



5th edition

ABC of CPR

Includes.....

- Oxygen
- **Defib**
- LVR



International
Emergency Numbers
Latest Guidelines



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ABC OF CPR

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This book has been written based on current guidelines and requirements as defined by:

- Australian Resuscitation Council
- New Zealand Resuscitation Council
- European Resuscitation Council
- National Heart Foundation of Australia
- WorkCover QLD
- Australian Standards AS/NZS 4836:2001
(Safe Working on Low Voltage Electrical Installations)


For more information about this manual, and for the latest updates visit:

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The information in this book contains, at the time of printing, the most current resuscitation guidelines. This book is designed to be an information resource and is not a substitute for attending a first aid course conducted by an approved provider. The author of this book accepts no responsibility for any injury or damage that may occur as a result of using this book in first aid management.

 means call your country's emergency number

Introduction

Congratulations on taking positive steps towards learning first aid which is an essential life skill we should all learn in order to help others and possibly save a life.

The **ABC of CPR** is written by a medical practitioner with experience in emergency medicine, hospital medicine, general practice and natural therapies.

The book contains clear, simple first aid advice which will assist you in handling most emergency situations.

Keep this book with your first aid kit in the workplace, at home, in your car or when travelling overseas.

How to use this book:


The **ABC of CPR** is divided into four main colour coded sections:

- **Essential First Aid** • Advanced Resuscitation
- **Low Voltage Rescue**
- General First Aid

Each subsection shows you step-by-step how to recognise and deal with an emergency situation.

Emergencies are recognised by **SIGNS & SYMPTOMS** which are contained in a **red box**.

Displayed in a **green box** is the **FIRST AID** management of an emergency situation.

 means dial your country's emergency number.

A fold out **World Map** of international emergency numbers at the back of the book identifies emergency numbers across the world.

Also at the back, there is a **First Aid Incident Report Form** which can be torn out and used in a first aid incident, and an **Emergency Numbers** page for writing local, national and international emergency numbers.

Content

Essential First Aid	
Unconsciousness	2
DRSABCD	3
CPR	4
Defibrillation (AED)	5
Low Voltage Rescue	
Electrical Supply Industry (ESI)	6
Workplace Health & Safety (WHS)	6
Safe Approach Distances (SAD's)	6
Electric shock	6
Isolators & circuit breakers	6
What is a busbar	6
Safety Observer Requirements	7
Risk Assessment	7
Risk controls	7
What is Electric Shock?	8
What can Electric Shock do to me?	8
What type of injuries follow	8
What is Arc Flash?	9
What is Airway Burn?	9
What is an Electrical Burn?	10
Consequences of an Electrical Burn	10
How do I handle Electrical Fires?	10
Low Voltage Rescue Kit	11
Performing Low Voltage Rescue	11
Advanced Resuscitation	
Oxygen Equipment	12
Oxygen Therapy	14
Oxygen Resuscitation	15
Oropharyngeal Airways (OPs)	16
Suction	17
Jaw Thrust	18
Normal Heart Function	18
Abnormal Heart Rhythms	18
Defibrillation & AEDs	19
Cardiac Arrest	20
Chain of Survival	20
Advanced Resuscitation Techniques	20
General First Aid	
Principles of First Aid	22
Legal Issues	22
Communication/ Reports	23
Record Keeping/ Self-Help	23
Safe Work Practices & Manual Handling ...	24
First Aid Kits/ Needle stick	24
Casualty Assessment	25
Advanced Casualty Assessment	26
First Aid Report Form	

Unconsciousness is a state of unrousable, unresponsiveness, where the person is unaware of their surroundings and no purposeful response can be obtained.

NO RESPONSE → **NO Breathing or Abnormal Breathing** → Follow **Basic Life Support Chart** →

→ **Breathing Normally** → Recovery Position, Call ☎, monitor

Causes of an **unresponsive (unconscious), breathing** state:

- A - Alcohol
- E - Epilepsy
- I - Insulin (Diabetes)
- O - Overdose
- U - Uraemia (renal failure)
- T - Trauma (head/spinal)
- I - Infections (meningitis)
- P - Pretending
- S - Stroke

Combinations of different causes may be present in an unconscious casualty eg head injury and diabetes.

NB. The sense of **hearing** is usually the last sense to go, so be careful what you say near an unconscious casualty.

All unconscious casualties must be handled gently and every effort made to avoid any twisting or forward movement of the head and spine.

(A noticeably pregnant, unconscious, breathing woman is best placed on her left side).

The recovery position:

- Maintains a clear airway - allows the tongue to fall forward.
- Facilitates drainage and lessens the risk of inhaling foreign material (eg saliva, blood, food, vomit).
- Permits good observation and access to the airway.
- Avoids pressure on the chest which facilitates breathing.
- Provides a stable position and minimises injury to casualty.



Airway management takes priority over spinal injury



Step 1

- Raise the casualty's furthest arm above the head.
- Place the casualty's nearest arm across the body.
- Bend-up the casualty's nearest leg.
- With one hand on the shoulder and the other on the knee, roll casualty away from you.



Step 2

- Stabilise the casualty by flexing the bent knee to 90° when resting on the ground.
- Tuck the casualty's hand under their armpit.
- Ensure the casualty's head is resting on their outstretched arm.

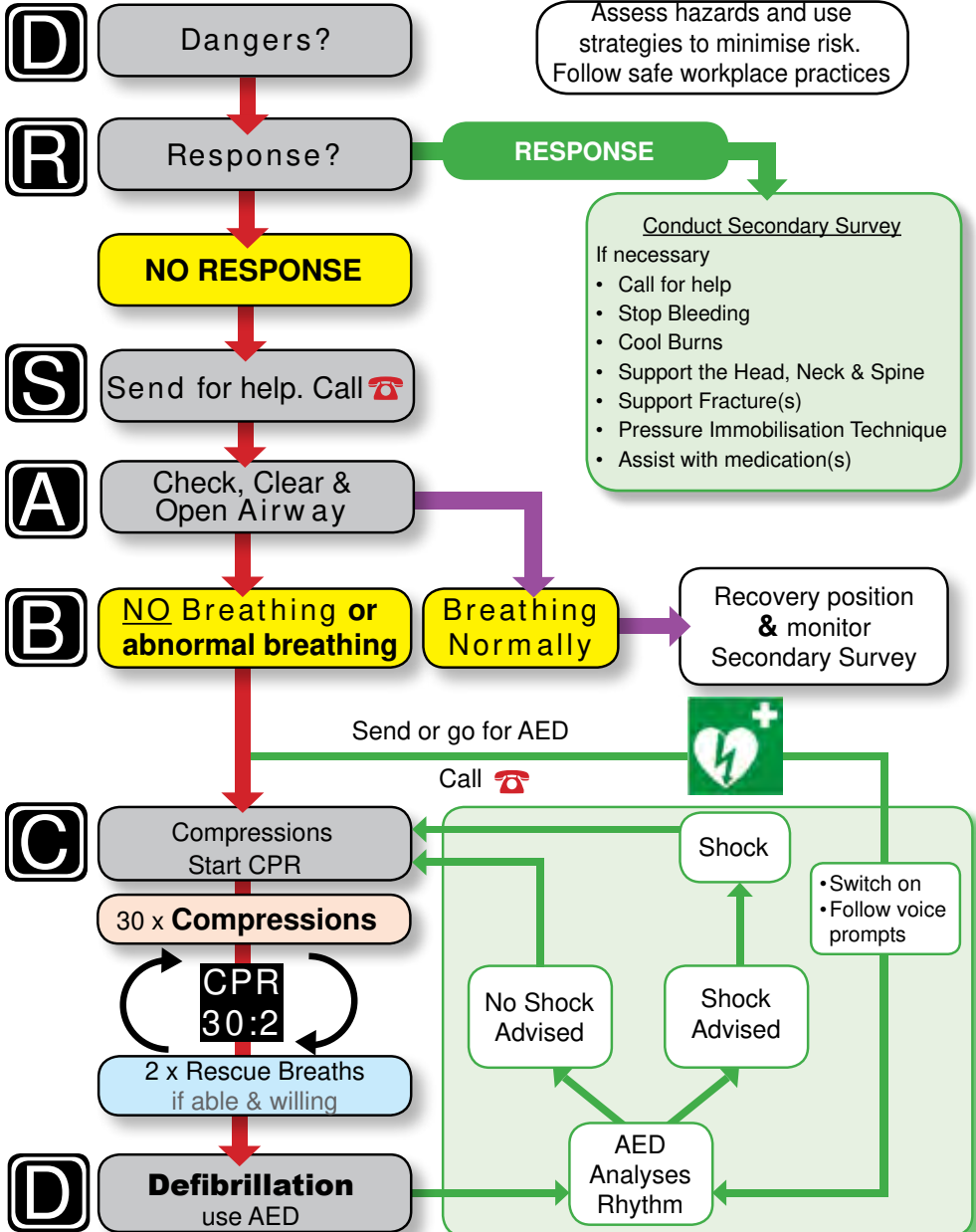


Step 3

- Carefully tilt the head slightly backwards and downwards. This facilitates drainage of saliva and/or stomach contents and reduces the risk of inhalation which may cause pneumonia.

Basic Life Support & AED

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In an EMERGENCY CALL  or 

DRSABCD

Dangers

- Survey Scene
- Remove or Minimise Hazards



Protect yourself - use antiseptics and barrier protection: gloves, mask, goggles.

HAZARDS!

- **Biohazards** – blood, body fluids
- **Chemicals** – spills, fumes, fuel
- **Electricity**
- **On coming traffic**
- **Fire, explosion**
- **Unstable structures**
- **Slippery surfaces**
- **Broken glass**
- **Sharp metal edges**
- **Needle stick**
- **Aggressive behaviour**

Response

- Talk and touch

SPEAK LOUDLY – Don't shout*

“Hello, can you hear me?” “Are you all right?” “Open your eyes”. “Squeeze my hands”.

SQUEEZE SHOULDERS firmly – Don't shake

NB. Approach a collapsed casualty with caution, they could be anxious, irrational or aggressive.

Drowning. Assess victim on the back with head and shoulders at the same level. This decreases the likelihood of regurgitation and vomiting. The casualty should **not** be routinely rolled onto the side to assess airway and breathing.



Send for help. Call

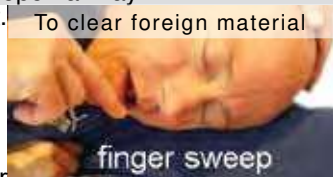
***To check for Response in infants (<1yr):** Check “grasp” reflex by placing your finger in the baby’s palm. Infants lose grasp reflex when unconscious. Unconscious infants are often limp, without muscle tone.

Airway

- Check - for foreign material which could be obstructing the airway.
- Open - use chin lift and backward head tilt to open airway.



- Use **pistol grip** to achieve chin lift. Watch that your knuckle doesn't compress neck and obstruct airway and breathing.
- If foreign material is present, roll casualty onto the side and clear using postural drainage and finger sweep method.



Spinal injury and infants (<1yr): Keep head in a neutral position (i.e. minimise backward head tilt)

- The airway takes precedence over any other injury including a possible spinal injury.
- Promptly roll casualty onto the side to clear the airway if it is obstructed with fluid (eg vomit)

Breathing

- Look - for rise and fall of lower chest/ upper abdomen
- Listen - for breath sounds
- Feel - for movement of chest and escape of air from mouth



Abnormal or NO Breathing?

- If casualty is **unresponsive and not breathing normally** after the airway has been cleared and opened, this indicates **cardiac arrest** and the rescuer should immediately commence chest compressions then rescue breathing (CPR).
- If unwilling or unable to perform rescue breathing, continue with compression only CPR.

NB. In the first few minutes after cardiac arrest, abnormal gasping sounds, sighing or coughing are common, but this is ineffective breathing and CPR should be commenced.

Compressions 30 Chest Compressions : 2 Rescue Breaths = CPR

CPR

30 Compressions

- Depth = 1/3 of chest wall (~ 5 cms)
- Rate = approx 100 - 120/ min (almost 2 compressions per sec)



- Place heel of one hand in centre of casualty's chest (which is the lower half of the sternum)
- Place other hand on top, arms straight and press down on sternum at least 5 cm in adults
- Allow complete recoil of chest after each compression
- Keep compressions rhythmical at approx rate 100 - 120/min
- Use 1 or 2 hands in children (use 2 fingers for infants)



2 Rescue Breaths (RB)

- 2 breaths over 2 secs



- Inflate until chest starts to rise.
- Over-inflation can force air into stomach causing regurgitation.
- Infants – perform mouth to mouth/nose RB and inflate with puff of air from cheeks.
- Use resuscitation mask or barrier protection if possible
- Obviously pregnant - padding under right hip, if possible.
- If unwilling to give breaths - give **continuous** chest compressions at rate of approx 100 - 120 /min.
- Give oxygen if avail & trained

- **Take a breath.**
- **Close casualty's nostrils** (pinch with fingers).
- **Mouth to mouth** (good seal).
- **Blow** to inflate lungs.

- Turn head after each RB.
- **Listen** and **feel** for air exhaled from mouth.
- Avoid inhaling re-expired air.

CPR 30:2

- Cardio Pulmonary Resuscitation • Rate = 5 cycles every 2 mins
- Combines 30 Compressions with 2 Rescue Breaths (30:2) = 1 cycle

Same ratio for infant, child, adult

- Change rescuers every 2 mins to reduce fatigue.
 - Do compression-only CPR, if unwilling or unable to give rescue breaths (RB).
 - Continue CPR until casualty responds or breathing returns. **Do not stop CPR to check for breathing.**
- Stop CPR when:**
- Casualty responds or begins breathing normally
 - Exhaustion – you can't continue.
 - Health professional arrives and takes over.
 - Health professional directs that CPR be ceased

Defibrillation

An AED (Automated External Defibrillator) delivers electric shock to reverse abnormal heart rhythms. Not all heart rhythms are reversible



Placement of pads

- Use AED when casualty is unconscious & not breathing normally.
- If 2 rescuers: continue CPR while 1 rescuer organises AED pads:
- Switch on AED & follow voice prompts of the AED.
- Place pads on bare, dry chest (wipe dry), remove clothing, jewellery, medication patches. Place 8 cm from implanted device (pace-maker), avoid piercings. Remove excessive chest hair.
- **No contact.** DO NOT touch casualty during analysis or shock.
- **No conduction.** DO NOT have casualty in contact with conductive material eg metal floor, puddles of water.
- **No explosion.** DO NOT use in explosive environment.


NB. No rescuer has been harmed while using an AED in the wet

Under 8 years. Ideally, use paediatric pads and an AED with a paediatric mode. If the AED does not have a paediatric mode or paediatric pads then use adult AED pads. Pads must not touch each other, if necessary place one pad on the front and the other on the back of chest. Check manufactures instructions. Choose appropriate AEDs for child care.

An infant is under 12 months:

A child is 1-8 years:

An adult is over 8 years

Chain of survival: is the key to improving the survival rate from cardiac arrest. Time is the essence. The **4 steps** required are: **1)** Call  **Early 2)** Begin CPR immediately **3)** Early Defibrillation **4)** Advanced cardiac life support by paramedics

Electrical Supply Industry (ESI)

The Electrical Supply Industry is highly regulated. Low voltage rescue falls under one set of rules, with specific laws, regulations, codes of practice and other requirements. Each jurisdiction (State) has it's own laws. The laws that control electricity supply are similar in all States but have some important differences.

Workplace Health & Safety (WHS)

Regulation risk control requirements, do not usually justify the practice of working on an energised (live) low voltage installations. It is up to the employer, and the owner of the building, to ensure that this is only done where it is necessary and only if the risk of harm would be greater if that part of the installation's circuits or apparatus were to be de-energised.

Safe Approach Distances (SAD's)


are listed for different types of electrical installation.

Employees, trained and equipped with appropriate PPE* will be able to move closer to an electrical supply safely, than someone who has not been instructed and equipped. ESI workers and electricians must be aware of the SADs that are applicable to their workplaces.

Electric Shock has dangers for the rescuer as well as to the victim. As in all emergency situations the rescuer makes matters worse if they become injured themselves while trying to assist.

Make sure it is safe before approaching! In addition to treating for obvious injuries such as burns, cuts, fractures and blast injuries it is possible there are internal injuries and heart arrhythmias therefore ALL electric shock casualties must be referred for medical assessment.

FIRST AID

- Check for dangers
- If no response follow basic life support (p 3)
- Remove to a safe, ventilated area ASAP
- Check and treat for other injuries - burns are common.
- Refer for medical assessment Call 



High voltage transmission



High voltage and low voltage on same pole



Electrical sub-station



Isolators protect people working on electrical equipment

Isolators & Circuit Breakers

An **isolator** is an **off-load** device. A **circuit breaker** is an **on-load** device. Circuit breakers are used to switch devices on/off. Isolators are used to electrically isolate equipment to make them safe to work on and sometimes earth the isolated circuit to provide additional safety. Isolators are more common in industrial applications but domestic electric ovens are often fitted with an isolation switch.

What is a Busbar?

Busbars are usually copper or aluminium strips or pipe. They are usually **un-insulated**. To protect people from shock, busbars are often inside secure cabinets, or in secure compounds only accessible to authorised personnel. Busbars can carry very dangerous fault currents (over 10,000 amps) which can cause extensive damage from arc flash and explosion.





Safety Observer Requirements

The safety observer:

- Must be instructed in, and understand their responsibilities
- Role is to warn of danger and perform rescue and resuscitation as required
- Has the authority to stop the work before the risks become too high
- Must not carry out any other work
- Must be able to communicate effectively with the worker (may require specialist equipment)
- Must not observe more than one task at a time



Briefing the S.O.

Risk Assessment

Before starting work on a live LV panel, a risk assessment must be completed and control measures identified and written down in a SWMS*.

*SWMS = Safe Work Method Statement

When working in high risk places such as

- in "confined spaces"
- near trenches
- at heights
- from an elevated work platform (cherry picker) etc

there will be additional **laws and regulations** that must be observed.

Rescue operations must adhere to all the relevant laws.

Risk Controls

must include

- preparation to perform rescue procedures from a live LV panel
- Safety Observer who has been instructed in responsibilities provision of LV
- Rescue kit that has been inspected Clear entry and exit pathway

Do not wear metallic personal items such as watches and watchbands. Metal personal items could contact or fall into exposed live parts objects of this kind can result in electric shocks or arcing. In addition burns sustained near these items can be worse because the objects retain heat and provide contact points for current to flow. **Examples include: neck chains, rings, bracelets, earrings, body piercings, metal spectacle frames.**

WHS* law requires employees to use or wear PPE* that is supplied by an employer. *PPE Personal Protective Equipment



Common electrical risks and causes of injury

- **Electric shock** causing injury or death. The electric shock may be received by direct contact, tracking through or across a medium or by arcing
 - **Arcing, explosion or fire** causing burns. The injuries are often suffered because arcing or explosion or both occur when high fault currents are present
 - **Toxic gasses** causing illness or death. Burning and arcing associated with electrical equipment causes a range of gases and contaminants to be present. Compounds ranging from ozone to cyanide and sulphuric acids can be present as well as the risks such as low oxygen content in the air.
- These electrical risks may be present individually or combined



What is Electric Shock?



An electric shock can occur upon contact of a person with any source of voltage high enough to cause sufficient current through the muscles or hair.

- Electrocutation is death caused by electric shock.
- Severity of injury depends on the voltage, the current, and the resistance of the body.
- Wet or damaged skin offers 100 times less resistance than dry intact skin allowing higher currents to flow.
- Currents across the heart are dangerous.



Always test a circuit to make sure it is de-energized before working on it.

Power drills use 30 times more power than needed to kill someone!

What can Electric Shock do to me?

LOW VOLTAGE = under 1000V AC or 1500V DC.

LOW VOLTAGE DOES NOT MEAN LOW HAZARD!

Effects of Electrical Current on the Body

This table shows what usually happens for a range of currents lasting for 1 second at typical household voltages. 100 milliamps can be lethal across critical parts of the body (eg heart/brain). Arc Flash can produce intense heat, light and pressure waves equivalent to several sticks of gelignite. This can result in radiation burns, broken bones, internal organ damage and bleeding.

Current	Reaction
1 milliamp	Just a faint tingle
5 milliamps	Slight shock felt. Disturbing, but not painful. Most people can "let go."
6-25 milliamps (women) 9-30 milliamps (men)	Painful shock. Muscular control is lost. This is the range where "freezing currents" start. It may not be possible to "let go."
50-150 milliamps	Extremely painful shock, respiratory arrest (breathing stops), severe muscle contractions. Flexor muscles may cause holding on; extensor muscles may cause intense pushing away. Death is possible.
1,000-4,300 milliamps (1-4.3 amps)	Ventricular fibrillation (heart pumping action not rhythmic) occurs. Muscles contract; nerve damage occurs. Death is likely.
10,000 milliamps (10 amps)	Cardiac arrest and severe burns occur. Death is probable.
15,000 milliamps (15 amps)	Lowest over-current at which a typical fuse or circuit breaker opens a circuit!

What type of injuries follow Electrical Accidents?

- Cardiac Arrest
- Respiratory arrest
- Burns/ Tissue damage
- Poisoning
- Other injuries as a consequence of electric shock eg falling from a ladder

Electrical Burns cause Massive Tissue Damage:

This worker fell and grabbed a power line to catch himself. The resulting electric shock mummified his first two fingers, which had to be removed.

The acute angle of the wrist was caused by burning of the tendons, which contracted, drawing the hand with them.



What is Arc Flash?

Arc Flash is a short circuit that flashes from one exposed live conductor to another, or to the ground.

The Arc Flash produces intense:

- Heat (> 5000 degrees causing severe burns)
- Light (The same light radiation as welders)
- Pressure wave (blast) equivalent to several sticks of dynamite and can break bones and cause internal organ damage.
- Arc Flash can result from inserting a tool in the wrong place or dropping a tool into a circuit breaker or service area.
- 80% of all injuries and fatalities caused by electrical incidents are caused by Arc Flash..... not electric shock!



What is Flash Burn?

Flash Burn also known as Arc Flash, Arc Eye or Welder's Flash, is a burn sustained from an electric arc either by the extreme heat it produces or through UV radiation.



- Minor Flash burn to the eyes becomes painful and 'gritty' about 2-3 hrs after the event.
- This is common when welding without protective eyewear.

FIRST AID - It usually resolves within 36hrs without medical intervention but sometimes local anaesthetic eye drops are required for pain management.

This man was near a power box when an electrical explosion occurred. He did not touch the box, but electricity arced through the air and entered his body. The current was drawn to his armpits because perspiration is very conductive.



This is severe flash burn caused by an Arc Flash. The explosion caused airway burns and embedded molten copper into the casualty's eyes, resulting in permanent blindness.



FIRST AID


- Move to safety • Call  • Apply burns dressing
- For airway burns - see below

What is Airway Burn?

Smoke, steam, superheated air or toxic fumes from Arc Flash explosions can cause severe damage to the airways resulting in swelling and possible airway obstruction.

- Look for evidence of inhalation injury around nose or face (see photo above)
- Coughing or hoarseness may indicate exposure

FIRST AID

- DO NOT enter a burning or toxic atmosphere without appropriate protection
- Remove to a safe, ventilated area ASAP
- Give oxygen if available
- Call 

After an electrical incident

The site must be secured, and entry controlled until the appropriate authorities have inspected the site and released it. An incident report must be completed.



**ANGER
DO NOT
ENTER**

What Is An Electrical Burn?

High resistance of the skin transforms electrical energy into heat energy, producing burns. Electrical burns are often associated with an entry and exit point and are usually more severe than they appear due to massive internal tissue damage.

Entry Wound:

Dark dot in the centre of wound is a burn at the entry point.

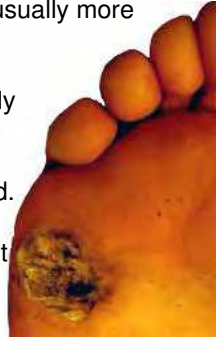
This man was lucky - the current narrowly missed his spinal cord.



Exit Wound:

Current flows through the body from the entrance point, until finally exiting where the body has least resistance to ground.

This foot suffered massive internal injuries, which weren't readily visible, and had to be amputated a few days later.



FIRST AID • Move to safety • Call ☎ • Apply burns dressing

Consequences Of An Electrical Burn



This worker was zapped by a tool he was holding. The entry wound and thermal burns from the overheated tool are apparent.

Same hand a few days later, when massive subcutaneous tissue damage caused severe swelling (swelling usually peaks 24-72 hours after electrical shock).



To prevent damage to the nerves and blood vessels, the pressure was relieved by cutting open the skin on the arm.

How Do I Handle Electrical Fires?

To extinguish an electrical fire you can use a fire blanket or two types of fire extinguisher - carbon dioxide or dry chemical. (Do not use a fire extinguisher on a burning casualty: use a fire blanket)



Carbon Dioxide (black band) Dry Chemical (white band)



To use a fire blanket on a burning casualty:

- Pull the tabs to release the blanket from its container.
- Shake it open, hold an edge and cover your hands.
- STOP, DROP, COVER, ROLL
- Wrap blanket around to smother flames.
- Start at the head - work down to the feet.
- BEWARE – of your clothes igniting.



STOP, DROP, COVER, ROLL

FIRST AID • Move to safety • Call ☎ • Apply burns dressing

Poisonous Gases Released In Electrical Fires


Carbon Monoxide

- Product of incomplete combustion.
- Colourless, odourless, tasteless gas
- Forms an explosive mixture

SIGNS & SYMPTOMS

- Collapse • Drowsiness
- Confusion • Pink lips and skin • Headache • Dizziness

FIRST AID

- Move to ventilated area • Get Help - Call 
- Oxygen Therapy is vital • Prepare to give CPR

Hydrogen Chloride

- Product of burning PVC
- Pungent, acrid gas which forms hydrochloric acid when in contact with water

SIGNS & SYMPTOMS

- Burning sensation in airways • Stinging eyes
- Coughing • Breathing difficulties

Hydrogen Cyanide

- Product of burning some plastics (not PVC), wool and polyurethane
- May notice an 'almond' smell

SIGNS & SYMPTOMS

- Light headed • Dizzy
- Breathing difficulties
- Collapse • Flushed • Blue extremities • Convulsions

Note: Other toxic gases may also be released

Low Voltage Rescue Kit

It's a kit which contains 6 essential tools to assist in a Low Voltage Emergency Rescue.

Your life could depend on a complete kit!

- Insulated gloves
- Insulated crook
- Non-conductive torch
- Fire blanket
- Burns dressing
- Isolation Tag

Before starting, position the kit near the entrance and adjacent to the work area.



Check LVR kit before starting a job and certify and date stamp 6 monthly.

- Check** dates are valid, also check:
- Gloves for holes by inflating with air
 - Crook for cracks
 - Torch working and spare batteries

Performing Low Voltage Rescue

Gloves already on



1 YELL for Response!



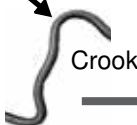
2 Check for DANGER



3 Break Connection

OR

OPEN ISOLATOR



4 Move to Safety

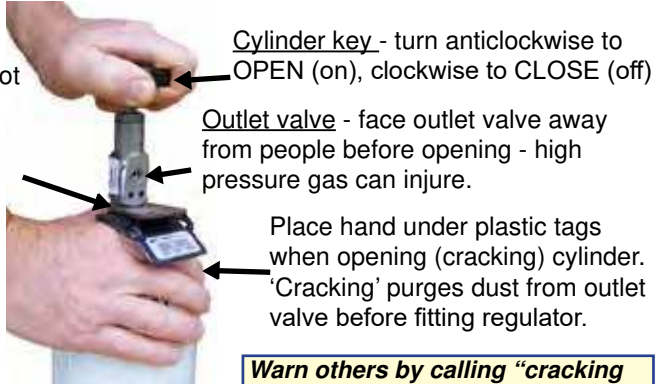
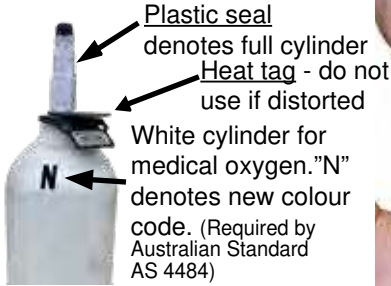


5 DRSABCD



Oxygen Equipment - Storage & Handling

- Medical oxygen is compressed gas which is stored in a white coloured, metal cylinder.
- Oxygen cylinders should be stored in a cool, ventilated place and secured either standing or lying flat
- Empty cylinders should be stored in a clearly marked place separate from full ones
- DO NOT drag, drop or roll cylinders
- Oil or grease must not come in contact with oxygen equipment
- No smoking or sources of ignition when using oxygen.

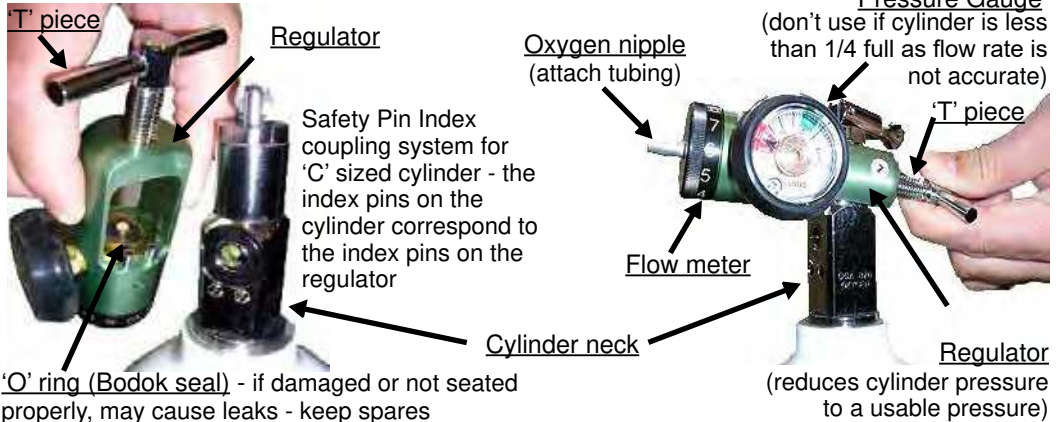


'C' sized cylinder is 490 litres.
A full 'C' sized cylinder lasts 1 hour @ 8lpm flow rate.

Fitting the Regulator:

- Check hands are clean and free of grease/ oil
- Ensure area is ventilated and there is no ignition sources
- Remove plastic seal from cylinder neck
- Purge outlet valve by quickly opening and closing cylinder (cracking) - see above
- Check regulator is dust and grease free and that 'O' ring is seated and not damaged
- Place regulator over cylinder neck ensuring index pins and index holes are in place
- Secure regulator in place by tightening 'T' piece - not too tight
- Set flow meter to low - this reduces pressure in regulator when cylinder is opened
- OPEN cylinder by turning cylinder key anticlockwise
- Turn flow meter OFF and listen for leaks
- Check pressure gauge - 16,000kpa (2300 psi) indicates cylinder full
- CLOSE cylinder and adjust for leaks if necessary
- If not using immediately, depressurize system - close valve, open flow meter
- Leave regulator attached and store ready for use with all valves off

Warn others by calling "cracking cylinder" before opening the valve.





Oxygen Equipment - Care & Maintenance

- Never use oil or fat-based soaps on any oxygen equipment - grease/ oil can become highly explosive in the presence of oxygen under high pressure
- Never seal oxygen cylinder outlet valve with adhesive tape - glue is petroleum based
- Never allow cylinder to run empty as moisture and contaminants may enter
- If cylinder is emptied, turn off valve immediately
- Use reputable gas suppliers for refills
- Disposable items should be discarded after use and replaced.
- All reusable items should be checked, cleaned, disinfected and dried before packing.
- Follow specific cleaning instructions provided with equipment - check which chemicals are effective and compatible with particular pieces of equipment.
- Any missing items should be noted and replaced
- Tubing should be coiled to prevent from kinking
- Pack soft masks carefully to avoid distortion during storage
- Check contents of cylinder and functioning of equipment regularly - eg after each use and/ or at start of each shift
- Oxygen units should be inspected and serviced by an appropriate trained technician as specified by manufacturer.



When to use Oxygen

Oxygen maybe beneficial in emergencies with breathing and non-breathing victims. However, in certain circumstances supplemental oxygen may cause harm. **Short term supplemental oxygen to a breathing victim will not cause harm in most circumstances.**

Oxygen is recommended for the following conditions:

- During CPR (pg 11)
- Bleeding
- Burns
- Shock
- Heart attack with shortness of breath
- Stroke
- Asthma
- Anaphylaxis
- Drowning
- Decompression illness
- Poisoning



Pulse Oximetry

is not essential for oxygen administration, but may be of assistance if available. Oxygen is not recommended if oxygen saturation



is more than 94% unless there are signs of

- cyanosis (blue lips)
- shock
- decompression illness (eg from SCUBA diving)
- indications of carbon monoxide poisoning

RESPIRATORY DISTRESS SIGNS & SYMPTOMS

Mild:

- Dry cough
- Noisy breathing
- Wheeze – during exhalation
- Breathless but speaks in sentences

Moderate:

- Wheeze - during exhalation and inhalation
- Rapid breathing
- Breathless - speaks in phrases
- Anxious
- Pale and sweaty
- Rapid pulse

Severe:

- Can't speak (too breathless)
- Wheeze inaudible (no air movement)
- Cyanosis (blue lips)
- Flared nostrils
- Intercostal recession
- Use of accessory muscles
- Exhaustion
- Distressed
- Confusion or aggressive behaviour
- Altered state of consciousness
- Collapse - Respiratory arrest

Oxygen Therapy

Oxygen administration to a breathing casualty - conscious or unconscious

A conscious casualty with breathing difficulty (eg asthma or heart attack) usually finds it easier to breathe while sitting or semi-reclined. However, a casualty with shock or decompression illness from scuba diving, is positioned horizontally. Administer oxygen (O₂) to an unconscious, breathing casualty in the recovery position.

Conscious Casualty:

- Reassure
- Position casualty appropriately
- Explain what you are doing
- Explain that oxygen will help
- Turn on oxygen supply
- Select appropriate oxygen delivery device and follow steps:



Unconscious, Breathing Casualty

Oxygen Delivery Devices:

1) Standard Therapy Mask - Low to Medium % O₂

- Connect oxygen tubing to mask and oxygen outlet
- Open flow meter and check oxygen is flowing
- Set flow rate to 8lpm - adjust as necessary
- Position mask over mouth and nose with narrow end upwards and metal band over bridge of nose
- Pass elastic strap over casualty's head & adjust strap
- Squeeze metal band over nose - this prevents oxygen blowing into casualty's eyes
- Ask casualty to breath normally and observe



Some casualties won't tolerate a mask - allow casualty to hold mask near face.

2) Non-Rebreathing Mask

High % O₂

- Similar to standard therapy mask but has a reservoir bag
- Set flow rate to 15 lpm
- Ensure reservoir bag is inflated before fitting mask
- Fit as standard mask above



Oxygen Delivery Device	Flow Rate	% O ₂
Standard Therapy Mask	8	50%
Non-Rebreathing Mask	15	95%
Nasal Cannula	4	30%
Demand Valve	-	100%

3) Nasal Cannula - Low % O₂

- Connect oxygen tubing to prongs and oxygen outlet valve
- Open and set flow meter at 1-4 lpm - higher rates dry the nostrils
- Insert tips of prongs into nostrils
- Hook tubing around casualty's ears and tighten
- Ask casualty to breath normally



4) Demand Valve - 100% O₂

- Attach mask to demand valve and test if working
- Position mask over mouth and nose
- Press firmly to get a good seal
- Ask casualty to breath deeply and listen for a click as valve is triggered
- Sick, distressed casualties have difficulty triggering the valve - use a constant flow device instead which offers little resistance



If oxygen is in short supply and emergency services a long way off, use a lower flow rate. This does not apply to scuba divers suffering from decompression sickness.



Oxygen Resuscitation

Oxygen administration to an unconscious non-breathing casualty

Rescue breaths can be supplemented with oxygen (O₂) during CPR (oxygen resuscitation). For inexperienced rescuers, mouth to mask rescue breathing is the preferred method. It delivers 50-70% oxygen and ventilations are performed more effectively than bag-valve-mask or manual triggering devices. With all oxygen resuscitation devices, inflate until the chest begins to rise. Over inflation may cause stomach distension and regurgitation.

Oxygen Delivery Device	Flow Rate	% O ₂
Resuscitation Mask (no O ₂)	exp air	16%
Resuscitation Mask (with O ₂)	15	70%
Bag Valve Mask (no O ₂)	room air	21%
Bag Valve Mask (O ₂ , no reservoir)	15	45%
Bag Valve Mask (O ₂ plus reservoir)	15	100%
Manually triggered Resuscitator	—	100%

Resuscitation Mask with O₂BVM with O₂, plus reservoir, one operator. Difficult

Resuscitation Mask:

- If resuscitation mask is without an oxygen nipple, place oxygen tubing under the cuff of the mask.
- Set flow rate: 8-15 lpm
- Press mask firmly to face forming a good seal while maintaining head tilt.
- Inflate by blowing through valve until chest begins to rise.

BVM with O₂, plus reservoir, two operators. Recommended

Manually Triggered Resuscitator

Manually Triggered Resuscitator:

- Delivers positive pressure by the touch of a trigger.
- Delivers 100% O₂
- Reduces operator fatigue
- Dependant on an oxygen supply.
- Can easily cause stomach inflation, regurgitation or lung damage

Constantly monitor oxygen supply. Dangerous levels of carbon dioxide can build up in masks if O₂ stops flowing.

Bag-Valve-Mask (BVM): When BVM resuscitation is used by trained but occasional operators, a minimum of two trained rescuers are required- the first to manage the airway, the second to operate the bag.

- Assemble the unit and squeeze the resuscitation bag to check the function of the valves.
- Ensure oxygen tubing is attached to BVM and outlet valve on oxygen cylinder.
- Turn on O₂ supply • Set flow rate: 8-15l/min

When equipment is ready:

- Position mask over mouth & nose, ensuring a good seal.
- Take a position behind the casualty's head and open airway using head tilt and jaw thrust while holding mask to casualty's face.
- Deliver oxygenated rescue breaths by squeezing bag until chest begins to rise
- Monitor casualty • Monitor oxygen supply.

OP airways (next pg) can be used with resuscitation masks, bag-valve-masks and manually triggered devices to assist airway management.

Oropharyngeal Airways (OPs)

- Oropharyngeal airways (Guedel airways) may be necessary to maintain an open airway when using mouth to mask or bag-valve-mask ventilation
- An OP airway DOES NOT remove the need for head tilt or the recovery position: It DOES NOT prevent suffocation by fluids or the closing of the glottis. But it does facilitate CPR by holding the tongue forward in casualties with a thick tongue.
- OP airways must only be used on **unconscious** casualties who do not have a **gag reflex**

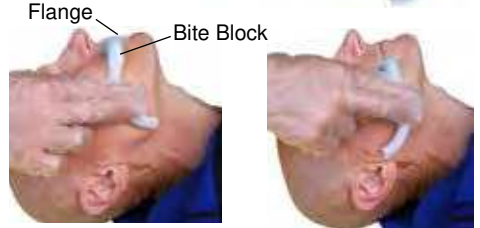
The main risks of its use are:

- If the casualty has a gag reflex, they may vomit
- When it's too large, it can close the glottis and thus close the airway
- Improper sizing can cause trauma to the throat and bleeding in the airway



Sizing an OP Airway:

- OP airways come in different sizes.
- To select the appropriate size, place OP airway on casualty's outside cheek and measure from: 1) Centre of lips to angle of jaw or 2) Corner of mouth to bottom tip of ear lobe (see diagram)
- The correct size keeps the tongue forward and maintains an open airway.



2 methods for sizing OP airway

Inserting an OP Airway:

- Ensure casualty is unresponsive.
- Clear airway using postural drainage, finger sweep and/ or suction
- Position casualty on their back.
- Select correct size OP airway (above)
- If lubrication is necessary, use water, casualty's saliva or lubricating jelly.
- Open casualty's mouth using finger and thumb scissor motion
- Apply head tilt and/or jaw thrust (pg 4, 12)
- Insert OP airway by following steps 1, 2, 3:



Scissor motion for opening mouth



- Point tip of OP airway toward the roof of casualty's mouth. Slide the airway towards back of throat
- When tip reaches back of throat, rotate airway 180 degrees
- Advance the airway until the flange rests on the casualty's lips and the bite block is between teeth.
- Ensure lower lip is not pinched between teeth and OP airway
- Check breathing - look, listen, feel.
- Maintain head tilt and jaw support.

NB. If casualty starts to regain consciousness, cough, gag or vomit, remove OP airway immediately.

Removing an OP Airway:

Pull out following curvature of the tongue - no rotation necessary. Dispose of in biohazard bag as it is a single use item.

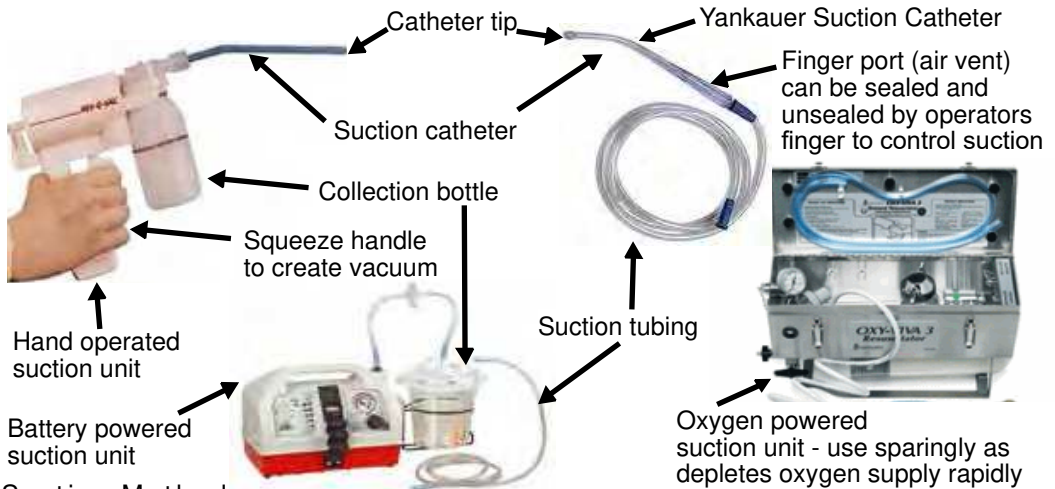


Suction

- Suction helps maintain a clear airway by aspirating saliva, blood, mucus and vomit.
- Suction does not remove the need for postural drainage and finger sweep to remove solid matter or viscous mucus.
- Fluids and solids must be removed before and during resuscitation to maintain a clear airway.

Suction Equipment:

Suction units are powered by oxygen, air, battery, hand, foot or electricity.



Suction Method:

- Position casualty on side if possible, or leave on back and turn casualty's head to the side.
- Open casualty's mouth and wipe away any large debris with gloved fingers.
- Measure the suction catheter from corner of casualty's mouth to earlobe. This gives the correct depth to insert the end of the suction tip (no further than back teeth).
- Turn on the suction device and place suction tip in lower inside cheek.
- If using a Yankauer suction catheter, generate suction by occluding air vent with finger
- Sweep catheter across lower cheek and aspirate for a maximum of 5 secs.
- Withdraw catheter slowly from casualty's mouth while still aspirating.
- Flush line with water (place catheter tip in bowl of water and suck up)
- Ensure suction bottle does not fill beyond 2/3 full. Empty if necessary.
- Turn off immediately after use

Failure of Suction Equipment:

Test suction by placing a finger over the end of tubing (without catheter attached) and turn on - there should be enough suction to hold your finger in place.

If suction is not working check:

- Suction unit is turned on
- Lid of collection bottle is tight
- The seal inside collection bottle is in place and good condition
- No cracks in collection bottle or not more than 2/3 full
- Suction tubing is not blocked or kinked
- In oxygen powered units check that oxygen supply is not exhausted

Note:

- Inserting a suction catheter into the throat beyond the back teeth may cause gagging & vomiting
- Suction must be timed so it does not interfere with the casualty's spontaneous breathing or ventilations

Jaw Thrust

The jaw thrust method is used to open the airway with minimal neck movement on casualties with suspected spinal injury. The simplest way of ensuring an open airway in an unconscious casualty is to use the head tilt chin lift technique (pg 4).

REMEMBER: Airway management takes priority over spinal injury.

Jaw Thrust Method:

- Kneel at top of casualty's head
- Rest your elbows on the surface where casualty is lying
- Place one hand on each side of casualty's lower jaw, below the ears (angle of jaw)
- Use your index and middle fingers to push the jaw forward away from chest
- Use your thumbs to retract lower lip to keep casualty's mouth open if necessary
- Slight head tilt may be necessary to maintain airway patency



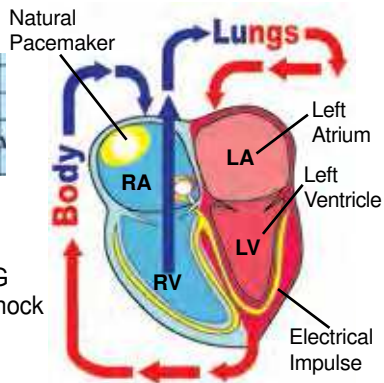
Opening Airway Using Jaw Thrust Method

Normal Heart Function

- Electrical impulses generated within the heart from a natural pacemaker, coordinate contraction and pumping of the heart.
- These electrical impulses can be recorded by an ECG (Electrocardiograph).
- A normal functioning heart shows sinus rhythm on an ECG
- AEDs (Automated External Defibrillators) have an inbuilt ECG monitor which analyses the heart rhythm and determines if shock is required



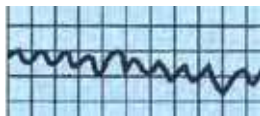
Normal Sinus Rhythm



Abnormal Heart Rhythms

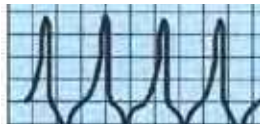
- During cardiac arrest, ECGs will detect abnormal electrical activity (heart rhythms)
- The following 3 heart rhythms are associated with cardiac arrest:

Ventricular Fibrillation (VF):



- VF is the most common rhythm in cardiac arrest
- The heart quivers but doesn't pump
- VF lasts a few minutes before all electrical activity ceases (asystole)
- VF is a shockable rhythm - asystole is not (see below)

Ventricular Tachycardia (VT):



- The heart beats too fast to pump effectively (pulseless VT)
- VT may progress to VF then asystole
- VT is a shockable rhythm

Asystole* (flat line):



- Asystole is a non-shockable heart rhythm
- All electrical activity has ceased and survival is unlikely

AEDs only shock two rhythms - VF and VT (not asystole)

* Asystole is pronounced: ā-sis'tō-lē



Defibrillation & AEDs

Defibrillation delivers an electric shock to the heart.

- The aim is to depolarize the heart muscle, terminate the abnormal rhythm, and allow normal sinus rhythm to be re-established by the heart's natural pacemaker (pg 20).
- Prompt defibrillation is the most important factor in survival from cardiac arrest. For every minute without defibrillation, survival declines by 10% ie 50% survival after 5 mins delay.
- Not all heart rhythms are reversible by defibrillation

Automated External Defibrillators (AEDs), are

simple-to-use units designed to analyse the heart rhythm and inform the user if a shock is advised.

- Use AED when casualty is unconscious & not breathing normally.
- If 2 rescuers then continue CPR while one of the rescuers locates an AED and organises AED pads.
- Switch on AED & follow voice prompts of the AED.
- Place pads on bare chest (remove clothing), wipe chest dry if wet. Remove clothing, jewellery, medication patches. Place pads 8 cm from implanted device (pace-maker), avoid piercings. Remove excessive chest hair.
- **No contact.** DO NOT touch casualty during analysis or shock.
- **No conduction.** DO NOT have casualty in contact with conductive material eg metal floor, puddles of water.
- **No explosion.** DO NOT use in explosive environment.

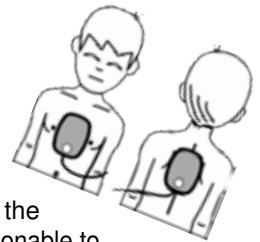
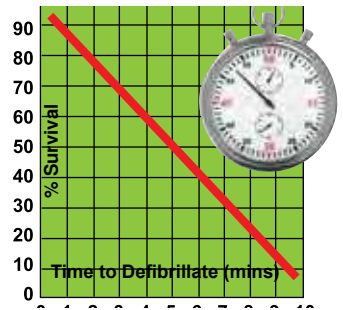
Children and AEDs:

- **Over 8:** Use adult pads on a casualty who is unconscious and not breathing normally.
- **Under 8:** When using an AED on those under 8 years, **ideally** use paediatric pads and an AED with a paediatric capability. Defibs with paediatric capability, automatically adjust the size of the shock to the size of the casualty. However if these are unavailable then it is reasonable to proceed with standard adult AED pads.
- Place pads as per adult positioning, provided the pads do not touch each other. Pads can also be placed one on the front of the chest (over the heart), the other in centre of the back.

Care should be taken when purchasing an AED for an education or care setting to select a device that is suitable for the age group.

Note:

- AEDs should only be used on unresponsive, non-breathing casualties.
- An AED can be used on unresponsive, non-breathing pregnant casualties.
- In large-breasted individuals, place the left electrode pad to side or underneath the left breast.
- If the casualty has an implanted pacemaker, raised area will be seen just below the left or right collar bone. Position AED pads 8cms from the pacemaker unit and proceed as usual.
- DO NOT bump or move casualty while AED is analysing rhythm.
- AED packs should include: razor, scissors, hand towel, spare pads, gloves and face shield.
- AEDs conduct automatic internal checks and provide visual indicators that the unit is ready and functioning properly - check indicator daily - follow manufacturer guidelines.



Cardiac Arrest

• In cardiac arrest the heart stops beating and pumping properly resulting in cessation of normal blood circulation (no pulse) • Arrested blood circulation prevents delivery of oxygen to the body • Lack of oxygen to the brain causes unconsciousness and absence of breathing (respiratory arrest) • This is a medical emergency which if treated early is potentially reversible • Treatment involves CPR to provide circulatory support, followed by defibrillation if a shockable rhythm is present • If a shockable rhythm is not present after CPR and other interventions, survival is unlikely.

Causes of Cardiac Arrest:

- Heart attack (blocked coronary artery) - 70% of all cardiac arrests
- Massive blood Loss • Drug overdose • Drowning • Pulmonary embolus (clot in lung)
- Electric shock • Anaphylaxis • Airway obstruction (choking, severe asthma)


Chain of Survival

Defibrillation is NOT a stand-alone treatment for cardiac arrest. All links in the 'Chain of Survival' must be in place to increase survival. Time is the essence. The 4 steps in the chain of survival are: 1) Early Access 2) Early CPR 3) Early defibrillation 4) Early advanced life support



Advanced Resuscitation Techniques

Single Operator:


- If there is one rescuer and an AED is immediately available, set up AED (pg 13) before commencing CPR (pg 4)
- While waiting for the AED to analyse the heart rhythm, set up oxygen equipment (pg 6) and position yourself above the casualty's head.
- If you have a mobile phone, call  and place on loud speaker.
- Follow AED voice prompts (pg 13).
- Perform chest compressions and oxygen resuscitation from above casualty's head.
- Continue until: 1) Casualty responds or begins breathing normally 2) Rescuer becomes exhausted 3) Health professional arrives and takes over 4) Health professional directs that CPR be ceased





Advanced Resuscitation Techniques

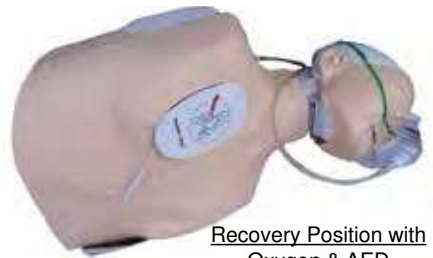
Two Operators:

- If two rescuers are available, one rescuer commences CPR while the other:
 - 1) Calls 
 - 2) Retrieves the AED
 - 3) Retrieves oxygen equipment.
- Minimise interruption to CPR (pg 4) while the second person sets up and attaches AED pads to casualty's chest
- While AED analyses the heart rhythm (takes 10-20 secs), CPR is stopped and oxygen resuscitation equipment is set up (pg 6)
- One rescuer takes up position above the casualty's head and is responsible for managing the airway and forming a good seal with the resuscitation mask.
- The second rescuer is positioned at the side of the casualty and performs chest compressions, rescue breaths (squeezes the bag) and operates the AED.
- Follow AED voice prompts (pg 13).
- Rescuers swap roles after 5 cycles of CPR (2 mins) to avoid fatigue.
- Continue until:
 - 1) Casualty responds or begins breathing normally
 - 2) Rescuers become exhausted
 - 3) Health professional arrives and takes over
 - 4) Health professional directs that CPR be ceased



If casualty regains consciousness:

- Roll casualty into recovery position
- Administer oxygen via standard face mask
- Keep AED pads attached to chest in case casualty relapses into cardiac arrest
- Monitor and reassure casualty



Recovery Position with
Oxygen & AED

Note:

- Rescuers must communicate with each other to keep the resuscitation process flowing.
- It is vitally important that CPR is not interrupted while the AED and oxygen is set up.
- Rescuers should use the 10-20 sec window while AED analyses heart rhythm to swap roles and re-organise.

Principles of First Aid

What is First Aid? It's the immediate care of an injured or suddenly sick casualty until more advanced care arrives.

The aims of first aid are to:

- **Preserve life** – This includes the life of rescuer, bystander and casualty.
- **Protect from further harm** – Ensure the scene is safe and avoid harmful intervention.
- **Prevent condition worsening** – Provide appropriate treatment.
- **Promote recovery** – Act quickly, provide comfort and reassurance, get help, call 📞.

Helping at an emergency may involve:

- Phoning for help
- Comforting casualty or family
- Keeping order at an emergency scene
- Administering first aid

There are many ways you can help, but first you must decide to act.

Reasons why people do not help:

- Fear of doing something wrong
- Fear of disease transmission
- Uncertainty about the casualty
- Nature of injury or illness (blood, vomit, burnt skin can be unpleasant)
- Presence of bystanders (embarrassed to come forward or take responsibility)

You may need to compose yourself before acting. Do not panic – a calm and controlled first aider gives everyone confidence. If you follow basic first aid procedures, you should deliver appropriate care, even if you don't know what the underlying problem is. Remember, at an emergency scene, your help is needed.

Getting Help:

Call 📞 for ambulance, fire or police. If 📞 from a mobile phone fails, call '112'.

If you ask for 'ambulance' a call taker will ask you the following: • What is the exact location of the incident? • What is the phone number from which you are calling? • Caller's name • What has happened? • How many casualties? • Condition of the casualty(s)

Stay calm and respond clearly. The call taker will provide you with first aid instructions and dispatch the ambulance and paramedics. DO NOT hang-up until you are told to do so or the operator hangs up first. If a bystander is making the 📞 call, ensure they confirm with you that the call has been made and that the location is exact.

Legal Issues

No '**Good Samaritan**' or volunteer in Australia has ever been successfully sued for the consequences of rendering assistance to a person in need. A 'Good Samaritan' is a person acting in 'good faith' without the expectation of financial or other reward. **Duty of care:**

In a workplace there is an automatic duty of care to provide help to staff and customers, which means you are required to provide help to your best ability at your work place. In the community, you are usually under no legal obligation to provide first aid. **Consent:** Where possible, always gain consent from the casualty before providing first aid. If the casualty refuses help, you must respect that decision. When the casualty is a child, if feasible seek permission from the parent/ guardian. If the parent/guardian is not present immediate first aid should be given. In a child care situation, parents must notify the centre if the child has any medical conditions and also provide medications and instructions. Consent forms are signed at enrolment. In an emergency, parents or a doctor can also provide authorisation over the phone. (see also reg 94 on pg <?>)

Confidentiality: Personal information about the health of a casualty is confidential. This information includes details of medical conditions and treatment provided. First aiders should only disclose personal information when

handing-over to medical assistance eg paramedics. **Currency requirements** for first aid skills & knowledge varies between jurisdictions. A first aid certificate is a statement that the candidate was assessed as competent on a given date. The accepted industry standard is that certificates are valid evidence of competency for **3 years for first aid and 1 year for CPR**. Some industries require employees to renew certificates more frequently.



Communication The role of the first aider depends on gaining and honouring the trust of casualties. Maintaining trust requires attentiveness to body language, quality of listening and finding culturally appropriate ways of communicating that are courteous and clear. It may sometimes be necessary to communicate through verbal and non-verbal communication and you may need to identify issues that may cause conflict or misunderstanding. The first aider also needs to maintain respect for privacy and dignity and pay careful attention to client consent and confidentiality.

Reports Workplaces and child care centres have legal duty to complete incident reports. While waiting for help and if time permits, make a brief written report to accompany the casualty to hospital. This will reduce time spent at the scene for ambulance crew and further assist medical and nursing staff with initial casualty management. A report can be written on a spare piece of paper and should include the following:

- **Date, time, location of incident**
- **Casualty details** - Name, DOB, Address.
- Contact person for casualty - Family member, friend.
- **What happened** - Brief description of injury or illness.
- **First aid action taken** – What you did to help the casualty.
- **Other health problems** – Diabetes, epilepsy, asthma, heart problems, operations.
- **Medications/ allergies** – Current tablets, medicines.
- **When casualty last ate or drank** – Tea, coffee, water, food.
- **Observations of Vital Signs** - Conscious state, pulse, breathing, skin state, pupils.
- **First aider's name/ phone number** in case medical staff need any further information.

The back inside page contains a 'First Aid Report Form,' which can be torn off and used at a first aid incident.

Record Keeping Workplaces and child care centres have legal duty to complete incident reports. It is important to use the correct documentation and record keeping used in first aid situations. Every organisation also has its own procedures and documentation so familiarize yourself with the correct process.

All documentation must be legible and accurate and must contain a description of the illness or injury and any treatment given. Thorough and accurate medical records are essential in any court case or workers compensation issue.

In addition: • Write in pen (not pencil) • Never use correction fluid – cross out and initial any changes • Sign and date the form • Keep records strictly confidential and store in a locked cabinet • Ensure electronic records are password protected.

Self-help/ Evaluation

Each person reacts differently to traumatic events and in some instances strong emotions may affect well being and work performance. Symptoms may appear immediately or sometimes months later after an event and may develop into chronic illness.

There is no right or wrong way to feel after an event. It is important for all people who have been involved in an incident take part in a debrief. Workplaces must provide opportunity for debriefing after an incident. In a community setting speaking to an understanding friend, counsellor or medical professional may be beneficial in assisting you to cope with the situation. In addition, seeking feedback from medical personnel about your first aid performance may assist with self-improvement and prepare you better for any future events.

Some Reactions/ Symptoms • Crying for no apparent reason • Difficulty making decisions • Difficulty sleeping • Disbelief • Irritability • Disorientation • Apathy • Sadness • Depression • Excessive drinking or drug use • Extreme hunger or lack of appetite • Fear/anxiety about the future • Feeling powerless • Flashbacks • Headaches • Stomach problems • Heart palpitations • Muscle aches • Stiff neck

Needle Stick Injury

Needle stick injury causes a penetrating wound that usually does not bleed much. The risk of infection is higher because the wound is not flushed by bleeding.

Common causes of needle stick type injury are:

- Syringes • Fish hooks
- Nails • Tools eg screw driver

Reduce the risk of needle stick injury:

- Never bend, snap or re-cap used needles
- Place used needles into a sharps container
- Follow workplace procedures when using tools
- Use personal protective equipment (PPE) provided by workplace
- Hepatitis B vaccination for workers who regularly come in contact with blood/ body fluids

NB. Disposable gloves will not protect against needle stick injury.

Infection Control

Minimise the risk of cross infection to yourself, casualty and bystanders with good hygiene and use of **standard precautions to control infection:**

Prior to treatment:

- Wash hands with soap and water, or rinse with antiseptic.
- Cover cuts on your hands with a waterproof dressing before putting on gloves.
- Wear disposable gloves.
- Do not touch any unclean object when wearing gloves
- Use a plastic apron and eye protection.
- Cover any adjacent areas likely to produce infection.

During treatment:

- Use a face shield/mask, if available when performing resuscitation.
- DO NOT cough, sneeze or breath over a wound.
- Avoid contact with body fluids.
- DO NOT treat more than one casualty without washing hands and changing gloves.

After treatment:

- Clean up the casualty, yourself and immediate vicinity.
- Safely dispose of used dressings, bandages and disposable gloves
- Wash hands thoroughly with soap and water, even if gloves were used.
- Restock first aid kit.



FIRST AID

- Hold wound under running water.
- Wash wound with soap.
- DO NOT scrub or suck wound.
- Place syringe in plastic drink bottle or sharps container.
- Take syringe to hospital for analysis.

First Aid Kits

- Locate first aid kits in workplaces, vehicles and in the home in a clean, dry, dust-free location.
- Make sure first aid kits are **accessible** and signage clearly indicates their location.
- **Check** kits regularly for completeness and valid dates.
- Contents will **vary** depending on the number of employees, and the **industry** you work in. High risk industries may need extra modules.
- List **first aid officers** in workplace kits.
- Under **State and Territory legislation** first aid kits are required in all workplaces.
- First aid Codes of Practice (or Compliance Codes) indicate contents for first aid kits.

Contents for workplace first aid kit

from WorkSafe Vic Compliance code

Basic first aid notes	1
Book for recording first aid provided	1
Disposable gloves	2
Individually wrapped sterile adhesive strips	10
Large sterile wound dressings	1
Medium sterile wound dressings	1
Non-allergenic tape	1
Plastic bags for disposal	2
Resuscitation mask or shield	1
Rubber thread or crepe bandage	2
Safety pins	5
Scissors	1
Small sterile wound dressings	1
Sterile coverings for serious wounds	1
Sterile eye pads (packet)	2
Sterile saline solution 15 mls	2
Triangular bandages	2
Tweezers	1

Also contact details for First Aid Officers & emergency services



Casualty Assessment

When dealing with a person who is ill or injured,

you need a clear **Plan of Action**:

1. Start with a Primary Survey (DRSABCD), (Pg 3) which enables identification and management of life-threatening conditions.
2. If there are no life-threatening conditions which require immediate first aid (severe bleeding, no response) then proceed to **Secondary Survey**.



Secondary Survey: is a systematic check of the casualty involving

- **Questions** • **Examination** • **Clue Finding** to help identify any problems that may have been missed.
- If the casualty is **unconscious**, the secondary survey is conducted in the recovery position. You may need to look for external clues and ask bystanders some questions.
- If the casualty is **conscious** start with questions followed by examination. Remember to introduce yourself, ask for consent to help and ask their name.

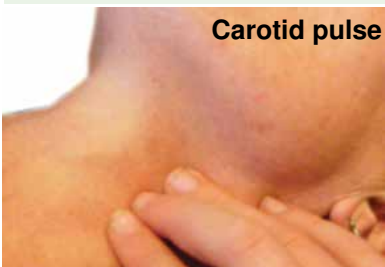
Questions

- What happened?
- Do you feel pain or numbness anywhere?
- Can you move your arms and legs?
- Do you have any medical conditions?
- Do you take any medications?
- Do you have any allergies?
- When did you last eat?
- (Bystanders may be helpful)

External Clues

Medical Alert: casualties with medical conditions such as diabetes, epilepsy or severe allergy usually have a bracelet, pendant or card to alert people of their condition.

Medications: People on regular medication usually carry it with them.



Carotid pulse

NB. The pulse is not checked during CPR

Examination

Vital Signs: are indicators of body function and provide a guide to the casualty's condition and response to treatment.

- **Conscious State:** There are 3 broad levels –
 - Conscious
 - Altered consciousness
 - Unconscious
 Altered consciousness = uncooperative, aggressive, confused, drowsy.
- **Pulse:** The carotid pulse in the neck is the best pulse to check. Feel for rate, rhythm, force, irregularities.
 Normal pulse rates: Adults: 60-80 /min
 Children: 80-100/min
- **Breathing:** Look, listen and/or feel for breathing rate, depth and other noises eg wheezing, noisy breathing.
 Normal breathing rates: Adults 16-20 breaths/min
 Children: 25-40 breaths/min
 (Check pulse/ breathing for **15 secs then x by 4** to get rate/min. Use a watch)
- **Skin State:** Look at face and lips.
 Red, hot skin – fever, heat exhaustion, allergy
 Cool, pale, sweaty – shock, faint, pain, anxiety
 Blue lips (cyanosis) – airway obstruction, asthma, flail chest, collapsed lung, heart failure, hypothermia
- **Pupils:** Unequal, reactive to light

Head to Toe:

- Seek consent from the conscious casualty before you begin.
- Look and feel for bruises, cuts, deformities and painful areas.
- Start from the head and work down.
- Explain to casualty what you are about to do at each stage eg "I'm just going to move your arm".
- Ask casualty for feedback at each stage eg "Does it hurt when I move your arm?"

Advanced Casualty Assessment

Blood Pressure:

- Blood pressure (BP) is defined as the force exerted by circulating blood on the walls of blood vessels
- BP is usually taken at the brachial artery (crease of elbow) with a sphygmomanometer and stethoscope.
- Two pressure readings are recorded - systolic (heart contracts) and diastolic (heart relaxes).
- The pressure difference between systolic and diastolic is normally 40-50 mmHg.
- A normal adult BP is 120/70 but varies with age.
- Blood pressure and pulse are very closely related and to make an accurate assessment of the circulatory state both must be compared at regular intervals.



Aneroid Blood Pressure Monitor

- **Automatic blood pressure machines** are battery operated and easy to use.
- The digital monitor has a gauge and stethoscope built in.
- The pressure cuff self inflates at the touch of button and deflates automatically.
- The blood pressure reading (and sometimes pulse) displays on a digital screen.



Automatic Digital Blood Pressure Monitor

Low Blood Pressure (Hypotension):

Systolic pressure < 90 mmHg.

NB. A rising pulse rate and a dropping BP following trauma is suggestive of internal bleeding.

High Blood Pressure (Hypertension):

Systolic above 140 and/or diastolic above 90mmHg.

NB. High blood pressure and a rapid pulse is associated with acute pain (adrenaline surge).

Temperature:

Causes of high temperature:

- **Infection:** Fever is one way the body fights infection. On its own, fever does not cause harm. However, fever could be a sign of a life threatening infection eg
 - Meningitis
 - Pneumonia
 - Urine infection
- **Inability to regulate temperature:** The body's cooling mechanism can't prevent overheating. Causes can be
 - Brain damage
 - Some drugs
 - Dehydration
 - Heat stroke.

Seek medical aid ☎ if:

- Child <3 months with temperature above of 38 °C
- Child 3-6 months with temperature above 39 °C
- Child > 6 months with other signs of being unwell eg floppy and drowsy or you're concerned.
- Temperature above 39 °C with no signs of illness

Types of Thermometer:

- Oral
- Tympanic (ear)
- Rectal.
- Tympanic (ear) - not suitable for babies.
- Rectal - Most accurate for babies



Instructions:

- Use disposable shields to prevent cross infection.
- Follow makers instructions.
- Digital thermometers: wait for the beep.

First Aid Incident Report Form

(Complete this form as best as you can and give copy to paramedic and keep record in accordance with WHS procedures)

Date: / /	Time:	Location:
Casualty Details:		
Name:	DOB: / /	M / F
Home Address:		
		Postcode:
Family Contact Name:	Phone	Notified <input type="checkbox"/> yes
Work department:	Supervisor name:	Notified <input type="checkbox"/> yes
	Management::	Notified <input type="checkbox"/> yes
	Work safe:	Notified <input type="checkbox"/> yes
What Happened (a brief description):		
First Aid Action Taken:		
Ambulance called: <input type="checkbox"/> yes	Time:	Referred to:
Known health issues		Current Medications:
Diabetes <input type="checkbox"/> yes		
Epilepsy <input type="checkbox"/> yes		Known Allergies:
Asthma <input type="checkbox"/> yes		
Anaphylaxis <input type="checkbox"/> yes		Last ate or drank: What?
Heart <input type="checkbox"/> yes		When?
Other		Medications given
	What	Time
		Dose



Turn over

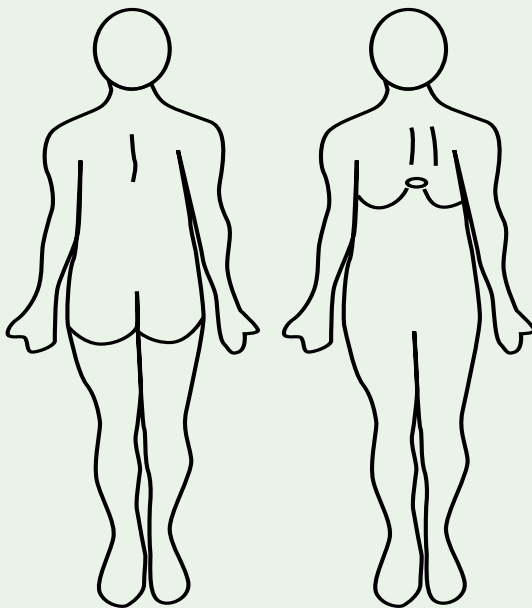
Casualty Examination:

mark location of injuries on diagram and briefly describe injury eg cut, bruise, pain, swelling, burn.


Verbal Secondary Survey

W-H-A-M-M-E-D

- What happened
- Hurt - where does it hurt
- Allergy
- Medications
- Medical conditions - alerts
- Move your arms and legs
- Eat or drink last
- Document the answers



Observations of Vital Signs:

Time					
Conscious State Fully Conscious Drowsy Unconscious					
Pulse rate: description:					
Breathing rate: description:					
Skin State Colour: Temp: Dry/Clammy:					
Pupils 					

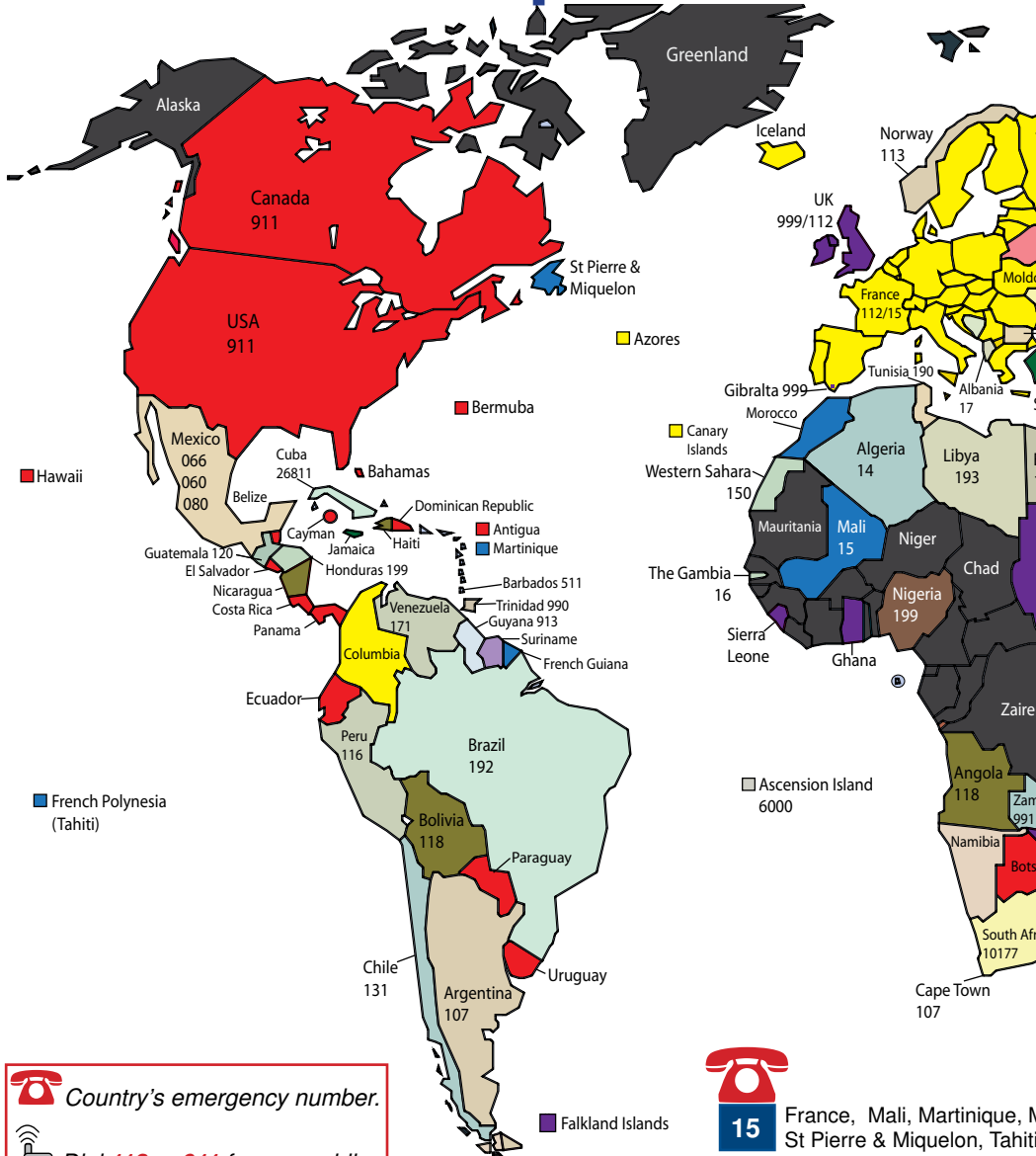
First Aider's Details:

(In case the hospital needs to contact you for more information regarding the incident).

Name:(Print) _____

Phone: _____ Signature: _____

World Map of International



Country's emergency number.



Dial 112 or 911 from a mobile phone with GSM coverage anywhere in the world and your call will be automatically directed to that country's emergency number.









911



- 15** France, Mali, Martinique, Mauritania, St Pierre & Miquelon, Tahiti
- 110** Bhutan, Jamaica, Sri Lanka
- 117** Madagascar, Mozambique, Niger
- 118** Andorra, Angola, Bolivia, Honduras, San Marino
- 199** Bangladesh (Dhaka), Nigeria

No National Emergency Number

Emergency Numbers

	Country		
	Australia		
	000		
	112		
	13 11 26		
Embassy 			
Travel Agent 			

Dial '112' or '911' from a mobile phone with GSM coverage anywhere in the world and your call will be automatically directed to that country's emergency number.

Local Emergency Numbers

	Phone	Notes
DOCTOR		
DENTIST		
HOSPITAL		
PHARMACY		
POLICE		
TAXI		
ELECTRICAL		
GAS		
WATER		
VEHICLE BREAKDOWN		

ABC of CPR is divided into four main colour coded sections:

- 1. Essential First Aid**
- 2. Low Voltage Rescue (LVR)**
- 3. Advanced Resuscitation**
- 4. General First Aid**

Each subsection shows you step-by-step how to recognise and deal with an emergency situation.

In conjunction with an approved first aid course, this book will assist you learn the skills to perform CPR, LVR and Advanced Resuscitation.

For training purposes, this book supports the Australian Health Training Package competency units:

HLTAID001: Provide CPR
HLTAID007: Provide Advanced Resuscitation Techniques

UETTDRRF06B: Perform Rescue from a Live LV Panel

This book incorporates the latest Resuscitation Guidelines and is written for Australian conditions. This book contains international emergency numbers and is a useful resource no matter where you are in the world.



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