Falls are a common presentation to GP surgeries, emergency departments and medical and orthopaedic admission units. The term ‘mechanical’ (i.e. accidental) fall is commonly used – accidental falls among older people admitted to hospital are uncommon, and recurrent falls should never be considered accidental. Older people often fall because of medical problems, many of which can be treated.

### The problem of falls

For research purposes, the definition of a fall is ‘unintentionally coming to rest on the ground or some lower level and other than as a consequence of sustaining a violent blow, loss of consciousness, or sudden onset of paralysis as in stroke or epileptic seizure’. Around one-third of people over the age of 65 living in their own homes fall each year. Half of all falls occur in the home, during routine activities of daily living, often with no obvious environmental hazard. The incidence of falls is higher for those living in institutions. Around half of care home residents who are mobile fall each year.

Falls in older people are more likely to lead to injuries. These occur in 50% of cases, mostly minor. In 1999 there were around 650000 emergency department attendances for fall-related injuries in the over 60s. Even without an injury, some fallers are unable to get off the floor by themselves, which can lead to a ‘long lie’ causing dehydration, hypothermia, pressure sores and pneumonia. Falls also lead to loss of confidence and fear of falling. After a fall, half of older people report a fear of falls, and one-quarter limit their activities.

Around 5% of falls in older people lead to fractures. There are 86000 hip fractures each year in the UK and 95% of these are the result of a fall. The total cost to the National Health Service is £1.7 billion per year – and this does not take into account loss of independence, reduced quality of life and costs to carers and social services.

### Why do older people fall?

Falls in older people can be categorised into one of three groups:
- fall due to an acute illness
- single fall, which may be accidental
- recurrent falls.

A fall can be the presenting complaint for a range of acute illnesses in older people, and if faced with a person who has just fallen, you should screen for these (Box 4.1). The most common precipitating
How to assess an older person who has fallen

The 2004 National Institute for Health and Clinical Excellence (NICE) guidelines on the assessment and prevention of falls in older people recommend that all people over the age of 65 in contact with a member of the healthcare team should be asked how many times they have fallen in the last 12 months. People reporting a fall, or deemed to be at risk of falls, should receive a basic assessment as they may benefit from participation in a local falls programme, which involves muscle strength and balance training, information and help (e.g. for home hazards).

Older people who require medical attention because of a fall or who report more than one fall in the last 12 months should receive a ‘multifactorial falls risk assessment’. This is because recurrent falls usually have many causes (see Figure 4.2) and multifactorial interventions rather than single ones have been shown to be effective. A multifactorial assessment can be done by any trained member of the healthcare team, and usually involves more than one. The main components, as well as making any medical diagnoses, are vision assessment, medication modification, muscle strength and balance training, and assessment of home hazards. Home care staff and paramedics, as well as other healthcare professionals, should be able to refer people for such an assessment. Figure 4.3 summarises the basic and multifactorial risk assessments of an older person who has fallen. An action plan should follow.

**Box 4.2 Risk factors for falls**

1 **Social and demographic factors**
   - Advanced age
   - Living alone
   - Previous falls
   - Limited activities of daily living

2 **Age-related changes**
   - Reduced ability to discriminate edges (e.g. stairs)
   - Reduced peripheral sensation
   - Slower reaction times
   - Muscle weakness

3 **Poor gait and balance (postural instability)**

4 **Medical problems**
   - Cognitive impairment
   - Parkinson’s disease
   - Cerebrovascular disease
   - Eye diseases that reduce acuity (e.g. cataracts, glaucoma, age-related macular degeneration)
   - Arthritis
   - Foot problems
   - Peripheral neuropathy
   - Incontinence

5 **Medications**
   - Psychiatric medication (e.g. antidepressants)
   - Cardiovascular medication (e.g. antihypertensives)
   - Being on four or more medications

6 **Environmental factors**
   - Ill-fitting footwear (e.g. high heels, loose slippers)
   - Wearing bifocal or varifocal spectacles

**How to assess an older person who has fallen**

Occasionally the clinician will come across a person who has had a genuine accidental fall (e.g. slipped on ice), who has a normal gait and balance and no other risk factors for falls. However, all older people presenting with a fall should have a basic falls assessment to look for any underlying cause (see later).

This chapter is mainly concerned with recurrent falls, i.e. people who have fallen more than once. Hundreds of different risk factors for recurrent falls have been identified, and are sometimes referred to as ‘intrinsic’ (e.g. muscle weakness, balance problems, poor vision, cognitive impairment) or ‘extrinsic’ (e.g. being on four or more prescription medications, environmental hazards – see Figure 4.1). Risk factors have a synergistic effect, so that risk rises dramatically as the number of risk factors increases. Risk factors for falls can be categorised into six main groups (Box 4.2).

There are particular risk factors for falls in institutions, and there is evidence that falls could be reduced if these are addressed (see Lord et al. in further resources section).

**Figure 4.1** Stairs with a swirly patterned carpet. Ageing is associated with a decline in contrast sensitivity, or the ability to discriminate edges, accommodation and depth perception. About 10% of fall-related deaths occur on stairs and 75% of falls on stairs occur coming down, especially on the last step. Wearing bifocal or varifocal spectacles is an added risk factor for falls in this situation.
Referral to a geriatrician with a special interest in falls is appropriate in the following situations:
- an abnormal gait and balance that require a diagnosis
- possible loss of consciousness
- when dizziness is a precipitating factor
- when medical conditions contributing to the falls could be optimised (e.g. postural hypotension, Parkinson’s disease)
- recurrent unexplained falls (e.g. in patients with normal gait and balance).

Box 4.3 explains the ‘get-up-and-go test’ in more detail and Figure 4.4 outlines when admission to hospital is indicated after a fall.

**The relationship between falls and syncope**

Many older people are found lying on the floor without an eyewitness account of how they got there. It is impossible to decide whether a fall, syncope or seizure occurred – all are common in this age group. Cognitive impairment, retrograde amnesia or even a desire to explain the event means that older people often say they have tripped when they have not. Other causes (e.g. syncope) should be considered as a cause of falls when the falls are unexplained or the patient cannot remember hitting the ground.

In the SAFE PACE study, older people attending an emergency department because of falls without loss of consciousness were screened for carotid sinus hypersensitivity, a condition that causes transient bradycardia and hypotension when the carotid body in the neck is pressed or stretched. Of those who were diagnosed as having
Dizziness and falls

Dizziness is frequently associated with falls and is a common symptom in older people. There are three patterns of dizziness:

- light-headedness or ‘not right’ on standing or walking around
- vertigo
- ‘fuzzy all the time’.

Light-headed episodes independent of posture can be caused by hypoglycaemia or cardiac arrhythmias and will not be considered further. Postural (orthostatic) hypotension is common in older people (see Box 4.4), but many do not describe their symptoms as ‘light-headedness’, instead referring to feeling ‘not right’ or ‘off balance’ when standing or walking. If the symptoms are mainly present when upright or walking around, postural hypotension should be suspected, particularly if the individual tends to have a low blood pressure or is taking antihypertensive medication. Many older people have a blood pressure that falls slowly after assuming the upright position, and a simple lying and standing blood pressure may not detect any change. A tilt test can be used to investigate this further in the context of collapses (see Chapter 6).

Vertigo refers to a sensation of movement in any direction and does not necessarily mean ‘spinning’. Four main types of vertigo are outlined in Figure 4.5. Benign paroxysmal positional vertigo (BPPV) is extremely common and can present with balance problems and falls in older people as well as the classical brief vertigo on looking up. Posterior canal BPPV is the most common type and is diagnosed by the Dix–Hallpike manoeuvre and treated by the Epley manoeuvre (see Figure 4.6). The other types of vertigo shown can also be successfully treated (see Furman and Cass in further resources section).

Brief vertigo on looking up is often attributed to vertebrobasilar insufficiency, which is rare and does not cause vertigo alone; or cervical spondylosis, which is a common X-ray finding but is controversial as a cause of dizziness, does not cause vertigo alone, and should not be considered an adequate explanation.

‘Fuzzy all the time’ is a particularly frustrating form of dizziness, and in older people may be associated with diffuse cerebrovascular disease.
disease or medication. Sometimes it is compounded by other things that cause dizziness (e.g. postural hypotension or a vestibular problem) and in addition the patient may have poor vision/bifocals and a peripheral neuropathy. This syndrome is referred to as ‘multifactorial dizziness in the elderly’ [sic]. As well as having more than one type of dizziness, there are multiple pathologies in different parts of the body that together produce a sensation of disequilibrium most of the time. These patients can be helped by referral to a geriatric team with a special interest in dizziness.
Figure 4.6 The Hallpike and Epley manoeuvres for BPPV. Most benign paroxysmal positional vertigo (BPPV) is caused by a problem with the posterior semicircular canal in the inner ear. It is diagnosed on the basis of history, normal neurological examination and a positive Dix–Hallpike manoeuvre (pictures 1 and 2) which produces transient vertigo and characteristic nystagmus. If positive, the clinician can go on to perform the Epley manoeuvre (pictures 3, 4 and 5), which repositions stray endolymphatic debris which is the cause of the symptoms. In 75% of cases of BPPV, symptoms spontaneously resolve in a month or two. But for those whose symptoms persist, the Epley manoeuvre is extremely effective and can be performed with assistance even in frail elderly patients. For a more detailed explanation, see Furman and Cass in further resources section.

1 To test the right ear, the patient sits on a couch with the head turned to the right

2 The clinician supports the neck, as the patient lies flat as quickly as possible, with the head slightly dangling over the edge of the couch so that the chin points slightly upwards, still turned to the right. This may produce vertigo and nystagmus. The hallmarks of nystagmus in posterior canal BPPV are delayed (by up to 20 seconds), rotational (towards the affected side), and fatigable (it gets less each time the manoeuvre is performed)

3 The vertigo and nystagmus settle after a few minutes, then the patient’s head is turned to the opposite side

4 After a further few minutes, the patient’s head is turned to look down at the floor. He has to turn on his side to do this

5 After a further few minutes, and with the head still turned towards the left shoulder, the patient is assisted into a sitting position. Once upright, the head is tilted so that the chin points slightly downward
Further resources


