



Unit 10 Emergency First Aid

Learning Outcomes

By the end of this unit the learner will be able to:

- ✓ Identify the signs of a heart attack, a stroke and other medical emergencies
- ✓ Choose the appropriate course of action in a variety of emergency scenarios
- ✓ Provide essential first-aid for a wide variety of serious injuries

Unit 10

Emergency First Aid

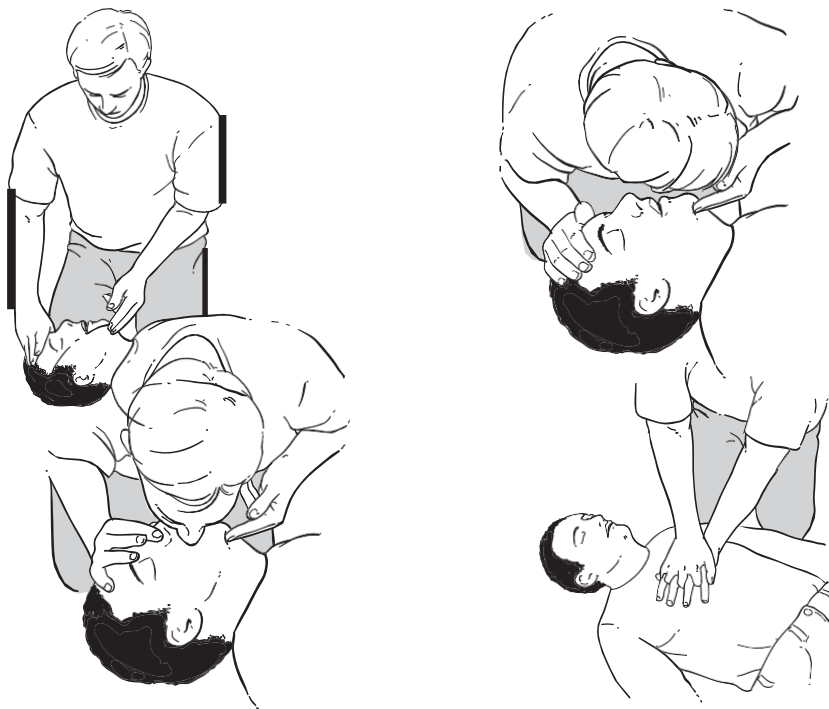
It's common knowledge that CPR should be started as soon as a person collapses or "witnessed arrest" occurs in order to save lives (when someone sees the event occur). However, in witnessed arrest situations, only about one-third of people respond, and even when CPR is started right away, it is frequently done incorrectly. That is why it is critical to obtain CPR and AED certifications. In an emergency, learning CPR can help save lives, limit disability, restore health, and even reverse clinical death.

The ABCs of First Aid

In emergency first aid, there are three steps that must be followed.

The ABCs of first aid is a mnemonic for airway, breathing, and circulation, which stands for airway, breathing, and circulation:

- **Airway:** Is there no obstruction in the airway? Take steps to clear your airway.
- **Breathing:** Does the person appear to be breathing? Begin rescuing breathing.
- **Circulation:** Can you tell if the person's heart is beating? Start compressions on their chest.



Steps of CPR

Before approaching the unconscious person, assess the area for safety, as you would in any other first-aid situation. Assess the individual for the ABCs next. Place the person in the recovery position if CPR is not required or if CPR has already been performed and the person is breathing. If there is no indication of a spinal or neck injury, the person should be placed in the lateral recovery position:

1. Kneel on one side, facing the person who is lying on his back with his legs straight out. Position the closest person's arm perpendicular to his body, elbow flexed. Then, with the other arm across the body and the hand resting across the torso, position the other arm across the body.
2. Reach behind the knee and pull the thigh toward you with the leg that is furthest away from you bent up.
3. Pull the shoulder furthest away from you with your other arm while rolling the body toward you. Maintain a flexed upper leg to keep the body in a stable position.

Lateral Recovery Position

If emergency rescue is taking a long time to arrive, you can move the person from side to side every thirty minutes because people who stay in this position for an extended period of time may experience nerve compression. Any movement of the unstabilized neck after a spinal injury increases the risk of permanent paralysis or other injuries, so movement should be avoided. Only move a person with a suspected spinal injury into a recovery position if vomit from the airway needs to be drained. After that, you should employ the HAINES modified recovery position (High Arm IN Endangered Spine). Raise one of the injured person's arms above the head (in full abduction) while turning the person's body to support the head and neck for less neck movement in this modified position.

The first priority in a suspected spinal or neck injury is to keep the airway open, so if the person is breathing, leave them in the position you found them in. However, regardless of the risk of further injury to the person, you must maintain the ABCs: airway, breathing, and circulation. Breathing comes first; everything else comes second.

To avoid blood pooling in the lungs, an unconscious pregnant woman should always be placed in the recovery position on her left side, and anyone with torso wounds should be placed with the wounds closest to the ground.

Until help arrives, continue to monitor the person's level of response, pulse, and breathing.

Performing CPR

CPR works by keeping a person's blood flowing until medical assistance arrives. Even if you don't have any first aid training, you can save a life by following the CPR steps.

CPR can double or even triple a person's chances of survival if it is started immediately after their heart stops beating.

CPR Steps

When an adult is not breathing or only gasping occasionally, or when they don't respond to questions or taps on the shoulder, perform CPR.

Use CPR on children and infants who are not breathing normally or responding.

After making sure the area is safe, follow these basic CPR steps:

1. Call 999 or have someone else dial it for you.
2. Open the person's airway by laying them on their back.
3. Check for breathing. If they are not breathing, start CPR.
4. Perform 30 chest compressions.
5. Perform two rescue breaths.
6. Repeat until an ambulance or automated external defibrillator (AED) arrives.

Continue reading for more information on how to perform CPR on adults, children, and infants.

Step-by-Step CPR

There are two main stages to CPR: the preparation stage and the CPR stage.

Preparation Steps

Use the following preparation steps before performing CPR on an adult:

Step 1. Dial 999.

First, look around for things that could endanger you, such as traffic, fire, or falling masonry. After that, examine the individual. Do they require assistance? "Are you OK?" tap on their shoulder. "

Before performing CPR, call 999 or ask a bystander to call 999 if they are not responding.



1 Call 999 or ask someone else to



2 Lay the person on their back and open their airways



3 If they are not breathing, start CPR



4 30 chest compressions



5 Two rescue breaths



6 Repeat until an ambulance or AED arrives

Step two: Place the person on their back with their airway open.

Kneel beside the person's chest and carefully place them on their back. Raise their chin and tilt their head back slightly.

Check for any obstructions in their mouth, such as food or vomit. If there is a loose obstruction, remove it. Attempting to grasp it if it is not loose may push it further into the airway.

Step three. Look for signs of breathing.

Listen for no more than 10 seconds with your ear next to the person's mouth. Start CPR if you don't hear breathing or only hear occasional gasps.

Do not perform CPR on someone who is unconscious but still breathing. Instead, put them in the recovery position if they don't appear to have a spinal injury. Maintain a close eye on their breathing and administer CPR if they stop breathing.

CPR Steps







To perform CPR, follow these steps:

Step four. Perform 30 chest compressions

Clasp your hands together with one hand on top of the other. Push hard and fast in the centre of the chest, slightly below the nipples, with the heel of your hands and straight elbows.

Push at least 2 inches into the ground. At least 100 times per minute, compress their chest. Between compressions, allow the chest to fully rise.

Chest compressions

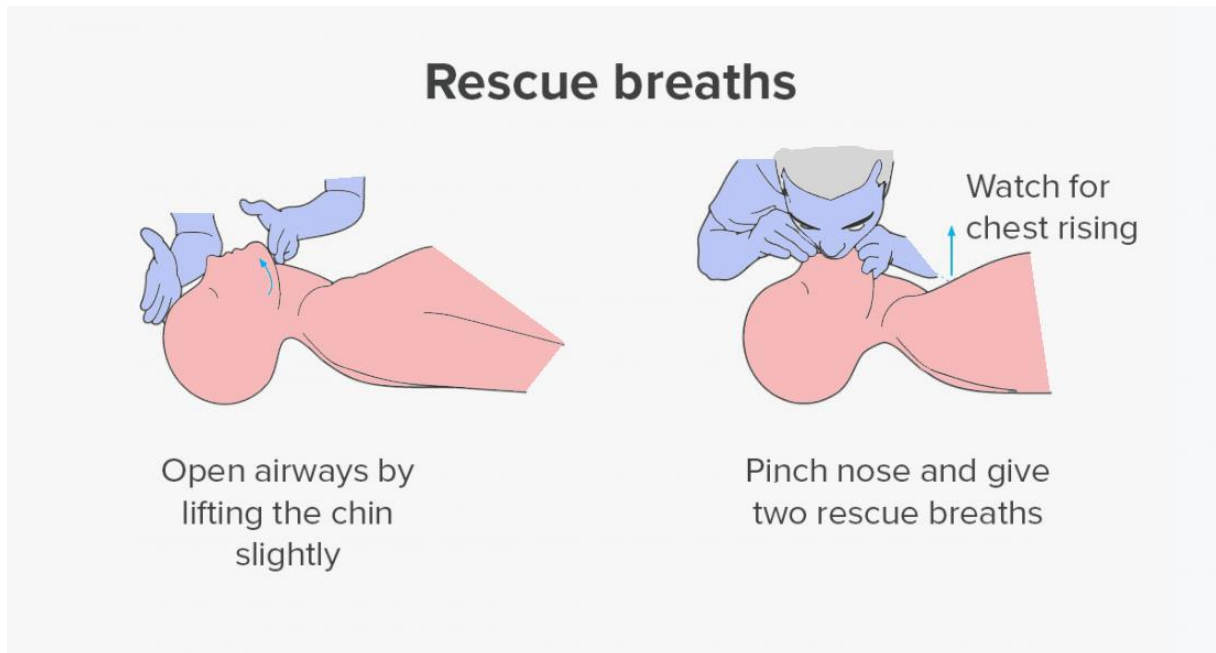
		
Adult	Child	Infant
		
↓ press down 2 inches	↓ press down 2 inches	↓ press down 1.5 inches

Perform 30 chest compressions at a rate of 100 per minute, letting the chest rise between each

Step five. Provide two rescue breaths.

Tilt their head back slightly and lift their chin to ensure their mouth is clear. Pinch their nose shut, cover their mouth with yours, and blow to raise their chest.

Retilt their head if their chest does not rise with the first breath. The person may be choking if their chest does not rise with a second breath.

**Step six. Repeat**

Rep the 30 chest compressions and two rescue breaths cycle until the person begins to breathe or help arrives. If an AED is brought to the scene, continue CPR until the machine is set up and ready to go.

If a person stops breathing in any of the following situations, CPR may be required:

- A heart attack or cardiac arrest
- Choking
- A road traffic accident
- Near-drowning
- Suffocation
- Poisoning
- an overdose of drugs or alcohol
- Inhalation of smoke
- Electrocutation
- SIDS (sudden infant death syndrome) is suspected

Perform CPR only if the adult is not breathing or if the child or infant is not breathing normally and their blood is not circulating. This is why it's crucial to make sure the person isn't responding to verbal or physical calls for help before beginning CPR.

CPR (cardiopulmonary resuscitation) is a life-saving first-aid procedure. It can increase a person's chances of survival if they have a heart attack or stop breathing as a result of an accident or trauma.

Depending on whether the person is an infant, a child, or an adult, the steps differ. The basic cycle of chest compressions and rescue breaths, however, will not change.

CPR should only be used if an adult has stopped breathing. Before beginning CPR, check to see if the person responds to verbal or physical stimuli.

AED

A defibrillator (AED) is a small, portable electronic device that delivers an electric shock to the heart in an attempt to disrupt or stop abnormal electrical activity. An abnormal heart rhythm is linked to abnormal electrical activity, and a continuous abnormal rhythm is insufficient to pump blood and deliver oxygen throughout the body. An AED shock will not be able to revive a heart that has stopped beating; the heart must have a rhythm (even though the rhythm is abnormal). When connected to an unconscious person via leads, the AED will automatically diagnose any cardiac arrhythmia. When you see one of these dangerous rhythms, you can use the AED electrical therapy or a shock (defibrillation) to stop the arrhythmia and allow the heart to return to a normal and effective rhythm.



Heart Attack Symptoms

Heart attacks can strike unexpectedly, leaving no doubt about what is happening, but this is the exception. The majority of heart attacks start out slowly, with only minor discomfort and pain. The most common mistake is when people are unsure and wait too long to seek help. If a person exhibits any of the following symptoms, they should seek medical attention right away:

- Discomfort in the centre of the chest, such as pressure, squeezing, fullness, or pain that lasts more than a few minutes or comes and goes
- Pain or discomfort in other parts of the upper body, such as one or both arms, the back, neck, jaw, or stomach
- Breathing problems
- Light-headedness, nausea, or a cold sweat

Some of the other common symptoms, such as back or jaw pain, shortness of breath, nausea, and vomiting, are more common in women. It's a good idea to call 999 even if you're not sure.

What is happening?

The heart has both mechanical and electrical functions. It works mechanically to pump blood by contracting, which you can feel as a pulse. The mechanical system of the heart is regulated by cells that transmit electrical signals through conduction pathways, stimulating muscle tissue to contract electrically. The rate of electrical stimulation or pulses should be between sixty and eighty times per minute at rest, increasing with exertion, and should be correlated with the rate of heart-muscle contractions or beats.

The ventricles are the heart's pumping chambers. Sudden Cardiac Arrest (SCA) occurs when the heart suddenly stops contracting and pumping blood into the body. The heart then develops a disorganised and abnormal rhythm, as well as spasmodic twitching, known as "ventricular fibrillation" (VF), which renders it incapable of pumping blood to the body. Because the heart is not pumping blood, the person in VF or V fib usually has no pulse, and they will become unresponsive, stop breathing, and die within minutes if not treated.

Choking

When an object becomes lodged in the throat, it partially or completely blocks the airway, causing choking. Choking symptoms include:

- Hands crossed on throat, pointing to throat (universal sign of choking)
- Coughing or gasping
- Panic symptoms
- Difficulty in communicating
- Red face that steadily turns blue
- Consciousness loss

"Are you choking?" you should ask if you suspect someone is choking. If the person is able to respond, don't intervene; she will most likely free the food or object on her own. The person will be unable to speak if they are choking, and you must assist them. If the person is unable to speak, make noise, or breathe normally or is unconscious, call 999 and perform the Heimlich manoeuvre as described below. Lay the person on her back if she is unconscious. Check the person's mouth for any visible obstructions and use a finger sweep to try to dislodge them. Start mouth-to-mouth resuscitation and CPR if you are unable to do so. As the chest compressions of the person continue, check inside the person's mouth for any signs of the foreign body.

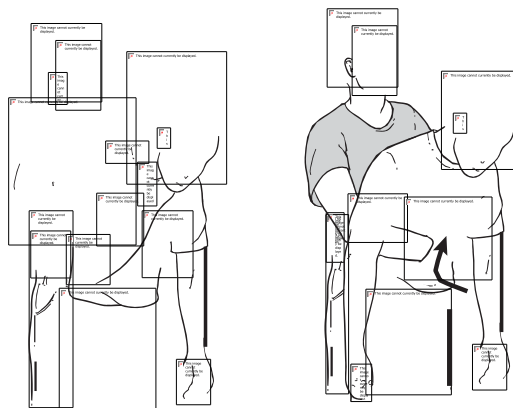
CPR may be able to dislodge it.

Heimlich Manoeuvre

The Heimlich manoeuvre (pronounced Himlick) is a choking-prevention technique in which you give yourself or someone else abdominal thrusts. The Heimlich manoeuvre is intended for use in conscious adults and children over the age of one to clear a blocked airway; it is not intended for use in choking infants under the age of one. Similar to coughing, abdominal thrust lifts the diaphragm and forces air out of the lungs, allowing the foreign body in an airway to be moved and expelled.

To perform the Heimlich manoeuvre on a choking person, follow these steps:

1. Stand behind the person, wrap your arms around his or her waist, and lean forward slightly.
2. With one hand, make a fist and place it slightly above the navel.
3. With your other hand, grasp your fist and press forcefully into the abdomen with quick, upward thrusts, as if attempting to lift the person up.
4. Continue thrusting until the foreign body has been removed.



Heimlich maneuver

If you are choking, follow these steps to perform the Heimlich manoeuvre on yourself:

1. Make a fist that is just above your navel.
2. With your other hand, grasp your fist and bend over a hard surface, such as a chair or a countertop, thrusting your fist inward and upward.

Place your fists closer to the chest, right above the joining of the ribs at the base of the breastbone, and perform the Heimlich manoeuvre steps to clear an airway obstruction in a pregnant woman or obese person. Lower a choking person to the floor on her back once she is unconscious. The head-tilt method can be used to clear the airway. If the blockage is visible, reach into the mouth with a finger and sweep it out (finger sweep), being careful not to push the object deeper into the airway. You must start CPR if you are unable to remove the obstructing object and the person does not respond. In this case, the object may be freed by the chest compressions used in CPR, so check the mouth at regular intervals.

Swallowing Foreign Objects

Children and adults with altered states due to illness such as stroke and alcohol abuse, as well as denture wearers, are more likely to swallow small foreign objects than others. Denture wearers lack the tactile sensation in their mouths that helps them avoid swallowing foreign objects like bones, so they must be extra cautious. Drooling and retching, chest pain, choking, and difficulty swallowing are all symptoms of foreign objects stuck in the oesophagus (swallowing passage). Other symptoms such as vomiting, nausea, stomach pain, blood in the stool, and fever may appear after several hours.

Swallowing a Foreign Object: First Aid

Perform the Heimlich manoeuvre as directed for choking in anyone who is experiencing signs of a blocked airway. Other persistent symptoms should be reported to your doctor, as the object may need to be removed by your doctor using an endoscope procedure in 20% of cases.

Stroke

Strokes are a medical emergency that must be treated right away because when blood flow to the brain is interrupted for any reason, brain cells begin to die within minutes. Ischemic stroke is the most common type of stroke, which occurs when a blood clot from anywhere in your body travels to and blocks a blood vessel in the brain.

Hemorrhagic stroke is the second type of stroke, which occurs when a blood vessel in the brain bursts and bleeds into the brain. Transient ischemic attacks (TIAs), also known as mini strokes, occur when the blood supply to the brain is temporarily interrupted, usually for one minute but no longer than five minutes, and do not result in brain injury due to the short duration. The presence of a TIA is a strong indicator of the likelihood of having a stroke. The following are some of the warning signs of a TIA or stroke:

- Numbness or weakness in one side of the body, especially the face, arm, or leg
- Confusion
- Inability to communicate or comprehend
- Vision problems in one or both eyes
- Walking is difficult
- Dizziness
- Loss of coordination or balance
- Unknown cause of severe headache

First Aid for Stroke

For any symptoms call 999 immediately, as prompt medical attention can prevent a fatal or disabling stroke from occurring. Then take the following steps:

- Check for ABCs and, if necessary, begin CPR.
- Place the person who is unconscious in the recovery position.
- Gently lay the person down, using a pillow or folded garment to support his head and shoulders.
- Don't feed him or give him anything to drink.
- Assure the individual that assistance is on the way.

Sprains

Sprains occur when the ligaments, or tough bands that connect the bones, are stretched or torn. Sprains can range from mild to severe when heavy lifting is done suddenly or quickly. Mild sprains can bear weight, but a severe sprain necessitates medical attention to determine whether it's a sprain, dislocation, or fracture. A sprain can cause the following symptoms:

- Swelling

- Bruising or redness of the skin
- Pain when the injured muscle or a joint near the muscle is used or when it is at rest
- Extremity sluggishness
- Complete inability to support one's own weight

First Aid for Sprains

Sprains can be treated at home by doing the following:

1. Ice packs should be used for the first twenty-four hours, and heat packs or pads should be used once the swelling has subsided. (Note that applying heat too soon will increase swelling and pain; also, never apply ice or heat to bare skin; ice should always be applied with some sort of covering, such as a towel.)
2. Take nonsteroidal anti-inflammatory drugs (NSAIDs) like aspirin or ibuprofen for pain relief and increased mobility.

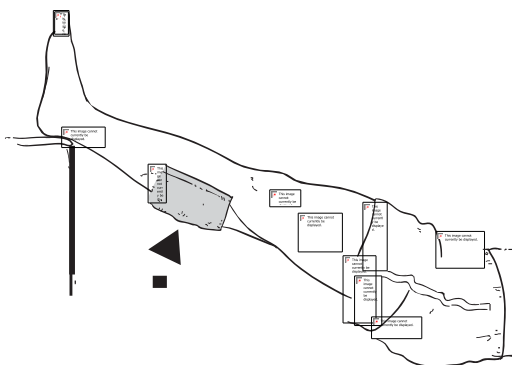
To aid in the healing of the affected muscle, use the R.I.C.E. formula: Rest, Ice, Compression, and Elevation. This procedure entails the following steps:

1. To begin, ice the area for 20 minutes every hour you are awake for pain relief and inflammation reduction.
2. To provide support and reduce swelling, wrap an Ace or other elastic bandage firmly but not tightly around the affected area.
3. Propping up the sprain while sitting will help to elevate the injured area.

Call your doctor if your home-care methods don't provide relief after twenty-four hours. If you have any of the following symptoms, go to an emergency room:

- When the injury occurs, you hear a "popping" sound.
- Swelling, pain, or a fever of any kind
- Any cuts that are still open
- You can't walk or one of your arms or legs is paralysed

After the first 48 hours, gradually begin to use the injured area as much as you are able. In two to four weeks, a mild to moderate sprain should heal. Muscle strains can also be treated with first-aid for sprains.



A strained muscle should be elevated and iced.

Broken Bones

When the ends of the bone have broken through the skin in both children and adults, the fracture is classified as open or compound, increasing the risk of infection. The pieces on either side of the break remain lined up in non-displaced fractures, whereas in displaced fractures, the pieces of bone are not in line and may require surgery to align before casting. Single fractures have only one break in the bone, segmental fractures have at least two and sometimes more breaks in the same bone, and comminuted fractures have the bone splintered or crushed.

If you or the injured person hears or feels the bone break, you or the injured person has a broken bone. The area will also be extremely tender to the touch, especially in the fractured area. Other indications of a broken bone are:

- Swelling at the site of the break
- A limb in an abnormal position
- Any attempt to move the limb causes pain.
- Pulse loss below the injury
- Protrusion of a bone through the skin
- Unusual movement
- An abrasive sensation
- Loss of a limb's function
- Bruising

For any of the following, dial 999:

- Severe bleeding
- If even light pressure or movement causes discomfort
- Any limb or joint appears to be misaligned
- The skin has been pierced by a bone.
- Any injured arm or leg extremity is numb or bluish at the tip.
- You believe a bone in your neck, head, back, hip, pelvis, or upper leg has been broken.

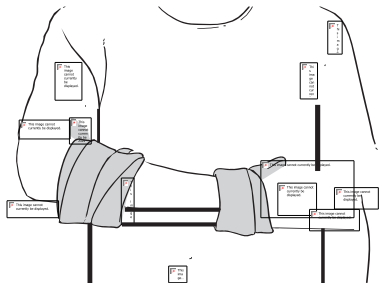
First Aid for Broken Bones

Remember to keep your cool. Broken bones necessitate medical attention, and fractures caused by a major trauma or injury necessitate emergency treatment. Keep the injured person warm rather than moving them.

1. Check for ABCs, treat for shock, and start CPR if necessary until medical help arrives.
2. To control and stop any heavy bleeding, apply pressure to any wounds with a sterile bandage, clean cloth, or clean piece of clothing.
3. To reduce swelling, use covered ice packs.

How to Make a Splint

If the bone appears to be broken but does not pierce the skin (closed fracture), the limb should be splinted before the injured person is moved. It's critical to immobilise the joints above and below the suspected fracture site.



Use a Splint to keep the Limb Immobilised.

Look for a stiff, hard object to use as a splint, such as a heavy, rigid stick. Alternatively, a rolled blanket or pack that maintains a rigid state can be used. If you don't have any other options, secure the injured body part to a non-injured body part to keep it stable and immobile (tape an injured finger to an adjacent, uninjured, finger).

Keep the following in Mind as Well:

- Apply pressure to a broken bone that has pierced the skin (open or compound fracture) to control bleeding, but don't push on any bone that is protruding through the skin. This is when those sanitary napkins you brought with you will come in handy.
- Never attempt to straighten a broken, open-fractured limb, replace bone fragments, or put the limb back in its natural position.
- Do not touch or attempt to clean the wound; instead, place a sterile or clean pad or cloth over it and secure it with bandages or cloth strips (belts, scarves, neckties).
- To prevent the limb from moving, the splint must extend beyond the injured area. Use the splint to cover the joint below and above the injury; do not overtighten, as this can cut off circulation.

Check the area for swelling, paleness, or numbness on a regular basis, and loosen the splint if necessary. While you wait for professional assistance, keep an eye on the area, be on the lookout for signs of shock, and keep the injured person warm. If you are unable to summon assistance, you must be prepared to carry the individual to safety.

After Care

Some fractures may be immobilised with a splint to keep the bone from moving, which is held in place with Velcro or wrapped in gauze or a bandage by your doctor. The majority of fractured bones are cast with plaster of Paris or synthetic fibreglass material. Unless your pain is severe, take acetaminophen or ibuprofen for the first few days. If your pain is severe, ask your doctor for a prescription pain medication. Because swelling can occur after the cast is applied, causing it to be too tight, you should contact your doctor right away if your fingers or

toes turn white, purple, or blue, or if the skin around the cast's edges becomes red or raw, as the cast is most likely too wet inside from water or sweat. Picking at and removing any padding from the edges of fibreglass casts should be avoided because the edges will rub against the skin, causing irritation.

Fractures of the Pelvis

The ring of bone that supports the weight of your upper body, including the two major bones known as hipbones, is called the pelvis. Pelvic fractures, also known as "broken hips," are a common and painful occurrence in the elderly. Damage to nearby internal organs may occur as a result of a serious pelvic fracture. The majority of pelvic fractures occur as a result of high-speed collisions or falls from great heights, as well as during sports like hockey, skiing, football, and long-distance running. Pelvic fractures can happen for no apparent reason or after a minor fall in the elderly, especially if the bones are weakened by diseases like osteoporosis.

The most common symptom of a pelvic fracture is groin, hip, or lower-back pain that can become worse when the legs are moved. Other signs and symptoms include:

- Pain in the abdomen
- Bleeding in the vaginal area
- Tingling or numbness in the groin, legs, urethra (urinary tube), or rectum
- Urination problems

Stress fractures that occur during jogging also often cause pain in the buttocks or thighs.

Pelvic Fractures: First Aid

Call 999 if you suspect a serious pelvic fracture, such as after witnessing a high-velocity accident or a high fall. Until help arrives, follow the steps outlined below:

1. Do not try to move the injured person, especially if they are in excruciating pain or have any signs of a possible nerve injury, such as numbness.
2. To keep the person warm, cover them with a blanket or something similar.

Depending on the severity of the fracture, healing can take anywhere from a few weeks to several months after being transported to the hospital and treated. Bed rest and over-the-counter or prescription pain relievers are common treatments for minor fractures. Physical therapy and crutches may be required, and surgery may be required in some cases.

Dislocations

A dislocation is an injury that causes the ends of your bones to move out of their normal position. Dislocations are most commonly caused by trauma, such as a fall or a blow, but they can also be caused by an underlying disease like rheumatoid arthritis. Dislocation injuries are common in contact sports like football and hockey, as well as those that involve falls, such as downhill skiing and volleyball. Dislocations can occur in major joints, such as the shoulder, hip, knee, elbow, or ankle, as well as smaller joints, such as the fingers, thumbs, or toes. This type of injury results in a temporary deformity and inability to move the joint, as well as severe pain. Dislocations necessitate medical attention right away.

First Aid for Dislocations

If you suspect a dislocation, seek medical attention as soon as possible so that the bones can be properly repositioned. Do the following until you can get medical help:

1. Splint and immobilise the affected joint; never try to force it back into place, as this can cause damage to the joint, surrounding muscles, ligaments, nerves, and blood vessels.
2. Apply an ice pack to the injury to reduce any swelling caused by internal bleeding or fluid buildup.

Smoke Inhalation

Every year, structural fires result in a large number of deaths due to smoke inhalation. People often don't show symptoms of smoke inhalation for 24 to 48 hours after a fire, and they may not be diagnosed or treated properly or in a timely manner. The hot air inhaled from cigarette smoke can cause burns to the tissues in the mouth, nose, and upper respiratory system. Some substances in smoke are toxic to cells or cause tissue damage when they come into contact with them. Smoke can also harm the body by obstructing oxygen delivery to cells, resulting in cell and tissue death.

The following are signs and symptoms of smoke inhalation:

- Nose hairs that have been burned
- Burns on the inside of the nose and in the throat
- A lump in the throat
- Coughing
- Hoarseness
- Saliva that is black or grey
- Fluid in the lungs causes squeaky breathing
- Breathing problems
- Skin colour: bluish-gray or cherry-red
- Loss of consciousness and respiratory arrest

Smoke Inhalation First Aid

Check for ABCs, start CPR if necessary, and deal with any shock. Furthermore:

1. Take steps to open the airway to ensure the person is getting enough oxygen.
2. Because a person suffering from smoke inhalation can quickly deteriorate, use caution when deciding whether or not to transport the person to the hospital yourself—if in doubt, dial 999.
3. Anyone with a hoarse voice, difficulty breathing, long coughing spells, or mental confusion should dial 999.

Those with mild symptoms and prompt treatment recover completely, but some people, particularly those with existing respiratory problems like asthma, may develop chronic respiratory or pulmonary (lung) disorders.

Further Reading:

- ✓ The Complete First Aid Pocket Guide: Step-by-Step Treatment for All of Your Medical Emergencies November 13, 2018 by John Furst
- ✓ Emergency Medical Responder: First on Scene 11th Edition by Chris Le Baudour, J. David Bergeron, Keith Wesley