



AUSTRALIAWIDE  
FIRST AID

# First Aid Manual eBook

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### **Warning**

This is an education publication covering medical conditions, injuries, and treatments. It includes images or information that may be sensitive to some people.

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### Directions

Students should read and study pages assigned to the First Aid course they have enrolled in:

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## **EMERGENCY CONTACT NUMBERS**

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In Australia, the national emergency number is 000.

**112 can be used, on a mobile phone only, to call Emergency Services, anywhere in the world where there is mobile phone service coverage.**

Ask for the service you require: Ambulance, Fire, or Police.

Then, try to stay calm and answer the operator's questions as best you can.

You will be asked the location/address of the incident, the number of casualties, and the nature of the emergency.

An ambulance should be called in the following circumstances:

- Loss of consciousness, even if only briefly.
- A less than alert conscious state.
- Suspicion of a fracture.
- Suspicion of a spinal injury.
- Damage to eyes or ears.
- Penetration of the skin.
- Deep open wounds.
- A severe asthma attack.
- An anaphylaxis reaction.



### **Other useful Numbers:**

Poisons Information Centre – 13 11 26

Health Direct - 1800 022 222

Diver Emergency Network – 1800 088 200

Asthma Australia – 1800 645 130

National Asthma Council Australia – (03) 9929 4333

Allergy and Anaphylaxis Australia – 1300 728 000

Diabetes Australia – 1300 136 588

Stroke Foundation – 03 9670 1000

Heart Foundation – 1300 724 475

Epilepsy Action Australia – 1300 374 537

Life Line – 13 11 14

Beyond Blue – 1300 224 636

Kids Helpline – 1800 551 800 for young people 5-25 years

Suicide Call Back Service – 1300 659 467

MensLine Australia – 1300 78 99 78 for men of any age



## **AUSTRALIAN RESUSCITATION COUNCIL (ARC)**

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The Australian Resuscitation Council, otherwise known as the ARC, is the co-ordinating body that provides guidelines on resuscitation techniques and terminology for all major groups involved in the teaching and practice of resuscitation and first aid. They are a member of the Australian and New Zealand Committee on Resuscitation (ANZCOR), which is a member of the worldwide International Liaison Committee on Resuscitation (ILCOR).

A first aider must always provide first aid in accordance with the current Australian Resuscitation Council guidelines. For more information on the ARC please visit: <https://resus.org.au>

The ARC recommends that individuals refresh their skills in **CPR every 12 months** and **every 3 years for First Aid and Emergency First Aid**.

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## PRINCIPLES OF FIRST AID

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First aid is an important part of everyday life at home, work or at play. Everyone should learn first aid and be willing to administer basic care until emergency assistance arrives. Not every incident requiring first aid is a life-and-death situation. First aid knowledge is commonly used to manage minor injuries at home or work.

First aid is the immediate care of an injured or suddenly sick person. It is the care that a person applies as soon as possible after an accident or sudden illness. This prompt care and attention prior to the arrival of the ambulance can sometimes mean the difference between life and death or between a full or partial recovery.

The **five** principles of first aid are to:

1. **Preserve life** – This includes the life of the casualty, bystander, and rescuer.
2. **Protect the casualty from further harm** – Ensure the scene is safe.
3. **Provide pain relief** – This could include the use of ice packs or simply applying a sling.
4. **Prevent the injury or illness from becoming worse** – Ensure the treatment you provide does not make the condition worse.
5. **Provide reassurance** – Stay with the casualty, providing emotional reassurance.

It is important to understand that first aid has its limitations and does not take the place of professional medical treatment.

Taking immediate action is the essential principle in first aid. Bystanders or relatives may not recognise the basic symptoms of an injury or illness and may wait hours before calling for help. Often people are worried about “doing the wrong thing” therefore don’t attempt first aid at all.

A casualty who is not breathing effectively or is bleeding heavily, requires immediate assistance. Prompt effective first aid provides the casualty with the best opportunity possible of recovery.

Each emergency is different, so it is impossible to provide you with a precise list of things you need to do for every emergency. It is important that prompt action does not lead to panic and the first aider should form a plan of action. Careful and deliberate action undertaken without too much delay is most beneficial to the casualty. If a casualty is stressed or panicking, try to remain calm and think your actions through. A calm and controlled first aider will give everyone confidence the event is being handled efficiently and effectively.

## Communicating details of an incident to Paramedics and Emergency Workers

It is important to calmly provide accurate and detailed information about the casualty and the incident to Paramedics and emergency workers when they arrive. The actions taken and treatment you have provided, the time of the incident, any medications involved, and the behaviour of the casualty, are all important things emergency workers will want to know. Provide details in a way that recognises that it is time critical.

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## LEGAL CONSIDERATIONS OF FIRST AID

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It is important to understand that providing first aid to a person can lead to potential legal consequences; therefore, an individual performing first aid needs to be aware of the following:

- Duty of care
- Negligence
- Consent
- Privacy and confidentiality
- Own skills and limitations

### Duty of Care

Duty of care is your obligation as an individual to ensure the safety or well-being of others and yourself. As a first aider, if you've commenced treatment for an individual then you have a duty of care to provide a standard of reasonable care for first aid treatment. A duty of care arises as you have the relevant skills and knowledge to provide first aid during an emergency situation. A breach in duty of care occurs when the individual providing treatment fails to act in accordance with their first aid training.

The **common law does not impose an automatic duty on first aiders to go to the aid of every casualty they come across**. However, first aiders do have a duty to provide first aid assistance if they have voluntarily taken on that role. For example, a nominated first aid officer in a workplace owes a duty of care to assist another person in that workplace.

Legislation can also impose a duty of care. For instance, legislation in some States advises staff working within a childcare centre that they must provide medical aid to a child who becomes ill or is injured. In the Northern Territory, the Criminal Code makes it a criminal offence, for a person who has the ability to provide first aid to 'callously fail' in providing a person urgently in need and whose life may be endangered. The penalty is up to 7 years imprisonment.

Once you start first aid treatment of a casualty, you do take on a duty of care to provide first aid with a reasonable standard and ensure your actions do not cause further harm or injury to the casualty. You should continue to provide first aid once this treatment has begun, until:

- The scene becomes unsafe.
- Another trained first aider arrives and takes over.
- Qualified help arrives and takes over.
- The casualty shows signs of recovery.
- You become physically unable to continue.

A first aid responder is excluded from liability when they help a person in an emergency who is injured, or at risk of being injured. Such protection from civil liability for an act or omission exists as long as:

- The person rendering assistance does so in good faith (that is, acting honestly, without fraud, collusion, or participation in any wrongdoing).
- The person's action was without expectation of reward or payment.
- The person was not responsible for the injury in relation to which the assistance was provided.
- The person's capacity to exercise reasonable care and skill was not significantly impaired by being under the influence of alcohol or drugs.
- The person exercises reasonable care and skill.
- The person does not impersonate a health care or emergency services worker or a police officer or otherwise falsely represents that he or she has skills or expertise in connection with the rendering of emergency assistance.

In addition, each Australian jurisdiction has legislation that provides protection for volunteers of charitable, religious, educational, and benevolent community organisations. Such volunteers are protected from civil liability for acts or omissions made or done in good faith within the scope of the activities organised by the community organisation.

The protection does not extend to damage caused by the volunteer's criminal conduct or impairment of the volunteer's ability by alcohol or drugs.

## Negligence

In the unlikely event legal action is taken against a first aider in relation to providing first aid treatment, the courts would identify the circumstances surrounding the incident to determine whether the first aider acted negligently in the treatment of first aid.

The following factors must all be present for a first aider to be found negligent:

- A duty of care existed between the first aider and the casualty.
- The first aider did not provide a standard of reasonable care and skill in providing first aid.
- The first aider breached the relevant standard of care.
- The casualty suffered harm or injury as a result of an act or omission of the first aider.

A first aider is not considered a medical professional; as a result, a court would need to identify their level of first aid training and assess the standard of care a reasonable person would provide under the same emergency situation.

It is in the public's interest to encourage people to provide assistance to others, therefore the Australian courts would view a first aider as liable; if the evidence provided demonstrated that the behaviour of the first aider was excessively negligent during the emergency situation.

**For Example:** A first aider gives cardiopulmonary resuscitation (CPR) to a casualty in cardiac arrest. During this CPR a rib is broken. The resuscitation is successful and after the event, the casualty decides to sue for the rib injury.

The court would look at the facts and may decide that:

- It is reasonable to expect a first aider might break a casualty's rib while delivering CPR to save the casualty's life.
- The first aider acted with reasonable care and skill.
- The first aider was not negligent in providing CPR in this way.
- The outcome for the casualty of not performing CPR could have been far worse than suffering a broken rib.

## Consent

Prior to commencing first aid on an individual, **you will need to obtain permission or agreement to provide treatment, wherever possible.** This safeguards the rights of the individual of any unwanted personal contact or treatment. If a competent adult **does not consent to you providing them first aid treatment, you must respect their decision** and not proceed with any treatment.

*However, if the individual is **unconscious or not breathing, the legal requirement to obtain consent before assistance or treatment is waived** under Common Law and Statute law in several circumstances.*

Adults are assumed to be competent unless they have impaired decision-making capacity. **Children**

are regarded as having impaired-decision making capacity until the age of 18. However, most states permit younger persons to make decisions if they are able to understand the issues involved.

In the case of infants and other children who are not capable of understanding the issues, refusal to receive treatment can be difficult to interpret. In general, it is the parent/guardian who should decide whether the advantages outweigh the burden of any distress caused by treatment. In the absence of a parent/guardian rescuers should regard children as having impaired decision-making capacity.

Parents who have children attending education or care, have usually signed consent as part of their child's enrolment for first aid to be provided by the facility in the event of an emergency while they are responsible for the child.

Although treatment normally requires consent, an injured or ill person should not be deprived of treatment merely because they lack decision-making capacity.

The key legal factors which determine whether treatment can be given without consent are:

- Whether the victim has or has not decision-making capacity.
- Whether an advance care directive exists.
- The degree of urgency of the situation.
- Whether a substitute decision-maker is present, willing, and able to consent.

If the victim is unable to give consent and no substitute decision maker is present, the legal requirement to obtain consent before assistance or treatment is waived under Common Law and Statute law in several circumstances.

ANZCOR recommends that rescuers seek the consent of a victim before giving treatment. If the victim is incapable of consenting, a rescuer may give urgent treatment to preserve life and health without consent unless an advance care directive prohibits such treatment. If the victim is incapable of consenting and the treatment proposed is not urgent, the consent of a person responsible, if present and willing to give consent, should be sought.

## Privacy and Confidentiality

Privacy and confidentiality in providing first aid refers to ensuring information about the casualty is protected from others third parties. The First Aider has a legal responsibility in safeguarding information about the condition of the casualty and incident details to protect the privacy of the casualty.

Examples in breaches of privacy and confidentiality include:

- Using your mobile phone to take pictures.
- Disclosing the casualty's personal details to others.
- Discussing with others the incident details.



Information about the incident or the condition of the casualty **must only be provided to Emergency Services personnel and/or the workplace supervisor, if appropriate.**

## Own Skills and Limitations

It is vital that a first aider knows and understands the level of first aid training undertaken and to keep their skills up-to-date. **At no time can a first aider go beyond their level of training.** Be aware of your own skill level and its limitations. DO NOT attempt any process or procedure for which you

are not trained in.

## Respectful Behaviour

You as a **first aider must always display respectful behaviour towards the casualty** by maintaining respect for privacy, cultural beliefs, religious belief, ethnicity, languages, genders, disabilities, and age when communicating and interacting with the casualty.

This could include speaking in a clear calm and slow manner, avoiding eye contact, avoiding personal contact with the casualty, or avoid treating the casualty if another first aider is available who is the same sex as the casualty.

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## FIRST AID IN THE WORKPLACE

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### Code of Practice

The Model Code of Practice on first aid in the workplace is an approved code of practice under section 274 of the Work Health and Safety Act (the WHS Act).

An approved code of practice provides practical guidance on how to achieve the standards of work health and safety required under the WHS Act and the Work Health and Safety Regulations (the WHS Regulations) and effective ways to identify and manage risks.

The Model Code of Practice for first aid in the workplace gives directional guidance on:

#### **Section 1. An overview of Model Code of Practice: first aid in the workplace**

- 1.1 Who has health and safety duties in relation to first aid?
- 1.2 What is required in providing first aid?

#### **Section 2. How to determine first aid requirements for your workplace**

- 2.1 The nature of the work and workplace hazards
- 2.2 Size and location of the workplace
- 2.3 The number and composition of workers and others at the workplace

#### **Section 3. First aid equipment, facilities, and training**

- 3.1 First aid kits
- 3.2 First aid signs
- 3.3 Other first aid equipment
- 3.4 First aid facilities
- 3.5 First aiders
- 3.6 First aid procedures
- 3.7 Providing first aid information
- 3.8 Reviewing your first aid requirements

Each State or Territory has implemented their own Code of Practice (CoP) on first aid in the workplace. Several States though, have implemented their First Aid CoP based on the national model code of practice developed by Safe Work Australia as noted above as part of the harmonisation of work health and safety laws.

States and Territories to do so are:

- Australian Capital Territory – ACT
- New South Wales – NSW
- Northern Territory
- Queensland
- South Australia
- Tasmania

The other two States, Victoria and Western Australia while meeting national legislative requirements, have their own State based version First Aid Code of Practice.

### Hazards That May Require First Aid

Providing immediate and effective first aid to workers or others who have been injured or become ill at the workplace may reduce the severity of the injury or illness and promote recovery. In some cases, it could mean the difference between life and death.

Certain work environments have greater risks of injury and illness due to the nature of the work

being carried out and the nature of the hazards at the workplace. For example, factories, motor vehicle workshops and forestry operations have a greater risk of injury that would require immediate medical treatment than offices or libraries. These workplaces will therefore require different first aid arrangements.

**Table 1:** Injuries associated with common workplace hazards that may require first aid

<b>Hazard</b>	<b>Potential harm</b>
Manual tasks	Overexertion can cause muscular strain.
Working at height	Slips, trips, and falls can cause fractures, bruises, lacerations, dislocations, concussion.
Electricity	Potential ignition source could cause injuries from fire. Exposure to live electrical wires can cause shock, burns and cardiac arrest.
Machinery and equipment	Being hit by moving vehicles or being caught by moving parts of machinery can cause fractures, amputation, bruises, lacerations, dislocations.
Hazardous chemicals	Toxic or corrosive chemicals may be inhaled, contact skin or eyes causing poisoning, chemical burns, irritation. Flammable chemicals could result in injuries from fire or explosion.
Extreme temperatures	Hot surfaces and materials can cause burns. Exposure to heat can cause heat stress & fatigue. Exposure to extreme cold can cause hypothermia & frost bite
Radiation	Welding arc flashes, ionizing radiation and lasers can cause burns
Violence	Behaviours including intimidation and physical assault can cause nausea, shock, and physical injuries
Biological	Infection, allergic reactions
Animals	Bites, stings, kicks, scratches can cause infections, respiratory distress, cardiac arrest, bruises, dislocations, fractures.

Keeping a record of all injuries, ‘near misses’ and other information will assist with controlling risks at the workplace and will be useful to make appropriate decisions about first aid.

First aid equipment such as properly stocked first aid kits, automated external defibrillators (AED), eye wash, and shower equipment and facilities should be located at convenient points and in areas where there is a higher risk of an injury or illness occurring.

## **First Aiders**

The person/s conducting a business or undertaking (PCBU) must ensure 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.

As a minimum, first aiders should hold nationally recognised Statement/s of Attainment issued by a Registered Training Organisation (RTO) for the nationally endorsed first aid unit of competency Provide First Aid or a course providing equivalent skills. A higher level or additional training may be required to ensure your first aiders have appropriate skills for the risks you have identified in your workplace.

## Additional Training for First Aiders

As per the Model [First Aid in the Workplace Code of Practice](#) the following excerpt notes the additional training requirement for qualified first aiders:

*First aiders should attend training on a regular basis to refresh their first aid knowledge and skills and to confirm their competence to provide first aid.  
Refresher training in CPR should be undertaken annually and first aid qualifications should be renewed every three years.*

*Where workers or others at the workplace have known existing medical conditions, first aiders should be trained to respond to these conditions if the topic has not been covered in previous first aid training.*

## Workplace First Aid Kits

All workers must be able to access a first aid kit. This will require at least one first aid kit to be provided at their workplace.

### Contents

The first aid kit should provide basic equipment for administering first aid for injuries including:

- Cuts, scratches, punctures, grazes, and splinters.
- Muscular sprains and strains.
- Minor burns.
- Amputations and/or major bleeding wounds.
- Broken bones.
- Eye injuries.
- Shock.

The contents of first aid kits should be based on a risk assessment. For example, there may be higher risk of eye injuries and a need for more eye pads in a workplace that involves machinery or chemicals.

For example, where:

- Chemical liquids or powders are handled in open containers.
- Spraying, hosing or abrasive blasting operations are carried out.
- There is a possibility of flying particles causing eye injuries.
- There is a risk of splashing or spraying of infectious materials.
- Welding, cutting, or machining operations are carried out.

Extra equipment may be needed in remote workplaces, for example for serious burns, breathing difficulties or allergic reactions.

**Medication including analgesics, such as paracetamol and aspirin, should not be included in first aid kits** because of their potential to cause adverse health effects in some people, including pregnant women and people with medical conditions such as asthma. Supply of these medications may also be controlled by drugs and poisons laws. Workers requiring prescribed and over-the-counter medications should carry their own medication for their personal use as necessary.

However, workplaces may consider including an asthma-relieving inhaler and a spacer to treat asthma attacks and epinephrine auto-injector for the treatment of anaphylaxis or severe allergies. These should be stored according to the manufacturers' instructions and first aiders should be

provided with appropriate training.

Some types of workplaces may require extra items to treat specific types of injuries or illnesses. These may also require your first aiders to have additional training.

### **Design of Kits**

First aid kits can be any size, shape or type to suit your workplace, but each kit should:

- Be large enough to contain the necessary items.
- Be immediately identifiable with a white cross on green background prominently displayed on the outside.
- Contain a list of the contents for that kit.
- Be made of material that will protect the contents from dust, moisture, and contamination.



For most workplaces, a first aid kit should include the following items as shown in the table:

<b>First Aid Item</b>	<b>Quantity</b>
Instructions for providing first aid—including cardiopulmonary resuscitation(CPR) flow chart	1
Notebook and pen	1
Resuscitation face mask or face shield	1
Disposable nitrile examination gloves (nitrile is a latex-free rubber suitable for people with latex allergies)	5 pairs
Gauze pieces 7.5 x 7.5 cm, sterile 3 per pack	5 packs
Saline, 15 ml	8
Wound cleaning wipe, single 1% Cetrimide BP	10
Adhesive dressing strips—plastic or fabric, packet of 50	1
Splinter probes, single use, disposable	10
Tweezers/forceps	1
Antiseptic liquid/spray 50 ml	1
Non-adherent wound dressing/pad 5 x 5 cm (small)	6
Non-adherent wound dressing/pad 7.5 x 10 cm (medium)	3
Non-adherent wound dressing/pad 10 x 10 cm (large)	1
Conforming cotton bandage, 5 cm width	3
Conforming cotton bandage, 7.5 cm width	3
Crepe bandage, 10 cm, for serious bleeding and pressure application	1



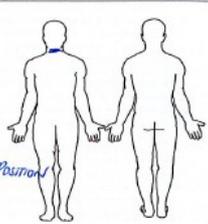
Scissors	1
Non-stretch, hypoallergenic adhesive tape—2.5 cm wide roll	1
Safety pins, packet of 6	1
BPC wound dressings No. 14, medium	1
BPC wound dressings No. 15, large	1
Dressing—Combine Pad 9 x 20 cm	1
Plastic bags—clip seal	1
Triangular bandage, calico or cotton minimum width 90 cm	2
Emergency rescue blanket for shock or hypothermia	1
Eye pad, single use	4
Access to 20 minutes of clean running water or, if this is not available, hydrogel 3.5 gm sachets	5 sachets
Instant ice pack for treatment of soft tissue injuries and some stings	1

### Record-keeping – Incident Report

A record of any first aid treatment provided should always be kept by the first aider and reported to managers on a regular basis to assist reviewing first aid arrangements. WH&S regulations require that an incident report must be completed every time an incident in the workplace has occurred.

When preparing a report, some general guidelines that should be followed:

- Use black or blue ink only.
- Any corrections should be crossed out with a single line and initialled.
- Do not use correction fluid to correct any mistakes.
- Sign and date the record.
- The information should be kept confidential and should only be accessed by authorised personnel. In a workplace incident, a copy should be provided to authorised employer representatives for auditing and Workplace Health & Safety (WHS) monitoring. The format that is used to report injury and illness varies in different workplace and different States due to different legislative requirements. For further information on safe work practices please visit: [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

Incident, Injury, Trauma and Illness Report Form (Task M6)			
Complete the following incident report form based on the completed CPR practical scenario			
Treated Person's Details		Date of Birth: 1 / 1 / 2018	Gender:(circle) <input checked="" type="radio"/> M <input type="radio"/> F <input type="radio"/> X
Given Name/s: ADAM		(Family/last) Surname: STRAW	
Incident / Injury / Trauma / Illness Details			
Location: CHILD CARE		Time: 11 am/pm	Date: 04 / 10 / 2018
Circumstances leading up to the occurrence / or what was found at scene upon arrival		ENTERED THE ROOM AND FOUND STAFF MEMBER HOLDING A BABY DISTRESSED, ADVISING HIS NOT BREATHING	
Nature of Injury / Trauma / Illness		Mark location/s of injury or aid given	
<input type="checkbox"/> Abrasion, scrape <input type="checkbox"/> Bite <input type="checkbox"/> Broken bone / fracture <input type="checkbox"/> Bruise <input type="checkbox"/> Burn <input type="checkbox"/> Concussion <input type="checkbox"/> Cut <input type="checkbox"/> Sprain <input type="checkbox"/> Swelling <input checked="" type="checkbox"/> Unconscious / not breathing <input type="checkbox"/> Other (please specify)			
Details of action taken:		CHECKED THE INFANT FOR RESPONSE, WHEN THE INFANT VOMITED THEY WERE TURN ONTO THEIR SIDE TO CLEAR THE AIRWAY, CPR COMMENCED AS CASUALTY HAS NOT BREATHING. CPR CONTINUE UNTIL INFANT RESPONDED, PLACED INFANT INTO RECOVERY POSITION	
Treatment Outcome (ambulance attended, left on own, left with parent/friend/carer)			
AMBULANCE CALLED.			
First Aider Details		Date: 4 / 10 / 2018	
Name: MICHELLE DOE		Time: 11 am/pm	
Signature: 			

The information that **must** appear on an incident report is:

- The date and time of incident.
- Brief personal details (name, address, date of birth).
- History of the illness/injury.
- Observations (signs, symptoms, and vital signs).
- First aider's assessment of injury/illness.
- Name, title and signature of first aider.
- The date of report.

The first aider must keep a copy of the incident report in a secure place. A copy of the report should be sent with the casualty to the hospital or medical facility.

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## **POST-INCIDENT DEBRIEF AND REVIEW/EVALUATION**

It is important that those involved in an incident participate in a post-incident debriefing/evaluation to identify, assess, and examine areas for improvement.

Factors to consider when reviewing the firstaid response are:

- Did the first aider/s have the appropriate training for the first aid provided and required?
- How long did it take for the first aiders to appear on the scene?
- Was the appropriate first aid equipment such as an AED, EpiPen, Asthma puffer available, in date and in good working order?
- Was the first aid kit appropriately stocked with the required items and were they in date?
- Was the required equipment and supplies near at hand or was there an extended time before they arrived upon the scene?
- Was the first aid occurrence managed within the parameters of the workplace's First Aid Plan?
- Any areas of improvement required with the response, supplies, or equipment?

### **Psychological Impacts**

A post-incident debriefing/evaluation also allows those involved in the incident to discuss and express how they felt thus reducing possible psychological impacts.

An emergency of any size can cause unusual stress in people who have been directly and indirectly affected by it. Every person will react differently and a range of responses to an emergency is normal and to be expected. Emotional responses to disasters can appear immediately or sometimes months later. Understanding what you're feeling and taking positive steps can help you cope with this disaster.

Some common responses to emergencies include:

- Crying for "no apparent reason".
- Difficulty making decisions.
- Difficulty sleeping.
- Disbelief, shock, irritability, anger, disorientation, apathy, emotional numbing, sadness, and depression.
- Excessive drinking or drug use.
- Extreme hunger or lack of appetite.
- Fear and anxiety about the future.
- Feeling powerless.
- Flashbacks.
- Headaches and stomach problems.

Methods to reduce psychological impacts include but not limited to:

- Debriefing the situation with a supervisor.
- Writing down what happened and your feelings about it.
- Talking with a friend or colleague about how it felt to be involved.
- Spending time reflecting and getting back into balance by going for a bushwalk, sitting near the water or in the bush.
- Referring to educational material that explains the situation including stress-management techniques.

If you have strong feelings that won't go away, it is recommended that you seek professional help from doctor, counsellor or help-line for support.

## **BASIC ANATOMY AND PHYSIOLOGY OF THE CHEST**

The Heart and the Lungs are the major organs located within the chest cavity. They are the principal organs of the Cardiovascular and Respiratory systems.

### **Cardiovascular System**

The cardiovascular system is one of the major body systems. It transports oxygen, carbon dioxide, waste products, nutrients and hormones to and from various parts of the body.

The cardiovascular system is made up of the heart muscles, the blood vessels and blood. The body has major vessels called 'veins' that carry deoxygenated blood back to the heart from the body, and major vessels called 'arteries' that carry oxygenated blood away from the heart to all the parts of the body.

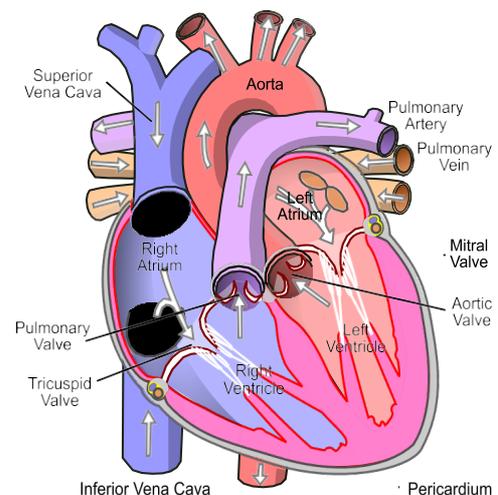
### **Heart**

The heart is a hollow organ about the size of a fist and is composed of special muscle tissue (cardiac muscle). It lies under the breastbone in the centre of the chest cavity. In the average lifetime the heart beats 250 million times and pumps 340 million litres of blood. The heart is a sophisticated pump that is controlled by an electrical current that is initiated in the brain.

First, the upper chambers of the heart relax and fill with blood as the lower chambers contract, forcing out blood through the aorta. Next, the lower chambers relax, allowing blood to flow into them from the contracting upper chambers. Then the cycle is repeated, this happens approximately 70 to 80 times per minute in an average healthy person.

The typical normal resting heart rates which vary with age are as per the table:

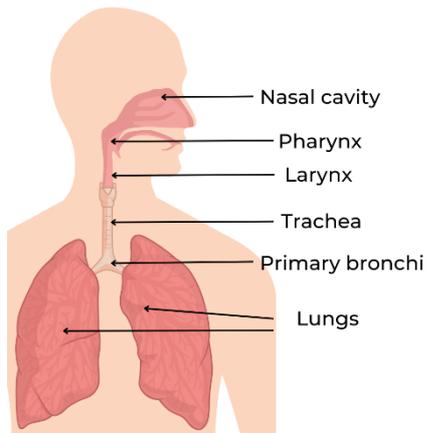
<b>Average resting normal heart rates by age per minute</b>	
<b>Age Range</b>	<b>Heart Rate</b>
1 - 12 months	100 - 160
1 - 5 years	80 - 130
6 - 14 years	60 - 110
15 - adult	60 - 100



### **Respiratory System**

This system is composed of the airway (mouth, nose, trachea, larynx, bronchi, and bronchioles) and the lungs (including the small air sacs called alveoli). The respiratory system provides oxygen to the blood and takes away the waste product called carbon dioxide. Oxygen is extracted from air inhaled through the airway and goes into the blood stream through the membranes of the lungs. For the first aider, maintaining a casualty's airway is of primary importance.

oxygen is needed by cells to produce heat and energy. In using oxygen, the cells produce carbon dioxide as waste. Inhaled air is moistened and warmed as it passes through the upper respiratory tract - the nose, the pharynx, and the larynx. The clean air passes on through the lower respiratory tract - the trachea and lungs where the exchange of gases takes place.



Respiration involves the passage of air in and out of the lungs via the trachea. In the lungs the bronchi then branch into thousands of smaller bronchioles that each have air sacs called alveoli attached to them. The exchange of oxygen and carbon dioxide takes place at this level, between the alveoli and the blood capillaries. Through this process oxygen enters the bloodstream and can be transported around the body.

### ***Rate Ranges for Normal Respiration***

The normal respiration rate, of a person at rest, is 12-20 per minute. This rate rises as the person engages in physical or emotion activity. It can also rise as result of injury or medical conditions such as 'shock', 'asthma', 'hyperventilation' and others. Generally, children have faster respiratory rates than adults, while women breathe more often than men.

The typical normal rate ranges for different age groups are as per the table:

<b>Average normal respiration rates by age per minute</b>	
<b>Age Range</b>	<b>Respiratory Rate</b>
1 - 12 months	30 - 60
1 - 5 years	20 - 40
6 - 14 years	15 - 30
15 - adult	12 - 20

### ***Normal Breathing, Ineffective Breathing and Abnormal Breathing***

Normal respiration is regular, quiet, and effortless and can be influenced by exercise, exertion, fatigue, strong emotions, rest, or sleep.

Observe a person's breathing:

- Rhythm – breaths in and out should occur at regular intervals.
- Character – The way the breathing occurs. Is it: steady/normal, laboured, fast or slow, difficult, gurgling, gasping, noisy/harsh sounding?
- Depth – The regular depth is effortless and natural. Does it appear shallow/minimal or heavy and deep?

Ineffective, abnormal, or absent breathing can occur due to:

- Choking, upper airway obstruction.
- Drowning.
- Suffocation.
- Cardiac arrest.
- Respiratory distress – asthma, etc.

During cardiac arrest, the casualty may show signs of abnormal gasping for air described as gurgling, laboured or agonal breathing. This may appear as breathing to a first aider, but if the casualty is unresponsive to strong stimulation, the gasping should be considered as ineffective breathing, and therefore CPR should be commenced immediately.

### **Digestive System**

This system includes the oesophagus, stomach, and intestines. Fluid and solids are passed through the oesophagus to the stomach where they are processed for further digestion. They are then absorbed into the body through the membranes of the intestines. Some organs, such as the liver and pancreas, are considered accessories to the digestive system as they help process food into various chemical substances used by the body.

### **Endocrine System**

This system involves those organs and glands that secrete chemicals in the form of hormones to stimulate and activate the body's functions. The pancreas for example, controls a variety of important functions by releasing insulin and influencing the body's metabolic process.

### **Integumentary System**

This is the system that includes skin, hair, fingernails, and toenails. Their pigmentation (colour) and growth are linked to the endocrine system. The skin is the body's largest organ and plays an important role in protecting the body from infections. The skin's other functions include acting as a shield against injury and keeping body fluids in. The skin is made from tough, elastic fibres which can stretch without tearing easily.

### **Lymphatic System**

The lymphatic system is a slow-moving system where toxins such as venom tend to accumulate after a bite has occurred. This system provides lymphatic fluid that drains from the body's tissues, which is important as a 'flushing' mechanism. Most toxins and infections absorbed or injected into the tissues are collected by the lymphatic system and 'strained' through lymph nodes in the armpits, neck, and groin. The lymphatic fluid eventually drains into the blood stream.

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## **STANDARD PRECAUTIONS AND INFECTION CONTROL**

Ensuring cleanliness in all first aid situations is extremely important. A first aider must take precautions to ensure the risk of infection is minimised by practising good first aid hygiene procedures.

Infectious diseases such as bacteria, viruses, parasites, or fungi are diseases that cause infections to the human body and, in some cases, are transmitted by contact or by cross-infection. The usual methods of transmission are:

- Direct contact (with an infected person).
- Indirect contact (through coughing, air conditioning or similar).
- Or through a host (insects, worms).

Many deadly infectious diseases have been eradicated, but several, such as poliomyelitis (a virus), are on the increase. Example of Infectious diseases include:

- **Viral infections.** Measles, mumps, rubella, hepatitis, influenza, chickenpox, HIV, and the common cold.
- **Bacterial infections.** Throat infections, whooping cough, diphtheria, rheumatic fever, tuberculosis strains, cholera, staphylococcus infection and some forms of meningitis.
- **Parasitic infections.** Malaria, tapeworm, hookworm, itch mites, pubic and body lice.
- **Fungal infections.** Ringworm, tinea ('Athlete's Foot') and thrush.

The human body has natural defences against infection and remains immune to certain types. While the body responds quickly to infection, the initial defences can be overwhelmed if the infectious agent is numerous. Therefore, it's important that when providing first aid treatment, that standard precautions are taken to limit the risk of infection by avoiding direct contact with the infection.

It is important first aid procedures have due regard for the danger of cross-infection. Simple rules of personal hygiene and wearing gloves are sufficient to guard both the first aid provider and the casualty from contamination when treating or caring for a casualty.

**NOTE:** *The guides below are for the ideal situation. However, in many emergency situations, the first responder may not have access to gloves, masks, and other equipment. Where it is not practical to use the equipment stated, one may 'improvise', using plastic bags, clothing, or whatever is available to try to protect themselves and the casualty.*

### **Prior to Treatment**

- Wash hands with soap and water or rinse with antiseptic.
- Ensure hands are washed thoroughly between fingers and under nails.
- Place a barrier between you and the casualty's body fluids.
- Always wear nitrile or latex gloves if available.
- Take care not to touch any unclean object when wearing gloves or once hands are washed.
- If possible, use a protective cover over clothing.
- Cover any adjacent areas likely to produce infection.



### **During Treatment**

- Use a face shield or mask with a one-way-valve or filter, if available, when performing resuscitation.
- Use only clean bandages and dressings.
- Avoid coughing, breathing, or speaking over the wound.





- Avoid contact with body fluids.
- Avoid treating more than one casualty without washing hands and changing gloves.

### After Treatment

- Clean up both casualty and you.
  - Clean up the immediate vicinity.
  - Dispose of dressings, bandages, sharps, gloves, and soiled clothing safely and correctly.
  - Wash hands with soap and water thoroughly, even if gloves were used.
- 



## CHAIN OF SURVIVAL

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Chain of survival is illustrating the important actions required during a life-threatening emergency.



The four links in the chain of survival are:

### Early Recognition and Call for Help

The first link shows the importance of early recognition and access for those at risk of cardiac arrest, then calling for help immediately, in the hope that early treatment can prevent cardiac arrest.

### Early CPR

Early cardiopulmonary resuscitation (CPR) performed by a first aider on a casualty who is in cardiac arrest can buy life-saving time.

### Early Defibrillation

Early defibrillation is the third and perhaps most significant link. Automated external defibrillation is the emergency procedure where specially trained first aiders apply an electronic device to the chest of a cardiac arrest casualty and the device automatically delivers a controlled electric shock to the casualty's heart.

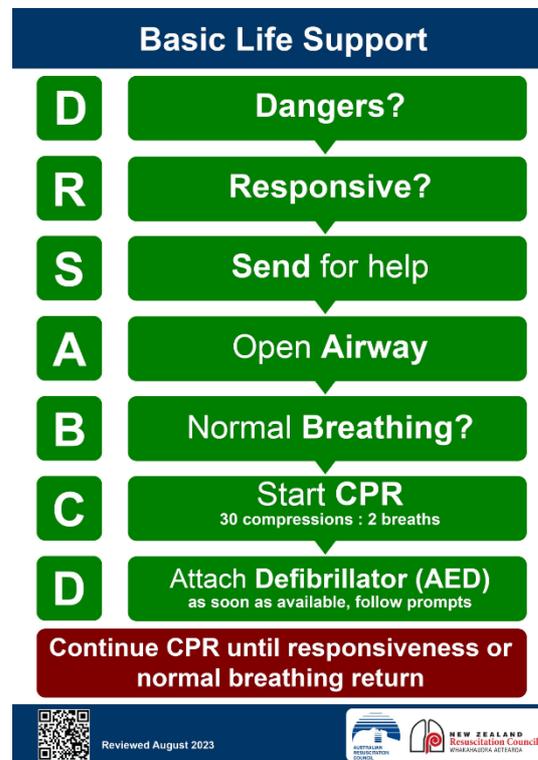
### Early Advanced Care (Post Resuscitation Care)

The final link in the Chain of Survival, effective advanced care, is targeted at preserving function, particularly of the brain and heart. This is performed by ambulance paramedics and other highly trained medical personnel.

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## **BASIC LIFE SUPPORT (DRSABCD)**

The emergency action plan, also known as the ‘**primary survey**’ and ‘**basic life support flowchart**’, consists of seven steps, known as **D.R.S.A.B.C.D.** (Drs ABCD is an easy way to remember this.)



## **Danger (Hazards, Risks, Safety) (DRSABCD)**

When an emergency occurs, you need to **firstly ensure the safety** of all those at the scene by checking for potential hazards. Check for any risk to yourself, bystanders and the casualty. Quickly, but thoroughly, conduct a primary survey of the scene to look for anything that may threaten the safety of those on or around the scene. This includes protection that may be required from extreme weather conditions.

### ***Hazards that may be present include:***

- Body fluids (blood, saliva, vomit, excrement, urine).
- Biohazards, chemicals, fuels etc.
- Electricity, gases, fire, smoke, fumes, flammable materials.
- Fallen power lines, trees, structures.
- Traffic, pedestrians, bystanders.
- Sharp objects, glass, metal edges, slippery or unstable surfaces.
- In motor vehicles accidents:
  - Fuel spills.
  - Unexploded airbags.
  - Body fluids.
  - Injured casualties.
  - Glass, sharp metal, debris.

It’s important to leave dangerous situations to emergency personnel with the right training and

equipment to manage. Risking your own safety could increase the number of casualties. Other situations may permit the removal of the hazard or the removal of the casualty from the hazard.

### **Moving a casualty**

Moving a casualty, especially an unconscious casualty, is difficult and best left to trained and equipped emergency personnel.

A rescuer should move a person when needed to:

- Ensure the safety of both rescuer and the person in need.
- Protect from extreme weather conditions.
- Enable evacuation from difficult terrain.
- Enable the care of airway and breathing (e.g. turning the unconscious breathing person onto the side or turning a collapsed person onto their back to perform cardiopulmonary resuscitation).
- Enable the control of severe bleeding.

If you need to move a casualty before an ambulance arrives, get assistance from bystanders, take extreme care, and use good manual handling practices.

Provided they are not at further risk, you should check casualties in the position in which you find them. In the event you are unable to check a casualty in the position they are in, gently roll them onto their back, supporting the head and neck during movement.

Some basic manual handling techniques:

- Use good body mechanics by maintaining a straight back and bending your legs not your back.
- Do not lift and twist at the same time.
- Don't move a casualty on your own.
- Keep the object close to your body when lifting — don't reach and lift.

### **Response (DRSABCD)**

The causes of unconsciousness can be classified into four broad groups:

- Low brain oxygen levels
- Heart and circulation problems (e.g. Fainting, abnormal heart rhythms)
- Metabolic problems (e.g. Overdose, intoxication, low blood sugar)
- Brain problems (e.g. head injury, stroke, tumour, epilepsy)

Combinations of different causes may be present in an unconscious person e.g. a head injury due to the influence of alcohol.

Before loss of consciousness, the person may experience yawning, dizziness, sweating, change from normal skin colour, blurred or changed vision, or nausea.

The **C.O.W.S** method is an excellent way to assess if the casualty is responsive. Easy to remember, it involves talking to, and touching them, using both questions and commands.



**Can you hear me?** Ask, can you hear me? Are you hurt or sick? Also, ask if you can help the casualty. This has the added advantage of gaining consent, or not, as well as eliciting a response.

**Open your eyes.** Instructing the casualty to open their eyes is the most instinctive action the casualty will take, if they are able to. If their eyes are open, are they able to 'look left', look right' etc.

**What is your name?** Asking their name is also instinctive. It does not matter if they give the correct name, so long as they respond to your question.

**Squeeze my hands.** Squeeze the casualty's hand to see if they squeeze back. A casualty that cannot hear you, may feel your squeeze and respond accordingly.

**NOTE:** Do not shake children and infants and there is no need to aggressively shake a casualty to gain a response, just touching the casualty on the hand/shoulders and talking assertively is an effective method and will awaken a sleeping person. It is possible for a casualty to be conscious, but not responding. An example would someone having an Absence Seizure, where they remain conscious, but unable to respond to questions and commands. Therefore, a casualty that is unresponsive should always be treated as unconscious.

### ***If the casualty DOES respond:***

If the casualty responds by speaking or moving and appears conscious, leave them in the position in which you find them (provided there is no further danger or risk).

Perform a 'secondary survey' by doing a verbal and visual assessment of their condition.

- A verbal assessment is asking questions of the casualty such as: What happened? Are you injured? Do you have any pain? Do you feel ill? Do you have a medical condition?
- A visual assessment is to perform a head-to-toe examination, looking for bleeding, burns, bites, abnormal swelling, etc. Also, look for medical alert bracelets. Is medication in the casualty's hand or laying nearby?
- Get help if required.
- Observe and reassess the casualty regularly.

### ***If the casualty DOES NOT respond:***

Send for help.

## Send for Help (DRSABCD)

Sending for help as early as possible is important.

Shout for help to alert nearby people.

Where possible, direct a bystander to call for an ambulance.

Ask someone to find and bring an AED if available.

If you are on your own, use your mobile phone to call the ambulance.

In Australia, **000 (Triple Zero)** is the national emergency number for Fire, Ambulance and Police.



**112** can also be dialled from any mobile phone, in any phone company's network coverage area. All mobile phones have an Emergency Call feature on the lock screen when the phone is turned on. The 112 system can also be dialled from anywhere in the world with GSM coverage.

*NOTE: this system only uses GSM mobile phone technology and does not use satellite technology.*

**106** is the text-based emergency call service for people who are deaf or have a hearing or speech impairment. This service operates using a TTY (teletypewriter) and does not accept voice calls or SMS messages.



You, or your bystander, should give some basic information to the operator. The operator will guide you, so just answer their questions as best you can.

The operator will ask you the following:

- Which emergency service do you want, Ambulance, Fire or Police?
- What is the location (exact address) of the casualty? (Tip: use your mobile phone apps to find your location e.g. Google Maps, Emergency+ smartphone app)
- Your name and phone number (to call you back if required)
- The nature of the emergency. Tell them what think has happened.

When calling 000 from a mobile phone, it is important to know where you are. Not knowing where you are could delay getting an ambulance to the scene quickly. If a full address is not available, landmarks, buildings, business names and cross streets can be used to give a general location of the incident.

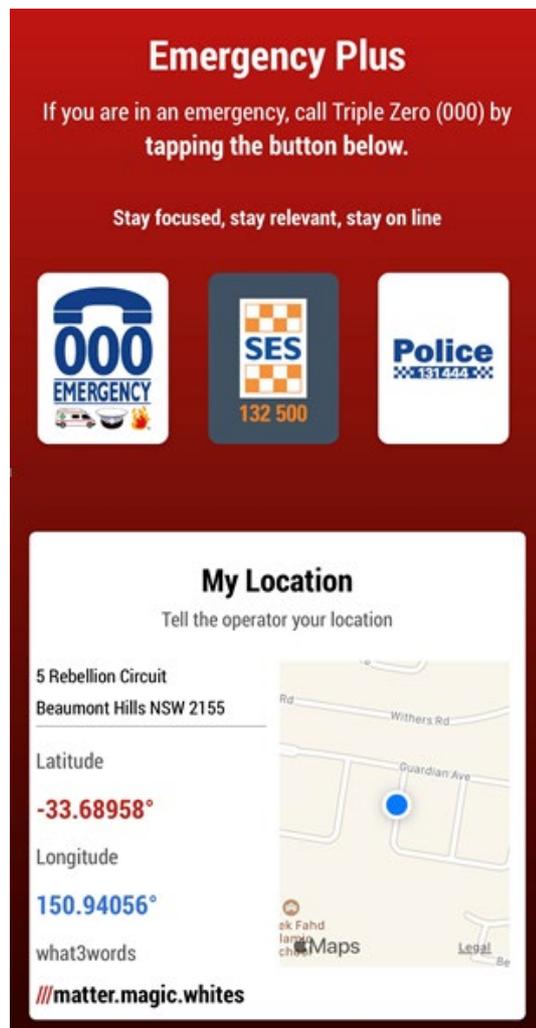
In situations where there are no landmarks or cross streets (open country road, out in the bush, etc.) the Emergency+ App can be used from your mobile phone to give you your location.

The app uses the GPS on your smartphone to give you a street address where available, or 3 words that help the operator identify your location.

When you open the Emergency+ app, you'll see a series of icons for different emergency services in your area. Tap on the relevant icon for your emergency; you'll get connected to a Triple Zero (000) call taker. When they ask for your location, read out the 3 words displayed at the bottom of your screen in the 'My Location' section. Help will then be sent to that exact what3words location.

‘What3words’ works offline, so you will be able to find the what3words address for your current location on either app without Wi-Fi, mobile data or phone reception. Note that you will need a network signal to place a call to Triple Zero (000).

The app will give you a map of where you are, an address if there is one at your location and your latitude and longitude coordinates, so you can always pass on exactly where you are to 000. It does not require internet to work, simply your GPS location and can be downloaded for free from the app store or Google Play Store.



## Airway (DRSABCD)

Ensuring an open and clear airway is essential.

When someone is unconscious, their airway is now our number one priority and it takes precedence over everything else, including their head, neck, and spine. An easy way to remember this is “Airway over spine, every time”.

Those who are unconscious should be handled gently with minimal twisting or bending of the spinal column and attempts to clear the airway should be done so with gentle head and neck movements. However, it is important to understand that although we do not voluntarily want to move our casualty and possibly aggravate injuries, the airway must take precedence as keeping it clear from foreign objects and liquids will aid in the casualty’s survival. Humans CAN live with a broken back,

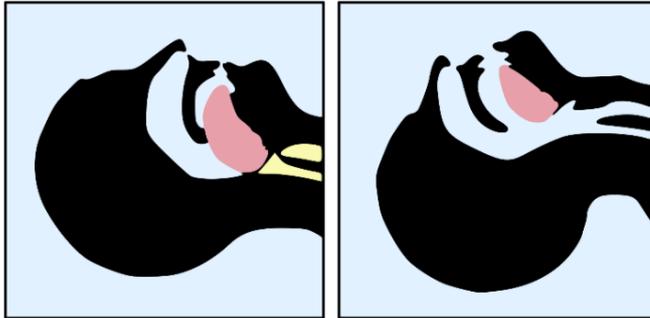
but they cannot live with a “broken” airway.

If possible, check the airway without moving the casualty. However, you may need turn the casualty onto their side or back.

### **Adults (18yrs and over)**

A gradual full head tilt is recommended:

- Place your hand on the forehead.
- Place your fingertips under the point of the casualty’s chin.
- Gently tilt the head back and lift the chin to open the airway.

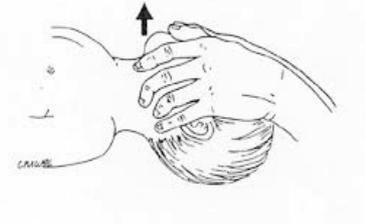


### **Children (1 – 18yrs)**

A child is defined as one to eighteen years of age (or up to onset of puberty if the age is unknown). In both cases the principle is to maintain an open airway. Children should be managed as for adults.

### **Infants (under 1yr)**

An infant is defined as younger than one year. For infants, maintain neutral head position/jaw support. Do not tilt the head back. Their softer trachea can distort and compromise the airway.



### **Checking and clearing the airway**

Look into the back of the throat to see if anything is blocking the pathway into the lungs, especially:

- The casualty’s own tongue, as it can fall back into the airway.
- Regurgitation – stomach contents rising back through the oesophagus, but not being expelled like vomit.
- Foodstuffs.
- Loose dentures, mouthguards.
- Fluids, such as saliva, blood, mucus.
- Foreign items.

Assuming the casualty is unconscious, on the ground and on their back, the casualty should be rolled away from the rescuer using the recovery position (found further below). The fluid, debris or foreign objects can then be removed from the casualty’s airway with the use of the rescuers fingers in a “sweeping” motion around the edges of the airway, to try and get behind the item and push it back up to the top.

The use of the rescuers fingers is ideal as they can “feel” their way around the item. If a rescuer does not feel comfortable, they can use an inanimate object or even the casualties’ fingers, however this may lead to objects being shoved in further as they can’t feel what they are doing.

Note that Loose dentures should be removed, but well-fitting ones can be left in place.

The infant should be held in the recovery position. The infant should be head down towards the ground and using the other hand the rescuer can sweep the edges of the airway to push an item up and out of the mouth.

It should be noted that about one in four casualties will regurgitate whilst having CPR performed on them, especially when drowning is the cause of unconsciousness.

This is because when unconscious, the casualty's muscles are totally relaxed, including the valve that stops regurgitation above the stomach. If the casualty does regurgitate during CPR, clear then airway as just described. If they are still not breathing once the obstruction is cleared from the airway, place them on their back again and re-commence CPR.

## Breathing (DRSABCD)

Is the casualty breathing 'normally'?

While keeping the airway open, assess their breathing using the '**Look, listen and feel**' method:

- **Look** to see if the chest rises and falls.
- **Listen** at the mouth for sounds of normal breathing.
- **Feel** for air against your cheek.

Look, listen and feel for no more than 10 seconds to assess if breathing is 'normal'.

In the first few minutes after a cardiac arrest, the casualty may be taking infrequent, slow, and noisy gasps as well as sounds of gasping, gurgling or sighing. This type of breathing is ineffective, so should be treated as 'not breathing'.

If casualty IS breathing 'normally':

- Promptly roll into the **recovery position**.
- Check the casualty's condition and ensure ambulance has been called.
- Observe and reassess the casualty for continued breathing every 60 seconds.
- Assess for injuries and treat accordingly while waiting for medical help to arrive.

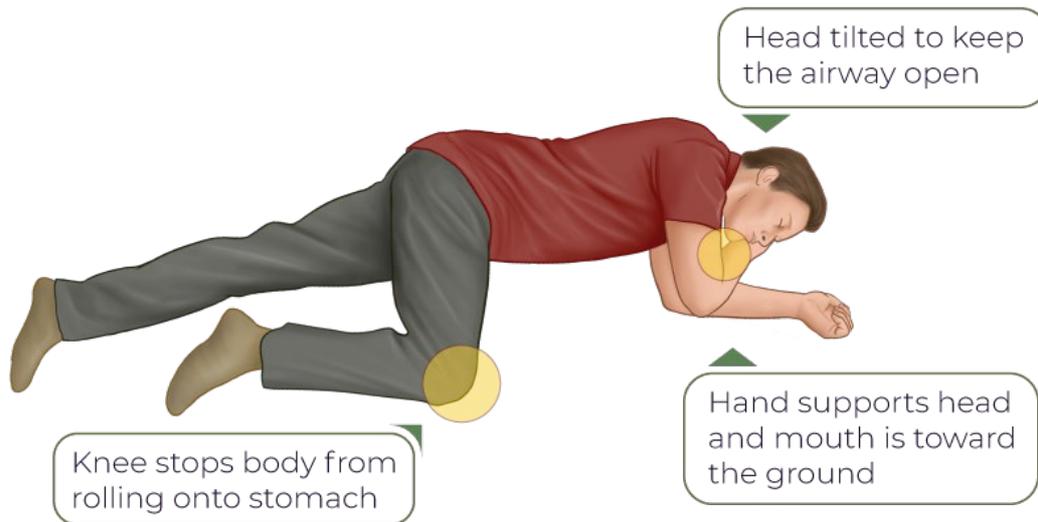


## The recovery position

ARC guidelines suggest that an unresponsive/unconscious person who is breathing normally, should be positioned into a lateral, side-lying recovery (lateral recumbent) position, as opposed to leaving them on their back. This is because of the extreme high risk of choking if they are left on their back.

There are several effective versions of the recovery position, designed to ensure the casualty's airway stays open and clear. Their head may be positioned on their outstretched arm, or on one of their own hands, so long as it is tilted downwards to allow any fluid to drain.

In general, it does not matter which side you lay the casualty on, unless they may be heavily pregnant.



Cradle the infant in your arms with their head tilted downwards



### Infants

An infant should not be left laying on their side, rather they should be held in this position (as shown), as they are likely to roll onto their back.

### Pregnant Women

An unconscious, breathing casualty that may be **heavily pregnant** should be placed on their **LEFT** side, to minimise the risk of the weight of the baby putting pressure on a major vein that runs up the right side of the abdomen.



If casualty is NOT breathing 'normally', or stops breathing normally:

- Send someone to find and bring an AED.
- Commence CPR immediately without delay.

## Cardiopulmonary Resuscitation (CPR) (DRSABCD)

Cardiopulmonary resuscitation (CPR) is used in an emergency if someone is not breathing normally, or their heart has stopped (cardiac arrest).

CPR helps keep the blood circulating and delivers oxygen to the body until specialist treatment is available. There is usually enough oxygen still in the blood to keep the brain and other organs alive supported for a few minutes, but it is not circulating unless someone does CPR.

Performing CPR is important – it can be lifesaving. Although there is no guarantee that someone will survive from being given CPR, it does give them a chance when otherwise there would have been none.

Without CPR, it only takes a few minutes for someone's brain to become injured due to a lack of oxygen.

**ANZCOR Guideline 8:** 30 compressions, followed by 2 rescue breaths at a rate of 100-120 compressions per minute for all ages.

### Chest compressions

- Kneel by the side of the casualty and place the heel of one hand (or two fingers on an infant) in the centre of the casualty's chest, on the lower half of the sternum.
- Place the other hand over the top of the first one.
- Press straight down on the sternum, one third the depth of the chest.
- Allow a complete recoil of the sternum back to its starting position.
- Repeat this 30 times, at a speed of 100 – 120 times per minute (approx. 2 compressions per second).



For children, use either one hand or two hands.

For infants, use the 2-finger technique as shown.

## Rescue breaths

Breath Volume:

- Adult: Full
- Child: Shallow
- Infant: Puff

Give 2 rescue breaths:

- Open the airway with head tilt and chin lift.
- Block off the nose with your cheek or pinch the casualty's nose closed.
- **Infants must be left in a neutral position.**
- Allow the mouth to open, while maintaining chin lift.
- Take a normal breath and place your lips around the mouth, making sure that you have a good seal.
- Breathe into the casualty's mouth until the chest rises.
- Watch for the chest rise (do not over inflate, especially on children).
- Maintaining head tilt, turn your head and watch the fall of the chest.
- Give second breath without delay.



**\*\*For infants, cover the nose and mouth with your mouth, blowing into the nose and mouth together**



## Continuing cardiopulmonary resuscitation (CPR)

- Without delay, return your hands or fingers quickly to the centre of the casualty's chest and then give the next 30 compressions and 2 breaths.
- Continue to give 30 compressions and 2 rescue breaths at 100 -120 per minute.
- Apply Automated External Defibrillator (AED) as soon as possible – if available.
- Ask for help from bystanders where possible.

**\* Do not apply any pressure over the casualty's ribs, upper abdomen, or the bottom end of the bony sternum (breastbone).**

**\* Minimise interruptions to chest compressions. Do not regularly check that the airway is clear while performing CPR unless it has become obstructed.**

### **Unsuccessful rescue breaths**

If rescue breaths do not make the chest rise with each attempt, proceed to compressions, and give 30 compressions and then before your next attempt at rescue breaths:

- Check the casualty's mouth and remove any visible obstructions.
- Ensure there is adequate head tilt and chin lift.

**\* Do not attempt more than two rescue breaths each time before returning to chest compressions.**

### **Compression only CPR**

If for any reason rescue breaths are not given, chest compressions should still be administered as some oxygen will still be circulated.

- Compress in the centre of the casualty's chest continuously at 100 - 120 times per minute.
- Re-checking for signs of life
- Do not stop to re-check the casualty for signs of life unless they start breathing normally again. It is important to minimise interruptions to chest compressions.

### **Multiple rescuers**

- Ensure an ambulance has been called.
- Ensure someone has been sent to get equipment, such as an AED.
- If there is more than one rescuer present, change over the role of performing CPR approximately every 2 minutes to reduce fatigue.
- Change over with minimal delay between compressions.

### **When to stop CPR**

- The casualty starts breathing normally.
- The scene becomes too dangerous to continue.
- Healthcare Professional takes over.
- An authorised healthcare professional tells you to stop.
- You become physically unable to continue.

### **Aspects to be considered when performing CPR**

Fractured ribs –this is a common consequence of CPR; however, this is acceptable given that the alternative to CPR is likely death of the casualty.

Risk of disease transmission is very low, and rescuers need not be deterred from providing rescue breaths without a barrier device. However, rescuers should consider using a barrier device if this is available.

### **Defibrillation (DRSABCD)**

External defibrillators (AEDs) are safe and effective to use. Use of an AED by a layperson makes it possible to defibrillate many minutes before professional help arrives.

- Ensure safety.
- Send someone for the AED.
- CPR is continued while another individual opens and sets up AED.
- Follow the spoken/visual prompts of the AED.
- Remove clothing from chest, ensure chest is dry before attaching the electrode pads as shown on the pads.

- Continue CPR until AED is ready to analyse.
- Ensure nobody touches the casualty while the AED is analysing the rhythm and/or when a shock is being delivered.



If a shock is indicated:

- Ensure nobody touches the casualty.
- Push the shock button as directed.
- Note: fully automatic AEDs will deliver the shock automatically.
- When directed resume CPR (30 compressions: 2 breaths)
- Continue to follow the voice/visual prompts of the AED.

**\* Every minute early defibrillation is delayed reduces the person's chances of survival by approximately 10%.**

If no shock is indicated:

- Immediately resume CPR (30 compressions: 2 breaths).
- Continue to follow the voice/visual prompts of the AED.

## **AUTOMATIC EXTERNAL DEFIBRILATOR (AED) EQUIPMENT**

An automated external defibrillator (AED) is designed to analyse the heart's rhythm and determine if there is a 'shockable' or a 'non-shockable' rhythm. A common shockable rhythm can be what is known as Ventricular fibrillation which is a very rapid erratic beating of the heart. (Refer to 'Cardiac Arrest' section)

Essentially a defibrillator is designed to stop a heart from fibrillating. It does not restart the heart or kick it into gear, it stops it. By stopping the heart from fibrillating we give the heart a small chance to "reset" and start beating normally again.

Therefore, we have more chance of bringing someone back to life with an AED than we do without one, but we still won't save everyone.

Although defibrillators are designed to only shock certain rhythms, most first aiders will not be aware of what has caused a casualty to lose consciousness. So, if we have a defibrillator available it should be attached to all unconscious non breathing casualties regardless.

Defibrillators will only shock certain rhythms so we cannot essentially hurt anybody by attaching one. If there is a rhythm detected that cannot be shocked by the defibrillator, it will simply tell us "No shock advised".

Defibrillators can be found in public places such as: shopping centres, theme parks, stadiums, airports, gyms, RSLs, Bowls clubs and many more public locations.

### **AED Electrode Pads**

Defibrillation pads are soft, thin foam about the size of a hand. The pads are adhesive and have a layer of gel which helps pick up the electrical signals. They normally have a cable attached to each pad.

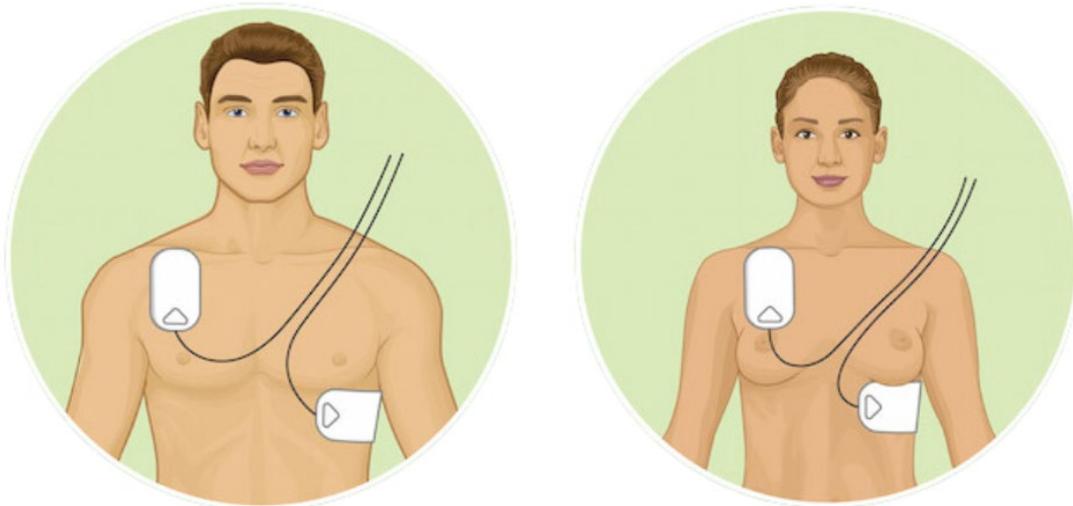
Normally, a set is packaged in a special sealed pouch. As they can 'dry out', they have an expiry date printed on the package.

Pads must adhere firmly to the chest, so it is important to roll the pads onto the chest so that there are no air pockets underneath the pads. Press the pads on firmly, including the edges of the pads. Pads may not stick securely for several reasons including moisture and excessive hair on the chest. Moisture can be wiped away with a towel or cloth. You may need to clip or shave excessive hair off the chest around the pad area.

Each AED manufacturer will have the instructions for applying the pads on the pad packaging and on the pads themselves. Follow these instructions as they will apply directly to the AED being used.

The standard position is to place pads on the exposed chest in an anterior-lateral position.

- One pad slightly below the collar bone on the person's right chest.
- One pad on the person's left side below the arm pit.



At times a casualty may have an implantable device such as a pacemaker which will be just below the skin. You may be aware of a very slight bump under your skin, but it will not be noticeable to most people. Avoid placing pads over any implantable devices – pads should be placed at least 8cm from any such devices.

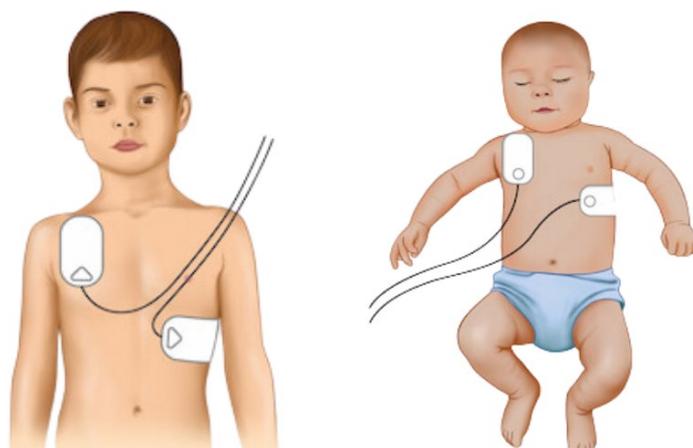
Do not place pads over medication patches – remove the patches before continuing as these can block the current and cause burns to the casualty.

### ***Pad placement – children and infants***

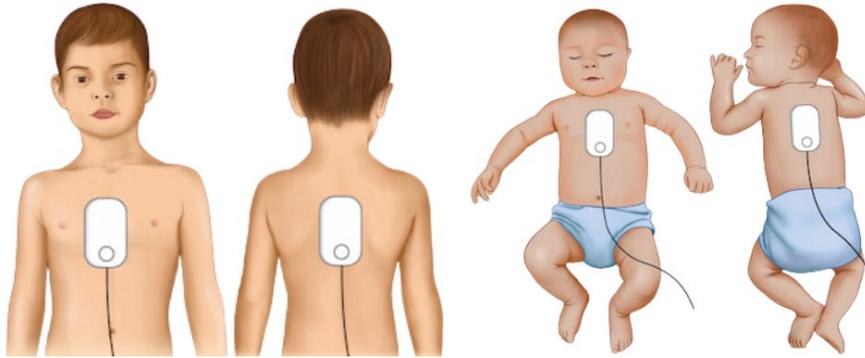
Ideally, for those under 8 years (including infants less than 1 year) paediatric pads and an AED with a paediatric capability should be used (see guideline 12.1). These pads will come with a diagram of where on the chest they should be placed – this is usually the same position as for adults.

If the AED does not have a paediatric mode or paediatric pads, then it is reasonable to proceed with standard adult AEDs and pads. Ensure the pads do not touch each other on the child's chest.

Apply the pad firmly to the bare chest in the anterior-lateral position as for adults.



If the pads are too large for the size of the child and will be too close together, or even touch each other, there is a danger of pad-to-pad arcing (where the current jumps between the pads but does not go through the heart) or electrocution. In this case use the front-back position (anterior-posterior): one pad placed on the upper back (between the shoulder blades) and the other pad on the front of the chest, slightly to the left where the heart is.



### **Separate the electrodes**

Don't put or place the electrodes or connected pads together or allow them to touch if the AED is 'on'. This may complete a circuit and cause an electrocution.

### **Safety**

An AED, just like any electrical appliance, has safety precautions to prevent injury. The AED operator is responsible for keeping all persons from touching the casualty when a shock is delivered. State a 'clear' message. For example, say loudly "don't touch the casualty" or "stand clear". Look to ensure that no one is touching the casualty before pressing the shock button.

The AED should never be connected to anyone other than a casualty in cardiac arrest, nor should an AED be attached to a person for training or demonstration purposes.

### **Beware of water**

Ensure the casualty's chest area is dry. Do not use an AED if the casualty is in water. Water is an effective transmitter of electricity, and the shock may be transmitted to the AED operator.

### **Storage**

The AED should be easily accessible, visible and be located where it will mostly likely to be needed. It should not be locked away and be inaccessible. Best stored in a dry and dust free environment.

Ensure that all staff and visiting workers are aware of the location of the AED. Signage should be used to indicate the location of the AED.



### **Maintenance**

AEDs require little maintenance. If the AED's pads have been used (or opened/tampered with), they will require immediate replacement. Expired batteries and AED pads and other consumable items (e.g. shears, towel, and plastic gloves) should be replaced in line with their expiration dates (usually 3-5 years). In all cases, the manufacturer's recommendations should be followed.

All currently available AEDs perform regular self-checks and if a problem is detected it will be indicated. In most cases they show this by a warning sign or light visible on the front of the machine, or by an audible alert much the same as a failing smoke detector battery. Those owning or maintaining an AED should have a process in place for it to be checked regularly and frequently (ideally daily) and for appropriate action to be taken when necessary.

## CHOKING

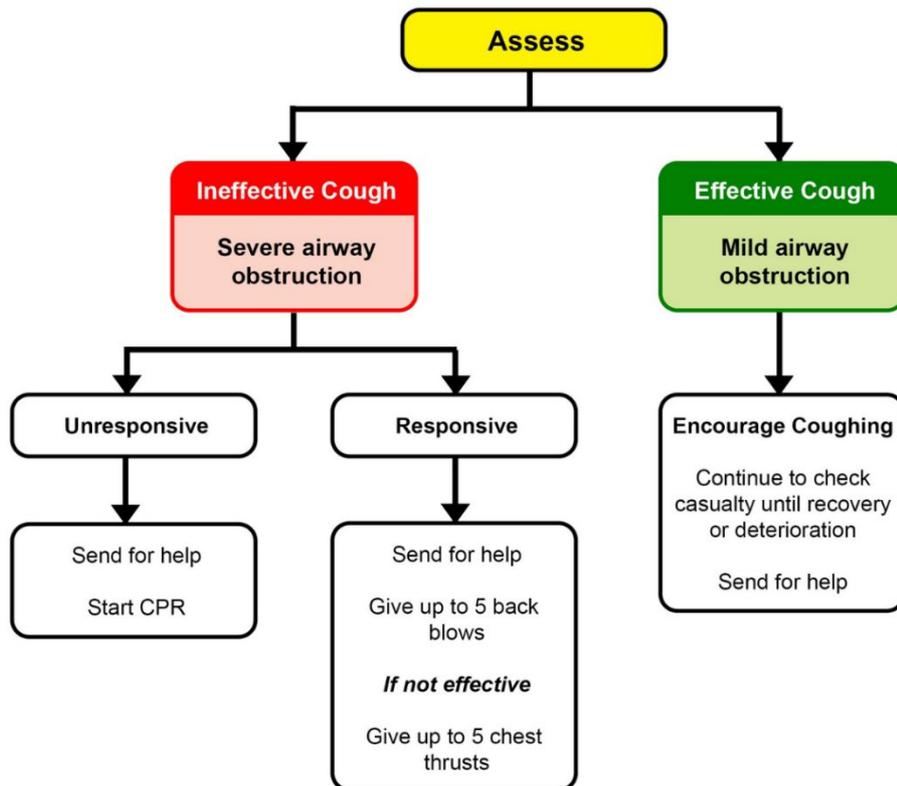
A foreign body airway obstruction (choking) is a life-threatening emergency following the lodgement of a foreign object in the casualty's airway. In some instances, the object lodges at the epiglottis, the entry to the airway, but does not actually enter the airway itself. Both situations cause initial coughing, which is the body's reflex action to dislodge the object.

If an object is firmly lodged in the airway, coughing at least keeps it high in the trachea, though it may not expel it. However, coughing with an object at the entrance to the airway will generally cause it to be expelled.

Should you encounter a person with an apparent obstruction who is coughing effectively, DO NOT SLAP them on the back. If the obstruction is at the entrance to the trachea, reactions to the slaps may cause the person to inhale the object and cause complete obstruction.

If a casualty appears to be in increasing distress, then the object may be totally obstructing the airway.

## Foreign Body Airway Obstruction (Choking)



Reviewed August 2023



NEW ZEALAND  
Resuscitation Council  
WHAKAHAUORA AOTEAROA

## Effective Cough (Mild/Partial Obstruction)

### Signs and symptoms

- Difficulty and noisy breathing, but still able to cough.
- Cyanosis (bluish skin colour around lips).

### Care and treatment

- Encourage the casualty to keep coughing.
- If blockage has not been cleared call Triple Zero (000) for an ambulance.
- Reassurance.

*\*Do not slap the casualty with a partial obstruction on the back.*

## Ineffective Cough (Severe/Complete Obstruction)

### Signs and symptoms

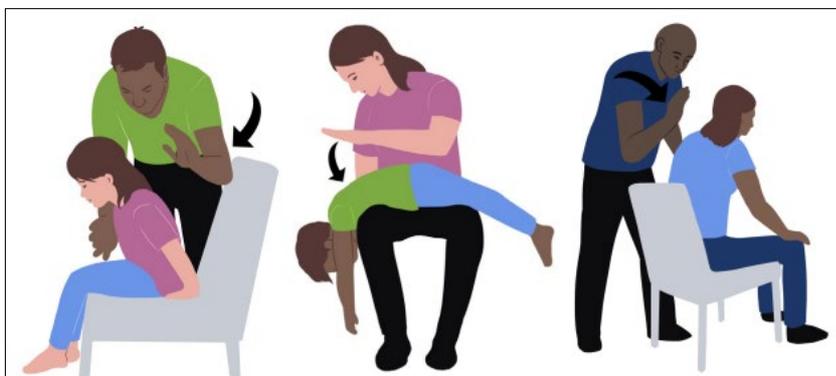
- Unable to breathe, speak, cry or cough.
- Agitated and distressed.
- May grip the throat (not infants).
- Cyanosis (Bluish skin colour around lips).
- Deterioration of consciousness in children and infants.
- Flaring of the nostrils.
- In-drawing of the tissues above the sternum and in between the ribs.

### Care and treatment

#### Conscious Casualty

For adults and children over 1yr of age deliver up to five (5) firm back blows as follows:

- Position yourself to deliver back blows.
- Stand slightly behind and to the side of the casualty.
- Support the chest with one hand.
- Lean the casualty well forward.
- Deliver up to five firm back blows between the shoulder blades using the heel of the hand, pausing to check airway between each blow.



If back blows are unsuccessful, deliver up to five chest thrusts:

- Chest thrusts are given in a similar way to chest compressions but are sharper and delivered at a slower rate. May be treated in the sitting or standing position; place your hand in the centre of the chest as for CPR and push down sharply.

- Check airway after each chest thrust.
- Repeat cycles of back blows and chest thrusts if obstruction not relieved

For an infant (under 12mths of age) deliver up to 5 firm back blows:

- Position yourself to give back blows.
- Stand or sit with infant face down over your forearm supporting the infants head by holding the cheekbones between thumb and middle finger. Ensure infant's jaw is relaxed so object can escape the mouth.
- Place your arm, with infant, over your thigh, head down at approx. 45 degrees, then give a firm, sharp blow between the shoulder blades using the heel of your hand. Ensure your fingers are raised, so as not to accidentally hit the back of the infant's head.
- Repeat this up to 5 times, pausing between each blow to check if airway is cleared.



If back blows are unsuccessful, deliver up to 5 chest thrusts.

- The infant should be placed on their back across the rescuer's thigh.
- Check airway after each chest thrust.

Repeat cycles of back blows and chest thrusts if obstruction not relieved.

### ***Unconscious casualty***

- Support the casualty carefully to the ground.
  - Use a finger sweep if solid material is visible in the airway.
  - Call Triple Zero (000) for an ambulance.
  - Commence CPR.
-

## CARDIAC CONDITIONS

Chest pain can be one of the most difficult observations to make as the cause of the pain may be one of many conditions. Always ask open questions such as “can you describe your pain to me”. Pain can be described as squeezing, crushing, vice-like, heavy, dull, sharp, pressure and many others. Cardiac pain is usually in the centre of the chest or behind the breastbone. The pain may, but not always, spread or radiate to the shoulders, neck, jaw and/or arms.

### Sudden Cardiac Arrest (SCA)

Sudden cardiac arrest is the collapse of a casualty whose heart has ceased to function due to an electrical malfunction of the heart, disrupting that muscle’s normal rhythm.

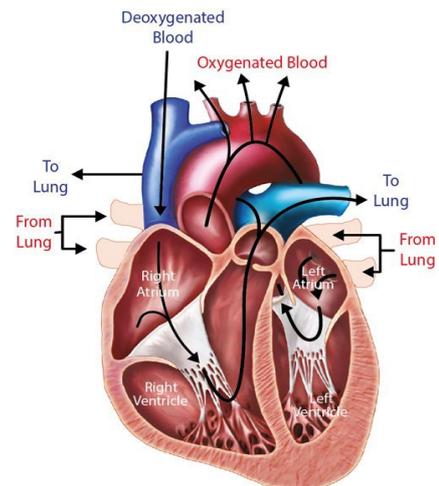
SCA is not the same as a heart attack, which is a problem with the plumbing of the heart. In a heart attack one or more of the arteries delivering oxygen-enriched blood to the heart is blocked, causing damage to the heart muscle.

Cardiac arrest is closely linked with sudden chest pain. During sudden cardiac arrest, electrical signals to the pump become erratic. Ventricles may flutter or quiver (ventricular fibrillation). With reduced blood flow to the body and the brain, the casualty loses consciousness. Death will follow unless emergency treatment is begun.

There are rarely any prior symptoms of sudden cardiac arrest.

Successful resuscitation of such a casualty depends on quick decisive action taken in sequence, like the links in a chain.

Treatment for Cardiac Arrest was previously covered in ‘(DRSABCD) Defibrillation’ section.

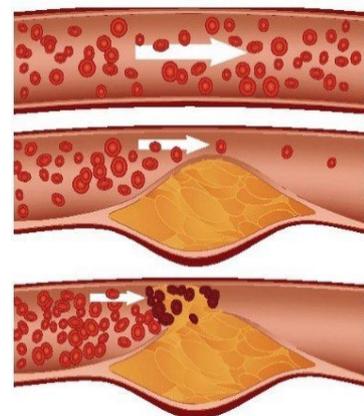


### Heart Attack

The Heart Foundation of Australia states that approximately 54,000 heart attacks occur every year in Australia (148 per day). Approximately 11,000 of these are fatal (28 deaths every day), making it the biggest killer in Australia.

A heart attack occurs when a coronary artery is suddenly blocked by a blood clot and the part of the heart muscle supplied by that artery is damaged due to lack of oxygen. Also known as a coronary occlusion or myocardial infarction, a heart attack can occur at any time, at any age, to any person.

Coronary Heart Disease (CHD) is when fatty deposits called plaque build-up inside blood vessels and reduce the blood flow. This can occur slowly over many years, and there are very few signs or symptoms that it is happening.



CHD is a factor in approximately 20,000 deaths every year in Australia. In some cases, the plaque builds up so that the vessel is blocked completely. Reduced blood flow can also allow a clot to form and the clot block the vessel. When a blockage occurs, oxygen is not delivered to the heart and part

of the heart muscle dies.

Blockage can occur in one or several coronary arteries.

Although Heart Attacks are often classed as mild, moderate, and severe, all of them require immediate medical attention.

**\*\*With heart attack, every minute counts. If the warning signs are present, do not waste a minute wondering whether it is a heart attack or not. Take immediate action!**

### ***Signs and symptoms***

- Pale.
- Sweating.
- Rapid, shallow respirations or difficulty breathing.
- Chest pain or discomfort, usually in the centre of the chest, may spread or radiate to the shoulders, neck, jaw and/or arms.
- Nausea and/or vomiting.

### ***Care and treatment***

- Call Triple Zero (000) for an ambulance.
- Call for someone to bring an A.E.D.
- Follow DRSABCD.
- Rest the casualty in a position of comfort, usually sitting.
- Assist the casualty to take any prescribed heart medication they have (usually tablets or spray that is placed under their tongue).
- Provide reassurance.
- Stay with casualty and monitor vital signs under ambulance arrives.
- The A.R.C. recommends giving the casualty 300mg of aspirin, preferably dissolved in water.

## **Angina**

Angina Pectoris (literally 'pain in the chest'), is caused by constriction of the blood vessels supplying the heart muscle with blood. The chest discomfort is due to the reduced blood supply to the heart.

Angina has similar signs and symptoms to a heart attack. Some casualties do not feel 'pain', just an unpleasant sensation or discomfort in the chest. Angina will usually occur when the heart works harder than normal, such as during exercise or in response to stress. It does not occur all the time because blood supply, although reduced, is usually able to keep up with the heart's demands.

Angina is usually relieved by rest. When rest alone does not bring rapid or effective relief, then the use of a prescribed medication in the form of a spray or tablet is often needed. The pain or discomfort is usually relieved within a couple of minutes, however, if symptoms last more than 10 to 15 minutes, call an ambulance and treat the casualty as if for a heart attack.

### ***Signs and symptoms***

Angina and heart attack have very similar signs and symptoms.

- Pale, cool skin.
- Chest pain or discomfort, usually in the centre of the chest, may spread or radiate to the shoulders, neck, jaw and/or arms.
- Sweating.
- Rapid, irregular, or weak pulse.
- Breathlessness.

### **Care and treatment**

- Call Triple Zero (000) for an ambulance.
- Reassure and rest the casualty in a position of comfort, usually sitting.
- Assist the casualty to take their prescription medication (tablets or spray).
- Monitor vital signs.
- If the pain does not diminish after 5mins, then the condition should be considered a heart attack.

### **Heart Failure**

Heart failure occurs when the heart is unable to perform its proper function, blood and fluid collects around the lungs and in the body. The casualty finds it difficult to breathe and swelling of the ankles and legs occurs as fluid pools in the extremities.

### **Signs and symptoms**

*Very similar to Heart Attack and Cardiac Arrest*

- Pale, cold, clammy skin.
- Chest discomfort, difficulty breathing.
- 'Bubbly', gasping breaths.
- Frothy sputum.
- Swelling of the extremities, especially the ankles, which may show 'dimples'.
- Partial collapse.

### **Care and treatment**

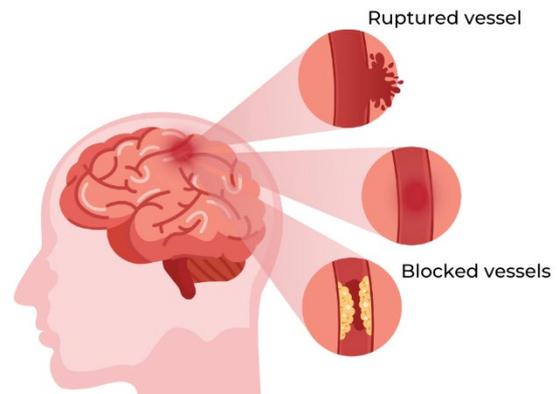
- Call Triple Zero (000) for an ambulance.
  - Rest, position of comfort, usually sitting (do not raise the legs).
  - Reassurance.
-

## STROKE

According to the National Stroke Foundation, stroke is one of Australia's biggest killers. Australians suffer around 60,000 new and recurrent strokes every year, of which around 10,000 are fatal (27 deaths every day). A stroke is a brain attack and when a person suffers a stroke, essential supplies of blood and oxygen are cut off from the cells in the brain. Treat stroke with the same degree of seriousness as a heart attack.

Two common causes prompt strokes:

- A blocked blood vessel to the brain.
- A ruptured blood vessel causing bleeding into the brain.



When a stroke occurs, brain cells are damaged because they are no longer receiving the oxygen and nutrients needed to function. Brain cells usually die within an hour from the beginning of the stroke. Stroke is most common in the elderly, but people of any age or gender, and any level of physical fitness, can suffer the injury.

Strokes occur in two main forms:

**Cerebral vascular accident (CVA)** which causes permanent damage to the brain tissue through oxygen starvation (blocked vessel) or pressure (bleeding). There is permanent damage to the brain, resulting in physical and/ or sensory impairment.

**Transient ischemic attack (TIA)** is when the signs of stroke are present but goes away within 24 hours. The term TIA is used sometimes referred to as a 'mini stroke', which a temporary condition is usually caused by a minor blockage of the brain's blood vessels.

The blockage lasts long enough to temporarily show the signs and symptoms of a CVA. TIAs may last from several minutes to several hours. In TIA's where the symptoms only last a few minutes, the casualty regains normal function quickly, and may not realise they have had a serious illness. Therefore, all the symptoms of TIA's should be regarded as a warning sign that the person is at risk of a stroke and should be investigated promptly. **A TIA should never be ignored.**

**\*Always call for an ambulance immediately at the first sign of a stroke.**

Recognise **STROKE** Think **F.A.S.T.**



F

Has their  
**FACE**  
drooped?



A

Can they lift both  
**ARMS?**



S

Is their  
**SPEECH**  
slurred and do they  
understand you?



T

Call 000,  
**TIME**  
is critical



If you see any of  
these symptoms  
**Act FAST**  
call 000

## **Signs and symptoms**

Use the **F.A.S.T.** method to identify stroke.

- **F**acial weakness. Can the person smile? Has their mouth or eye drooped?
- **A**rm weakness. Can the person raise both arms?
- **S**peech problems. Can the person speak clearly and understand what you say?
- **T**ime to act. Call Triple Zero (000) for an ambulance.

**\*\*If the casualty fails any one of the FAST tests, call Triple Zero (000) immediately**

Other symptoms:

- Sudden severe headache.
- Sudden nausea and/or vomiting.
- Warm, flushed, clammy skin.
- May have distended neck veins.
- Lost or blurred vision in one or both eyes.
- May have unequal pupils.
- Paralysis, numbness, weakness or loss of coordination of limbs, usually on one side of body.
- Dizziness, loss of balance.
- Difficulty swallowing or salivary drool.
- Urinary incontinence.
- Brief loss of consciousness.
- Unconscious – ‘snoring’ respirations.
- Drowsiness.
- Confusion.
- Reduced level of consciousness.

## **Care and treatment**

- If the casualty fails any one of the FAST tests act FAST and call Triple Zero (000).
- Adopt position of comfort, taking care that the airway does not become obstructed.
- Reassurance – talk to the casualty even if unconscious.
- Recovery position if unconscious and breathing, constantly observe.
- Maintain body temperature.
- Do not give anything to eat or drink.

Prompt action can prevent further damage to the brain and help the casualty make a full recovery.

Delays in obtaining treatment can result in death or major long-term disabilities.

For further information contact National Stroke Foundation **call 1800 787 653** or visit <https://strokefoundation.org.au/>

## **SEIZURES AND FEBRILE CONVULSIONS**

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Seizures are a disruption of brain function that interrupts the normal electrical activity of the brain.

### **Epileptic Seizures**

In epileptics, neurons 'fire' or send electrical impulses toward surrounding cells, stimulating neighbouring cells to fire at one time. This causes an 'electrical storm' within the brain, resulting in physical changes called seizures or 'fits'. It is only when there is a tendency to have recurrent seizures that epilepsy is diagnosed. In 70 per cent of all cases the cause of epilepsy cannot be identified. Head injuries, strokes, brain tumours, infections such as meningitis, lead poisoning or injury during childbirth mostly cause the remaining 30 per cent.

There are many different types of seizures. The main types are:

- Tonic-clonic seizures
- Absence seizures
- Complex partial seizures
- Convulsive seizures

### ***Tonic-clonic seizures***

are convulsive seizures where the body stiffens (tonic phase) followed by general muscle jerking (clonic phase) and involves the whole brain.

The person loses consciousness, their body stiffens and limbs jerk. These seizures generally last up to three minutes. After the seizure the person may want to sleep, have a headache or be confused and disoriented.

The person may experience an 'aura' which can precede a tonic-clonic seizure, and this may act as a warning giving the person time to seek a safe place before losing consciousness.

### ***Non-convulsive seizures***

An absence seizure causes the person to lose contact with their surroundings for about 30 seconds with little or no outward sign that anything is wrong.

A complex partial seizure is accompanied by impaired consciousness and recall. It may also involve staring, automatic behaviour such as lip smacking, chewing, mumbling, walking, grunting or the repetition of words or phrases.

### ***Care and treatment***

For all seizures, regardless of cause, the first aid treatment is the same.

- Stay calm and remain with the casualty.
- Protect from harm. Move any objects and/or bystanders out of the way if a chance of injuring the casualty.
- Protect the head from impacts.
- Loosen tight clothing.
- Note the start time and length of the seizure.
- Follow the casualty's seizure management plan (if there is one in place).
- When convulsions stop, or if vomiting starts, roll into recovery position and maintain airway.
- Observe and monitor breathing.
- Call for an ambulance.

- Reassure and let them rest until fully recovered.

**DO NOT:**

- Do not put anything in the casualty's mouth.
- Do not restrain the casualty.
- Do not move the casualty unless they are in danger.

## Febrile Convulsions

The growing brains of small children are more sensitive to fever than more mature brains and when the normal brain activity is upset a convulsion or 'fit' can occur. Febrile convulsions are common and approximately three per cent of children aged six months to six years may have a convulsion when they have a high temperature. The convulsion can last a few seconds or up to 15 minutes and is often followed by a brief period of drowsiness.

Normal body temperature may vary by person, age, activity, time of day and which part of the body you take the temperature from. As per the below table, temperature readings too low or too high can indicate serious issues for the casualty.

The seizure affects not only the child, but also parents and bystanders who may not have observed this phenomenon before. As a first aid provider, it is part of your responsibility to reassure the witnesses. The greatest fear parents have is that the child is not breathing, and they think that death is imminent.

Temperature readings for children & adults	
Temperature	Body Effects
> 41.5°C	Dangerous high temperature
40 – 41.4°C	High temperature
38.4 - 39.9°C	Hyperthermia
37.5 - 38.3°C	Fever
36.5 – 37.5°C	<b>Normal</b>
34 - 35.9°C	Mild hypothermia
32 - 33.9°C	Moderate hypothermia
30.1 - 31.9°C	Moderate deep hypothermia
< 30°C	Severe hypothermia

## Signs and symptoms

- Child is usually quiet and appears sick.
- Flushed, hot skin.
- Eyes 'roll back'.
- Have difficulty breathing.
- Child begins convulsing.
- May become pale or 'blue'.
- Become unconscious or unaware of their surroundings.

## Care and treatment

- Stay calm and remain with the child.
- Protect from harm. Move any objects.
- and/or bystanders out of the way if a

- chance of injuring the casualty.
- Protect the head from impacts.
- Loosen tight clothing and if possible, remove or open clothes from the waist up.
- Note the start time and length of the seizure.

**DO NOT:**

- Do not put anything in the child's mouth.
- Do not restrain the child.
- Do not put the child into a bath.
- Do not give them anything to eat or drink.

**First Aid Management once the convulsion has stopped:**

- Roll the child into the recovery position whilst drowsy.

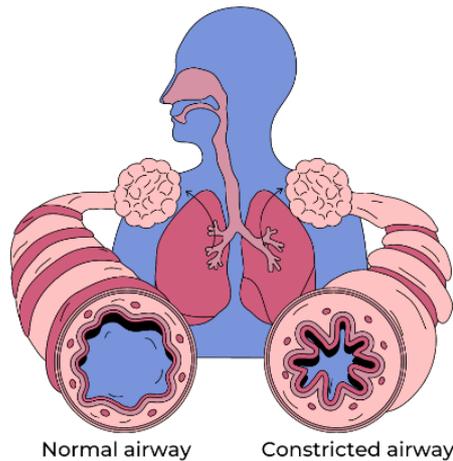
**Contact professional medical help (Call 000) if:**

- The convulsion lasted more than 5 minutes.
- Child had more than one convulsion in a short period of time.
- Child does not wake up.
- Child has been injured or appears quite ill.

**Contact local family doctor if:**

- Convulsion lasted less than 5 minutes.
  - Child had a previous illness before the convulsion.
-

## ASTHMA



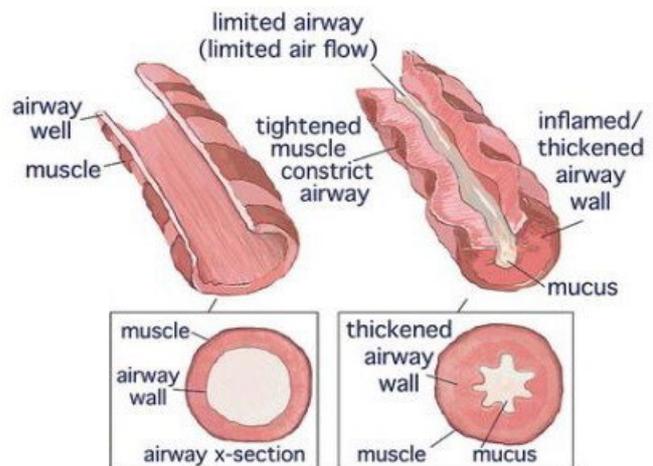
Australia has one of the highest rates of asthma in the world. Around 11% of the population are asthmatic and over 400 Australians die from asthma each year – many of these deaths may be preventable. Asthma sufferers have very sensitive upper airways and when they are exposed to certain triggers, their airways narrow making it difficult for them to breathe. An asthma attack can take anything from a few minutes to a few days to develop.

There are 3 main factors that cause airways to become narrow:

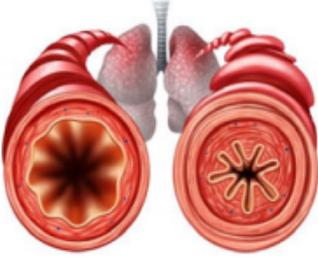
- The inside lining of the airways becomes red and swollen (inflamed).
- The muscle around the airways constricts (tightens).
- Extra mucus may be produced.

Trigger factors for asthma may include:

- Colds and flu.
- Exposure to known allergens, e.g. dust mite, pollens, animal dander, moulds.
- Exposure to chemicals or other occupational sensitizers.
- Exposure to irritants e.g. cigarette smoke, perfume.
- Reflux.
- Drugs e.g. aspirin and beta-blockers.
- Foods e.g. nuts, seafood.
- Food additives, colourings, monosodium glutamate (MSG).
- Changes in weather, exposure to cool air.
- Exercise.
- Strong emotions.



Asthma attacks are usually considered in three classifications of severity, mild to moderate, severe, and life-threatening.

MILD TO MODERATE	SEVERE	LIFE- THREATENING
Minor difficulty breathing	Cannot speak in a full sentence	Unable to speak or 1-2 words
May have a cough	Sitting hunched forward	Collapsed / exhausted
May have a wheeze	Tugging in of skin over chest / throat	Gasping for breath
	May have a cough or wheeze	May no longer have a cough or wheeze
	Obvious difficulty breathing	Drowsy / confused / unconscious
	Lethargic	Skin Discoloration (blue Lips)
	Sore tummy (young Children)	

Source: Asthma Australia

### Signs and symptoms

- Pale, cool, clammy skin.
- Coughing, especially at night.
- Shortness of breath – using all the chest and diaphragm muscles to breathe.
- ‘Sucking in’ of the throat and rib muscles.
- Severe chest tightness.
- Wheezing – a high pitched raspy sound.
- Cyanosis around the lips (bluish colour).
- Anxiety and distress.
- Exhaustion.
- Rapid, weak pulse.
- Little or no improvement after using reliever medication.
- Severe asthma attack: collapse – leading to eventual respiratory arrest.

### Care and treatment

Treatment for asthma attacks are the same for mild/moderate and severe asthma attacks.

- Assess the site for danger to self, casualty, and others, and minimise any danger.
- Sit the casualty comfortably upright.
- Be calm and reassuring.
- Do not leave casualty alone, continue to monitor.
- If casualty has an Asthma Action Plan, written by their doctor, then follow the directions on the plan.



### **4x4x4 Technique - 1 puff, 4 breaths, 4 times, 4 Minutes**

#### **With spacer**

- Shake inhaler (before each puff) and insert mouthpiece into spacer.
- Place spacer mouthpiece in casualty’s mouth and give 1 puff of a blue/ grey reliever puffer, then ask the casualty to breathe in and out, through the spacer FOUR times.
- Repeat until FOUR puffs have been given.

- Wait FOUR minutes. If there is little or no improvement, repeat the above sequence.
- If still no improvement, call Triple Zero (000) and inform them that someone is having an asthma attack. Continue the sequence every FOUR minutes.

### Without spacer

- Shake inhaler (before each puff).
- Place inhaler mouthpiece in casualty's mouth and give 1 puff of a blue/ grey reliever puffer, then ask the casualty to hold that breath for FOUR seconds.
- Repeat until FOUR puffs have been given.
- Wait FOUR minutes. If there is little or no improvement, repeat the above sequence.
- If still no improvement, call Triple Zero (000) and inform them that someone is having an asthma attack. Continue the sequence every FOUR minutes.



### Collapsed casualty

- Call Triple Zero (000) for an ambulance.
- If possible, assist with FOUR puffs of a reliever.
- If little or no immediate improvement repeat reliever medication every FOUR minutes until the ambulance arrives.
- Be calm and reassuring.
- Continue to monitor, if unconscious and not breathing normally, commence CPR.

### Asthma Medications

Below is a guide to the main types of asthma and COPD medications available in Australia (as of May 2018) — Chart by National Asthma Council Australia

**ASTHMA & COPD MEDICATIONS**

<p><b>SABA RELIEVERS</b></p> <p><b>Bricanyl Turbuhaler</b> † terbutaline 500mcg</p> <p><b>Ventolin Inhaler</b> † salbutamol 100mcg</p> <p><b>Airomir Autohaler</b> † salbutamol 100mcg</p> <p><b>Asmol Inhaler</b> † salbutamol 100mcg</p>	<p><b>ICS PREVENTERS</b></p> <p><b>Fixotide Inhaler</b> † fluticasone propionate 500mcg* • 1250mcg • 2500mcg 4-Fluticase Aviclar</p> <p><b>Fluticasone Cipla Inhaler</b> † fluticasone propionate 125mcg • 250mcg</p> <p><b>Fixotide Accuhaler</b> † fluticasone propionate 100mcg* • 250mcg • 500mcg</p> <p><b>Pulmicort Turbuhaler</b> † budesonide 100mcg • 200mcg • 400mcg</p>	<p><b>ICS/LABA COMBINATIONS</b></p> <p><b>Symbicort Turbuhaler</b> † budesonide/formoterol 100/6 • 200/6 • 400/12 #</p> <p><b>DuoResp Spiromax</b> † budesonide/formoterol 200/6 • 400/12 #</p> <p><b>Symbicort Rapihaler</b> † budesonide/formoterol 80/4 • 160/8 • 320/8 #</p> <p><b>Flutiform Inhaler</b> † fluticasone propionate/salmeterol 90/5 • 180/5 • 360/10</p>	<p><b>LAMA MEDICATIONS</b></p> <p><b>Spiriva Respimat</b> # † tiotropium 2.5mcg</p> <p><b>Spiriva Handihaler</b> # tiotropium 180mcg</p> <p><b>Brealaris Genuair</b> # acetylcholinesterase inhibitor 50mcg</p> <p><b>Seebri Breezhaler</b> # glycopyrronium 50mcg</p>
<p><b>NON STEROIDAL PREVENTERS</b></p> <p><b>Singular Tablet</b> # montelukast 4mg • 5mg • 10mg</p> <p><b>Montelukast Tablet</b> # montelukast 4mg • 5mg • 10mg Generic medicine suppliers</p> <p><b>Intal Inhaler</b> † sodium cromoglycate 10mg • 5mg* *oral flume</p> <p><b>Tilade Inhaler</b> † nedocromil 500mcg • 7mg</p>	<p><b>DVAR Inhaler</b> † budesonide 90mcg • 100mcg</p> <p><b>DVAR Autohaler</b> † budesonide 90mcg • 100mcg</p> <p><b>SAMA MEDICATION</b></p> <p><b>Atrivent Metered Aerosol</b> † ipratropium 21mcg</p> <p><b>Alvesco Inhaler</b> † ipratropium 80mcg • 180mcg</p>	<p><b>Seretide MDI</b> † fluticasone propionate/salmeterol 50/25 • 125/25 • 250/25 #</p> <p><b>Fluticasone + Salmeterol Cipla Inhaler</b> † fluticasone propionate/salmeterol 125/25 • 250/25 #</p> <p><b>Seretide Accuhaler</b> † fluticasone propionate/salmeterol 100/50 • 200/50 • 400/50 # all warts in mcg</p> <p><b>Breo Ellipta</b> † fluticasone furoate/vilanterol 100/25 # • 200/25</p>	<p><b>ICS/LAMA/LABA</b></p> <p><b>Incruse Ellipta</b> # umeclidinium 52.0mcg</p> <p><b>Trelegy Ellipta</b> † fluticasone furoate/umeclidinium/vilanterol 100/6.2/5.2/5</p>
<p><b>RESOURCES</b></p> <p><b>TREATMENT GUIDELINES</b> Australian Asthma Handbook: <a href="http://asthmahandbook.org.au">asthmahandbook.org.au</a> COPD-X Plans: <a href="http://copd.org.au">copd.org.au</a></p> <p><b>INHALER TECHNIQUE</b> How-to videos, patient and practitioner information <a href="http://nationalasthma.org.au">nationalasthma.org.au</a> Inhalers/MDIs should be used with a compatible spacer</p>		<p><b>LABA MEDICATIONS</b></p> <p><b>Duo Turbuhaler</b> † formoterol 4mcg • 10mcg</p> <p><b>Serevent Accuhaler</b> † salmeterol 50mcg</p> <p><b>Onbrez Breezhaler</b> † indacaterol 110mcg • 330mcg</p>	
<p><b>LAMA/LABA COMBINATIONS</b></p> <p><b>Spiolto Respimat</b> † tiotropium/umeclidinium 2.5/2.5</p> <p><b>Brimica Genuair</b> † acetylcholinesterase inhibitor 50mcg</p> <p><b>Ultibro Breezhaler</b> † indacaterol/glycopyrronium 110/50 all warts in mcg</p> <p><b>Anoro Ellipta</b> † umeclidinium/vilanterol 62.5/2.5 all warts in mcg</p>			

This chart was developed independently by the National Asthma Council Australia with support from Boehringer-Ingelheim, GSK Australia, Mundipharma and IonoPharma Australia.

© National Asthma Council Australia   
 PBS PRESCRIBERS † Asthma unrestricted benefit ‡ Asthma restricted benefit § Asthma authority required # COPD unrestricted benefit ## COPD restricted benefit †† COPD authority required   
 Check TGA and PBS for current age and condition criteria

## Relievers

Anyone with asthma will need to use a reliever when they are faced with asthma symptoms or emergencies and should carry one with them at all times. They mainly come in two forms of delivery devices; A puffer or B inhaler (*Bricanyl/Turbuhaler shown*).



Relievers are bronchodilator medicines, and when correctly used can provide quick resolution of bronchoconstriction.

## Preventers

Preventers are used as an ongoing program to reduce airway inflammation by decreasing redness, swelling, and helping to dry up mucus. It should be taken regularly as directed by medical practitioners.

**\*Preventers are not to be used when faced with asthma symptoms or emergencies**

## Techniques in using Asthma Medication Devices

Each medical device that delivers asthma medication requires specific directions for correct use, so the patient can get maximum benefit from the inhaled medication.

Refer to National Asthma Council Australia for full directions on each delivery device.

## Asthma Risk Minimisation

A workplace needs to minimise the risk of an asthma episode occurring. Following are some examples of strategies that can be used to reduce asthma triggers:

- Avoid contact with others who have the flu or a cold.
- Thoroughly wash hands with soap and warm water.
- Avoid the occurrence of intense and high levels of emotions.
- Avoid medications that may cause or worsen asthma such as aspirin, etc.
- Prevent exposure to cigarette smoke.
- Avoid processed foods that have chemicals that may trigger asthma symptoms.
- Avoid animals/pets that have previously caused reactions.
- Minimise mould:
  - Areas need to be well-ventilated.
  - When possible, use air conditioning.
  - Use products in wet areas that kill and prevent mould – avoid strong odour products and use out-of-hours.
  - Use exhaust fans to vent steam in kitchens, laundries, bathrooms.
- Mow grounds out-of-hours.
- Plant a low-allergen garden.
- Limit dust, for example having the carpets and curtains cleaned regularly and out-of-hours.
- Where possible have non-carpet flooring.
- Discourage the use of aerosol sprays, strong deodorants, or perfumes.

- Avoid the use of cleaning products and chemicals with strong odours during opening hours.
  - Stay indoors, with windows and doors closed, on days with high air pollution e.g. bush fires.
  - Avoid going outside on windy days, and during and after a thunderstorm.
  - After outdoor activities, bathe eyes frequently, shower to remove pollens from hair and skin, wash clothing worn during the day's activities.
-

## ALLERGIC REACTIONS AND ANAPHYLAXIS

Anaphylaxis is the most severe form of an allergic reaction and has the potential to be life-threatening. Anaphylaxis occurs after exposure to an allergen such as food (e.g. nuts), herbal remedies, latex, insect stings (e.g. bees) or medicine to which a person is already extremely sensitive.

It takes only 1 to 2 minutes for a mild allergic reaction to escalate to anaphylaxis. Some casualties may find symptoms they experience are always mild. For example, there may be a tingling or itching in the mouth and nothing more. Anaphylaxis is a preventable and treatable event.

The most important aspect of the management of casualties with life-threatening allergic reaction is avoidance of any known triggers such as:

- **Food.** Most commonly nuts, sesame seeds, shellfish, dairy, soy, egg, and wheat.
- Food triggers cause up to 90% of allergic reactions.
- **Herbal remedies.** Such as Royal Jelly.
- **Insect stings.** Such as bees and wasps. The venom from these insects is different in each case and therefore allergy to one does not increase the risk of reactions to another.
- **Latex allergy.** Rare, but more common in some people frequently exposed to latex such as health care workers.
- **Medication.** Particularly antibiotics and sometimes x-ray contrast dyes.
- **Animal Dander** (especially from cat or dog hair)



Casualties who have a history of anaphylaxis are often prescribed self-administered adrenaline using an EpiPen®, EpiPen® Jr, or Anapen®. If this is the case, assist the casualty to self-administer their adrenaline.

### Signs and symptoms

#### Mild to moderate allergic reaction

- Swelling of lips, face, eyes.
- Hives, welts, or body redness (*Refer to image*).
- Tingling mouth.
- Abdominal pain, vomiting (these are signs of a severe allergic reaction to insects).

#### Severe reaction (anaphylaxis)

- Swelling of the throat, lips, tongue or around the eyes.
- Difficulty and/or noisy breathing.
- Difficulty talking and/or hoarse voice.
- Persistent cough or wheeze.
- Abdominal cramps, nausea, vomiting or diarrhoea.
- Anxiety or a sense of doom.
- Persistent dizziness or collapse.
- Loss of consciousness.
- Small children can become pale and 'floppy' in appearance.



## Action Plans

A person with a known allergy may have a written Action Plan, created in collaboration with their doctor. This may be for Allergy or Anaphylaxis. If this document exists, it should always be followed.

ascia ACTION PLAN FOR Allergic Reactions		ascia ACTION PLAN FOR Anaphylaxis	
Name: _____ Date of birth: DD / MM / YYYY Confirmed allergen(s): _____ Family/emergency contact(s): 1. _____ Mobile: _____ 2. _____ Plan prepared by: _____ (doctor or nurse practitioner) according to this plan. Signed: _____ Date: DD / MM / YYYY Antihistamine: _____ Dose: _____ This plan does not expire but review is recommended by: DD / MM / YYYY		Name: _____ Date of birth: DD / MM / YYYY Confirmed allergen(s): _____ Family/emergency contact(s): Mobile: _____ Doctor prescribed by (practitioner) who authorises medications to be given, as consented by the parent/guardian, according to this plan. Signed: _____ Date: DD / MM / YYYY Antihistamine: _____ Dose: _____ This plan does not expire but review is recommended by: DD / MM / YYYY	
<b>MILD TO MODERATE ALLERGIC REACTIONS</b> <b>SIGNS:</b> • Swelling of lips, face, eyes • Hives or welts • Tingling mouth • Abdominal pain, vomiting - <b>these are signs of anaphylaxis for insect allergy</b> <b>Mild to moderate allergic reactions may not always occur before anaphylaxis</b>		<b>MILD TO MODERATE ALLERGIC REACTIONS</b> <b>SIGNS:</b> • Swelling of lips, face, eyes • Hives or welts • Tingling mouth • Abdominal pain, vomiting - <b>these are signs of anaphylaxis for insect allergy</b> <b>Mild to moderate allergic reactions may not always occur before anaphylaxis</b>	
<b>SIGNS OF ANAPHYLAXIS (SEVERE ALLERGIC REACTIONS)</b> Watch for ANY ONE of the following signs: • Difficult or noisy breathing • Swelling of tongue • Swelling or tightness in throat • Wheeze or persistent cough • Difficulty talking or hoarse voice • Persistent dizziness or collapse • Pale and floppy (young children)		<b>SIGNS OF ANAPHYLAXIS (SEVERE ALLERGIC REACTIONS)</b> Watch for ANY ONE of the following signs: • Difficult or noisy breathing • Swelling of tongue • Swelling or tightness in throat • Wheeze or persistent cough • Difficulty talking or hoarse voice • Persistent dizziness or collapse • Pale and floppy (young children)	
<b>ACTIONS FOR ANAPHYLAXIS</b> <b>1 LAY PERSON FLAT - do NOT allow them to stand or walk</b> • If unconscious or pregnant, place in recovery position - on left side if pregnant • If breathing is difficult allow them to sit with legs outstretched • Hold young children flat, not upright		<b>ACTIONS FOR ANAPHYLAXIS</b> <b>1 LAY PERSON FLAT - do NOT allow them to stand or walk</b> • If unconscious or pregnant, place in recovery position - on left side if pregnant • If breathing is difficult allow them to sit with legs outstretched • Hold young children flat, not upright	
<b>2 GIVE ADRENALINE INJECTOR IF AVAILABLE</b> <b>3 Phone ambulance - 000 (AU) or 111 (NZ)</b> <b>4 Phone family/emergency contact</b> <b>5 Transfer person to hospital for at least 4 hours of observation</b> <b>IF IN DOUBT GIVE ADRENALINE INJECTOR</b> Commence CPR at any time if person is unresponsive and not breathing normally		<b>2 GIVE ADRENALINE INJECTOR</b> <b>3 Phone ambulance - 000 (AU) or 111 (NZ)</b> <b>4 Phone family/emergency contact</b> <b>5 Further adrenaline may be given if no response after 5 minutes</b> <b>6 Transfer person to hospital for at least 4 hours of observation</b> <b>IF IN DOUBT GIVE ADRENALINE INJECTOR</b> Commence CPR at any time if person is unresponsive and not breathing normally	
<b>ALWAYS GIVE ADRENALINE INJECTOR FIRST and then asthma reliever puffer</b> if someone with known asthma and allergy to food, insects or medication (who may have been exposed to the allergen) has <b>SUDDEN BREATHING DIFFICULTY</b> (including wheeze, persistent cough or hoarse voice) even if there are no skin symptoms.		<b>ALWAYS GIVE ADRENALINE INJECTOR FIRST, and then asthma reliever puffer</b> if someone with known asthma and allergy to food, insects or medication (who may have been exposed to the allergen) has <b>SUDDEN BREATHING DIFFICULTY</b> (including wheeze, persistent cough or hoarse voice) even if there are no skin symptoms.	

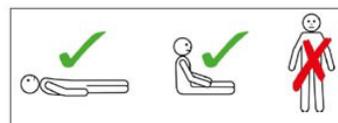
## Care and treatment

\*If in doubt, give adrenaline auto injector

\*Mild to moderate allergic reactions may or may not proceed anaphylaxis

### Mild to moderate allergic reaction

- Be calm and reassuring.
- For insect allergy - flick out sting if visible.
- For tick allergy - freeze dry tick and allow to drop off.
- Apply cold compress to bite/sting site.
- Stay with casualty and call for help.
- If casualty has an 'ASCIA Action Plan for Allergic Reactions', written by their doctor, then follow directions on the plan.
- Give other medications (if prescribed).
- Phone family/emergency contact.



### Severe reaction (anaphylaxis)

- Be calm and reassuring.
- Lay casualty flat. Do not allow them to stand or walk.
- May allow casualty to sit up if breathing is difficult.
- If unconscious, place them in recovery position.
- If possible, prevent further exposure to the triggering allergen.
- If casualty has an 'ASCIA Action Plan for Anaphylaxis' written by their doctor, then follow the plan.
- Assist with EpiPen® or Anapen® administration.

- Immediately call Triple Zero (000) for an ambulance, regardless of how the casualty feels.
- Phone family/emergency contact.
- Further EpiPen® or Anapen® doses may be given if no response after 5 minutes, and if one is available.
- If unsure whether it is asthma or anaphylaxis, give the EpiPen® or Anapen® FIRST, then asthma reliever.
- Continue to monitor. If at any time the casualty becomes unresponsive and not breathing normally, immediately commence CPR.

**NOTE: An ambulance must ALWAYS be called after giving an EpiPen® or Anapen®, as the effect only lasts 15 to 20 minutes. It is not a cure for the allergy, and the casualty may relapse into Anaphylaxis again.**

For further information contact:

Allergy & Anaphylaxis Australia call 1300 728 000 or visit <https://allergyfacts.org.au/>

Australasian Society of Clinical Immunology and Allergy (ASCI) visit <https://www.allergy.org.au/>

## Adrenaline Autoinjector

Prescribed or general use adrenaline autoinjectors need to be stored correctly and be able to be accessed quickly, because, in some cases, exposure to an allergen can lead to an anaphylactic reaction in as little as five minutes. Some guidelines to follow for adrenaline autoinjectors:

- If prescribed, the device should be clearly labelled with the person's name.
- To never exceed its expiry date. Record date and regularly check (Usually expires within 12–24 months from date of manufacture).
- Is replaced before expiry due date.
- Regularly check condition. Window should not display a cloudy or brown colour. (*Refer to image*) Replace if discoloured.
- Always store below 25°C (away from direct sunlight) but not in a refrigerator or freezer.
- Ensure all staff know where the devices are located and are easily accessible for people who are responsible enough to help you administer it.
- Store in its sharps container.



## EpiPen®

Child: Green adrenaline auto injector (<20kg).

Adult: Yellow adrenaline auto injector (>20kg).

- Regularly check the expiry date of the auto injector.
- Store EpiPen at room temperature, away from sunlight and extreme temperatures.
- Single use only (one measured dose). Immediately replace with a new one.



## Administering an EpiPen®

- Remove the EpiPen® from the packaging.
- Form a fist around EpiPen®
- Remove blue cap (safety release) from end.
- Hold leg still and place orange end against outer mid-thigh (with or without clothing).

- Push down hard until a click is heard or felt, then hold in place for 3 seconds.
- Remove EpiPen®
- Observe for relapse as severe symptoms sometimes recur after around 15 to 20 minutes.



## Anapen®

Child: Green adrenaline auto injector (<20kg).

Adult: Orange adrenaline auto injector (>20kg).

Higher dose: Purple adrenaline auto injector.

- Regularly check the expiry date of the auto injector.
- Store at room temperature, away from sunlight and extreme temperatures.
- Single use only (one measured dose). Immediately replace with a new one.



Anapen® Jr (150 microgram)



Anapen® 300 (300 microgram)



Anapen® 500 (500 microgram)



### Administering an Anapen®

- Form a fist around Anapen® and then remove black needle shield (safety release) from end.
- Pull off grey safety cap from the red button.
- Hold leg still and place needle end against outer mid-thigh at a 90 degree angle (with or without clothing).
- Press red button so that it clicks, and hold for 3 seconds.
- Remove EpiPen®. Place needle into wide end of black needle shield, or place Anapen® into a sealed container. Give the used Anapen® to paramedics or hospital staff.
- Observe for relapse as severe symptoms sometimes recur after around 15 to 20 minutes.



### Anaphylaxis Risk Minimisation

Strategies to reduce the risk of an individual's exposure to known triggers/allergens should be implemented. It is important to remember that minimisation of the risk of anaphylaxis is everyone's responsibility.

This should include organisational policies, staff training, emergency response procedures and all potential risks, for example:

- Food related risks.
- Avoid using food in activities or as a reward.
- Should selected food items be banned from the premises? (Not always recommended as it can cause complacency among staff and students).
- Sharing of food.
- Outdoor activities (Insect stings).
- Stay away from flowering plants.
- Children to wear closed shoes, light or dark colours instead of bright.
- Clover to be sprayed (outside of school hours).
- Consider assessments for: art, craft, cooking, science, incursions, canteens, parties/special event days, excursions, camps.

The effectiveness of risk minimisation strategies should be reviewed annually, or after an incident.

## DIABETES

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Diabetes is a condition which is characterised by an imbalance of glucose in the blood due to incorrect production or effectiveness of insulin.

Because all human cells require sugars as food, the body takes in complex sugars in a normal diet. So that the body's cells can use these sugars, an organ called the pancreas secretes a protein hormone called insulin, which attaches to the sugars. This allows the cells to recognise the sugars as food and absorb the necessary glucose.

It is estimated that one in twelve Australians have diabetes and this rate is increasing.

The two most common forms of diabetes are:

**Type 1 Diabetes** – only around 18% of diabetics are Type 1. It is usually diagnosed before the age of 10. It is the most life-threatening form of diabetes, as their bodies cannot produce any insulin at all and are dependent on insulin injections in order to survive. The cause of Type 1 diabetes is still unknown and there is no cure. They are most at risk of a hypoglycaemic emergency.

**Type 2 Diabetes** – the most common type of diabetes, affecting around 82% of all diabetics. It is usually diagnosed after the age of 40, and although not immediately life threatening, can lead to many complications including loss of limbs. In Type 2 diabetes, the body becomes insulin resistant. It can be controlled with diet, lifestyle changes and medication. They are most at risk of hyperglycaemia, and very rarely have a hypoglycaemic emergency.

A third type '**gestational diabetes**' which is less common may develop in pregnancy.

Diabetic emergencies have two causes - **Hypoglycaemia** and **Hyperglycaemia**.

### Hypoglycaemia

Hypoglycaemia, or low blood sugar, is a dramatic imbalance where the tissues, especially the brain cells, become starved of essential blood sugar. This condition is especially dangerous as its onset is rapid. This can lead to the casualty becoming unconscious and death may follow within hours.

Common causes of low blood sugar levels include:

- Drinking alcohol without food.
- Missing, skipping or delaying meals and snacks.
- Not eating enough carbohydrate (starchy) food.
- Too much insulin or diabetes tablets.
- Unexpected physical activity without eating extra food.
- In the setting of illness.

### *Signs and symptoms*

- Low blood sugar.
- Pale.
- Profuse sweating.
- Hunger.
- Light headedness or dizziness.
- Headache.
- Tingling around the mouth and lips.
- Slurred speech.

- Confused or aggressive – may appear to be drunk.
- Rapid pulse.
- Shaking, trembling or seizures.
- Tiredness or weakness.
- Drowsiness may lead to becoming unconscious.

### Care and treatment

**\*All diabetic emergencies are treated as Hypoglycaemia or low blood sugar.**

- Cease any exercise, rest and reassure.
- If conscious try to have the casualty eat one of the following:
  - 5 – 20 jelly beans (depending on brand) or 4 to 5 glucose tablets 4 gram.
  - 200ml of soft drink, fruit juice (not diet, or sugar free, or zero, or low-cal).
  - 2 – 4 teaspoons of sugar or honey.
  - 100ml of Lucozade.
- Monitor closely for 10 minutes.
- If no improvement within 10 - 15 minutes, call Triple Zero (000) and repeat step 2.
- If casualty deteriorates, follow DRSABCD.
- If casualty improves, assist with medication and encourage ingestion of carbohydrate (starchy) food such as a piece of fruit, glass of milk, sandwich or 2 – 4 dry biscuits.

**\*Do not attempt to give insulin injection.**

### Hyperglycaemia

Hyperglycaemia, or high blood sugar, is an imbalance of blood sugar, which usually requires the affected person to supplement their insulin requirements by periodic injections of the hormone. A casualty who is unable to obtain this supplement is liable to collapse into a serious state called diabetic coma. This condition can develop over many hours or days.

Common causes of high blood sugar levels include:

- Sickness or Infection.
- Stress.
- Too much carbohydrate (starchy) food at once.
- Not enough insulin or diabetes tablets.
- Other tablets or medicines.



### Signs and symptoms

- High blood sugar.
- Hot, dry skin with sunken eyes.
- Feeling constantly thirsty.
- Passing large volumes of urine, frequently.
- Smell of acetone (nail polish remover) on the breath.
- Drowsiness and extreme tiredness.
- Abdominal pain, nausea, and vomiting.
- Rapid pulse, rapid breathing.
- Blurred vision.
- Unconsciousness, progressing to coma.

### Care and treatment

- If the casualty with diabetes has a diabetes management plan, then that plan should be followed.
- Definitive treatment for high blood sugar requires medical expertise.

- If unsure whether the casualty has low or high blood sugar, treat as for low blood sugar.
- \*Do not attempt to give insulin injection.
- \*When unsure treat as Hypoglycaemia or low blood sugar

Useful resources - Diabetes Australia: [www.diabetesaustralia.com.au](http://www.diabetesaustralia.com.au)

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## DROWNING

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Drowning occurs after experiencing respiratory impairment from submersion/immersion in liquid which causes a lack of oxygen for the casualty. Drowning is a common cause of accidental death. The most important consideration the first aid provider can make is to ensure safety. Do not attempt a rescue beyond your capabilities.

Remove all drowning casualties from water by the fastest and safest means available and begin resuscitation as quickly as possible. Use a rescue aid, rope or buoyant aid if the casualty is close to dry land.

Use a boat or other water vehicle if possible. All casualty's that have had a drowning experience must seek immediate medical attention.



### Signs and symptoms

- Pale, cool skin.
- Absent, rapid or laboured breathing.
- Absent or decreased level of consciousness.
- Coughing, wheezing, spluttering.
- Cyanosis (bluish colour around lips).

**\*Untrained rescuers should not attempt to perform any form of resuscitation on a casualty in deep water.**

### Care and treatment

- Remove from water immediately without endangering your own safety.
- Call Triple Zero (000) for an ambulance.
- Lay casualty on their back, tilt head back, check for airway obstruction (tongue, fluid or solid).
- Only roll into recovery position to clear an airway obstruction.
- Check for breathing.
- If breathing normally, roll into recovery position.
- If not breathing normally, commence CPR.
- Place in recovery position once breathing is restored and closely monitor.
- Treat hypothermia if present.



**\*Compression-only CPR is not the recommended resuscitation method for a drowning victim as it fails to address the casualty's need for immediate ventilation.**

## **ELECTRIC SHOCK**

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***WARNING: Casualty may be electrically LIVE!***

Be careful not to touch the casualty's skin before the electrical source is disconnected. Be alert for the presence of water or conducting materials that may be in contact with the casualty.

The human body is an efficient conductor of electricity. When a casualty receives an electric shock from a household appliance or a power line, the electricity is conducted through the body. A casualty may receive significant burns, or the electric shock may interfere with the heart's electrical system. Burns to the casualty may be internal and greater than they appear on the surface.

### **Domestic Voltage**

It is urgent the casualty be disconnected from the electrical source by either:

- Turning off the power supply and disconnecting any plugs from the outlet and isolating the electricity supply at the main power board if possible
- Removing the casualty from the electrical source by pushing or pulling them with non-conducting materials, e.g., wooden stick/ board, rope, curtains or blanket.

Be careful not to touch the casualty's skin before the electrical source is disconnected and be alert for the presence of water or conducting materials with which they may be in contact.

### **High Voltage**

High voltage electrocution involves an extreme degree of risk to rescuers. If the electrical source is part of the electrical distribution grid (poles, pylons, underground cables, transformers or stations) you must not enter the area until electrical authorities have certified it safe.

You can do nothing for a casualty within the zone of danger! Protect yourself and others.

### **Signs and symptoms**

- Difficulty breathing.
- Evidence of burns.
- Evidence of fractures.
- Entrance and exit wound burns.

### **Care and treatment**

- Inform electrical authorities if high voltage involved.
  - Isolate/turn off the power supply without touching the casualty.
  - Follow DRSABCD.
  - Cool burns if safe to do so, with cool running water for 20 minutes.
  - Cover burns with non-stick dressings.
  - Call Triple Zero (000) for an ambulance.
  - Reassurance.
-

## HEAT RELATED EMERGENCIES

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The human body maintains a temperature between 36-37°C. Any excessive variation to this range has a detrimental effect on body functions. As a general observation, the human brain does not react well to excessive body heat and the heart is sensitive to cold.

The body has some natural defence mechanisms against excessive heat and cold. It regulates body heat by sweating, releasing heat through the body surface (heat loss) and through lung moisture evaporation. Cold is managed by shivering, which generates heat within the body.

Often, environmental influences determine the stability of the human body's temperature. These influences are important in relation to first aid. Heat and cold related conditions may bring on serious functional impairment.

Heat related conditions are those brought on by exposure to high temperatures and humidity. The most spectacular example of a serious heat related problem, is the televised distress suffered by athletes during long distance running events, conducted during hot and humid conditions. Heat may induce heat cramps, heat exhaustion and/or heat stroke.

### Dehydration

Dehydration is a condition caused by the casualty's loss of fluids exceeds their fluid input through drinking, dehydration occurs, and the blood volume lessens. Although not life threatening, it can lead to further complications such as Hyperthermia.

#### *Signs and symptoms*

- Pale, cool, clammy skin.
- Rapid breathing.
- Profuse and prolonged sweating.
- Thirsty.
- Loss of skin elasticity ('pinch test' on back of hand).
- Sunken eyes in children.
- Irritability.
- Headache, fatigue.

#### *Care and treatment*

- Complete rest in the shade, no further exertion.
- Remove unnecessary clothing.
- Give frequent small amounts of cool water, or electrolyte drinks (sports drinks).
- Ensure casualty has assistance when recovered.

### Hyperthermia

Hyperthermia is a condition whereby the individual's body temperature is above the usual body temperature. Hyperthermia has various stages, including heat cramps and heat exhaustion.

### Heat Cramps

Heat cramps are caused by the loss of complex salts (electrolytes) through an imbalance in the body's fluid requirements – the body is losing more fluids than it is replacing.

This deficit causes the hard-working muscles to lose their vital electrolyte balance, causing muscular contraction (cramping).

### **Signs and symptoms**

- Pale, clammy skin.
- Sweating if associated with exertion.
- Cramping pains in the limbs or abdomen.
- Nausea.
- Uncontrolled spasms of affected limb(s).

### **Care and treatment**

- Rest in the shade.
- Gently stretch the affected muscle.
- Apply ice pack.
- When nausea passes, give sips of cool water (with caution).

*\*Avoid massaging affected limb.*

*\*Avoid any further exercise.*

## **Heat Exhaustion**

Heat exhaustion is caused by exertion accompanied by heat and high humidity.

### **Signs and symptoms**

- Fatigue, exhaustion and lethargy.
- Pale, cool, clammy skin.
- Rapid breathing.
- Profuse and prolonged sweating.
- Cramps in the limbs and/or abdomen.
- Thirst, nausea and/or vomiting.
- Constant headache.
- Dizziness, which may be accompanied by collapse.

### **Care and treatment**

- Complete rest in the shade, no further exertion.
- Lie casualty down.
- Remove unnecessary clothing.
- Cool casualty by sponging with water.
- When nausea passes, give cool water to drink (cautiously).
- Ensure casualty seeks medical assistance when recovered.

## **Heat Stroke**

This condition is not to be confused with 'sun stroke', the common ailment of headache and nausea suffered by children and careless adults who remain in the sun too long without a hat. Also known as 'core temperature emergency', with a core temperature above 40.6°C heat stroke is life threatening.

In this condition, the body's temperature regulation centre in the brain has been rendered inoperable and the body temperature continually rises, causing eventual brain damage.

Immediate, active intervention is necessary to avoid coma and death.

*\*Risk is highest with: high temperatures and/or high humidity and/or vigorous activity.*

### **Signs and symptoms**

The first signs of heat stroke show in the function of the brain and the nervous system

- Hot dry skin.
- Lack of sweating in most cases (sometimes casualty can sweat profusely).

- Disoriented, abnormal walking, coma, or seizures.
- Irrational, confusion, incoherent speech.
- Core body temperature over 40°C.
- Life threatening, all body organs affected.

### **Care and treatment**

- Strip casualty's clothing, maintaining their respect, and move them to a cooler environment.
- Soak with water and if available, apply wrapped ice packs to neck, groin, armpits.
- Fan vigorously by whatever means possible – improvise e.g. use a clipboard.
- When available, cool or ice-water immersion is the most effective cooling means possible.
- Immerse the casualty up to their neck in a cool or ice bath (must be held at all times by multiple people to ensure airway) OR
- Cover all of the body with ice-soaked towels that are changed frequently.
- Call 000 or 112 for emergency services but do so only when you are certain first aid cooling is being implemented.

**\*Remember it is early recognition and first aid in heat stroke that is critical to save a life.**

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## **COLD RELATED EMERGENCIES**

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### **Hypothermia**

Exposure to cold is as serious as exposure to heat and humidity. An elderly person who is incapacitated and unable to summon assistance, in an unheated house during winter, is at risk from exposure to cold and hypothermia.

Common situations where persons suffer from exposure to low temperatures include being caught in inclement weather, being soaked in cold water and unable to change, and being exposed to cold winds without protection, and being unable to afford adequate heating and clothing.

Hypothermia occurs when the body's control mechanisms fail to maintain a normal body temperature above 35°C. Hypothermia results from prolonged exposure to cold temperatures.

Factors that commonly increase the risk of hypothermia include advanced or very young age, substance abuse, impaired mental status, or immersion in cold water.

### ***Signs and symptoms***

- Mild Hypothermia.
- Pale, cold skin.
- Shivering uncontrollably (mild hypothermia).
- Fatigue, lethargic.
- Impaired coordination.
- Slurred speech.
- Responsive but with apathy or confusion.

### ***Moderate to Severe Hypothermia***

- Absence of shivering (severe hypothermia).
- Slow, shallow respirations.
- Blurred or double vision.
- Unable to move limbs, muscle stiffness.
- Slow irregular pulse, low blood pressure.
- Casualty is silent, may appear asleep, difficult to rouse; may be unconscious.
- Casualty often feel that they are not ill.
- If very cold, may have non-reacting pupils and appear 'death-like'.

### ***Care and treatment***

- Call Triple Zero (000) for an ambulance.
- Remove from cold environment. Provide shelter from cold, rain, wet ground and wind.
- Remove cold or wet clothing as soon as possible. Dry casualty if wet.
- Warm casualty, wrap in blanket, 'space blanket'.
- If fully conscious, give warm, sweet drinks.
- Once casualty commences shivering, reassess heating.
- Be prepared for sudden collapse and resuscitation.

**\*Warm up slowly – no direct heat or hot bath. Do not expose to excessive heat.**

**\*Do not rub skin to create warmth.**

**\*Do not give alcohol.**

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## **HYPERVENTILATION**

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Hyperventilation is breathing more than is necessary to meet the body's requirements.

Excessive breathing leads to low levels of carbon dioxide in the blood, which causes many of the symptoms that occur in hyperventilation. This reduced level of carbon dioxide causes the arteries to constrict, reducing the flow of blood throughout the body. When this occurs, the brain and body will experience a shortage of oxygen.

Hyperventilation may occur due to several causes, often during periods of anxiety, fear or highly charged emotional responses. Over-breathing is a perfectly normal reaction to any stressful situation. Generally, when the event has passed, breathing will return to a normal rate. Sometimes, because of prolonged stress or a physical trigger, a continual pattern of over-breathing can occur, whereby the breathing pattern does not return to a normal level. Reassuring the casualty and a calm approach often quickly relieves the condition.

### **Signs and symptoms**

- Rapid deep respirations.
- Rapid pulse.
- Shortness of breath.
- Pressure, tightness or pain across the chest.
- Palpitations.
- Anxiety, feeling of panic and/or impending death.
- Dry mouth.

In extreme cases which have continued for some time:

- Blurred vision.
- 'Tingling' in fingers, toes, and lips.
- Hand and finger spasms and pain.

### **Care and treatment**

- Reassurance.
- Remove the cause of anxiety, if possible.
- Encourage the casualty to slow their breathing rate.
- Call Triple Zero (000) for an ambulance if no improvement.
- Follow DRSABCD.
- Monitor the casualty until the ambulance arrives.

Not every casualty who is breathing rapidly is suffering from hyperventilation due to anxiety. In some cases, the rapid respirations may be a sign of another, more serious, condition. It is important to eliminate more serious causes of rapid breathing, such as asthma and cardiac conditions.

**\*Though recommended by some websites, ARC guideline 9.2.8 clearly states not to use any bag for re-breathing, as this practice may prove to be dangerous.**

## SOFT TISSUE INJURIES

Soft tissue injuries are those injuries affecting the joints and muscles of injured, but not fractured, limbs. Sprains and strains are considered soft tissue injuries, with some authorities also including bruising.

Treating soft tissue injuries is based on resting the injured part, applying ice packs to limit swelling and reduce pain, applying a firm compression bandage as support and elevating the limb.

This treatment is known as '**RICER**'.

- **Rest.** The injured part is rested immediately to reduce internal bleeding and swelling and to prevent the injury from becoming worse.
- **Ice** helps to limit inflammation and reduce pain and swelling in the injured part.
- **Compression.** Wrapping the injured part with an elastic bandage helps limit swelling
- **Elevation.** Raising the injured part above the heart reduces blood flow to the injured part.
- **Referral.** Refer the casualty to professional medical advice for assessment of extent of soft tissue damage.

Ice packs should be placed on for 10 - 15 minutes, removed, and then re-applied when the damaged area becomes warm again (about 30 – 60 minutes). Never apply ice directly onto the skin, as this may cause tissue damage. Always use a barrier, such as cloth, between the ice pack and the skin.

### Sprains

Sprains involve the over-extension of a joint, usually with partial rupture of the ligaments.

#### Signs and symptoms

- Sudden pain in the joint.
- Loss of power and ability to bear weight.
- Substantial swelling and bruising.
- Site becomes tender, painful to palpate.

#### Care and treatment

- Use R.I.C.E.R.

*\*Note: R.I.C.E.R. is most important for the first 48 – 72 hours.*



### Strains

Strains involve over-stretching of the major muscles or tendons and occur when the fibres of a muscle or tendon are over-stretched and tear. This injury is usually less severe than a sprain but can still have complications if not managed correctly.

#### Signs and symptoms

- Pain, increasing on movement.
- An audible 'pop' may be heard if the tendon parts from the bone.
- May have a discernible deformity to the muscle area..
- Tenderness, discomfort when weight bearing

#### Care and treatment

- Use R.I.C.E.R.
- Avoid stretching or massaging the injured limb for 24 hours.
- When the pain subsides, start activity slowly and in moderation.
- If pain persists, seek medical aid.

**\*\*Avoid using a strained muscle while it is still painful.**

## Slings

Use slings to support an injured arm or to supplement treatment for another injury such as fractured ribs, *but only if it does not hurt the casualty to do so*. Never force an arm into a sling. If a sling is not appropriate, find another way to support the arm.

Generally, the most effective sling is made with a triangular bandage. Every first aid kit, no matter how small, should have at least one of these bandages as an essential item.

Although triangular bandages are preferable, any material, e.g. tie, belt or piece of thick twine or rope, can be used in an emergency. If no likely material is at hand, an injured arm can be adequately supported by inserting it inside the casualty's shirt or blouse. Similarly, a safety pin applied to a sleeve and secured to clothing on the chest may suffice.

There are essentially three types of sling; the arm sling for injuries to the forearm, the elevated sling for injuries to the shoulder and the 'collar-and-cuff' or clove hitch for injuries to the upper arm and as supplementary support to fractured ribs.

After applying any sling, always check the circulation to the limb by feeling for the pulse at the wrist or squeezing a fingernail and observing for change of colour in the nail bed. All slings must be in a position that is comfortable for the casualty.

**\*\*Remember: Never force an arm into the 'right position'.**

## Arm sling

- Support the injured forearm approximately parallel to the ground with the wrist slightly higher than the elbow.
- Place an opened triangular bandage between the body and the arm, with its apex towards the elbow.
- Extend the upper point of the bandage over the shoulder on the uninjured side.
- Bring the lower point up over the arm, across the shoulder on the injured side to join the upper point and tie firmly with a reef knot.
- Ensure the elbow is secured by folding the excess bandage over the elbow and securing with a safety pin.



### ***Collar-and-cuff***

- Allow the elbow to hang naturally at the side and place the hand extended towards the shoulder on the uninjured side.
- Using a narrow fold triangular bandage, form a clove hitch by forming two loops – one towards you, one away from you.
- Put the loops together by sliding your hands under the loops and closing with a 'clapping' motion.
- If you are experienced at forming a clove hitch, then apply a clove hitch directly on the wrist, but take care not to move the injured arm.
- Slide the clove hitch over the hand and gently pull it firmly to secure the wrist.
- Extend the points of the bandage to either side of the neck and tie firmly with a reef knot.
- Allow the arm to hang comfortably. Should further support be required, e.g. for support to fractured ribs, apply triangular bandages around the body and upper arm to hold the arm firmly against the chest.



### ***Elevated sling***

- Support the casualty's arm with the elbow beside the body and the hand extended towards the uninjured shoulder.
- Place an opened triangular bandage over the forearm and hand, the apex toward the elbow.
- Extend the upper point of the bandage over the uninjured shoulder.
- Tuck the lower part of the bandage under the injured arm, bring it under the elbow and around the back and extend the lower point up to meet the upper point at the shoulder.
- Tie firmly with a reef knot.
- Secure the elbow by folding the excess material and applying a safety pin, then ensure that the sling is tucked under the arm giving firm support.



## FRACTURES AND DISLOCATIONS

There are 206 bones in the human body. The skeleton holds our skin up and bones act as factories for producing blood and essential blood cells through bone marrow. Bones are also integral to the body's strength. Some bones have a protective function (skull), some a supporting function (pelvis), while others are for movement (fingers).

When a bone is broken or fractured, it affects not only blood production and function, but there can be complications associated with the muscles, tendons, nerves, and blood vessels that are attached or are close, to the bone.

### Dislocations

Dislocations involve the displacement of bone from a joint. These injuries are often underestimated and can have serious consequences in the form of damage to nerves and blood vessels. Many people have joints which dislocate easily due to a congenital condition or weak ligaments, stretched by previous repeated dislocations.

#### Signs and symptoms

- Sudden pain in the affected joint.
- Loss of power and movement.
- Deformity and swelling of the joint.
- Tenderness.
- May have some temporary paralysis of the injured limb.

#### Care and treatment

- Support affected joint/limb in a position that is comfortable for the casualty.
- Do NOT move the injured area any more than necessary to make it comfortable.
- Seek medical assistance, either by calling for an ambulance or transporting to hospital.
- Any attempt to reduce a dislocation is only to be made by a doctor.



### Fractures

Fractures are generally classified as (In order of severity):

- Closed – Where the bone has fractured but has no obvious external wound.
- Open – Where a wound is exposing the fracture site, or the bone is protruding from the skin.
- Complicated – Which may involve damage to associated vital organs and major blood vessels because of the fracture.

Immobilisation is the preferred way to manage fractured limbs as it helps reduce movement and the pain associated with fractures.

Fractures may be caused by:

- Direct force: Where force is applied to cause the bone to fracture at the point of impact.
- Indirect force: Where force or kinetic energy is applied to a large, strong bone and is transmitted up the limb, causing the weakest bones to fracture.



Always exercise care when assessing an elderly casualty as the condition known as osteoporosis or 'chalky bones' causes bones to fracture easily, often in several places. Always suspect a fracture if an elderly person complains of pain or loss of power to a limb. Be especially aware of fractures at the neck of the femur (near the hip), a very common fracture in the elderly.

Young children are also prone to fractures. Arm and wrist fractures are common with children. As young bones do not harden for some years, children's fractures tend to 'bend and splinter', like a broken branch on a tree – hence the common name 'greenstick fracture'.

### ***Signs and symptoms***

Some or all of the following:

- Pale, cool, clammy skin.
- Pain and tenderness at the site.
- Loss of power to limb.
- Associated wound and blood loss.
- Nausea.
- Deformity.

### ***Care and treatment***

Care and treatment of fractures consists of supporting the injury, until professional medical help arrives. If the fracture is particularly complex, the wound associated with an open fracture may be difficult to control.

- Circulation must be checked at the end of a limb in case blood flow has been affected by the fracture.
- Support the injured area in a position that is comfortable for the casualty.
- Do NOT use splints. Splints should only be applied by medical professionals.
- Do not move the fractured area any more than is necessary.
- Call for Ambulance, or transport to hospital.

#### ***Fractured arm/collar bone***

- Check for warmth and circulation to the hand. If no circulation, gently and carefully adjust the position of the limb until blood flow returns.
- Treat any bleeding wounds.
- If safe, and doesn't cause further pain, apply appropriate sling.
- Reassess circulation after sling applied.

#### ***Fractured leg***

- Check for warmth and circulation to the foot. If no circulation, gently and carefully adjust the position of the limb.
- Treat any wounds.
- Support the injured leg in a way that it is comfortable for the casualty.
- Do not move any more than is necessary.

#### ***Suspected fractured pelvis***

- Call Triple Zero (000) for an ambulance.
- Support the casualty's in as comfortable a position as possible, using pillows, blankets, towels etc. Do not move more than necessary.
- Maintain the casualty body temperature.
- Assess and treat for shock.

#### ***Fractured jaw***

A common injury in certain contact sports is dislocation or fracture, of the lower jaw (mandible). The casualty will have pain in the jaw, be unable to speak properly, and may have trouble swallowing.

- Call Triple Zero (000) for an ambulance.
- Support the jaw.

- Sit the casualty leaning slightly forward.
- Rest the injured jaw on a pad held by the casualty.

**\*\*Do not apply a bandage to support the jaw.**

Observe the casualty carefully for signs of breathing difficulties and any indication they are becoming drowsy or unconscious.

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## SPINAL INJURY

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The spinal column consists of a series of interconnected bones, called vertebrae that enclose the spinal cord, which is an integral part of the central nervous system. It is the spinal cord and its attached nerves which provides how we breathe, move, and use our senses.

Between each vertebra are discs of cartilage that act as shock absorbers and allow the spinal column a degree of flexibility.

The spine is divided into five areas:

- The cervical spine (neck), 7 vertebrae.
- The thoracic spine (chest), 12 vertebrae.
- The lumbar spine (back), 5 vertebrae.
- Fused vertebrae of the sacrum.
- A small vertebra called the coccyx.

Any injury to the spinal cord has serious ramifications for our ability to function normally. The nearer the head the lesion occurs the more serious it is, affecting all levels of the body below it and potentially causing death if the nerves to the heart and lungs are involved. Even if the casualty is not affected to these degrees of severity, spinal injury may cause chronic back pain and restricted spinal flexibility.

Spinal injuries can be caused by a variety of physical incidents. A common cause of spinal injuries is motorcycle accidents. Riders and pillion passengers are thrown unprotected to the roadway and invariably land heavily in an awkward manner, putting stress on the spinal column. Carefully assessing the history of the incident and the mechanism of injury will benefit the first aid provider before they apply active treatment.

Road traffic accidents, diving accidents and sporting accidents, falls, and head injuries provide most spinal casualties.

**\*All head injured, and unconscious patients potentially have spinal injuries as well.**

### Signs and symptoms

- History of the trauma, especially high-speed accidents or contact sports.
- Unnatural posture.
- May have pale, cool, clammy skin.
- Numbness, tingling, and/or unusual or absent feeling in limbs, especially fingers and toes.
- Loss of skin sensation in the limbs.
- Absence of pain in limbs despite other injuries to these areas.
- Inability to move arms and/or legs, or weakness of movement.
- Onset of shock.
- Headache or dizziness.
- Nausea.
- Loss of bladder or bowel control.
- Breathing difficulties.

### Care and treatment

If casualty is CONSCIOUS and breathing normally:

- Call Triple Zero (000) for an ambulance.



- Take extreme care in initial examination.
- Encourage the casualty to remain still in the position they were found.
- Support the casualty's head and neck region, by having someone place their hands either side of the casualty's head, cradling the back of the head in their fingers, but do not cover the ears. Do not move any more than is required to maintain airway and breathing.
- Examine for shock and maintain body temperature.
- Treat any bleeding injuries by applying pressure to wound, cool any burns with water.

**\*DO NOT proceed further until directed to do so by a Medical Professional.**

**\*Cervical collars and spinal boards are only to be used by medical personnel trained to do so**

If casualty is UNCONSCIOUS and BREATHING normally:

- Call Triple Zero (000) for an ambulance.
- Gently roll the casualty into the recovery position, using the spinal roll technique (the H.A.I.N.E.S. technique is especially recommended).
- Support the casualty's head and neck region.
- Warm or cool casualty as required to maintain body temperature.
- Treat any bleeding injuries by applying pressure to the wound, cool any burns with water.

**\*Airway and Breathing take priority over all Spinal Injuries**

### ***Helmet removal***

DO NOT remove a helmet. Helmets should *only* be removed by trained medical professionals. The helmet could be helping prevent (further) spinal or head injuries. Undo the chin strap and open the visor to assess airway and breathing. Only tilt the head back to open airway if necessary. Immobilise the casualty's head and spine by having one person place their hands on either side of the casualty's head (palms inwards) to keep it from moving. Call 000 for further instructions.

**\*Do not use improvised neck braces.**

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## HEAD INJURIES

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Injuries to the head are always regarded as serious because they can inflict damage to the brain and spinal cord as well as damaging the bone and soft tissue. As a result, head injuries can be devastating to the casualty.

Head injuries can be invisible to the eye. In many instances, a casualty who appeared unaffected after an incident will collapse with life-threatening symptoms some hours later.

This may be due to 'whiplash', the sudden movement of the head forward and backward on impact which may cause a small bleed in the brain that eventually increases and applies excessive pressure on the brain tissue.

Such injuries can mislead the first aid provider by not exhibiting the expected signs and symptoms immediately after an incident. As a first aid provider you should always take head injuries seriously.

Always check the patient's response and whether they have any alteration of consciousness. Ask age-appropriate questions such as:

- What is your name?
- Do you know where you are?
- What colour is my shirt?
- Wiggle your fingers?
- Can you count to 5 for me?

Look at the history of the incident and the mechanism of injury.

If, in your opinion, the patient's conscious state is altered, or the incident had the potential to cause serious injury, assume the worst and treat as a serious head injury. In some instances, serious head injury is readily identified by certain signs peculiar to the injury.

- Any fluid oozing from the nose or ears. This could be related to cerebrospinal fluid (CSF), which surrounds the brain. When a fracture occurs, usually at the base of the skull, the fluid leaks out under pressure into the ear and nose canals.
- Uneven sized pupils. The pupils of both eyes should always be the same size – smaller when in a bright environment, and bigger when in a dark environment. If this is not the case, or one pupil is larger than the other, this indicates there is likely to be an issue with the brain function affecting the optic nerve.
- Black eyes and bruising. The kinetic energy from a blow which is transmitted through the head and brain is expelled through soft tissue, e.g. the eyes and behind the ears. Bruising at these points indicates the head has suffered exposure to considerable force.

Remember, just because a casualty has two black eyes (raccoon eyes), this does not necessarily mean they were struck in the face. Raccoon eyes may indicate a forceful impact elsewhere on the skull.

Blurred or double, vision is common with concussed casualties. It indicates that the brain has been dealt a blow that has temporarily affected its ability to correctly process the sight senses.

**Concussion is the body's way of protecting the brain. Of all the head injuries, the severity of this is often underestimated and many casualties have succumbed several hours after the incident.**

## Signs and symptoms

Some or all of the following:

- History and mechanism of injury.
- Head wounds.
- Deformation of the skull.
- Altered/deteriorating level of consciousness.
- Evidence of fluid leaking from ears or nose.
- May have unequal pupils.
- Headache, mild or severe.
- Raccoon eyes.
- Nausea and/or vomiting.
- Restlessness and irritability, confusion.
- Blurred or double vision.

## Care and treatment

- Call Triple Zero (000) for an ambulance.
- Immobilise the casualty's head and spine by having one person place their hands on either side of the casualty's head (palms inwards), but do not cover the ears.
- Treat any wounds.
- If unconscious or drowsy, put casualty in the recovery position while supporting the head.
- Allow any fluid to drain from ears freely – if in recovery position, put the injured side down with a pad under the ear to collect the fluid.
- If the casualty becomes unresponsive and is not breathing normally, commence CPR.

**\*Do not allow concussed casualties to 'play on'.**

**\*All casualties who appear to have suffered a head injury (including a minor head injury) should be assessed by a health care professional before continuing with sport or other activity.**

**\*All head injury and unconscious patients must be treated for spinal injuries as well.**

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## CRUSH INJURY

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A crush injury refers to various situations whereby the individual has been crushed by a heavy object, such as a fallen tree, car accident, collapsed building. A crush injury can result in internal bleeding, fractured bones, ruptured organs, and impaired blood supply.

### Care and treatment

- Use DRSABCD and check for dangers.
- Call Triple Zero (000) and seek advice from the operator.
- If it's safe, and physically possible, remove the crushing object as soon as possible.
- If unable to physically remove the object (tree, car, etc) seek medical advice.
- Control any external bleeding and manage any other injuries.
- Treat for shock.
- Remain with the casualty. Comfort and reassure.
- Continue to monitor. If the casualty becomes unresponsive and is not breathing normally, commence CPR.

**\*All crush injuries should be assessed by a medical professional.**

**\*A tourniquet should not be used for first aid management of a crush injury but may be used for severe bleeds – seek advice from the Triple Zero operator whether it is appropriate at the time.**

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## **EAR INJURIES**

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The ear has two functions; as the receptacle of the auditory senses (hearing); and as the organ of balance. Injuries to the ear usually affect hearing function rather than balance.

Children are especially at risk of ear damage by inserting small objects into the ear canal. This can have serious effects on the tympanic membrane or 'eardrum'. An old, but sensible, saying is 'nothing smaller than the elbow should be poked in the ear'.

The eardrum is easily damaged. Holes or tears may be caused by swimming and diving beneath the surface, change in altitude (flying) or by vigorous nose-blowing when 'stuffed up' with a cold or flu. Minor eardrum injuries usually spontaneously repair themselves over a period of hours.

### **Care and treatment**

#### ***Ear obstruction***

- If an insect, shine a bright light into the ear, to encourage the insect to escape.
- If unsuccessful, lay casualty on their side, ear facing up, and drizzle clean vegetable oil or baby oil into the ear. Allow to settle for 15 sec, then tip the oil out. Insect will often come out with the oil. If you suspect that the insect is dead, you may be able to flush it out of the ear using warm water and a syringe (without the needle).
- If an object, lay the casualty on their side, ear facing down, and allow gravity to help the object fall out.
- If unsuccessful, immediately seek medical aid.

**\*Do not poke anything into the ear.**

**\*Do not use water to flush ear if you suspect a perforated eardrum (signs of this are pain, bleeding, or discharge from the ear).**

#### ***Suspected ruptured eardrum***

- Place cover over affected ear to guard against infection.
- Immediately seek medical aid.

**\*Avoid using ear drops unless directed by a doctor and avoid swimming or water sports.**

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## EYE INJURIES

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The eye is a robust but delicate organ. It can sustain quite severe damage and with the proper treatment, recover to its former state. In some instances, however, a seemingly 'minor' injury can be permanently disabling.

Always consider preventing eye injuries and taking sufficient protective measures (such as protective glasses or goggles).

### Minor eye injuries

These are injuries where the eye has encountered a foreign object, such as dirt, sand, small sliver of glass, metal filing etc, causing minor irritation, or the object remains on the surface of the eye. It is characterised by a bloodshot eye, irritation, and an urge to rub the eye.

#### Care and treatment

- Irrigate the eye with a steady stream of saline solution or clean water for 5 minsto wash the object out.
- If this fails, gently cover the eye with a dressing, seek medical aid.

\*Do not pull on the eyelids or 'push' the object around the eye's surface.

\*Do not allow casualty to 'rub' the eye.

\*Only use eye-drops if prescribed by a doctor.

### Major eye injuries

These are injuries that involve the penetration of the body of the eye, or involve severe blunt trauma, such as a finger poking the eye or impact from flying object. These injuries are characterised by blood in the eye, penetrating objects, and disturbance of vision, protrusion of eye contents and severe pain and spasms. Also, the casualty may be seeing 'black spots' in their vision that move when the eye moves. Casualty care in this case is critical and should be left to the experts.

#### Care and treatment

- Lay the casualty flat with complete rest.
- Call Triple Zero (000) for an ambulance.
- Do not remove any protruding object.
- Cover the affected eye, using a 'ring bandage'.
- Cover the unaffected eye, to reduce movement of the injured one, but remove it if the casualty becomes anxious.
- Be calm and provide reassurance.

\* With children, keep their hands away from the eye.

\*Eye-drops are not to be used under any circumstances.

### Welder's Flash

A flash burn or welder's flash is the result of staring or inadvertently looking at the intense light caused during metal welding, while not wearing the correct eye protection.

Care must be taken to supervise children if welding is being conducted near them and they should be removed from the location. The damage caused to the eye's cornea by exposure to this intense light can be painful and, in some cases, permanent.

#### Care and treatment

- Apply cool compresses and cover the eyes with pads.
- Seek medical attention.

- Seek urgent medical attention if casualty is seeing 'spots' or 'shadows' in their vision that move when they move their eye.
-

## BURNS

Burns are injuries that damage and kill skin cells and are most commonly caused by exposure to flames, hot objects, hot liquids, chemicals, radiation, or a combination of these.

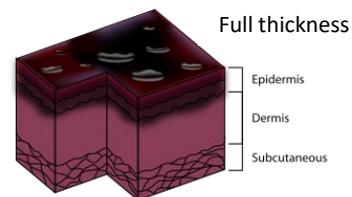
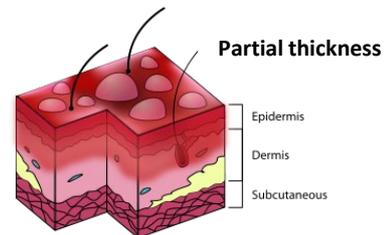
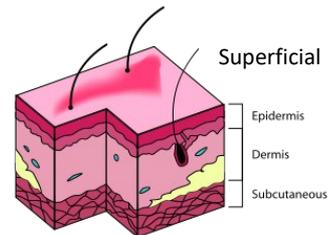
Scalds are caused by contact with wet heat such as boiling fluids or steam.

Electrical burns are less common but have the potential to be more serious as the depth of the burn is usually greater than is apparent and heart irregularities may occur.

As with most potentially serious injuries, prevention is better than cure. All homes should be fitted with smoke detectors. Keep hot objects, such as kettles, safely out of reach of children and make sure to turn off heaters and stoves when not in use. It is important that any casualty who has inhaled smoke, fumes or superheated air or has been burnt on the face, seeks medical aid as soon as possible after the incident. Electrical burns have the potential to be more serious as the depth of the burn is usually greater than is apparent and cardiac (heart) irregularities may occur.

Burns are classified as either (*Refer to image*):

- Superficial
  - Reddening (like sunburn).
  - Damage to outer layer of skin only.
- Partial thickness
  - Blistering.
  - Damage to outer and inner layers of skin.
- Full thickness
  - White or blackened areas.
  - Damage to all layers of skin, plus underlying structures, and tissues.



### Signs and symptoms

- Obvious red, blistered, white or blackened skin.
- Signs of shock.
- Pain in superficial and partial thickness burns.
- Breathing difficulties.
- Hoarse voice and/or snoring sound when breathing.

### Care and treatment

Burns to the face may have an effect on the casualty's breathing. These effects may take some time to appear. The aim of first aid treatment of burns is to stop the burning process, cool, and cover the burn to minimise tissue loss and provide pain relief.

#### Initial response for burns

- Ensure safety for all: rescuers, bystanders and casualty.
- Do not enter a burning or toxic atmosphere without appropriate protection.
- Stop the burning process:
  - Stop, Drop, Cover and Roll.
  - Smother any flames with a blanket.
- Move away from the burn source to a safe environment as soon as possible.
- Assess the adequacy of airway and breathing.

- Check for other injuries.
- Call Triple Zero (000) for an ambulance.

### ***Radiation burns (e.g. heat burns)***

- Cool only with clean running water for 20 minutes.
- if possible, resist using other substances.
- When cool, cover with a clean, non-stick sterile dressing (or plastic wrap etc.).
- If possible, without causing further tissue damage to the burned area, remove tight clothing and objects, such as rings, jewellery, etc.
- Contaminated or smouldering clothing should only be removed by a trained medical professional.
- To prevent the risk of hypothermia, keep the rest of the casualty warm. Cover unburnt areas as needed.
- Treat for shock if the burn is severe.

**\*Do not break blisters.**

**\*Avoid the use of ice, ice water, powders, ointments, lotions, and creams.**

**\*Ensure cooling is not excessive resulting in shivering.**

**\*Do not peel off clothing that is stuck to the skin.**

**\*Hydrogel dressings or gel are a suitable alternative when water is not available.**

Seek medical aid if the:

- Burn is larger in size than the casualty's palm.
- Casualty is an infant, child, or elderly.
- Burns involve the hands, face, feet, or genitals.
- Burn was caused by laser beams or industrial microwave equipment.

### ***Inhalation burns***

Casualty has inhaled smoke, fumes, or superheated air. If there are burns to the face, nasal hairs, eyebrows or eyelashes, or the appearance of carbon deposits in the nose or mouth, always view it as an inhalation burn injury.

- Move casualty away from burn inhalation source to fresh air.
- DRSABCD – Check, assess and manage the casualty's airway.
- Call Triple Zero (000) for an ambulance.
- Monitor casualty and provide reassurance.

### ***Chemical burns***

The aim of first aid for chemical burns is not to cool the burn but to dilute the chemical.

Use appropriate PPE, e.g. gloves, goggles to avoid contact with any chemical or contaminated material.

- Move the casualty to a safe area.
- Refer to chemical container or to Safety Data Sheet (SDS) for specific treatment instructions.
- As soon as practical, remove the chemical and any contaminated clothing and jewellery.
- Brush powdered chemicals from the casualty's skin.
- Immediately run cool running water directly onto the area for one hour or until the stinging stops, while ensuring that you don't spread the chemical to the unaffected areas.
- If the chemical has entered the eye, continuously flush the affected eye(s) thoroughly with clean water for as long as is tolerated.
- Even if no burn mark is obvious, apply a non-adherent dressing.
- Call the Poisons Information Centre for further advice.
- Call Triple Zero (000) for an ambulance.

**\*Flushing the eye is more important than immediate transfer for medical care.**

**\*Remove phosphorus particles using forceps only. Keep phosphorous burns wet at all times.**

**\*Do not attempt to remove bitumen from the skin or eyes. Flush area for at least 30 minutes.**

**\*Do not use water on alkali or acid burns, as this will increase heat and cause further harm.**

### ***Electrical burns***

Lightning strikes and electrical burns are often related with other injuries involving cardiac and respiratory systems, loss of consciousness and trauma.

- Follow DRSABCD – Commence CPR if required as lightning may cause cardiac arrest.
  - Manage the hazard and control the risk. Safely isolate/turn off the power source without touching the casualty.
  - If safe to do so, cool burn with clean running water for 20 minutes.
  - Call Triple Zero (000) for an ambulance.
  - In case of high-voltage electrocution, such as that caused by fallen power lines, immediately notify emergency services. Everything will conduct electricity if the voltage is high enough, so keep at least 10m from the person or wires. Do not attempt to remove wires or other materials with any object, including wooden ones, until the power has been turned off by authorised personnel.
-

## BLEEDING CONTROL

The body must have enough circulating blood volume to keep the body functioning and keep the organs supplied with oxygen. Blood consists of red cells, which convey oxygen throughout the body; white cells, which fight introduced infection; platelets, which assist in the clotting process; and plasma, the fluid portion of blood. There are between 5 and 7 litres of blood in the average adult body which makes up 7–8% of the body weight.

Blood is moved around the body under pressure by the heart and blood vessels. Without an adequate blood volume and pressure, the human body soon collapses. Bleeding or haemorrhage poses a threat by causing both the volume and the pressure of the blood within the body to decrease through blood loss when blood vessels rupture due to a severe injury.

Severe blood loss is one of the common causes of death in accidents. The aim of the first aider is to reduce the loss of blood from the casualty.

### External Bleeding

External bleeding is usually associated with wounds. Serious wounds involve damage to blood vessels. External Bleeds can be categorised into three main types:

- Arteries - Damage to an artery is characterised by blood which can ‘spurt’ and ‘pulse’ with each heartbeat.
- Veins - Damage to veins tend to flow, sometimes heavily, rather than spurt.
- Capillaries - Damage capillaries are associated with wounds close to the skin and ooze rather than flows.

A wound is caused when our body tissue is torn or cut. Types of wounds include cuts, abrasions, amputations, incisions, lacerations, and punctures.

- **Abrasion** is a wound where the skin layers have been scraped off from a fall on a rough surface, pieces of shells, claws of animals, machinery, etc. These wounds have torn, or irregular edges and they tend to bleed less.
- **Amputation** is the severing or partial severing of part of the body, such as a finger or toe, a limb or part of a limb. This a life-threatening bleed.
- **Incision** is a wound characterised by ‘slicing’ as with a sharp knife or sharp piece of metal. It is often characterised by a narrow wound which has cut cleanly and bleeds extensively.
- **Laceration** is a jagged edge wound with associated tissue loss, such as from a barbed wire fence injury or where a rider’s ankles, knees, elbows, or wrists have abraded at speed, colliding with a road surface. These may be life threatening.
- **Puncture** wounds are perforations, from anything from a corkscrew to a bullet and generally with a limited external area but potentially quite deep, possibly affecting internal organs. They may also leave an object embedded in the wound. These may be life threatening.

### Care and treatment

#### Basic wound care

The principles for basic wound care are irrespective of the type or level of wound be treated.

It applies to the basic ways a wound is cared for to reduce risk of infection before any dressings are applied.

- Whenever possible, follow infection control principles, e.g. wash hands, wear PPE, etc.
- Cleanse the wound:
  - Try to avoid causing further harm.
  - Use clean water or antiseptic solution.



- To remove any lodged particles, use sterile instruments to pick out and remove any particles or flush under pressure using a saline solution.
- Cleanse the skin around the wound to remove any possible contaminants.
- Gently pad the area dry.

### **Minor injuries (e.g.: small abrasions, cuts and scratches)**

- Follow 'basic wound care' steps.
- Apply pressure to the wound to stop further bleeding.
- Apply a sterile wound dressing to protect from further harm.

### **Bleeding**

- Follow 'basic wound care' steps.
- Use **R.I.D.** Principles: Rest, Immobilise and Direct pressure.
- Casualty to rest and remain still.
- Apply firm, direct pressure sufficient to stop the bleeding.
- Apply pressure using hands or a pad ensuring that the pressure is maintained directly over the wound.
- Immobilise bleeding limb to restrict movement.
- Call Triple Zero (000) for an ambulance if bleeding or injury are severe.
- Be calm and provide reassurance.
- Help casualty into a comfortable position, if possible have them lying down.
- Regularly monitor vital signs.
- If the casualty becomes unresponsive and not breathing normally follow **DRSABCD**.
- Keep the casualty warm and treat for shock.

**\*Do not give any food or liquids, including medications**

## **Nosebleed**

### **Signs and symptoms**

- Bleeding from either or both nostrils.
- A sensation of flowing liquid at the back of the throat.
- The urge to swallow frequently.



### **Care and treatment**

- Put on disposable gloves if available.
- Have the casualty pinch the fleshy part of the nose just below the bone.
- Have the casualty sit down and lean forward.
- Maintain the pressure and posture until bleeding stops.
- Keep casualty seated and resting for 10 minutes.
- 20 min if after exercise or in hot weather.
- If bleeding persists and does not stop within 20 minutes, obtain medical aid.

**\*Advise the casualty not to blow or pick their nose for several hours, and not to swallow blood.**

## **Life Threatening Bleeding**

### **Care and treatment**

Bleeding should be managed as severe, life-threatening bleeding in the following situations:

- Amputated or partially amputated limb above wrist or ankle.
- Shark attack, propeller cuts or similar major trauma to any part of the body.
- Bleeding not controlled by local pressure.
- Bleeding with signs of shock, i.e., pale, and sweaty plus pulse rate >100, or capillary refill > 2 sec and/or decreased level of consciousness.

If bleeding is severe or life-threatening, controlling the bleeding takes priority over airway and breathing interventions:

- Call Triple Zero (000) for an ambulance.
- Follow 'bleeding' steps.
- If available, use standard precautions, e.g. gloves, protective glasses.
- If bleeding from a limb & not controlled by pressure, apply an arterial tourniquet\* above bleeding point.
- If wound site is not suitable for tourniquet, or from a limb when a tourniquet is not available or has failed to stop the bleeding, apply a haemostatic dressing\*.

\* *If trained in its use and one is available*

For most non-life-threatening cases, follow DRSABCD, where control of bleeding follows establishing airway and commencing CPR if required:

- Lie the casualty down, immobilise the injured part, maintain body temperature.
- Check circulation every 2 min.
- Treat for shock if required.

### **Constrictive bandage (Arterial Tourniquet)**

Arterial tourniquets should only be used for life-threatening bleeding from a limb, where the bleeding cannot be controlled by direct pressure.

- Apply a commercially manufactured arterial tourniquet approx. 5 – 7cm above the wound.
- Wrap tourniquet around the limb and apply as per manufacturer instructions.
- Note the time the bandage was applied.
- If bleeding does not stop, check position and application.
- If continuing to bleed, apply another tourniquet preferably above the previous one's position.
- Once applied, the casualty requires urgent transfer to a hospital. Call Triple Zero (000) for an ambulance and inform them you have applied an arterial tourniquet.



\*Do not cover the bandage – ensure that the constrictive bandage remains easily seen.

\* Once applied, the tourniquet should not be removed until the casualty receives specialist care.

\* An elastic venous tourniquet (designed to assist drawing blood samples) is not suitable for use as an arterial tourniquet.

\*Arterial tourniquets are a measure of last resort and should only be used on a limb in a life-threatening situation where all other methods have failed.

### **Embedded Object**

An embedded object is any object that has pierced the skin and is stuck there. It may have a portion sticking out of the wound, or it may be fully embedded.

#### **Care and treatment**

- Follow 'basic wound care' steps.
- Use or make a 'ring bandage' and place over the embedded object, without applying pressure to the object itself.
- Apply pressure to ring bandage using hands or with a bandage if on a limb.
- Immobilise the area and call Triple Zero (000) for assistance.

- \*Do not remove any penetrating object.
- \*Do not put pressure over penetrating object



## Amputation

Amputation occurs when part of the body has been detached, usually through a cutting or crush injury. There is a risk of significant blood loss, as well as shock.

### Care and treatment

Treat as for bleeding from wounds.

Note: A constrictive bandage will be needed for amputations above the wrist or ankle.

After bleeding is controlled:

- Collect amputated part – keep dry, do not wash or clean.
- Seal the amputated part in a plastic bag or wrap in waterproof material.
- Place in iced water – do not allow the amputated part to come in direct contact with ice. Freezing will kill tissue.
- Ensure the amputated part goes to the hospital with the casualty. Often the part can be re-attached using microsurgery.
- If bleeding occurs through the existing dressing, place a second dressing over the first leaving the existing dressing in place. Remove and replace only the bandage and padding. Maintain direct pressure over the bleeding area as much as possible. Avoid disturbing the bandage or pad once the bleeding has been controlled.
- Wounds can be cleaned with clean water or sodium chloride.
- With all wounds, the casualty should obtain medical advice for tetanus prevention.

## Internal bleeding

Internal bleeding is classified as either visible, in that the bleeding can be seen, or concealed, where no direct evidence of bleeding is obvious. Always consider internal bleeding after injury, understanding it cannot be controlled by the first aider.

In most instances, obtaining an adequate history of the incident or illness will give the first aid provider the necessary clue as to whether internal bleeding may be present.

Remember, current signs and symptoms, or the lack of them, do not necessarily indicate the casualty's condition. Certain critical signs and symptoms may not appear until well after the incident due to the stealth of bleed and may only be detected by the fact that the casualty worsens despite there being no visible cause.

### Signs and symptoms

#### Visible internal bleeding

Visible internal bleeding is referred to this way because the results can be seen in bleeding from:

- Ears: Blood or blood mixed with clear fluid.

- Lungs: Frothy, bright red blood coughed up by the casualty.
- Stomach, bowel or intestines: Bright, dark or tarry blood be coughed up by the casualty.
- Under the skin (bruising): The tissues look dark due to the blood under the skin.

### ***Concealed internal bleeding***

Detecting internal bleeding relies upon good observations and an appreciation of the physical forces that have affected the casualty. In these cases, the first aid provider relies heavily on history, signs and symptoms. If you are unsure, assume the worst and treat for internal bleeding.

Remember to look at the important observations that may indicate internal bleeding, which include:

- Rapid, shallow, or irregular breathing.
- 'Guarding' of the abdomen, with foetal position if lying down.
- Pain or discomfort and/or swelling of the abdomen.
- Nausea and/or vomiting.
- Altered consciousness.
- Pale, clammy skin.

### ***Care and treatment***

- Call Triple Zero (000) for an ambulance.
  - Put on disposable gloves if available.
  - If conscious – lie the casualty down on their back with both legs bent at the knees.
  - If unconscious –recovery position with both legs bent at the knees.
  - Provide reassurance.
  - Treat for Shock.
-

## ABDOMINAL INJURIES

Abdominal injuries are caused by blunt or penetrating trauma and can involve internal bleeding or the exposure of the internal organs to air. Such injuries invariably affect vital organs. The first aid provider should be alert for shock due to internal bleeding regardless of the injury cause or whether there is a wound or not.

### Blunt or Penetrating Trauma

Initial first aid treatment is the same whether the injury is penetrating or caused blunt trauma, e.g. a severe blow to the abdomen without any visible wound.

#### Signs and symptoms

- History of the incident.
- Pale, cool, clammy skin.
- May be evidence of wound.
- Rapid, weak pulse, with evidence of shock.
- Rapid, shallow breathing.
- Abdominal rigidity.
- May be incontinent.
- 'Guarding' of abdomen – foetal position if lying down.

#### Care and treatment

- Call Triple Zero (000) for an ambulance.
- Follow 'basic wound care' steps.
- Stop any bleeding.
- Stabilise any object where it is and pad around the wound.
- If the wound permits and the casualty is conscious, lay casualty on back and elevate legs bent at the knees.
- Provide reassurance.

*\*Avoid removing or touching penetrating objects.*

### Evisceration (exposed internal organs)

Evisceration is the protrusion of abdominal organs from a wound in the abdomen. Care must be taken not to apply material to the wound that will stick to the organs. It should be noted that often there is little pain associated with this type of injury and the casualty may walk around or offer to help.

#### Signs and symptoms

- Obvious protrusion of organs.
- Pale, cool, clammy skin.
- Rapid, weak pulse, with evidence of shock.
- Rapid, shallow breathing.
- May be faecal odour if organs have been lacerated.
- Anxiety.
- Nausea.

#### Care and treatment

- Call Triple Zero (000) for an ambulance.
- Follow 'basic wound care' steps.





- Cover organs with non-stick dressing (if unavailable wet any clean dressing or use plastic wrap).
- Place supporting bandage over wound, if practical.
- Lay casualty on their back with legs bent at the knees.
- Provide reassurance.
- If unconscious, recovery position with legs bent at the knees.

**\*\*Do not attempt to clean the organs or put them back into the body!**



## SHOCK

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Shock is a life-threatening condition and should be treated as top priority, second only to attending to safety, an obstructed airway, absence of breathing, cardiac arrest or severe life-threatening bleeding. Shock is a deteriorating condition that does not allow a casualty to recover without active medical intervention.

Shock can be caused by:

- The most common cause of shock is the loss of blood. Blood loss may occur immediately or may be delayed. The blood loss could be either seen externally or internally within a particular system or organ. The greater the loss of blood, the greater the chance of developing shock. A slow, steady loss of blood can also produce shock.
- Abdominal emergencies. Burst appendix, perforated intestine or stomach, intestinal obstruction, pancreatitis.
- Loss of body fluids. May be due to extensive burns, dehydration, severe vomiting or diarrhoea.
- Heart attack. Failure of the heart to function, due to an obstructed blood supply to the heart itself, can produce shock.
- Sepsis or toxicity. Infections can cause bacteria in the blood stream that can produce shock.
- Spinal injury. Due to the injury and the reaction of the nervous system.
- Crush injuries. Injuries following explosions, building collapses etc.
- Multiple injuries where the immune system endeavours to protect the vital organs.

As a first aider attending a casualty, you should ask yourself the following:

- Does the injury appear serious?
- If I don't do anything to help, is the casualty likely to become worse?
- If the casualty's condition worsens, is death a possibility?

If the answer to any of these questions is 'YES!', then you should treat for shock.

### Signs and symptoms

- Assess the history of the incident and mechanism of injuries.
- Casualty's skin becomes cold to the touch, pale and clammy.
- Casualty starts feeling cold (even on a warm day).
- Dizziness.
- Thirst.
- Rapid, shallow breathing.
- Casualty feels short of breath.
- Nausea and/or vomiting.
- Evidence of loss of body fluids or high temperature.
- Collapse and altered consciousness.
- Progressive 'shutdown' of body's vital functions.

### Care and treatment

- Call Triple Zero (000) for an ambulance.
- Follow 'basic wound care' steps.
- Control any bleeding.
- If conscious, lie the casualty down on their back.
- If unconscious, place into the recovery position.
- Provide reassurance and monitor.
- Keep casualty warm by whatever means necessary, but DO NOT apply heat.
- Treat any other injuries.

**\*Do not raise the legs. Keep the casualty lying flat.**



## SUBSTANCE MISUSE

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### Possible Causes

#### **Overdose**

An overdose will occur when a person takes more of the drug than the body can handle. An overdose of any drug may be accidental or deliberate. A drug overdose occurs when a person takes more than the medically recommended dose.

In the case of illicit drugs, an overdose may occur when the amount consumed is more than the body can metabolise at any one time.

#### **Alcohol**

If a person who has been drinking alcohol presents with symptoms of slow breathing, clammy cold skin, and lack of consciousness then this constitutes a medical emergency, and the person requires to be hospitalised immediately.

#### **Amphetamines and cocaine overdose**

The signs of an amphetamine overdose emergency may include:

- Signs of a heart attack including
  - Shortness of breath
  - Nausea
  - Sweating
  - Anxiety
  - Pain
  - Numbness in the chest, arms, and neck.
- A racing pulse.
- Seizure, where the person has uncontrollable twitching movements.
- Rapid breathing.
- Rapid eye movements.

#### **Opiate overdose**

Unlike amphetamines, opiates depress the activity of the CNS and cause the person to slow down.

An overdose from opiates (e.g. heroin, morphine, and methadone) can range from quite subtle to life-threatening.

At the life-threatening end you might observe that the person is unconscious, there is a weak thready pulse or no pulse at all, and shallow breathing or breathing has stopped. They might also have blue lips.

### Care and treatment

- Follow DRSABCD and be prepared to perform CPR.
- Call Triple Zero (000) for an ambulance and treatment advice.
- Keep yourself and others safe.
- For opioid misuse - Lay rescuers can administer naloxone in suspected opioid related respiratory or circulatory arrest when they are trained in its use. People who regain normal consciousness and respiratory function after naloxone rescue should be transported to hospital for observation.

\*NOTE: All casualties suspected of suffering from some form substance abuse must be treated with great care, as they can become dangerous, violent, or erratic at any time, without warning.

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## POISONS

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Poisons are substances that if inhaled, ingested, absorbed, or injected, harm the structures or functions of the body. Some types of poisons may act immediately on the body, others may act more slowly.

Some poisons, such as cyanide, are so toxic they only require a tiny amount to be harmful, while others, such as garden sprays, are cumulative and require exposure over a long period to achieve the same level of toxicity. Some may be carcinogenic and cause fatal cancers some years after exposure.

### How to Prevent Poisoning

- Store medicines, chemicals, and household products safely out of reach and out of sight of children, up high (at least 1.5m) in a locked or child resistant cupboard.
- DO NOT take other people's medicines.
- Separate medicines from household products.
- Use medicines and chemicals safely. Be sure that all products are properly labelled and in their original containers.
- Clean out your medicine cupboard periodically. Take out-of-date medicines to a pharmacy for disposal.
- Children tend to mimic adults, so avoid taking medicines in their presence.
- Refer to medicines by their correct names. They are not sweets or lollies.
- Use personal protective equipment (PPE) when spraying or painting. Ensure there is adequate ventilation, with circulating air.
- Take off any contaminated clothing immediately.
- Keep everything in original containers, never in cups or soft drink bottles, since the original containers will be labelled with the appropriate warnings. Using a different container may give a child the mistaken impression that the product is both safe and drinkable.
- If poisoning occurs, obtain a history, look for empty bottles, containers and sometimes suicide notes. If possible, ascertain what poison or medicine has been taken, including how much and when.

### Signs and symptoms

The wide variety of poisonous substances present with a wide variety of signs and symptoms.

### Care and treatment

First aid advice depends on the route of poisoning:



#### **Swallowed:**

- Do not try to induce vomiting.
- Do not use Ipecac Syrup unless recommended by the Poisons Information Centre or your doctor.

#### **Skin contact:**

- Remove contaminated clothing, taking care to avoid contact with the poison.
- Flood skin with cool running water.
- Gently wash with soap and water. Rinse well.

#### **Inhaled:**

- Immediately aid the casualty to fresh air, without placing yourself at risk.
- Avoid breathing in the fumes.

- If it is safe to do so, open doors and windows wide.

### **Entered the eye:**

- Flood the eye with cool water from a running tap or a cup/jug.
- Continue to flush for 15 minutes, holding the eyelids open.

If safe to do so, take a smartphone photo of the label or note down the product details.

Ring the **Poisons Information Centre** on **13 11 26** for advice anytime (open 24/7).

- Follow the operator's instructions.
- Monitor the casualty at all times.
- Follow DRSABCD and be prepared to perform CPR.

You can also call the Poisons Information Centre on 13 11 26 when:

- You suspect that you or someone in your care may have been poisoned, **DO NOT** wait for any symptoms to occur before calling 13 11 26.
- If a person is bitten or stung by a marine creature, animal, reptile, spider, or insect.
- If you have any questions or concerns about:
  - Prevention of poisoning, hazards associated with drugs, medicines, chemicals, plants, pesticides, and any other products.

**\*If in doubt call and check.**

**\*The recommended treatments for poisoning are constantly evolving. When you ring the Poisons Information Centre you will receive the most up-to-date advice retrieved from information databases that are updated many times each year.**

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## BITES AND STINGS

Venomous bites and stings are a type of injected toxin. As for general poisoning, prevention is better than cure when it comes to venomous wildlife – take care when in an area frequented by snakes and spiders and treat venomous sea creatures with respect.

### Snakes

Approximately 176 species of land and sea snakes are found in Australia. On average each year, about 3,500 people are treated for snakebite, although only a few people die. Research suggests only around 20% of snakebites in Australia are envenomations.

The most dangerous snakes found in Australia

- Eastern Brown
- King Brown snake and several other “BrownSnake” species
- Inland and Coastal Taipan
- Tiger Snake
- Death Adder
- Red Bellied Black snake
- Black Snake (several species)
- Copperhead Snake
- Rough Scaled Snake
- Many types of sea snakes



Although the Taipans are the most venomous snakes in the world, generally, the snakes with the most feared reputation are brown snakes. These snakes, especially the Eastern Brown, as well as Tiger snakes and the Death Adder, are responsible for most of the fatal encounters with humans.



Anti-venom is generally available for all species. In most cases, the snake strikes swiftly and injects venom below the surface of the skin into the tissues, which is then absorbed by the lymphatic system.

The lymphatic system is a network of tubes that drains fluids (lymph) from the body's tissues and empties it back into the bloodstream. Only rarely does the venom penetrate directly into the blood stream.

Should you see a snake, **LEAVE IT ALONE** – do not attempt to kill it as all snakes are protected by law and the creature will defend itself vigorously. Stay clear of likely habitats and always pay special attention to young children playing near long grass and bush.

It is impossible to accurately identify a snake once it has bitten someone. Snakes are similar in shape and have many different colours, even within the same species.

The effects of snake venom can take up to 2 hours to become apparent, so symptoms are not always obvious straight away.

**\*ALL snake bites must be treated as venomous until proven otherwise by a doctor at a hospital.**

### **Signs and symptoms**

- Puncture marks or parallel scratches on the skin – rarely any pain.
- Discoloration around the bite site (not always).
- Pale, cool skin with progressive onset of sweating.
- Rapid, shallow breathing.
- Blurred vision, drooping eyelids.
- Difficulty swallowing and speaking.
- Abdominal pain, nausea and/or vomiting.
- Headache.
- Collapse – progressing to unconsciousness.

**\*Remember: these effects may take up to 2 hours to become apparent.**

**\*The bite may be painless and without visible marks.**

### **Care and treatment**

The main treatment for a snake bite is application of the ‘**pressure immobilisation technique**’ (PIT), as soon as possible.

- Casualty must remain as still as possible to slow venom travelling through the body.
- Keep casualty under constant observation and provide reassurance.
- Keep casualty at rest.
- Follow DRSABCD and be prepared to perform CPR.
- If on a limb, ASAP, apply a wide heavy elastic bandage (10 – 15 cm wide) over the bite site.
- The bandage should be firm and tight. To test, you should not be able to easily slide a finger between the bandage and the skin.
- Apply a second heavy elastic bandage starting from the fingers or toes and winding as far up the limb as possible. Consistent coverage (overlapping half over half), and consistent pressure (firm but not cutting circulation) are the key to an effective PIT.
- Immobilise the limb and joints with a splint so that limb movement is restricted.
- Keep the limb immobilised, and the casualty at complete rest, until ambulance arrives.



**\*If only one bandage is available, start just below the bite site and wind the bandage as far up the limb as possible, ensuring to cover the bite site.**

**\* If no bandages, or splints are available, improvise with clothing or whatever you can from the surrounding environment.**

**\*Do not wash the bitten area, as a venom sample may be obtained.**

**\*Do not elevate the limb.**

**\*Do not use an arterial tourniquet.**

**\*Do not remove the bandage once it has been applied, even if casualty is feeling well.**

**\*Do not try to capture or kill the snake.**

**\*Do not cut the bite and suck the venom out.**

## Spiders

### *Funnel web spider*

The Sydney Funnel Web spider is the most venomous spider in the world. It is found in the NSW coastal zone from Nelson's Bay to Nowra. Its habitat is under rocks and houses, in a web-lined burrow. The spider is very aggressive and will attack at the slightest provocation.

Despite its fearsome reputation, there are only 13 recorded deaths due to funnel web spider bite.

However, when the spider does inject a dangerous quantity of venom, the effects can be rapid and severe and death within an hour may occur.

A second type of funnel web spider is also recorded as being responsible for fatal bites. Its habitat ranges over most of the NSW coast and the Great Dividing Range. This creature lives in trees behind the bark or in holes in the trunk.



There are at least 37 species of funnel web spiders. All are medium to large robust spiders, mostly dark or black in colour with stout legs and large fangs.

The funnel web will bite repeatedly if in contact with the skin and when bitten by the funnel web spider the venom enters the body similarly to that of snakes. Anti-venom is available.

### *Signs and symptoms*

- Severe pain at the site of the bite.
- Pale, cool skin.
- Tingling or numbness around the mouth/lips.
- Rapid onset of breathing difficulties.
- Nausea and vomiting.
- Abdominal pain.
- Muscular twitching.
- Profuse sweating.
- Copious production of saliva and pulmonary fluids.
- Confusion leading to collapse – coma – death.

### *Care and treatment*

Same as for snakebite – apply the **Pressure Immobilisation Technique (PIT)**:

- Casualty must remain as still as possible to slow venom travelling through the body.
- Keep casualty under constant observation and provide reassurance. Keep casualty at rest.
- Follow DRSABCD and be prepared to perform CPR.
- If on a limb, apply a wide heavy elastic bandage (10 – 15 cm wide) over the bite site.
- The bandage should be firm and tight. To test, you should not be able to easily slide a finger between the bandage and the skin.
- Apply a second heavy elastic bandage starting from the fingers or toes and winding as far up the limb as possible. Consistent coverage (overlapping half over half), and consistent pressure (firm but not cutting circulation) are the key to an effective PIT.
- Immobilise the limb and joints with a splint so that limb movement is restricted.
- Use a sling for a bite to the arm.
- Keep the limb immobilised until ambulance arrives.

### **Redback spider**

This spider with the tell-tale red or orange mark on its thorax is the female of the species. The Redback spider is common all over Australia and its preferred habitat is under any old building material or inside sheds and garages.



The spider's bite is not generally regarded as fatal, although there are recorded deaths prior to the introduction of the anti-venom in 1959.

Young children are more susceptible to Redback venom and should be referred to medical care. Less than 20% of bites result in significant envenomation, but generally, the bite is very painful and causes distress.

#### **Signs and symptoms**

- Intense burning pain at the site of the bite.
- Localised redness, swelling and sweating around the bite area.
- Nausea, vomiting and abdominal pain.
- Tenderness in the armpit or groin of the affected limb.
- Loss of coordination.
- Profuse sweating, especially at the bite site.
- Rapid, shallow breathing.



#### **Care and treatment**

- Reassure.
- Apply **cold compress** to relieve pain up to periods of 20 minutes.
- Observe casualty for any sign of deterioration.

**\*If casualty is a young child (under 8 years) call 000 for an ambulance**

### **Ticks**

Only the Australian paralysis tick or 'scrub tick' causes envenomation in humans. Ticks can spread diseases e.g. scrub typhus.



Ticks can be found anywhere on the body, but hairy areas, skin clefts and crevices should be examined carefully. They bury their head under the skin, leaving their body visible, and feed on the casualty's blood.

#### **Signs and symptoms**

- Local irritation.
- Lethargy, muscle weakness, especially in children.
- Unsteady gait.
- Double vision.
- Difficulty in swallowing or breathing.



Symptoms of a severe allergic reaction (anaphylaxis) may occur. Signs and symptoms generally develop over several days, but allergic symptoms can occur within hours. This can also occur in casualties without previous exposure or seeming susceptibility.

### Care and treatment

Due to the risk of Anaphylaxis, removal of ticks by force is no longer recommended by the Australian Resuscitation Council.

- Follow DRSABCD and be prepared to perform CPR.
- If the casualty displays signs of anaphylaxis, follow Anaphylaxis Guideline.
- Immediately kill the tick where it is using an **ether-containing spray** (for suitable products, refer to your pharmacist).
- Wait for the tick to drop off.
- If the casualty has a history of tick allergy, seek medical attention from a doctor to remove the dead tick.
- Move the casualty to a safe place.
- Apply a **cold compress** to help reduce pain and swelling.
- Monitor the casualty at all times. Be alert for signs of allergic reaction.
- Provide reassurance.

\*Casualty should then seek medical advice from a doctor/hospital for further treatment.

\* Do not try to pick out a tick from a casualty's skin using tweezers or other tick removal devices

\*Avoidance of tick bites is the best option.

For further information visit Tick-induced Allergies Research and Awareness (TiARA) at site:

[www.tiara.org.au](http://www.tiara.org.au)

### Bees and Wasps

Bee stings and wasp stings for most people are only a temporary irritation. For others however, these stings have the potential to cause death. The venom associated with bee stings can cause a severe allergic reaction in susceptible people and can cause respiratory and cardiac arrest.



### Signs and symptoms

- Evidence of bee sting with the barb present.
- Pain and itching and swelling at the site.

In allergic casualties:

- Onset of wheezing and breathing difficulties.
- Facial swelling and hives.
- Abdominal pain and vomiting.

### Care and treatment

- Calm and reassure the casualty.
- Remove bee sting by scraping with fingernail or similar as quickly as possible.
- Apply a **cold compress** to reduce swelling and pain.
- Monitor the casualty for signs of an allergic reaction.
- If onset of allergic reaction.
- Call Triple Zero (000) for an ambulance.
- Follow anaphylaxis treatment guideline.
- Follow DRSABCD and be prepared to perform CPR.



## Fire ants

Fire ants appear similar to ordinary house or garden ants. They are small, coppery-brown in colour on the head and body, with a darker abdomen.

Fire ants' nests have no obvious entry or exit holes at the top of the nest.

A distinguishing feature of fire ants is their aggressive behaviour, particularly near the nest and the variety of sizes within one nest, ranging from 2 – 6 mm.



### Signs and symptoms

- Fire ants inflict a fiery sting, which causes a small blister to form at the site of each sting after several hours. Blisters become itchy while healing and are prone to infection if broken.
- Pain, burning and itching at the site.
- Swelling of the stung area.

In allergic casualties:

- Onset of wheezing and breathing difficulties.
- Facial swelling and hives.
- Rapid pulse.
- Collapse.

### Care and treatment

- Calm and reassure the casualty
- Apply a **cold compress** to reduce swelling and pain
- Gently wash the affected area with soap and water
- Leave the blisters intact
- Monitor the casualty for signs of an allergic reaction
- If onset of allergic reaction:
  - Call Triple Zero (000) for an ambulance
  - Follow anaphylaxis treatment guideline
  - Follow DRSABCD and be prepared to perform CPR

## Box Jellyfish

Box Jellyfish, also known as 'stingers', are prevalent on the northern Australian coastline during the season from November to March.

The head of the jellyfish is 'box' shaped about 20 - 25cm across. They have between 40 – 60 tentacles which extend up to 3 metres in length. Each tentacle has 3000 to 5000 stinging cells.

These creatures are deadly and are responsible for many fatal encounters. Warning signs at beaches should be complied with.

Extreme care needs to be taken at unpatrolled locations. Respect local knowledge.



### **Signs and symptoms**

- Immediate severe pain, with irrational behaviour due to the pain.
- Frosted pattern of sting marks.
- Welt marks from tentacles.
- Tentacles left on skin.
- Difficulty breathing.
- Cardiac arrest.
- Collapse leading to unconsciousness and death.



### **Care and treatment**

- Remove the casualty from the water.
- Call Triple Zero (000) for an ambulance and call lifesavers urgently.
- Assess casualty, follow DRSABCD and be prepared to perform CPR.
- Apply liberal quantities of **vinegar** for a minimum of 30 seconds.
- Pick off any remaining tentacles (this is not harmful to the first aider).
- Calm and reassure the casualty.
- Apply a cold compress to relieve pain.

**\*Do not wash with fresh water**

### **Irukandji Jellyfish**

The Irukandji Jellyfish is prevalent on the northern Australian coastline during the season from November to March.

These jellyfish are only the size of a 10c coin with just 4 tentacles, about 10cm long.

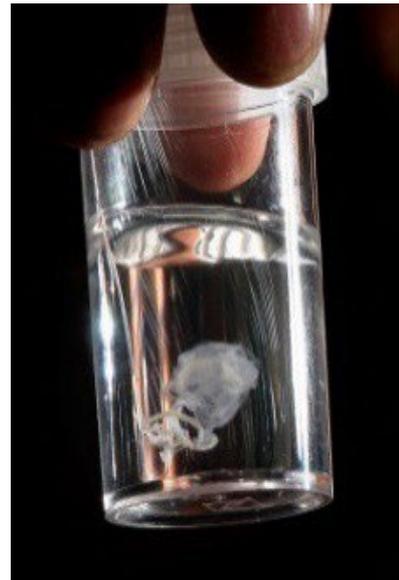
### **Signs and symptoms**

Their sting does not cause any pain or leave any welt marks, which means many victims do not know they have been stung until the effect of the venom takes hold which can take up to 30 minutes.

Their venom is rarely fatal but causes body aches and pains that become excruciating and require the casualty to be placed into intensive care for a week or more.

### **Care and treatment**

- Call Triple Zero (000) for an ambulance and call lifesavers urgently.
- Assess casualty, follow DRSABCD and be prepared to perform CPR.
- Apply liberal quantities of **vinegar** for a minimum of 30 seconds.
- Calm and reassure the casualty.



## Stonefish/ Bullrout

The stonefish is virtually invisible among rocks. The bullrout is a freshwater relative of the stonefish which is very similar.

They camouflage themselves to look like rocks and stones on the seabed. They grow to about 30cm in length and have highly venomous spines on its back that it erects when threatened or stepped on.



This fish lives in the tropical regions and as far south as Forster/Tuncurry in NSW. They are regarded as having the most painful venom of any creature in the world.

### Signs and symptoms

- Extremely severe pain at the site of envenomation.
- Large swelling of the bite site.
- Open puncture wound and/or bleeding.
- Irrational, panicking behaviour.
- Breathing difficulties.
- Collapse – coma.

### Care and treatment

- Calm and reassure the casualty.
- Call Triple Zero (000) for an ambulance.
- If the sting is to abdomen or chest or there is an embedded object (sting), assess the casualty for signs of bleeding.
- Follow bleeding guidelines.
- If sting is to a limb, use **HOT water** immersion of the site for up to 20 minutes to relieve pain – as hot as casualty can tolerate. Ensure the water will not scald the casualty.



**\*Do not use any pressure bandage over the wounds**

## Blue-ringed Octopus

The Blue-ringed Octopus is brown to straw colour, no more than 7cm in size and lives in rock pools on the shores of Australia.

When threatened, the creature 'pulses' luminous bright blue rings on its body. Its bite is painless and will only occur if the creature is handled or if the creature thinks it is in danger.

Can cause paralysis and respiratory failure within 30 minutes resulting in death.



### Signs and symptoms

- A spot of blood.
- Numb feeling of the face, lips, and tongue.
- Progressive weakness in the legs and body.
- Respiratory arrest.
- Eventual collapse.

### Care and treatment

- Calm and reassure the casualty.
- Urgently call Triple Zero (000) for an ambulance.
- Apply the 'pressure immobilisation technique' (PIT)
- Follow DRSABCD if casualty becomes unresponsive and not breathing normally.
- Keep casualty at rest.

### Cone Shell

The Cone Shell is actually a snail — usually brown and white — that is common on tropical beaches. The snail contains a dagger-like spine, which can inject toxin into any unwary person who handles the creature.

Can cause paralysis and respiratory failure within 30 minutes resulting in death.

### Signs and symptoms

- A spot of blood.
- Numb feeling of the face and tongue.
- Progressive weakness in the legs and body.

### Care and treatment

- Same as for blue-ringed octopus.



### Bluebottle Jellyfish

The Portuguese man-of-war or 'bluebottle', found on most beaches in Australia, is really a colony of small creatures living as one. They are no more than 8cm long and have several tentacles up to one meter long.

The creatures have small stinging cells which, when encountered as a group, impart a venomous sting. People who are susceptible to bee sting are usually sensitive to bluebottle venom.

No one has ever died from a bluebottle sting, though they are very painful.

### Signs and symptoms

- 'Trails' of blue 'tentacles' adhering to the body or limbs.
- Stinging sensation associated with the contact.
- Reddening of the skin.
- Pain for some hours.
- May cause severe allergic reaction (very rare).

### Care and treatment

- Calm and reassure, while monitoring the casualty.
- Pick off any remaining tentacles (this is not harmful to the first aider).
- Remove any 'invisible tentacles' with a copious amount of sea water.
- **HOT water** immersion of the site to relieve pain – ensure the water will not scald the casualty.
- If hot water fails, then a dry cold compress may relieve pain.
- Call Triple Zero (000) for an ambulance, if:
  - Pain is generalised or is persistent and does not cease.
  - Stung area is larger than half a limb.
  - It involves a sensitive area, e.g. eyes.



- If nearby and available, seek assistance from a lifeguard.

**\*Do not rub the affected area**

## **Fish Stings**

Many fish such as the flathead and the stingray have poisonous spines that can inject venom deep into the unwary victim, causing excruciating pain.

Handle all fish with care, avoiding the spinous areas along the backbone and around the gills.



Constant handling of fish may cause skin irritation due to the fluids and secretions of the fish oils.

## **Signs and symptoms**

- Intense pain at the site.
- Swelling.
- Bleeding.
- Often a grey/bluish discolouration at the site.
- There may be an open wound or barb in skin.
- Irrational behaviour or panic may occur.

## **Care and treatment**

- Calm and reassure the casualty.
- Call Triple Zero (000) for an ambulance.
- If the sting is to abdomen or chest or there is an embedded object(sting), assess the casualty for signs of bleeding.
- Follow bleeding guidelines.
- If sting is to a limb, use **HOT water** immersion of the site for up to 20 minutes to relieve pain – as hot as casualty can tolerate. Ensure the water will not scald the casualty.

**\*If handling fish without protective gloves, wash hands frequently to avoid skin problems.**

## **SHARPS INJURY / NEEDLE STICK INJURY**

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The principal risk associated with needle stick injury is contracting blood borne viruses such as HIV (AIDS) and HBV (hepatitis B). There is a very low risk of a person who is pricked or scratched by a discarded needle being infected with AIDS, hepatitis B and hepatitis C.

The most common sharps injuries are from needle sticks, typically on the index finger and thumb. Needle-stick injuries account for up to 80% of all accidental exposures to blood.

Ways of reducing the risk of needle-stick injuries include:

- It is generally recommended workers who may encounter blood or body fluids should receive hepatitis B vaccinations.
- Follow all safety procedures in the workplace.
- Never bend or snap used needles.
- Never re-cap a needle.
- Always place used needles into a clearly labelled and puncture-proof sharps approved container.



### **Care and treatment**

- Wash away the blood or body fluid with soap and water or handwash for 30 seconds.
  - If the eyes are contaminated, rinse eyes while open with water or saline for 15 minutes.
  - If blood gets into the mouth, spit it out and then repeatedly rinse with water.
  - Refer the person immediately to a doctor or hospital emergency department who will assess the risk of transmission and discuss options for testing and treatment.
  - Ensure the safe disposal of the sharp.
  - Report the incident immediately.
-

## **MULTIPLE INJURY MANAGEMENT**

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There will be situations whereby there are either multiple casualties or the casualty has multiple injuries that cannot all be treated at once. If there are more than two casualties, call 000 for advice and assistance.

Always follow DRSABCD. Conduct a verbal and visual assessment of casualties.

Casualties that are **not breathing** take first priority, followed by unconscious, breathing casualties.

Treat Bleeds first, then Burns, then Bites and Stings, then Breaks (fractures) and Dislocations.

Treat for Shock.

**\*\*Do not be afraid to call Triple Zero (000) for an ambulance.**

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## **NATIONAL AUTHORITIES AND APPLICABLE REGULATIONS**

### **Australian Children's Education and Care Quality Authority (ACECQA)**

The Australian Children's Education and Care Quality Authority (ACECQA) is an independent national authority, based in Sydney, which assists governments in implementing the [National Quality Framework \(NQF\)](#) for early childhood education and care.

It is guided by a governing board whose members are nominated by each state and territory and the Commonwealth. The Board is accountable to the Education Council.

ACECQA works with the Australian and state and territory governments to:

- Implement changes that benefit children, birth to 13 years of age and their families.
- Monitor and promote the consistent application of the [Education and Care Services National Law](#) across all states and territories.
- Support the early childhood education and care sector to improve quality outcomes for children.

### **Education and Care Services National Regulations**

The [National Quality Framework \(NQF\)](#) provides a national approach to regulation, assessment and quality improvement for early childhood education and care and outside school hours care services across Australia.

The NQF operates under an applied law system, comprising the [Education and Care Services National Law](#) and the [Education and Care Services National Regulations](#).

The purpose of the applied law system is to set a national standard for children's education and care across Australia. In effect, it means the same law is applied in each state and territory, but with some varied provisions as applicable to the needs of each state or territory.

Important laws and regulations for the early childhood sector that affect First Aid, Record Keeping & Reporting requirements are sections: Law 169, 174, Regulations 12, 85-87, 89, 136, 168, 176-178, 183

#### **Law:**

##### **169 Offence relating to staffing arrangements**

*(2) ... ensure that each educator educating and caring for children for the service meets the qualification requirements relevant to the educator's role as prescribed by the national regulations.*

*174 Offence to fail to notify certain information to Regulatory Authority*

*An approved provider must notify the Regulatory Authority of the following information:*

*any serious incident... (b) any complaints alleging— (i) that a serious incident has occurred... (ii) that this Law has been contravened...*

#### **Regulations**

##### **12 Meaning of serious incident**

*... The following are prescribed as serious incidents—(a) the death of a child ... (b) any incident involving serious injury or trauma to, or illness of a child ... would*

*consider required urgent medical attention from a registered medical practitioner; ... (c) any incident where the attendance of emergency services ... was sought, or ought reasonably to have been sought; ... (d) ... (i) appears to be missing or cannot be accounted for; ...*

*Incident, injury, trauma and illness policies and procedures and 168 Education and care services must have policies and procedures.*

*Centres must have incident, injury, trauma and illness policies and procedures in place in the event that a child: (85) (a) is injured; or (b) becomes ill; or (c) suffers a trauma.*

### **Notification to parents of incident, injury, trauma and illness**

*... must ensure that a parent of a child ... is notified as soon as practicable, but not later than 24 hours after the occurrence, if the child is involved in any incident, injury, trauma or illness ...*

*Incident, injury, trauma and illness record*

*Details of the occurrence must be comprehensively, correctly and accurately recorded within 24 hours.*

### **89 First aid kits**

*... must ensure that first aid kits are kept ... appropriate number ... suitably equipped ... easily recognisable and readily accessible ...*

### **136 First aid qualifications**

*... must ensure that the following persons are in attendance at any place where children are being educated... at least one educator who holds current approved... first aid qualification; ... anaphylaxis management training ... emergency asthma management training.*

Note that regular refresher training is required to maintain currency in the qualifications. Within 3 years for first aid, asthma and anaphylaxis and within 1 year for CPR.

Safe Work Australia's First Aid in the Workplace Code of Practice recommends that first aiders should attend refresher training on a regular basis to maintain their first aid knowledge and skills, and to confirm their competence in providing first aid, including Anaphylaxis and Asthma.

In workplaces where children are in attendance, there is regulatory requirement for a Working with Children check and/or Police Check to be conducted for any person working on the premises.

### **Time to notify certain information to Regulatory Authority**

*The Regulatory Authority should be notified within 24 hours of a serious incident which includes: (a) death of a child; or (b) where medical assistance was required; or (c) attendance of emergency services at the education and care service premises was sought, or ought reasonably to have been sought.*

### **Prescribed enrolment and other documents to be kept by approved provider.**

#### **178 ...family day care educator**

*... an incident, injury, trauma and illness record ...*

*Prescribed enrolment and other documents to be kept by family day care educator  
an incident, injury, trauma and illness record as set out in regulation 87*

### **183 Storage of records and other documents**

*The records must be kept— (a) if the record relates to an incident, illness, injury or  
trauma suffered by a child ... until the child is aged 25 years;*

\*In workplaces where children are in attendance, there is regulatory requirement for a Working with Children check and/or Police Check to be conducted for any person working on the premises.

### **ASCIA**

ASCIA is the Australian Society for Clinical Immunology and Allergy — the peak governing body for immunology and allergy in Australia and New Zealand. In 2015 ASCIA and 'Allergy & Anaphylaxis Australia' developed the first National Allergy Strategy for Australia, in conjunction with other key stakeholders. Implementation of the National Allergy Strategy commenced in 2016-2017.

### **ASCIA Objectives**

- Standards — Promote the highest standards of allergy and immunology medical training, practice and care.
  - Education — Provide high quality allergy and immunology education for health professionals, patients, consumers and carers.
  - Advice — Utilise ASCIA and stakeholder expertise to address allergy and immunology issues, provide advice and representation to government and other organisations.
  - Advocacy — Increase the profile of allergy, immunology and immunopathology and advocate for patients.
  - Research — Promote and fund research to improve health and quality of life of people with allergy and other immune diseases.
  - Sustainability — Ensure sustainability of ASCIA initiatives.
-

## CHILDCARE AND SCHOOL SPECIFIC INFORMATION

### Normal Clinical Values

The term 'normal clinical values' usually refers to the Heart Rate, Breathing Rate, and Blood Pressure of the patient/casualty. These measurements are taken by a medical professional when assessing a patient. As a general rule, infants and young children breathe faster, have a higher heart rate, and have lower blood pressure than older children and adults.

### Risks for Age Groups

As children age and grow, the risks and consequences change.

#### Infants 4 to 12 months

Majority of injuries occur in the family home.

- Inhaling foreign objects.
- Falls.

#### Young children – 1 to 4 years of age

This age group is quite mobile and curious of their surroundings without being risk aware.

- Burns.
- Falls.
- Swallowing items unintentionally.
- Objects placed and stuck in the ear.

#### School-age children – 5 to 9 years of age

Involved in outdoor active play. Learning physical activities and involved in sport.

- Falls from equipment.
- Bruising, sprains, fractures.
- Head knocks.

### Basic Anatomical Differences Between an Adult and Child

Anatomically and physiologically, a child is not simply a small adult.

It is for this reason that educators and carers of children should be aware of the differences because all of the normal physiological values differ, and basic anatomical positioning must be changed to meet these differences.

It is important to be aware of differences between age groups and adults, as this can factor into the more common serious outcomes for each age group.

Figure 3.2: Leading causes of death, by age group, 2016–2018

Age group	1st	2nd	3rd	4th	5th
Under 1	Perinatal and congenital conditions	Other ill-defined causes	Sudden infant death syndrome	Accidental threats to breathing	Cardiomyopathy
1–14	Land transport accidents	Perinatal and congenital conditions	Brain cancer	Accidental drowning and submersion	Suicide

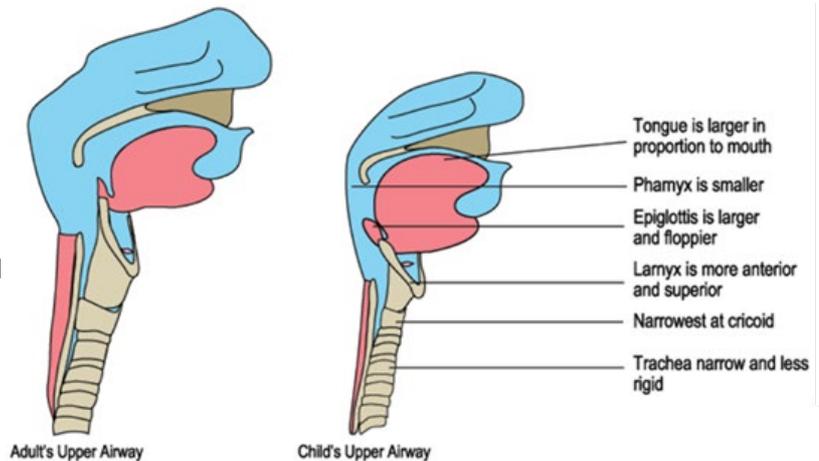
Table: Australian Institute of Health and Welfare, Copyright ©

Consider the following differences when providing first aid:

## Airway Assessment in Children

An infant is an obligatory nose breather for the first 6 months, which means that a blocked nose can lead to respiratory failure!

Infants have shorter and softer tracheas than adults. (Refer to image) This means that over-extension during airway manoeuvres may result in airway collapse (not too dissimilar to kinking a narrow garden hose). This is why an infant's head/neck should never be tilted back when providing first aid.



Due to the head size of an infant compared to its body, when laid on its back, the head naturally tips forward towards the chest. A slight backward tilt may be needed to place the head into a neutral position.

Infants have proportionately large heads, short necks and large tongues, which again, makes airway obstruction more likely.

Both infants and even toddlers have a long and floppy epiglottis, which means more chance of airway obstruction.

Their flatter nose and face means it can be more difficult to create a mask seal when providing ventilation to an infant.

## Assessing Breathing in Children

A child/infant has much smaller upper and lower airways, which results in a greater chance of respiratory difficulties and failure.

Infants are abdominal breathers, relying primarily on the muscles of the diaphragm. This means abdominal distension can lead to respiratory problems.

Children and infants have underdeveloped muscles associated with respiration and are consequently more prone to fatigue.

Compensating for the factors mentioned above, children breathe faster. Slow breathing is an especially bad sign.

## Assessing a Child's Neurological Status

A child's behaviour and general appearance needs to be assessed during a neurological assessment.

A child's behaviour should be compared to what is normal for that child. Ask the parents/care givers to compare the child's presentation with his or her normal general appearance.

An infant will normally track their eyes to follow motion.

## ***The Head***

The disproportionately heavier weight of a child's or infant's head also affects movement of the head during a fall or when struck by a moving object. There is, therefore:

- Greater likelihood of head trauma with infants and young children being more susceptible to primary and secondary brain injuries.
- Greater heat loss.

## ***Assessing a Child's Temperature***

Infants lose heat more rapidly than adults, as the surface area of their heads is larger by comparison to their body mass. Also, young children have an undeveloped hypothalamus (a region of the brain), which means their ability to regulate temperature is not as effective.

There is an increased possibility of hypothermia, which means younger children need thermal protection.

## ***Dehydration***

Infants and young children have less body fluids. Children are more prone to dehydration than adults, and should be monitored closely, as they will show signs of this much earlier than adults.

## ***Other Factors***

- Faster heartbeat.
- More flexible bones, less likely to fracture.
  - Greater chance of partial (greenstick) fractures of long bones.
- Less protection to underlying organs.
  - The lower rib cage provides less protection for the liver and spleen.
- Less blood by volume.
- Shock, through blood loss, can occur rapidly. Bleeding needs to be controlled early.
- Thinner skin layers.
- Compared to adults, more serious burn trauma is likely.
- Greater risk of blunt trauma to internal organs.
- Larger head to body ratio and greater surface area to body mass ratio increases the risk of hypothermia.

## ***CPR on Children and Infants***

### ***Compressions***

The principles of performing CPR on children and infants are essentially the same as on an adult.

The compression depth is still 1/3 the depth of the chest, and the compression rate is still 100 – 120 compressions per minute.

However, with an infant, only two fingers should be used to perform compressions. With a child aged 1 to 8 years, either one or two hands may be used.

### ***Rescue Breaths***

In children, rescue breaths are smaller than for adults.

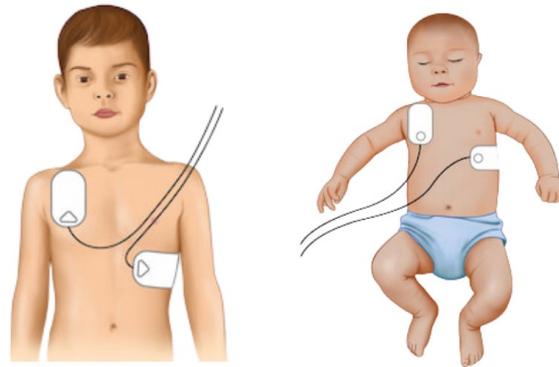
With an infant, the head should not be tilted back, but the jaw thrust is still used to keep the mouth

open. Support the chin, cover the nose and mouth with your mouth, and only a puff of air is required to make the chest rise. Be careful not to over inflate the lungs.

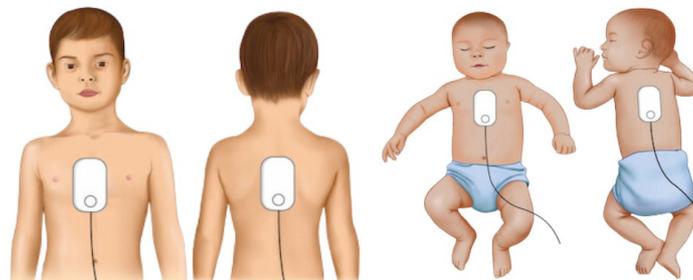
### Automated External Defibrillator use on Children and Infants

Standard adult AEDs and pads are suitable for use in children older than 8 years. Ideally, for those under 8 years, paediatric pads should be used. These pads also are placed as per the adult and the pads come with a diagram of where on the chest they should be placed.

If the AED does not have paediatric pads, then it is reasonable to proceed with standard adult AED pads. However, one must ensure the pads do not touch each other on the child's chest. Apply the pad firmly to the bare chest in the anterior-lateral position as for adults.



If the pads are too large and there is a danger of pad-to-pad arcing, use the front-back position (antero-posterior): one pad placed on the upper back (between the shoulder blades) and the other pad on the front of the chest, if possible, slightly to the left.



### Post Incident Debriefing with Children

Children, by nature, react to incidents differently to adults. In children, stress caused by witnessing incidents involving other people, especially other children, can manifest itself in different ways.

Physically: such as headaches, stomach-ache, nausea, not eating normally, behaving unusually quiet/aloof/distant.

Emotionally: such as anger, fear, anxiety, fear of reoccurrence, fear of being left alone, loss of sense of safety, nightmares.

These are often seen as 'overreacting' to adults but are quite real to children.

Some practical steps that can be taken to help a child who has been distressed:

- Staff to talk with children about their emotions and responses to the events.
- Listen carefully to them.

- Reassure the child that they are safe and that the incident is over.
- Explain events in a manner that the child can understand without overwhelming them.
- Be understanding, calm and supportive.
- Inform all parents/caregivers about what had happened.
- If you have concerns about how the child is coping, offer a recommendation to the parents to seek professional advice and support.

### **Who Should be Contacted in the Event of an Emergency?**

At a childcare facility, the following people/groups should be notified of the incidents (*Refer to National Authorities and Applicable Regulations section: pages 78 to 79*):

For serious incidents:

- Supervisor.
- Parent/guardian.
- WHS/OHS officer in your State.
- ACECQA.

For minor incidents:

- Verbally and in writing to the parent/guardian of the child.
- Notification to parents of other children in the class.

**\* An incident report must be completed within 24 hours for all incidents at any childcare facility.**

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## Emergency Action Plans

### **Planning for Students with Identified Healthcare Needs**

Schools are required to have a school-level management policy for Asthma and Anaphylaxis, in addition to the individual action plans. Along with plans for management, there must also be a plan for minimising the triggering events as well as a plan for conducting annual risk assessments.

A Student Health Support Plan must be completed for each student with an identified healthcare need, other than anaphylaxis or an allergy.

To develop a Student Health Support Plan, schools must:

- Work with families to develop the plan, guided by advice from the student's treating medical/health practitioner.
- Include actions in the plan as to how the school will support the student's healthcare needs.
- Communicate regularly with parents about the student's healthcare needs at the school and update the plan as necessary.
- Students with Asthma, Diabetes, or Epilepsy need to provide their (condition-specific) health management plan to the school, and have a Student Health Support Plan developed, which outlines how the school will support the student's healthcare needs.

The above excerpt is from: <https://www2.education.vic.gov.au/pal/health-care-needs/policy>

For a student with ongoing medical conditions, parents or carers must provide the school with a personalised Action Plan or Student Health Support Plan from the student's medical practitioner.

The plan should outline the student's known triggers and emergency procedures to be taken in the event of a medical episode or emergency.

Parents or carers and the student's general practitioner (GP) should complete or review each student's Action Plan or Student Health Support Plan annually.

The Plan should contain the following information:

- The prescribed medication taken and when it is to be administered.
- Emergency contact details.
- Contact details for the student's medical or health practitioner.
- Details about deteriorating conditions, including signs to recognise triggers and/or worsening symptoms, what to do during an attack, or medication to be used.
- Child's details, including a photo (does not apply to all plans).

### **Emergency Action Plans: Diabetes**

The National Diabetes Services Scheme provides this guide for schools:

*A student's diabetes management plan is an essential document to guide schools as to how the student can be supported to learn and participate fully in their school experience.*

*The plan would usually be developed by the student's clinical treating team, in collaboration with the student and parents or carers. It would outline their monitoring, insulin and daily type 1 diabetes management needs while at school.*

*The plan should provide schools with clear information about when a student*

*requires supervision or support with key tasks, such as checking their blood glucose or taking their insulin at school.*

*It should include a diabetes action plan – a tailored plan from the student’s clinical treating team for urgent management of blood glucose highs and lows outside the student’s target range.*

*Diabetes management plans will differ in format and detail in different states and territories, and may vary for different clinical treating teams.*

### **Emergency Action Plans: Epilepsy**

There are two notable Australian peak bodies that can assist with the creation of epilepsy management and actions plans:

- Epilepsy Foundation:  
<https://epilepsyfoundation.org.au/>
- Epilepsy Action Australia:  
<https://www.epilepsy.org.au/>

The plans are practical guides that first aiders can use to manage seizures and seizure emergencies, treatments, and safety. This will help minimise the impact of seizures on the person’s daily life and the risk of injury in the event of a seizure.

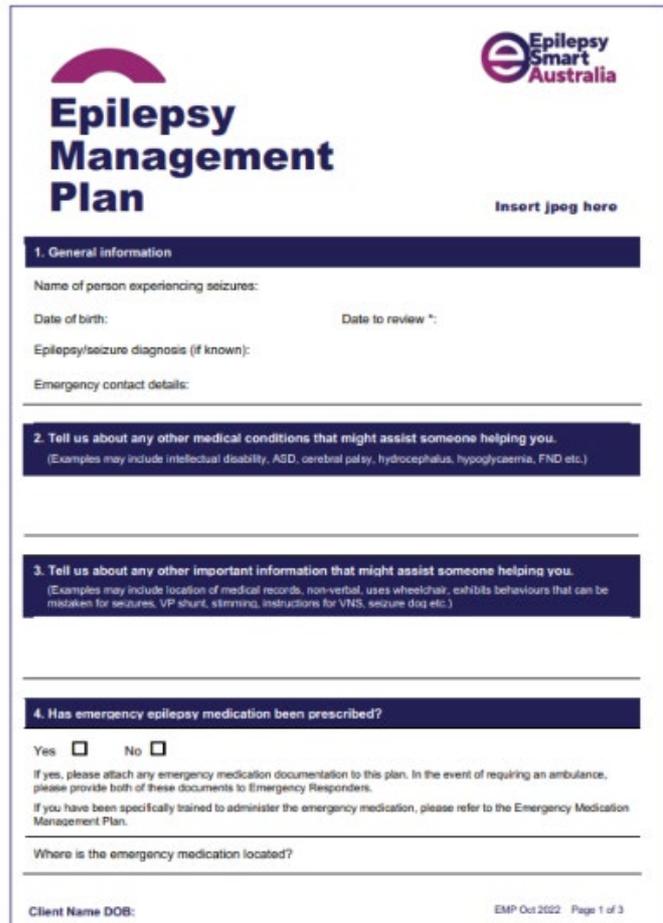
### **Emergency Action Plans: Asthma**

An ‘Asthma Action Plan’ is a document written by a doctor to instruct the reader on how to help the plan’s owner treat their asthma attack — each person’s asthma is different.

The plan should be updated every 12 months, whenever there has been a moderate or severe attack, when any details change, or if they need a reliever 3 times a week. Children should see a doctor every 6 months to update their Asthma Action Plan.

After a person has experienced a moderate or severe asthma attack, it’s recommended they go back to their doctor to update their Asthma Action Plan and have their medication checked, in case they need something else or increased medication.

Whether infant, child or adult, a copy of the person’s Asthma Action Plan should be provided to the care centre, school, or employer. With the person’s or guardian’s consent, all first aid staff should be notified that an Asthma Action Plan is available, should the individual have an asthma attack.



The image shows a form titled 'Epilepsy Management Plan' from Epilepsy Smart Australia. The form is divided into several sections:

- 1. General information:** Includes fields for 'Name of person experiencing seizures:', 'Date of birth:', 'Date to review \*:', 'Epilepsy/seizure diagnosis (if known):', and 'Emergency contact details:'.
- 2. Tell us about any other medical conditions that might assist someone helping you.** (Examples may include intellectual disability, ASD, cerebral palsy, hydrocephalus, hypoglycaemia, FND etc.)
- 3. Tell us about any other important information that might assist someone helping you.** (Examples may include location of medical records, non-verbal, uses wheelchair, exhibits behaviours that can be mistaken for seizures, VP shunt, stimming, instructions for VNS, seizure dog etc.)
- 4. Has emergency epilepsy medication been prescribed?** Includes 'Yes' and 'No' checkboxes.

Additional text on the form includes: 'If yes, please attach any emergency medication documentation to this plan. In the event of requiring an ambulance, please provide both of these documents to Emergency Responders. If you have been specifically trained to administer the emergency medication, please refer to the Emergency Medication Management Plan.' and 'Where is the emergency medication located?'. At the bottom, it says 'Client Name DOB:' and 'EMP Oct 2022 Page 1 of 3'.



Example of typical action plans: Plan by National Asthma Council Australia

Plan by Asthma Australia

For further information contact:

National Asthma Council Australia call 03 9929 4333 or visit <https://www.nationalasthma.org.au/>

Asthma Australia call 1800 278 462 or visit <https://asthma.org.au/>

ASCI Action Plan for Anaphylaxis

Anyone diagnosed with a severe allergy must carry emergency medication as prescribed, as well as an ASCIA Action Plan for Anaphylaxis, written and signed by their doctor.

The Action Plan for Anaphylaxis instructs the reader on how to help the plan's owner treat their anaphylactic reaction. Individuals who suffer anaphylaxis should provide a copy of their 'anaphylaxis action plan' to their childcare centre, school, or employer.

When an adrenaline auto-injector has been used, or has expired, the individual's personal ASCIA Action Plan for Anaphylaxis needs to be reviewed by their doctor. If the individual is a child, the photo should be updated each time, so they can be easily identified.

Action Plans should include step-by-step actions to be taken for the sufferer when symptoms or signs occur for anaphylaxis. Most plans will include the administering of an auto-injector that has adrenaline in it.

For anyone who suffers from anaphylaxis at a childcare centre, school, or workplace, it's crucial that a personalised Action Plan has been received and incorporated into their Anaphylaxis Management Plan.

In turn, this should be reviewed and updated at the beginning of each year or as per organisational procedures. These plans should be made available to anyone working with the child or employee, so they are able to assist them in the event of an anaphylactic reaction.



### General Use ASCIA Action Plan for Anaphylaxis

### Personal ASCIA Action Plan for Allergic Reactions

**ascia** FIRST AID PLAN FOR **Anaphylaxis**

Anaphylaxis is the most severe type of allergic reaction and should always be treated as a medical emergency. Anaphylaxis requires immediate treatment with adrenaline (epinephrine), which is injected into the outer mid-thigh muscle. If treatment with adrenaline is delayed, this can result in fatal anaphylaxis.

**How to give adrenaline (epinephrine) injectors**

**EpiPen®**

- Form fist around EpiPen® and PULL OFF BLUE SAFETY RELEASE
- Hold leg still and PLACE ORANGE END against outer mid-thigh (with or without clothing)
- PUSH DOWN HARD until a click is heard or felt and hold in place for 3 seconds REMOVE EpiPen®

**Anapen®**

- PULL OFF BLACK SAFETY CAP
- PULL OFF GREY SAFETY CAP from red button
- PLACE NEEDLE END FIRMLY against outer mid-thigh at 90° angle (with or without clothing)
- PRESS RED BUTTON so it sticks and hold for 3 seconds REMOVE Anapen®

**Adrenaline doses are:**  
EpiPen® 150 mcg for children 7.5-20kg  
EpiPen® 300 mcg for children over 20kg and adults  
Anapen® 150 mcg for children 7.5-20kg  
Anapen® 300 mcg for children over 20kg and adults  
Anapen® 500 mcg for children and adults over 20kg

**MILD TO MODERATE ALLERGIC REACTIONS**

**SIGNS**

- Swelling of lips, face, eyes
- Hives or welts
- Tingling mouth
- Abdominal pain, vomiting - these are signs of anaphylaxis for insect allergy

**ACTIONS**

- Stay with person, call for help
- Locate adrenaline injector
- Phone family/emergency contact
- Insect allergy - flick out sting if visible
- Tick allergy - seek medical help or freeze tick and let it drop off

**Mild to moderate allergic reactions may not always occur before anaphylaxis**

**SIGNS OF ANAPHYLAXIS (SEVERE ALLERGIC REACTIONS)**

Watch for ANY ONE of the following signs:

- Difficult or noisy breathing
- Swelling of tongue
- Swelling or tightness in throat
- Wheeze or persistent cough
- Difficulty talking or hoarse voice
- Persistent dizziness or collapse
- Pale and floppy (young children)

**ACTIONS FOR ANAPHYLAXIS**

- LAY PERSON FLAT - do NOT allow them to stand or walk
  - If unconscious or pregnant, place in recovery position - on left side if pregnant
  - If breathing is difficult allow them to sit with legs outstretched
  - Hold young children flat, not upright
- GIVE ADRENALINE INJECTOR
- Phone ambulance - 000 (AU) or 111 (NZ)
- Phone family/emergency contact
- Further adrenaline may be given if no response after 5 minutes
- Transfer person to hospital for at least 4 hours of observation
- IF IN DOUBT GIVE ADRENALINE INJECTOR

Commence CPR at any time if person is unresponsive and not breathing normally

**ALWAYS give adrenaline injector FIRST if someone has SEVERE AND SUDDEN BREATHING DIFFICULTY (including wheeze, persistent cough or hoarse voice), even if there are no skin symptoms. THEN SEEK MEDICAL HELP.**

If adrenaline is accidentally injected, phone your local poisons information centre. Continue to follow this action plan for the person with the allergic reaction.

© ASCIA 2023 This document has been developed for use as a poster, or to be stored with general use adrenaline injectors.

**ascia** ACTION PLAN FOR **Allergic Reactions**

Name: \_\_\_\_\_ Date of birth: DD / MM / YYYY  
Confirmed allergen(s): \_\_\_\_\_

Family/emergency contact(s):  
1. \_\_\_\_\_ Mobile: \_\_\_\_\_  
2. \_\_\_\_\_ Mobile: \_\_\_\_\_

Plan prepared by: \_\_\_\_\_ (doctor or nurse practitioner) who authorises medications to be given, as consented by the patient or parent/guardian, according to this plan.  
Signed: \_\_\_\_\_ Date: DD / MM / YYYY  
Antihistamine: \_\_\_\_\_ Dose: \_\_\_\_\_

This plan does not expire but review is recommended by: DD / MM / YYYY

**MILD TO MODERATE ALLERGIC REACTIONS**

**SIGNS:**

- Swelling of lips, face, eyes
- Hives or welts
- Tingling mouth
- Abdominal pain, vomiting - these are signs of anaphylaxis for insect allergy

**ACTIONS:**

- Stay with person, call for help
- Give antihistamine - see above
- Phone family/emergency contact
- Insect allergy - flick out sting if visible
- Tick allergy - seek medical help or freeze tick and let it drop off

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**ACTIONS FOR ANAPHYLAXIS**

- LAY PERSON FLAT - do NOT allow them to stand or walk
  - If unconscious or pregnant, place in recovery position - on left side if pregnant
  - If breathing is difficult allow them to sit with legs outstretched
  - Hold young children flat, not upright
- GIVE ADRENALINE INJECTOR IF AVAILABLE
- Phone ambulance - 000 (AU) or 111 (NZ)
- Phone family/emergency contact
- Transfer person to hospital for at least 4 hours of observation
- IF IN DOUBT GIVE ADRENALINE INJECTOR

Commence CPR at any time if person is unresponsive and not breathing normally

**ALWAYS GIVE ADRENALINE INJECTOR FIRST and then asthma reliever puffer if someone with known asthma and allergy to food, insects or medication (who may have been exposed to the allergen) has SUDDEN BREATHING DIFFICULTY (including wheeze, persistent cough or hoarse voice) even if there are no skin symptoms.**

If adrenaline is accidentally injected, phone your local poisons information centre. Continue to follow this action plan for the person with the allergic reaction.

© ASCIA 2023 This plan is a medical document that can only be completed and signed by the patient's doctor or nurse practitioner and cannot be altered without their permission.

## Identification And Management Of A Sick Infant Or Child

### Fever in Children

A fever is a high temperature. A child's normal body temperature can vary, depending on their age and the time of day. A child with a temperature above 38°C has a fever.

All children will have a fever at some time. It is one of the more common reasons for parents to worry and for children to see a doctor. However, it is extremely rare for a fever to cause long-term harm.

### What causes fever?

More than 90 per cent of fevers in children are due to viral infections. Less commonly, a fever can be caused by a bacterial infection. Depending on a child's other symptoms, a doctor may perform some tests to look for the bacteria or virus causing the fever.

The above excerpt is from: <https://www.childrens.health.qld.gov.au/fact-sheet-fever-in-children/>

### Signs and symptoms

Depending on what's causing the fever, additional fever signs and symptoms may include:

- Sweating
- Chills & shivering
- Paleness
- Flushed skin
- Headache
- Muscle aches



- Loss of appetite or refusal to drink or eat
- Greater irritability than usual
- Dehydration
- General weakness

### **Care and treatment**

If a child develops a fever while in care:

- A digital thermometer is used to take the child's temperature.
- All efforts should be made to reduce the fever naturally by first removing excess clothing and/or sponging the child.
- Offer fluids (rehydrating types) to the child and encourage the child to rest.
- If a fever remains above 37.5°C, contact parents (emergency contact if parents are unavailable), request they immediately collect their child and advise them to contact their doctor.
- Monitor the child for any additional symptoms.
- Continue to monitor the child's temperature until the parent/s arrive.
- In an emergency, always call 000 immediately.

### **Pain in Children**

Injuries or trauma are common causes of pain in children, but pain can also come from a disease.

Some common causes of pain in children and infants can include:

- Stomach aches.
- Headaches.
- Toothache (including teething in infants).
- Sprains and strains.
- Fractures.
- Cuts.
- Bumps and bruises.
- Burns/scalds.
- Muscle, bone, or joint pain.

Pain in children is more likely to be acute (~80%) than chronic. But chronic pain can occur (in adults, chronic pain is more common — back pain, arthritis, nerve pain etc.)

### **Signs and symptoms**

It is important to recognise signs of pain in children, as they may not be capable of explaining exactly what is occurring to them.

- Body posture
- Facial expressions – wincing, frowning
- Protection of sore/injured area, favouring one arm or leg over the other
- Holding or rubbing the area of pain
- Crying, moaning/groaning
- Flushed skin
- Sweating
- Rapid breathing
- Are not acting as they usually would
- They may become noticeably quiet and subdued, or they may become highly active
- Chronic pain can result in:
  - Crying easier or more frequently than usual
  - Not wanting to play or do normal activities as much as usual
  - Refusal to eat

- Increased affection/clinginess
- Changes in sleep
- School-age children may try to hide their pain to show bravery, particularly when peers are present.

### **Care and treatment**

- Identify that pain is occurring and confirm at what level (ask how much pain — use a face chart or ask older children to rate their pain out of 10).
- Manage any obvious injuries.
- Have parents attend when possible, to make the child feel more secure.
- Comforting touch — stroking or holding helps to reduce pain.
- Give child some control — ask them if they want to sit, stand, or lay down.
- For abdominal pain, lying down or semi-reclined with knees bent up, will often provide relief.
- Breathing control — deep, steady breathing can sometimes help to reduce pain.
- Heat or cold can help relieve pain.

### **Medications**

Schools must not:

- Store or administer painkillers, such as aspirin and paracetamol, as a standard first aid strategy. These medications can mask signs and symptoms of serious illness or injury.
- Allow a student to take their first dose of any new medication at school, in case there is an allergic reaction. This needs to be done under the supervision of the parent or carer, or health practitioner.

Over-the-counter medications (including paracetamol) require a medication authority form, even if the student is carrying or self-administering their medication. Schools must have a medication policy outlining protocols and procedures.

## **Children with Vomiting and Diarrhoea**

### **Causes**

- Viral infections (Gastroenteritis).
- Bacteria such as Salmonella, E. coli, Listeria (food poisoning).
- Parasites like giardia.
- Allergies (food allergies, bites, and stings).
- Stress and Anxiety.
- Antibiotics.
- Laxatives.
- Irritable bowel disease.
- Celiac disease.

Throwing up is the body's way of protecting the lower intestines. Diarrhoea is the body's way of getting rid of the germs.

### **Signs and symptoms**

A child who is vomiting and/or has diarrhoea can then suffer:

- Dehydration:
  - Dryness and stickiness of tongue and in mouth (dry lips are not a reliable indication).
  - Dizzy or lightheaded.
  - Dark yellow, or very little urine output.
  - Few or no tears when crying.

- Skin cool and dry.
- Lack of energy.
- Rapid pulse.
- Seizures.

Gastroenteritis can last 5-14 days.

Food poisoning generally has a shorter duration (24–48 hours).

### **Care and treatment**

- Good hygiene — wash hands frequently.
- Rest / Avoid stress.
- Prevent dehydration:
  - For infants and young children oral rehydration solutions (if recommended by doctor) or increased breast feeding.
  - For an older child, oral rehydration solutions or rehydrating type drinks (names usually ending in 'lyte').
- Clear fluids, soups (water does not have enough sodium, potassium, or nutrients to be effective in rehydration).
- If vomiting — give smaller but more frequent amounts of fluids.
- Probiotics can help with diarrhoea caused by antibiotics.

**Do not** give the child:

- Undiluted fruit juice, cordial, or fizzy drinks, or energy drinks. These can make the diarrhoea or dehydration worse.
- Drugs to stop vomiting or diarrhoea are not generally recommended because they may slow the recovery of the bowel and cause serious side effects.
- Antibiotics may prolong the infection and are rarely needed, except for certain bacterial or parasitic infections.

Call 000/112 if the child:

- Cannot be woken up; is too weak to stand up; is confused or dizzy.

Call a doctor if the child:

- Has had diarrhoea more than 3 days.
- Is younger than 6 months old.
- Is vomiting bloody green or yellow fluid.
- Cannot hold down fluids or has vomited more than twice.
- Has a persistent fever or is under 6 months of age with a fever over 38°C (Do not give any fever medication before seeing the doctor).
- Seems dehydrated.
- Has not urinated in 6 hours if a baby, or 12 hours if a child.
- Has bloody stool.
- Passes more than four diarrhoea stools in 8 hours and is not drinking enough.
- Has a weak immune system.
- Has a rash.
- Has stomach pain for more than 2 hours.

### **General Signs and Symptoms of Illness in Children and Infants:**

Generally, a child who is not behaving normally may be unwell.

- Lack of appetite.
- Altered sleep patterns.

- Listless, irritable when disturbed.
- Cry more readily than usual.
- Unusually quiet with little or no interest in play.
- Lack of appetite.
- Feel hot to touch.
- Tired.
- Flushed or pale.
- Complaining of feeling cold.
- Fever (if over 38°C in a baby, they should be taken to hospital immediately).
- Vomiting.
- Diarrhoea.
- Pain.
- Rash (if purple and does not fade when pressed, the infant or child should be taken to a doctor immediately).
- Headache (if combined with a stiff neck, or comes and goes, or persists, the child should see a doctor).

### General Signs and Symptoms of Acute Illness in Children and Infants:

- Cough.
- Fever.
- Sore throat.
- Ear pain.
- Upper respiratory issue (blocked or running nose, sinusitis).
- Abdominal pain.
- Vomiting.
- Diarrhoea.
- Dermatitis / Rash / Itching.
- Joint or limb pain.
- Headache.
- Seizure/convulsions.
- Blurred vision, crusty eyes, discharge from eyes.

### General Management

Managing a sick child or infant can be difficult.

- Listen to them — generally, unless a child is extremely sick, they will be unlikely to want to stay in bed, a blanket and laying on the couch may be better for them.
- Keep the room well ventilated — do not let it get too warm.
- Give them plenty to drink.
- Do not worry too much about food for the first day or so, unless they want it.
- Let them have plenty of rest.
- Keep sick children away from others — do not send them to school or childcare.

### *Call an ambulance for the following signs/symptoms:*

- The child seems extremely sick.
- Under 3 months old and temperature over 38°C.
- Difficulties breathing.
- Stiffness in the neck.
- Photosensitivity (light hurts their eyes).



- Bulging fontanelle (soft spot on the baby's head).
- They are listless, floppy, cannot be woken, or they are unusually sleepy.
- They have had a seizure or convulsions lasting more than 5 minutes, or for the first time.
- Refusing to drink or drinking less than half normal fluid intake.
- Not passing urine or passing less than half normal.
- Vomiting repeatedly or vomit has green colouring.
- Flu-like symptoms with drowsiness, pale skin, not drinking or urinating.

## Anaphylaxis In Victorian Schools

The following is applicable to Victorian schools, however, it is an excellent model in general to follow in all schools, childcare settings, and workplaces.

Source: <https://www.education.vic.gov.au/school/principals/spag/health/Pages/anaphylaxis.aspx> 26.11.18

### Ministerial Order 706

*All Victorian schools must review and update their existing policy and practices in managing students at risk of anaphylaxis to ensure they meet the legislative and policy requirements as per the following:*

*Any school that has enrolled a student or students at risk of anaphylaxis must by law have a School Anaphylaxis Management Policy in place that includes the following:*

- *A statement that the school will comply with Ministerial Order 706 and associated guidelines*
- *An Individual Anaphylaxis Management Plan on an annual basis (that includes an individual ASCIA Action Plan for Anaphylaxis) for each affected student, developed in consultation with the student's parents/carers and medical practitioner*
- *Information and guidance in relation to the school's management of anaphylaxis, including:*
  - *Prevention strategies to be used by the school to minimise the risk of an anaphylactic reaction for in-school and out-of-school settings*
  - *School management and emergency response procedures that can be followed when responding to an anaphylactic reaction*
  - *The purchase of spare or 'backup' adrenaline autoinjector devices(s) as part of the school first aid kit(s), for general use*
  - *Development of a Communication Plan to raise staff, student and school community awareness about severe allergies and the School's Anaphylaxis Management Policy*
  - *Regular training and updates for school staff in recognising and responding appropriately to an anaphylactic reaction, including competently administering an EpiPen and completion of an Annual Anaphylaxis Risk Management Checklist*

### Staff Training

Staff that are caring and/or educating a child or young adult with anaphylaxis must complete

anaphylaxis training covering:

- Schools Anaphylaxis Management Policy.
- Causes, symptoms and treatment of Anaphylaxis.
- Identities of students diagnosed at risk of Anaphylaxis.
- Where medication is located.
- How to use an adrenaline autoinjector - on a yearly basis.
- The school's first aid emergency response plan.
- Caring and/or educating a child means: In the classroom, on yard duty, on excursions, camps and special events.
- Out of Hours School Care – Qualified staff (with Anaphylaxis training) must be on the premises at all times if the child that has been diagnosed with Anaphylaxis is in their care.

## **Emergency Management: Asthma And/Or Anaphylaxis**

### ***Education and Care Services National Regulations***

**Regulation 162** says that there must be health information on the enrolment record for each child with:

- Healthcare needs and any medical conditions.
- Allergies and if diagnosed as a risk of Anaphylaxis or Asthma.
- Any documents to be followed (e.g. Personal Action Plans).
- Details of dietary restrictions.

**Regulation 173** (if applicable) says a notice stating that a child who has been diagnosed as at risk of anaphylaxis is enrolled at the education and care service.

- This must be displayed for all staff.
- To maintain confidentiality and privacy, the personalized charts should not be displayed publicly as parents, tradesmen and visitors may have access to the information. A system needs to be developed per centre where approved staff have daily and quick access to the charts while keeping the files away from public eyes.
- The General ASCIA Action Plan for Anaphylaxis should be publicly displayed.
- If the child is taken on an excursion their medication and Individual Action Plan must be taken.
- Medication must be recognizable and readily accessible to staff but not to children and stored away from heat.

Though the above guidelines specifically apply to the childcare sector, the principles can still be applied to most workplaces.

### ***Workplace Emergency Management Plan***

A **Workplace Emergency Management Plan (WEMP)** for either asthma and/or anaphylaxis must be implemented if a child or a staff member is suffering from asthma/anaphylaxis who is enrolled at the school or centre or employed at a workplace. The WEMP needs to be distributed to all staff responsible per individual at risk.

The management plan should incorporate:

- Date of implementation of the plan.
- Name and details of the individual.
- All Individuals' asthma/anaphylaxis Management Plans.
- Emergency first aid management for asthma/anaphylaxis.
- Identification of staff competencies and training requirements for assigned first aiders.
- Identification and risk assessment strategies of avoidable and manageable

asthma/anaphylaxis triggers.

- The location of the individual's plan and medication.
- Name of emergency contact persons should an emergency episode occur.
- Details of all relevant stakeholders: Carers/parents, workplace first aiders, management, students, teachers, nurses, casual staff, coaches, specialist staff, early childhood staff, food handling staff, including carers, canteen staff, school camp providers, volunteers, etc.

Implement and establish a communication plan to raise awareness of Asthma/Anaphylaxis and its first aid management in line with the WEMP. Both the WEMP and communication plans should be reviewed annually to maintain their effectiveness.

### **Communication Plan**

The principal of a school/director of a centre is responsible for ensuring that a **Communication Plan** is developed in consultation with all relevant stakeholders and that it includes strategies on how to respond to an anaphylactic reaction or asthma attack by a student in various environments including:

- During normal school activities including in the classroom, in the school yard, in all school buildings and sites including gymnasiums and halls.
- During off-site or out of school activities, including on:
- excursions, school camps and at special events conducted or organised by the school.
- Students with a medical condition that relates to allergy/asthma and the potential for anaphylactic/asthma reaction and their role in responding to an emergency episode by a student in their care.
- Stakeholders may include: Carers/parents, workplace first aiders, management, students, teachers, nurses, casual staff, specialist staff, early childhood staff, food industry staff such as carers, canteen staff, school camp providers, volunteers, etc.
- The communication plan should be annually reviewed to maintain its effectiveness.

### **Evaluate Incident Response**

Once the documentation and reporting process has been completed, it is vital that the following steps take place:

- Review and assess the first aiders and organisation's responses to the incident and adherence to the casualty's Asthma/Anaphylaxis Action Plan.
- The effectiveness of risk minimisation strategies are reviewed.
- The Workplace's Emergency Management Plan for Asthma/Anaphylaxis is reviewed.
- Reviews can generate improvements for processes and procedures. If so:
  - Implement improvements as soon as possible.
  - Communicate improvements and updates to all stakeholders.

### **Age-Appropriate Communication and Distraction Techniques**

By applying the use of age-appropriate communication, as well as numerous distraction techniques, first aiders can successfully assist their young casualties while administering the required first aid procedures, resulting in the best possible outcomes.

- Avoid the use of negative words.
- Explain the process of what is going to take place. This reduces anxiety and any misunderstandings by allowing the child to comprehend the purpose of the procedure, rather than view it as a form of punishment.
- Tell the truth but keep it simple. Explain slowly, in small bits, repeat if necessary.
- Encourage the child to ask questions about anything they do not understand.

- Do not give false reassurances.
- Provide assurance of their safety.
- Encourage the child to show emotions — it's ok to cry or be scared.
- Be aware of limited attention span.
- Allow children to make simple choices and express opinions.
- When correcting behaviour, calmly provide reasons.

Evidence strongly supports the use of distraction to reduce pain and distress during medical procedures in children. Duff *et al.* (2011) identified 2 main principles:

- Attention can be shifted away from potentially distressing procedures via the use of age-appropriate activities; and
- The more interactive and varied the chosen distraction technique is, the greater the cognitive need, and therefore, the greater likelihood that distress levels are reduced.
- Talk to the child about something else
- Allow play (toys, video games, phone games, interactive games)
- Videos or image projections
- Play music – this calms nerves
- Reading
- Deep breathing
- Rewards
- With infants, colourful shiny and noisy objects will help distract (jingling keys, rattles)

The following table shows Age-Appropriate Distraction Techniques (by RCHM 2016) as per <https://www.ausmed.com.au/cpd/articles/nursing-paediatric-patients-effective-procedural-communication>

Babies	Toddlers	Pre-School	School Age	Adolescents
Breastfeeding	Dummy, blanket, favourite toy	Blanket, favourite toy	Non-procedural talk about favourite topics	Non-procedural talk about favourite topics
Watching bubbles	Textured toys (e.g. squishy balls), imaginary play, popping bubbles	Textured toys (e.g. squishy balls), imaginary play, popping bubbles	Humour	Humour
Relaxed breathing of caregiver	'Blowing the hurt away', blowing bubbles	'Blowing the hurt away', blowing bubbles	Breathing and relaxation	Breathing and relaxation
Singing and music, music therapist	Singing and music, music therapist	Singing and music, music therapist	iPod, music therapist	iPod, music therapist
Sucrose and non-nutritive sucking	Computer game/DVD/iPad	Computer game/DVD/iPad	Computer game/DVD/iPad	Computer game/DVD/iPad
Rattle/shaker	Sound/pop-up books	'I Spy'/sound books	'I Spy'/'Where's Wally'	Prompt cards and conversation starters

**End of First Aid Manual**