

First aid is the provision of initial care for an illness or injury. It is usually performed by a lay person to a sick or injured person until definitive medical treatment can be accessed. Certain self-limiting illnesses or minor injuries may not require further medical care past the first aid intervention. It generally consists of a series of simple and in some cases, potentially life-saving techniques that an individual can be trained to perform with minimal equipment.

The key aims of first aid can be summarized in three key points:

- **Preserve life** the overriding aim of all medical care, including first aid, is to save lives
- **Prevent further harm** also sometimes called **prevent the condition from worsening**, this covers both external factors, such as moving a patient away from any cause of harm, and applying first aid techniques to prevent worsening of the condition, such as applying pressure to stop a bleed becoming dangerous.
- **Promote recovery** first aid also involves trying to start the recovery process from the illness or injury, and in some cases might involve completing a treatment, such as in the case of applying a plaster to a small wound.

Life saving procedures

As a first aider the priorities when dealing with a casualty are always the same:

- **Airway**
- **Breathing**
- **Circulation**

A **primary survey** of an injured person will establish your priorities. When dealing with an unconscious person you should open and maintain their **airway** as your first priority. If the airway should become obstructed, possibly by the tongue falling to the back of the throat, then the casualty will be unable to breathe and this will lead to death if untreated.

If the person is **breathing**, the simple procedure of placing him/her in to the **recovery position** should ensure that the airway will remain clear of obstructions.

If the person has stopped breathing, you can assist them by performing a combination of chest compressions and rescue breaths. You breathe out enough oxygen to potentially keep the person alive until the emergency services arrive, the oxygen you breathe into the person will need to then be pumped around the body using chest compressions.

It is important to remember that in any life threatening situation the **emergency services** should be called as soon as breathing or absence of breathing has been identified.

The primary survey

Danger

Are you or the person in any danger? If you have not already done so, make the situation safe and then assess the injured person.

Response

If the casualty appears unconscious, check this by shouting, 'Can you hear me?', 'Open your eyes' and gently shaking their shoulders.

If there is a **response**:

- If there is no further danger, leave the person in the position found and summon help if needed.
- Treat any condition found and monitor vital signs - level of response, pulse and breathing.
- Continue monitoring the person either until help arrives or he recovers.

If there is **no response**:

- Shout for **help**.
- If possible, leave the person in the position found and open the airway.
- If this is not possible, turn them onto their back and open the airway.

Airway

Open the airway by placing one hand on the person's forehead and gently tilting the head back, then lift the chin using 2 fingers only. This will move their tongue away from the back of the mouth and keep it from blocking the airway.

Breathing

- Look, listen and feel for **no more** than 10 seconds to see if the person is breathing normally.
- Look to see if the chest is rising and falling. Listen for breathing.
- Feel for breath against your cheek.

If the casualty is **breathing normally**, place them in the recovery position. Check for other life-threatening conditions such as severe bleeding and treat as necessary.

If the casualty is **not breathing normally**, or if you have any doubt whether breathing is normal begin cardiopulmonary resuscitation (CPR):

CPR for adults

- If you have someone with you, send them to get medical help immediately.
- If you are alone, call for help and then return to help the person.

Give **30 chest compressions**

- Place heel of your hand in the centre of the chest.
- Place other hand on top and interlock fingers.
- Keeping your arms straight and your fingers off the chest, press down by 4-5cms. then release the pressure, keeping your hands in place.
- Repeat the compressions 30 times, at a rate of 100 per minute.

Give **2 rescue breaths**

- Ensure the airway is open.
- Pinch nose firmly closed.
- Take a deep breath and seal your lips around the casualty's mouth.

- Blow into the mouth until the chest rises.
- Remove your mouth and allow the chest to fall.
- Repeat once more.

Continue resuscitation, 30 compressions to 2 rescue breaths

Do not stop unless:

- Emergency help arrives and takes over.
- The casualty breathes normally or
- You become so exhausted that you cannot carry on.

CPR for children (1 year to puberty)

- If you have someone with you, send them to get medical help immediately.
- If you are on your own carry out **CPR for 1 min** before calling for an ambulance.

Give **5 rescue breaths**

- Ensure the airway is open.
- Seal your lips around the child's mouth while pinching the nose.
- Blow gently into the lungs, looking along the chest as you breathe. Take shallow breaths and do not empty your lungs completely.
- As the chest rises, stop blowing and allow it to fall.
- Repeat four more times then check for circulation.

Give **30 chest compressions**

- Place 1 or 2 hands in the centre of the chest (depending on the size of the child).
- Use the heel of that hand with arms straight and press down to a third of the depth of the chest.
- Press 30 times, at a rate of 100 compressions per minute.
- After 30 compressions, give 2 rescue breaths.

Continue resuscitation (30 compressions to 2 rescue breaths) without stopping until help arrives.

CPR for babies (birth to 1 year)

- If you have someone with you, send them to get medical help immediately.
- If you are on your own carry out **CPR for 1 min** before calling for an ambulance.

Give **5 rescue breaths:**

- Ensure the airway is open.
- Seal your lips around the baby's mouth and nose.
- Blow gently into the lungs, looking along the chest as you breathe. Fill your cheeks with air and use this amount each time.
- As the chest rises, stop blowing and allow it to fall.
- Repeat this 5 times.

Give **30 chest compressions:**

- Place the baby on a firm surface.
- Locate a position in centre of the chest.
- Using 2 fingers, press down sharply to a third of the depth of the chest.
- Press 30 times, at a rate of 100 compressions per minute.
- After 30 compressions, give 2 rescue breaths.
- Continue resuscitation (30 compressions to 2 rescue breaths) without stopping until help arrives.

Choking

A foreign object that is stuck at the back of the throat may block the throat or cause muscular spasm.

Young children especially are prone to choking. A child may choke on food or may put small objects into their mouth and cause a blockage of the airway.

If the blockage of the airway is mild, the person should be able to clear it; if it is severe, they will be unable to speak, cough, or breathe, and will eventually lose consciousness.

Recognition of choking

Mild obstruction Person is able to speak, cry, cough or breathe.

Severe obstruction Person is unable to speak, cry, cough or breathe and will eventually become unconscious without assistance.

Treatment for adult or child

Your aims are to remove the obstruction and to arrange urgent removal to hospital if necessary.

If the obstruction is mild

- Encourage them to continue coughing.
- Remove any obvious obstruction from the mouth.

If the obstruction is severe

- **Give up to 5 back blows.**
- Check the mouth and remove any obvious obstruction.

If the obstruction is still present:

- **Give up to 5 abdominal thrusts (Heimlich Maneuver)**
- Check the mouth and remove any obvious obstruction.

If the obstruction does not clear after **three cycles** of **back blows** and **abdominal thrusts**:

- **Call for an ambulance.**
- Continue until help arrives.

Treatment for infants

Your aims are to remove the obstruction and to arrange urgent removal to hospital if necessary.

If the infant is distressed, is unable to cry cough, or breathe:

- Lay them face down along your forearm, with their head low, and support the back and head.
- Give up to **5 back blows**, with the heel of your hand.
- Check the infant's mouth; remove any obvious obstructions.
- **Do not** do a finger sweep of the mouth.

If the obstruction is still present:

- Turn the infant onto his back and give up to **5 chest thrusts**.
 - Use two fingers, push inwards and upwards (towards the head) against the infants breastbone, one finger's breadth below the nipple line.
 - The aim is to relieve the obstruction with each chest thrust rather than necessarily doing all five.
- Check the mouth.

If the obstruction does not clear after **three cycles** of **back blows** and **chest thrusts**:

- Call for an ambulance.
- Continue until help arrives.

Shock

Shock is a life-threatening condition that occurs when the vital organs, such as the brain and heart are deprived of oxygen due to a problem affecting the circulatory system. The most common cause of shock is **blood loss** but can be caused by other **fluid loss** such as **vomiting** or **severe burns**. Shock may also be caused when the heart has been damaged in some way, such as a **heart attack** or angina and is unable to pump an adequate supply to the body.

The recognition features of shock include:

- Pale, cold, clammy skin (skin could become blue/grey in appearance in severe shock, lips especially may appear blue)
- Sweating
- Weakness and dizziness
- Feeling sick and possibly vomiting
- Thirst
- Rapid, shallow breathing.

Treating Shock

- Lay the casualty down, raise and support their legs.
- Use a coat or blanket to keep them warm – but not smothered.
- Do not give them anything to eat or drink.
- Give lots of comfort and reassurance.

If shock is not treated the person will:

- Become restless and aggressive
- Start yawning and gasping for air
- Lose consciousness

- Eventually the heart will stop

Wounds and bleeding

Any break in the surface of the skin (wound), will not only allow blood and other fluids to be lost, but allow germs to enter the body. If the wound is minor, the aim of the first aider is to prevent infection. Severe wounds may be very daunting to deal with, but the aim is to prevent further blood loss and minimise the shock that could result from the bleeding.

Some closed wounds such as bruising could indicate an underlying injury and first aiders need to be aware of the cause of injury as this may alert you to a more serious condition, such as internal bleeding.

Any open wound is at risk of becoming infected so it is important to maintain good hygiene procedures to prevent cross infection between yourself and the injured person.

Minor cuts, scratches and grazes

- Wash and dry your own hands.
- Cover any cuts on your own hands and put on disposable gloves.
- Clean the cut, if dirty, under running water. Pat dry with a sterile dressing or clean lint-free material. If possible, raise affected area above the heart.
- Cover the cut temporarily while you clean the surrounding skin with soap and water and pat the surrounding skin dry. Cover the cut completely with a sterile dressing or plaster.

Severe bleeding

- Put on disposable gloves.
- Apply direct pressure to the wound with a pad (e.g. a clean cloth) or fingers until a sterile dressing is available.
- Raise and support the injured limb. Take particular care if you suspect a bone has been broken.
- Lay the injured person down to treat for shock.
- Bandage the pad or dressing firmly to control bleeding, but not so tightly that it stops the circulation to fingers or toes. If bleeding seeps through first bandage, cover with a second bandage. If bleeding continues to seep through bandage, remove it and reapply.
- Treat for shock.
- Call for medical help.

Remember: protect yourself from infection by wearing disposable gloves and covering any wounds on your hands.

If blood comes through the dressing **do not** remove it – bandage another over the original.

Objects in wounds

Where possible, swab or wash small objects out of the wound with clean water. If there is a large object embedded:

- Leave it in place.
- Apply firm pressure on either side of the object.
- Raise and support the wounded limb or part.

- Lay the casualty down to treat for shock.
- Gently cover the wound and object with a sterile dressing.
- Build up padding around the object until the padding is higher than the object, then bandage over the object without pressing on it.
- Depending on the severity of the bleeding, call for an ambulance or take the person to hospital.

Nosebleeds

Bleeding from the nose most commonly occurs when tiny blood vessels inside the nostrils are ruptured, either by a blow to the nose, or as a result of sneezing, picking or blowing the nose. Nosebleeds may also occur as a result of high blood pressure.

A nosebleed can be dangerous if the person loses a lot of blood. In addition, if bleeding follows a head injury, the blood may appear thin and watery. The latter is a very serious sign because it indicates that the skull is fractured and fluid is leaking from around the brain.

- Ask the person to sit down.
- Advise them to tilt their head forwards to allow the blood to drain from the nostrils.
- Ask them to breath through their mouth (this will also have a calming effect) and to pinch the soft part of the nose.
- Reassure and help if necessary.
- Tell them to keep pinching their nose.
- Advise them not to speak, swallow, cough, spit or sniff because this may disturb blood clots that may have formed in the nose.
- After 10 minutes, tell them to release the pressure. If the bleeding has not stopped, tell him to reapply the pressure for two further periods of 10 minutes.
- Once the bleeding has stopped and with the person still leaning forwards, clean around their nose with lukewarm water.
- Advise them to rest quietly for a few hours. Tell them to avoid exertion and in particular, not to blow their nose, because these actions will disturb any clots.

Caution

- Do not let the head tip back; blood may run down the throat inducing vomiting.
- If bleeding stops and then restarts, tell the person to reapply pressure.
- If the nosebleed is severe, or if it lasts longer than 30 minutes in total, take or send them to hospital in the treatment position.

Foreign object in the eye

A speck of dust, a loose eyelash, or even a contact lens can float on the white of the eye. Usually, such objects can easily be rinsed off. However, you must not touch anything that sticks to the eye, penetrates the eyeball, or rests on the coloured part of the eye (iris and pupil) because this may damage the eye. Instead, make sure the person gets medical attention quickly.

Recognition features

There may be:

- Blurred vision.
- Pain or discomfort.
- Redness and watering of the eye.
- Eyelids screwed up in spasm.

Your aim is to prevent injury to the eye.

- Sit the casualty down facing the light.
- Stand behind the casualty and gently separate the eyelids with your finger and thumb.
- Ensure you examine every part of the eye, ask the casualty to look up, down, left and right.

If you can see an object on the white of the eye:

- Wash it out with clean water poured from a glass or a sterile eye-wash bath.
- Incline the person's head towards the injured side and place a towel or pad on the shoulder.
- Pour the water from the bridge of the nose allowing it to run through and flush the eye out.
- If this is unsuccessful, then lift the object off the white of the eye with a moist swab, the damp corner of a tissue or a clean hanky for example.
- If this is still unsuccessful, then seek medical help.

Objects under the upper eyelid

- Ask the person to pull the upper lid down over the lower lid.
- The lower lashes may brush the object clear.

Caution:

- **Do not touch** anything that is sticking to or embedded in the eyeball or the iris, the coloured part of the eye.
- Place an eye pad over the eye.
- Take or send the person to hospital.

Fractures

- Give lots of comfort and reassurance and persuade them to stay still.
- Do not move the person unless you have to.
- Steady and support the injured limb with your hands to stop any movement.
- If there is bleeding, press a clean pad over the wound to control the flow of blood. Then bandage on and around the wound.
- If you suspect a broken leg, put padding between the knees and ankles. Form a splint (to immobilise the leg further) by gently, but firmly, bandaging the good leg to the bad one at the knees and ankles, then above and below the injury. If it is an arm that is broken, improvise a sling to support the arm close to the body.
- Take the person to hospital.
- If it does not distress the person too much, raise and support the injured limb.
- Do not give them anything to eat or drink in case an operation is necessary.
- Watch out for signs of shock.

Head injuries

All head injuries are potentially serious and require proper assessment because they can result in impaired consciousness. Injuries may be associated with damage to the **brain tissue** or to **blood vessels** inside the skull, or with a **skull fracture**.

A head injury may produce **concussion**, which is a brief period of unconsciousness followed by complete recovery. Some head injuries may produce **compression of the brain** (cerebral

compression), which is life-threatening. It is therefore important to be able to recognise possible signs of cerebral compression - in particular, a deteriorating level of response.

A head wound should alert you to the risk of deeper, underlying damage, such as a skull fracture, which may be serious. Bleeding inside the skull may also occur and lead to compression. Clear fluid or watery blood leaking from the ear or nose are signs of serious injury.

Any person with an injury to the head should be assumed to have a neck (spinal) injury as well and be treated accordingly.

Concussion

The brain is free to move a little within the skull, and can thus be '**shaken**' by a blow to the head. This shaking is called **concussion**. Among the common causes of concussion are traffic incidents, sports injuries, falls, and blows received in fights.

Concussion produces widespread but **temporary disturbance** of **normal brain activity**. However, it is not usually associated with any lasting damage to the brain. The person will suffer **impaired consciousness**, but this only lasts for a short time (usually only a few minutes) and is followed by a **full recovery**. By definition, concussion can only be confidently diagnosed once the person has completely recovered.

A person who has been concussed should be **monitored** and advised to obtain medical aid if symptoms such as **headache** or **blurred vision** develop later.

There may also be :

- Dizziness or nausea on recovery.
- Loss of memory of events at the time of, or immediately preceding, the injury.
- Mild, generalised headache.

Your aim

- To ensure the casualty recovers fully and safely.
- To place the casualty in the care of a responsible person.
- To obtain medical aid if necessary.

Treatment

- Check the person's level of response using the AVPU code:
 - A - Is the person alert, eyes open and responding to questions?
 - V - Does the person respond to voice, obey simple commands?
 - P - Does the person respond to pain (e.g. eyes open or movement in response to being pinched)?
 - U - Is the person unresponsive?
- Regularly monitor and record vital signs - level of response, breathing and pulse. Even if the person appears to recover fully, watch them for any deterioration in their level of response.
- When the person has recovered, place them in the care of a responsible person. If a person has been injured on the sports field, never allow them to 'play on' without first obtaining medical advice

- Advise the person to go to hospital, if following a blow to the head they develop symptoms such as headache, vomiting, confusion, drowsiness or double vision.

Cerebral compression

Compression of the brain - a condition called **cerebral compression** - is very serious and almost invariably requires surgery. Cerebral compression occurs when there is a build-up of pressure on the brain. This pressure may be due to one of several different causes, such as an **accumulation of blood** within the skull or **swelling** of injured brain tissues.

Cerebral compression is usually caused by a head injury. However, it can also be due to other causes, such as stroke, infection, or a brain tumour.

The condition may develop immediately after a head injury, or it may appear a few hours or even days later. For this reason, you should always try to find out whether the person has a recent history of a head injury.

Recognition - Deteriorating level of response - person may become unconscious.

There may also be :

- History of a recent head injury.
- Intense headache.
- Noisy breathing, becoming slow.
- Slow, yet full and strong pulse.
- Unequal pupil size.
- Weakness and/or paralysis down one side of the face or body.
- High temperature; flushed face.
- Drowsiness.
- Noticeable change in personality or behaviour, such as irritability or disorientation.

Your aim

- To arrange urgent removal of the casualty to hospital.

Treatment

- Call for an ambulance.

If the casualty is conscious:

- Keep them supported in a comfortable resting position and reassure them.
- Regularly monitor and record vital signs - level of response, pulse, and breathing - until medical help arrives.

If the casualty is unconscious:

- Open the airway using the jaw thrust method and check breathing.
- Be prepared to give chest compressions and rescue breaths if necessary.
- If the person is breathing, try to maintain the airway in the position they were found.

Skull fracture

If a casualty has a head wound, be alert for a possible skull fracture. An affected person may have impaired consciousness.

A skull fracture is serious because there is a risk that the brain may be damaged either directly by fractured bone from the skull or by bleeding inside the skull. Clear fluid (cerebrospinal fluid) or watery blood leaking from the ear or nose are signs of serious injury.

Suspect a skull fracture in any person who has received a head injury resulting in impaired consciousness. Bear in mind that a person with a possible skull fracture may also have a neck (spinal) injury and should be treated accordingly.

Recognition of skull fracture:

- Wound or bruise on the head.
- Soft area or depression on the scalp.
- Bruising or swelling behind one ear.
- Bruising around one or both eyes.
- Clear fluid or watery blood coming from the nose or an ear.
- Blood in the white of the eye.
- Distortion or lack of symmetry of the head or face.
- Progressive deterioration in the level of response.

Your aim

- To maintain an open airway.
- To arrange urgent removal of the person to hospital.

Treatment

If the casualty is conscious:

- Help them to lie down.
- **Do not** turn the head in case there is a neck injury.
- Control any bleeding from the scalp by applying pressure around the wound.
- Look for and treat any other injuries.
- Call for an ambulance.
- If there is discharge from an ear, cover the ear with a sterile dressing or clean pad, lightly secured with a bandage. Do not plug the ear.
- Monitor and record vital signs - level of response, pulse, and breathing - until medical help arrives.

If the casualty is unconscious:

- Open the airway using the jaw thrust method and check for breathing.
- Be prepared to give chest compressions and rescue breaths if needed.
- Call for an ambulance.
- If the position in which the person was found prevents maintenance of an open airway or you fail to open it using the jaw thrust, place him in the recovery position. If you have helpers, use the "log-roll" technique.

Log-Roll Technique used for Spinal Injuries

A person should be checked for possible spinal injury before he is moved. When moving a person with a suspected spinal fracture, extra care must be taken to avoid causing additional injury that could result in paralysis or even death.

Four or more people should be used when moving the person. Whenever possible, a person with a suspected spinal injury should be placed on a spine board and secured to the board. The bearers can evacuate the person using the handholds on the long spine board or place the board on a litter.

- Position the person on his back with his arms at his sides. Place a long spine board or an improvised spine board near and parallel to the person. If time allows, place padding on the spine board where the person's neck, small of the back, knees, and ankles will rest.
- One bearer kneels at the injured person's head facing the person, places his hands on each side of the person's head and jaw, and applies slight traction to manually immobilize the head and neck.
- Three (or more) bearers kneel at the injured person's side (the side away from the spine board), reach across the person, and grasp his shoulder and waist, hip and thigh, and knee and ankle.
- The three bearers roll the person's body toward them slightly as the first bearer turns the person's head slightly to keep it in alignment with the spine.

Seizures in adults

A seizure - also called a convulsion or fit - consists of **involuntary contractions of many muscles in the body.**

The condition is due to a disturbance in the electrical activity of the brain. Seizures usually result in loss or impairment of consciousness.

The most common cause is epilepsy. Other causes include:

- Head injury
- Some brain damaging diseases
- Shortage of oxygen or glucose in the brain
- The intake of certain poisons including alcohol

Epileptic seizures are due to recurrent, major disturbances of brain activity. These seizures can be sudden and dramatic. Just before a seizure, a person may have a brief warning period (aura) with, for example, a strange feeling or a special smell or taste.

No matter what the cause of the seizure, care must always include maintaining an open, clear airway and monitoring the person's vital signs - level of response, pulse and breathing. You will also need to protect them from further harm during a seizure and arrange appropriate aftercare once they have recovered.

General recognition features are:

- Sudden unconsciousness
- Rigidity and arching of the back
- Convulsive movements.

In epilepsy the following sequence is common:

- The casualty suddenly falls unconscious, often letting out a cry.
- They become rigid, arching their back.
- Breathing may cease. The lips may show a grey-blue tinge (cyanosis) and the face and neck may become red and puffy.
- Convulsive movements begin. The jaw may be clenched and breathing may be noisy. Saliva may appear at the mouth and may be blood-stained if the lips or tongue have been bitten. There may be loss of bladder or bowel control.
- Muscles relax and breathing becomes normal; the person recovers consciousness, usually within a few minutes. They may feel dazed or act strangely. They may be unaware of their actions.
- After a seizure, the person may feel tired and fall into a deep sleep.

Your aims:

- To protect the person from injury
- To give care when consciousness is regained
- To arrange removal of the person to hospital if necessary

Treatment:

- If you see the person falling, try to ease the fall
- Make space around them; ask bystanders to move away
- Remove potentially dangerous items, such as hot drinks and sharp objects
- Note the time when the seizure started
- If possible, protect their head by placing soft padding underneath it
- Loosen clothing around the neck

When the seizure has ceased:

- Open the airway and check breathing
- Be prepared to give rescue breaths and chest compressions
- Place them into the recovery position if the person is unconscious but breathing normally
- Monitor and record vital signs - level of response, pulse and breathing
- **Note the duration** of the seizure.

Caution:

- **Do not** move the person unless they are in immediate danger.
- **Do not** put anything in their mouth or use force to restrain them.

Warning:

If any of the following apply, get medical help.

- The person is **unconscious for more than 10 minutes.**
- The **seizure continues for more than 5 minutes.**
- The person is having **repeated seizures** or having their first seizure.
- The person is **not aware of any reason for the seizure.**

Burns and scalds

Severe burns

Treatment

- Start cooling the burn immediately under running water for at least 10 minutes
- Call for an ambulance.
- Make the person as comfortable as possible, lie them down.
- Continue to pour copious amounts of cold water over the burn for at least ten minutes or until the pain is relieved.
- Whilst wearing disposable gloves, remove jewellery, watch or clothing from the affected area - unless it is sticking to the skin.
- Cover the burn with clean, non-fluffy material to protect from infection. Cloth, a clean plastic bag or kitchen film all make good dressings.
- Treat for shock.

Minor burns

Treatment

For minor burns, hold the affected area under cold water for at least 10 minutes or until the pain subsides. Remove jewellery etc. and cover the burn as detailed above.

If a minor burn is larger than a postage stamp it requires medical attention. All deep burns of any size require urgent hospital treatment.

Clothing on fire (stop, drop, and roll)

- Stop the person panicking or running – any movement or breeze will fan the flames.
- Drop the person to the ground.
- If possible, wrap the person tightly in a coat, curtain or blanket (not the nylon or cellular type), rug or other heavy-duty fabric. The best fabric is wool.
- Roll the person along the ground until the flames have been smothered.

On all burns:

- **Do not** use lotions, ointments and creams.
- **Do not** use adhesive dressings.
- **Do not** break blisters.