



FIRST AID LEVEL 1

SECTION 5: CARDIOPULMONARY RESUSCITATION

Exit Outcomes

At the end of this section you will be able to:

- Demonstrate the FULL CPR and choking sequence on an adult, child and infant manikin.
- Explain to co-worker (role play) the medical assistance a casualty needs and what referrals need to be made to help recovery.

5.1 WHAT IS CARDIOPULMONARY RESUSCITATION?



H _____, H _____

H _____, H _____

C A B

Cardiopulmonary Resuscitation (CPR), is an emergency medical procedure for a victim of cardiac arrest or respiratory arrest.

- **Cardio:** Heart- circulates blood throughout the entire body especially the brain, lungs and the heart itself.
- **Pulmonary:** Lungs - restore oxygen supply vital for healthy organs and tissues in the body and remove waste products, such as carbon dioxide.
- **Resuscitation:** Bring back to life - revitalize, stir up.

CPR is unlikely to restart the heart, but rather its purpose is to maintain a flow of oxygenated blood to the brain and the heart, thereby delaying tissue death and extending the brief window of opportunity for a successful resuscitation without permanent brain damage.

Defibrillation and Advanced Life Support are usually needed to restart the heart.

The International Liaison Committee on Resuscitation (ILCOR*) guidelines 2010 onwards:

- 30 compressions and 2 breaths in a time sequence of about 23 seconds.
- 10 seconds to give the 2 breaths and then back to compressions.

ILCOR* comprises of the American Heart Association (AHA), the European Resuscitation Council (ERC), the Heart and Stroke Foundation of Canada (HSFC), the Australian and New Zealand Committee on Resuscitation, the Resuscitation Council of Southern Africa (RCSA), the Resuscitation Council of Asia (RCA) and the Inter American Heart Foundation (IAHF).

When do you Start CPR? When a casualty is unconscious and not breathing.

When do you Stop CPR? When signs of life return, trained help takes over or you become physically exhausted from the effort of performing CPR.



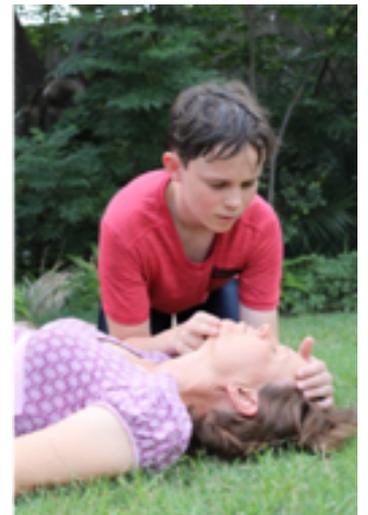
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5.2 ADULT CPR (12 YEARS AND OLDER)

1. Check for Hazards.
2. Kneel at the casualty's side.
3. Tap the shoulders and shout "Are you Okay!" to see if the casualty responds.
4. If no response, call for help and ask a bystander to phone for an ambulance and fetch an Automated External Defibrillator (AED) if available.
5. Place casualty on their back, on a firm flat surface.
6. Look at the chest for signs of breathing.
7. If no normal breaths move directly to chest compressions.
8. Remove any clothing that may obstruct effective pushing on the chest.
9. Push on the chest 30 times. Place the heel of one hand between the nipples, on the breastbone. Place the heel of your other hand on top of the first hand. Lean over the casualty with your arms straight and elbows locked, with your shoulders directly above your hands. Press down vertically on the casualty's breastbone 5cm (one third of the depth of the chest). Push hard and fast, allowing the chest to expand between each push.
10. Open the casualty's airway by tilting the head back and lifting the chin. Look in the mouth for obvious obstructions and remove.
11. If no normal breathing present, give two breaths. Cover the casualty's mouth with yours making an airtight seal. Pinch the nose closed. Blow air in, watching for chest rise; this will indicate the lungs are being filled with air.
12. Keep giving sets of 30 compressions to 2 breaths until the casualty starts to move, or until emergency personnel arrive to take over.



NB: If you are alone you need to phone for help first then start CPR on an adult. Put your phone on speaker while you continue CPR. For children and babies do 5 cycles of CPR before calling for help as it may be an airway obstruction.



Two Person CPR

Two first aiders can perform CPR. The procedure remains exactly the same except the tasks are divided. One assesses the casualty and provides chest compressions. The second first aider provides rescue breaths.

5.3 INFANT (0-1yr) AND CHILD (1-12 YEARS OLD) CPR

Compressions: Maintain the procedure as for an adult CPR sets of 30 pushes to 2 breaths. However, because an infant or child's ribcage is less robust as an adult's, be sure to reduce the pressure of compressions accordingly.



Infant: Use Two Fingers

For a baby, use only two fingers.

For children, use one hand only.



Child: Use One Hand



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CPR Pocket Mask

Child Breaths: cover the casualty's mouth with yours making an airtight seal. Pinch the nose closed. If you have a resuscitation mask on hand, cover both nose and mouth.

Infant Breaths: cover the infant's mouth and nose at the same time. This way, you'll be sure to have the chest rise. Remember, an infant and baby's lung capacity is much less than that of an adult so, if the chest rises it is enough air.



Infant Breathing: cover mouth and nose

5.4 AUTOMATED EXTERNAL DEFIBRILLATOR

An Automated External Defibrillator (AED) is a portable, computerised device that was introduced in the mid-1980s. AEDs are capable of interpreting a casualty's heart rhythm and automatically delivering a defibrillation "shock" with minimal input from the operator. With the increase use of AEDs, the survival rates for out-of-hospital cardiac arrest began to improve. However, the problem of defibrillating a casualty in less than 10 minutes remains a challenge.

Using an AED.

When turned on or opened, the AED will indicate to the user how to connect the electrodes (pads) to the casualty. Once the age appropriate pads are attached, everyone should avoid touching the casualty. This avoids false readings by the unit. The pads allow the AED to examine the electrical output from the heart. It will determine if the casualty can be shocked. (Heart rhythm either ventricular fibrillation or ventricular tachycardia). If so, the device will use the built-in battery to charge its internal capacitor in preparation to deliver the shock. This system is not only safer (i.e. it charges only when required), but also allows for a faster delivery of the electrical current.



End of Section 5.