Pre-course self-study

Dear Learner,

Welcome to your course enrolment with First Aid Academy (RTO 40920) in the following unit of competency:

HLTAID015 Provide advanced resuscitation and Oxygen therapy

This unit describes the skills and knowledge required to use specialised equipment in the provision of resuscitation in line with the Australian Resuscitation Council (ARC) guidelines.

This unit applies to workers who may be required to use specialised equipment to provide resuscitation in a range of complex situations, including community and workplace settings.

Pre-course learning material

The amount of training a learner is required to complete for each unit of competency in order to be confident in the subject matter can vary amongst individuals. The amount of training time and material may depend on the student's background and level of experience in the field of training.

First Aid Academy recognises that some learners:

a) Are new to the training (e.g. school leavers or employees new to the industry)
b) Have experience in the training of this course or work experience relating to this course

First Aid Academy recognizes that every learner is different and may prefer different ways to gain and absorb knowledge and develop skills. This pre-course learning material has been developed to assist learners that are new to the subject or learners with existing skills and knowledge who wish to refresh and consolidate the content of this unit of competency.

Delivery mode

For learners that are new to the training of Advanced Resuscitation and oxygen therapy, First Aid Academy recommends the completion of the pre-course study. *This will enable the learner to fully gain the knowledge and skills for this course and consolidate their learning by completing the revision questions provided.*

For learners with prior training or work experience in the course, the provided pre-course study may be completed as a refresher of their existing skills and knowledge.

All learners must complete the face to face component of the course. In class, your trainer will ensure and check that all learners have the required knowledge and skills for completing the course and are confident to apply their skills in community and workplace settings while meeting current industry standards.

What is first aid?

First aid can be described as the immediate treatment or care of a sick or injured person until an ambulance arrives or the person recovers. First aid may be required in any part of our lives, at home, work, school or play - indoors and outdoors or during sport. Minor or major incidents can happen without notice. And everyone should be prepared and feel confident to provide assistance in an incident until professional help arrives.

At work, workplace health and safety (WHS) legislation requires employers to uphold their duty of care to ensure that workers and other people are not exposed to health and safety risks. This includes preventing exposure to risk (e.g. safe use of equipment, safe surroundings) and how to manage a risk (e.g. dealing with an incident in an appropriate way).

As a first aider in the workplace you are required to have successfully completed nationally recognised training or equivalent level of training that qualifies you to administer first aid. Your nationally accredited training course is based on industry standards and aligned with the leading industry bodies in the provision of first aid in Australia, the Australian Resuscitation Council (ARC) and Safe Work Australia.

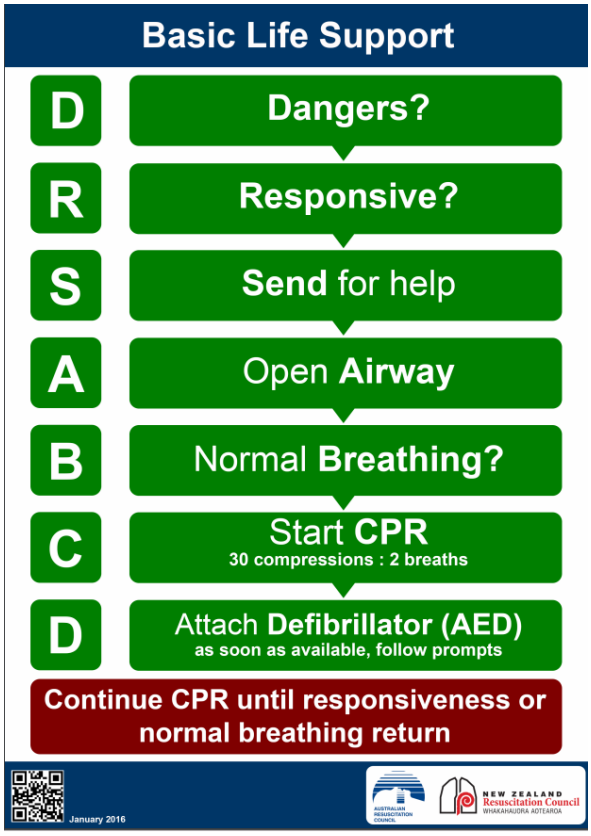
The ARC has developed a set of guidelines on emergency care that form the basis of the first aid treatments you will learn during this course.

Your initial step as a first aider is to recognise an emergency situation. You will need to assess the situation and the casualty, identify hazards and risks, make decisions on how to provide immediate help and organise professional care.

The injury or illness that you may encounter could be minor or major. The treatment you apply as a first aider may also be minor or major, and may require knowledge and skills on different levels. But it will always require you to assist a casualty in a respectful and reassuring way.

Your primary assessment:

To assess the emergency situation and the casualty, the emergency action plan DRS ABCD will always help you to ensure your own safety and to stay calm and focused:



Source: www.resus.org

Follow the link to *Shock verdict* for a practical amusing video demonstration of the DRS ABCD. Your trainer will also demonstrate the DRS ABCD in class for you and you will have plenty of opportunity to practice yourself.

What is CPR?

The need for cardiopulmonary resuscitation (CPR) arises when a person's breathing or heartbeat has stopped or is abnormal. The supply of oxygen to the brain and vital organs is interrupted and this can lead to severe damage or even death.

Whenever someone is seriously ill or injured or in need of urgent medical help, you will need to call Triple Zero 000 immediately to organise professional care. CPR is a technique to help you as a first aider to save a life. By giving compressions you simulate the person's heart beat and keep their circulation going. And by giving a rescue breath, you provide the casualty with oxygen that allows the casualty's cells to metabolise energy to perform vital functions such as muscle movement. This includes the body's most precious involuntary muscle: the heart. CPR will help you to keep a casualty's organs alive until the arrival of advanced medical care.

Find out more about CPR:

ANZCOR Guideline 8 – Cardiopulmonary Resuscitation (CPR)

What is oxygen?

Oxygen is an elemental gas that is found in the air we breathe. Oxygen is necessary for human life, as it helps cells to convert food (sugars) into energy which is required for body function.

The oxygen content in the air around us is approximately 21%. With each breath, our body only consumes about 5% of that oxygen. That means that with each rescue breath we deliver to a casualty, we can provide them with 16% oxygen.

What is supplemental oxygen?

Supplemental oxygen is compressed medical grade oxygen. Supplemental Oxygen is bottled and stored in white, metal cylinders at various sizes. It is administered short term during CPR and other medical emergencies. Oxygen is classified as medication (drug) and should only be used by trained providers!

What is advanced CPR?

Advanced CPR is a technique in which an unresponsive, non-breathing casualty receives supplemental medical oxygen during the CPR process. Chest compressions are now accompanied by artificial ventilations that allow for an oxygen concentration of up to 100%.

For which conditions is the use of supplemental oxygen recommended?

- during cardiopulmonary resuscitation (Guideline 11.1.1, Guideline 12.2)
- bleeding (Guideline 9.1.1)
- burns (Guideline 9.1.3) and shock (Guideline 9.1.4)
- heart attack with shortness of breath (Guideline 9.2.1)
- stroke (Guideline 9.2.2)
- asthma (Guideline 9.2.5) and anaphylaxis (Guideline 9.2.7)
- drowning (Guideline 9.3.2) and decompression illness (Guideline 9.3.5)
- poisoning (Guideline 9.5.1).

A pulse oximeter can help to measure the blood oxygen levels in the casualty. Supplemental oxygen should only be administered if the oxygen saturation level is below 94% or any of the following conditions are present in the casualty: decompression illness, shock, blue lips (cyanosis), carbon monoxide poisoning.

Detailed information on assessment and treatment of these conditions will be provided in **HLTAID011 Provide first aid** or the guidelines can be sourced from the website of the ARC on www.resus.org.au .

What risk is associated with the use of oxygen?

The storage and handling of oxygen can pose a risk to its users as oxygen can aid in combustion, lead to cold burns, or first aiders can get injured when handling equipment. Always ensure that:

- Oxygen cylinders are stored appropriately in a well ventilated place
- Oxygen cylinders are not dragged or dropped, consider safe manual handling techniques when carrying cylinders
- Oxygen cylinders and equipment shall not come in contact with oil or grease (dirty rags, oily hands)

How can supplemental oxygen be delivered?

During your face to face training you will explore the delivery devices together your trainer. They come with advantages and disadvantages and it is important to make the right choice of equipment to have the best outcome for the casualty.

Each of the delivery devices needs to be connected to an oxygen regulator that is fitted to an oxygen cylinder. You will learn and practice how to do this in class.

For life-threatening situations during CPR

Bag-Valve-Mask
short: **BVM**

Manually
Triggered
Ventilator
short: **MTV**

Resuscitation mask
with Bag-valve-mask
devices (BVM)*
oxygen port

Resuscitation mask
Without oxygen port
(seal your lips around
the opening with
oxygen hose during
the ventilation)

For non-life threatening situations

Non-rebreather mask
or
Therapy mask

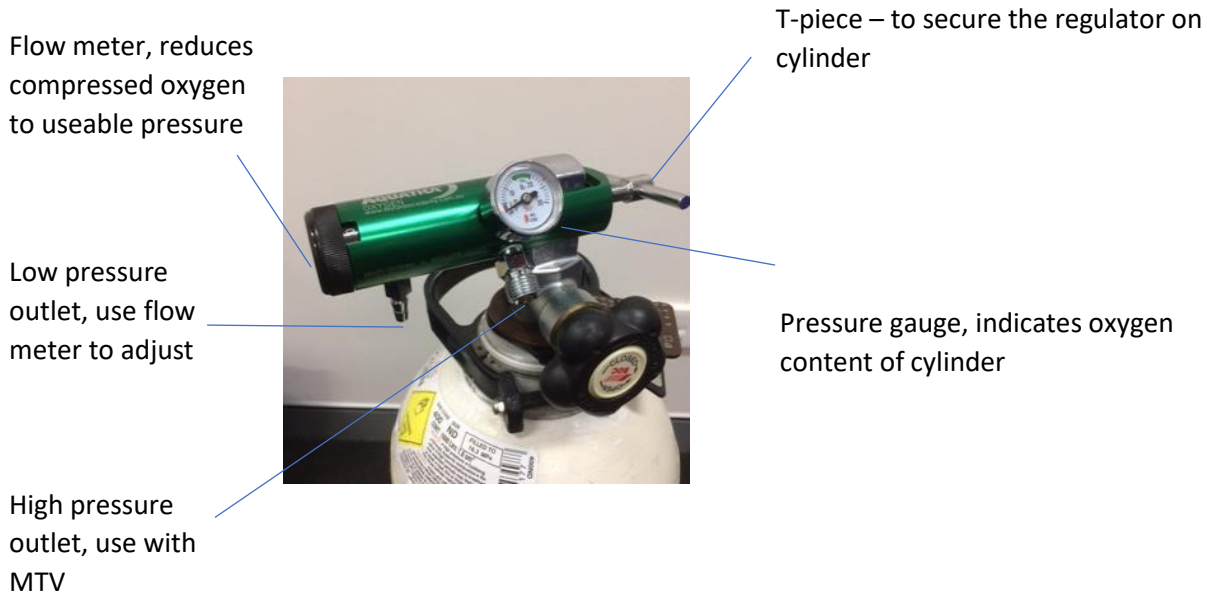
Nasal prongs

Manually Triggered
Ventilator/
Demand Valve

Further equipment for oxygen resuscitation

To connect an oxygen cylinder with a delivery device of your choice you need a regulator that reduces the pressure of the compressed oxygen in the cylinder to a useable pressure. Choose your delivery device and connect the tubing to the regulator on appropriate outlet (high pressure or low pressure). Depending on which delivery device you are using, the flow rate will need to be adjusted. You can control this by adjusting the flow meter dial.

- Manually Triggered Ventilator / Demand Valve: high pressure outlet
- All other devices: low pressure outlet



In class you will further explore the equipment and practice the procedure of assembling and dissembling.

Challenges during CPR - Airway management

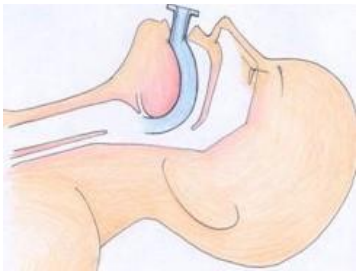
There are many benefits for using advanced equipment and supplemental oxygen during resuscitation but one of the challenges you may encounter is maintaining a casualty's airway when using mouth to mask or bag-valve mask ventilations. A casualty's airway may be blocked due to regurgitation or it might prove difficult to maintain a good head tilt to keep the airway open.

With your trainer you will explore practices and procedures that make best use of your resources (e.g. other first aiders) and equipment (e.g. artificial airways, suction equipment) that can assist you with airway management:

Check out some equipment used for airway management

Manual suction pump, used to remove liquid from a casualties airway.

Oropharyngeal airway
Also:
Guedel airway or OP airway



i-gel airway™

Further casualty assessment

Using the action plan DRS ABCD during your primary assessment of the casualty helps you to establish any life-threatening conditions. It allows you to establish quickly if a casualty's heart or breathing has stopped and if required start with CPR.

For conditions that are not life-threatening you then proceed with a secondary assessment of the casualty. By asking questions and looking for visual clues, you will get a better picture of the casualty's condition and first aid treatment required.

Ensure that you ask the casualty for their name and gain their consent to proceed. You will then need to ask questions and examine the casualty for vital signs.

QUESTIONS	VITAL SIGNS
What has happened?	**Conscious state**
Where does it hurt?	Alert / Unconscious
Can you move your arms/ legs?	Responds to verbal / physical stimuli
Do you feel numbness?	**Pulse**
Do you have any medical conditions?	60-80/min adults, 80 -100/min children
Do you have any allergies?	**Breathing**
When did you last eat?	16 – 20/min adults, 25-40/min children
Since when have you been feeling unwell?	**Skin State**
	Hot / cold / dry / clammy
	Temperature
	36.5°C - 37°C

There are different methods to check a casualty's pulse:

- with use of a pulse oximeter on the casualty's finger tip
- Carotid pulse, feel with three fingers on the casualty's neck
- Radial pulse, feel with three fingers on the casualty's wrist

Now try and check the pulse and respiration of a friend:

Tell your friend that you are taking their pulse. Stand next your friend and place three fingers into the grove on their wrist. When you can feel the pulse, count the pulse for 15 seconds, multiply by 4 to get the pulse rate by minute.

You can also note your observations on the force (strong / weak) and the rhythm (regular/ irregular) of the pulse.

While standing next to your friend, also observe their chest rising and falling for 15 seconds. Multiply by 4 to get the breathing rate per minute.

Note your friend's vital signs (values and description) in the table below:

Vital signs	Time: am/pm	Time: am/pm
Respiration Value Description		
Pulse Value Description		

Observing and documenting the vital signs of a casualty is an important part of your role as a first aider. Passing on detailed information on vital signs, can be of great use for paramedics and doctors. In your workplace, WHS legislation will require you to complete incident report forms for any minor or major incident you have attended as a first aider.

Please see the following incident report as an example.

CONFIDENTIAL INCIDENT REPORT

Date: 3 / 2 / 19 | Time: 10:00 | Workplace/location: Green Island Express

Casualty Name: Jack Smith | Phone: not known

Date of Birth: 20 / 4 / 1965 | Male X | Female

Address: not known

Contact Person for Casualty: Paul, friend | Phone: 0412 345 678

What happened *(How, when?)* supervised snorkel group off Green Island, found casualty floating on surface of water

First aid action taken *(What did you do? Did you use equipment?)*
retrieved casualty from water, DRS ABCD, CPR and CPR with BMV for 5 minutes (100% O2), two shocks with AED, casualty came back, further O2 with therapy mask till arrival of EMS

Medical history (circle)

Diabetes Epilepsy
Allergies Asthma
Heart Problems ~~Operations/ injuries~~
Other Unknown

Last meal/drink/oral intake:
Lunch on boar

Current medications:
Not known

Hand over to (circle)

~~Ambulance~~ Hospital
Own Doctor Return to work

Post-incident debrief and evaluation (circle)

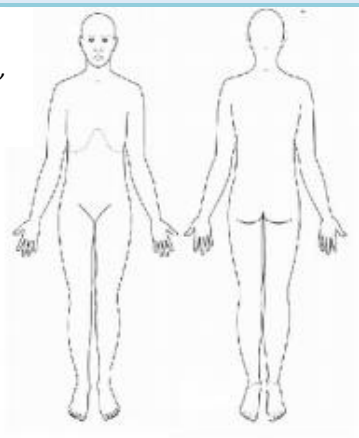
Debrief / Date ~~YES~~ NO 3 / 2 2019
Counselling YES ~~NO~~
Staff meeting ~~YES~~ NO 4 / 2 / 2019

First Aiders Name: Jimmy Student

First Aider Signature: Jimmy Student

CASUALTY EXAMINATION

Mark the location of injuries on diagrams and briefly describe the injury e. g. cut, bruise, pain, swelling, burn etc.



Observations of VITAL SIGNS (e.g. value/description)

Time of incident	10.00 am/pm	10.03 am/pm	10.05 am/pm
Conscious state **A**lert	No	No	Semi
Responds to **V**erbal stimuli	No	No	Yes
Responds to **P**hysical stimuli	No	No	Yes
Unconscious	UC	UC	Consc.
Pulse Rate (value)	0	0	80
Description (fast, weak)			weak
Breathing Rate (value)	0	0	10, shallow
Description (shallow, rapid)			
Skin state Temperature (value)	--	--	36.5
Description (dry, clammy)	--	--	dry
Colour (pale, grey, pink)	--	Pale, grey	pale
Comments:			

Sources

ARC guidelines viewed on www.resus.org.au, April 2022

First Aid Code of practice 2021, correct April 2022 First aid in the workplace Code of Practice 2021 (worksafe.qld.gov.au)

Revision questions

1. Supplemental oxygen is classified as medication. Who can use supplemental oxygen?

   _____

2. Name 3 conditions in which the administration of supplemental oxygen is beneficial?

   _____

3. What risk is associated with the use of oxygen?

   _____

4. Name 2 oxygen delivery devices that can be used in life-threatening emergencies?

   _____

5. Name two oxygen deliver devices for non-life-threatening emergencies?

   _____

6. Name 3 parts of an oxygen regulator.

   _____

7. What is an oropharyngeal airway used for?

   _____

8. Checking for vital signs during a secondary assessment includes checking the casualty's pulse.

   a) What is a regular pulse rate in an adult? _____

   b) What is a regular temperature? _____

Please see your trainer with any questions you have about the learning content provided and join the discussions in class. We are looking forward to seeing you soon at First Aid Academy.