

First aid

(Syllabus)

General Medicine

Teodor Bachleda, MD, PhD., MBA, DESA

Resuscitation (CPR)

When someone looks like they're asleep but they're unable to respond to noise or body contact, it's likely they're unresponsive. Unresponsiveness can last for a few seconds (e.g. fainting), or for a long time. It's often brought on by serious illness or injury (often a head injury), or from taking alcohol or other drugs.

You need to deal with someone who is unresponsive and breathing differently from someone who is unresponsive and not breathing. The treatment is also different for babies (under one year), children (one year up to puberty) and adults.

If they're unresponsive and not breathing, you'll need to do CPR (cardiopulmonary resuscitation). This involves giving someone a combination of chest compressions and rescue breaths to keep their heart and circulation going.

If they start breathing normally again, stop CPR and put them in the recovery position.

Unresponsive and breathing adult

When someone looks like they're asleep but they're unable to respond to noise or body contact, it's likely they're unresponsive.

First aid algorithm

1. Open the airway

Place one hand on the casualty's forehead and gently tilt their head back. As you do this, the mouth will fall open slightly. Place the fingertips of your other hand on the point of the casualty's chin and lift the chin.

2. Check breathing

Look, listen and feel for normal breathing – chest movement, sounds and breaths on your cheek. Do this for no more than ten seconds.

3. Put them in the recovery position. This will keep their airway open.

Kneel down next to them on the floor.

The next three steps are for if you find the casualty lying on their back. If you find them lying on their side or their front you may not need all three.

- a. Place their arm nearest you at a right angle to their body, with their palm facing upwards.
- b. Take their other arm and place it across their chest so the back of their hand is against their cheek nearest you, and hold it there. With your other hand, lift their far knee and pull it up until their foot is flat on the floor.
- c. Now you're ready to roll them onto their side. Carefully pull on their bent knee and roll them towards you. Once you've done this, the top arm should

be supporting the head and the bent leg should be on the floor to stop them from rolling over too far.

4. If you suspect spinal injury

If you think the casualty could have a spinal injury, you must keep their neck as still as possible.

Instead of tilting their neck, use the jaw thrust technique: place your hands on either side of their face and with your fingertips gently lift the jaw to open the airway, avoiding any movement of their neck.

5. Call for help

Once you've put them safely into the recovery position, call 155 or 112 for medical help. Until help arrives, keep checking the casualty's breathing. If they stop breathing at any point, call 155 or 112 straight away and get ready to give them CPR (cardiopulmonary resuscitation – a combination of chest pressure and rescue breaths).

Unresponsive and breathing child

If the child is not responding and you think they are unresponsive, ask loudly: 'What has happened?' or 'Open your eyes'. Place your hand on their hands or feet and try to stimulate them. If they still do not respond, it's likely they're unresponsive.

If children are unresponsive, check to see if they are still breathing normally. If they are unresponsive and breathing, you need to:

1. Open their airway

Place one hand on the child's forehead and gently tilt their head back. As you do this, their mouth will fall open slightly.

Place the fingertips of your other hand on the point of their chin and lift it.

2. Check to ensure they are breathing normally

Look, listen and feel for normal breathing – chest movement, sounds and breaths on your cheek. Do this for no more than ten seconds.

If they are breathing normally, put them into the recovery position to keep their airway open.

3. Kneel down next to them on the floor

Algorithm for recovery position, see Unresponsive and breathing adult.

4. Check that their airway is open, so they can breathe, and any fluid in their mouth can drain away.

To do this, tilt their head back, gently tilt their chin forward and make sure that their airway will stay open and clear. But, if you think your child could have a spinal injury, you must try and keep their neck as still as possible. Instead of tilting their neck, use the jaw thrust technique.

5. Call for help

Once you've put them safely into the recovery position, call 155 or 112 for emergency help. Remember that until help arrives you must keep checking that they're still breathing normally.

If they stop breathing normally at any point, call 155 or 112 straight away and get ready to give them chest compressions and rescue breaths – CPR.

Unresponsive and breathing baby

If the baby is not responding to you and you think they are unresponsive, try to see if they react if gently tap or flicking the sole of their foot.

If they do not wake up or respond to you they are likely to be unresponsive. Check to see if they are still breathing normally.

Call 155 or 112 immediately especially if the infant has a known heart condition.

1. Open the airway

Place one hand on the baby's forehead and gently tilt the head back, then place one fingertip of your other hand on the point of the baby's chin.

2. Check breathing

Look, listen and feel for normal breathing – chest movement, sounds of breathing and breaths on your cheek. Do this for no more than ten seconds.

3. Place in recovery position

If they are breathing normally, hold the baby in recovery position. Cradle them in your arms, with their head tilted downwards. This will keep their airway open and stop them choking on their tongue or breathing in any vomit.

4. Call for help

Call 155 or 112 for emergency medical help taking them with you as you do this. Until help arrives keep checking that the baby is still breathing normally. If they stop breathing normally at any time, call 999 or 112 straight away and give the baby CPR – a combination of chest compressions and rescue breaths.

Unresponsive and not breathing adult - CPR

If an adult is unresponsive and not breathing, you'll need to do CPR. CPR involves giving someone a combination of chest compressions and rescue breaths to keep their heart and circulation going to try to save their life. If they start breathing normally again, stop CPR and put them in the recovery position.

To check if someone is unresponsive and not breathing, you need to assess the casualty using the previous algorithm.

If you find they're unresponsive and not breathing then you'll need to call 155 or 112 for emergency medical help.

First aid algorithm

1. Open their airway

If they are unresponsive, open their airway. Place one hand on the casualty's forehead and two fingers under their chin. Gently tilt their head back and lift the chin.

2. Check their breathing

Maintain the head tilt and chin lift, and look for chest movement. Listen for the sounds of normal breathing and see if you can feel their breaths on your cheek.

If they are not breathing, you need to start CPR straight away.

3. Call for help and start CPR

Call 155 or 112 for an ambulance, or get someone else to do it.

Next you'll need to perform CPR. This involves giving someone chest compressions and rescue breaths to keep their heart and circulation going.

If they start breathing normally again, stop CPR and put them in the recovery position.

4. Giving chest compressions

- a. Kneel down beside the casualty on the floor level with their chest.
- b. Place the heel of one hand towards the end of their breastbone, in the centre of their chest.
- c. Place the heel of your other hand on top of the first hand and interlock your fingers, making sure you keep the fingers off the ribs.
- d. Lean over the casualty, with your arms straight, pressing down vertically on the breastbone, and press the chest down by 5-6 cm.
- e. Release the pressure without removing your hands from their chest. Allow the chest to come back up fully – this is one compression.
- f. Repeat 30 times, at a rate of about twice a second or the speed of the song 'Staying Alive'.
- g. Give two rescue breaths.

5. How to give a rescue breath

- a. Ensure the casualty's airway is open.
- b. Pinch their nose firmly closed.
- c. Take a deep breath and seal your lips around their mouth.
- d. Blow into the mouth until the chest rises.
- e. Remove your mouth and allow the chest to fall.
- f. Repeat once more.

Carry on giving 30 chest compressions followed by two rescue breaths for as long as you can, or until help arrives.

If the casualty starts breathing normally again, stop CPR and put them in the recovery position.

Unresponsive and not breathing child

First aid algorithm

- If the child is not responding to you and you think they are unresponsive, ask loudly 'What's happened?' or say to them: 'Open your eyes!'. Place your hand on their hands or feet and try to stimulate them. If they still do not respond, it's likely that they're unresponsive.
- Open their airway and check to see if they are breathing normally by looking for chest movement, listening for the sounds of normal breathing and seeing if you can feel their breaths on your cheek.
- If they are not breathing, you need to start CPR straight away.
- If someone is with you, get them to call 155 or 112 for emergency help.
- If you're on your own, you need to give one minute's worth of CPR before you call for help. This involves giving chest compressions and rescue breaths to keep the child's circulation going.

CPR on a child

1. Kneel down beside the child on the floor, level with their chest.
2. Give five initial rescue breaths before starting the sequence of 30 chest compressions and two rescue breaths.
 - a. Ensure the child's airway is open
 - b. Pinch their nose firmly closed
 - c. Take a deep breath and seal your lips around their mouth
 - d. Blow steadily into the mouth until the chest rises
 - e. Remove your mouth and allow the chest to fall
 - f. Repeat this four times more
3. Now give 30 chest compressions

Place the heel of one hand towards the end of their breastbone, in the centre of their chest, making sure you keep the fingers off the ribs.

- a. Lean over the child, with your arm straight, pressing down vertically on the breastbone, and press the chest down by at least one-third of its depth
- b. Release the pressure without removing your hand from their chest. Allow the chest to come back up fully – this is one compression.
- c. Repeat this 30 times, at a rate of about twice a second or the speed of the song 'Staying Alive'
- d. Now give two rescue breaths

If there are two rescuers, resuscitate in rate 15:2 (15 chest compressions and 2 rescue breaths).

4. Call for help

Remember to call for emergency help after about a minute if you are on your own. Carry on giving 30 chest compressions followed by two rescue breaths for as long as you can, or until help arrives. If the child starts breathing normally again, stop CPR and put them in the recovery position.

Unresponsive not breathing baby

If the baby is not responding to you and you think they are unresponsive try to see if they react when you gently tap or flick the sole of their foot. If they do not wake up or respond to you they are likely to be unresponsive.

Check to see if they are still breathing normally. If they are unresponsive and not breathing normally open their airway and check their breathing again by looking for chest movement, listening for the sounds of normal breathing and seeing if you can feel their breath on your cheek.

If they are not breathing normally, you need to start CPR straight away.

First aid algorithm

If someone is with you, get them to call 155 or 112 for emergency help.

If you're on your own, you need to give one minute's worth of CPR before you can call for help. This involves giving chest compressions and rescue breaths to keep the baby's circulation going.

CPR on a baby

Place the baby on their back on a firm surface at about waist height in front of you, or on the floor.

1. Give five initial rescue breaths before starting the sequence of 30 chest compressions and two rescue breaths.
 - a. If there is anything in their mouth pick it out and ensure the airway is clear and open.

- b. Take a breath in and place your lips around the baby's mouth and nose to form an airtight seal.
- c. If you cannot make a seal around the mouth and nose, close the baby's mouth and make a seal around the nose only.
- d. Blow steadily into the mouth until the chest rises.
- e. Remove your mouth and allow the chest to fall.
- f. Repeat four times more.

2. Now give 30 chest compressions.

- a. Place two fingertips of your lower hand on the centre of the baby's chest.
- b. Press down vertically on the breastbone, and press the chest down by at least one-third of its depth.
- c. Release the pressure without moving your fingers from their chest. Allow the chest to come back up fully – this is one compression.
- d. Repeat this 30 times, at a rate of about twice a second – the speed of the song 'Staying Alive'.

Now give two rescue breaths. Carry on giving 30 chest compressions followed by two rescue breaths for as long as you can, or until help arrives.

3. If the baby starts breathing normally again, stop CPR and put them in the recovery position.

Cradle them in your arms, with their head tilted downwards. This will keep their airway open and stop them choking on their tongue or breathing in any vomit. Continue until help arrives.

The recovery position

If someone is unresponsive and breathing then you need to turn them onto their side and into the recovery position, to keep their airway open so they can still breathe.

If you think they may have hurt their spine, then you need to use a special technique to keep their spine straight and minimise any more damage – see below.

Cradle the baby in your arms with their head tilted downwards. Holding them in this position will keep their airway open and stop them choking on their tongue or breathing in any vomit.

1. Kneel down next to them on the floor.

Follow the next three steps if you find someone lying on their back. If you find them lying on their side or their front you may not need all three:

- a. Place their arm nearest you at a right angle to their body, with their palm facing upwards.
 - b. Take their other arm and place it across their chest so the back of their hand is against their cheek nearest you, and hold it there
 - c. With your other hand, lift their far knee and pull it up until their foot is flat on the floor. Now you're ready to roll them onto their side. Carefully pull on their bent knee and roll them towards you. Once you've done this, the top arm should be supporting the head and the bent leg should be on the floor to stop them from rolling over too far.
2. Next, it is very important that you check that their airway is open, so they can breathe and any blood or vomit from their mouth can drain away. To do this, tilt their head back, gently tilt their chin forward and make sure that their airway will stay open and clear.
 3. If you think they could have a spinal injury, you must try to keep their neck as still as possible. Instead of tilting their neck, use the jaw thrust technique: Place your hands on either side of their face and with your fingertips gently lift the jaw to open the airway, avoiding any movement of their neck.

To roll them onto their side, use the normal technique but do your best to keep their spine as straight as you can. If possible, get up to four helpers, two on each side, to help you keep their head, upper body and legs in a straight line at all times as you roll the body over.

Once you've put them safely into the recovery position, call 155 or 112 for an ambulance. Remember that until help arrives you must keep checking that they're breathing.

If they stop breathing at any point, call 155 or 112 straight away and get ready to give them CPR.

Using a defibrillator (AED)

An AED (automated external defibrillator) is a device that gives the heart an electric shock when someone's heart has stopped (cardiac arrest). You can use an AED on children over one year old and adults. Ambulances have them on board, but using an AED in the minutes before an ambulance arrives can double someone's chances of survival. So it is up to bystanders quickly to find the nearest defibrillator.

Many public places keep an AED as part of their first aid equipment, including shopping centres, train stations, airports, offices and schools. AEDs come in a small portable plastic box and are stored in noticeable green casing with a green sign above.

If you don't have access to an AED then you should call 155 or 112 for help and do ordinary resuscitation (CPR) until the ambulance and AED arrives.

How to use a defibrillator/AED?

You can use an AED with no training. The machine analyses someone's heart rhythm and then uses visual or voice prompts to guide you through each step.

- First, make sure someone has called for an ambulance, and, if an AED isn't immediately available, give CPR (cardiopulmonary resuscitation) until someone can bring you an AED.
- As soon as you've got an AED, switch it on. It will immediately start to give you a series of visual and verbal prompts informing you of what you need to do. Follow these prompts until the ambulance arrives or someone with more experience than you takes over.
- Take the pads out of the sealed pack. Remove or cut through any clothing and wipe away any sweat from the chest.
- Remove the backing paper and attach the pads to their chest.
- Place the first pad on their upper right side, just below their collarbone as shown on the pad.
- Then place the second pad on their left side, just below the armpit. Make sure you position the pad lengthways, with the long side in line with the length of the body.
- Once you've done this, the AED will start checking the heart rhythm. Make sure that no-one is touching the person. Continue to follow the voice and/or visual prompts that the machine gives you until help arrives.

HEART DISORDERS

The heart pumps blood through the lungs then around the body taking oxygen to all the organs. Without oxygen the cells which make up the body will die. Find out how to use first aid to treat heart problems and what you should look out for.

Most important topics

Angina - Is a pain in the chest caused by a reduced blood supply to the heart muscle itself.

Cardiac arrest – This happens when the heart stops pumping effectively leading to collapse, loss of responsiveness and the person ceasing to breathe. This is a medical emergency.

Heart attack – This happens when there is an obstruction of the blood supply to part of the heart muscle, leading to pain, or if a large part of the muscle is affected, the heart could stop beating effectively (i.e. it may lead to a cardiac arrest). Urgent medical attention is needed in an attempt to improve the blood flow to the muscle.

Shock – This happens when there is a disruption to the blood supply to part of the brain, leading to a change in function (i.e. inability to speak, use an arm or a leg. If a large part of the brain is affected the person may lose responsiveness or have a seizure). Urgent medical attention is needed in an attempt to improve blood flow to the brain.

Fainting

Fainting is when someone briefly loses responsiveness, often causing the person fall to the ground. It happens because for a moment there is not enough blood flowing to the brain. People often faint as a reaction to pain, exhaustion, hunger, or emotional stress. It is also common after someone has been standing or sitting still for a long period of time, especially if they're feeling hot.

When someone faints, their pulse slows right down but it usually picks up and goes back to normal soon afterwards.

If someone who's fainted doesn't come round after a couple of minutes, then this could be more serious.

Key signs and symptoms

1. Brief loss of responsiveness, often causing them to fall to the ground
2. A slow pulse
3. Pale cold skin and sweating

First aid algorithm

- If someone's feeling faint, tell them to lie down.
- Kneel down next to them and raise their legs, supporting their ankles on your shoulders to help blood flow back to the brain. Watch their face for signs that they're recovering.
- Make sure that they have plenty of fresh air – ask bystanders to move away and if you're inside then ask someone to open a window.
- Reassure the casualty and help them to sit up slowly.
- If they don't regain responsiveness again quickly, open their airway, check their breathing and prepare to treat someone who is unresponsive.

Angina attack

Angina is a type of chest pain that someone gets when the arteries carrying blood to their heart muscle become narrowed. This can restrict the blood supply and so cause pain called an angina attack.

An angina attack is different from:

- a *heart attack* – which is when the blood supply to the heart muscle is blocked, and
- a *cardiac arrest* – when the heart actually stops working.

Angina attacks are usually caused by physical exertion, stress or excitement. But if someone has unstable angina, then their attacks can be unpredictable, with no obvious cause.

Angina is not life-threatening on its own. But, someone who suffers from it is at far greater risk of having life-threatening problems, such as a heart attack or stroke.

If the casualty rests and take angina medication, the pain should only last a few minutes. If the pain lasts longer, presume it's a heart attack.

Key signs and symptoms

1. Pain - in the chest, which may spread to the jaw and arms
2. Shortness of breath
3. Sudden and extreme tiredness
4. Anxiety

First aid algorithm

- Help the casualty to stop what they're doing and sit down straight away. Reassure them and make them comfortable – this should help ease the pain.
- Ask if they have any angina medication, like tablets or a spray. If they have, then help them to take it. If the pain is still there five minutes after taking the medication, suggest they take a second dose.
- If they're still in pain after another five minutes, or the pain returns, presume it's a heart attack. Call 155 or 112 for medical help.
- If they haven't got any medication, and the pain doesn't go away when they sit down or rest, then call 155 or 112 for medical help immediately.
- If the pain goes away completely within 15 minutes after they've rested and/or taken medication, they should usually be able to go back to what they were doing, if it's not too strenuous.
- If they're worried about what's happened, tell them to see their doctor.

Cardiac arrest

A cardiac arrest happens when someone's heart stops pumping blood around their body. They will lose responsiveness almost immediately and show no other signs of life, such as breathing or movement.

If you see someone having a cardiac arrest, you need to act quickly as they'll only have a chance of surviving if they receive life saving first aid immediately.

You need to call 155 and give immediate CPR (cardiopulmonary resuscitation).

You should also ask any bystanders to find a defibrillator (an automated external defibrillator – AED), which restarts the heart by giving an electric shock. Lots of public places have them, including shopping centres, train stations, airports, offices and schools.

Key signs and symptoms

1. Sudden loss of responsiveness
2. No breathing
3. No movement or other signs of life

First aid algorithm and therapy

Call 155 or 112 straight away for medical help or ask a bystander to do it, so that you can start doing CPR sooner. Make sure you communicate with a specific person, so that no time is lost while people hesitate.

If there is a defibrillator, grab the AED or ask a specific person to get it for you and switch it on. It will then give you a series of visual and verbal prompts which you should follow until the ambulance arrives.

If there isn't a defibrillator, you need to start CPR straight away and carry on until:

- emergency help arrives and takes over
- the person starts showing signs of life and starts to breathe normally, or
- you are too exhausted to continue

Heart attack

A heart attack happens when the supply of blood to the heart is suddenly blocked, usually by a blood clot.

Lots of people make a full recovery from a heart attack, but there's a serious risk that the heart might stop beating – called a cardiac arrest.

It's vital that you treat someone having a heart attack straight away, otherwise they could die.

People who have angina are more likely to have a heart attack. Angina happens when the arteries to the heart become narrow and the heart muscle can't get enough blood. This can happen when someone's doing a physical activity but is even more of a concern if it happens at rest.

Angina pain is usually a tight chest pain, which may ease if they rest straight away and take angina medication, and may only last a few minutes. If the pain lasts longer, presume it's a heart attack.

Key signs and symptoms

If you think someone is having a heart attack, look for the four Ps:

1. Pain – a continuous pain in the chest, which could spread to the jaw, neck or arms
2. Pale skin
3. Rapid and weak pulse
4. Perspiration / sweating

First aid algorithm and therapy

- Call 155 or 112 for medical help and say you think someone is having a heart attack.
- Then, help move them into the most comfortable position. The best position is on the floor leaning against a wall with knees bent and head and shoulders supported. This should ease the pressure on their heart and stop them hurting themselves if they collapse.
- Give them a 300mg aspirin, if available and they're not allergic, and tell them to chew it slowly.
- Be aware that they may develop shock. Shock does not mean emotional shock, but is a life-threatening condition, which can be brought on by a heart attack.
- Keep checking their breathing, pulse and level of response.
- If they lose responsiveness at any point, open their airway, check their breathing, and prepare to treat someone who has become unresponsive. You may need to do CPR.

Shock

Shock (not to be confused with emotional shock) is a life-threatening condition which happens when the body isn't getting enough flow of blood.

This means that the cells don't get enough oxygen to enable them to work properly, which can lead to damage of the vital organs like the brain and the heart.

Shock can be caused by anything that reduces the flow of blood, including:

- heart problems, such as a heart attack, or heart failure
- severe internal or external bleeding
- loss of body fluids, from dehydration, diarrhoea, vomiting or burns
- severe allergic reactions and severe infection

If someone has any of the conditions above, which can reduce the circulation or blood flow, they could develop shock, so you may need to treat them for this condition as well.

Key signs and symptoms

If you think someone is having a shock, look for the following 7 signs:

1. Paleness of the face (pallor)
2. Cold, clammy skin
3. Fast, shallow breathing
4. Fast, weak pulse
5. Yawning or sighing
6. Confusion
7. Loss of response (in extreme cases)

First aid algorithm and therapy

If they are showing signs of shock:

- Lay them down with their head low and legs raised and supported, to increase the flow of blood to their head. Do not raise an injured leg.
- Call 155 or 112 for medical help and say you think they are in shock, and explain what you think caused it (such as bleeding or a heart attack).
- Loosen any tight clothing around the neck, chest and waist to make sure it doesn't constrict their blood flow
- Fear and pain can make shock worse, by increasing the body's demand for oxygen, so while you wait for help to arrive, it's important to keep them comfortable, warm and calm. Do this by covering them with a coat or blanket and comforting and reassuring them
- Keep checking their breathing, pulse and level of response.
- If they become unresponsive at any point, open their airway, check their breathing, and prepare to treat someone who has become unresponsive.

BREATHING DISORDERS

Breathing topics:

- Asthma attack
- Choking – adults
- Choking child and baby
- Croup
- Drowning
- Hyperventilation

Asthma attack

In an asthma attack, the muscles of the air passages in the lungs go into spasm. This makes the airways narrower, making it difficult to breathe.

Sometimes something specific can trigger an attack, such as an allergy, a cold, or cigarette smoke. At other times, someone may have a sudden attack with no obvious trigger.

People with asthma usually deal with their own attacks by using a blue reliever inhaler at the first sign of an attack. But if someone doesn't have an inhaler, or the attack is severe, you may need to help.

Key signs and symptoms

If you think someone is having an asthma attack, these are the five key things to look for:

1. Difficulty breathing or speaking
2. Wheezing
3. Coughing
4. Distress
5. Grey-blue tinge to the lips, earlobes and nailbeds (known as cyanosis).

First aid algorithm and therapy

- First, reassure them and ask them to breathe slowly and deeply which will help them control their breathing.
- Then help them use their reliever inhaler straight away. This should relieve the attack.
- Next, sit them down in a comfortable position.
- If it doesn't get better within a few minutes, it may be a severe attack. Get them to take one or two puffs of their inhaler every two minutes, until they've had 10 puffs.
- If the attack is severe and they are getting worse or becoming exhausted, or if this is their first attack, then call 155 or 112 for an ambulance.
- Help them to keep using their inhaler if they need to. Keep checking their breathing, pulse and level of response.
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.

Adult Choking - First Aid Advice

Choking is when your airway gets blocked and you can't breathe properly. When someone chokes, the airway can either be partly or fully blocked. If it's a mild blockage, they should be able to clear it themselves by coughing. If it's a severe blockage, they won't be able to cough so without anyone's help they'll become unresponsive.

But if they do become unresponsive, their throat muscles could relax and open the airway enough for you to give rescue breaths – be prepared to give rescue breaths and chest compressions.

Key signs and symptoms

If you think someone is choking, ask them: 'Are you choking?' to check they're not suffering from something else. Can they speak, cry, cough or breathe?

If they can, they should be able to clear their throat on their own by coughing, so encourage them to cough.

If they can't cough or make any noise, it's serious.

First aid algorithm and therapy

Help clear their throat with these three steps.

1. Cough it out

Encourage them to cough. If this doesn't clear the obstruction, support their upper body with one hand and help them lean forward.

2. Slap it out

If coughing doesn't work, help the casualty bend forward.

Use the heel of your hand to give up to five sharp back blows between their shoulder blades.

Check their mouth to see if there's anything in there and, if there is, get them to pick it out.

3. Squeeze it out

If back blows don't work, give up to five abdominal thrusts. Stand behind them.

Link your hands between their tummy button and the bottom of their chest, with your lower hand clenched in a fist.

Pull sharply inwards and upwards.

4. Call for help

- a. If they're still choking, call 155 or 112 for medical help.
- b. Once you've called, continue steps 2 and 3 – back blows and abdominal thrusts – until what's in there has cleared, help arrives or they become unresponsive.
- c. If they become unresponsive at any stage, open their airway and check their breathing.
- d. If they're not breathing, start chest compressions and rescue breaths (CPR - cardiopulmonary resuscitation) to try to release whatever's stuck in there.

Choking child

Choking is when your airway gets blocked and you can't breathe properly. This information is aimed at parents for treating choking babies and young children, the information is different for adults.

Young children are more likely to choke than adults, because they often put small objects in their mouths that they may breathe in and get stuck.

If a child or baby is choking they'll get upset quickly and you need to act fast to clear what's stuck. If they can't cough or make any noise, it's serious.

When someone chokes, the airway can either be partly or fully blocked. If it's a mild blockage, they should be able to clear it themselves by coughing. If it's a severe blockage, they won't be able to cough so without anyone's help they'll lose responsiveness before this happens you can help - see the links at the bottom of the page.

If they do lose responsiveness, their throat muscles could relax and open the airway enough for you to give rescue breaths – be prepared to give rescue breaths and chest compressions if this happens.

Key signs and symptoms

If you think a child is choking, ask them: 'Are you choking?' to check they're actually choking, not suffering from something else. Can they speak, cry, cough or breathe? If not, they could be choking.

First aid algorithm and therapy

1. Cough it out

Encourage them to cough it out. If that doesn't work, try to slap it out.

2. Slap it out

If coughing doesn't work:

- a. Help the child bend forward and use the heel of your hand to give up to five sharp back blows between their shoulder blades.
- b. Check their mouth to see if there's anything in there. If there is, get them to pick it out themselves.

3. Squeeze it out

If the back blows don't work, try giving them up to five abdominal thrusts:

- a. To do this, stand behind the child, making sure they are bending well forward.
- b. Link your hands between their tummy button and the bottom of their chest, with your lower hand clenched in a fist.
- c. Then pull sharply inwards and upwards.

4. Call for help

- a. If they're still choking call 155 or 112 for an ambulance.
- b. Once you've called an ambulance, continue steps 2 'Slap it out' and 3 'Squeeze it out' until what's in there has cleared, help arrives or they become unresponsive.
- c. If they become unresponsive at any stage, open their airway and check their breathing. If they're not breathing, start CPR to try to release whatever's stuck in there.

Choking baby

Your baby may be choking if they suddenly become distressed, have noisy breathing, if they are unable to cry or cough. In some cases they may not be able to make any noise or breathe.

First aid algorithm and therapy

1. Slap it out
 - a. Lay your baby face down on you thigh and support their head. Give up to five back blows between their shoulder blades with the heel of your hand.
 - b. Give up to five back blows between their shoulder blades with the heel of your hand.
2. Check their mouth
 - a. Lay your baby on your thigh face up.
 - b. Carefully pick out any obvious objects with your fingertips.
3. Squeeze it out
 - a. Using two fingers, give up to five downward chest thrusts.
 - b. Check the mouth. If the obstruction hasn't cleared, call 155 or 112 for emergency help.
4. Call 155 or 112
 - a. Take your baby with you and call 155 or 112.
 - b. Repeat the above steps 1 to 3 until help arrives.
 - c. If they become unresponsive at any stage, open their airway and check their breathing.
 - d. If they're not breathing, start CPR.

Croup in children

Croup is a childhood condition that makes it difficult to breathe. Croup is caused by the inflammation of the windpipe (trachea) and the voice box (larynx). Children with croup have difficulty breathing, a distinctive barking cough and may have a croaky voice.

Croup can usually be diagnosed by a GP (general practitioner) or paediatrician and treated at home. If an attack of croup is severe and doesn't go away, call 155 or 112 for emergency help.

There is a small risk that they may have a rare but similar condition called epiglottitis. The epiglottis is a small flap of tissue at the base of the tongue which keeps food from going down the windpipe when swallowing. If this gets infected and swollen it can block the airway.

If you think a child might have epiglottitis, it's a medical emergency and you need to call 155 or 112 immediately.

Key signs and symptoms

If you think a child may have croup, these are the four key things to look for:

1. Distressed breathing
2. A short barking cough
3. Rasping noise and croaky voice
4. Blue-grey skin

First aid algorithm

- Stay calm and don't panic, as this will alarm them and probably make the attack of croup worse.
- Sit them on your knee, supporting their back, and reassure them calmly.
- If the croup is severe, call 155 or 112 for emergency medical help.
- If they have a high temperature too, then suspect epiglottitis and call 155 or 112 immediately.
- When you're waiting for help to arrive, keep checking the child's breathing, pulse and level of response.

Drowning

Drowning is when someone is unable to breathe because their nose and mouth are submerged in water, or in another liquid.

When someone's drowning, it may not look like the violent, splashing call for help that most people expect from watching TV. When someone's actually drowning, they won't be able to make any noise, so can easily go unnoticed, even if friends or family are nearby.

Key signs and symptoms

If someone has been rescued from drowning you need to check if they're breathing or not.

If they aren't breathing, then you'll need to give CPR straight away.

First aid algorithm

- As soon as the casualty has been rescued from the water, check if they're breathing.
- Ask someone to call 155 or 112 for medical help.
- If the person is unresponsive and breathing, give them five initial rescue breaths before starting CPR.
- Once you've done this, start CPR: 30 chest compressions, then two rescue breaths. Keep giving CPR until help arrives, the casualty regains responsiveness, or you're too exhausted to keep going.
- If they start breathing again at any time, treat them for hypothermia by covering them with warm clothes and blankets. If they recover completely, replace their wet clothes with dry ones.
- Keep checking breathing, pulse and level of response until help arrives.

Hyperventilation

Hyperventilation is excessive breathing, normally caused by extreme anxiety, and can happen at the same time as a panic attack.

When someone is hyperventilating they breathe unnaturally fast or deep. This makes the blood lose more carbon dioxide than usual, which can make them feel weak and dizzy. As they begin to breathe normally again, they should feel better.

It is very rare for children to suffer from hyperventilation, so if you think a child is hyperventilating you should try looking for other reasons why they could be showing these symptoms.

Key signs and symptoms

These are the six key things to look for:

1. Unnaturally fast deep breathing
2. Attention-seeking behaviour or anxiety
3. Dizziness
4. Feeling faint
5. Trembling or tingling in the hands
6. Muscle cramps in the hands and feet

First aid algorithm

- Speak to them firmly, but be kind and reassuring.
- Take them somewhere that's quiet, as this can help them control their breathing again. If you can't do this, ask any bystanders to leave or turn away.
- Encourage the casualty to see their doctor about how they can learn to prevent and control hyperventilation in the future.
- If you are unsure of their symptoms or if they are not improving, call 155 or 112 for medical help

BLEEDING

You can usually control bleeding from cuts and grazes by elevating the wound and applying pressure.

A nose bleed can be serious if someone loses a lot of blood – and severe bleeding can cause distress, lead to shock and loss of responsiveness.

Bleeding topics:

1. Cuts and grazes
2. Nose bleeds
3. Severe bleeding
4. Shock

Cuts and grazes

Cuts and grazes are common injuries that can usually be treated at home. A cut is when the skin is fully broken, and a graze is when only the top layers of skin are scraped off.

Usually, all you need to do is clean the cut or graze to reduce infection and apply pressure and raise the injury to stop the bleeding. The wound should heal by itself in a few days.

Key signs and symptoms

If the bleeding doesn't stop, or if there's a foreign object in the cut, or you think it might be infected, then you should tell them to see a health care professional.

First aid algorithm

- Clean the wound by rinsing it under running water or using alcohol-free wipes.
- Pat it dry using a gauze swab and cover it with sterile gauze. If you don't have these, then use a clean, non-fluffy cloth.
- Raise and support the part of the body that's injured. If it's a hand or arm, raise it above the head. If it's a lower limb, lay them down and raise the cut area above the level of the heart. This will help stop the bleeding.
- Remove the gauze covering the wound and apply a sterile dressing.
- If you think there's any risk of infection then suggest they see a health care professional.

Nose bleeds

A nose bleed is when blood flows from one or both nostrils. It's normally caused by the tiny blood vessels inside the nostrils being ruptured.

Common causes of nose bleeds include a blow to the nose, sneezing, picking or blowing the nose, and high blood pressure.

Key signs and symptoms

Most nose bleeds are minor and only last a few minutes, but they can be dangerous if someone loses a lot of blood.

If someone has had a blow to the head, the blood may appear thin and watery. This could mean that their skull is fractured and fluid is leaking from around the brain. If that happens, it is very serious and you should call 155 or 112 for emergency medical help.

First aid algorithm

- If someone is having a nose bleed, your priority is to control the bleeding and keep their airway open.
- Get them to sit down (not lie down) as keeping the nose above the heart will reduce bleeding.
- Get them to lean forward (not backwards), to make sure the blood drains out through their nose, rather than down their throat which could block their airway.
- Ask them to breathe through their mouth and pinch the soft part of the nose, taking a brief pause every ten minutes, until the bleeding stops.
- Encourage them not to speak, swallow, cough, spit or sniff because this may break blood clots that may have started to form in the nose.
- If the bleeding is severe, or if it lasts more than 30 minutes, call 155 or 112 for medical help.

Severe Bleeding

When bleeding is severe, it can be dramatic and distressing. If someone's bleeding isn't controlled quickly, they may lose a lot of blood, become unresponsive or develop shock. Shock does not mean emotional shock; it is a life-threatening condition, often caused by loss of blood.

If someone's bleeding from their mouth or nose, they may find it hard to breathe, so you should monitor them in case they become unresponsive.

With all open wounds, there's a risk of infection, so wash your hands and use gloves (if you have any) to help prevent any infection passing between you both.

Possible blood loss in some fractures:

Shoulder 800 ml

Forearm 400 ml

Beck bone 5.000 ml

Thigh 2.000 ml

Lower leg 1.000 ml

First aid algorithm

- Your priority is to stop the bleeding. Protect yourself by wearing gloves.
- If the wound is covered by the casualty's clothing, remove or cut the clothes to uncover the wound.

1. If there's an object in the wound

If there's an object in there, don't pull it out, because it may be acting as a plug to reduce the bleeding. Instead, leave it in and apply pressure either side of it with a pad (such as a clean cloth) or fingers, until a sterile dressing is available.

2. If there's no object in the wound

Follow the steps below for treating severe bleeding.

- 1) Press it: apply direct pressure to the wound
- 2) Call 155 or 112 for emergency help
- 3) Firmly secure dressing with a bandage
- 4) Treat for shock
- 5) Support the injured part

Other illnesses and conditions

Allergic reactions

An allergy is the body's unexpected reaction to something it has come into contact with. Something that triggers an allergic reaction is called an allergen. One of the most common allergens is plant pollen, which often causes hay fever. Other allergens include: animal hair, insect stings, specific drugs, and foods – especially fruit, shellfish and nuts.

People develop allergies because their body's immune system mistakes the allergen for a threat, like an infection, and tries to fight it off.

A severe allergic reaction can develop within just a few seconds of the person coming into contact with the allergen. It can affect the whole body and, if not treated quickly enough, can potentially lead to death.

Key signs and symptoms

These are the six key things to look for:

1. Difficulty breathing (e.g. tight chest and wheezing)
2. Swelling of the tongue and throat
3. Itchy or puffy eyes
4. An outbreak of blotchy skin
5. Anxiety
6. Signs of shock

First aid algorithm and therapy

- If you notice these symptoms and you think someone is having an allergic reaction, then you need to get emergency help to get them to hospital as fast as you can (even if the symptoms are mild or have stopped).
- Dial 155 or 112 straight away. Tell them you think someone is having a severe allergic reaction and give any information you have on what may have triggered it (e.g. an insect sting, or certain food, like peanuts).
- If the person knows what their allergy is, they may have medication with them, like an auto-injector (for example Epipen®, JEXT® or Emerade®). This is a pre-filled injection device, containing adrenaline/epinephrine, which when injected can help reduce the body's allergic reaction. Check if they have one, and if they do, help them to use it or do it yourself following the instructions.
- Help them into a comfortable sitting position, leaning forward slightly, to help their breathing.
- If they become unresponsive, open their airway and check breathing. Follow the instructions for treating someone who is unresponsive.

Diabetic emergency

Diabetes is a lifelong medical condition where the body cannot produce enough insulin. Insulin is a chemical made by the pancreas (a gland behind the stomach), which regulates the blood sugar (glucose) level in the body.

Normally our bodies automatically keep the right blood sugar levels, but for someone with diabetes their body can't. Instead, they have to control the blood sugar level themselves by monitoring what they eat, and taking insulin injections or pills.

There are two types of diabetes: Type 1, or insulin-dependent diabetes, and Type 2, also known as non-insulin-dependent diabetes.

Sometimes people who have diabetes may have a diabetic emergency, where their blood sugar becomes either too high or too low. Both conditions are potentially serious and may need treatment in hospital.

1. Hyperglycaemia

Too little insulin can cause high blood sugar (hyperglycaemia).

If it's not treated and gets worse, the person can gradually become unresponsive (going into a diabetic coma). So it's important to get them to see a doctor in case they need emergency treatment.

2. Hypoglycaemia

Too much insulin can cause low blood sugar or hypoglycaemia (hypo).

This often happens when someone with diabetes misses a meal or does too much exercise. It can also happen after someone has had an epileptic seizure or has been binge drinking.

If someone knows they are diabetic, they may recognise the start of a hypo attack, but without help they may quickly become weak and unresponsive.

Key signs and symptoms

If you think someone is having a diabetic emergency, you need to check against the symptoms listed below to decide if their blood sugar is too high or too low.

High blood sugar (hyperglycaemia)

1. Warm, dry skin
2. Rapid pulse and breathing
3. Fruity sweet breath
4. Really thirsty
5. Drowsiness, leading to unresponsiveness if not treated

Low blood sugar (hypoglycaemia)

1. Weakness, faintness or hunger
2. Confusion and irrational behaviour
3. Sweating with cold, clammy skin
4. Rapid pulse
5. Trembling
6. Deteriorating level of response
7. Medical warning bracelet or necklace and glucose gel or sweets
8. Medication such as an insulin pen or tablets and a glucose testing kit

First aid algorithm and therapy - Hyperglycaemia

- Call 155 or 112 straight away for medical help and say that you suspect hyperglycaemia.
- While you wait for help to arrive, keep checking their breathing, pulse and level of response.
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.

First aid algorithm and therapy - Hyperglycaemia

- Help them sit down. If they have their own glucose gel, help them take it. If not, you need to give them something sugary like fruit juice, a fizzy drink, three teaspoons of sugar, or sugary sweets.
- If they improve quickly, give them more sugary food or drink and let them rest. If they have their glucose testing kit with them, help them use it to check their glucose level. Stay with them until they feel completely better.
- If they do not improve quickly, look for any other causes and then call 155 or 112 for medical help.
- While waiting, keep checking their responsiveness, breathing and pulse.

If you're unsure whether their blood sugar is high or low

- If you're not sure whether someone has high or low blood sugar, give them something sugary anyway, as this will quickly relieve low blood sugar and is unlikely to do harm in cases of high blood sugar
- If they don't improve quickly, call 155 or 112 for medical help.
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.

Meningitis

Meningitis is an infection of the membranes that surround the brain and the spinal cord. Meningitis can be caused by bacteria or a virus. Anyone can get meningitis, whatever age they are, but babies and young children under five are most at risk.

Meningitis can be very serious. If you suspect meningitis you must call 155 or 112 immediately, so they can get to hospital to be treated as soon as possible. If spotted early, and treated quickly, most people make a full recovery.

Key signs and symptoms

If someone has meningitis, they won't usually show all the symptoms and signs at the same time. But these are the key things to look for:

- flu-like illness with a temperature
- cold hands and feet
- joint and limb pain
- blotchy or very pale skin

As the meningitis infection develops:

1. severe headache
2. neck stiffness
3. vomiting
4. eyes become sensitive to light
5. drowsiness
6. in babies – high-pitched moaning or a whimpering cry, floppiness, and a tense, bulging soft spot on their head (fontanelle).

Later you may see a distinctive rash of red or purple spots that doesn't fade when pressed.

First aid algorithm and therapy

- If someone has any of the signs of meningitis, like shielding their eyes from the light, call 155 or 112 for emergency medical help straight away and treat the fever.
- Check to see if they have a rash, with most rashes if you press the spots with the side of a glass, the spots will fade – if they don't fade, call 155 or 112 for medical help at once.
- While you're waiting for help to arrive, reassure them and keep them cool.
- Keep checking their breathing, pulse and level of response.

Seizures (fits) – in adults

A seizure can be caused by something interrupting the electrical activity in the brain. This leads the muscles in the body to contract uncontrollably and usually causes the person to lose responsiveness. It's also known as a convulsion or fit.

In adults, seizures are the most common symptom of epilepsy, but they can be caused by other things, such as a head injury, alcohol poisoning or someone with diabetes having a 'hypo' when their blood glucose is too low.

Epilepsy is a condition which affects the brain and causes repeated seizures, which are often sudden and dramatic.

With any kind of seizure it is really important to keep checking:

- their level of response and pulse
- and that the person is breathing.

It is also important to protect them from harming themselves during the fit.

Key signs and symptoms

1. Sudden loss of responsiveness
2. Rigid body with an arching back
3. Noisy difficult breathing
4. Convulsions (jerky uncontrolled movements)
5. Loss of bladder and bowel control
6. Afterwards they may be confused, tired and fall into a deep sleep

First aid algorithm and therapy

- Don't restrain or move them.
- Protect them from hurting themselves. Clear away any potentially dangerous objects, like hot drinks or sharp objects.
- Make a note of the time when the seizure started and how long it lasts.
- Protect their head by placing something soft underneath it, like a towel, and loosen any clothing around their neck.
- Once the seizure has stopped, they may fall into a deep sleep – if they do, open their airway and check their breathing.
- If they're breathing, put them in the recovery position.
- If they stop breathing at any point, prepare to treat someone who is unresponsive and not breathing
- Keep checking their breathing, pulse and level of response.

Call 155 or 112 for medical help if:

- a. it's the casualty's first seizure, or the cause is unknown
- b. they're having repeated seizures
- c. the seizure lasts more than five minutes
- d. they're unresponsive for more than ten minutes.

Seizures (fits) in children

During a seizure, lots of muscles in the body contract uncontrollably. It's also called a convulsion or fit. Seizures are caused by something interrupting the electrical activity in the brain and they usually make someone lose responsiveness.

Seizures can be a symptom of epilepsy. However, epilepsy is very rare in children. In children, seizures normally happen as a result of a high temperature, or because of an infection such as a throat or ear infection. This is because the electrical systems in their brain are not developed enough to deal with the body's high temperature.

It can be very worrying for parents to see their child having a seizure, but if dealt with properly it is rarely dangerous. Still, you should always take your child to the doctor afterwards so they can check what may have caused the seizure.

Key signs and symptoms

If you think a child is having a seizure, there are seven key things to look for:

1. Vigorous shaking with clenched fists and an arched back
2. Signs of fever – hot, flushed skin, and sweating
3. Twitching of their face and squinting, fixed or upturned eyes
4. Holding their breath, with a red, puffy face and neck, and drooling at the mouth
5. Possible vomiting
6. Loss of control of their bowel or bladder
7. Partial or full loss of responsiveness

First aid algorithm and therapy

- Don't restrain or move them. Instead, protect them from hurting themselves. Clear away any potentially dangerous objects, like hot drinks or sharp objects, and put pillows or soft padding around them.
- Cool them down. Take away any bedding and take off a layer of clothing. Make sure they get some fresh air by opening a door or window, but be careful you don't cool them down too much.
- Once the seizure has stopped, they're usually very sleepy or unresponsive, so put them into the recovery position help them keep their airway open. Then call 155 or 112 for emergency medical help.
- Reassure them – and whoever's looking after them, if that is not you.
- While you wait for help to arrive, keep checking their breathing, pulse and level of response.

Stroke

A stroke happens when the flow of blood to part of the brain is cut off. This is normally due to a clot in a blood vessel or a rupture which stops the flow of blood getting to the brain.

The brain needs the oxygen in the blood to work properly. Lack of oxygen causes damage to the brain cells. The long-term effects of a stroke depend on which part of the brain is affected and how large an area is damaged.

A stroke (or brain attack) is a medical emergency - you need to act fast.

Key signs and symptoms

If you think someone is having a stroke, check the three main symptoms using the **FAST** test:

Face – look at their face and ask them to smile. Are they only able to smile on one side of their mouth? If yes, this is not normal.

Arms – ask them to raise both arms. Are they only able to lift one arm? If yes, this is not normal.

Speech – ask them to speak. Are they struggling to speak clearly? If yes, this is not normal.

Time – if the answer to any of these three questions is yes, then it is time to call 155 or 112 for medical help and say you think the casualty is having a stroke.

First aid algorithm and therapy

- While you wait for help to arrive, keep them comfortable and supported. If they're responsive then you can help them into a comfortable position
- Keep checking their breathing, pulse and level of response. Don't give them anything to eat or drink because it could be difficult for them to swallow so they might choke.

HEAT AND COLD DISORDERS

Dehydration

Dehydration happens when someone loses more fluid than they take in.

Young children and older people are likely to get dehydrated more easily, so it's especially important for them to drink plenty of water.

Someone will normally get dehydrated after sweating a lot – usually from exercise, being in hot conditions for a long time, or having a fever.

If you lose fluids through severe diarrhoea and vomiting, this can also cause dehydration.

If left untreated, someone with dehydration can develop heat exhaustion, which is more serious, so it's important to make sure they rehydrate themselves as soon as possible.

Key signs and symptoms

There are four key things to look for if someone is suffering from dehydration:

1. Headaches and light headedness
2. Dry mouth, eyes and lips
3. Small amounts of dark urine
4. Muscle cramps

First aid algorithm

Treating dehydration, next steps:

- Help them to sit down and give them plenty of water to drink.
- Giving them an oral rehydration solution to drink will help replace salt and other minerals which they've lost – you can buy this in sachets from any pharmacy.
- If they have any painful cramps, encourage them to rest, help them stretch and massage their muscles that hurt.
- Keep checking how they're feeling – if they still feel unwell once they're rehydrated then encourage them to see a doctor straight away.

Burns and scalds

Burns and scalds are damage to the skin caused by heat. A burn is usually caused by dry heat, like fire, a hot iron, or the sun. A scald is caused by wet heat, like steam or a hot cup of tea.

You need to be extra careful when treating burns. The longer the burning goes on, the more severe the injury will be, and the longer it may take to heal. So you need to cool the burn as soon as possible.

If someone has a severe burn or scald they are likely to suffer from shock, because of the fluid loss, so they will need urgent hospital treatment.

Key signs and symptoms

If you think someone has a burn or scald, there are five key things to look for:

1. Red skin
2. Swelling
3. Blisters may form on the skin later on
4. The skin may peel
5. The skin may be white or scorched

First aid algorithm

Stop the burning getting any worse, by moving the casualty away from the source of heat.

Start cooling the burn as quickly as possible. Run it under cool water for at least ten minutes or until the pain feels better. (Don't use ice, creams or gels – they can damage tissues and increase risk of infection).

Assess how bad the burn is. It is serious if it is:

- larger than the size of the casualty's hand
- on the face, hands or feet, or
- a deep burn

If it is serious, call 155 or 112 for emergency medical help.

Remove any jewellery or clothing near the burn (unless it is stuck to it).

Cover the burned area with kitchen cling film or another clean, non-fluffy material, like a clean plastic bag. This will protect from infection.

If necessary, treat for shock (shock is a life-threatening condition, not to be confused with emotional shock).

If you are unsure if the burn is serious then tell the person to see a doctor.

Frostbite

Frostbite happens when parts of the skin and other tissues freeze due to low temperatures. Frostbite usually affects the fingers and toes as they are the parts of the body furthest from the heart.

If someone has severe frostbite then they might permanently lose all feeling in that part of their body. Frostbite can also lead to gangrene, when the blood vessels and soft tissues become permanently damaged leading to death of the tissue.

Frostbite usually happens in freezing or cold and windy weather. People who cannot move around are more likely to get it. Someone with frostbite will probably have hypothermia, so be prepared to treat them for that too.

Key signs and symptoms

If you think someone has frostbite, there are four key things to look for:

1. 'Pins and needles' to begin with
2. Paleness, followed by numbness
3. Hardening and stiffening of the skin
4. Change in skin colour: first white, then blotchy and blue. On recovery, the skin may be red, hot, painful and blistered. If they get gangrene, the tissue may become black due to the loss of blood supply and death of the tissue.

First aid algorithm and therapy

- First, encourage them to put their hands in their armpits. Then help move them indoors or to somewhere warm.
- Once inside, gently remove anything constricting like rings, gloves or boots.
- Next, warm the body part with your hands on your lap, or under their armpits. Don't rub it though because this could damage their skin tissue. (If there is a danger of it refreezing then don't warm it up yet as this can cause more damage).
- Place the body part in warm (not hot) water at around 40°C and be careful not to put it near direct heat as this can cause more damage. Dry it carefully and put on a light dressing, ideally a gauze bandage from your first aid kit.
- Once you've done that, help them to raise their limb to reduce swelling, with cushions or a sling for instance.
- Advise them to take some painkillers if they have some (paracetamol for example).
- Then take or send them to hospital, keeping their limb raised.

Heat exhaustion

Heat exhaustion is caused by a loss of salt and water from the body, usually through excessive sweating.

It develops slowly and usually happens to people who aren't used to hot, humid weather. People who are unwell are more likely to get it, especially if they are suffering from vomiting and diarrhoea.

A dangerous and common cause of heat exhaustion is when the body produces more heat than it can cope with.

This can happen when someone takes a non-prescription drug, like ecstasy, which can stop the body from regulating its temperature properly. If someone gets hot and sweats a lot from dancing as well, they may get overheated and dehydrated, giving them heat exhaustion.

If treated quickly, someone suffering from heat exhaustion should start feeling better quickly. But if not treated, they could develop heatstroke which can lead to death.

Key signs and symptoms

These are the six key things to look for:

1. Headache
2. Dizziness and confusion
3. Loss of appetite and feeling sick
4. Sweating with pale clammy skin
5. Cramps in the arms, legs and stomach
6. Fast, weakening pulse and shallow breathing

First aid algorithm and therapy

- Help take them to a cool place and get them to lie down with their legs raised.
- Then give them lots of water. You can also give them a sports drink like Lucozade or an oral rehydration solution to help replace the salt and fluid they have lost by sweating.
- Keep checking their breathing, pulse and level of response.
- Even if they recover quickly, suggest they see a doctor.
- If they seem to be getting worse, place them into the recovery position and call 155 or 112 for an ambulance.
- While waiting, keep checking their breathing, pulse and level of response.

Heat rash

Heat rash is an itchy rash of small red spots that cause a stinging or prickling feeling on the skin. Sometimes it's called prickly heat.

The heat rash can be anywhere on the body, but typically people get it on their face, chest, back and thighs.

It is caused by sweat glands becoming blocked, so people usually get the rash if they are sweating more than usual. This could be because of hot or humid weather or because they're wearing too many clothes, which irritate the rash more by rubbing it. The trapped sweat irritates the skin and produces the rash.

Heat rash is not serious. It usually goes away after a few days so it doesn't need medical treatment.

Key signs and symptoms

If you think someone has heat rash, these are the four things to look for:

1. Itching
2. Rash of tiny red spots
3. Mild swelling
4. Prickling or burning feeling

First aid algorithm

- If they have these symptoms, you can explain that the rash is not serious but give them tips on how to soothe the itching and avoid getting heat rash in the future.
- Suggest they take a cold bath or shower to cool their skin and help prevent further sweating.
- They can also buy calamine lotion or hydrocortisone cream which will help soothe the itching.
- Recommend they wear loose clothing made of cotton, as cotton doesn't trap heat as much as synthetic fibres, like nylon and polyester.
- Tell them to drink plenty of water to stop them getting dehydrated.
- And suggest they avoid excessive heat or humidity, by staying out of the sun and not sitting too close to a fire or heater, for instance.

Heatstroke

Heatstroke is caused by a failure of the thermostat in the brain which regulates the body temperature. If someone has a high fever or has been exposed to heat for a long time, then their body can become dangerously overheated.

Someone can also get heatstroke after using drugs such as ecstasy. Sometimes, people get heatstroke after suffering from heat exhaustion. When someone gets too dehydrated they stop sweating which means their body can't cool down anymore, so they develop heatstroke.

Heatstroke can develop with very little warning, causing unresponsiveness within minutes of someone feeling unwell. Your priority is to cool them down as quickly as possible and get them to hospital.

Key signs and symptoms

These are the six key things to look for:

1. Headache, dizziness and discomfort
2. Restlessness and confusion
3. Hot flushed and dry skin
4. A fast deterioration in the level of response
5. A full bounding pulse
6. Body temperature above 40°C

First aid algorithm and therapy

- Quickly move them to a cool place and remove their outer clothing but ensure you maintain their dignity.
- Then call 155 or 112 for an ambulance.
- Wrap them in a cold wet sheet and keep pouring cold water over it until their temperature falls to at least 38°C. Measure this with a thermometer under their tongue or under their armpit.
- If you can't find a sheet, fan them or sponge them down with cold water to keep them cool.
- Once their temperature seems to have gone back to normal, replace the wet sheet with a dry sheet.
- While waiting for help to arrive, keep checking their temperature, as well as their breathing, pulse and level of response.
- If they start getting hot again, repeat the cooling process to lower their temperature.
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.

Hypothermia

Hypothermia happens when someone's body temperature drops below 35°C. Normal body temperature is around 37°C.

Hypothermia can become life-threatening quickly, so it's important to treat someone with hypothermia straight away. Severe hypothermia, when the body temperature falls below 30°C, is often fatal.

Hypothermia is usually caused by being in a cold environment for a long time. This could be from staying outdoors in cold conditions, falling into cold water, or from living in a poorly heated house. Elderly people, babies, homeless people and anyone who is thin and frail or not able to move around easily are particularly vulnerable.

Key signs and symptoms

These are the four key things to look for:

1. Shivering, cold, pale, and dry skin
2. Tiredness, confusion, and irrational behaviour
3. Slow and shallow breathing
4. Slow and weakening pulse

First aid algorithm and therapy

- If you notice any of these symptoms, you need to warm them up.
- If they are outside, if possible get them indoors. Cover them with layers of blankets and warm the room to about 25°C. Give them something warm to drink, like soup, and high energy food, like chocolate.
- Once they have warmed up, tell them to see a doctor as soon as possible
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive
- If they are outdoors and you can't move them indoors:
 - a. Find something for them to lie on to protect them from the cold ground, like heather or pine branches.
 - b. If their clothes are wet, change them into dry clothes, if possible. Put them in a sleeping bag and cover them with blankets, if available. Make sure their head is covered too.
 - c. Then call 155 or 112 for an ambulance. If possible, don't leave them by themselves but stay with them until help arrives.
 - d. While you wait for help to arrive, keep checking their breathing, pulse and level of response.

Sunburn

Sunburn is caused by too much exposure to the sun or a sun lamp. At high altitudes, people can get sunburnt even when it's cloudy or snowing.

Some medicines can trigger severe sensitivity to sunlight. Sunburn can also be caused by exposure to radioactivity, though this is extremely rare.

The best way to avoid getting sunburn is to avoid too much exposure to the sun, by covering up with clothing or sun cream.

Most sunburn is not serious. In severe cases though, the skin can turn lobster red in colour and blister.

Key signs and symptoms

These are the three things to look for:

1. Reddened skin
2. Pain in the area of the burn
3. Blistering

First aid algorithm and therapy

- First, cover their skin with lightweight clothing and move them out of the sun and into the shade, or indoors if possible.
- Encourage them to keep taking sips of cold water.
- Cool the skin by sponging it gently with cool water, or by soaking the sore skin in a cold bath or shower for no more than ten minutes. Repeat this if it helps ease soreness.
- If the burn doesn't blister, then it is mild. Apply calamine lotion or after-sun lotion to help soothe the skin.
- If the burn blisters or there is other skin damage, then it is severe and they'll need to see a doctor.
- Also watch out for and treat symptoms of heat exhaustion or heatstroke, which can be life threatening.

Fever

A fever is a high temperature. When someone's body temperature goes above the normal body temperature of 37°C, this is called a fever.

Usually fevers are caused by infections or illnesses, such as a sore throat, earache, or chickenpox.

Fevers are common in children and, though worrying for parents, they often go away without treatment.

But if a young child's temperature goes above 39°C this can be dangerous and might trigger a seizure (fit).

Key signs and symptoms

These are the six key things to look for when someone has a fever:

Early signs of fever:

1. High temperature - above 37°C
2. Pale skin
3. They may feel cold, with goose pimples, shivering and chattering teeth

Then, later:

4. Hot, flushed skin and sweating
5. Headache
6. General aches and pains

First aid algorithm and therapy

- If you notice some of these symptoms, take their temperature using a thermometer.
- If their temperature is above 37°C, it's a fever.
- Help make them comfortable and keep them cool, ideally in bed with a sheet or light duvet.
- Give them plenty of cool drinks to replace any fluid they lose from sweating.
- If they're feeling unwell, you can give them the recommended dose of paracetamol (remember - don't give aspirin-based medication to anyone under 16 years old).
- Check their breathing, pulse and level of response until they're feeling better.
- If they seem to be getting worse then call 155 or 112 for emergency medical help and be prepared to treat them for a seizure.

Meningitis

Meningitis is an infection of the membranes that surround the brain and the spinal cord. Meningitis can be caused by bacteria or a virus. Anyone can get meningitis, whatever age they are, but babies and young children under five are most at risk.

Meningitis can be very serious. If you suspect meningitis you must call 155 or 112 immediately, so they can get to hospital to be treated as soon as possible.

If spotted early, and treated quickly, most people make a full recovery.

Key signs and symptoms

If someone has meningitis, they won't usually show all the symptoms and signs at the same time. But these are the key things to look for:

1. flu-like illness with a temperature
2. cold hands and feet
3. joint and limb pain
4. blotchy or very pale skin

As the meningitis infection develops:

5. severe headache
6. neck stiffness
7. vomiting
8. eyes become sensitive to light
9. drowsiness
10. in babies – high-pitched moaning or a whimpering cry, floppiness, and a tense, bulging soft spot on their head (fontanelle).

Later you may see a distinctive rash of red or purple spots that doesn't fade when pressed.

First aid algorithm and therapy

- If someone has any of the signs of meningitis, like shielding their eyes from the light, call 155 or 112 for emergency medical help straight away and treat the fever.
- Check to see if they have a rash, with most rashes if you press the spots with the side of a glass, the spots will fade – if they don't fade, call 155 or 112 for medical help at once.
- While you're waiting for help to arrive, reassure them and keep them cool.
- Keep checking their breathing, pulse and level of response.

POISONING

Poisons are substances that can cause temporary or permanent damage if too much is absorbed by the body. Get more information on the effects that different types of poisons have on the body.

Alcohol poisoning

Alcohol poisoning is what happens to someone when they've drunk a dangerous amount of alcohol, normally in a short space of time.

Drinking too much alcohol stops the nervous system from working properly, particularly in the brain. This can severely weaken the mental and physical body functions, like sight, speech, coordination and memory.

Alcohol poisoning can also send a person into deep unresponsiveness and, at worst, can slow or even shut down their breathing, causing death.

Key signs and symptoms

If you think someone may have alcohol poisoning, these are the key things to look for:

1. a strong smell of alcohol and you may see empty bottles or cans
2. confusion and slurred speech
3. vomiting
4. reddened and moist face
5. deep, noisy breathing
6. a strong, pounding pulse
7. unresponsiveness

If they are unresponsive, you also need to look for:

8. shallow breathing
9. weak, rapid pulse
10. widened pupils that react poorly to light

First aid algorithm and therapy

- Reassure them and cover them with a coat or blanket to keep them warm.
- Check them over for any injuries, especially head injuries, or any other medical conditions.
- If they are breathing normally but are not fully responsive, place them into the recovery position.
- Keep checking their breathing, level of response and pulse.
- Don't make them be sick as this could block their airway and stop them from breathing.
- If you're unsure about how serious their condition is then call 155 or 112 for medical help.
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.

Drug poisoning

Poisons are substances that can cause temporary or permanent damage if too much is absorbed by the body. Poisons can be swallowed, inhaled, injected or absorbed through the skin.

Someone can get drug poisoning from taking an overdose of prescribed drugs, over the counter drugs, or illegal drugs.

But the effects will be different depending on the type of drug and how the person has taken it, such as by swallowing, inhaling or injecting.

Key signs and symptoms

If you think someone may have drug poisoning, these are 10 common things to look for:

1. Stomach pain, nausea and vomiting
2. Sleepiness leading to unresponsiveness
3. Confusion and deliriousness
4. Excitable hyperactive behaviour
5. Sweating
6. Shaking hands
7. Hallucinations – they may claim to 'hear voices' or 'see things'
8. Unusually slow or fast pulse
9. Unusually small or large pupils
10. Needle marks which may be infected

First aid algorithm and therapy

- Call 155 or 112 for medical help.
- If they're responsive, help them into a comfortable position and ask them what they've taken.
- Gather as much information as you can. While you wait for help to arrive, look for any packaging or containers that will help identify the drugs.
- Keep checking their breathing, pulse and level of response.
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.
- Never try to make them vomit, but if they vomit naturally then put some of this into a bag or container and give it to the ambulance – this may help them identify the drug.

Food poisoning

Food poisoning is caused by eating contaminated food. In most cases the food hasn't been cooked properly and is contaminated by bacteria such as salmonella or Escherichia coli (E. coli), which are found mainly in meat.

Someone may feel the effects of food poisoning within a few hours, and will often be sick or have diarrhoea. However, in some cases it can take up to three days.

The effects of food poisoning can make someone feel extremely ill. The most important thing is for you to keep encouraging the person to drink water so they don't get dehydrated. Most people will get better without needing treatment.

Key signs and symptoms

If you think someone may have food poisoning, these are the five key things to look for:

1. Feeling sick
2. Vomiting, sometimes bloodstained
3. Stomach cramps
4. Diarrhoea
5. Headache or fever

First aid algorithm and therapy

- If you notice any of these symptoms, tell the person to lie down and rest.
- Give them plenty of water and a bowl to use in case they are sick.
- Encourage them to drink as much water as they can, even if they can only manage regular small sips. If they have diarrhoea, it's even more important that they drink water to replace lost fluids.
- Giving them an oral rehydration solution is good to way to replace fluids lost through diarrhoea and vomiting. This solution can replace salt and other minerals which they have lost. You can buy it in a pharmacy as a sachet which you dissolve in water.
- If the person gets worse, then advise them to call their doctor or call 155 or 112 for emergency medical help.

Carbon Monoxide poisoning

If volumes of smoke or gas are inhaled or breathed in, it can be deadly. If a casualty has inhaled fumes they need immediate medical attention as they are likely to have low levels of oxygen in their blood and tissues.

Carbon monoxide is a poisonous gas. When inhaled, the gas directly prevents the red blood cells from carrying oxygen to the body's tissues and organs. It can quickly prove fatal if it is inhaled in large amounts, for example from vehicle exhaust fumes or smoke within a confined space, or even in small amounts, for example due to leakage of fumes from a faulty boiler or heater.

Carbon monoxide is difficult to detect as it has no taste or smell. Unfortunately, lots of people who have carbon monoxide poisoning may not be aware that they are affected and may wrongly blame their symptoms on other reasons. The young and the old are at increased risk. It is best to reduce the risk of poisoning by making sure that gas appliances are serviced regularly and by fitting an approved carbon monoxide detector in your home.

Key signs and symptoms

If the casualty has had exposure to low levels of carbon monoxide for prolonged periods of time, they may complain of:

1. Headaches
2. Confusion
3. Feeling aggressive
4. Nausea and vomiting
5. Diarrhoea

Severe symptoms may include:

6. Grey-blue skin colouration
7. Rapid, difficult breathing
8. Impaired level of response, leading to unresponsiveness

First aid algorithm and therapy

- Call the emergency services on 155 or 112 and tell them that you suspect inhalation of fumes.
- If necessary, get them away from the source of the fumes into an environment with fresh air. Do not enter the fume-filled area yourself. If the casualty is in a closed space filled with exhaust fumes, open the doors letting the fumes escape before you enter.
- Support the casualty in a comfortable position and encourage the casualty to breathe normally. Reassure them. Stay with them until the emergency services arrive.
- Treat any burns or other injuries.
- Monitor the casualty by keeping an eye on their breathing, response and pulse. If the casualty is unresponsive, open the airway, check for breathing and if necessary, perform CPR.

Swallowed poisons

Poisons are substances that can cause temporary or permanent damage if too much is absorbed by the body. Poisons can be swallowed, inhaled, injected or absorbed through the skin. Swallowed poisons include chemicals, drugs, plants, fungi and berries.

Dangerous chemicals include household products like bleach, which can poison or burn the body if swallowed.

Poisonous plants include foxgloves, wild arum and certain types of mushroom.

Eating laburnum seeds can cause seizures.

Drugs, both prescribed or those bought over the counter, can also be harmful if someone takes too many.

Key signs and symptoms

If you think someone may have swallowed poison, these are the five key things to look for:

1. Nausea and vomiting (sometimes blood-stained)
2. Cramping stomach pains
3. A burning sensation
4. Partial loss of responsiveness
5. Seizures

First aid algorithm and therapy

- If the person is conscious, ask them what they have swallowed, how much and when. Look for clues, like plants, berries or empty packaging and containers.
- Call 155 or 112 for medical help and tell them as much information as possible.
- Keep checking their breathing, pulse and level of response.
- If they become unresponsive, open their airway and check breathing. Follow the instructions for treating someone who is unresponsive.
- Never try to make the person vomit, but if they vomit naturally then put some of their vomit into a bag or container and give it to the ambulance. This may help them identify the poison.

BONES AND MUSCLES

Broken bones and fractures

A break or crack in a bone is called a fracture.

In most cases the damage to the bone will be under the skin, which is called a closed fracture, but sometimes bits of the bone can puncture through the skin to become an open fracture.

In both cases you'll need to treat the casualty for shock. Even if you can't see any blood, the break might have caused some internal bleeding.

To break a fully grown bone, a huge amount of force is needed. But bones that are still growing are supple and can split, crack or bend quite easily, a bit like a twig.

Key signs and symptoms

1. Swelling
2. Difficulty moving
3. Movement in an unnatural direction
4. A limb that looks shorter, twisted or bent
5. A grating noise or feeling
6. Loss of strength
7. Shock

First aid algorithm

- If it is an open fracture, cover the wound with a sterile dressing and secure it with a bandage. Apply pressure around the wound to control any bleeding.
- Support the injured body part to stop it from moving. This should ease any pain and prevent any further damage.
- Once you've done this, call 155 or 112 for medical help. While waiting for help to arrive, don't move them unless they're in immediate danger.

Waiting for medical help to arrive

- Protect the injured area by using bandages to secure it to an uninjured part of the body to stop it from moving. For example, fractures on the arm can be secured with a sling, and a leg with a fracture can be tied to the uninjured leg.
- Keep checking the casualty for signs of shock. This does not mean emotional shock, but is a life-threatening condition, often caused by losing blood.
- If they lose responsiveness at any point, open their airway, check their breathing and prepare to treat someone who's become unresponsive.

Dislocated joints

A joint is where two bones join or connect. A dislocated joint happens when bones are partly or completely pulled out of their normal position. Joints can dislocate when a strong force wrenches the bone into an unnatural position, or because the muscle violently contracts.

The most common joints that dislocate are the shoulder, knee, jaw, or joints in the thumbs or fingers.

Dislocating a joint can be really painful and cause other damage, like a break in the end of the surrounding bone or tearing of the ligaments around the joint. Sometimes it's difficult to tell whether the injury is a dislocation or a fractured bone. If you're not sure, then always treat it as broken bone.

Don't try to put the dislocated bone back into its socket as you could make it worse.

Key signs and symptoms

1. Strong, sickening pain
2. Not being able to move the joint
3. Swelling and bruising around the joint
4. Shortening, bending or deformity of the joint

First aid algorithm and therapy

- Advise them to stay still and help them to support their dislocated joint in the most comfortable position.
- Stop the joint from moving using a bandage. For an arm injury, make a sling to support the arm. For a leg injury, use padding or broad-fold bandages.
- To give extra support for an injured arm, tie it in place by bandaging around the sling and the chest.
- Once you've stopped the joint from moving, take or send the injured person to hospital.
- Keep checking their breathing, pulse and level of response. Check the circulation beyond the bandages every ten minutes and loosen if necessary.

Spinal injury

The spinal cord connects the brain to the rest of the body. Together they make up the central nervous system.

The spine is made up of:

1. the spinal cord itself
2. the bones that protect the spinal cord (called vertebrae)
3. the discs of tissue between the vertebrae
4. the surrounding muscles

and the nerves which branch off it, to carry messages between the brain and the rest of the body in the form of high-speed electric pulses.

The spinal cord connects to individual muscles and tells them to move (called motor function). It also connects to organs like the skin, which communicates feelings like touch, pain and heat (called sensory functions).

The greatest risk if someone has a spinal injury is that their spinal cord will be either temporarily or permanently damaged. If this happens, they'll become paralysed from the point of injury down.

The most common cause of a spinal injury is extreme force, violent twisting or bending forwards or backwards. You should be aware of the possibility of a spinal injury if someone has:

- fallen from a height, e.g. a ladder
- fallen awkwardly, e.g. while doing gymnastics
- dived into a shallow pool and hit the bottom
- fallen from a moving vehicle, e.g. a motorbike, or a horse
- been in a collapsed rugby scrum
- been in a motor vehicle which suddenly crashes
- been hit by a heavy object falling across their back
- had an injury to the head or face.

Strains and sprains

Strains and sprains are common injuries which affect the soft tissues around joints – the muscles, tendons and ligaments.

They happen when the tissues are stretched, twisted or torn by violent or sudden movements, for instance if someone changes direction suddenly, or falls and lands awkwardly.

A sprain is when a ligament has been twisted or torn.

A strain is when the muscle has been overstretched and has partially torn. (A rupture is when a muscle or tendon is completely torn).

Key signs and symptoms

1. Pain and tenderness
2. Difficulty moving
3. Swelling and bruising

First aid algorithm

Remember RICE for the four steps to deal with strains and sprains:

Rest

Ice

Comfortable support

Elevation

Treatment for a strain or sprain

1. Rest

Help them to sit or lie down and support in a comfortable raised position the part they've hurt.

2. Ice

To cool the area, apply a cold compress, like an ice pack or cold pad. This will help to reduce the swelling, bruising and pain. Do not leave on for more than ten minutes.

3. Comfortable support

Leave the cold compress in place or wrap a soft layer of padding, e.g. cotton wool, around the area. Tie a support bandage around it, to hold it in place, which goes up as far as the next joint on each side. For example, for an ankle injury, the bandages should go from the base of the toes to the knees.

4. Elevate

Elevate the injury and support it with something soft, like cushions. If the pain is severe, or they can't use their limb at all, take or send them to hospital. Otherwise, just tell them to rest it and to see a health care professional, if necessary.