

Cardiopulmonary resuscitation (CPR)

Cardiopulmonary resuscitation (CPR) is a combination of mouth-to-mouth resuscitation and chest compressions that delivers oxygen and artificial blood circulation to a person who is in cardiac arrest. It can be life-saving first aid.

A 'heart attack' occurs when the heart is starved of oxygen. A heart attack can 'stun' the heart and interrupt its rhythm and ability to pump. If the heart stops pumping, it is known as a cardiac arrest. This is because the heart does not receive enough oxygen and cannot pump blood around the body. There is no heartbeat because the heart is not working. When the blood stops circulating, the brain is starved of oxygen and the person quickly becomes unconscious and stops breathing. Without treatment the person will die.

Causes of cardiac arrest

A cardiac arrest can be caused by:

- Heart disease – this is the most common cause of cardiac arrest and is the leading cause of death in Victoria
- Drowning
- Suffocation
- Poisonous gases
- Head injury
- Drug overdose
- Electric shock.

CPR can be life-saving first aid

Cardiopulmonary resuscitation (CPR) can be life-saving first aid and increases the person's chances of survival if started soon after the heart has stopped beating. If no CPR is performed, it only takes 3–4 minutes for the person to become brain dead, due to lack of oxygen. By performing CPR, you provide the needed oxygen and circulate the blood, so that the brain and other organs can stay alive while you wait for the ambulance. CPR does not guarantee that the person will survive but it does give that person a chance when otherwise there would have been none.

CPR – the basic steps

CPR is most successful when administered as quickly as possible. It should only be performed when a person shows no signs of life; that is, when they are:

- Unconscious
- Unresponsive
- Not breathing normally
- Not moving.

The basic steps for performing CPR can be used for adults, children and infants. They are based on guidelines updated in 2006 to be easier to follow and remember. However, they are only a guide and not a substitute for attending a CPR course.

The basic steps are:

- D – **Dangers?**
- R – **Responsive?**
- S – **Send** for help
- A – Open **airway**

- B – Normal **breathing**
- C – Start **CPR**
- D – Attach **defibrillator** (AED)

	1. Dangers? Check for danger, approach with care and do not put yourself in danger.
	2. Responsive? Look for a response. Is the victim conscious? Gently touch and talk to them, as if you are trying to wake them up. If there is no response, get help.
	3. Send for help Dial triple zero (000) – ask for an ambulance.
	4. Open airway Check the airway. Don't move the person. Gently tilt their head back, open their mouth and look inside. If fluid and foreign matter is present, gently roll them onto their side. Tilt their head back, open their mouth and very quickly remove any foreign matter (for example, chewing gum, false teeth, vomit).
	5. Normal breathing? Check breathing – look, listen and feel for signs of breathing. If the person is breathing, roll them onto their side. If they are not breathing, go to step 6.
	6. Start CPR Cardiac compressions: <ul style="list-style-type: none"> • Place the heel of one hand on the lower half of the person's breastbone. • Place the other hand on top of the first hand and interlock your fingers. • Press down firmly and smoothly (compressing to 1/3 of chest depth) 30 times. • Administer 2 breaths as described below in 'mouth to mouth'. • The ratio of 30 chest compressions followed by 2 breaths is the same, whether CPR is being performed alone or with the assistance of a second person. • Aim for a compression rate of 100 per minute.
	7. Mouth-to-mouth – if the person is not breathing normally, make sure they are lying on their back on a firm surface and: <ul style="list-style-type: none"> • Open the airway by tilting the head back and lifting their chin. • Close their nostrils with your finger and thumb. • Put your mouth over the person's and blow into their mouth. • Give 2 full breaths to the person (this is called 'rescue breathing'). Make sure there is no air leak and the chest is rising and falling. If their chest does not rise and fall, check that you're pinching their nostrils tightly and sealing your mouth to theirs. If still no luck, check their airway again for any obstruction. • Continue CPR, repeating the cycle of 30 compressions then 2 breaths, until professional help arrives. This can be tiring – ask if anyone else knows CPR and can help you
	8. Attach automated external defibrillator (AED) as soon as one becomes available. <ul style="list-style-type: none"> • Only use an adult AED on any person over the age of eight years, who is unresponsive and not breathing normally. For children under the age of eight, ideally, a paediatric AED and pads should be used. • CPR must be continued until the AED is turned on and the pads are attached. • Place pads following the diagram instructions on the pads. Pad to skin contact is important for successful defibrillation. Remove any medication pads, excess moisture or excessive chest hair (if this can be done with minimum delay). • It is important to follow the prompts on the AED. Do not touch the victim during shock delivery.

CPR techniques for young children and infants

CPR steps for children aged eight years or younger are the same as for adults and older children, but the technique is slightly different.

Child aged 1–8 years

- Use the heel of **one** hand only for compressions, compressing to 1/3 of chest depth.
- Follow the basic steps for performing CPR described above.

Infants (up to 12 months of age)

- Place infant on their back. Do not tilt their head back or lift their chin (this is not necessary as their heads are still large in comparison to their bodies).
- Perform mouth-to-mouth by covering the infant's nose and mouth with your mouth – remember to use only a small breath.
- Do chest compressions, using two fingers of one hand, to about 1/3 of chest depth.
- Follow the basic steps for performing CPR described above.

What to do if the person recovers during CPR

CPR may revive the person before the ambulance arrives.

- Review the person's condition if signs of life return (coughing, movement or normal breathing). If the person is breathing on their own, stop CPR and place them on their side with their head tilted back.
- If the person is not breathing, continue full CPR until the ambulance arrives.
- Be ready to recommence CPR if the person stops breathing or becomes unresponsive or unconscious again. Stay by their side until medical help arrives. Talk reassuringly to them if they are conscious.

It is important not to interrupt chest compressions or stop CPR prematurely to check for signs of life – if in doubt, continue full CPR until help arrives. It is unlikely you will do harm if you give chest compressions to someone with a beating heart. Regular recovery (pulse) checks are not recommended as they may interrupt chest compressions and delay resuscitation.

Stopping CPR

Generally, CPR is stopped for one of the following reasons:

- The person revives and starts breathing again on their own.
- Medical help, such as ambulance paramedics, arrive to take over.
- The person performing the CPR is forced to stop from physical exhaustion.

Where to get help

- In an emergency, call triple zero (000)

For training in CPR, contact:

- St John Ambulance Australia Victoria Tel. (03) 9696 0000
- Australian Red Cross Tel. 1300 367 428

Things to remember

- Always call triple zero (000) for an ambulance in an emergency.
- Cardiopulmonary resuscitation (CPR) combines mouth-to-mouth resuscitation and cardiac compressions to deliver oxygen and artificial circulation to an unresponsive person until medical help arrives.
- CPR is a life-saving skill that everyone should learn.
- This fact sheet is not a substitute for proper CPR training by an accredited organisation.

This page has been produced in consultation with, and approved by:

Ambulance Victoria

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