



Cardio Pulmonary Resuscitation

HLTAID001

Course Introduction

Congratulations on enrolling in this CPR course. The focus of the course is to effectively add to your existing knowledge and skill base and to develop your confidence and competence in administering CPR, using an external defibrillator and managing an unconscious patient.

On successful completion of this course you will be issued with a statement of attainment that states the units of competence achieved. This statement remains valid for one year.

HLTAID001 Perform Cardio Pulmonary Resuscitation

Assessment

There are 2 components of the assessment which you must satisfy to successfully complete the course.

- Practical demonstrations (CPR, unconscious patient, airway obstruction); and
- End of course theory assessment (20 multiple choice questions).

Introduction to first aid

The aims of first aid are to:

- Preserve life
- Prevent further injury
- Protect the unconscious
- Promote recovery
- Provide reassurance

Roles of first aiders will depend on the situation and may include:

- Assessing the scene
- Calling for assistance
- Giving first aid for injuries/illness
- Directing others
- Providing shelter and warmth
- Completing injury/illness reports
- Maintaining first aid supplies

Relevant organisations

The Australian Resuscitation Council (ARC) – provide guidelines for first aid in Australia - <http://resus.org.au/>

- The ARC develops guidelines for the provision of first aid
- Employers develop workplace policies and procedures relating to a safe workplace and the provision of first aid

Workcover - First aid code of practice - <http://www.workcover.nsw.gov.au>

National Heart Foundation – www.heartfoundation.org.au

National Stroke Foundation - <https://strokefoundation.com.au>

Australian society of clinical immunology - www.allergy.org.au

Legal Issues and Duty of Care

Duty of care

In Australia, there is no legal obligation to offer someone first aid unless a duty of care is established. If you act in a paid or voluntary capacity as a first aider, or hold a position which is responsible for the safety of others, you have a duty to provide first aid services to those in your care. You also are required to give first aid to those that are injured by people you are responsible for.

The WHS Regulations place specific obligations on a person conducting a business or undertaking in relation to first aid, including requirements to:

- Provide first aid equipment and ensure each worker at the workplace has access to the equipment
- Ensure access to facilities for the administration of first aid; and
- Ensure that an adequate number of workers are trained to administer first aid at the workplace or that workers have access to an adequate number of other people who have been trained to administer first aid.

Negligence

Regarding negligence, a plaintiff must prove 3 things:

- You have a 'Duty of Care'
- You breached a standard; and
- This breach directly resulted in harm to the plaintiff.

Consent

Before administering first aid you should always gain the casualty's consent. Consent may be given:

- Verbally: Ask the casualty if they would like your assistance.
- Written: For a minor you have written consent from a parent/guardian.
- Implied: If the patient is unconscious or due to their illness/injury are not able to give consent, it is assumed, and you should provide first aid.

Recording

Regulations require that an incident, injury/illness record be kept. There are several forms and reporting procedures that fulfill this requirement.

Skills and Limitations

It is important to know your limitations.

Even the most experienced people come across situations they find difficult to manage or deal with. First aid involves the primary care of the casualty until professional help arrives. Do not attempt any procedure you are not trained to perform.

First aid at work

The WHS Regulations in relation to first aid, the employer must:

- provide first aid equipment and ensure each worker at the workplace has access to the equipment
- ensure access to facilities for the administration of first aid
- ensure that an adequate number of workers are trained to administer first aid at the workplace or that workers have access to an adequate number of other people who have been trained to administer first aid.

Recognising the need to respond

Being able to recognise an emergency is just as important as responding to one. Some examples of emergency situations:

- Cardiac emergencies: Heart attacks, Sudden Cardiac Arrest, breathing emergencies
- Trauma related: Fall from height or a car crash
- Choking
- Bleeding emergencies
- Sudden illnesses: Diabetic emergencies, shock, allergic reactions, seizures
- Suspected broken bones/bruising
- Environmental emergencies: Heat related or cold related situations
- Poisoning
- Unconscious persons

Respond in a sensitive and respectful manner

Showing empathy toward the person being treated and/or family and friends that may be involved in an incident or accident is essential to help them remain calm.

Empathy includes treating them with respect, regardless of their background. Another aspect to managing an incident is being sensitive to any emotional trauma they may be suffering recognising that they are going through a distressing experience. Be aware that different people react differently to distress: some angrily, others with outbursts, a feeling of disorientation, fear or guilt.

Debriefing after an incident may be required in dealing with the trauma that you, as the casualty, bystander or first aider, may experience. Talk with your supervisor or manager, or alternatively, seek help from a medical expert or health care worker.

School Ambulance Cover Scheme

Since 2012, the Department has negotiated an agreement with the NSW Ambulance Service to commence an annual licensing arrangement for school student ambulance cover for all public schools in NSW.

The Ambulance Cover Scheme provides assurance that if a student has an accident or falls ill whilst at school or on an organised school excursion or activity, and requires the ambulance service, the cost will be met through the scheme.

The terms and conditions of the *Student Ambulance Group Cover Scheme - Schools* are outlined in the [NSW Ambulance Group Cover Scheme – Schools: Policy Guidelines](#).

Calling an Ambulance – dial triple zero (000)

When calling triple zero (000) an operator will ask you which service you require: **Police, Ambulance or Fire**

- Ask for Ambulance
- You will be connected to Ambulance control
- You will be asked a standard set of questions
- Stay calm. Speak slowly and clearly
- Tell the operator exactly where the Ambulance is needed – give an address or location

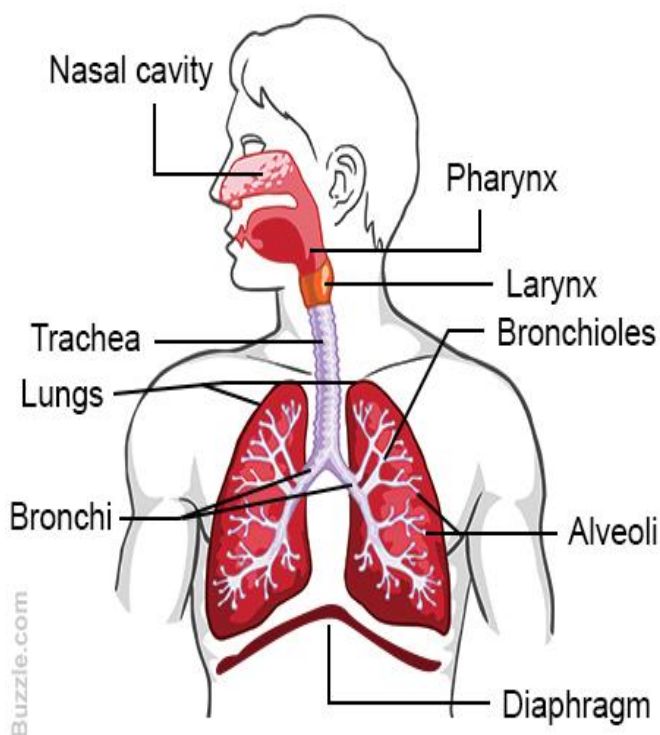


The **Emergency+** app is a **free** app developed by Australia's emergency services and their Government and industry partners.

The app uses **GPS functionality** built into smart phones to help a Triple Zero (000) caller provide critical location details required to **mobilise emergency services**

Anatomy & Physiology

Respiratory system



Breathing is the process by which oxygen in the air is brought into the lungs and into close contact with the blood, which absorbs it and carries it to all parts of the body. At the same time, the blood gives up carbon dioxide, which is carried out of the lungs with the air breathed out. Normal breathing is quiet, regular and effortless.

Ineffective Breathing

Breathing may be ineffective or absent due to:

- Upper airway obstruction.
- Damage to the breathing control center of the brain.
- Impairment or paralysis of the nerves and /or muscles of breathing.
- Problems with the lungs; or
- Drowning or suffocation.

Casualties with ineffective breathing can deteriorate to the extent that they become **unresponsive and not breathing**.

Average rates at which we breathe per minute: Infant 25 – 40; Child 15 – 30; Adult 12 – 20

Cardiovascular system

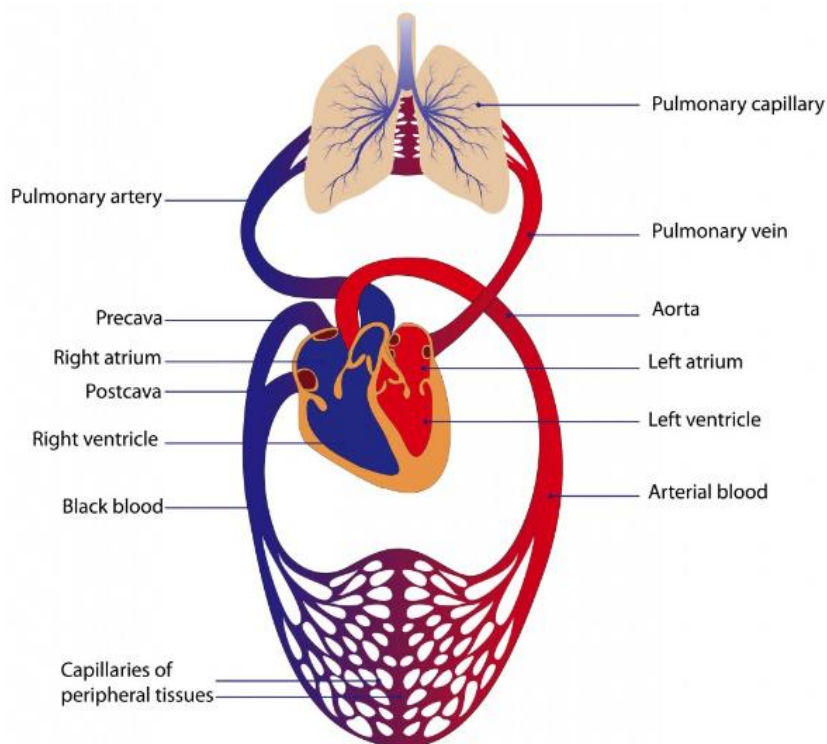
The three major components of the cardiovascular system are the heart, blood and blood vessels.

The heart acts as a pump which keeps blood moving through the body, transporting oxygen and nutrients to the tissues and removing waste products.

The heart beat is usually regular and each minute pumps about 5 litres of blood around the body.

Blood vessels transport the blood. Arteries carry blood away from the heart and veins return blood back to the heart.

Blood is composed of plasma, white blood cells, red blood cells and platelets.

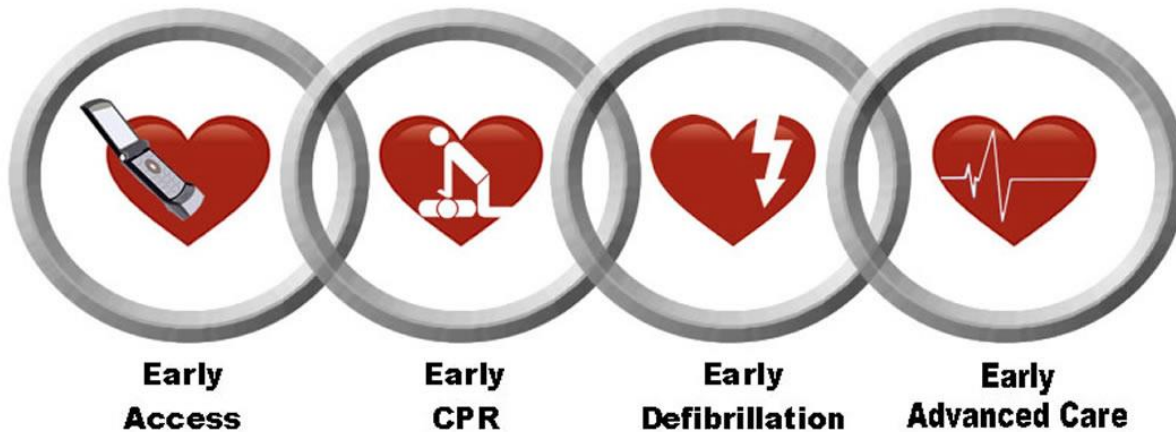


Average resting heart rates: Infant 80 – 140; Child 70 – 130; Adult 60 - 100

Chain of Survival

The “Chain of Survival” refers to the chain of events that must occur in rapid succession to maximize the chances of survival from a cardiac arrest.

The steps are shown in the diagram below



Heart Attack

Occurs when the coronary arteries become blocked. This leads to hypoxia and eventually death of the heart muscle. Other names for heart attack include myocardial infarction and coronary

Signs & Symptoms of Heart Attack

- Squeezing, discomfort, pressure or pain the centre of the chest or behind the sternum lasting for more than 10 – 15 minutes
- Pain spreading to the shoulders, neck, jaw and or arms
- These symptoms may be accompanied by sweating, shortness of breath, a sick feeling in the stomach or dizziness

Management

- Stop Activity
- Sit patient down – semi sitting
- Rest & reassure
- Call 000
- Closely monitor patient

Basic Life Support Flow Chart

D	<p style="text-align: center;">Dangers</p> <p style="text-align: center;">Check for hazards and make sure it's safe for all at the scene</p>
R	<p style="text-align: center;">Responsive</p> <p style="text-align: center;">Use talk and touch to check for a response "Can you hear me?" "Open your eyes" "Squeeze my hand"</p>
S	<p style="text-align: center;">Send for help</p> <p style="text-align: center;">Shout for help or send someone to call an ambulance on Triple Zero 000</p>
A	<p style="text-align: center;">Open Airway</p> <p style="text-align: center;">Open Mouth – Look inside - Tilt the head and lift the chin. If blocked, turn casualty onto their side and clear airway</p>
B	<p style="text-align: center;">Normal Breathing</p> <p style="text-align: center;">Look listen and feel for normal breathing for 10 seconds If no breathing or not breathing normally start C.P.R If breathing roll into recovery position</p>
C	<p style="text-align: center;">Start C.P.R.</p> <p style="text-align: center;">Give 30 Compressions followed by 2 rescue breaths</p>
D	<p style="text-align: center;">Attach Defibrillator (AED)</p> <p style="text-align: center;">As soon as available and follow its prompts</p>

Infection Control and Standard Precautions

Infection control is especially important both to the First Aider and the casualty. It is used to help prevent transmission of infections when managing a casualty. The basic principle of infection prevention and control is **hygiene**. Infection may be transmitted via breathing, coughing, touching, eating or body penetration.

Standard precautions are the best practices to achieve infection control. These include good hygiene, wearing of personal protective equipment and correct disposal of sharps and clinical waste.

Before Incident:

1. Wash hands with soap/water. If water is not available use alcohol-based gels or wipes.
2. If your gloves tear while giving first aid, take them off straight away, wash and dry your hands or use alcohol gel, put on a new pair of gloves.
3. Wear personal protective equipment (PPE); for example, gloves, facemask, and eye protection goggles and cover exposed cuts with waterproof dressings.

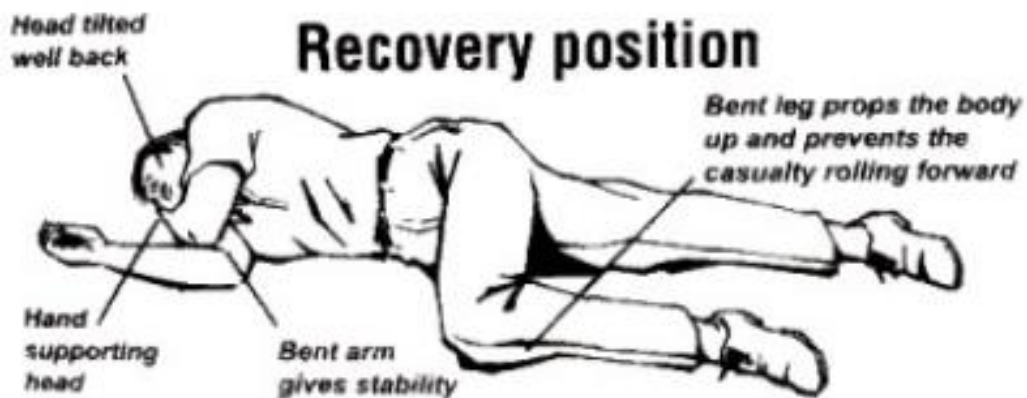
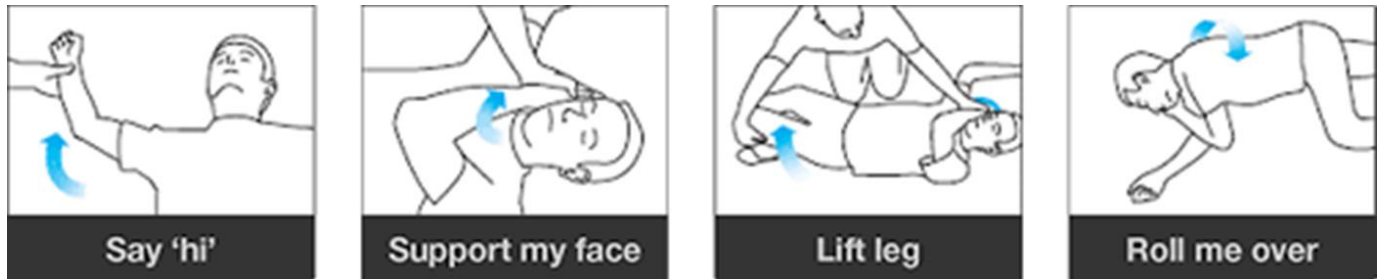
After Incident:

1. Disinfect/wash blood splashed clothing, contaminated surfaces, and equipment.
2. Dispose of waste and sharps carefully.

Unconscious Breathing Patient

No matter what

- Manage airway, manage airway..... manage airway
- Airway takes priority
- **** Unless there is life threatening bleed****



What to do when there is a life-threatening bleed

WELL AIMED DIRECT PRESSURE.

Most bleeds will be controlled with direct pressure.

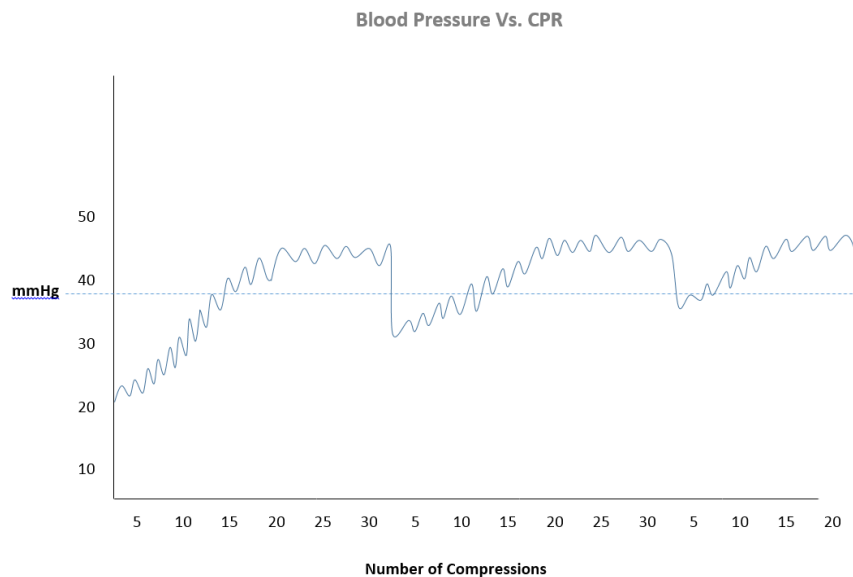
- With gloved hands, apply pressure directly onto the wound.
- Elevate the limb to above the level of the heart to reduce blood flow to the area
- Place an absorbent pad over the wound and secure firmly with a roller bandage, broad triangular bandage, or shirt.
- Monitor wound to see if blood is seeping through the dressings.
- If bleeding continues, apply another absorbent pad over the wound and secure firmly (may need to be tighter than the first) with a roller bandage, broad triangular bandage, or shirt.
- Then roll into recovery position

Cardio Pulmonary Resuscitation

If a person is recognised as being unconscious and not breathing they are in Cardiac Arrest. You need to commence CPR and locate a defibrillator immediately.

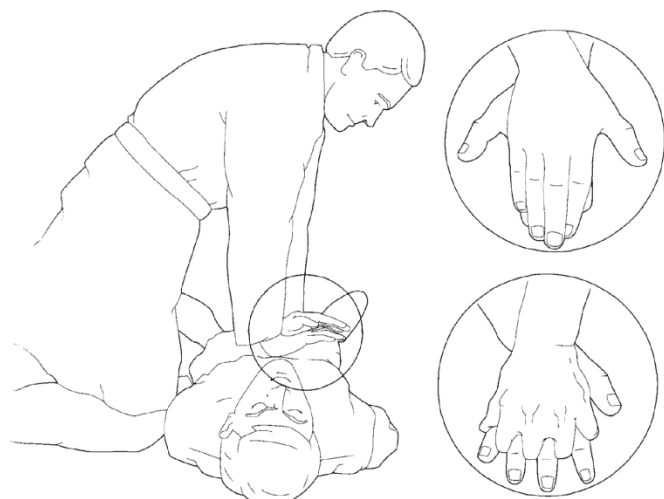
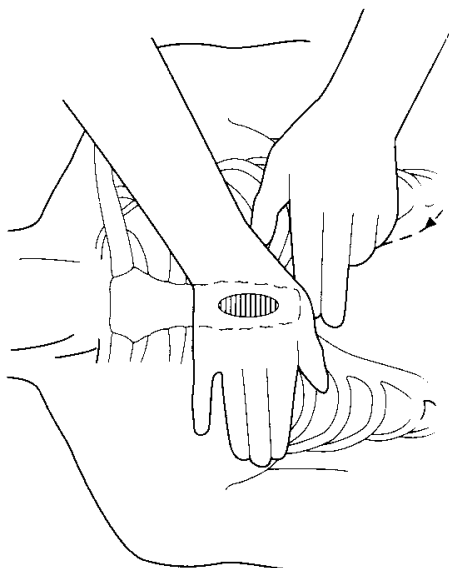
Why does it work:

- Keeps oxygenated blood flowing to brain
- The idea is to buildup and maintain adequate blood pressure to ensure the oxygenated blood can get to the brain and organs.
- We build up and maintain blood pressure by manually compressing the heart between the sternum and vertebrae.



How to perform CPR

- Get the patient onto a hard surface. (Otherwise, compressions will not work)
- Immediately expose the patient's chest and locate the center of the sternum.
- Commence chest compressions and rescue breaths at a 30:2 ratio (5 cycles in 2 minutes).
- Compress 1/3rd depth of the chest and full breaths.



CPR for infants: Use two fingers to compress 1/3rd depth of the chest and give small puffs.

- Note: head is in a neutral position.



CPR Summary Chart

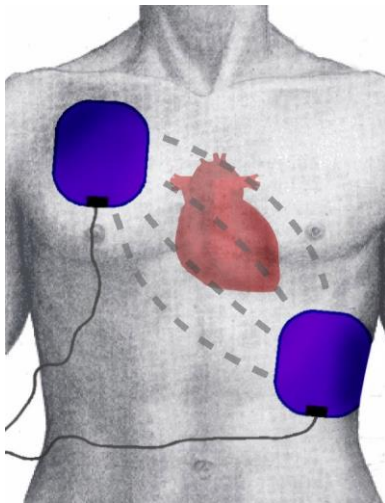
	Adult	Child	Infant
Age Range	8 +	1 - 8	0 - 1
Compress with	2 hands	2 hands	2 fingers
Depth of Compression	1/3 rd of chest	1/3 rd of chest	1/3 rd of chest
Compression point	Centre of sternum		
Compressions: Breaths Ratio	30:2 5 cycles in 2 minutes (Rate of compression about 100-120/min)		

Safety Considerations and the Use of Defibrillators

- Turn the Automated External Defibrillator (AED) on and follow the voice and visual prompts.



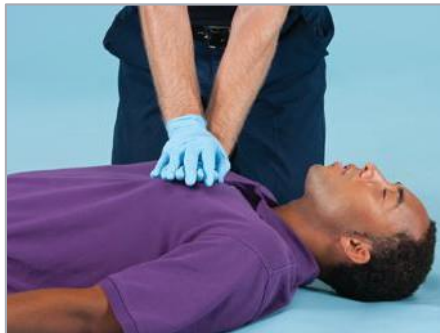
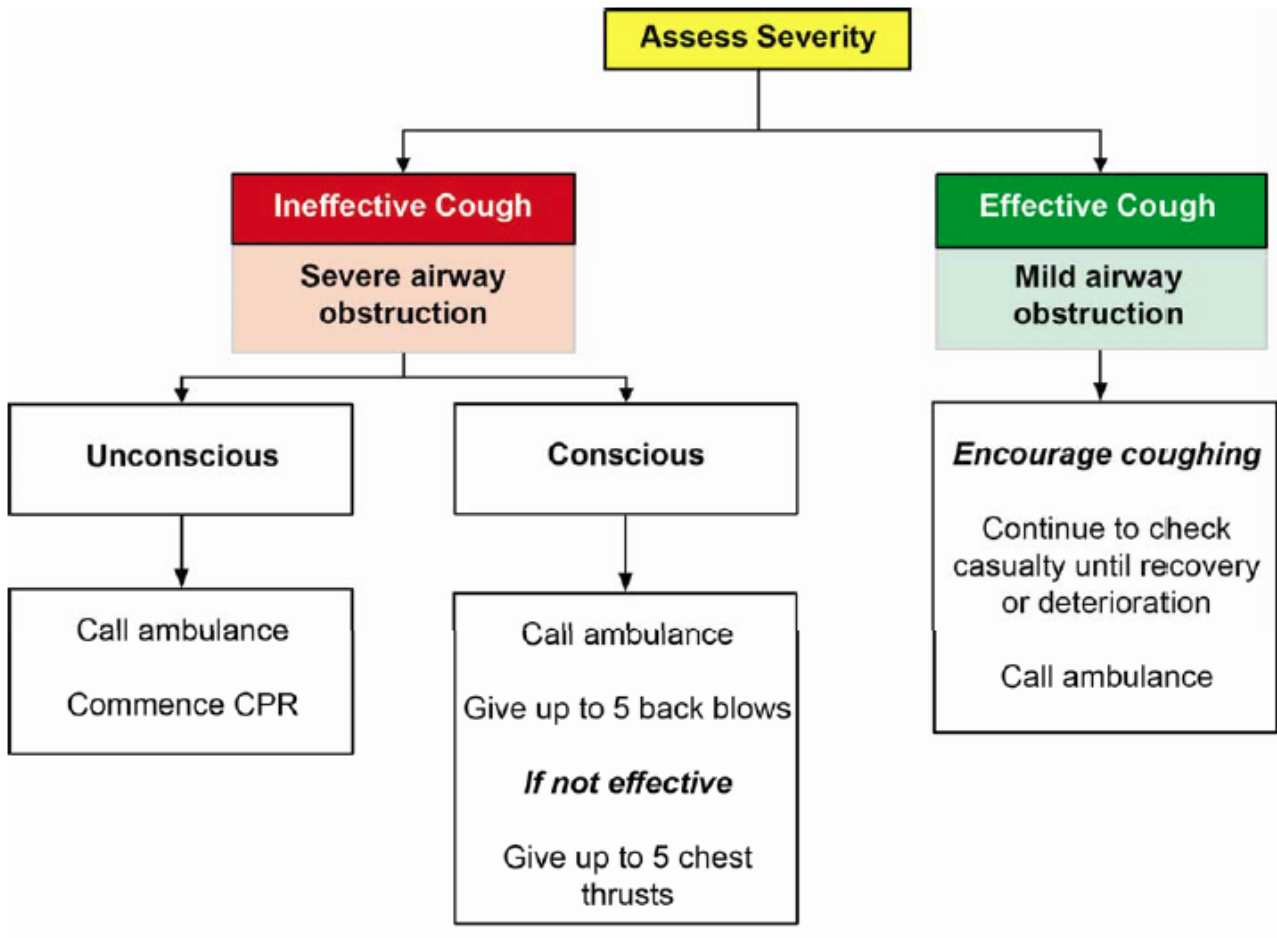
- Apply the defibrillator pads as shown in the diagram.
- Stop CPR and do not touch the casualty while the AED is analysing.
- Make sure no one is touching the casualty during analysing or shocking stages (AED current may cause injury to the operator or bystanders).
- Direct bystanders or assistants to stand back from the casualty.
- Follow the prompts. Deliver a shock by pressing the flashing orange/red button or continue CPR.
- Continue following prompts until the ambulance arrives.
- Do not allow AED pads to touch each other or items of jewellery.
- Oxygen must be turned off during the defibrillation process.



Defibrillators that have both adult and paediatric pads will shock according to pad type attached at the time of the shock. Child defibrillator pads are recommended for children less than 8 years old (under 25kg).



Management of Foreign Body Airway Obstruction (Choking)



Theory Assessment: HLTAID001 Perform CPR

Time allowed - Twenty minutes - Total questions = 20

- Use the answer sheets provided (over page).
- Place a mark through the correct answer e.g.

A	B	C	D
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- Attempt all questions.
- If you make a mistake add a circle to the correct one.
- 16 questions must be answered correctly to pass this section of the course.

1. To provide first aid in accordance with first aid principles, means you should follow:

- (a) Workplace policies and procedures
- (b) ARC guidelines
- (c) State/territory regulations
- (d) All of the above

2. The Australian Resuscitation Council:

- (a) Is where you take a person in need of CPR
- (b) Develops guidelines for the provision of first aid
- (c) Keeps a record of all first aid kits
- (d) Develops procedures for WHS

3. There are regulations and workplace procedures that relate to first aid. Which of the following are covered in the First Aid Code of Practice?

- (a) Identifying hazards in the workplace
- (b) The contents and location of first aid kits
- (c) The training that first aiders must receive
- (d) All of the above

4. When calling Triple Zero (000) what is the most important information to give? The:

- (a) Casualty's name
- (b) Cause of the accident
- (c) Caller's name
- (d) Location of the accident

5. Risk of cross infection is reduced by:

- (a) Wearing disposable gloves
- (b) Using a face shield or mask for CPR
- (c) Washing your hands before and after providing treatment
- (d) All of the above

6. The main reason we do CPR is to:

- (a) Restore spontaneous circulation (restart the pulse)
- (b) Deliver oxygenated blood to the brain and the heart muscle
- (c) Prevent blood from clotting through stagnation in the blood vessels
- (d) Because we have a duty of care

7. The average range of respirations per minute of an adult is:
- (a) 6 to 10 breaths per minute
 - (b) 12 to 20 breaths per minute
 - (c) 60 to 90 breaths per minute
 - (d) 12 to 40 breaths per minute
8. Cardiac arrest is recognised by:
- (a). A non responsive patient
 - (b). An unconscious patient who is not breathing
 - (c). A weak pulse
 - (d). Pain in the chest
9. The four links in the Chain of Survival are:
- (a) Early access, Early CPR, Early Defibrillation and Early Advanced Life Support
 - (b) Early Access, DRABCD, AED and Basic Life Support
 - (c) DRABCD, Early access, Early Defibrillation and Early Basic Life Support
 - (d) Early CPR, Early access, Early Defibrillation and Early Advanced CPR
10. Compared to adults, CPR for children is performed?
- (a) At a slower rate and with smaller breaths than adult CPR
 - (b) At a faster rate with larger breaths than adult CPR
 - (c) At a slower rate and larger breaths than adult CPR
 - (d) At the same rate with smaller breaths than adult CPR
11. You have been summoned to a person who has collapsed by a student. They are lying motionless on the floor and are a mottled blue colour. You should:
- (a) Send for help, check the airway, check for breathing and if absent, start CPR
 - (b) Check the airway, check breathing and only start CPR if there is no pulse felt
 - (c) Check for possible injuries
 - (d) Send for help, roll the patient on their side, ensure the patient is protected from the weather
12. You are performing CPR on a child when the casualty begins to vomit. Your next response is:
- (a) Roll the patient into the recovery position and check airway
 - (b) Continue with cardio pulmonary resuscitation using a faceshield
 - (c) Tilt their head back to open the airway
 - (d) Call for an ambulance
13. Duty of care requires first aiders to provide first aid for:
- (a) All people in your group/your students
 - (b) Anyone injured as a result of you/your students actions
 - (c) Any member of the public who is injured
 - (d) a & b

14. The average heart rate for adults is:
- (a) 80 to 120 beats per minute
 - (b) 60 to 100 beats per minute
 - (c) 90 to 110 beats per minute
 - (d) 100 to 140 beats per minute
15. When may you stop doing CPR?
- (a) When ambulance arrives and takes over
 - (b) When administering a shock via defibrillator
 - (c) If the scene becomes unsafe
 - (d) All of the above
16. What should you do before starting CPR when the patient is lying on a soft bed?
- (a) Pull the patient close to the edge of the bed
 - (b) Get up on the bed beside the patient
 - (c) Place the patient on the floor
 - (d) Place a pillow under the patient's head
17. When resuscitating an infant, the position of the head should be:
- (a) Give maximum head tilt to open the airway
 - (b) In the neutral position
 - (c) Partial head tilt
 - (d) In the position they were found
18. Normal breathing may be absent or ineffective as a result of:
- (a) Upper airway obstruction (choking)
 - (b) Cardiac arrest
 - (c) Drowning
 - (d) Any of the above
19. Ethical considerations when providing first aid include:
- (a) Displaying respectful behaviour towards a casualty
 - (b) Maintaining respect for their beliefs
 - (c) Paying careful attention to consent and confidentiality
 - (d) All of the above
20. What should you do to debrief if you experience stress after administering CPR or first aid?
- (a) Seek out help and support from your manager and/or counsellor
 - (b) Share your experience with colleagues who are curious as to what had occurred
 - (c) Ignore the stressful signs as they will go away
 - (d) Fill in the register of injuries form as recording the incident will help you cope