
<th>130</th>
<th>120</th>
<th>110</th>
<th>100</th>
<th>90</th>
<th>80</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproduced with permission of Toowoomba Health Services District, Queensland Health
Appendix N4b—Weight monitoring chart 30–90kg

Weight monitoring chart 30–90 kg

<table>
<thead>
<tr>
<th>Date:</th>
<th>90</th>
<th>80</th>
<th>70</th>
<th>60</th>
<th>50</th>
<th>40</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>90</td>
<td>80</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>30</td>
</tr>
</tbody>
</table>

Height: ________ cm  Weight (___ / ___ / ___) : ________ kg (on admission)
Body Mass Index (BMI) : ________ (on admission)

Comments

Reproduced with permission of Toowoomba Health Services District, Queensland Health
### Appendix N5—Food and fluid intake chart

<table>
<thead>
<tr>
<th>Day:</th>
<th>Consumed (please circle)</th>
<th>Fluid (ml)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juice</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Cereal</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Yoghurt</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Bread/toast</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Drink</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Other (specify fluid type and volume)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning Tea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Drink</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midday Meal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soup</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Meat</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Bread</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Dessert</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Drink</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Other (specify fluid type and volume)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afternoon Tea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Drink</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evening Meal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soup</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Meat</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Bread</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Dessert</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Drink</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Other (specify fluid type and volume)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Drink</td>
<td>None</td>
<td>¼ ½ ¾ All</td>
<td></td>
</tr>
<tr>
<td>Other (specify fluid type and volume)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NB: Extra fluids i.e. from taking medications, swallow tests, sips of water etc. must be recorded in the above chart as ‘other’ with a volume provided (e.g. Medication—20 mL).
Appendix PF1—Post-fall management

The following applies if a person experiences a fall with:

- no loss of consciousness
- no injuries to exceed minor hematomas and lacerations.

A. No head trauma

1. Determine vital signs to include sitting/standing blood pressure (manual cuff) and pulse.
2. If diabetic, check blood glucose.
3. Determine circumstances leading to the fall with corrections.
4. For the 48 hours following the fall:
   a. obtain vital signs every eight hours
   b. observe for possible injuries not evident at the time of the fall (limb reflex, joint range of motion, weight bearing, etc.)
   c. mental status changes
   d. if restrictions in mobility appear warranted due to the fall
5. All falls will be reported to the attending physician or nurse practitioner on the day of the fall.

B. Minor head trauma

1. Use the same protocol outlined above and, in addition, perform neuro checks every two hours for the first 12 hours, every three hours for the next 24 hours, and every four hours for the following 24 hours. Alert the attending physician for any changes.
2. Alert attending physician for all falls with head trauma in residents receiving anticoagulants.

Additional measures:

- Complete incident report.
- Detailed progress note.
- Review fall-prevention interventions and modify plan of care as indicated.
- Communicate to all shifts that patient has fallen and is at risk to fall.
- Consult the team for additional suggestions for changes to plan of care.
Appendix PF2—Falls Report—Goulburn Valley Health

The Falls Report is a two-page form used to document in detail the circumstances and consequences of falls. This type of detailed information may be useful as the basis for looking at patterns of falls incidents over time. Permission to reproduce this tool was granted by Goulburn Valley Health.

NB: Acknowledgement required if the tool is used by your organisation. Contact details for further information:
Ms Yvonne Roberts
Project Facilitator
Goulburn Valley Health
Graham Street
Shepparton VIC 3630

Ph: 03 5832 2702
Fax: 03 5832 2415
Email: yvonne.roberts@gvh.humehealth.org.au
Falls Report—Residential Setting

Instructions for use

When to use the Falls Report:

- This Falls Report is to be filled out for every fall-related incident in your setting.

Who should complete the Falls Report:

- If the resident is found where they have fallen, by a member of medical or nursing staff, the staff member who found them is responsible for completing the report.
- If a member of medical or nursing staff witnesses a fall, the member of staff who witnessed the fall is responsible for completing the report.
- If the resident is found, or the fall is witnessed, by a visitor or member of staff who is not medically trained they should report the incident to nursing staff and provide a description of the event. The nurse to whom the incident is reported is then responsible for completing the report with the assistance of the staff member who found the resident.
- If the fall was reported to staff after the event the staff member to whom the fall was reported should complete the falls report.

What to do with the report after completion:

- The original report is to be kept in the falls register at the facility.
- A statement on what is known about the fall incident is to be written in the residents notes, along with the action taken and a record of the resident’s condition including vital sign.
Falls Report Residential Setting

Report No.  

DATE OF FALL: ___ / ___ / ____  TIME: ___________________________  Name: ________________  

REPORTED BY: ________________  

SIGNATURE: ________________  

UR/MR number:  

Ward/Unit:  

DOB:  

Gender:  

Admission Date:  

Place UR sticker here or add patient details:  

CAMPUS:  

FALL LOCATION:  

Bathroom  Kitchen  Living Room  Bedroom  Toilet  Recreation area  

Passage  Garden  Road  Footpath  Stairs/steps  Other (state):  

EXACT LOCATION:  

SURFACE TYPE:  

Carpet  Lino  Other (state):  

SURFACE CONDITION:  

Wet  Damaged  Slippery  Other (state):  

Details:  

BED POSITION:  

High  Low  N/A  

RERAINTS USED:  

None  Physical  Chemical  Environme  Cot sides in use  Unknown  

CALL BELL IN REACH?  

Yes  No  N/A  

PATIENT LIGHT:  

On  Off  N/A  

Details:  

MOBILITY:  

Ambulant  Non Ambulant  Lifting aid  Independent  Assist1  Assist2  

AIDS:  

None  Stick  Frame  Crutches  Splints  Scooter  Wheel Chair  

If aid is normally used, was it at time of fall?  

Used correctly  Used incorrectly  Not Used  Unknown  

Comments:  

TYPE OF FALL:  

Slip  Trip  Collapse  Legs gave way  Undue force (eg. pushed)  

Loss of balance  Unknown  Other (state):  

FALL DIRECTION:  

Drop  Sideways  Forwards  Backwards  Unknown  

CIRCUMSTANCES SURROUNDING FALL:  

Dizziness  Faintness  Confusion  Fit  Loss of Consciousness  

Palpitations  Absconding  Aggression  Breathlessness  Unsteadiness  Altered mental state  

TOILETING:  

Patient/resident was attempting to go to the toilet  Incontinence  frequency  urgency  

LAST TOILETED:  

_______ hrs  N/A  

USUAL MENTAL STATE:  

Comment (eg increased confusion):  

DESCRIPTION OF EVENT:  

Was the resident aware the fall was going to happen?  

Yes  No  Unknown  

Resident’s description of fall, including activity immediately prior to fall: (e.g. getting out of bed to go to the toilet)  

Brief description of fall. State only facts of what was seen or heard y you (e.g. resident found on floor…):  

Witnesses description of fall, including activity immediately prior to fall:  

Witness name ______________________Staff member  Visitor  Resident  No witness  

FOOTWEAR:  

None  Lace ups  Runners  Court Shoe  Sandals  Slippers  

Comment:  

EYE GLASSES:  

Does resident wear eye glasses?  

No  Seeing  Reading  Bifocals  

Type used during the fall?  

No  Seeing  Reading  Bifocals  Unknown  

Does resident have a history of falls?  

No  Yes > No of Falls in past 12 months  

CLINICAL OBSERVATIONS/PAIN:  

VITAL SIGNS:  

Temp ___ BP lying ___ / ___ BP Standing 1 min ___ / ___ 3 min ___ / ___ Respiration ___  

Pulse ___ Reg  Ireg  BBS ___ ECG taken  Urine test ___  

Comment:  


**NEUROLOGICAL:**

- Limb weakness
  - Yes
  - No

Comment: ____________________________

**PUPILS:**

- Equal and reacting
  - Yes
  - No

Comment: ____________________________

**VERBAL RESPONSE:**

- None
- Orientated
- Confused
- Inappropriate
- Vocal sounds

Comment: ____________________________

**IMMEDIATE ACTION TAKEN:**

Staff patient/resident ratio at time of fall: _____ : _____

**DOCTOR NOTIFIED:**

- No
- Yes

(Visited) _________ __ / __ / __

Doctors name: ____________________________

(Visited) _________ __ / __ / __

Doctors name: ____________________________

**SYSTEMS CHECKED:**

- Muscular/skeletal
- Respiratory
- Renal Cardiac
- Neurological
- Psychological
- Sensory
- Endocrine
- Nutritional/Hydration

**MEDICATION REVIEW:**

**X-RAYS:**

**HAEMATOLOGY/MICROBIOLOGY:**

- MSU
- FBE
- U&Es
- LFTs
- Other: ____________________________

**Referrals:**

- Signed: ____________________________
- Date: __ / __ / __
- Time: _____________
- Signature: ____________________________

**Unit Manager – Summary of fall:**

- causes, outcome, and action taken

**Name:** ____________________________

Signature: ____________________________

Date: __ / __ / __
Appendix PF3 – Falls clinics

What is a falls clinic?
Falls clinics are ‘specialist multidisciplinary services, which focus on the assessment and management of patients with falls, mobility and balance problems. Clinics commonly provide time-limited, specialist intervention to the client and advice and referral to mainstream services for ongoing management. They provide education and training to clients, to carers and to health professionals.’ Falls clinics should not be the first intervention for an older person who is falling, or at risk of falling.

Who are falls clinics for?
Falls clinics target older people with established balance dysfunction or people who are at increased risk of falls.

How does a falls clinic work?
Referrals are typically received from general practitioners, medical specialists and other health professionals. A core team consisting of a geriatrician, physiotherapist, registered nurse and an occupational therapist typically staffs the clinic. Other team members may include social workers, psychologists, podiatrists, dietitians and pharmacists.

A comprehensive multidisciplinary assessment is undertaken, following which, ongoing management issues are identified. The person is provided with an individually tailored fall-prevention program. Interventions often include gait aid recommendations, home exercise programs and injury prevention strategies (such as hip protector pads and personal alarms). Home hazard assessments are often conducted by occupational therapists in the person’s home. Medical interventions, including medication management and further investigations, are often referred back to the client’s GP for continued management. Review by other medical specialists (e.g. neurologists, ear nose and throat surgeons) may be arranged. Activities, such as supervised exercise programs, are generally referred to existing community agencies for ongoing input.

Review of the literature
A review of research on falls clinics identified one randomised controlled trial that resulted in a significant reduction in falls. It used a multidisciplinary (medical and occupational therapy) comprehensive assessment and targeted management program for older people presenting to an emergency department after a fall. Additionally, other studies of lower level evidence report an average reduction of over 50 per cent in the proportion of people falling after a falls clinic intervention.

A recent study of the outcomes from 14 falls clinics in Victoria identified greater than 50 per cent reduction in falls and falls injuries in a high-risk sample of patients in the six months following falls clinic interventions, compared to the six months prior to falls clinic assessment.

The prevalence of vitamin D deficiency is high in a falls clinic population.

To date the literature does not address the economic evaluation of falls clinic interventions.
## Appendix R1—Restraint documentation forms (Option 1 and 2)

### Restraint Documentation Form (option 1)

| **Name:** | _______________________________ |
| **Date of application:** | _______________________________ |
| **Time of application:** | _______________________________ |
| **Authority name:** | _______________________________ |
| **Authority position:** | _______________________________ |
| **Type of restraint:** | _______________________________ |
| **Reason for restraint:** | __________________________________________ |
| | | |
| | | |
| | | |
| | | |
| **Alternative options considered:** | _______________________________ |
| | | |
| | | |
| | | |
| | | |
| **Outcome from discussion with carers/guardians/decision makers:** | _______________________________ |
| | | |
| | | |
| | | |
| | | |
| **Restriction/s on restrain:** | _______________________________ |
| | | |
| | | |
| | | |
| | | |
| **Intervals for observation of patient:** | _______________________________ |
| | | |
| | | |
| | | |
| | | |
| **Special measures to ensure proper treatment of patient:** | _______________________________ |
| | | |
| | | |
| | | |
| | | |
| **Duration of restraint:** | _______________________________ |
| | | |
| | | |
| | | |
| | | |

Reference:
Restraint Documentation Form (option 2)

Patient Name: _____________________________________________________________

Date of Application:        /     /

Time of Application:                 am/pm

Authority Name: ____________________________________________________________

Authority Position: __________________________________________________________

Type of Restraint: ___________________________________________________________

Reason for Restraint: ________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Alternative options considered: ________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Outcome from discussion with carers/guardians/decision makers: ___________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Restriction/s on restrain: _____________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Intervals for observation of patient:  5 mins  20 mins  1 hour
(please circle one)                       10 mins  30 mins 2 hour

Special Measures to ensure proper treatment of patient: __________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Duration of restraint:        30 mins      1 hour      2 hour      3 hour
(please circle one)           half day      all day      only when awake      only when asleep
Appendix S1—Types of syncope and causes

Cardiovascular syncope

- Reflex syncope:
  - Vasovagal, due to fear, stress, or pain is due to a fall in peripheral vascular resistance without the compensatory normal rise in heart rate
  - Situational, micturition, cough, defecation syncope, is mediated by autonomic bradycardia and vasodilation, often accentuated by the Valsalva manoeuvre.
  - Post-prandial is caused by venous pooling in the splanchnic circulation and is exacerbated by impaired baroreceptor function.

- Orthostatic syncope: secondary orthostatic syncope from hypotensive or psychomotor drugs is common with a drop of 10–20 mm Hg on standing without compensatory increase in heart rate. Primary orthostatic syncope (Shy-Drager syndrome) is less common.

- Carotid sinus syncope* is caused when carotid stimulation causes a heart rate pause of >3 seconds. Older people may have carotid hypersensitivity secondary to carotid artery disease. Falls can only be attributable to this cause after an exhaustive search for other causes of loss of consciousness is not fruitful.

- Cardiac syncope:
  - Stokes-Adams attacks: high degree A-V block is usually caused by drug toxicity, coronary artery disease, or hypokalemia. Treatment is a pacemaker.
  - Sick sinus syndromes: S-A node impulse generation and or conduction leads to sinus bradycardia, pause or arrest. It can be caused by ischemia or unmasked by drugs such as theophylline.
  - Ventricular tachycardia: caused by ischemia, previous MI, electrolyte imbalance or drugs
  - Pacemaker malfunction.

Neurological syncope

- TIA causing syncope usually is due to vertebrobasilar insufficiency and should be accompanied by signs of brainstem dysfunction (TIAs in the carotid distribution almost never cause syncope).

- Vertebral artery compression may be induced by cervical spondylosis or a cervical rib. Symptoms occur on turning the head.

- Epilepsy. Funny turns, recurrent, unwatched and without patient awareness should raise the suspicion of epilepsy. A trial of anticonvulsants may be warranted.

Psychiatric syncope:
Anxiety attacks can result in hyperventilation, pre-syncope and syncope.

*Falls from carotid sinus syncope, if identified correctly are almost completely prevented by pacemaker insertion.188
Appendix V1—How to measure distance, vision and visual acuity

- The person should be seated at a distance of 6 metres from the visual acuity chart.
- The test should be performed twice; once with the person not wearing any spectacles, and once with the person wearing their spectacles (make sure the spectacles are for distance vision).

Steps for measuring distance, vision and visual acuity:

1) Cover the left eye completely, then ask the person to start reading the letters on the top line of the chart with the right eye (the person should state the direction of the turtle’s tail if the turtle chart is used, or the direction of the ‘E’ if the illiterate ‘E’ chart is used). Ask the person to keep reading the letters on the chart, line by line, until they can no longer accurately identify the letters. Record the visual acuity. The vision/visual acuity should be scored as follows (these are just examples):
   i) If the person is able to read three letters on the 6/30 line, but the other two letters on that line are read incorrectly, the vision is recorded as 6/30-2
   ii) If the person is able to read two letters on the 6/6 line (the line below the 6/7.5 line) the vision is recorded as 6/7.5+2. This indicates that the person was able to read as far as the 6/7.5 line, and could also read two letters on the next line.

2) When vision/visual acuity for the right eye has been recorded, this eye should be covered, and the left eye tested.

3) The cover should then be removed from the left eye so that both eyes can be tested together—this measurement is known as binocular visual acuity.

4) If the person cannot see the top line of the chart, you will need to move the chart in until they can recognise the letters on the top line (in this case, it is important to make sure that the person can actually read letters, i.e. that they are literate). If this is done, the visual acuity values have to be adjusted to account for the change of distance. For example, if the person has poor acuity and can only see the 6/60 line when the chart is held at two metres, the vision would be recorded as 2/60. The top figure is always the distance at which the chart was read.

Text kindly supplied by Dr Joanne Wood. School of Optometry. Queensland University of Technology. Brisbane, Australia


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