

FIGURE 124.17 Ideal position of the forearm in a Colles plaster: note ulnar deviation, slight flexion and pronation

Problems associated with Colles fracture:

- watch for ruptured extensor pollicis longus tendon
- stiffness of the elbow, MCP joints and IP joints
- discomfort at inferior radio-ulnar joint due to disruption
- regional pain syndrome

Pitfall: the unstable Colles fracture⁷

With the advent of modern imaging techniques and power equipment it has become a simple procedure to pin unstable Colles fractures percutaneously, even in the elderly. Thus, severe deformities are now unacceptable. An early percutaneous pin is much simpler than a late osteotomy. Colles fractures deserve more respect than they received in the past.

Remember the basic classification into intra-articular and extra-articular fractures. Restoring reasonable joint surface alignment is an important part of the treatment and fortunately is usually relieved with simple traction under local or general anaesthesia.

Smith fracture of lower end of radius

This is often referred to as a ‘reverse Colles’. It is caused by a fall onto the back of the hand. The lower fragment is flexed and impacted on the upper fragment. It is reduced and immobilised for

6 weeks in a cast as for Colles fracture but with the wrist extended. Unstable fractures may require an above-elbow cast initially with the forearm in supination.

Ulna styloid fracture

Treat symptomatically. Delayed union or non-union is common, but rarely symptomatic.

Page 1402

Radial styloid fracture

Undisplaced: plaster slab for 3 weeks.

Displaced: closed reduction and plaster slab for 6 weeks. If this fails—open reduction.

Scaphoid fractures

Scaphoid fractures account for almost 75% of all carpal fractures (see FIG. 124.18), but are rare in children and the elderly.¹⁰ A scaphoid fracture is caused typically by a fall onto the outstretched hand.

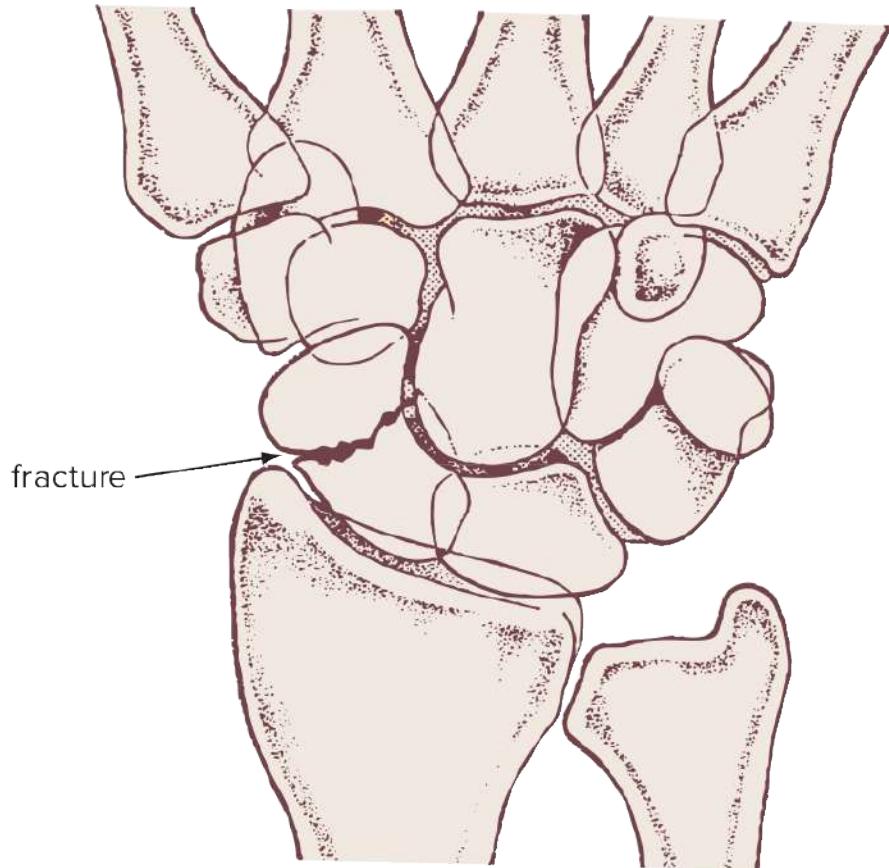


FIGURE 124.18 Typical appearance of a fractured scaphoid

Features

- Pain on lateral aspect of wrist
- Tenderness in the anatomical snuffbox (the key sign)
- Swelling in and around the snuffbox
- Pain or clicking on movement of the wrist
- Pain on axial compression of the thumb towards the radius

There is a 20% rate of false-positive reporting of scaphoid radiographs and clinical confirmation of the diagnosis is mandatory.¹¹

If a scaphoid fracture is highly suspected in the presence of a normal X-ray of wrist, immobilise the wrist in a scaphoid plaster for 10 days (ensure 1st MCP joint is immobilised), remove it and then re-X-ray. Isotopic bone scan may be indicated in cases where suspicion of fracture is high despite normal X-rays. For undisplaced and stable fractures, 6–8 weeks in a below-elbow scaphoid cast usually suffices (see FIG. 124.19). Displaced fractures of the scaphoid require reduction (either open or closed) and, if unstable, internal fixation.

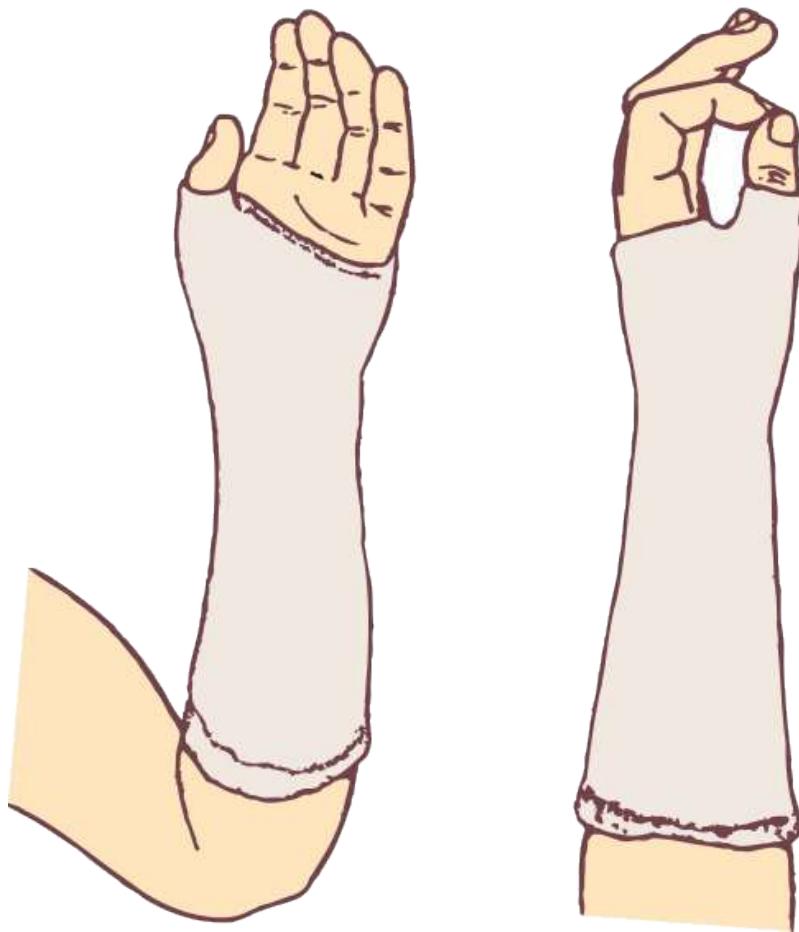


FIGURE 124.19 Appearance of the scaphoid plaster. Note that the first MCP joint is enclosed, with 2–5 MCP joints free.

All scaphoid fractures require late X-ray evaluation of treatment to diagnose non-union before they become symptomatic from late degenerative changes. Early bone grafting of a non-union can prevent fragment collapse and radioscapheoid degenerative changes.

Pitfall

The fracture may not be apparent on routine wrist X-rays. Request lateral, antero-posterior and specific scaphoid views.

Scapholunate dissociation

This not uncommon carpal injury results from disruption of the scapholunate interosseous ligament and palmar radiocarpal ligaments. It results in a gap appearing between the scaphoid and lunate bones (the so-called ‘Terry Thomas’ sign on plain AP X-rays of the wrist) and the scaphoid rotating into a vertical position on lateral X-rays. It is associated with pain in the wrist on dorsiflexion. Median nerve compression may occur after wrist or carpal dislocations.

Early diagnosis with referral simplifies treatment. This injury has been recognised only in recent times.

Injuries of the hand

The management of hand fractures is all about restoring function. A single stiff or deformed joint can have a lifelong impact on hand function.

Page 1403

Thumb fractures

The thumb's special function renders injuries more difficult than other digits. Fractures well clear of the joints in the proximal and distal phalanges are treated in a similar way to other digits. However, intra-articular injuries are more common and internal fixation is more likely on the thumb than other digits.¹²

Bennett fracture

This is a fracture-dislocation of the first carpometacarpal joint. The larger fragment of the first metacarpal dislocates proximally and laterally (see FIG. 124.20).

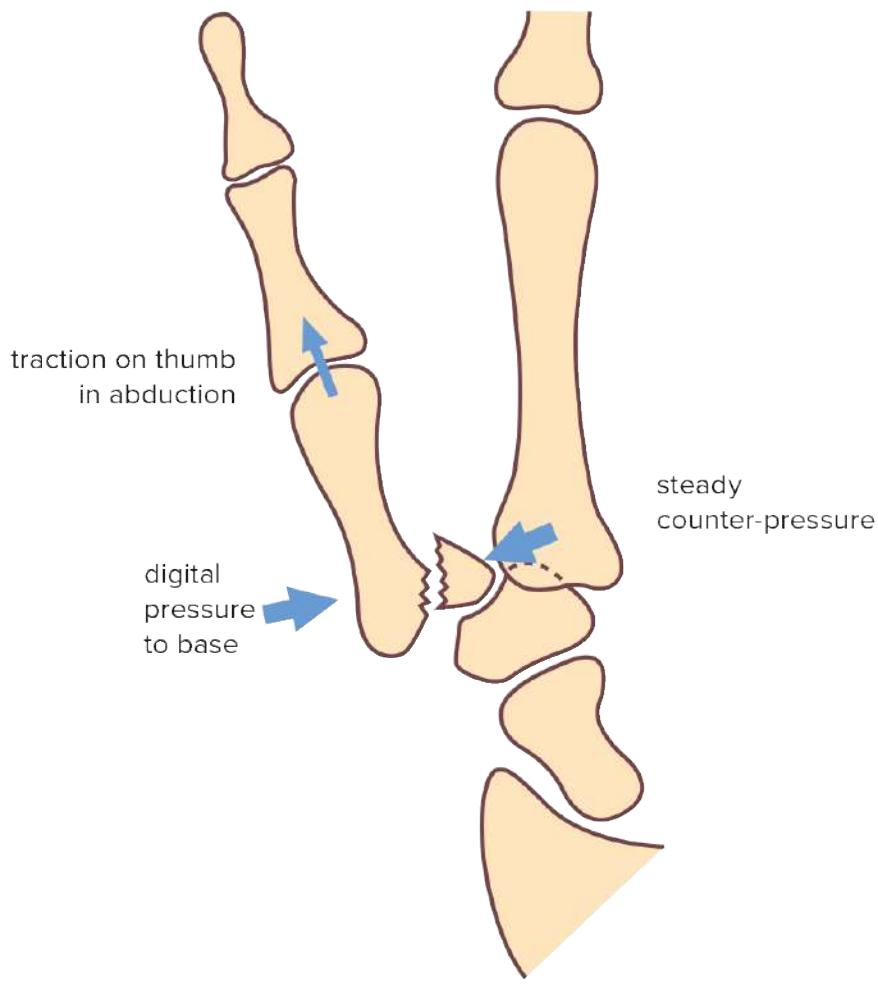


FIGURE 124.20 Method of reduction of a Bennett fracture: dislocation of the first carpometacarpal joint

Treatment

Under anaesthesia, the thumb is reduced using the forces indicated (see FIG. 124.20). A scaphoid plaster is applied with the thumb in the open grasp position. If anatomical reduction cannot be achieved by closed means, then open reduction and internal fixation is indicated. Percutaneous pinning with wires under X-ray control is also commonly used to hold an anatomical reduction.

Gamekeeper's (or skier's) thumb

This problematic injury of the metacarpophalangeal joint is presented in more detail in CHAPTER 53.

Metacarpal fractures

Metacarpal fractures can be stable or unstable, intra-articular or extra-articular, and closed or open. They include the ‘knuckle’ injuries resulting from a punch, which is prone to cause a fracture of the neck of the fourth and fifth metacarpal. As a general rule, most metacarpal (shaft and neck) fractures are treated by correcting marked displacements with manipulation (under anaesthesia) and splinting with a below-elbow, padded posterior plaster slab that extends up to the dorsum of the proximal phalanx and holds the metacarpophalangeal joints in a position of function (see FIG. 124.21).

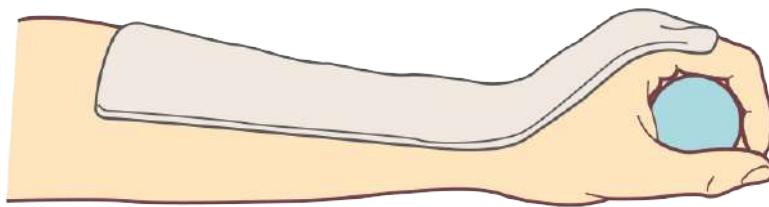


FIGURE 124.21 Fracture of the metacarpal: showing position of function with posterior plaster slab and the hand gripping a roll of felt padding

There is often a tendency for metacarpal fractures to rotate and this must be prevented. This is best achieved by splinting the metacarpophalangeal joints at 90°, which corrects any tendency to malrotation. If there is gross displacement, shortening or rotation, then surgical intervention is indicated. A felt pad acts as a suitable grip. The patient should exercise the free fingers vigorously. Remove the splint after 3 weeks and start active mobilisation.

Phalangeal fractures

These fractures result from either direct trauma causing a transverse or a comminuted fracture, or a torsional force causing an oblique fracture. The tendency to regard fractures of phalanges (especially middle and proximal phalanges) as minor injuries (with scant attention paid to management and particularly to follow-up care) is worth highlighting. These fractures require as near-perfect reduction as possible, careful splintage and, above all, early mobilisation once the fracture is stable—usually in 2–3 weeks.

Nevertheless, overzealous mobilisation can be as dangerous as prolonged immobilisation. Early operative intervention should be considered if the fracture is unstable.

Angulation is usually obvious but it is most important to check for rotational malalignment, especially with torsional fracture. A simple method is to get the patient to make a fist of the hand and check the direction in which the nails are facing. Furthermore, each finger can be flexed in turn and checked to see if the fingertips point towards the tubercle of the scaphoid (palpable halfway along the base of the thenar eminence and 1.5 cm distal to the distal wrist crease).

- *Distal phalanges*: usually crush fractures; generally heal simply unless intra-articular. Disturbance of nail growth is common.
- *Middle phalanges*: tend to be displaced and unstable—beware of rotation.
- *Proximal phalanges*: of the greatest concern, especially of the little finger; intra-articular fractures usually need internal fixation.

Treatment

Non-displaced phalanges with no rotational malalignment. Strap the injured finger to the adjacent normal finger with an elastic garter or adhesive tape for 2–3 weeks (i.e. ‘buddy strapping’) (see FIG. 124.22). Start the patient on active exercises.

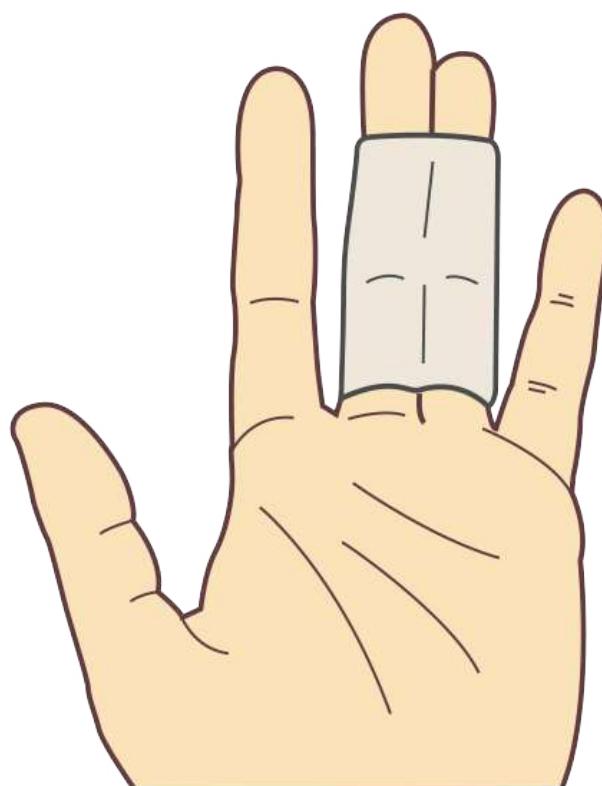


FIGURE 124.22 Treatment of non-displaced phalanges by ‘buddy strapping’: the fractured finger is strapped to an adjacent healthy finger. A thin gauze between the two fingers reduces irritation.

or

If pain and swelling is a problem, splint the finger with a narrow dorsal or anterior slab (a felt-lined strip of malleable aluminium can be used).

An alternative is to bandage the hand while the patient holds a tennis ball or appropriate roll of bandage in order to maintain appropriate flexion of all interphalangeal joints.

Displaced phalangeal fractures (usually proximal and middle). With suitable anaesthesia, correct the deformity by traction and direct digital pressure. Maintain correction by splintage for 2–3 weeks. Ensure flexion at the interphalangeal joints with a dorsal padded plaster slab from above the wrist to the base of the fingernail (see FIG. 124.23).

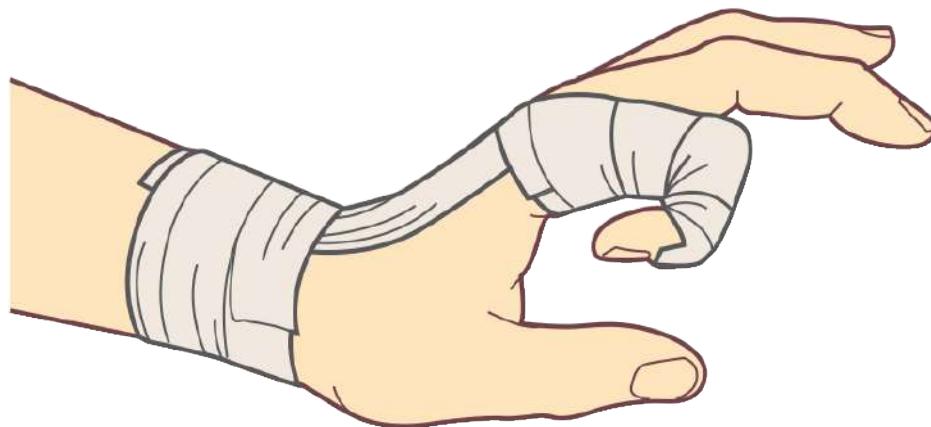


FIGURE 124.23 Method of splinting a phalangeal fracture of the index finger by a posterior plaster slab

Intra-articular phalangeal fractures

Intra-articular phalangeal fractures are a great problem to manage as subsequent stiffness of even a single interphalangeal joint can be a significant disability. Subsequent degenerative changes are common.

These fractures often occur in association with subluxation or dislocation of the joint. Reduction and fixation of the fracture may be an integral part of restoring joint stability. Displaced intra-articular phalangeal fractures, especially with joint instability, require referral.

Mallet finger

Refer to [CHAPTER 53](#).

Penetrating injuries to the hand

Assessing these injuries requires a careful history and examination. The pugilist who sustains a seemingly minor cut over a ‘knuckle’ may have a tooth-penetrating injury to the metacarpophalangeal joint. In the flexed position, the dorsal hood is drawn over the joint. The point of penetration of the hood retracts as the finger extends and ‘locks’ saliva into the joint.

This injury invariably results in a severe septic arthritis unless aggressively treated with surgical debridement and high-dose antibiotics. Given the common occurrence of oral pathogens, antibiotic cover should include anaerobic organisms.

Refer to [CHAPTER 123](#).

Dislocated fingers

In most cases, the distal part dislocates dorsally.

For dislocated fingers, immediate reduction is advisable. Test for an associated fracture and X-ray if appropriate. General anaesthesia may be necessary for reduction of a dislocated thumb.

Page 1405

Simple reduction of a dislocated interphalangeal joint

This method employs the principles of using the patient's body weight as the distracting force to achieve reduction of the dislocation. It is relatively painless and very effective.

Method

1. Face the patient, both in standing positions.
2. Firmly grasp the distal part of the dislocated finger. A better grip is achieved by wrapping simple adhesive tape around the end of the finger.
3. Ask the patient to lean backward, while maintaining the finger in the fixed position (see [FIG. 124.24](#)).
4. As the patient leans back, sudden, painless reduction should spontaneously occur. Otherwise under a ring block or sedation, apply traction and push the proximal phalangeal head dorsally. Splint the joint for 3 weeks to allow soft-tissue healing.

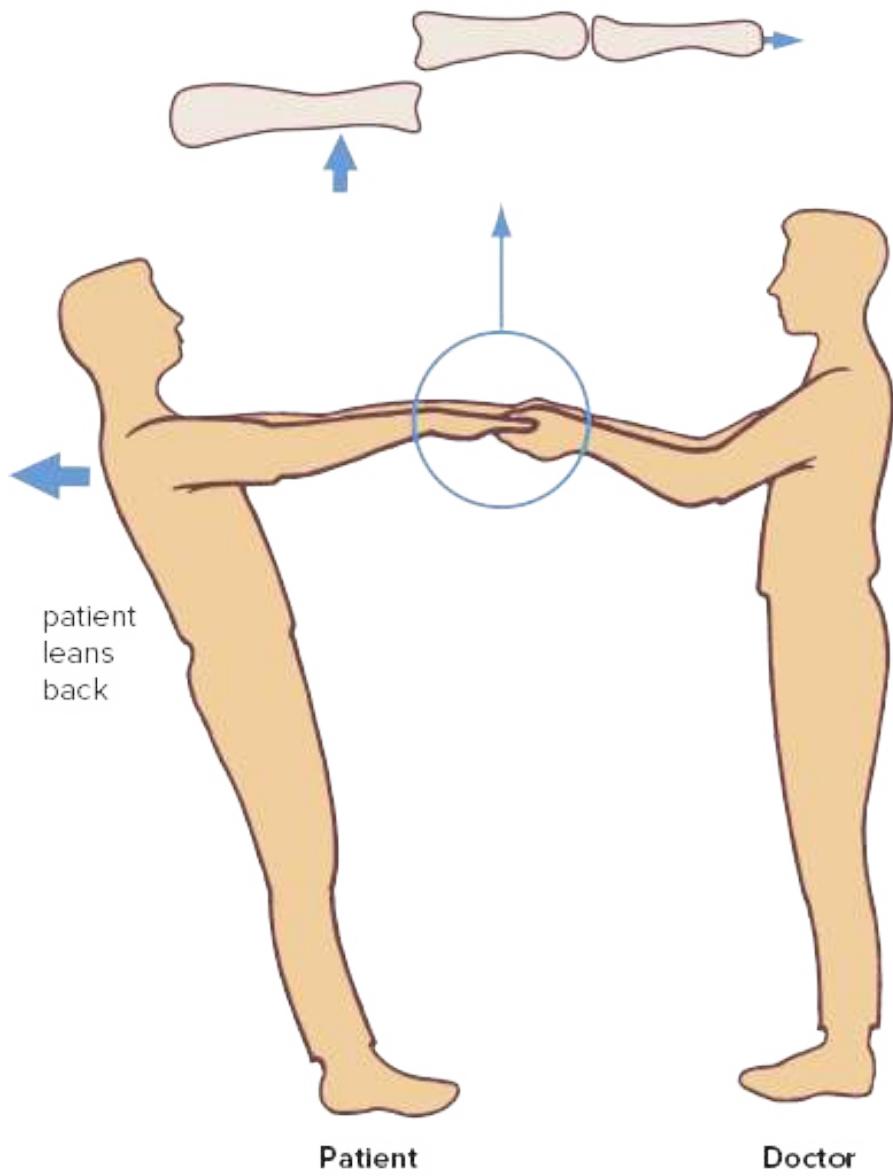


FIGURE 124.24 Reduction of a dislocated finger

Pitfalls

- Instability—torn collateral ligaments: unstable in lateral direction
- Interposed volar plate—postreduction full flexion absent
- Fractures of base of phalanx

- Extensor mechanism rupture (e.g. buttonhole deformity at PIP joint or mallet finger deformity at DIP joint)

These problems may need surgical reduction.

Injuries to the pelvis and hip

Fractures of the pelvis

Fractures of the pelvic ring are either:

1. stable: a single fracture
2. unstable: a break at two sites or association with disruption of the symphysis pubis or sacroiliac articulation

Treatment

Stable pelvic fracture:

- symptomatic, especially analgesics
- bed rest as pain symptoms dictate
- attempt walking with an aid as soon as comfortable

Unstable fractures: these are usually serious with possible associated visceral damage or blood loss. Patients should be referred for expert help.

Femoral fractures

Femoral neck fractures include:

- subcapital fractures
- intertrochanteric fractures
- stress fractures in the young

Subcapital fractures are usually treated by pinning. Greatly displaced subcapital fractures in the elderly have a high risk of femoral head avascular necrosis. Thus, prosthetic replacement of the femoral head may be considered as a primary option.

A trap can be the impacted subcapital fracture that may allow partial weight-bearing, thus making radiological investigation essential in elderly patients complaining of hip pain. The fracture may not be evident on plain X-rays. If suspicion of fracture is still high, a bone scan should be performed.

Beware of the teenage athlete who complains of hip pain after running. Exclude a slipped upper femoral epiphysis and then a stress fracture. A technetium-99m bone scan will detect the fracture. A stress fracture may displace without warning, posing a serious risk of femoral head avascular necrosis. Thus, stress fractures must be considered for prophylactic pinning.

A summary of the management of other femoral fractures is presented in [FIGURE 124.25](#).

[Page 1406](#)

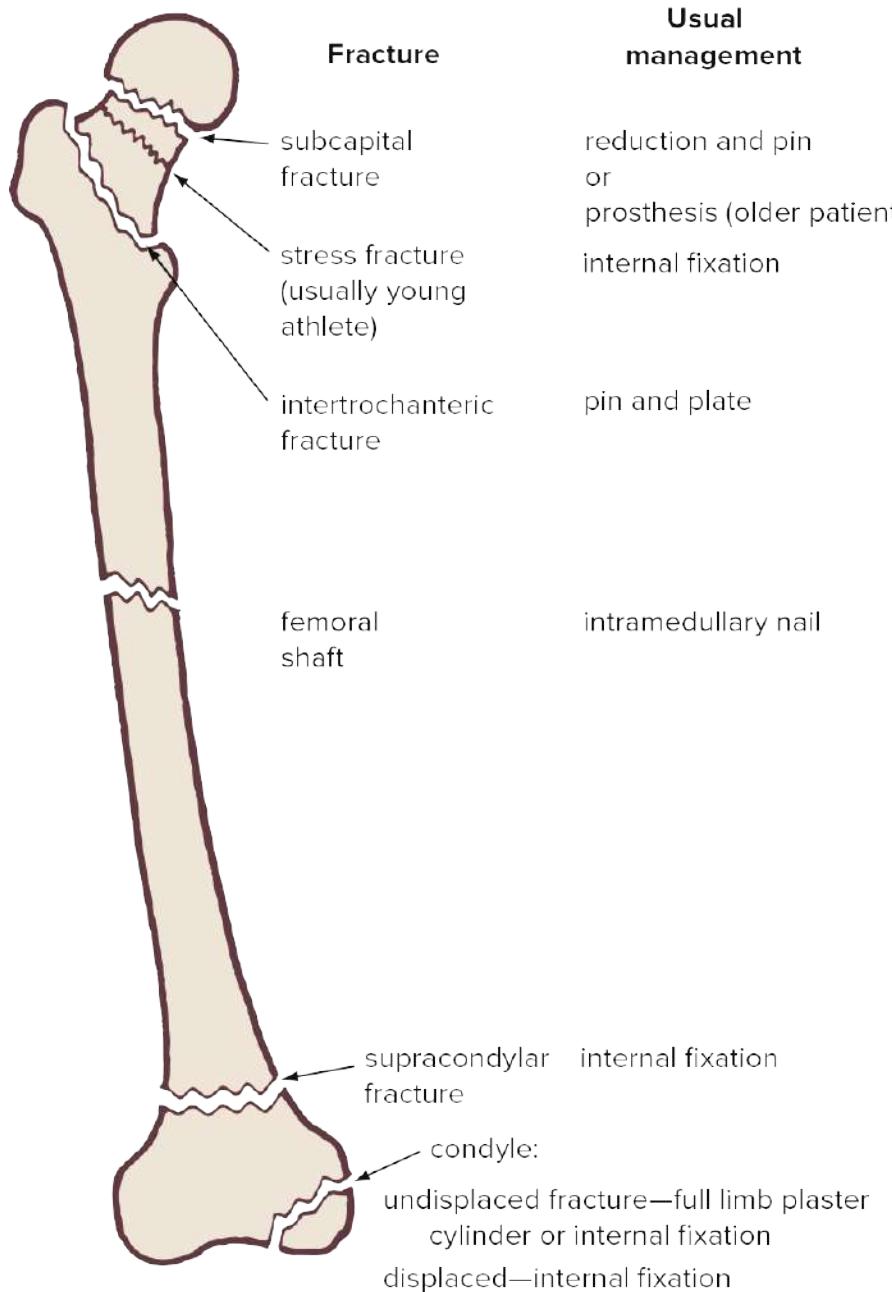


FIGURE 124.25 Management of basic fractures of the femur

Posterior dislocation of the hip

This causes a very painful shortened leg, which is held adducted, medially rotated and slightly flexed. Be careful of sciatic nerve damage. Early reduction within hours minimises the risk of avascular necrosis of the femoral head.

Management

- Adequate analgesia
- X-rays to confirm diagnosis and exclude associated fracture
- Reduction of the dislocated hip under relaxant anaesthesia
- Follow-up X-ray to confirm reduction and exclude any fracture not visible on the first X-ray
- Intra-articular bone fragments need to be excluded by CT scanning

Note: Femoral neurovascular injury may occur in the rare cases of anterior dislocation of the hip.

Injuries of the lower limbs

Patella dislocation and subluxation

An acute dislocation needs to be reduced as a medical emergency.

The dislocated patella, which occurs mainly in children and young adults, especially girls, is always displaced laterally (see FIG. 124.26), often following a rotational and valgus force. The patient may feel the patella dislocate and it may sometimes reduce spontaneously. It may be associated with an osteochondral injury on the medial facet of the patella or the lateral femoral condyle. There is often a tense joint effusion, especially in the presence of an osteochondral fracture. Predisposing factors include valgus knees, a small mobile patella, a laterally placed tibial tuberosity, a shallow patellofemoral groove and ligamentous laxity. Immediate reduction can be attempted by gently flexing the hip to relax the quadriceps, placing the thumb under the lateral edge of the patella and pushing it medially as the knee is extended. This may be attempted without anaesthesia or by using morphine and intravenous diazepam as a relaxant.



FIGURE 124.26 Dislocated patella showing lateral displacement

X-rays with anteroposterior, lateral, skyline and intracondylar views should be taken to exclude an associated osteochondral fracture.

The usual RICE treatment should be given initially and crutches provided. Rest of the injured knee is achieved using a knee splint with the knee held in extension and crutches for 4 weeks.

Weight-bearing is permitted when the swelling has subsided and the patient is gradually taken off the crutches. Introduce quadriceps exercises with the knee in extension.

Page 1407

Patellar subluxation is when the patella is mobile and does not actually dislocate, but results in episodic pain and feelings of instability. Physiotherapy and appropriate splintage for sporting activities is helpful before surgical stabilisation is considered.

Recurrent dislocations/subluxations in young females (14–18 years) require surgery—combined tibial tubercle transfer with lateral release of the capsule. Immediate surgery in the acute phase is undertaken only in the presence of haemarthrosis with an osteochondral fracture.

Fractures of the patella

- Fractures without displacement: walking plaster cylinder 4 weeks
- Displaced single transverse fracture: surgical reduction with Kirschner wires
- Displaced and comminuted fracture: refer to consider patellectomy

Fractures of both tibia and fibula

The nature and management of these fractures vary considerably. Some fractures are caused by blunt injuries, such as a blow from a motor car bumper, while twisting forces cause a spiral fracture of both bones at different levels. As a general rule, referral of patients to a specialist is necessary, especially where soft-tissue damage is significant. Management of fractures with minimal soft-tissue damage can be summarised thus:

- no or minimal displacement: full-length cast as for isolated fracture of tibia
- displacement: reduction under general anaesthesia, then application of cast as above (meticulous alignment essential)
- period of immobilisation: adults 16 weeks, children 8 weeks

Fracture of fibula¹⁰

An isolated fracture of the fibula is usually due to stress or to a direct blow. The patient is generally able to stand and move the knee and ankle joints. However, most spiral fractures are associated with injuries of the ankle or knee. The ankle in particular should be examined and X-rayed.

Treatment is usually with analgesics to control the pain and no more than a crepe bandage or a walking stick is necessary. A below-knee walking plaster for about 3 weeks will help those with severe discomfort.

Fracture of the tibial shaft

A fracture of the tibia alone is uncommon in adults but more common in children, due to a twisting injury. Reduction may not be necessary in some patients. Many can be reduced to a satisfactory position in the anaesthetised patient by letting the fractured leg hang over the edge of the table with the knee at a right angle.

A padded cast from the groin to the metatarsal necks is applied with the knee joint at 10° of flexion, and the ankle at a right angle. This should be maintained for 3–4 months.

Toddler's fracture¹⁰

Toddler's fracture is a hairline spiral fracture of the tibia that is common in children aged 1–2 years. They may present with failure to weight-bear after minimal or no known trauma. The fracture may not be seen on X-ray. A backslab for 4 weeks may relieve discomfort.

Fracture around the ankle

The ankle is one of the areas liable to fractures. The commonest mechanism is forceful inversion of the foot, which can cause fracture of the fibula on a level with the joint line and tearing of the lateral collateral ligament. Other injuries can also occur, such as fracture of the medial malleolus and tearing of the tibiofibular syndesmosis. At least three views on X-ray are needed: AP, lateral

and a half oblique ‘mortise’ view.

Undisplaced, uncomplicated fractures are treated with a plaster cast from just below the knee to the toes for 6–8 weeks. The foot must be plantigrade (i.e. with the foot at 90° to the leg and neither in varus nor in valgus).¹⁰ Fractures treated in plaster need X-ray monitoring. Unsuspected displacement may occur as swelling subsides and the plaster loosens. Occult displacement of the fracture leading to mal-union will predispose to ankle osteoarthritis. Fractures that are displaced or cause instability of the ankle joint require surgery to achieve stability, followed by a longer period of immobilisation.

Ankle/talus/subtalar joint dislocations

These dislocations may result in vascular compromise. The stretched overlying skin may rapidly necrose. Refer early.⁹

Page 1408

Stress fractures of the foot

Stress fractures of the navicular, calcaneus and metatarsal bones can be found in otherwise healthy people from the age of 7 onwards. Long-distance runners and high-performance athletes are also susceptible.

Clinical features

- Localised pain during weight-bearing activity
- Localised tenderness and swelling (not inevitable)
- Plain X-rays are necessary but show no fracture in about 50% of cases;⁸ X-rays can be repeated in 2–3 weeks if a fracture is suspected
- A nuclear bone scan may confirm the diagnosis

Navicular

This hitherto unrecognised stress fracture has become apparent with the advent of CT scanning, which shows up the fracture better than nuclear scanning. It is seen in athletes involved with running sports and presents as poorly localised midfoot pain. Plain X-ray is usually normal. The fracture, like the scaphoid fracture, is difficult to manage since delayed union and non-union are common. Cast immobilisation for 8 weeks may avoid the need for an operation.

Metatarsal bones

The second metatarsal is probably the most common site of all for stress fracture because it is the longest metatarsal, thinner than the first and absorbs a greater load than the other three.

Treatment

- Rest is the basis of treatment
- Resting the foot with crutches for 6 weeks provides optimal healing
- Healing usually takes 6–8 weeks
- Gradual resumption of activity

Lisfranc joint injury (midfoot sprain)¹³

This is basically a dislocation of the tarsometatarsal joints of the foot. The spectrum ranges from partial strains with no displacement to complete tears with separation of the first and second metatarsal bones (FIG. 124.27). Causes range from low-energy compression and twisting to high-energy crush forces. Diagnosis is usually confirmed by weight-bearing plain X-rays. Treatment depends on the degree of stability. Surgical reduction and fixation is required if there is evidence of instability.

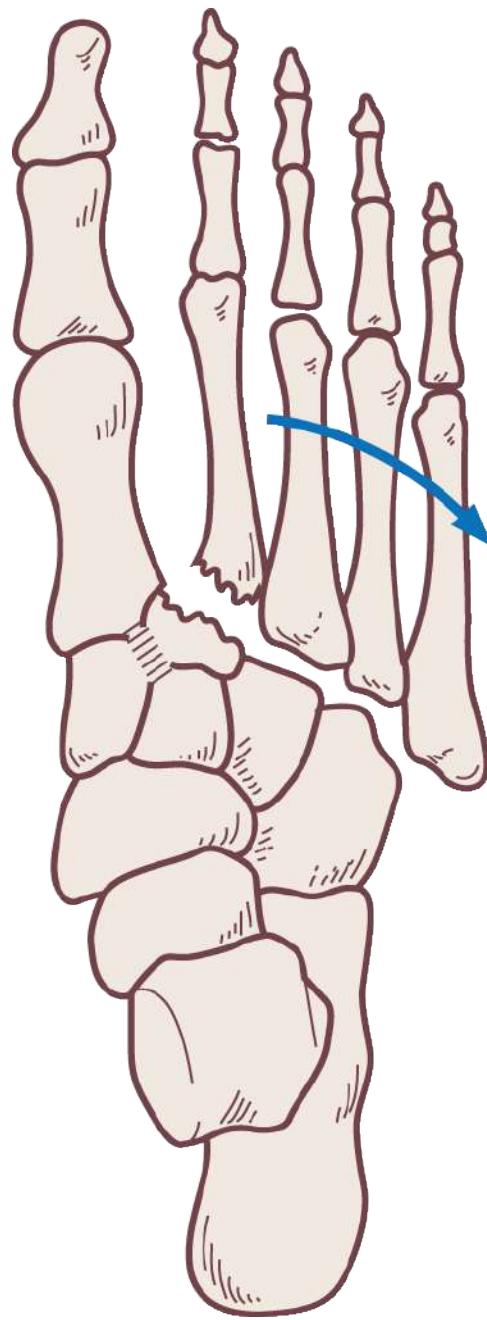


FIGURE 124.27 Lisfranc dislocation at midfoot joints: this severe case shows accompanying fracture of the base of the second metatarsal.

Fractures of the toes

Most toe injuries are easy to treat but, like the fingers, the great and little toes demand special attention. Intra-articular injuries of the great toe (unless undisplaced) should be treated by internal fixation.

‘Buddy strapping’ can be used for many uncomplicated fractured phalanges of the toes, which tend to angulate and rotate more readily and are often harder to control than finger fractures. Strapping them to their adjacent toes on both sides simultaneously tends to counteract this problem.

Like the little finger, the little toe is injured by forceful abduction and if allowed to heal in that position may leave difficulties in wearing shoes.¹⁰

Approximate average immobilisation times for various fractures are given in TABLE 124.3 .

Table 124.3 Healing of uncomplicated fractures (adults)

Fracture	(Approximate) average immobilisation time (weeks)
Rib	3–6 (healing time)
Clavicle	4–8 (2 weeks in sling)
Scapula	weeks to months
Humerus:	
• neck	3–6
• shaft	8
• condyles	3–4
Radius:	
• head of radius	3
• shaft	6
• Colles	4–6
Radius and ulna (shafts)	6–12
Ulna—shaft	8
Scaphoid	8–12
Metacarpals:	
• Bennett fracture	6–8
• other MCs	3–4
Phalanges (hand):	
• proximal	3
• middle	2–3
• distal	2–3

Pelvis	rest in bed 2–6
Femur:	
• femoral neck	according to surgery
• shaft	12–16
• distal	8–12
Patella	3–4
Tibia	12–16
Fibula	0–6
Both tibia and fibula	16
Pott fracture	6–8
Lateral malleolus avulsion	3
Calcaneus:	
• minor	4–6
• compression	14–16
Talus	12
Tarsal bones (stress fracture)	8
Metatarsals	4
Phalanges (toes)	0–3
Vertebrae	
• spinous process	3
• transverse process	3
• stable vertebrae	3
• unstable vertebrae	9–14
• sacrum/coccyx	3

Important principles:

- children under 8 years usually take half the time to heal
- have a check X-ray in 1 week (for most fractures)
- radiological union lags behind clinical union

Note: Immobilisation times vary considerably, depending on factors such as trauma degree and soft-tissue injuries.

Dislocation of toes

Dislocations occur mainly at the metatarsophalangeal joint and are rare; they require special care because of the strong tendons crossing the joint. Perfect reduction of the dislocated great toe is

essential and it should be supported by a below-knee plaster cast extending beyond the toes. Temporary internal fixation with a Kirschner wire or open ligamentous repair may be required.¹¹

Analgesia and relaxation

For the reduction of dislocations, analgesia and relaxation are appropriate. Resuscitation facilities and an experienced practitioner are required to handle this procedure. All drugs should be given intravenously and titrated to achieve the desired effect. Adverse effects include respiratory depression and hypotension.⁹ The choice of agents is presented in TABLE 124.4.

Table 124.4 Analgesic and relaxant/sedative agents

	IV dose	Antidote
Relaxant/sedative agent		
Diazepam	0.1–0.2 mg/kg (5–10 mg)	Flumazenil
Midazolam	0.05–0.1 mg/kg (2–5 mg)	Flumazenil
Analgesic agent		
Fentanyl	1–2 mcg/kg (50–100 mcg)	Naloxone
Morphine	0.1–0.2 mg/kg (5–15 mg)	Naloxone

Page 1410

Plastering tips

Plaster of Paris

The bucket of water

- Line the bucket with a plastic bag for easy cleaning.
- The water should be deep enough to allow complete vertical immersion.
- Use cold water for slow setting.

- Use tepid water for faster setting.
- Do not use hot water: it produces rapid-setting and brittle plaster.

The plaster rolls

- Do not use plaster rolls if water has been splashed on them.
- Hold the roll loosely but with the free end firm and secure (see FIG. 124.28).
- Ensure that the centre of the plaster is fully wet.
- Drain surface water after removal from the bucket.
- Gently squeeze the roll in the middle: do not indent.



FIGURE 124.28 Holding the plaster roll

Padding

- Use Velband or stockinet under the plaster.

- With Velband, moisten the end of the roll in water to allow it to adhere to the limb.
- For legs, make extra padding around the ankle and heel.
- Avoid multiple layers of padding.

Method

- Use an assistant to support the limb where possible (e.g. hold the arm up with fingers of stockinet).
- Lay the bandage on firmly but do not pull tight.
- Lay it on quickly.
- Overlap the bandage by about 25% of its width.

Note: It is good practice to review the patient the next day.

Patient education resource

Hand-out sheet from *Murtagh's Patient Education* 8th edition:

- Plaster cast instructions

Resources

Apley AG, Solomon L. *Apley's System of Orthopaedics and Fractures* (9th edn). London: Hodder Education, 2010.

O'Connor S, Talley N. *Clinical Examination: A Systematic Guide to Physical Diagnosis* (7th edn). Chatswood: Elsevier, 2014.

References

- 1 Stiell I. The Ottawa Rules. Available from: www.theottawarules.ca, accessed 22 May 2018.
- 2 Aweid B et al. Stress fractures. *Trauma*, 2013; 15(4): 308–21.
- 3 Brentnall E. Diagnosing a fracture. *Aust Fam Physician*, 1990; 19: 948.
- 4 Ratilal B et al. Antibiotic prophylaxis for preventing meningitis in patients with basilar skull fractures. *Cochrane Database Syst Rev*, 2011; Issue 8: Art No. CD004884.

- 5 Brentnall E. Spatula test for fracture of mandible. *Aust Fam Physician*, 1992; 21: 1007.
- 6 McMenimen PJ. Management of common fractures of the upper limb. *Aust Fam Physician*, 1987; 16: 783–91.
- 7 Young D, Murtagh J. Pitfalls in orthopaedics. *Aust Fam Physician*, 1989; 18: 645–60.
- 8 Bokor D. Management of outer clavicle fractures and acromioclavicular joint dislocations. *Medicine Today*, April 2009; 10 (4): 67–70.
- 9 Mohammed KD, Sonnabend DH. A GP's guide to the reduction of dislocations. *Modern Medicine Australia*, 1996; 39 (2): 100–8.
- 10 Mead HJ. Paediatric limb fractures and dislocations: how to treat. *Australian Doctor*, 26 October 2007: 35–42.
- 11 McRae R, Esser M. *Practical Fracture Treatment* (4th edn). Churchill Livingstone Elsevier, 2002: 201–5.
- 12 Carter G. Fractures and dislocations of fingers and toes. *Aust Fam Physician*, 1993; 22: 310–17.
- 13 Brukner P, Khan K. *Brukner and Khan's Clinical Sports Medicine*. Sydney: McGraw-Hill Australia, 2009: 856–7.

Part 12 Health of specific groups

Page 1412

125 The elderly patient

Last scene of all,

That ends this strange eventful history,

Is second childishness, and mere oblivion,

Sans teeth, sans eyes, sans taste, sans everything

WILLIAM SHAKESPEARE (1564–1616), *AS YOU LIKE IT*

The ageing (over 65 years) are the fastest growing section of the Australian population. The number of ‘old-old’ (over 85 years) is increasing at an even faster rate.¹ Life expectancy has risen to 84.9 years for women and 80.7 for men.² In the past decade, there has been an increase of 1.2 and 1.5 years respectively.

The over-65s in 2018 made up 15.9% of the Australian population. It is expected that this group will make up at least 20% of the population in 2031. A similar trend is expected in the US with 18% in 2040.²

The over-65s use twice the number of health services per head of population. They account for 25% of all hospital costs and 75% of all nursing home costs. They represent 29.6% of all general practice consultations.³ Many are affected by multisystem disease. All are affected to a greater or lesser extent by the normal physiological changes of organ ageing.

Ageing is characterised by the following:¹

- decrease in metabolic mass
- reduction in the functional capacity of organs
- reduced capacity to adapt to stress

- increased vulnerability to disease
- increased probability of death



FIGURE 125.1 Establishing rapport and support through the home visit to the elderly patient is an important security gesture

Age-associated deterioration occurs with hearing, vision, glucose tolerance, systolic blood pressure, kidney function, pulmonary function, immune function, bone density, cognitive function, mastication and bladder function.

One of the main contributing factors is the problem of disuse. Encourage exercise, especially walking and water aerobics.

Ageing and disease

Degenerative cardiovascular disease emerges with ageing according to the following approximate guidelines:

Age	
40	Obesity
50	Diabetes

55	Ischaemic heart disease
65	Dementia; Myocardial infarction
70	Cardiac arrhythmias
75	Heart failure
80	Cerebrovascular accidents

Deterioration in health and the ‘masquerades’

Unexpected illness, including mental confusion (one of the major hallmarks of disease in the elderly), can be caused commonly by any of the so-called masquerades outlined in

CHAPTER 9 :

- depression
- drugs, including alcohol, polypharmacy
- diabetes mellitus
- anaemia
- thyroid disease
- urinary tract infection
- neurological dilemmas

Parkinson disease

cerebrovascular accident

- infections (e.g. bronchopneumonia)
- neoplasia
- giant cell arteritis/polymyalgia rheumatica

Common significant management disorders encountered in the elderly include:

- hypertension
- ischaemic heart disease and heart failure
- depression
- sleep disorders

- diabetes (type 2)
- dementia
- abuse and neglect (caretaker stress)
- social and physical isolation
- osteoarthritis
- disorders of the prostate
- urinary and faecal incontinence
- falls
- locomotive (lower limb) disorders
 - neurological
 - peripheral neuropathy
 - ataxia
 - claudication due to vascular insufficiency
 - other peripheral vascular disease
 - claudication due to spinal canal stenosis
 - sciatica/nerve root paresis
 - osteoarthritis: hips, knees, feet
 - foot disorders (e.g. ingrown toenails)
 - leg ulceration
 - sarcopenia (loss of muscle mass)
- multiple comorbidities
- polypharmacy

Important problems affecting the elderly are presented in [FIGURE 125.2](#) .

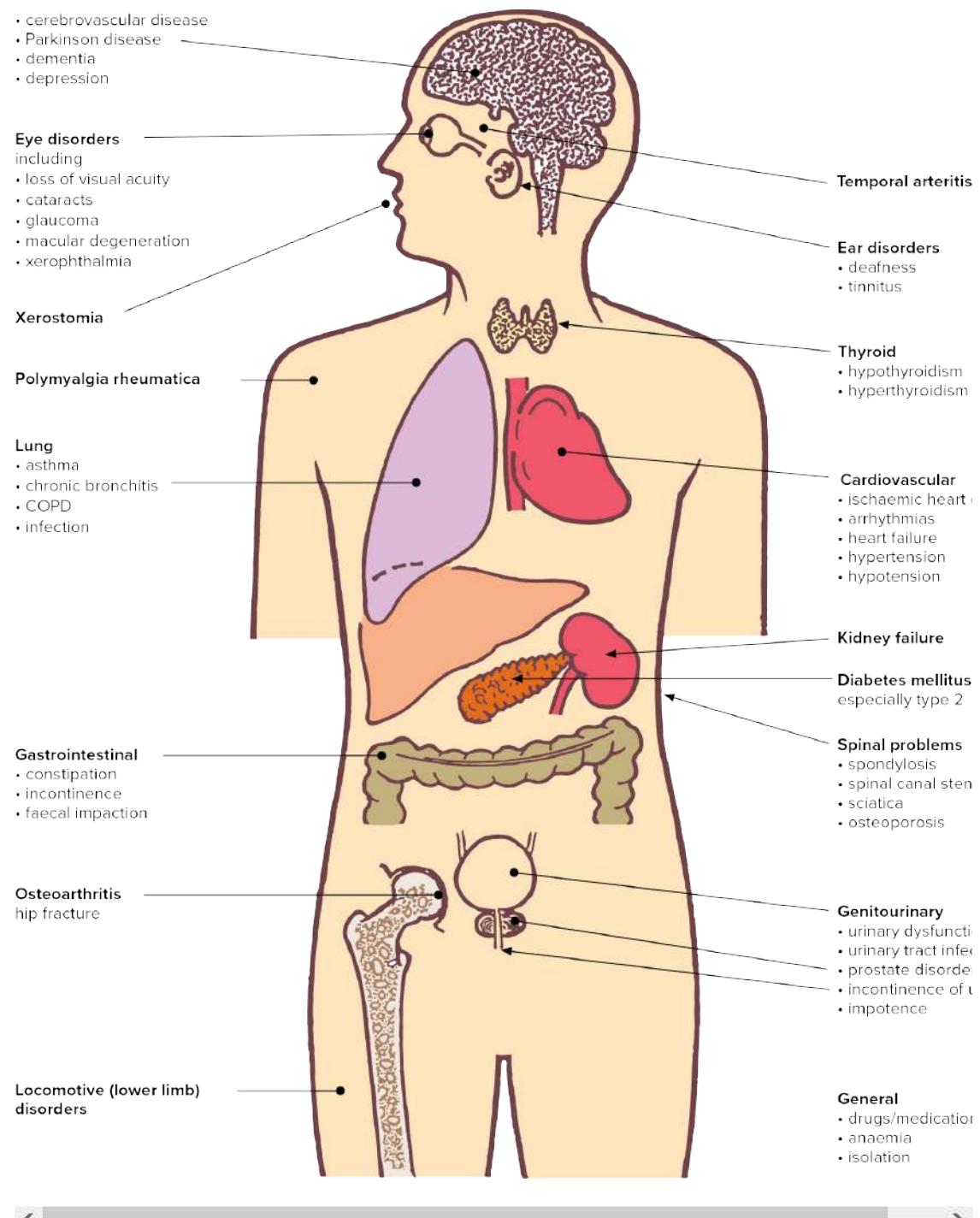


FIGURE 125.2 Significant problems affecting the elderly

The ‘classic’ triad⁴

Be mindful of the classic triad:



This can represent non-specific signs of acute illness, particularly infection. Aggressive antibiotic treatment is worth considering while awaiting the results of culture or clinical developments.

Changes in sensory thresholds and homeostasis

A clinically significant feature in some elderly patients is the raising of the pain threshold and changes in homeostatic mechanisms, such as temperature control. Consequently, these patients may have an abnormal response to diseases such as appendicitis, pyelonephritis, internal abscess, pneumonia and septicaemia. There may be no complaints of pain and no significant fever but simply general malaise and abnormal behaviour, such as delirium, agitation and restlessness.

Establishing rapport with the elderly patient

The elderly patient especially requires considerable support, understanding, caring and attention from a GP who can instil confidence and security in a patient who is likely to be lonely, insecure and fragile. This means taking time, showing a genuine interest and a modicum of humour, and always leaving detailed instructions.

One of the best ways to generate a good relationship is through home visits. The value of home visits can be considered under the precepts of the Royal Australian College of General Practitioners.⁵

- !. Assessment, both initial and continuing: ‘You don’t know your patient until you’ve visited their home’.
- !. Continuing care:
 - security to the patient
 - support for ‘caring’ family
 - effective monitoring/intervention role
 - effective liaison with patient/family
 - checking medication

Home visits can be considered in three categories:

1. an ‘unexpected’ visit (especially to a new patient)
2. a patient-initiated but routine request for a ‘check-up and tablets’
3. the regular call—usually 2 to 4 weeks

These home visits are a ‘security gesture’ to the patient—evidence that they are supported in their desire to remain independent for as long as possible in their own home ([FIG. 125.1](#)). They strengthen the patient–doctor relationship as a position of trust, which is of special importance to frail, elderly people feeling increasingly insecure and threatened.

If the patient is being supported by a spouse or relative, the doctor can provide continuous reassurance and support to all concerned as well as their continual assessment, both physical and mental. Finally, the home visit may become part of the terminal care of a dying patient, something that is very important to the elderly patient. Home visits can enhance the quality of life, both physical and mental, of an ageing person.

[Page 1414](#)

Loneliness in the elderly

Forbes points out that at least one in three elderly people feel lonely.⁶ It is more likely [Page 1415](#) to affect the ‘old-old’, widows and widowers, and those affected by disability. They may tend to stay indoors, troubled by depression, agoraphobia, social phobia, sensory impairment or incontinence of urine or faeces.

Possible signs of loneliness include:

- verbal outpouring
- drab clothing
- dependence on television
- body language with a ‘defeated’ demeanour
- prolongation of visit including holding on to one’s hand

Assessment of the elderly patient

The initial consultation should include a thorough clinical examination on the traditional lines of history, physical examination and selective laboratory investigation. At regular intervals during continuing care this careful assessment may need to be repeated.

History

The medical history may be difficult to obtain and the help of a family member is recommended. The use of questionnaires, which can be completed at leisure at home with the help of family

members, is most helpful as complementary to the medical interview.

Important specific areas to focus on are:

- previous medical history and hospitalisation
- immunisation status
- medications, prescription and OTC drugs
- alcohol intake, smoking
- problem list of complaints
- dependence on others
- members of household
- household problems
- comforts: heating, cooling, bedding, etc.
- ambulation/mobility/use of frame or stick
- meals: diet
- hygiene: bathing
- toileting: continence
- teeth: condition, ?dentures
- vision
- hearing (always ask about this)
- systems review, especially:
 - genitourinary function
 - gastrointestinal
 - cardiorespiratory
- locomotion, including feet
- nervous system, ?falls, giddiness, loss of balance, faints
- sleep

- emotional and mental health
- evidence of depression
- history of bereavement
- history of abuse by carers, family members
- financial/insurance status

A thorough family history and psychosocial history is of prime importance. At all times concentrate on a general assessment of the patients' ability to communicate by evaluating mental status, comprehension, hearing, vision, mood and speech.

Physical examination

The routine for the physical examination is similar to that of the younger adult but certain areas require more attention. The elderly patient expects to be examined adequately (especially having blood pressure measured) but requires appropriate dignity. It is recommended that the practice nurse supervises dressing and undressing and prepares the patient for examination.

Practice nurse

- Prepares for examination
- Helps with questionnaire
- Records weight and height
- Takes temperature, pulse and respiration
- Checks audiology (if hearing problem)
- Checks ocular tension (if appropriate)
- Prepares cervical smear tray for female patient (if relevant)

Doctor

The following areas should be examined:

- general appearance, including skin, hair and face (evaluate nutritional status)
- mental state examination (see FIG. 125.3); cognition
- eyes: visual acuity
- ears: simple hearing test; auroscopic examination

- oral cavity, including teeth and gums
- neck especially thyroid
- lungs: consider peak flow meter
- pulse and blood pressure (repeat)
- heart; breasts
- abdomen; hernial orifices
- spine
- lower limbs: joints; circulation; feet including nails
- gait and balance
- men: rectal examination; scrotum and testes
- women: cervical smear if appropriate

Page 1416

‘Rules of 7’ for assessment of the non-coping elderly patient

If your elderly patient presents with non-specific symptoms, unexpected deterioration in health and/or an inability to cope with the activities of daily living, consider the checklist presented in TABLE 125.1 in your assessment. Apart from confusion, other non-specific symptoms include drowsiness, poor concentration, apathy, fatigue/weakness/tiredness/lethargy, anorexia, nausea, weight loss, dyspnoea, immobility, ‘stuck in bed or chair’, stumbles or falls. It is also important to consider infections including pneumonia and the masquerades (see CHAPTER 9). Dementia symptoms should be investigated as soon as possible.

Page 1417

Table 125.1 The ‘rules of 7’

1	Mental state	?	Confusion/dementia Depression Bereavement, incl. pets Elderly abuse/bullying
2	Eyes	?	Visual acuity Cataracts/glaucoma

3	Ears	?	Deafness, e.g. wax Tinnitus
4	Mouth	?	Dentition Xerostomia Malnutrition
5	Medication	?	Polypharmacy Adverse reactions
6	Bladder and bowels	?	Incontinence Retention Urinary infection
7	Locomotion	?	Gait—antalgic; gait ‘balance’; movement disorder, esp. Parkinson disease Arthritis—hips/knees Back/sciatica Feet—nails; neuropathy Circulation Leg ulcers

The mini-mental state examination

Evidence of memory difficulty remains the best single indicator of dementia and should always be evaluated by formal memory testing. However, memory problems may be due to factors other than dementia, and demonstrating failure in other areas of cognitive functioning (language, spatial ability, reasoning) is necessary to confirm the diagnosis of dementia.⁷ A number of screening tests are available but the mini-mental state examination (MMSE), particularly the Folstein MMSE depicted in FIGURE 125.3 , is commonly used and is the recommended test to use.

Mini-mental state examination		
ASK the patient	INSTRUCTIONS for assessor	Score
Orientation What is the year, month, day and date? What is the season? Can you tell me where we are now?	Ask specifically for omitted details, e.g. month, year. Score one point for each correct answer. Expect street no., road name, suburb, city, state. Ask in turn for each place (if necessary). Score one point for each correct answer.	/5 /5
Registration 'I am going to test your memory—I want you to repeat these three items after me, and hold them in your mind for when I ask you later.'	Name three unrelated objects (e.g. orange, camel, table) speaking clearly and slowly; repeat up to five times or until all three are learned, and ask to recall after each time. Only score after first attempt—1 point for each correct answer.	/3
Attention and calculation 'Beginning at 100, count backwards by 7' or, if patient is unable to perform this task, ask: 'Spell the word "WORLD" backwards'.	Stop after five answers—93, 86, 79, 72, 65; each correct answer scores one. Score equals number of letters before first mistake.	/5
Recall 'What are the three words I asked you before?'	Score one point for each correct answer.	/3
Language 'What is the name of this object?' 'Please repeat this sentence "NO IFS, ANDS, OR BUTS".' Giving the patient a blank piece of paper, say: 'Take this paper in your right hand, fold it in half, and put it in your lap.'	Show two objects. Point to a watch, and then a pen. Score one point for each step.	/2 /1 /3
Praxis (three tasks) On a blank piece of paper write 'CLOSE YOUR EYES' 1 Ask the patient 'Read and obey this task.' 2 'Write a sentence' 3 'Copy this design'	Score only if patient closes eyes. Sentence must be sensible and contain a verb and subject (noun). All 10 angles must be present with two intersecting (ignore tremor, scale and rotation).	/1 /1 /1
		/30
Scoring guide only: 19–23 (probable mild dementia); 10–18 (probable moderate impairment); <10 (severe impairment). A decline in score of greater than two points over 1 year may be significant. Note: These scores are used as a baseline to determine the criteria for prescribing anti-dementia drugs.		Max score Sig

<  >

FIGURE 125.3 A practical adaptation of the mini-mental state examination

Source: Adapted from MF Folstein, SE Folstein and PR McHugh. Mini-mental state. J Psych Res, 1975; 12: 189

Another, somewhat simpler test is the 'Quick 10-step cognitive impairment test' (see

TABLE 125.2).^{8,9}

Table 125.2 The quick 10-step cognitive impairment test

Scoring: questions 1 to 8: correct—0, incorrect—2; questions 9 and 10: correct—0, 1 error—2, >1 error—4

1 When were you born?

2 What year is it?

3 What month is it?

4 What is the date today?

Remember the following address: *25 Main Street, Newcastle*

5 What is your telephone number? (or if no telephone) What is your street address?

6 What time is it (to nearest hour)?

7 Who is the Prime Minister of Australia?

8 What year did World War II end?

9 Count backwards from 20 to 1.

10 Repeat the memory test I gave you.

Evaluation: 0–8 not significant

9–12 probably significant

13–24 significant

Source: Adapted from Hodkinson⁸ and Kingshill Research Centre⁹

The clock-face drawing test

This relatively simple test provides a ready qualitative screening test to differentiate normal elderly from patients with cognitive impairment, particularly dementia.¹⁰

Method

- Give the patient a blank, A4-sized piece of paper.
- Ask the patient to draw the face of a round clock and put the numbers in their correct positions on the face of the clock to represent the hours (see FIG. 125.4).
- Ask the patient to draw in the hands of the clock, indicating 10 minutes after 11 (or some other suitable time) (see FIG. 125.4).

- Repeat the instructions if the patient does not understand them.

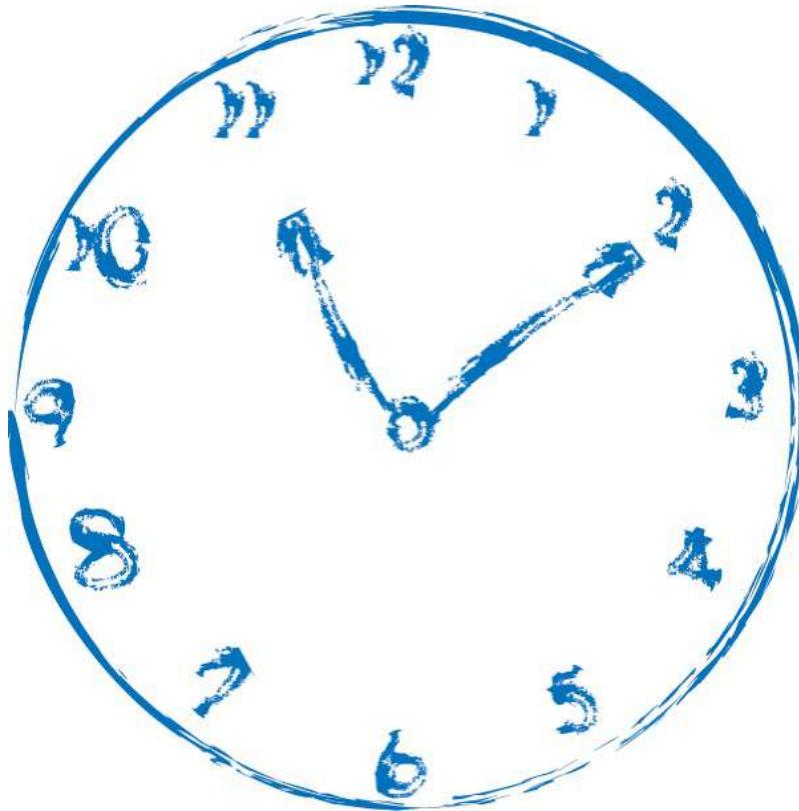


FIGURE 125.4 The clock-face drawing test

Scoring system

- A closed circle is drawn—3 points
- Numbers are in the correct position—2 points
- All correct numbers are included—2 points
- Clock hands are placed in the correct position—2 points

The maximum score is 9. A low score indicates the need for further evaluation and does not establish the criteria for dementia, being a pointer only.

Laboratory investigations

The laboratory tests should be selected according to the evaluation of the patient and costs versus potential benefits.

Recommended investigations for suspected dementia include:^{7,11}

- kidney function
- hepatic function
- thyroid function
- full blood screen
- blood glucose
- serum electrolytes (especially if on diuretics)
- serum calcium and phosphate
- urinalysis
- serum vitamin B12 and folate
- serum vitamin D
- syphilis serology (consider HIV)
- chest X-ray
- neuroimaging: computed tomography (CT), especially non-contrast CT, or magnetic resonance imaging (MRI) (preferably)
- positron emission tomography (PET) scan or single photon emission computed tomography (SPECT) scan—for further information

Behavioural changes in the elderly

As GPs, we are often called to assess abnormal behaviour in the elderly patient, with the question being asked, ‘Is it dementia?’ or ‘Is it Alzheimer’s, doctor?’.

There are many other causes of behavioural changes in people over the age of 65 years and dementia must be regarded as a diagnosis of exclusion. The clinical presentation of some of these conditions can be virtually identical to early dementia.

The clinical features of early dementia include:

- poor recent memory
- impaired acquisition of new information
- mild anomia (cannot remember names)

- personality change (e.g. withdrawn, irritable)
- minimal visuospatial impairment (e.g. tripping easily)
- inability to perform sequential tasks

The differential diagnosis for behavioural changes apart from dementia include several other common and important problems (which must be excluded) and can be considered under a mnemonic for dementia (see TABLE 125.3).¹¹

Table 125.3 Mnemonic for DEMENTIA

D	=	Drugs and alcohol Depression
E	=	Ears Eyes
M	=	Metabolic, e.g. hyponatraemia, diabetes mellitus, hypothyroidism
E	=	Emotional problems (e.g. loneliness)
N	=	Nutrition: diet (e.g. vitamin B group deficiency, teeth problems)
T	=	Tumours Trauma } of central nervous system
I	=	Infection
A	=	Arteriovascular disease → cerebral insufficiency

All these conditions should be considered with the onset of deterioration in health of the elderly person. Even apparently minor problems—such as the onset of deafness (e.g. wax in ears), visual deterioration (e.g. cataracts), diuretic therapy, poor mastication and diet, urinary tract intercurrent infection, boredom and anxiety—can precipitate abnormal behaviour.

Elder abuse

Definition: Elder abuse is a single or repeated act or lack of appropriate action, occurring within any relationship where there is an expectation of trust, which causes harm or distress to an older person. It can include physical, sexual, financial, psychological and social abuse and/or neglect. (Healthy Ageing Taskforce 2000, based on WHO definition)

Page 1419

It is important to keep in mind the possibility of abuse of the elderly, especially where there is a family history of abuse of members. The issue is as important as child and spouse abuse. Over

one million elderly people are estimated to be the victims of physical or psychological abuse each year in the US.⁴ In 2020, Crime Statistics Agency (Victoria) revealed an increase in violence involving people over 55 years, especially during the COVID-19 pandemic. This included assaults, threatening behaviour, criminal damage and theft. Most (57%) perpetrators were the victims' adult children.

We should keep in mind the occasional possibility of Munchausen syndrome by proxy. General practitioners should be alert to signs and symptoms of abuse and consider referral to an Aged Care Assessment/Service worker, e.g. ACAT team, Guardianship Tribunal or other responsible person or service. Ensure patient confidentiality and take care signing or witnessing forms for family members. Mandatory reporting laws may vary from state to state.

Depression and dementia

The main differential diagnosis of dementia is depression, especially major depression, which is termed pseudodementia. The mode of onset is one way in which it may be possible to distinguish between depression and dementia. Dementia has a slow and surreptitious onset that is not clear-cut, while depression has a more definable and clear-cut onset that may be precipitated by a specific incident. Patients often have a past history of depression. Those with dementia have no insight; those with depression have insight, readily give up tasks, complain bitterly and become distressed by their inability to perform normal enjoyable tasks. It is vital to determine the cause of dementia.

In response to cognitive testing, the typical response of the depressed patient is 'don't know', while making an attempt with a near-miss typifies the patient with dementia (see TABLE 125.4).

Table 125.4 Comparison of dementia and pseudodementia (commonly severe depression)

	Dementia	Pseudodementia
Onset	Insidious	Clear-cut, often acute
Course over 24 hours	Worse in evening or at night	Worse in morning
Insight	Nil	Present
Orientation	Poor	Reasonable
Memory loss	Recent > remote	Recent = remote
Responses to mistakes	Agitated	Gives up easily
Response to	Near-miss!	'Don't know'

cognitive testing (questions)	Difficulty understanding	Slow and reluctant but understands words (if cooperative)
--	-----------------------------	---

It is vital to detect depression in the elderly as they are prone to suicide: 'Nothing to look back on with pride and nothing to look forward to.' The middle-aged and elderly may not complain of depression, which can be masked. They may present with somatic symptoms or delusions.

Note that depression occurs commonly in people with dementia, especially in the early stages.

Dementia (neurocognition disorder)¹²

The incidence of dementia increases with age, affecting about 1 person in 10 over 65 years and 1 in 5 over 80 years. It doubles every 5 years from age 65 and is uncommon under 60 years. The important causes of dementia are:

- degenerative cerebral diseases, including
 - Alzheimer disease (about 50%)
 - dementia of frontotemporal type (up to 10%)
 - dementia with Lewy bodies (up to 15%)
- vascular (up to 15%)
- alcohol excess (5%)
- Parkinson disease-associated dementia

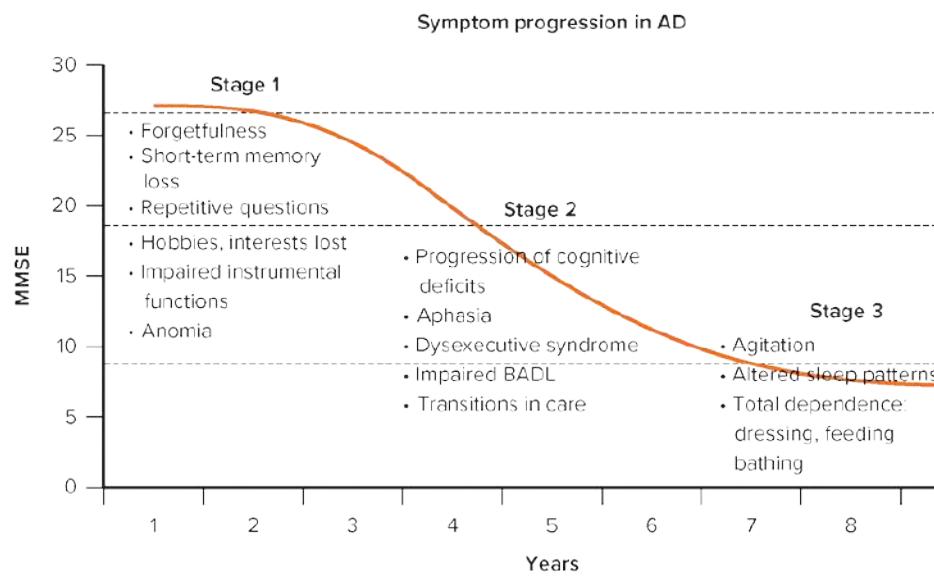
Note: Mixed dementia should be considered (up to 20%).

Other causes of dementia:

- AIDS dementia
- corticobasal degeneration
- cerebral tumours
- Huntington disease
- Creutzfeldt–Jakob disease
- Pick disease
- neurosyphilis

- amyloidosis
- normal pressure hydrocephalus (triad of confusion, apraxic gait and early incontinence)

In Alzheimer disease, there is insidious onset with initial forgetfulness progressing to [Page 1420](#) severe memory loss and learning issues (see FIG. 125.5). In frontotemporal dementias the earliest manifestations are personality change and alteration of behaviour, including social dysfunction. Dementia with Lewy bodies is characterised by any two of visual hallucinations, spontaneous motor Parkinsonism and fluctuations in the mental state. Vascular dementia usually starts suddenly and is accompanied by focal neurological signs with evidence of cerebrovascular disease.



BADL = basic activities of daily living

Source: Modified from Feldman et al. *Clinical Diagnosis and Management of Alzheimer's Disease* (1st edn), 1998

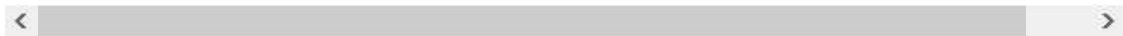


FIGURE 125.5 Symptom progression in Alzheimer disease

The characteristic feature of dementia is impairment of memory. Abstract thinking, judgment, verbal fluency and the ability to perform complex tasks also become impaired. Personality may change, impulse control may be lost and personal care deteriorate.

Risk factors for dementia include:

- family history
- increasing age
- late-onset depression
- hypothyroidism

- Down syndrome
- history of head injury
- HIV/AIDS
- generalised atherosclerosis
- Parkinson disease
- Aboriginal and Torres Strait Islander people

Differential diagnosis of dementia includes:

- normal cognitive impairment of ageing
- delirium
- major depression
- acquired brain injury
- drug abuse
- amnestic disorder
- various medical conditions (e.g. anaemia, thyroid/endocrine disorders)

The DSM-IV (TR) criteria for dementia are presented in [TABLE 125.5](#) and clinical clues suggesting dementia in [TABLE 125.6](#).

Table 125.5 DSM-IV (TR) criteria for dementia of Alzheimer type (modified)

Diagnosis of dementia requires evidence of:

- A1** Clear evidence of decline in memory and learning
- A2** At least one of the following cognitive disturbances:
 - Language = aphasia
 - Motor actions = apraxia
 - Recognition = agnosia
 - Executive functioning (e.g. organising)
- B** Disturbance significantly interferes with social and work functions
- C** Gradual onset and continuing cognitive decline
- D** Not due to known organic causes (e.g. drugs, cerebrovascular disorders)

E Not due to delirium

F Not due to another axis 1 disorder (e.g. major depression)

(a) Classified with or without behavioural disturbance

(b) Also with early onset <65 years or late onset >65 years

Source: *Diagnostic and Statistical Manual* (4th edn, revised). Washington, DC: American Psychiatric Association, 2000.

Note: DCM-IV considered more explicit than DSM-5

Table 125.6 Clinical clues suggesting dementia

1 Patient presentations

New psychological problems in old age

Ill-defined and muddled complaints

Uncharacteristic behaviour

Relapse of physical disorders

Recurrent episodes of confusion

2 Problems noted by carers

'Not themselves'—change in personality (e.g. humourless)

Domestic accidents, especially with cooking and heating

Unsafe driving

False accusations

Emotional, irritable outbursts

Tendency to wander

Misplacing or losing items (e.g. keys, money, tablets, glasses)

Muddled on awakening at night

3 Mental state observations

Vague, rambling or disorganised conversation

Difficulty dating or sequencing past events

Repeating stock phrases or comments

Playing down obvious, perhaps serious, problems

Deflecting or evading memory testing

Source: McLean¹³

The many guises of dementia can be considered in terms of four major symptom groups:¹³

- 1. Deficit presentations—due to loss of cognitive abilities, including:

- forgetfulness
 - confusion and restlessness
 - apathy (usually a late change)
 - self-neglect with no insight
 - poor powers of reasoning and understanding
2. Unsociable presentations—based on personality change, including:
- uninhibited behaviour
 - risk taking and impulsive behaviour
 - suspicious manner
 - withdrawn behaviour
3. Dysphoric presentations—based on disturbed mood and personal distress, including:
- depression (hopeless and helpless)
 - irritability with emotional outbursts
 - lack of cooperation
 - insecurity
4. Disruptive presentations—causing distress and disturbance to others, including:
- aggressive, sometimes violent, behaviour
 - agitation with restlessness

The problem occasionally results in marked emotional and physical instability. It is sad and difficult for relatives to watch their loved ones develop aggressive and antisocial behaviour, such as poor table manners, poor personal cleanliness, rudeness and a lack of interest in others. Sometimes severe problems, such as violent behaviour, sexual promiscuity and incontinence, will eventuate.

Page 1421

There is always the likelihood of accidents with household items such as fire, gas, kitchen knives and hot water. Accidents at the toilet, in the bath and crossing roads may be a problem, especially if combined with failing sight and hearing. Such people should not drive motor vehicles.

Without proper supervision they are likely to eat poorly, neglect their bodies and develop medical problems, such as skin ulcers and infections. They can also suffer from malnutrition and

incontinence of urine or faeces. The median time to death after diagnosis is 3 years.

Management of suspected dementia

Exclude reversible or arrestable causes of dementia:

- full medical history (including drug and alcohol intake)
- mental state examination: select from several tools, e.g. Montreal Cognitive Assessment
- physical examination
- investigations (see Laboratory investigations, above, and [CHAPTER 69](#))
- psychometric assessment

Management of dementia

Refer to a specialist to confirm the diagnosis and provide ongoing shared care. There is currently no cure for dementia—the best that can be offered to the patient is tender, loving care.

Dementia is a terminal disease.

Education, support and advice should be given to both patient and family. Legal issues should be discussed such as enduring power of attorney, enduring guardianship and advanced care planning. Multidisciplinary evaluation and assistance are needed. Regular home visits by caring, sympathetic people are important. Such people include relatives, friends, GPs, district nurses, home help, members of a dementia self-help group, religious ministers and meals on wheels. People with dementia tend to manage much better in the familiar surroundings of their own home and this assists in preventing behaviour disturbance. Encourage the person to exercise, eat well and stay socially connected.

Special attention should be paid to organising memory aids, such as lists, routines and [Page 1422](#) medication, and to hygiene, diet and warmth. Adequate nutrition, including vitamin supplements if necessary, has been shown to help. Provide ongoing support to carers.

Driving

Driving is a problem, especially as many are reluctant to give up their licence. Those with mild dementia are more likely to cause road accidents. In some states it is compulsory for doctors to report patients who are unfit to drive. If uncertainties arise or a patient is recalcitrant, refer to the local Road Traffic Authority. In Sweden it is recommended that those with moderate to severe dementia should not drive.

Comorbidity/associated problems¹⁴

The behavioural and neuropsychiatric problems are a major management issue. Depression can occur early in dementia and requires intervention. Demented patients are vulnerable to superimposed delirium, which is often due to:

- urinary tract infection
- other febrile illness
- prescribed medication
- drug withdrawal

Delirium should be suspected if a stable patient becomes acutely disturbed.

Dementia and Parkinson disease

A feature of Lewy body dementia, Parkinson disease is a very difficult yet common problem. One problem is that medication affects the mental processes. Lewy body dementia is extremely sensitive to the typical (first generation) antipsychotics—typical agents should not be prescribed.¹⁵ Quetiapine is the agent of choice. The choice of drugs is critical to care, so referral to an experienced team which can provide a good neuropsychiatric assessment is advisable. The best option appears to be the administration of:

- levodopa to maximum dose
- quetiapine at night

Medication¹⁴

Demented patients often do not require any psychotropic medication. Antidepressant drugs can be prescribed for depression. Citalopram is effective in treating agitation but tricyclic antidepressants (TCAs) tend to aggravate confusion.¹⁵ Benzodiazepines are effective for short-term use in agitated behaviours. The cholinesterase inhibitors donepezil, galantamine and rivastigmine appear to delay progression of dementia to a modest extent only. There appears to be no differences between the available agents. Beware of drugs that aggravate such as anticholinergics, opiates, TCAs, frusemide, prednisolone and salbutamol.¹⁵

Available drugs for Alzheimer disease

Cholinesterase inhibitors

- donepezil 5 mg (o) nocte for 4 weeks, increase to 10 mg nocte as tolerated
- galantamine prolonged release 8 mg (o) daily for 4 weeks, increase to 16 mg daily or 24 mg if tolerated
- rivastigmine 1.5 mg (o) bd for 2 weeks, increase gradually up to 6 mg bd as tolerated

or

- rivastigmine 4.6 mg transdermal daily for 4 weeks, then 9.5 mg daily as tolerated

Aspartate (NMDA) antagonist

- memantine (Ebixa) 5 mg (o) mane for 1 week → 5 mg bd week two → 10 mg bd from week 4

Based on double-blind randomised trials of the two drugs donepezil and rivastigmine and using Cochrane data,^{14,16} the following points emerge:

- only modest improvement overall
- greatest improvement with higher doses
- higher doses less well tolerated
- long-term efficacy unknown
- clinical effectiveness in severe disease has not been demonstrated¹⁷

The newer agent memantine appears to have similar outcomes and can be used in combination.

Using evidence-based medicine criteria on numbers needed to treat (see CHAPTER 7), the evidence shows that 13 patients must be treated with rivastigmine 6–12 mg/day for 6 months for one patient to display clinically meaningful improvement.^{17,18}

To control psychotic symptoms or disturbed behaviour probably due to psychosis:¹⁹

olanzapine 2.5 mg (o) daily, increasing to max. 10 mg

or

risperidone 0.25 mg (o) bd, increasing to max. of 2 mg daily

To control symptoms of anxiety and agitation use:

oxazepam 7.5 mg (o) 1–3 times daily

Benzodiazepines should be used only for short periods (maximum 2 weeks) as they tend to exacerbate cognitive impairment in dementia. Use antidepressants for depressions—citalopram preferred.

Complementary therapy^{14,15}

As yet there is insufficient evidence for the efficacy of complementary medicines such as *Ginkgo biloba*,²⁰ vitamin E²¹ and other antioxidants in treating (alleviating symptoms in) dementia,

despite some epidemiological evidence, especially in the case of vitamin E. However, we should encourage our patients in preventive healthy lifestyle strategies, such as optimal nutrition rich in essential vitamins and exercise. Deficiencies of folate, vitamin B12 and vitamin D should be treated.

Dementia prevention strategies

This suggested program is based on the research work of Dr Michael Valenzuela.²²

- Healthy blood pressure—‘a healthy heart means a healthy brain’—the strongest evidence for dementia prevention.
- The three keys:
 - A physical: walking 30–60 minutes 3–4 times a week, plus strength exercises, balance and stretching exercises—reportedly known to enhance brain cell growth, brain cell interconnections and angiogenesis
 - B mentally stimulating activities
 - C social activities in company that are both fun and rewarding.
- Smoking cessation.
- Alcohol control: avoid binge drinking and *always* promote a safe intake, i.e. 1–2 standard drinks with a meal for 3 days a week.
- Diet—Mediterranean in style, oily fish 2–3 times a week, nuts (consider Chia seed), 2 fruits and 5 vegetables daily.

Medical interventions to reduce risk recommended by the Dementia Centre for Research Collaboration include:²³

- treat sleep disorders as appropriate
- treat depression
- advise maintaining weight in normal BMI range, especially in middle age
- treat diabetes, hypertension, atrial fibrillation as per guidelines
- deprescribe benzodiazepines and anticholinergic medications—apart from antihypertensives, no other medications reduce risk

Causes of mild neurocognitive impairment

- Early dementia
- Benign senescent forgetfulness
- Depression

- Anxiety
- Acquired brain injury
- Physical illness

Benign senescent forgetfulness²⁴

This ‘popular’ term is also referred to as ‘age-related memory loss’ or ‘mild cognitive impairment’ of ageing. Features include:

- short-term forgetfulness
- inability to find the right word
- embarrassment about shortcomings
- feeling dithery
- inability to find items stored away
- forgetting to pay accounts

It is debatable whether these are truly benign cognitive impairment or early features of dementia.²⁵

Late life depression and suicide

The risk of suicide increases with age in males. The risk factors for late life suicide are:²⁵

- male
- single
- recent bereavement
- social isolation
- recent relocation
- poor pain control
- feeling helpless/hopeless
- anhedonia
- indicating a wish to die

- recent alcohol abuse

The principles of treatment include supportive care, regular visits, CAT team, interpersonal psychotherapy, cognitive behavioural therapy and family support/interventions.

Paraphrenia²⁶

Paraphrenia, known as ‘late-onset’ schizophrenia, is that condition where the symptoms and signs of paranoid psychosis appear for the first time in the elderly. In this apparent non-psychotic mental illness, the patient, who is usually an elderly female, presents with paranoid delusions, such as a feeling of being watched or persecuted and even hallucinations. These are usually associated with visual and hearing problems. Treatment is with an antipsychotic agent, e.g. risperidone or olanzapine.

Sarcopenia

Sarcopenia, which is a term derived from Greek meaning ‘poverty of flesh’, is degenerative loss of skeletal mass, strength and possibly function as a result of ageing, illness, sedentary lifestyle and poor diet. Features of significant frailty include poor hand grip strength, slow walking speed, exhaustion with activity and susceptibility to infection and falls. Treatment strategies include exercise, especially resistance training, protein supplements in diet, Vitamin D and reduction in polypharmacy.

Page 1424

Falls in the elderly

TABLE 125.7 presents the diagnostic strategy model. Falls in the elderly are a major problem as 30% of people over the age of 65 experience at least one fall per year, with 1 in 4 of these having significant injury. About 5% of falls result in fracture.²⁷ In 2002 in Australia, there were approximately 1200 deaths in people over 75 years of age following falls, which were responsible for 90% of hip fractures and 50% of vertebral fractures.

Table 125.7 Falls in the elderly: diagnostic strategy model

Probability diagnosis

Environmental hazards, e.g. slipping, tripping

Postural hypotension

Postural instability, e.g. knees, hips, Parkinson disease

Visual, e.g. glaucoma, macular degeneration

Alcohol use, acute or chronic

Medication, especially iatrogenic

Serious disorders not to be missed

Vascular:

- cerebral insufficiency, incl. TIAs, stroke
- acute coronary syndromes
- cardiac arrhythmias, e.g. sick sinus syndrome
- subdural or extradural haematoma

Infection:

- any systemic infection, esp. sepsis
- any febrile illness

Tumour/cancer:

- cerebral tumour

Other:

- kidney failure
- head injury
- cognitive impairment, e.g. dementia, delirium
- fluid and electrolyte disturbance

Pitfalls (often missed)

Parkinson disease, early

Peripheral neuropathy

Gait and foot disorders

Labyrinthine, e.g. BPPV, labyrinthitis

Rarities:

- vitamin deficiency, esp. D
- cerebellar degeneration
- postprandial hypotension

Seven masquerades checklist

Depression

Diabetes: hypoglycaemia, neuropathy

Drugs; see history

Anaemia

Thyroid/endocrine: Addison disease, hypothyroidism

Spinal dysfunction, esp. myelopathy

Urinary tract infection: nocturia

Is the patient trying to tell me something?

Highly likely, consider conversion reaction

Assessment

The history should embrace the above causes and risk factors. In particular, a description of the fall by a witness, the perceived dysfunction at the time of the fall and whether there was loss of consciousness are particularly important.

The physical examination should include cardiac function, neurological status (including the mini-mental function test) and the musculoskeletal system (including assessment of gait). The ‘get up and go’ test (see TABLE 125.8) is useful.

Table 125.8 The ‘get up and go’ test: a brief test of postural competence

- 1 Get up from chair without use of arms.
- 2 Observe normal gait and 360° turn.
- 3 Carry out the Romberg test (slight push with eyes closed).
- 4 Observe tandem walking (heel toe, straight line).

As special investigations (especially for those proving difficult to evaluate), consider full blood examination and erythrocyte sedimentation rate (ESR), blood sugar, urea and electrolytes, vitamin D, thyroid function tests, cardiac investigations (e.g. ambulatory electrocardiogram [ECG] monitoring, ambulatory blood pressure monitoring), vestibular function testing, and CT scans or MRI scans.²⁸

Management and prevention

Steps should be taken to correct any medical disorders and risk factors. It is appropriate to refer to a multidisciplinary team that includes occupational therapists and physiotherapists.

Assessment of circumstances in the home is very helpful. This may lead to reducing environmental hazards and providing walking aids. Exercise training and medication reduction are also important strategies. (See: www.racgp.org.au/redbook, sections 5.2: Physical activity and 5.3 Falls.)

Prescribing and adverse drug reactions

Ageing is associated with increased rates of adverse drug reactions.¹ The rate of adverse drug reactions for a single medication rises from about 6% at age 20 years to about 20% at age 70 years.

Page 1425

For fewer than six medications taken concurrently, the rate of adverse drug reactions is about 6%. For more than six medications taken concurrently, the rate of adverse drug reactions jumps

to 20%.¹ Approximately 15% of elderly patients admitted to hospital are suffering adverse drug reactions. Most adverse drug reactions are type A (dose related) rather than type B (idiosyncratic).²⁹

Factors predisposing to adverse drug reactions in the elderly¹

Most adverse drug reactions in the elderly are entirely predictable. Most are merely an extension of the pharmacological action of the drug (e.g. all antihypertensives will reduce blood pressure and have the capacity to cause hypotension and falls in a person with impaired baroreceptor function or poor homeostasis in their vascular tree). Very few adverse reactions are idiosyncratic or unexpected.

The five mechanisms of adverse drug reactions in the elderly are:

1. *Drug–drug interaction.* For example, beta blockers given concomitantly with digoxin increases the risk of heart block and bradycardia. Alcohol used in combination with antidepressants increases the risk of sedation.
2. *Drug–disease interaction.* For example, in the presence of kidney impairment, tetracyclines carry an increased risk of kidney deterioration.
3. *Age-related changes leading to increases in drug plasma concentration.* Decreased kidney excretion can extend the half-life of medication, leading to accumulation and toxicity.
4. *Age-related changes leading to increased drug sensitivity.* For example, there is some suggestion that the pharmacological response to warfarin, narcotics and benzodiazepines is increased in the elderly. Conversely, the pharmacological response to insulin, theophylline and beta-adrenergic blocking agents is thought to be decreased.
5. *Patient error.* Multiple medications can lead to patient error. The incidence and prevalence of dementia also increases with age. Other problems include failing eyesight and reduced manual dexterity.

Risk factors predisposing to medicine-related problems

Adverse drug effects in older people are influenced by multiple factors, with many exposed to more than one of these factors at a given time. Furthermore, their recovery from serious incidents such as a hip fracture is jeopardised, possibly ending in death.

Increasing the number of simultaneous medications increases the risk for all five mechanisms of adverse drug reactions.

In a study on adverse drug reaction in elderly patients the drugs most frequently causing admission to hospital were.³⁰

- psychotropics and hypnotics
- diuretics
- antihypertensives (including beta blockers)
- antiparkinson
- anticonvulsants
- analgesics and NSAIDs

The main drugs contributing to falls were:³¹

- antidepressants
- benzodiazepines
- antipsychotics
- antihypertensives
- antiparkinson
- diuretics
- hypnotics
- sedatives
- anticonvulsants

Drug regimens should be kept as simple as possible to aid compliance and avoid or minimise drug interactions.

The elderly may need much lower doses of anxiolytics and hypnotics than younger patients to produce the same effect, thus rendering them more susceptible to adverse effects and toxicity. The elderly are especially liable to accumulate the longer-acting benzodiazepines.

In particular, any drug or combination of drugs with anticholinergic properties (e.g. tricyclic antidepressants, antiparkinsonian agents, antihistamines, phenothiazines and some cold remedies) can precipitate a central anticholinergic syndrome.¹³

The elderly are very prone to adverse effects to most of the more potent drugs, especially those for cardiac dysfunction and hypertension. Both ACE inhibitors and calcium-channel blockers have been shown to produce a greater fall in blood pressure in elderly compared with younger subjects, presumably related also to a reduced homeostatic response.

Practice tip

Beware of the ‘triple whammy’: ACE inhibitor + diuretic + NSAID.

Starting medications¹⁴

The starting dose of a drug in the aged¹³ should be at the lower end of recommended ranges. Dosage increments should be gradual and reviewed regularly.

That is, start low, go slow and monitor frequently. It is important to individualise doses for the elderly with the simplest dosage regimen.

Minimising medication problems

- Write simple instructions on all prescriptions.
- Individualise doses for the elderly.
- Give patients a list of their medications.
- Ask them to bring the list and their medications at each visit.
- Update this list as necessary.
- Keep medication regimen as simple as possible.
- Consider a Dosette box or Webster pack for polypharmacy.
- At home visits use the opportunity to inspect medications.
- Observe for drug interactions and toxicity.
- Keep detailed records of all medications prescribed.
- Carefully review medication after discharge from hospital.

Other tips for medication in the elderly

- Obtain relatives/carers’ consent for medication, especially in the confused.

Resources

Dementia Australia: www.dementia.org.au, accessed January 2021.

References

- 1 Harris E. *Prescribing for the Ageing Population*. Update Course Proceedings Handbook. Melbourne: Monash University Medical School, 1992. Page 1427
- 2 Australian Institute of Health and Welfare 2020. Australia's health 2020: in brief. Australia's health series no. 17 Cat. no. AUS 232. Canberra: AIHW. Available from: <https://www.aihw.gov.au/getmedia/2aa9f51b-db6-4d56-8dd4-06a10ba7cae8/aihw-aus-232.pdf.aspx?inline=true>, accessed May 2021.
- 3 Valenti L, Britt H. Older patients. *Aust Fam Physician*, 2010; 39(10): 717.
- 4 Mold JW. Principles of geriatric care. *American Health Consultants. Primary Care Rep*, 1996; 2(1): 2–9.
- 5 Lang D. Home visits to the elderly. *Aust Fam Physician*, 1993; 22: 264.
- 6 Forbes A. Caring for older people: loneliness. *BMJ*, 1996; 313: 352–4.
- 7 Workman B. Early dementia: optimal management in general practice. *Aust Fam Physician*, 2010; 39(10): 722–6.
- 8 Hodkinson HM. Evaluation of a mental test score for assessment of mental impairment in the elderly. *BMJ*, 1972; 1: 233–8.
- 9 Kingshill Research Centre. 6-item Cognitive Impairment Test (6CIT) Kingshill Version 2000. Swindon, UK: Kingshill Research Centre.
- 10 Fredman M et al. *Clock Drawing: A Neuropsychological Analysis*. New York: Oxford University Press, 1994.
- 11 Bridges-Webb C. *Care of Patients with Dementia: General Practice Guidelines*. Sydney: NSW Health, 2003.
- 12 Ames D, Burns A, O'Brien J. *Dementia* (4th edn). London: Hodder Arnold, 2010.
- 13 McLean S. Is it dementia? *Aust Fam Physician* 1992; 21: 1762–76.
- 14 Dementia [updated 2021]. In: *Therapeutic Guidelines* [digital]. Melbourne: Therapeutic Guidelines Limited; 2021. www.tg.org.au, accessed April 2021.
- 15 Macfarlane S. Management of behavioural and psychological symptoms in dementia. Proceedings for Monash University Update Course for GPs. Melbourne: November 2017 (notes available on request).

- 16** Birks JS et al. Donepezil for mild and moderate Alzheimer's disease (Cochrane Review). In: The Cochrane Library. Issue 1, 2001. Oxford: Update Software.
- 17** Birks JS et al. Rivastigmine for Alzheimer's disease (Cochrane Review). In: The Cochrane Library. Issue 1, 2001. Oxford: Update Software.
- 18** New Alzheimer's drugs show only modest benefit. NPS News, 2001; 16: 1–6.
- 19** Herman N, Lanctot K. Pharmacologic management of neuropsychological symptoms for Alzheimer's disease. Can J Psychiatry, 2007; 52(6): 630–45.
- 20** Le Bars PL et al. *Ginkgo biloba* and dementia. JAMA, 1997; 278: 1327–32.
- 21** Tabet N et al. Vitamin E for Alzheimer's disease (Cochrane Review). In: The Cochrane Library. Issue 1, 2001. Oxford: Update Software.
- 22** Valenzuela M. *Maintain Your Brain*. Sydney: Harper Collins, 2001.
- 23** Anstey K, Ee N, Eramulugdia R, Peteres R. A systematic review of meta-analyses that evaluate risk factors for dementia. J G Alzheimer's Disease; 23 August 2019.
- 24** Bamford KA, Caine ED. Does benign senescent forgetfulness exist? Clin Geriatr Med, 1988; Nov 4(4): 397–416.
- 25** Jeffreys D. Late-life depression. Medical Observer, 18 July 2003: 36–7.
- 26** Abrams WB, Beers M, Berkow W. *The Merck Manual of Geriatrics* (3rd edn). New Jersey: Merck Research Laboratories 2009: [Chapter 36](#) .
- 27** Hindmarsh JJ, Estes H. Falls in older persons: causes and intervention. Arch Intern Med, 1989; 149: 2217.
- 28** Quail GG. An approach to the assessment of falls in the elderly. Aust Fam Physician, 1994; 23: 873–83.
- 29** NPS News. Medicines and older people: an accident waiting to happen? NPS News, 2004; 34: 1–4.
- 30** Briant RH. Medication problems of old age. Patient Management, 1988; 5: 27–31.
- 31** Bell JS et al. Osteoporosis: pharmacological prevention and management in older people. Aust Fam Physician, 2012; 41(3): 110–18.

126 End of life/palliative care

Death should simply become a discreet but dignified exit of a peaceful person from a helpful society—without pain or suffering and ultimately without fear.

PHILIPPE ARIÈS 1977

To enable a person to live in dignity, peace and comfort throughout their illnesses means responding to physical, psychological, emotional, social and spiritual needs.¹

ERIC FAIRBANK, TREVOR BANKS, *PALLIATIVE CARE: THE NITTY GRITTY HANDBOOK*, 1993

Palliative care is comprehensive, continuing, multidisciplinary patient care that involves the patients and their carers, consultants, domiciliary nurses, social workers, clergy and other health professionals who are able to contribute to optimal team care.

The fundamental principles of palliative care are:²

- good communication
- management planning
- symptom control, especially relief from any pain
- emotional, social and spiritual support
- medical counselling and education
- patient involvement in decision making
- support for carers

The diseases

Palliative care applies not only to incurable malignant disease but also to several other diseases, such as end-stage organ failure (heart failure, kidney failure, respiratory failure and hepatic failure) and degenerative neuromuscular diseases. Thirty per cent of the population will die from

cancer.

The special role of the family doctor

The GP is the ideal person to manage palliative care for a variety of reasons—availability, knowledge of the patient and family, and the relevant psychosocial influences. A key feature is the ability to provide the patient with independence and dignity by managing palliative care at home. Someone has to take the responsibility for leadership of the team and the most appropriate professional is a trusted family doctor.

Most patients and their families require answers to the following six questions.³

- What is wrong?
- What can medical science offer?
- Will I suffer?
- Will you look after me?
- How long will I live?
- Can I be looked after at home?

Caring honesty is the best policy when discussing the answers to these questions with the patient and family. Never lie to a patient and always avoid thoughtless candour.

Support for patients and carers

Studies have indicated that the most common complaints of patients are boredom and fear of the unknown. This highlights the importance for the attending doctor of the following points.

- Give emotional support.
- Listen and be receptive to unexpressed ‘messages’.
- Treat the sufferer normally, openly, enthusiastically and confidently.
- Show empathy and compassion.
- Employ good communication skills.
- Give honest answers without labouring the point or giving false hope.
- Provide opportunities for questions and clarification.
- Show an understanding of the patient’s needs and culture.

- Adopt a whole-person approach: attend to physical, psychosocial and spiritual needs.
- Anticipate and be prepared for likely problems.

These next special points are worth emphasising.

- The patient needs a feeling of security.
- Provide reassurance that the patient will not suffer unnecessarily.
- Be prepared to take the initiative and call in others who could help (e.g. clergy, cancer support group, massage therapists).
- Patients must not be made to feel isolated or be victims of the so-called ‘conspiracy of silence’ in which families collude with doctors to withhold information from the patient.
- The worst feeling a dying patient can sense is one of rejection and discomfort on the part of the doctor.
- Always be prepared to refer to an oncologist or appropriate therapist for another opinion about further management. The family and patient appreciate the feeling that every possible avenue is being explored.

Note: Always establish what the patient knows and wants to know.

Page 1429

The Gold Standards Framework (UK)

This framework, which provides an optimal model for palliative care by the primary care team, focuses on seven key tasks:

1. optimal quality of care
2. advanced planning (including out of hours)
3. teamwork
4. symptom control
5. patient support
6. carer support
7. staff support

The strategy has been shown to increase the number of patients dying in their preferred place with improved quality of care.⁴

Symptom control

Common symptoms

- Boredom (the commonest symptom)
- Loneliness/isolation
- Fear/anxiety
- Pain

physical

emotional

spiritual

social

- Anorexia
- Nausea and vomiting
- Constipation

The grief reaction

This follows five stages, as identified by Kübler-Ross:⁵

1. denial and isolation
2. anger
3. bargaining
4. depression
5. acceptance

This model provides a useful guideline in understanding the stages a patient and family will be experiencing.

The principles of symptom management are summarised in TABLE 126.1 . The goals of treatment according to the different stages of cancer are presented in FIGURE 126.1 .

Table 126.1

Principles of symptom management⁵

- Determine the cause.
- Treat simply.
- Provide appropriate explanation of symptoms and treatment.
- Provide regular review.
- Give medication regularly around the clock, not ad hoc.
- Plan 'breakthrough' pain-relieving doses.
- Provide physical treatment as necessary (e.g. paracentesis, pleural tap, nerve block).
- Provide complementary conservative therapy (e.g. massage, physiotherapy, occupational therapy, dietary advice, relaxation therapy).
- Provide close supervision.

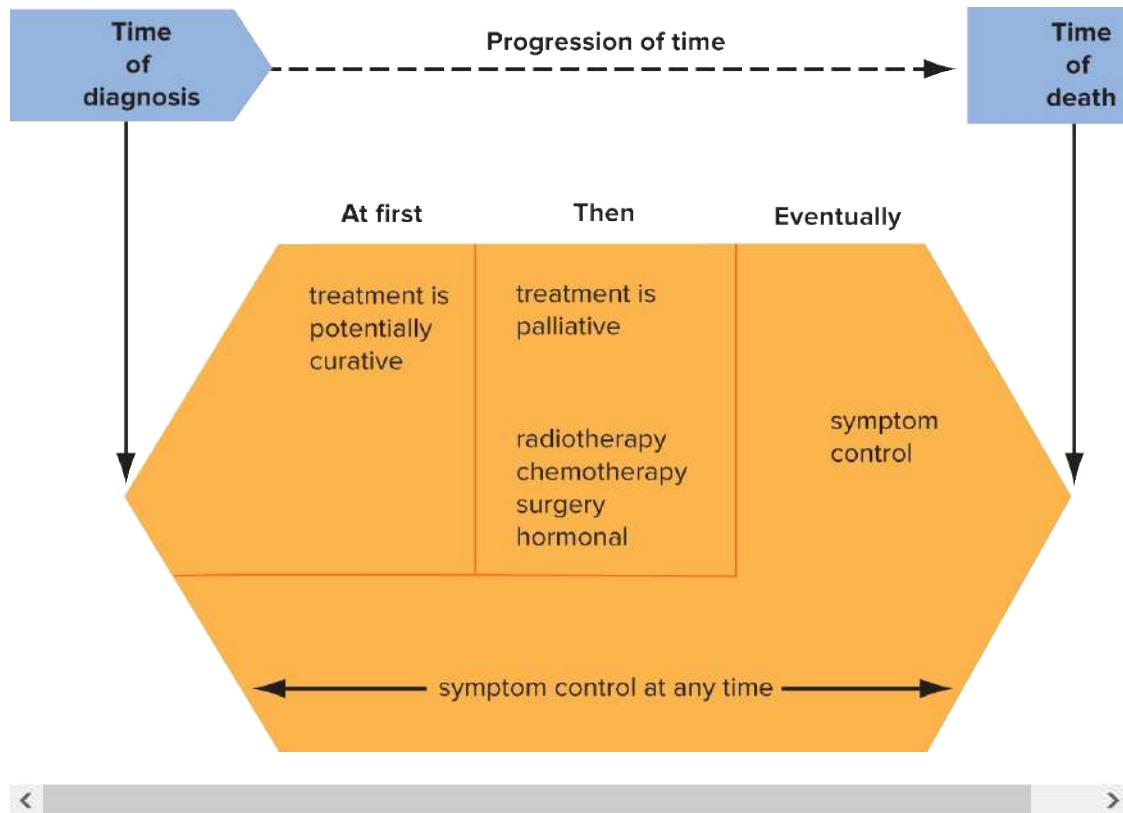


FIGURE 126.1 Stages of cancer management: the goals of treatment differ according to the different stages⁶

Pain control in cancer

Pain is the commonest, most feared, but generally the most treatable symptom in advanced

cancer. Achieving pain relief is one of the most important functions of palliative care and patients need reassurance that they can expect such relief. The principles of relief of cancer pain are:¹

1. Treat the cancer.
2. Raise the pain threshold:
 - provide appropriate explanation
 - allow the patient to ventilate feelings and concepts
 - give good psychosocial support
 - use antidepressants or hypnotics.
3. Add analgesics according to level of pain, for example, opioids (if necessary).
4. Use specific drugs for specific pain—not all pain responds to analgesics (refer TABLE 126.2).
5. Set realistic goals.
6. Organise supervision of pain control.

Note: The right drug, in the right dose, given at the right time relieves 80–90% of the pain.¹ Reports of the undertreatment of cancer pain persist.

[Page 1430](#)

Table 126.2 Treatment options for cancer pain^{6,7} (based on aetiology)

Aetiology	First-line treatment	Second-line treatment	Other treatment modalities to consider
Nociceptive pain: stimulation of sensory nerves	Aspirin	Opioids Corticosteroids Antidepressants NSAIDs	Radiotherapy Neurosurgery
Neuropathic pain: direct nerve involvement (e.g. brachialgia, sciatica)	Opioids Antidepressants (e.g. amitriptyline) Anti-epileptics (e.g. carbamazepine,		Spinal opioid, e.g. morphine Local anaesthetic Ketamine

gabapentin)

Dysaesthesia: superficial burning pain	Antidepressants	Opioids	Local anaesthetic TENS
Pressure pain: tumour-associated oedema (e.g. raised intracranial pressure)	Corticosteroids (e.g. dexamethasone)	Opioids	Radiotherapy Neurosurgery
Bony metastases and other tissue destruction	NSAIDs Aspirin Paracetamol (if NSAIDs contraindicated) Orphenadine	Opioids	Radiotherapy (the most effective) Bisphosphonates Hormones Orthopaedic surgery
Muscle spasm pain	Diazepam Clonazepam Baclofen	Opioids Dantrolene	
Viscus (hollow organ) obstruction (e.g. colic, tenesmus)	Antispasmodics (e.g. hyoscine)	Opioids Chlorpromazine Corticosteroids	Palliative surgery Radiotherapy
Metabolic effects: hypercalcaemia	Bisphosphonates (APD)		
Skin infiltration/ulceration	Aspirin Opioids	Corticosteroids	Treat infection Dressings Palliative surgery Radiotherapy



Use of analgesics⁷

The World Health Organization (WHO) analgesic ladder is an appropriate guide for the management of cancer pain (see FIG. 126.2).

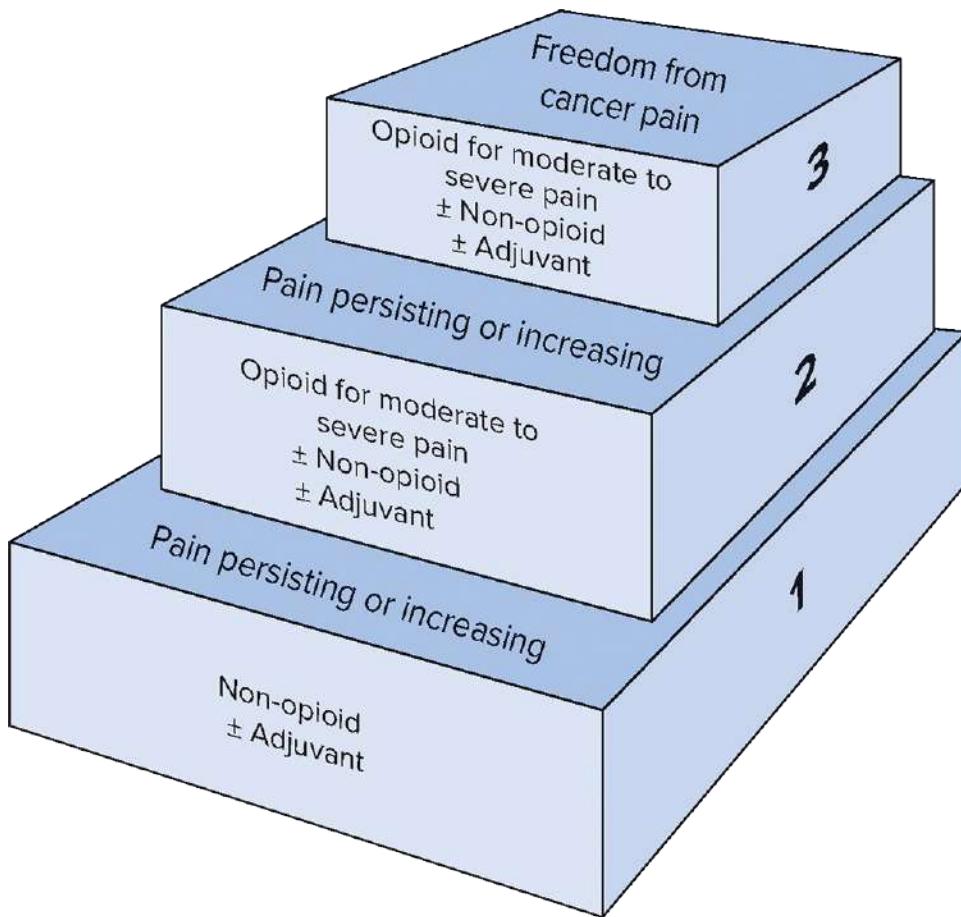


FIGURE 126.2 World Health Organization pain relief ladder

These should be given by the clock and administered according to the three-step method.

Step 1: Mild pain

Start with basic non-opioid analgesics:

NSAID, e.g. aspirin 600–900 mg (o) 4 hourly

or

paracetamol 1 g (o) 4 hourly or 1.33 g (o) 6–8 hourly ± NSAID (e.g. ibuprofen, celecoxib)

Step 2: Moderate pain

Use low-dose or weak opioids (according to age and condition) or in combination with non-opioid analgesics (consider NSAIDs):

add morphine immediate release 5 to 10 mg (o) 4 hourly (2 to 5 mg in elderly)

increase in increments of 30–50% up to 15–20 mg

or

tapentadol SR 50 mg (o) bd, can increase to max. 500 mg/day

or

oxycodone 2.5 mg (in elderly) up to 10 mg (o) 4 hourly or CR 10 mg (o) 12 hourly

or

oxycodone 30 mg, rectally, 8 hourly

Step 3: Severe pain

Maintain non-opioid analgesics. Larger doses of opioids should be used and morphine is the drug of choice:

morphine 10–15 mg (o) 4 hourly, increasing to 30 mg if necessary

or

morphine modified release tabs or caps (o) 12 hourly or once daily

- Give dosage according to individual needs (morphine CR/SR comes in 5, 10, 15, 20, 30, 50, 60, 90, 100, 120, 200 mg tablets or capsules).
- The proper dosage is that which is sufficient to alleviate pain.
- The usual starting dose is 20–30 mg bd.
- Give usual morphine 10 mg with first dose of morphine CR/SR and then as necessary for ‘rescue dosing’.
- Gauge the probable dose of the long-acting morphine from the standard dosage.
- To convert to morphine CR/SR, calculate the daily oral dose of regular morphine and divide by 2 to get the 12 hourly dose.
- Do not crush or chew the tablets or capsules.
- Review doses after 1–2 days.

- Ensure that pain is likely to be opioid-sensitive.
- Use as few drugs as possible.
- Give morphine orally (e.g. Ordine) (if possible) either by mixture (preferred) or tablets (e.g. Sevredol, Anamorph).
- Starting doses are usually in the range of 5–20 mg (average 10 mg).
- If analgesia is inadequate, the next dose should be increased by 50% until pain control is achieved.
- Give it regularly, usually 4 hourly, before the return of the pain (see [FIG. 126.3](#)).
- Many patients find a mixture easier to swallow than tablets (e.g. 10 mg/10 mL solution).
- Oral analgesics are preferred, but SC infusions often provide better relief in advanced illness.
- Constipation is a problem, so treat prophylactically with regular laxatives and carefully monitor bowel function.
- Consider oxycodone/naloxone (Targin) CR tablets for pain.
- Oral oxycodone is about 1.5 times more potent than oral morphine (mg for mg), e.g. 10 mg oxycodone = 15 mg morphine.
- Order a ‘rescue dose’ (usually 5–10 mg) for breakthrough pain or anticipated pain (e.g. going to toilet).
- Order anti-emetics (e.g. haloperidol prn at first; usually can discontinue in 1–2 weeks as tolerance develops).
- Reassure the patient and family about the safety and efficacy of morphine (see [TABLE 126.3](#)). (Beware of opioidphobia.)
- Using morphine as a mixture with other substances has no particular advantage.
- Pethidine is not recommended (short half-life, toxic metabolites) and codeine and IM morphine (initially) should be avoided.
- Other opioids such as oxycodone, tapentadol and fentanyl are sometimes used instead of morphine and are an alternative to SC opioids but use with discretion (see [CHAPTER 82](#)).
- Fentanyl is a potent synthetic opioid which is available as a transdermal system. Effective and good for compliance. It is the least constipating opioid and can be used in kidney failure.
- Tapentadol is a new moderately strong opioid analgesic given orally, usually as a sustained release preparation. It is best avoided in severe kidney and liver impairment.

- Hydromorphone is a potent analgesic available as oral liquid, tablets and injection, and is now widely used in palliative care. It facilitates oral dosing when a high opioid dose is required and because of its short half-life (2–3 h) may reduce the incidence of side effects in the frail and elderly but like oxycodone may need to be given 4 hourly if used alone.
- Haloperidol is a first-class adjuvant for morphine.

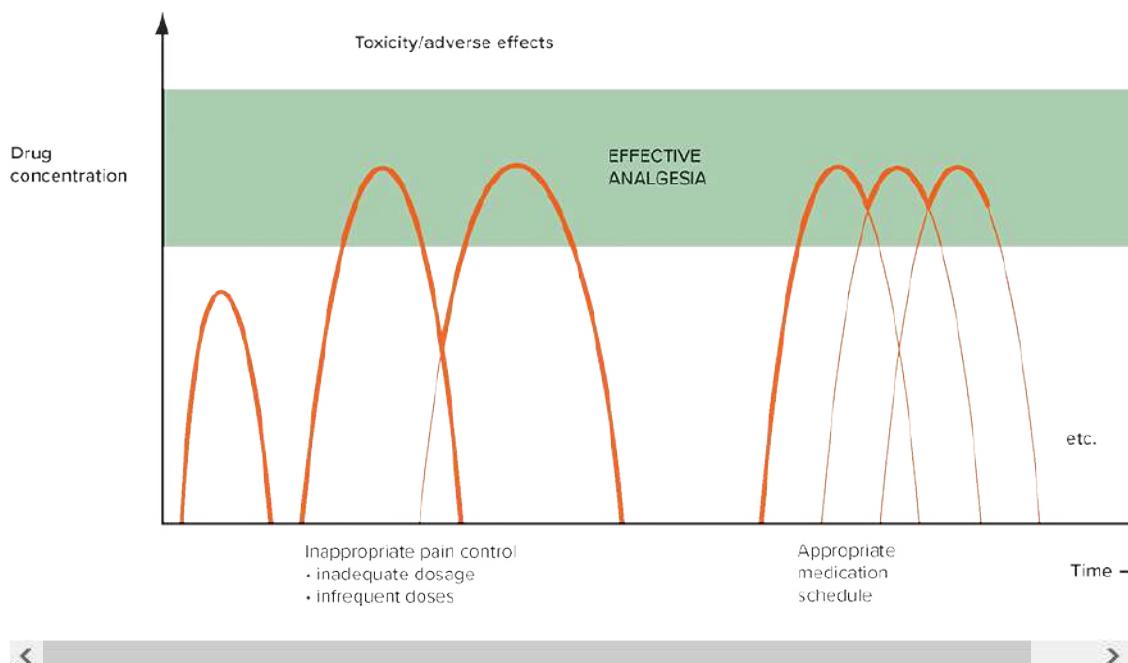


FIGURE 126.3 Appropriate schedule of analgesia to achieve optimal pain control⁸

Table 126.3 Common myths about morphine⁷

Morphine is a last resort

This is not so, and there is no maximum dose.

The patient will become addicted

This is rare and probably irrelevant in the context of palliative care.

The patient will need ever-increasing amounts

The drug does not lose its effect but is usually increased according to disease progression.

Morphine will cause respiratory depression

This is rarely a problem and may even help those with dyspnoea. An overdose can be reversed with an injection of naloxone.

Morphine will shorten life

The reverse may in fact apply. It is not being used for euthanasia but to control

pain.

Key injectable medications

- Morphine
- Haloperidol
- Metoclopramide
- Midazolam
- Clonazepam
- Hyoscine

Page 1433

Opioid rotation

This practice involves changing from one strong opioid to another in patients with dose-limiting side effects. Different opioids have differences in opioid receptor binding.

Morphine can be alternated with oxycodone, hydromorphone, methadone, fentanyl, tapentadol and others. Transdermal patches of fentanyl are an alternative to parenteral morphine.

Conversion rules (approximate potencies)^{9,10}

- Divide oral dose morphine by 3 for equivalent SC dose,⁹ e.g. 30 mg oral morphine = 10–15 mg SC/IM
- 10 mg morphine SC/IM = 100–150 mcg fentanyl SC/IM/IV
or 2 mg hydromorphone SC/IM/IV
or 6–7 mg oxycodone (o)
or 100 mg tramadol IM/IV or 150 mg (o) or 300 mg tapentadol
- 30 mg oral oxycodone = 15–20 mg SC oxycodone

PARENTERAL MORPHINE

This is generally given subcutaneously (not IV or IM). Indications are:⁶

- 1. unable to swallow (e.g. severe oral mucositis; dysphagia; oesophageal obstruction)
- 2. bowel obstruction
- 3. severe nausea and vomiting
- 4. at high oral dose (i.e. above 100–200 mg dose) there appears to be no additional benefit from further dose increments

Adjuvant treatment

Refer to [TABLE 126.2](#). In all three steps of pain control consider the use of adjuvant ‘analgesics’; while not strictly speaking analgesics, they contribute to pain relief. Examples are corticosteroids, antidepressants, psychotropic agents and anticonvulsants.

Pain control

Bone pain:

- aspirin, paracetamol, NSAIDs are helpful co-analgesics, consider denosumab

Neuropathic pain (direct involvement of nerves):

- antidepressants (e.g. amitriptyline)
- anticonvulsants (e.g. carbamazepine, gabapentin, midazolam)
- ketamine, an anaesthetic agent, is valuable for difficult pain but requires expertise in administration

Neurological pressure:

- corticosteroids for spinal cord compression, oedema and raised intracranial pressure e.g. dexamethasone 4–16 mg (o, SC or IM) daily in morning

or

prednisolone 25–100 mg (o) daily

Continuous subcutaneous infusion of morphine

When the oral and/or rectal routes are not possible or are ineffective, a subcutaneous infusion with a syringe driver (pump) can be used.

It is also useful for symptom control when there is a need for a combination of drugs (e.g. for pain, nausea and agitation). It may avoid bolus peak effects (sedation, nausea or vomiting) or trough effects (breakthrough pain) with intermittent parenteral morphine injections.

Practical aspects

- Access to the subcutaneous space is via a 21 gauge butterfly needle, which is replaced regularly (1, 2, 3 or 4 days).
- Most regions are suitable. The more convenient are the abdomen, the anterior thigh and the anterior upper arm (usually the anterior abdominal wall is used).
- The infusion can be managed at home.
- About one-half to two-thirds of the 24-hour oral morphine requirement is placed in the syringe.
- The syringe is placed into the pump driver, which is set for 24-hour delivery.
- Areas of oedema are not suitable.

Spinal morphine

Epidural or intrathecal morphine is sometimes indicated for pain below the head and neck, where oral or parenteral opioids have been ineffective. It is necessary to insert an epidural or intrathecal catheter (anaesthetist or neurosurgeon).⁷

Common symptom control

Common symptoms can be controlled as follows:^{1,7}

Anorexia and weight loss

metoclopramide 10 mg (o) tds

or

dromperidone 10 mg 8 hourly

or

corticosteroids (e.g. dexamethasone 2–8 mg (o) daily)

high-energy drink supplements

Cough, especially dry cough

morphine 2.5 mg (o) 4 hourly prn

nebulised saline

pholcodine linctus 10–15 mg (o) 6 hourly prn

Constipation^{6,7,8}

If opioids need to be maintained, the laxatives need to be peristaltic stimulants, not bulk-forming agents. Treat as for any patient in the GP setting. Aim for firm faeces with bowels open about every third day.

e.g. lactulose 20 mL bd

or

macrogol, one to two sachets, in 125 mL water, 1–3 times daily

or

senna with sennoside (o) 1–2 tabs nocte

Rectal suppositories, microenemas or enemas may be required (e.g. Microlax).

Tip: Tilt the pelvis for defecation by sitting upright with books under feet for elevation.

Noisy breathing and secretions^{7,10}

Conservative: repositioning to one side, reduced parenteral fluids and nasogastric suction.

For conscious patient:

- hyoscine butylbromide (Buscopan) 20 mg SC, 4 hourly or 60–80 mg daily by SC infusion
or
- glycopyrrrolate 0.4 mg SC as a single dose followed by 0.6–1.2 mg/24 hrs by continuous SC infusion

For unconscious patient, as above, also consider:

- hyoscine hydrobromide 0.4 mg SC, 4 hourly or 0.8–2.4 mg/24 hrs by continuous SC infusion
or
- atropine 0.4–0.6 mg SC 4–6 hourly (be cautious of delirium)

These agents dry secretions and stop the ‘death rattle’.

Dyspnoea

Identify the cause, such as a pleural effusion, and treat as appropriate. Pleural taps can be performed readily in the home (consider the PleurX catheter). Adjust the patient's posture. Corticosteroids can be given for lung metastases. Oxygen may be necessary if hypoxaemic to help respiratory distress in the terminal stages and bedside oxygen can be readily obtained. Morphine can be used for intractable dyspnoea, e.g. 2.5–5 mg (o) 4 hourly or 0.5–1 mg SC prn repeated hourly, together with haloperidol or a phenothiazine for nausea. Use a short-acting benzodiazepine (e.g. midazolam 2.5 mg SC or lorazepam 0.25–5 mg) sublingually if anxiety is a component.

Pruritis

Options:

- antihistamines, e.g. cyproheptadine
- doxepin 10 mg (o) nocte⁷
- phenothiazines

Terminal distress/restlessness^{7,10,11,12}

(Exclude reversal causes, e.g. drugs, fear, faecal impaction, urinary retention.)

First choice:

clonazepam

0.5 mg SC bolus or 0.25–0.5 mg (o) 12 hourly (drops SL) (3 drops = 0.3 mg) or tabs⁷

1–4 mg over 24 hours in SC syringe driver

or

midazolam 2.5–5 mg SC 1–3 hourly prn or 2.5–10 mg sublingual or intranasal or 10 mg 4 hourly by SC infusion

If very severe:

add (with care because of fitting) haloperidol 0.5–1.5 mg (o) or SC (5 mg is maximum dose in 24 hours)

Nausea and vomiting

If due to morphine:

haloperidol 1.5–5 mg (o) daily or 0.5–1 mg (SC) 4 hourly prn (can be reduced after 10 days) or 1–2.5 mg over 24 hours via SC infusion

or

metoclopramide 10–20 mg (o) or SC 8 hourly prn

Alternatives: promethazine, cyclizine

If due to poor gastric emptying, use a prokinetic agent: metoclopramide, cisapride or domperidone.

Consider ondansetron or tropisetron for nausea and vomiting induced by cytotoxic chemotherapy and radiotherapy (see [CHAPTER 49](#)).

Wound dressings

To reduce pain, apply a mixture of 10 mg/mL topical morphine with 8 g/mL Intrasite hydrogel.

Cerebral metastases

Common symptoms are headache and nausea. Consider corticosteroid therapy (e.g. dexamethasone 4–16 mg daily). Analgesics and anti-emetics such as haloperidol are effective.

Page 1435

Paraplegia

Paraplegia is especially prone to occur with carcinoma of the prostate, even when treated with LHRH analogues. The warning signs are the development of new back pain, paraesthesia in limbs or the recent development of urinary retention.¹ The objective is to prevent paraplegia developing. High-dose corticosteroids are given while arranging urgent hospital admission.

Fatigue

The cause is usually multifactorial. Over investigation for the cause is usually inappropriate but it is important to explain to the patient and carers the reasons for the fatigue. The evidence for specific pharmacological treatment is inconclusive. Optimise fluid and electrolyte intake.

Hiccups^{7.8}

Try a starting dose of:

clonazepam 0.25–1 mg (o) bd (consider oral liquid drops)

or

haloperidol 1–2.5 mg (o) daily

Swallowing granulated sugar with or without vinegar does not appear to be effective. Other drugs reported to be beneficial include baclofen, midazolam, chlorpromazine, gabapentin and metoclopramide.

Depression¹³

- Mirtazapine 30 mg (o) daily, helpful for night-time sedation and appetite
- Consider methylphenidate (psychostimulant) 5 mg (o) bd since evidence indicates an improvement in symptoms¹³

Weakness and weight loss

This problem may be assisted by a high-calorie and high-protein diet. Otherwise consider total parenteral nutrition. A list of high-energy drink supplements is provided in *Palliative Care: The Nitty Gritty Handbook*.¹

Delirium

Determine the cause, including adverse opioid effect. Extensive investigations are inappropriate but consider FBE, MCU, CXR, pulse oximetry. Consider treatment with olanzapine and haloperidol (refer to [CHAPTER 69](#)).

Hypercalcaemia

Consider hypercalcaemia in the presence of drowsiness, confusion, twitching and abdominal pain. It may be a paraneoplastic effect of myeloma and cancers (particularly lung and breast). It carries a poor prognosis—monitor serum calcium >3 mmol/L. Treat with rehydration, reduction of tissue mass and bisphosphonates.

The patient with AIDS

The same principles of management apply to the person suffering from the many manifestations of terminal AIDS, including pain. Many of these patients wish to die at home and there are excellent caring support groups to help. It is important to become acquainted with the service network. However, in Australia this service is thankfully becoming uncommon. A very helpful guide to symptom control is presented in *Therapeutic Guidelines, Palliative Care: acquired immunodeficiency syndrome*.⁷

Palliative care in children

Principles of management

- Children should not be regarded as mini-adults.
- There is a different spectrum of illness apart from childhood cancer including congenital disorders such as cystic fibrosis, neurodegenerative disorders and cerebral palsy.

- The commonest malignancy is acute lymphatic leukaemia. Other important malignancies include: lymphomas, cerebral tumours, bone tumours and solid tumours.
- The focus of care is on the physical, mental and spiritual welfare of the child and the grieving family.
- Any pain must be accurately assessed.
- Morphine is the most commonly used opioid for pain although fentanyl and hydromorphone are now widely used.
- Nausea, vomiting and constipation require special attention.
- Avoid unpalatable medications and intramuscular injections.
- Adverse reactions to tranquillisers, corticosteroids, anti-emetics and aspirin are a special problem.
- Be prepared for home management, which is usually preferred by families.
- Pay attention to the impact on the vulnerable child, the parents and siblings. Consider support groups.

Dying and grieving

The stages of the grieving process as described by Kübler-Ross⁵ may be experienced Page 1436 by both the patient and the family, albeit not exactly according to the five stages. The grieving process following the death of a loved one can vary enormously but many people are devastated.

The principles of care and counselling include:¹

- Be available and be patient.
- Allow them to talk while you listen.
- Reassure them that their feelings are normal.
- Accept any show of anger passively.
- Avoid inappropriate reassurance.
- Encourage as much companionship as possible, if desired.

(See guidelines for crisis counselling given in CHAPTER 4 .)

Communicating with the dying patient

Good communication is essential between the doctor and patient in order to inform, explain, encourage and show empathy. However, it can be very difficult, especially with the cancer patient.

Good communication is dependent on honesty and integrity in the relationship. Telling the truth can be painful and requires sensitivity, but it builds trust that enables optimal sharing of other difficult concerns and decisions, such as abandoning curative treatment, explaining the dying process and perhaps addressing thoughts on euthanasia.

Improved communication will lead not only to better ‘spiritual’ care but also to better symptom control.¹ Give patients every opportunity to talk about their illness and future expectations, and be available and patient in offering help and support.

Spiritual issues¹

Spirituality is an important issue for all people, especially when faced with inevitable death. Many people are innately spiritual or religious and those with deep faith and a belief in ‘paradise’ appear to cope better with the dying process. Others begin to reflect seriously about spirituality and search for a meaning for life in this situation. Carers, including the attending doctor, should be sensitive to their needs and turmoil and reach out a helping hand, which may simply involve contacting a minister of religion.

Spiritual care builds on patients’ existing resources to enable them to rise above the physical, emotional and social effects of their terminal illness.¹

Advanced care planning (ACP)¹⁴

ACP is a planning process where a patient, their family and carers, in consultation with a health care provider, make decisions about the patient’s future health care, should they become incapable of making medical treatment decisions. Attention to ACP is not only important but rewarding to all parties.

The principles are:

- recognising the need to prepare for approaching death is an important medical skill
- the family needs to know that the patient is dying
- ACP is best when the patient is cognisant and involved in the decision making
- the health care is primarily patient-centred
- the plan should include the patient’s preferences, values, goals and wishes
- ensure the appointment of Medical Enduring Powers of Attorney and/or substitute decision maker for your patient

- ACP is best prior to or on admission to the caring facility or 6 months before anticipated death —then continuing review
- case conference, ideally with the GP, within this 6 months
- facilitate end-of-life pathway policy prior to death—certainly within the final week
- need for agreement for clear goals of end-of-life care, including resuscitation issues
- ACP only comes into effect when a patient is unable to make or communicate their own decisions
- ideally, ACP will result in a formal, written directive
- as part of their ACP directive, a person can choose a ‘substitute decision maker’ who would make decisions for the person if they were unable to communicate

The question of euthanasia

This is a complex issue but will arise from time to time. It should be uncommonly encountered in the context of attentive whole-person continuing care and optimal palliative care. The non-use of life support systems, the use of ‘round the clock’ morphine, cessation of cytotoxic drugs, the use of ancillary drugs such as anti-depressants and anti-emetics, various nerve blocks and loving attention almost always help the patient cope without undue pain and suffering.³ However, if the possibility is raised by a suffering patient, review the patient’s ACP plan and, if appropriate, consider referral to an accredited VAD service.

Page 1437

Practice tips

- Morphine is the gold standard for pain.⁷
- Consider prescribing antidepressants routinely for patients in pain.
- Remember the ‘sit down rule’ whereby the home visit is treated as a social visit—sitting down with the patient and family, having a ‘cuppa’ and sharing medical and social talk.³
- The patient’s GP or relevant other doctor should initiate the ACP with their patient—an expectation of most patients.⁷
- Early referral of terminal patients with difficult-to-control problems, especially pain, to a hospice or multidisciplinary team can enhance the quality of care. However, the patient’s family doctor must still be the focus of the team.

Resources

National Institute for Health and Care Excellence (NICE). Available from: www.nice.org.uk, accessed May 2021.

References

- 1 Fairbank E, Banks T. *Palliative Care: The Nitty Gritty Handbook*. Melbourne: RACGP Services Division, 1993: 1–18.
- 2 McGuckin R, Currow D, Redelman P. Palliative care: your role. *Medical Observer*, 1992; 27 November: 41–2.
- 3 Carson NE, Miller C. *Care of the Terminally Ill*. Melbourne: Monash University, Department of Community Medicine Handbook, 1993: 107–15.
- 4 National Institute for Health and Care Excellence (NICE). Available from: www.nice.org.uk.
- 5 Kübler-Ross E. *On Death and Dying*. London: Tavistock, 1970.
- 6 Buchanan J et al. *Management of Pain in Cancer*. Melbourne: Sigma Clinical Review, 1991; 18: 8–10.
- 7 Palliative care [published 2016]. In: *Therapeutic Guidelines* [digital]. Melbourne: Therapeutic Guidelines Limited; 2016. www.tg.org.au, accessed April 2021.
- 8 Woodruff R. *Palliative Medicine* (3rd edn). Melbourne: Oxford University Press, 1999.
- 9 Waters A, Brooker C, Clayton JM. Cancer pain in palliative care. *Australian Doctor*, 2009; 12 June: 25–32.
- 10 Syrmis W et al. Opioid conversion ratios used in palliative care: is there an Australian consensus? *Intern Med J*, 2014; 44(5): 483–9.
- 11 Fischer J. Palliating symptoms other than pain. *Aust Fam Physician*, 2006; 35(10): 766–9.
- 12 Burke AL. Palliative care: an update on ‘terminal restlessness’. *Med J Aust*, 1997; 166: 39–42.
- 13 Homsi J et al. Methylphenidate for depression in hospice practice. *Am J Hosp Pall Care*, 2000; 17: 393–8.
- 14 Mitchell GK. End-of-life care for patients with cancer. *Aust Fam Physician*, 2014; 43(8): 514–19.

127 The health of Aboriginal and Torres Strait Islander peoples

'Closing the Gap' is a long-term ambitious framework that builds on the foundation of respect and unity provided by the 2008 National Apology to the Aboriginal and Torres Strait Islander Peoples. It acknowledges that improving opportunities for Indigenous Australians requires intensive and sustained effort from all levels of government, as well as private and not-for-profit sectors, communities and individuals.

COUNCIL OF AUSTRALIAN GOVERNMENTS (COAG) 2008

The major health challenge in Australia (and several other developed countries) is the health status of its Indigenous peoples, which continues to be significantly worse than that of other Australians.

The 2017 AIHW figures estimated the average life expectancy for Aboriginal and Torres Strait Islander males was 69.1 years (a gap of 10.6 years compared with other Australians) and 73.7 years for women (a gap of 9.5 years).¹

The commonest cause of death is cardiovascular disease, especially ischaemic heart disease which causes about 57% of these deaths.² The contrast with other Australians is most marked at 25–54 years. Diseases of the circulatory system, injury and poisoning, respiratory illness and neoplasms continue to be important causes of death. Deaths from infectious diseases and genitourinary disorders continue to occur at much higher rates than among other Australians.

One in nine adults have type 2 diabetes—a prevalence 3.3 times higher at any age than the general population.³

Records written by early settlers indicated that the Indigenous people appeared to be in good health, probably better than the majority of new arrivals transported from England. The total Aboriginal population has been estimated as 750 000 in 1788. It fell to about 70 000 in the 1930s after 150 years of exposure to white civilisation. Significant causes were deaths at the hands of the settlers (recorded as approximately 20 000) and infectious disease.

The main diseases that decimated the population were smallpox (two severe epidemics: 1789 and 1829–1830), influenza, TB (very severe), pneumonia, measles, varicella, whooping cough,

typhoid and diphtheria. The Aboriginal and Torres Strait Islander population is now estimated to be 700 000.

The level of infant and maternal mortality continues to be a concern. After great reductions in infant mortality rates in the 1970s, there has been a levelling off, with rates remaining 3–5 times higher than those of other Australians. Despite some improvement, we all need to work to close the gap, and general practice is an ideal setting to embrace this.^{4,5}

It is important to understand that Aboriginal and Torres Strait Islander people have a diverse range of different cultures, with each group needing a special understanding of its cultural issues. This understanding is best gleaned from local community members and groups.

Practitioners working in primary health care in rural and remote areas in Central and Northern Australia are advised to use the *CARPA Standard Treatment Manual*.⁶

Key facts and checkpoints

- Consider the importance of cultural issues at each consultation.
- If assistance is required with a cultural issue, consider involving an Indigenous health worker in the consultation. Such health workers are a vital part of the team.
- Always consider multiple medical conditions in the sick person.
- Remember the importance of opportunistic screening for relatively common conditions:

type 2 diabetes (9% prevalence urban, 21% rural)

hypertension

kidney function (eGFR, ACR)

other cardiovascular risk factors (smoking, dyslipidaemia, Group A streptococcus infection)

hepatitis B (2% prevalence urban, 8% rural)

STI urine screening (men and women)

cervical screening

anaemia in children

hearing loss in children

- Screening investigations to consider include:
 - blood sugar (finger-prick test)
 - serum lipids
 - urea and electrolytes
 - hepatitis B serology
 - BMI
 - urine dipstick and ACR
- Cervical cancer is 6–8 times more common in Aboriginal and Torres Strait Islander women.
- Other common cancers are lung and liver.
- Appropriate skin care is a key to Indigenous health, with prevention, early detection and treatment of skin infection being important to reduce the burden of invasive infection in children.
- Approximately 50% of children have chronic tympanic membrane perforations, with very significant consequences for language development and school achievement.
- The incidence of end-stage kidney failure is 10 times that of non-Indigenous Australians.
- Some extra childhood immunisations are recommended (see schedule), e.g. in some regions, BCG vaccination is recommended for newborn children.
- Influenza and pneumococcal vaccines are recommended for adults over 50 years.
- The prevalence of asthma is higher (16.5%) compared with other Australians (10.2%).
- Depressive illness, as in the general community, is a significant concern. Suicide is far more common than in other Australians, by a factor of 2.7 for males and 1.7 for females.
- Alcohol use is a serious health and community problem. Although non-drinking is more common in this population, so too is binge drinking.
- Another drinking problem is kava, a drink made from a plant native to the Pacific Islands. Its effects are similar to alcohol and benzodiazepines, with marked muscle relaxation.^{4,6} Excessive use causes acute and long-term problems.

- Prevention, early detection and appropriate treatment of skin infection is key to Aboriginal and Torres Strait Islander health.

National survey

The first national survey of the health of Aboriginal and Torres Strait Islander peoples [Page 1439](#) took place in 1994, and the most recent survey (2018–2019) found that 45% consider their health to be good or excellent, although around the same percentage have at least one chronic condition.⁷

The 2018–2019 self-reported survey highlighted the following conditions:⁷

- asthma (16%)
- ear and hearing problems (14%)
- diabetes (8%)
- hypertension (8%)
- kidney disorders (1.8%)
- heart disease (5%)
- skin disorders
- eye problems, including trachoma
- nutritional status (especially obesity)
- substance abuse (e.g. alcohol, marijuana, petrol sniffing) (28%)
- smoking (41%)
- dental problems (a reversed trend of dental caries)⁸
- psychological distress and family stressors

According to BEACH data, the seven most common problems managed at encounters with Aboriginal and Torres Strait Islander patients were (in order) respiratory infections, diabetes, hypertension, depression/anxiety, asthma, immunisation and otitis media.⁹

The low health status of Aboriginal and Torres Strait Islander peoples has many underlying causes, and should be understood in terms of the social determinants of health; these are what Professor Sir Michael Marmot calls the ‘causes of the causes’.¹⁰ Many of these stem from historical dispossession, poverty and intergenerational trauma. Determinants include

geographical isolation, high population mobility, unemployment, poor housing, low education attainment, temperature extremes in central Australia, increased exposure to infectious diseases, especially in subtropical areas, and a lack of appropriate service deliveries.

Poor living conditions including overcrowding contribute to poor health outcomes, such as substance abuse, domestic violence, other social dysfunction and child malnutrition. Other environmental health issues, such as lack of adequate shelter, lack of basic amenities such as clean running water and adequate sewage disposal facilities, and lack of refrigeration, all impact on health.

Associated comorbidities of children admitted to the infectious diseases ward of the Royal Darwin Hospital¹¹ included dehydration (50%), malnutrition (60%), hypokalaemia (70%), iron deficiency (90%), anaemia (25%), pneumonia (24–32%), chronic suppurative otitis media (37%), urinary tract infection (10%) and scabies (25%).

Priority health problems have been identified by the National Aboriginal Health Strategy and are summarised in TABLE 127.1 .

Table 127.1 Priority Indigenous health problems

Clinical
Diabetes
Cardiovascular disease
Injury (and youth suicide)
Kidney disease
STIs
Mental health
Poor nutrition
Ear infections
Women's problems
Socioeconomic
Education of Indigenous children (particularly in rural and remote areas)
Housing
Water supply
Alcohol and substance misuse
Domestic violence and sexual abuse
Child abuse
Gambling
Unemployment

Aboriginal and Torres Strait Islander culture and the doctor–patient relationship

An understanding of Aboriginal and Torres Strait Islander cultural issues is fundamental to successful management outcomes. Doctors should realise that, while examining Indigenous patients, they are themselves being examined. Failure to bridge the cultural divide leads to frustration on both sides: the patient has little faith in the promise of health gains, and the clinician cannot understand why his or her supposedly clear instructions are not being carried out.¹²

Page 1440

Arguably, the most important step after dealing with the presenting complaint is encouraging the patient to feel welcome enough to want to return. Managing chronic health issues is a marathon, not a sprint. A single visit to a brilliant specialist is less useful than ongoing interaction with a generalist local clinician who is culturally sensitive and applies basic, evidence-based treatment according to the patient's needs and preferences.

Handy communication hints include:

- Allow extra consultation time.
- Don't be afraid of pauses during conversation.
- Avoid jargon; recheck the patient's understanding.
- For complex explanations, use images.
- Be aware of your body language, including eye contact.
- Be humble and listen; you don't have all the answers!

Doctors who work in Aboriginal or Torres Strait Islander communities (see FIG. 127.1) must appreciate and respect the local culture and be aware of its significance to health and behaviour.

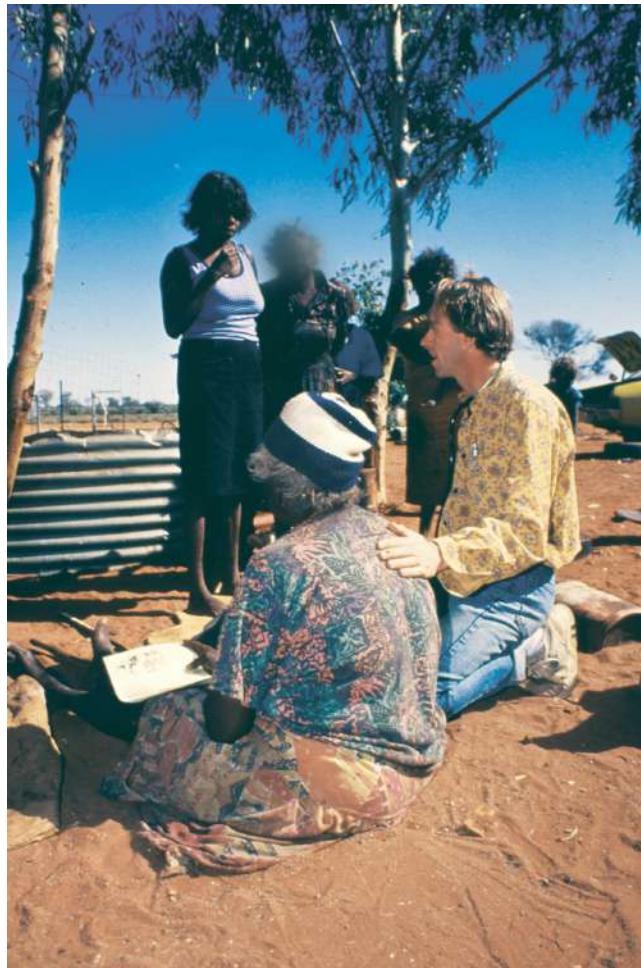


FIGURE 127.1 Doctor on an outback home visit in Central Australia

Courtesy Alice Springs Rural District Department of Health and Community Services

Many patients feel more relaxed during the consultation if accompanied by a relative or friend, who can provide support and help them interpret your medical advice later.

Page 1441

Women's business

'Women's business' can be defined as the range of experience and knowledge that is the exclusive preserve and domain of Indigenous women. It encompasses issues about menstruation, pregnancy, childbirth and contraception.¹³ Such matters may traditionally not have been discussed directly but were conveyed indirectly through stories, ceremonies and songs. For more traditional women it is taboo to talk about women's health issues to male doctors or male health workers, or to be physically examined by them. Doing so may cause shame and embarrassment.¹⁴

Men's business

Similarly, the cultural issue of men's business needs to be understood and respected. This applies to manhood initiation rites, circumcision, sexuality and sexually transmitted infections.

Sorry business

'Sorry business' is the process of grieving, and this needs to be clearly understood. There is a cultural obligation for mourners to grieve the death of a relative in a special way, sometimes for many days or weeks. Mourners may change their appearance and avoid any mention of the deceased person's name or any portrayal of their likeness. Others with the same name may have to change their name for some months or longer. The place where the person died may be deserted for a certain time (which can impact on medical clinics) and then ceremonially 'smoked out'.

Common problems in children¹⁵

Aboriginal and Torres Strait Islander children suffer the same spectrum of health problems as children in developing countries and Indigenous communities throughout the world, and the infant mortality rate remains high. The major problems are malnutrition, diarrhoeal disease, skin infections and respiratory tract infection. Common problems are presented in TABLE 127.2 .

Table 127.2 Common clinical problems in children

Perinatal

- Low birthweight
 - Asphyxia
 - Infections
-

Preschool

- Failure to thrive
- Malnutrition
- Anaemia
- Respiratory infection
- Diarrhoeal disease
- Hepatitis B
- Skin infection/infestation (incl. scabies)
- Urinary tract infection
- Meningitis
- Joint and bone infection

Chronic suppurative otitis media

Later childhood and adolescence

Bacterial and viral infections

Parasitic infestation

Streptococcal infection:

- rheumatic fever
- glomerulonephritis

Trauma

Substance abuse

Obesity

Chronic suppurative otitis media

Acute respiratory tract infections are a common reason for admission to hospital. Bacterial pneumonias occur more commonly than in non-Indigenous children and more often present late. Chronic upper respiratory tract disease is typical in younger children and mucopurulent nasal discharge is present in most preschool children.

Chronic suppurative otitis media, which is almost universal in preschool children, is often refractory to treatment and can lead to significant hearing impairment in many children. It can develop without apparent preceding acute otitis media and may be related to poor nutrition and anaemia. The basic treatment is ear toilet with povidone-iodine solution, followed by dry mopping with rolled toilet paper/tissue ‘spears’, or initial use of the ‘spears’ followed by acetic acid drops.

Skin infection and infestation are almost as prevalent as respiratory tract disease. Scabies is endemic and occasionally reaches epidemic proportions. It can be a very debilitating problem and can present in very young infants, in the first few weeks of life.¹⁵

Anaemia, usually iron deficiency, is found in at least 25% of children in remote regions. Apart from reduced intake, intestinal loss from hookworm and other parasitic infection is an important factor. Treatment includes deworming in addition to iron supplements.

Diarrhoeal disease is a very common reason for hospital admission. Causes of infective gastroenteritis include rotavirus, bacteria including *Shigella*, *Salmonella* and *Campylobacter*, and parasites such as *Giardia lamblia*, *Strongyloides* and *Cryptosporidium*.

Other important and serious problems encountered more frequently in Aboriginal and Torres Strait Islander children include bacterial meningitis (especially *Haemophilus influenzae*), septic arthritis and osteomyelitis, pyomyositis, *Streptococcus pyogenes* infections with associated glomerulonephritis and rheumatic fever, urinary tract calculi, urinary tract infection (especially at 6–18 months of age), hepatitis B and petrol sniffing (see CHAPTER 120).

benefits. Poliomyelitis, diphtheria, pertussis, tuberculosis and *H. influenzae* are now rare and it is hoped that hepatitis B, varicella and HPV infections will be drastically reduced.

Specific disorders requiring attention

The GP attending Aboriginal and Torres Strait Islander patients should develop special skills in the diagnosis and management of the following health concerns:

- type 2 diabetes, frequently with hypertension and kidney disease
- trauma
- psychosocial dysfunction (use principles of trauma-informed care)
- substance abuse, including alcohol and smoking
- ear and eye infections
- respiratory disorders—URTIs and LRTIs, asthma
- skin disorders (e.g. fungal infections, impetigo, leg ulcers, cellulitis, boils)
- parasitic infestations (e.g. scabies, lice)
- gastrointestinal infections (e.g. *Campylobacter* enteritis, giardiasis, *Shigella*)
- sexually transmitted infections
- bites and stings
- severe infections (e.g. meningitis, rheumatic fever, septicaemia)
- hepatitis B
- tropical diseases (where applicable)
- worm infestation (e.g. *Strongyloides*)

However, the general management of medical disorders follows the principles and treatment guidelines outlined in this book. Antibiotic and other treatment guidelines for rural and remote communities are most useful.⁶

Cardiovascular disease^{2,16}

Cardiovascular disease is a major cause of continuing high rates of mortality and morbidity, particularly ischaemic heart disease, but also rheumatic heart disease and stroke. Mortality from ischaemic heart disease is almost twice that of the non-Indigenous population overall and 6–8

times higher in those aged 25–64 years. Reasons for this include high smoking rates (2.6 times the rate for others)³, type 2 diabetes (3.3 times the rate), obesity and low rates of physical activity. Rheumatic heart disease is 64 times as common in the Northern Territory Aboriginal population compared to the Australian average.¹⁷

Targets for secondary prevention of cardiovascular disease and diabetes mellitus are as presented in [CHAPTER 11](#).

Ear infections⁶

Otitis externa and otitis media with its acute and chronic complications are major health problems in Aboriginal and Torres Strait Islander children, especially in rural and remote regions. Acute otitis media should be treated early and aggressively with antibiotics to (somewhat) reduce the risk of chronic suppurative otitis media, which is very difficult to cure once established. Check carefully for a perforation, which may affect management.

Treatment guidelines¹⁸

• Acute otitis media	Amoxicillin (50 mg/kg/day, in divided oral doses for 7 days) or procaine penicillin (IM). If no response, consider amoxicillin 90 mg/kg/day or amoxicillin/clavulanate or cefaclor or azithromycin. Review in 4–7 days
• Acute suppurative otitis media	Oral antibiotics (as above, but for 14 days) + dry mop ear using tissue ‘spears’ prior to each application of antibiotic ear drops
• Chronic suppurative otitis media	Wash with povidone-iodine 5% solution using a 20 mL syringe with plastic tubing 1, 2 or 3 times daily (if available), then dry mop with rolled tissue spears. Teach this method to family members. If available, suction kits are useful. Then instil ciprofloxacin 2–4 drops qid until the ear is dry, especially in the presence of a perforation of the tympanic membrane
• Otitis externa	Gently clean out debris with tissue spears followed by acetic acid 0.25%; insert Kenacomb or Sofradex drops or ointment 12 hourly on a gauze wick (if no perforation), otherwise ciprofloxacin with hydrocortisone drops 12 hourly
• Acute mastoiditis	Parenteral IM or IV flucloxacillin/dicloxacillin ± gentamicin IM or IV and hospitalisation

Eye infections⁶

Treatment guidelines

- *Peri-orbital cellulitis and penetrating eye trauma.* Arrange evacuation to hospital; if critically ill or delay in transfer, give empirical treatment with ceftriaxone IM or IV once daily. Add gentamicin IM or IV as single dose for a child <3 months or patients with other risk factors such as diabetes.
- *Conjunctivitis.* Consider two swabs if indicated (for microculture and *Chlamydia PCR*). If not viral, apply topical chloramphenicol eye drops or ointment.
- *Neonatal gonococcal ophthalmia and Chlamydia infection.* Refer to [CHAPTER 40](#).
- *Gonococcal conjunctivitis.* (Particularly if lots of pus, or in neonates) give ceftriaxone 1 g IM (children; 50 mg/kg/dose).
- *Trachoma.* These patients have ‘scratchy’ eyes and watery discharge ± red eye (see [FIG. 127.2](#)):
 if over 6 kg and not pregnant: azithromycin (o) as single dose
 if under 6 kg or pregnant: erythromycin or roxithromycin (o) for 21 days
 check and treat household contacts
 check routinely for ‘follicles’ of trachoma



FIGURE 127.2 Trachoma showing conjunctival follicles and papillae, subconjunctival scarring, including conjunctivalisation of the meibomian orifices, paramarginal sulcus formation and, on the cornea, a 2 mm vascular pannus and Herbet pits

Photo taken from the 1980 grading manual prepared by Fred Hollows and Hugh Taylor for workers in the National Trachoma and Eye Health Program (courtesy Dr David Tamblyn)

Skin and soft-tissue infections

Skin infections are the commonest presenting problem in many clinics.^{19,20} These include a high incidence of scabies and tinea corporis (ringworm), boils and carbuncles, infected wounds, impetigo and cellulitis. A notably serious complication of skin infections is post-streptococcal glomerulonephritis secondary to *S. pyogenes* infection. Scabies is the most common skin infestation and commonly starts as an itchy rash with pinhead papules in the web spaces of the fingers.

If using antibiotics, consider the likelihood of adherence; a twice daily oral dose may be preferable to three or four times daily, or a single IM injection statim preferable to an oral course.

Recommended treatment (in summary)^{6,20}

Impetigo and other skin sores

- Soak and remove crusts with saline or soap and water or povidone-iodine or potassium permanganate (Condy's crystals) solution
- Antibiotic treatment (if required)
- benzathine penicillin, IM, statim dose

or

flucloxacillin/dicloxacillin (o) or cephalixin (o) or cotrimoxazole (o) for 3–7 days

Cellulitis (mild–moderate) and erysipelas

As for impetigo, above

or

procaine penicillin IM daily for 5 days

or

benzathine penicillin IM on days 1 and 3 or daily for 3–5 days

If no improvement: flu/dicloxacillin (as below) plus probenecid

Boils, carbuncles, abscesses, bullous impetigo (*Staphylococcus aureus* infections)

Flu/dicloxacillin (o) 6 hourly for 5–10 days

Suppurative wound infections

- Use local measures such as aseptic dressings and topical antiseptics
- If necessary, add flu/dicloxacillin (as above); consider clindamycin

Tinea corporis (ringworm)

- Use benzoic acid ointment, Whitfield's ointment or one of the imidazole preparations: apply 1–3 times daily for 4–6 weeks or for 1 week after rash resolves
- Systemic agents (e.g. griseofulvin (o) once daily) may be necessary

Page 1444

Scabies

- Apply permethrin 5% cream or benzyl benzoate 25% emulsion (see [CHAPTERS 109](#) and [112](#)). Treat household members.
- For children less than 2 months use:
 - sulphur 5% cream for 2–3 days
 - or*
 - crotamiton 10% cream daily for 3–5 days
- For infected scabies, use flu/dicloxacillin or erythromycin

Pityriasis versicolor (white spot)

Refer to [CHAPTER 113](#).

GABHS infections

Group A beta-haemolytic *Streptococcus* (GABHS) infections are a significant problem, causing diseases such as pharyngotonsillitis, impetigo, cellulitis, otitis media and scarlet fever. Two important immunological reactions to the streptococcus toxin are acute rheumatic fever and post-streptococcal glomerulonephritis (PSGN).²

Acute rheumatic fever

Rheumatic fever and its effects are a serious cause of cardiovascular morbidity and mortality in Aboriginal and Torres Strait Islander peoples, who have the highest rate of acute rheumatic fever

of any ethnic group in the world, with an incidence of 250–300 per 100 000 children.²¹ It is a classic hallmark of overcrowding, poverty and lack of hygiene, all of which facilitate streptococcal infection (see CHAPTER 25 for clinical features).

Treatment is with benzathine penicillin (IM).

Acute glomerulonephritis

There is an association between PSGN (see CHAPTER 65) and streptococcal skin and throat infections. Impetigo is the more frequent antecedent to PSGN. A study based on the fact that Aboriginal and Torres Strait Islanders have an incidence of end-stage kidney failure 10 times greater than the general population found that people with a history of PSGN in childhood had a risk of overt albuminuria more than six times that of a control group.²² There is no simple treatment of PSGN, so preventing streptococcal infection remains the most important control strategy. Penicillin is beneficial in preventing spread during epidemics.

Communicable diseases

Communicable diseases remain a problem, with an up to 10-fold increase over the non-Indigenous population for diseases such as hepatitis A, hepatitis B, meningococcal disease, *Salmonella*, *Chlamydia*, *Gonorrhoea* and tuberculosis.^{3,7}

Tuberculosis

The rate of TB in Aboriginal and Torres Strait Islanders is 10–15 times higher than for other people in the Northern Territory.² This is related to poverty, overcrowding, malnutrition and homelessness. Early diagnosis and treatment is the key to its control. This includes detection of latent TB infection in those at risk and strategies to prevent transmission in acute cases. BCG immunisation in high-risk groups is a key preventive strategy and is recommended for newborns from high-risk communities (see CHAPTER 19).

Leprosy (Hansen disease)

Leprosy (see CHAPTER 129) has been endemic in northern Australia for over 100 years, although the incidence is reducing. Control strategies include early diagnosis of new cases, treatment with multidrug therapy, monitoring of treatment to ensure its completion and prevention of nerve function impairment (NFI). NFI is monitored by a brief voluntary muscle and sensory test. If detected early, it responds to anti-inflammatory medication such as prednisolone.

BCG vaccination, used to prevent TB, has probably had a protective efficacy against leprosy of approximately 50%.²

Worm infestations

Intestinal helminths are common in tropical northern Australia. Symptoms may include diarrhoea and abdominal pain with or without distension. Anaemia is common with hookworm infestation. Refer to [CHAPTER 129](#) for more information.

Page 1445

Treatment⁶

- Albendazole is a handy ‘all-rounder’ choice of treatment.
- Hookworm, roundworm, threadworm—pyrantel embonate or mebendazole or albendazole
- Whipworm—mebendazole or albendazole
- Strongyloidiasis—albendazole or thiabendazole
- Cutaneous larva migrans—albendazole or thiabendazole

Community worm program. In selected communities a worm eradication program is recommended for children between the ages of 6 months and 12 years with either pyrantel embonate or albendazole.

Sexually transmitted infections

In the discussion and management of STIs, it is important to be aware of the significance of men’s and women’s ‘business’; that is, the cultural sensitivities regarding specific gender feelings and issues, which need to be observed. For some women, it is inappropriate for a male doctor to discuss such issues with them but appropriate for a female doctor, nurse or health worker to do so. The same taboo may apply for a female health worker discussing STIs with a male patient. Local communities and individuals within them vary in terms of the strictness of this gender division.

STI screening consists of counselling; taking blood for RPR, hepatitis B and HIV; and a first-void urine sample for *Gonococcus*, *Chlamydia* and *Trichomonas* PCR (NAAT). Anyone who presents with an STI symptom such as a discharge or skin lesion should additionally have urethral/cervical swabs for *Gonococcus* and *Chlamydia*, ulcer swabs, viral media swab if suspected herpes, ‘snip’ biopsy (where appropriate) for Donovanosis or malignancy, and urine for MCU. Women can take their own tampon swabs instead of a cervical swab if preferred. All sexually active females under 25 years should be screened opportunistically for *Chlamydia* (in particular) and gonorrhoea. Follow-up after therapy and contact tracing, screening, treatment and notification are all necessary.

Specific treatment⁶

Refer also to [CHAPTER 109](#).

Urethritis and cervicitis

azithromycin 1 g (o) as single dose

plus

amoxicillin 3 g (o) + probenecid 1 g (o)—single dose (but use ceftriaxone 500 mg (IM) in penicillin-resistant areas)

Genital lesions

Genital warts, herpes simplex and syphilis are much more common than chancroid and lymphogranuloma venereum. Donovanosis, prevalent until the mid 2000s, has largely been eradicated. Serology for syphilis is essential. Advise to avoid sex and for males to use condoms until treatment is completed and lesions well healed.

Syphilis

benzathine penicillin 1.8 g IM as single dose, if infected less than 2 years ago. If >2 years or unsure, repeat same dose weekly for 2 further injections.

Herpes simplex

See [CHAPTER 109](#) .

Genital warts

See [CHAPTER 109](#) .

Pelvic inflammatory disease

If sexually acquired, it is usually due to *Neisseria gonorrhoeae* or *Chlamydia trachomatis* (less likely). For treatment, see [CHAPTER 95](#) .

Vaginal infections

Refer to [CHAPTERS 98](#) and [109](#) for treatment. *Trichomonas vaginalis* is usually sexually transmitted, while *Candida albicans* and bacterial vaginosis are not.

Communication tips²³

- Don't assume English is a first language, particularly in remote areas.
- Don't assume a nod means understanding and/or agreement to treatment.
- Check hearing as chronic ear infections can impair it.