



HLTAID011

Provide first aid eBOOK

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Section 1 – First Aid

What is First Aid?

First aid is the initial care of a suddenly ill or injured person to sustain life until medical aid arrives, or the person recovers. Medical aid is treatment by a Doctor, Registered Nurse or Ambulance Officer.

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 Aims of First Aid

PRESERVE LIFE

Not only the casualty's life, but your own as well. Far too often only one person's life is in danger when the emergency services are called, but by the time they arrive there are more. If you put your life in danger, you can end up fighting for your OWN life instead of the casualty's.

PROTECT THE UNCONSCIOUS CASUALTY

Protect the casualty from further harm by removing them from impending danger, such as placing the casualty on their side to prevent airway obstruction and ensuring the scene is safe.

PREVENT THE SITUATION FROM WORSENING

The skilled first aider must take action to prevent the whole situation from becoming worse (e.g., removing dangers such as traffic or fumes), as well as acting to prevent the casualty's condition from deteriorating or implementing treatment that will do no further harm.

PROMOTE RECOVERY

The actions of a first aider should, after preventing things from getting worse, help the casualty to recover from their illness or injury.

PROVIDE PAIN RELIEF

This does not necessarily mean to administer medication; it can be as simple as applying an ice pack or supporting a fracture site.

PROVIDE REASSURANCE

In first aid accidents, reassurance to the casualty or family members that help is at hand or on its way, offers some support and peace of mind in what can be difficult circumstances.

Australian resuscitation council – guidelines

The Australian Resuscitation Council is an advisory body dedicated to ensuring that evidence-based first aid procedures are standardised and uniform throughout Australia. The ARC publishes guidelines for first aid and medical personnel to use as a basis for the treatment they provide.

First aid courses in Australia must adhere to these guidelines

Guidelines can be found on the following website: www.resus.org.au

Section 2 – Legal Issues

Duty of Care

'Duty of Care' describes the legal duty owed by one person to another to act in a certain way.

- There is no legal obligation for first aiders to provide first aid in general public context; however, first aid officers in workplaces and schoolteachers have a duty of care.
- Once a first aider begins to provide first aid a duty of care is established and the first aider then has a legal obligation to fulfil that duty of care.
- Not fulfilling a duty of care leaves the first aider open to questions of negligence.
- If a road user is involved in an accident there is a legal requirement to stay on the scene, assist the injured and report the incident to the police.

The law says we all have a duty of care to take reasonable care not to cause foreseeable harm to other people or their property. This is also known as the law of negligence.

Negligence

In the unlikely event that a first aider is sued in connection with providing first aid assistance, the court would look at the circumstances surrounding the event to see if the first aider acted negligently in the way the first aid was provided. The following factors must all be present for a first aider to be found negligent:

1. A duty of care existed between the first aider and the casualty.
2. The first aider did not exercise reasonable care and skill in providing the first aid.
3. The first aider breached the relevant standard of care; and
4. The casualty sustained damage as a result of an act or omission of the first aider.

A court would look at the first aiders training and at what a reasonable person would have done with the same level of training in the circumstances.

The court may examine issues to establish whether the first aider exercised reasonable care, such as;

- What was the first aider's level of knowledge?
- What information was available for the first aider, including:

- Was adequate questioning used?
- Was a thorough examination of the casualty undertaken?
- Were all the facts available taken into account?
- Were accepted first aid procedures complied with?
- What were the circumstances in which the first aider provided assistance?

To date, there has not been a successful litigation in Australia against a first aider.

Consent

Most people and cultures involve a certain amount of respect for a person's personal space. This varies with cultural and personal attitude, but touching another person is generally considered to be rude, offensive or threatening unless their permission is gained.

As most first aid treatment does involve touching the victim, it is very important that the first aider gains their permission, to avoid causing offence or distress. It may also be considered a form of assault if a first aider touches the victim without permission.

- If conscious, consent should be sought from the person before commencing any first aid,
- If a person is under 18, consent should be obtained from the parent or guardian if present.
- If unconscious or unable to formally consent, then consent is assumed and necessary first aid may be given.



Gaining Consent

The simplest way to gain consent is to ask the victim if they will allow you to treat them. Talk to the victim and build up a rapport with them. During this conversation, it is important to identify the following key points:

- **Who you are:** Start with your name, and explain that you are a trained first aider?
- **Why you are with them:** They are likely to know they have an injury or illness (although you can't always assume this in the case of patients in emotional shock, children or those with learning difficulties), but explain to them that you would like to help with their injury or illness.
- **What you are going to do:** Some first aid procedures can be uncomfortable, so it is important to be honest with the patient about what you are doing, and if necessary, why it is important.

Implied Consent

There are some cases where you can assume that the victim gives their consent to you treating them.

The key for assuming consent is if the patient:

- Is unconscious
- Has a very reduced level of consciousness

In these cases, you can perform any reasonable treatment within your level of training, and your position is protected in most jurisdictions.

Privacy and Confidentiality

- Take steps to assist the person to maintain personal privacy.
- The Health Records Act 2001 and the Privacy Act impinge upon all workplace first aid interactions; therefore, take steps to maintain confidentiality.

WHS Responsibility and recording

A first aider should always make notes or fill out a first aid casualty report on any event attended, no matter how minor. Proper records will help you to recall the incident if you are ever asked about it at a later stage.

You have reporting obligations under your State/Territory Occupational Health and Safety (OH&S) legislation. Records may be used in court, so ensure that your reports or notes are legible, accurate, factual, contain all relevant information, and are based on observations rather than opinions.

The accurate recording of injury/illness is also of great assistance to any medical personnel who take over your casualty's treatment, such as ambulance officers.

Incident Report Form

Any accident at work, no matter how small, must be recorded on an Incident/Accident Report Form. The form may be filled in by any person on behalf of the casualty (or indeed by the casualty themselves within 24 hours of the incident).

The information recorded can help the employer identify accident trends and possible areas of improvement in the control of health and safety risks. It can be used for future first aid needs assessments and may be helpful for insurance investigation purposes.

The following notes are given for your advice:

- An Accident/Incident report form is a legal document.
- Anything that has been written at the time of an incident is usually considered to be 'stronger evidence' in court than something recalled from memory.
- Complete the report all at the same time, using the same pen (not pencil)
- To comply with the Health Records Act 2001 and the Privacy Act, personal details entered in accident books must be kept confidential, so the book should be designed so that the individual record sheets can be removed and stored securely.
- A member of staff should be nominated to be responsible for the safekeeping of completed forms (e.g. in a lockable cabinet). The completed form should be given to that person.
- The person who has the accident may wish to take a photocopy of the report. If this is the case, they can do this before it is handed in. They should keep a record of the report number.

You should include in the report:

- The name, address, and date of birth of the victim.
- Time and date of the incident.
- The name, address, occupation, and signature of the person who is completing the report.
- A description of how the incident happened, giving as much detail as possible including observations – signs (things you can see, such as

vomiting, bleeding, bruising, swelling etc), symptoms (things that are felt, such as nausea, pain, tingling), vital signs and treatments that you have given. All details should be written in blue or black pen.

- Details of the injury suffered
- Signature of first aider – and name and title.

First Aid Casualty Report Form

It is useful for a first aider to complete a patient report form for every patient treated. This does not replace the incident/accident report form, which would still need to be completed for an accident at work.

This form is designed so the first aider can keep a record of the exact treatment provided. It is useful if a patient refuses treatment against the advice of the first aider.

- If a patient refuses treatment, make sure they are capable of making that decision (e.g. a full conscious adult) Seek medical advice if they are not.
- Follow the advice given for completing the incident/accident report form (above) when completing the casualty report form.

- A copy of the form can be given to the ambulance or hospital staff, as it will contain valuable information about the incident and treatment of the patient. Make a copy so that you can keep the original.
- To comply with the Privacy Act or the Health Records Act 2001, personal details on the report form must be kept confidential. The report should be stored securely (e.g. in a lockable container)

What happens if someone dies?

When a person dies, a doctor must be called to issue a Medical Certificate as to cause of death. Paramedics will sometimes call the deceased persons Doctor while in attendance.

Once a Medical Certificate of Cause of Death has been issued, it is sent to the Registrar of Births Deaths & Marriages who will then issue a formal Death Certificate to the next of kin.

The law requires all deaths to be registered.

Section 3 – Health and Safety

First Aid Kits

A first aid kit for a workplace must be represented by a white cross on a green background and where the risk of injury or illness is low, should include at least the following:

- Adhesive strips (assorted sizes) for minor wound dressing
- Basic First Aid Notes for reference purposes
- Non-allergenic adhesive tape for securing dressings and strapping
- Eye pads for emergency eye cover
- Triangular bandage for slings, support and/or padding
- Hospital crepe or conforming bandage to hold dressings in place
- Wound/combine dressings to control bleeding and for covering serious wounds
- Small sterile unmedicated wound dressing for covering wounds
- Medium sterile unmedicated wound dressing for covering wounds
- Large sterile unmedicated wound dressing for covering wounds
- Non-adhesive dressings for wound dressing
- Safety pins to secure bandages and slings
- Scissors for cutting dressings or clothing
- Kidney dish for holding dressings and instruments
- Small dressings' bowl for holding liquids
- Gauze squares for cleaning wounds
- Forceps/tweezers for removing foreign bodies
- Disposable latex or vinyl gloves for infection control
- Sharp's disposal container for infection control and disposal purposes
- Sterile saline solution for emergency eye wash or for irrigating eye wounds
- Resuscitation mask to be used by qualified personnel for resuscitation purposes
- Antiseptic solution for cleaning wounds and skin
- Plastic bags for waste disposal
- Suitable book for recording the injured or ill person's condition and treatment given

Useful Additions

- Re-usable icepack for the management of strains, sprains, and bruises.
- Oxygen equipment for multiple uses
- Reference manual such as this for information
- Broad crepe bandage for snake bites
- Cervical collar for neck and suspected spinal injuries
- Thermal blanket to maintain casualty's warmth
- Large clean sheet for covering burns
- Torch for attracting attention/dark conditions
- Automated External Defibrillator for use in cardiac arrests
- Burns Module
- Eye Module



In work environments where specific injuries such as burns, eye injuries and poisoning may occur, additional first aid kit contents and facilities should be provided, and appropriately trained personnel should be appointed.

- Where burns have been identified as potential injuries, a supply of cool running water and non-stick burn dressings should be available.
- Eyewash stations should be provided where the potential for eye injuries has been identified.
- Emergency showers should be provided at workplaces where chemical splashes occur.

First aid kits should also be provided for workers that are working:

- Away from the workplace, for example, a delivery driver who is transporting and unloading landscaping supplies to customers; and
- In remote areas where access to accident and emergency facilities may be delayed.

Improvisation

Many first aid situations take place without a first aid kit readily at hand and it may be the case that a first aider has to improvise materials and equipment. As a general rule, some help is better than no help, especially in critical situations, so a key first aid skill is the ability to adapt to the situations and use available materials until more help arrives.

Some common improvisations include:

- Gloves – Plastic bags, dish gloves, leather work gloves (wash your hands with soap and water especially well after using these)
- Gauze – clean clothing (but not paper products)
- Splints – straight sections of wood, plastic, cardboard, or metal
- Slings – the victim's shirt's bottom hem pinned to the centre of their chest will immobilize a forearm effectively.

First Aiders

The selection of a first aider depends upon a number of factors, The person best suited to be a first aider will volunteer, and will have:

- Good reliability, disposition, and communication skills.
- An aptitude and ability to absorb new skills and knowledge.
- An ability to cope with stressful and physically demanding emergency procedures.
- Normal duties in the workplace that can be left, to respond immediately and rapidly to an emergency.

Workplace First Aider

The minimum acceptable level of training for first aid officers is Apply First Aid, Provide First Aid and Senior First Aid.

For large and diverse workplaces or workplaces with a complex range of WH&S hazards, first aid officers need to be competent in Apply Advanced First Aid or Provide Advanced First Aid or Occupational First Aid.

The employer needs to ensure that first aid officers' qualifications are current.

Refresher Training

The Australian Resuscitation Council advises that CPR be updated on an Annual Basis and that initial first aid training must include specific plans for refresher training.

First Aid certificates generally expire after 3 years; however, the CPR component needs to be completed annually to maintain currency.

First Aid Needs Assessment

Workplaces should routinely develop a first aid needs assessment. WorkSafe publishes compliance codes that provide guidance to employees on how to provide appropriate first aid facilities in the workplace.

A first aid assessment should consider:

- The nature of the work and workplace hazards and risks.
- The size of the organisation.
- The nature of the workforce.
- The organisations history of accidents and illness.
- The needs of travelling, remote and lone workers.
- Work patterns such as shift work.
- The distribution of the workforce.
- The remoteness of the site from emergency medical services.
- Employees working on shared or multi-occupied sites.
- Annual leave and other absences of first aiders and appointed persons.
- First aid provision for non-employees.

Manual Handling

Moving and handling a human being is much more difficult than it appears, especially is that person is unconscious (and therefore very floppy).

For this reason, you should never attempt to move a casualty unless it is absolutely necessary. You may harm the patient as well as yourself.

If you have no other option than to move a patient however, following the rules and methods in this chapter should reduce the risk of injury.

Manual Handling Rules

Before the move, THINK:

- Can the casualty move themselves? Is there another option to lifting them? Will it make their condition worse if they walk? (Such as cardiac chest pain)
- How heavy is the patient? Do you need more help?
- Is the route clear and safe? (You can't move furniture at the same time as carrying someone!)
- Is there any equipment that you can utilise to help you?
- Are you (or is someone else) trained to use it?

During the move, ensure that you and others:

- Stand as close to the patient as possible (don't stretch out).
- Bend with your knees, not your back.
- Keep your back upright, but not rigid.
- Use your most powerful muscles (your legs, not your back!)
- Take your time. Rushing will injure you.
- Talk to your helpers – so that you can move together as a team. One person should take charge.

Lowering from chair to floor

This manoeuvre can be made easier by using a moving aid called a 'slide sheet'. This is a low friction sheet which can be placed under the patient's buttocks to make sliding them easier.

Helper 1:

- Support the patient's head throughout the manoeuvre

Helpers 2 and 3:

- Place your outer foot on the floor. Kneel with your inner leg.
- With your inner arm, hold the back of the patient's leg, just above the knee.
- With your outer arm, grasp the patient's waist line (or the slide sheet)

Helpers 2 and 3:

- Keeping your foot and knee in the same position on the floor, lean backwards, sliding the patient to the floor.
- Remove the chair to lower the patient's head to the floor.
- If you can't move the chair, perform the manoeuvre again slide the patient further onto the floor,

Blanket Lift

This manoeuvre is best if you use a 'carry sheet', which is designed for lifting a patient. If you don't have enough helpers, another option is to drag the patient on the sheet, instead of lifting them.

- Turn the patient onto one side
- Roll one edge of a blanket and place it behind them.
- Turn the patient over the rolled edge, onto their back.
- Roll the open edge of the blanket up.
- Use the rolls at either side of the patient to lift with.

Controlling a fall

If a patient begins to pass out, do not try to hold them up as this may injure you.

- Release your hold slightly and move behind the patient
- Place your feet shoulder width apart to give you balance.
- Allow the patient to slide down your body as you stay in an upright position.

Section 4 – Assess the Situation

Communicable Diseases

There are different infectious diseases that may be transmitted from person to person. These can be in the form of viruses, bacteria, protozoa, or fungi.

Transmission of Infection

Infectious agents can be spread in a variety of ways, including:

- Airborne – coughs or sneezes release airborne pathogens, which are then inhaled by others.
- Contaminated objects or food – the pathogens in a person's faeces may be spread to food or other objects if their hands are dirty.
- Skin-to-skin contact – the transfer of some pathogens can occur through touch, or by sharing personal items, clothing, or objects.
- Contact with body fluids – pathogens in saliva, urine, faeces or blood can be passed to another person's body via cuts or abrasions, or through the mucus membranes of the mouth and eyes.

If you are a first aider in the workplace, the risk of being infected with a Blood Borne Virus while carrying out your duties is small. There has been no recorded case of HIV or HBV (Hepatitis B) being passed on during mouth-to-mouth resuscitation. However, first aiders should be aware that blood, vomit, urine, and faeces, all pose a threat for cross contamination. Body fluids can carry infectious and diseases, including, but not limited to, HIV and Hepatitis A, B & C.

Infection Control Precautions

The following precautions can be taken to reduce the risk of infection:

- Cover any broken skin such as cuts or grazes with a waterproof dressing;
- Wear suitable disposable gloves when dealing with blood or any other body fluids
- Use suitable eye protection and a disposable plastic apron where splashing is possible
- Use devices such as face shields when you give mouth-to-mouth resuscitation
- Wash your hands after each procedure
- It is not normally necessary for first aiders in the workplace to be immunised against HBV, unless the risk assessment indicates it is appropriate.
- As a first aider it is important to remember that you should not withhold treatment for fear of being infected with a Blood Borne Virus.

The diseases above have no known cures however standard precautions go some way to reduce the risk of contracting these viruses.

Barrier Devices

Gloves

The main tool of the first aider to help avoid contact with BBV is a pair of impermeable gloves.

Gloves protect the key contact point with the victim (i.e. the hands) and allow you to work with increased safety. They protect not only from bodily fluids, but from any dermatological infections or parasites that the victim may have. The first thing a first aider should do when approaching a victim is to put on their gloves, Remember, walk to a casualty do not run. This gives time to assess the scene and to compose yourself. Care should be taken to change gloves if moving from one casualty to another as to avoid cross contaminate.

Eye Protection

The mucous membranes of the eyes (conjunctiva) are susceptible to the introduction of infection via slashing of contaminated fluids such as saliva during coughing, or blood and other fluids directly by touching or rubbing the eyes with unclean hands or gloves. Goggles and face shields offer protection and should routinely be worn where there is a risk of contact with splashed contaminated fluids.

A CPR Pocket Mask

The other key piece of protective equipment that should be in every first aid kit is an adjunct for helping to perform safer mouth-to-mouth resuscitation or rescue breaths as it is now known.

When performing rescue breaths, there is a possibility of bodily fluid contact with saliva, and to a lesser degree, regurgitated stomach contents and mouth borne infections. A suitable mask will help protect the rescuer from infections the victim may carry. It also makes the performance of CPR less onerous.

The Australian Resuscitation Council has recommended that the bystanders not wishing to perform mouth to mouth should use compression only CPR and while evidence has shown that compression only CPR is not as effective in some Cardiac Arrest situations, ANY ATTEMPT AT RESUSCITATIONS IS BETTER THAN NO ATTEMPT AT ALL.

Avoiding Contamination

In the workplace there is usually the task of cleaning up the area after a first aid incident.

Contaminated waste such as blood-stained gauze, pads and bandages should be placed into a plastic bag which has been securely tied and preferably placed into a yellow biohazard bag.

Contaminated waste should not be placed in household or workplace rubbish bins and should be disposed of in accordance with local, state, or federal requirements.

Vomit, blood, and other bodily fluids spills should be cleaned up and the area disinfected. Spill clean-up kits are readily available and offer a handy solution for this sometimes-unpleasant task.

Sharp objects such as glass should be handled with tongs or forceps to avoid contact with the hands.

Items that can be re-used (scissors and tweezers), must be thoroughly cleaned using warm soapy water and alcohol swabbed after each use.

First aid kits should be cleaned and restocked.

Universal precautions such as protective gloves and eyewear should always be worn and personal hygiene such as hand washing undertaken on completion.

Dealing with Spills of Body Fluids

Examples of body fluids include blood, saliva, urine and faeces. Infection control procedures should be followed carefully when dealing with spills of body fluids, You should always:

- Isolate the contaminated area.
- Wear gloves, a plastic apron and eye protection.
- Soak up the fluid with disposable paper towels, or if a large spill, use a spill kit as per instructions, scoop up waste and dispose into a yellow biohazard bag.
- Mop with hot water and detergent.

- Dry the area.
- Dispose of paper towelling and gloves appropriately.
- Rinse any contaminated clothing in cold running water, soak in bleach solution for up to half an hour, then wash separately with hot water.
- Wash your hands.

Hand Washing

- Using warm water wet your hands thoroughly including palms and back of the hands
- Dispense soap into the palm of your hand
- Lather your hands with soap
- Vigorously rub your hands together cleaning palms, fingers, between fingers, the back of your hands, thumbs and wrists for at least 30 seconds.
- Thoroughly rinse off the soap
- Turn off the taps using the elbow, foot or electronic controls. If the tap has only a normal tap handle and paper towels are available, use paper towel to turn the taps off.
- Pat dry your hands with disposable paper towel or clean cloth towel.
- In areas where there is cloth roll towel, make sure you are using a clean section of the towel.
- Make sure your hands are dried well to prevent chafing
- If using disposable paper towel, place the used paper towel in the appropriate bin.

Needle Stick injury

Some people are at increased risk of needle stick injury, which occurs when the skin is accidentally punctured by a used needle. Blood-borne diseases that could be transmitted by such an injury include human immunodeficiency virus (HIV), hepatitis B (HBV) and hepatitis C (HCV).

Treatment

Immediately after the injury:

- Wash the wound with soap and water
- If soap and water are not available, use alcohol-based hand rubs or solutions
- When the area is dry, apply a sterile dressing
- If appropriate, place syringe in a suitable puncture proof container and dispose at hospital or doctor's surgery
- If skin is exposed to external blood, saliva or other bodily fluids wash thoroughly with soap and water
- Contaminated eyes should be rinsed with saline or cool water
- Bloods or fluids in the mouth should be spat out and rinsed thoroughly without swallowing the water
- Report the incident to manager or supervisor
- Refer to a doctor or to the nearest hospital emergency department



At the doctor's surgery or emergency department:

Your doctor or the emergency doctor should:

- Take detailed information about the injury, including how long ago it happened, how deeply the skin was penetrated, whether or not the needle was visibly contaminated with blood, and any first aid measures used.
- Explain the transmission risks, which are small.
- Offer blood tests to check for pre-existing HIV, HBV and HCV. You should be offered counselling about these tests before the blood specimens are taken

- Inform the original user of the needle about the needlestick injury – if they are known. They will be asked to consent to blood tests to check their HIV, HBV and HCV status. They should be provided with counselling before the tests are done.
- Advise you about reducing the risk of transmission until the test results are received. You should practise safe sex and avoid donating blood.



Ways of reducing the risk of needle injuries:

- Do not bend or snap used needles.
- Never re-cap a used needle
- Place used needles into a clearly labelled and puncture-proof sharps approved container
- Remember that latex gloves do not protect you against needle-stick injuries.

The Emergency Situation

Assess the Situation for Danger

First aiders should never be required to place themselves into a dangerous situation. Before entering a scene, the first thing that any first aider should be aware of is the potential for danger. Ensuring the scene is safe for themselves, bystanders, and the casualty (in that order) is of utmost importance.

Once you have made your first assessment for danger, you should continue to be aware of changes to the situation that may develop throughout your time with the casualty.

Danger may consist of: Environmental Danger

A danger in the surroundings such as:

- Traffic and Moving vehicles
- Fumes, gas or chemical leaks
- Live electrical items
- Smoke and fire
- Falling objects
- Slippery floors
- Machinery
- Overhead hoists and cranes
- Overexposure
- Collapsing platforms or equipment
- Explosions
- Confined space
- Hazardous chemicals
- Bystanders
- Workplace violence
- Fast flowing and deep water
- Burns
- Glass and sharp objects



Human Danger

Danger from people at the scene (including the victim) which can be intentional or accidental such as Bystanders in the way, the victim not being co-operative or an aggressor in the vicinity who may have inflicted the injuries on the victim.

Have the police called to control the situation if these factors are present.

Remember, you cannot help a victim if you become a victim yourself. Personal safety is paramount. Before you enter a scene, put on personal protective equipment, especially impermeable gloves.

What Has Happened

Gain an Accurate History

As you approach, try to gain as much information as possible about the incident. Try and build a mental picture to assist you in helping the victim.

- Has anything here caused the injury?
- Where are you?
- What stores, clubs, public buildings, etc. are nearby?
- If there are witnesses, ask them what has happened and gain information about how long ago it happened.
- “How long have they been like this?” – Start your treatment of the victim while you are asking these questions.

Strategies to take if it is difficult to be understood by the victim

- Ensure you are allowing enough time for a response to be thought out and communicated back.
- Try demonstrating visually what you are saying, use prompts, hand signals.
- Think about what you are saying and deliver in a simpler way.
- Can the victim speak the same language as you? What are their language skills?
- Ask for feedback to ascertain that they have understood.

Sending for help

If the victim is unresponsive and someone has not already summoned help, do so now. If the victim is unconscious, they should be left in the recovery position to maintain a clear airway while left unattended.

Get someone else to call if possible. If you're alone with an adult, make the call yourself: **Call 000**

In certain areas you may need to dial 112 from a mobile phone as 000 may not be reachable. **106** is the TTN for the deaf or hard of hearing.

Other methods of calling for help include flares, HF/VHF/Digital 2-way radios, EPIRBS, Satellite phones, sending SMS or email.

If you're alone with a child or infant, continue care as required and wait to call an ambulance. If you're not alone, have a bystander call immediately.

If at the scene of a Cardiac Arrest, try to obtain an AED and AED-trained responder.

You will need to give the emergency services:

- What is the exact location of the emergency?
- What is the phone number you are calling from?
- What is the problem, what exactly happened?
- How many people are hurt?
- How old is the person?
- Is the person conscious (awake)?
- Is the person breathing?

In some cases, they will run through a list of questions with you, in order to help prioritise your call properly.

Be sure to listen

You will need to gain a lot of information if you are to treat the casualty affectively. Whilst working on a victim listen carefully to the information given by witnesses or the casualty.

Gain a rapport with the casualty especially if you are not known to them. Find out their name and use it when addressing them. Reassure the casualty that you are there to assist and that an ambulance has been called. A confident first aider taking decisive action to assist will be reassuring to a nervous casualty.

Use various mnemonic to formulate a plan of treatment for the casualty and to find additional information what will be valuable for handover to Ambulance Paramedics.

Manage the incident

- Identify the causes of the incident
- Identify potential dangers to yourself, bystanders and casualty.
- Obtain a good History to assist in the provisional diagnosis.
- Provide effective leadership and manage the scene until help arrives.

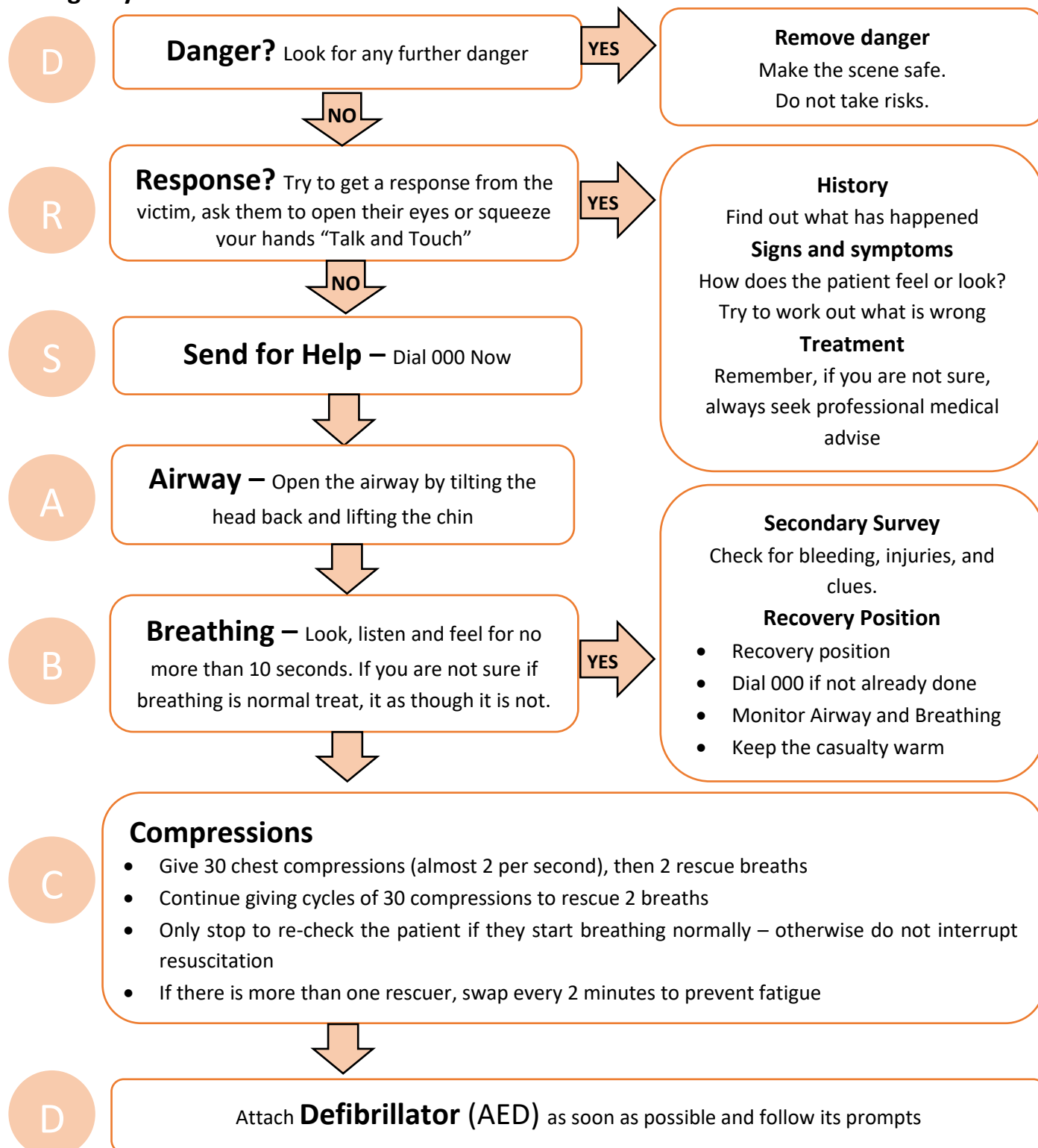
Effectively managing an incident can be demanding. It is important that the first aider develops a systematic approach to all incidents. A systematic approach allows you to quickly identify and deal with problems, and, more importantly, it gives you the confidence to take control of an incident. The systematic approach to an incident covers the areas of danger, provisional diagnosis, triage, life savings treatment, paramedic handover and cultural awareness.

Section 5 – Emergency First Aid Action Plan

Primary Survey

This section gives you a basic order to administer first aid in a calculated way. Remember the basics and you will be able to assist in any first aid incident. In all first aid situations, do not run or rush to the scene. Take a deep breathe, compose yourself and assess the scene as you are walking towards it. Consciously think to SLOW down! It is easy to rush things, however if you remember the priorities and keep calm you will be better equipped to take control and really be of assistance.

Emergency Action Plan:



Motor Vehicle Accidents

Modern motor vehicle are equipped with many safety features such as airbags, crumple impact zones and seatbelts to name a few. However, over 1500 people lose their lives on the roads annually and tens of thousands of Australians are hospitalised each year as a result of road trauma.

With this in mind we have developed a section to help you as a first aider at the scene of a motor vehicle accident.

Assess the situation for danger

Serious motor vehicle accidents are usually chaotic, especially if someone is injured. It is important to ensure your safety, that of bystanders and of the victims.

Ensure that the scene is safer by turning on your hazard lights and parking behind the collision on an angle into the gutter so that if another vehicle collides with the rear of your car, it will be pushed away from the initial accident and into the gutter.

Power lines in contact with a vehicle

- If possible, remain in the vehicle until the power is switched off
- **Phone emergency services on 000** and the appropriate power company

If you need to evaluate your vehicle because of fire or if nobody is aware of your situation the following steps should be taken:

- Do not touch the vehicle and the ground at the same time as this may create a path for the electricity to flow to earth through your body, resulting in electrocution.
- Jump clear of the vehicle.
- Calmly move at least ten metres away from the vehicle using short shuffle steps.
- Do not return to the vehicle until after the authorities have declared the area safe.

Bystanders should not approach the vehicle and should remain at least ten metres away.

Safety at the scene

- Do not touch the vehicle unless you are sure it is safe to do so.
- Look for oncoming traffic and ask a bystander to assist with traffic control.
- Turn off the ignition of the crashed vehicle.
- Ensure that the crashed vehicle and its load is secure.
- Look for risk of fire.
- Warn bystanders or victim not to smoke around the scene due to the potential of fuel leakage.

Assess the victims

Identify how many casualties there are and ensure this information is relayed to emergency services via 000.

You should be prepared to answer the following questions:

- What is the exact location of the emergency?
- What is the phone number you are calling from?
- What is the problem, what exactly happened?
- How old is the person?
- Is the person conscious (awake)?
- Is the person breathing?

When to move a casualty

Ideally all casualties should remain within the vehicle as moving them may result in increased pain, blood loss, further injury or shock. If spinal injury is suspected, manual spinal immobilisation of the head and neck can be maintained in the sitting position.

Rescuers may move a casualty to ensure their safety, to protect them from adverse weather, to care for the casualty's airway and breathing, perform CPR, or to control any severe bleeding. When moving a casualty, it is important to be mindful of potential for spinal injury, however care for the victim's airway always takes precedence.

Multiple victims and injuries – triage

Ideally there should be one first aider per victim, however at some point you may have no choice but to assess and treat more than one casualty at a time.

Severe injuries can occur to pedestrians, cyclists and motor cyclists involved in collisions with vehicles. People may be ejected from cars during impact or rollover and even trapped within wreckage. Multiple victims pose a great challenge to the first aider; indeed, they pose a challenge to Paramedics too.

In cases where casualty's outnumber rescuers, CPR should not be commenced to the detriment of other victims and should only be given if there are no other casualty's that require lifesaving intervention.

As soon as possible try to enlist help from bystanders' and ask someone to stay with the victims if possible.

Keep all "walking wounded" together and move them away from scene unless required to assist with the seriously injured. In some cases, all you may be able to do is to open the airways of several casualty's one by one and move onto the next.

Priorities in treatment are limited to Airway, Breathing, Stopping Severe Bleeding, Shock, and burns.

If bleeding is from a fracture site cover and pad around the fracture. Use manual support with the help of a bystander if possible and move onto the next victim. Gloves can become soiled easily and should be changed between casualties to help prevent cross contamination.

If possible, remove "shocked" victims from vehicles and treat accordingly.

Cool burns and cover to help prevent infection and keep casualty warm.

Attempt to give a handover but be mindful that the Ambulance personnel will also be quite focused on the task at hand so concise handover would be best.

Looking after a mass casualty incident is very difficult for the lay first aider and debriefing should be sought after the incident.

The Chain of Survival

In order to maintain the oxygen supply to the body a person must be breathing, and their heart must be 'pumping.' If either of these two functions stop, the brain and other vital organs will quickly deteriorate, and brain cells will start to die within 3 to 4 minutes. Unless urgent action is taken to circulate oxygen around the body, this will inevitably result in death.

The most common cause of cardiac arrest in adults is 'ventricular fibrillation'. In these circumstances the best chance of restarting the heart is by using a 'defibrillator', which is carried on all emergency ambulances in Australia. For this reason, an emphasis is placed on summoning help and dialling 000 as soon as possible. Of course, the heart and brain must be kept oxygenated until the defibrillator arrives; so early Cardiopulmonary Resuscitation (CPR) is vital if a casualty is to recover.



Cardio Pulmonary Resuscitation

DANGER – Make sure it is safe

- Check that it is safe for you to help the casualty. Do not put yourself at risk in any way,
- If possible, remove any danger from the casualty, or if not, can you safely move the casualty from the danger?
- Find out what has happened – and make sure you are still safe.
- Check how many casualties there are. Can you cope?

RESPONSE – Are they conscious?

- “Talk and Touch” ask loudly ‘Are you alright?’ and touch the patients’ shoulders.

SEND FOR HELP – Dial 000

- Send for help immediately if there is no response.

AIRWAY – Open the airway

- Carefully open the airway by using ‘head tilt’ and ‘chin lift’:
 - Place your hand on the forehead and gently tilt the head back.
 - With your fingertips under the point of the casualty’s chin, lift the chin to open the airway.

BREATHING – Check for normal breathing

Keep the airway open, check to see if the breathing is normal. Take no more than 10 seconds to do this:

- **Look** at the chest and abdomen for movement
- **Listen** for the sounds of breathing (more than the occasional gasp)
- **Feel** for air on your cheek or movement of the chest or abdomen

If the casualty is breathing normally, carry out a secondary survey, place them in the recovery position and **Call 000**.

COMPRESSIONS – 30 to 2

- If the casualty is not breathing normally commence chest compressions and give 2 Rescue Breaths (1 Breath = 1 second) continue at a rate of 30 compressions to 2 breaths until help arrives.

Defibrillation

- Attach AED and follow prompts
- See Resuscitation with Automated External Defibrillator

If the casualty is not breathing normally:

Send for help, ask someone to **dial 000 for an ambulance** or, if you are on your own, do this yourself; you may need to leave the casualty.

Start chest compressions as follows:

- Place the heel of one hand in the centre of the casualty’s chest, then place the heel of your other hand on top and interlock your fingers.
- Position yourself vertically above the casualty’s chest with your arms straight.
- Press down on the breastbone 1/3 depth of chest (over 5cm in an adult) then release the pressure without losing contact between your hands and the chest (chest compression). Ensure that pressure is not applied over the casualty’s ribs. Do not apply pressure over the upper abdomen or the bottom end of the breastbone.
- Compression and release should take an equal amount of time.
- Do 30 compressions at a rate of 100 per minute.
- Now combine chest compressions with rescue breaths.



NOTE: in the first few minutes after cardiac arrest, a casualty may be barely breathing, or taking infrequent, noisy gasps. Do not confuse this with normal breathing. If you have any doubt, act as if it is not normal.

NOTE: ideally the casualty needs to be on a firm flat surface to perform chest compressions (not a bed). One way to remove someone from a low bed is to unhook the bed sheets and use them to slide the casualty carefully to the floor. Get help if you can and be very careful not to injure yourself.

Combine chest compressions with rescue breaths

- Open the airway again, using head tilt and chin lift.
- Nip the soft part of the casualty's nose closed. Allow the mouth to open but maintain chin lift.
- Take a normal breath and seal your lips around the casualty's mouth.
- Blow steadily into the casualty's mouth, whilst watching for the chest to rise (rescue breath). Take about one second to make the chest rise.
- Keeping the airway open, remove your mouth. Take a breath of fresh air and watch for the casualty's chest to fall as air comes out.
- Re-seal your mouth and give another rescue breath (two in total).
- Return your hands without delay to the correct position on the breastbone and give another 30 chest compressions (then 2 more rescue breaths).
- **Continue repeating cycles of 30 chest compressions and 2 rescue breaths.**
- Only stop to recheck the casualty if they start breathing normally – otherwise do not interrupt resuscitation.

NOTE: if there is more than one rescuer, change over every two minutes to prevent fatigue. Ensure the minimum of delay as you change over.

If your rescue breaths don't make the chest rise effectively:

Give another 30 chest compressions, then before your next attempt:

- Check the casualty's mouth and remove any visible obstruction.
- Recheck that there is adequate head tilt and chin lift.
- Do not attempt more than two breaths each time before returning to chest compressions.

Continue resuscitation until:

- A Health Care Professional arrives and takes over
- The casualty starts breathing normally.
- You become exhausted.
- Danger becomes evident.
- A Health Care Professional directs you to cease resuscitation.

NOTE: it is not uncommon to break the casualty's ribs during CPR, especially if they are old or frail. If you feel or hear a click, check your hand positioning is correct and continue.

Resuscitation for Children and Babies

Recent studies have found that many children do not receive resuscitation because potential rescuers fear causing them harm. It is important to understand that its far better to perform 'adult styles' resuscitation on a child (who is unresponsive and not breathing) than to do nothing at all.

For ease of learning and retention, first aiders can use the adult sequence of resuscitation on a child or baby who is unresponsive and not breathing. The following minor modifications to the adult sequence will, however, make it even more suitable for use in children:

- No head tilt is advised in infants as full head tilt may distort and obstruct the trachea or windpipe. They should be placed in a "head neutral" position.



- If you are on your own, ARC recommend that you perform resuscitation for about 1 minute before going for help.
- Compress the chest by about one-third of its depth:
 - For a baby under 1 year, use two fingers
 - For a child over 1 year, use two hands to achieve an adequate depth of compression (about one third of the depth).

Chest Compression Only Resuscitation

When an adult casualty suffers a cardiac arrest, it is likely that there is residual oxygen left in the blood stream.

If you are unable (or unwilling) to give rescue breaths, give 'chest compressions only' resuscitation, as this will circulate any residual oxygen in the blood stream, so it is better than no CPR at all.

- If chest compressions only are given, these should be continuous at a rate of 100 per minute.
- Stop to recheck the casualty only if they start breathing normally – otherwise do not interrupt resuscitation.
- If there is more than one rescuer, change over every two minutes to prevent fatigue. Ensure the minimum of delay as you change over.

Vomiting

It is common for a patient who has stopped breathing to vomit or regurgitate whilst they are collapsed.

Regurgitation is a passive action in the unconscious person, so you may not hear or see it happening. You might not find out until you give a rescue breath (as the air comes back out of the patient it makes gurgling noises).

- If the victim has vomited or regurgitated, turn them onto their side, tip the head back and allow the vomit to run out.
- Clean the face of the patient then continue, using a protective face barrier if possible.

Hygiene During Resuscitation

- Wipe the lips clean.
- If possible, use a protective barrier (this is particularly important if the patient suffers from any serious infectious disease such as TB or S.A.R.S.).
- If you are still in doubt about the safety of performing rescue breaths, give 'chest compressions only' resuscitation.
- Wear protective gloves if available and wash your hands afterwards.

Other Circumstances

For a person with a stoma

If there is a tube in the stoma, always leave in place to keep open for breathing and resuscitation.

- Ensure the head is in backward tilt.
- Place mouth over stoma and give rescue breathing.
- If air is escaping from nose or mouth, seal.

During the last week of pregnancy

Position the pregnant woman on her back with her shoulders flat and sufficient padding under the right buttock to give obvious pelvic tilt to the left.

Resuscitation with a soft bag and a mask resuscitator

The soft bag resuscitator is the standard equipment used to perform resuscitation with supplemented oxygen. This equipment is reserved for specially trained personnel due to the chance of over inflation and introducing air into the stomach which increases the risk of regurgitation and therefore airway obstruction or increasing chest or lung injuries.

Soft bag resuscitators have an oxygen reservoir which must be kept flat inflated to be able to deliver 100% oxygen to the casualty however they can be used without oxygen to deliver rescue breaths.

Use of soft bag resuscitator

- Place casualty supine with head close to or between rescuers knees.
- Ensure the head is in backward tilt and jaw lift.
- Place mask on bridge of nose and down to chin covering the mouth and nose.
- Circle finger and thumb around the stem of the mask/bag.
- Grip jaw with bottom 3 fingers to maintain a good seal on casualty's face.
- Place bag on rescuers knee and squeeze with using thigh to assist until casualty's chest rises.
- Monitor rise and fall of casualty's chest.
- Monitor and maintain an open and clear airway.

Automated External Defibrillation

The most common cause for a heart to stop (cardiac arrest) is a 'heart attack'. It is worth noting that a heart attack does not always cause a cardiac arrest. The majority of people who suffer a heart attack stay conscious and survive.

If a heart attack (or other cause) results in a cardiac arrest, it is usually because it has interrupted the hearts electrical impulses. When this happens the heart quivers chaotically instead of beating in a co-ordinated rhythm. This is called 'Ventricular Fibrillation' (VF). The definitive treatment for Ventricular Fibrillation is to deliver a controlled electric shock through the heart, to stop the 'quivering' and enable it to beat normally again. This is called 'defibrillation'.

An Automated External Defibrillator (AED) is a safe, reliable, computerised device that can analyse heart rhythms and enable a non-medically qualified rescuer to safely deliver the lifesaving shock with a small amount of training.

The use of an AED can dramatically increase the chances of survival if a patient's heart stops beating but must be used promptly – for every one-minute delay in delivering the shock, the patient's chance of survival reduces by up to 10%.

Danger

- Check that it is safe for you to help the casualty. Do not put yourself at risk.
- Consider the safety implications of using an AED in this situation.

Response

- Talk and Touch, ask loudly 'Are you alright?'

Send for help – Dial 000

- Send for help immediately if there is no response.
- If possible, ask one helper to **dial 000** and another to get the AED.



Airway

- Carefully open the airway by using 'head tilt' and 'chin lift'.

Breathing

Keeping the airway open, look, listen, and feel to see if the breathing is normal. Take no longer than 10 seconds to do this.

- If the casualty is breathing normally consider possible injuries and carefully place them in the recovery position.

If the casualty is not breathing normally

- If you are on your own, **dial 000 for an ambulance** and get the AED – you may need to leave the casualty to do this.

Compressions

- If you have help – start CPR immediately at 30 compressions to 2 breaths until the AED arrives.
- Get your helper to **dial 000**.

Defibrillation – When the AED arrives

If you have a helper, ask them to continue CPR whilst you get the AED ready.

NOTE: *if the helper is untrained, it may be easiest for them to give chest compressions only.*

Switch on the AED immediately and follow the voice prompts:

- Attach the leads to the AED if necessary and attach the pads to the victim's bare chest (do this whilst your helper performs CPR if possible).
- You may need to towel dry or shave the chest, so the pads adhere properly. Only shave excessive hair and do not delay defibrillation if a razor is not immediately available.
- Peel the backing from one pad at a time and place firmly in position, following the instructions on the pads.
- Place one pad below the victim's right collar bone.
- Place the other pad on the victim's left side, over the lower ribs. Place this pad vertically if possible.

DO NOT remove the pads if you have placed them the wrong way around – the AED will still work.

- Whilst the AED analyses the rhythm – stop CPR and ensure that no one touches the casualty.

If shock is advised:

- Ensure that nobody touches the casualty (check from top to toe and shout 'stand clear!')
- Push the shock button as directed (full-automatic AEDs will deliver the shock automatically)
- Continue as directed by the voice / visual prompts

If shock is NOT advised:

- Immediately resume CPR using ratio of 30 compressions to 2 rescue breaths.
- Continue as directed by the voice / visual prompts

Placement of the Pads

Wet Chest

If the patient's chest is wet (perfuse sweating for example), it must be dried before applying the pads, so they adhere to the chest properly. Also dry the chest between the pads so electricity does not 'arc' across the wet chest. Do not use alcohol wipes as this can cause burns.

Excessive Chest Hair

Chest hair will prevent the pads adhering to the skin and will interfere with electric contact. Clip with scissors but do not shave coarse or dense chest hair unless absolutely necessary. Do not delay defibrillation if scissors or a razor is not immediately available.

Pad Positioning

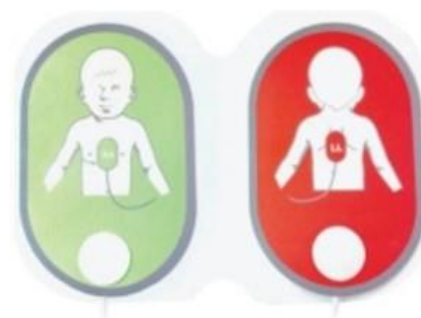
Recent studies have found that the position of the pad on the lower chest can affect the effectiveness of the shock. Ensure the pad is placed around the side of the chest (not on the front) and placed as per manufacturer's instructions. This ensures the maximum electricity flows through the heart rather than across the chest surface.



AED Use on Children

Normal 'adult' AED pads may be used for a child older than 8 years if Paediatric pads are not available. If using the Adult AED pads on children, make sure that there is no contact between the AED pads, you may place a pad over the shoulder to ensure a gap between pads but avoid the neck area. If necessary, place the pads in the "Anterior-Posterior" position.

Smaller pads that reduce the current delivered are available for children aged 1 to 8. These should be used for that age range where available and place in the same manner as the Adult AED pads or if the pads would be too close or overlap, they should be placed in the "Anterior-Posterior" position. If the child is older than 1 year and you only have adult pads, use adult pads and follow the AED prompts. The use of adult pads on a child under 1 year is not recommended, however use Paediatric pads for infants (less than 1 year) if necessary. Paediatric pads are designed to be placed in the same location as adult pads. Always follow the diagrams on the pads to ensure correct placement,



AED Safety Considerations

Electrical Shock

Recent tests have shown that if the patient's chest is dry and the pads are stuck to the chest correctly, the risk of electric shock is very low, because the electricity only wants to travel from one pad to the other, not to 'earth' like mains electricity. To be extra safe however, briefly check that nobody is touching the patient before delivering a shock,

DO NOT delay defibrillation because the patient is on a wet or metal surface – providing the chest is dry it is safe to deliver the shock.

Medication Patches

Some patients wear a patch to deliver medication (such as a nicotine patch). Some heart patients wear a 'glyceryl tri-nitrate' (GTN) patch. This type of patch can explode if electricity is passed through it, so remove any visible medication patches as a precaution before delivering the shock.

Highly Flammable Atmosphere

There is a danger of the AED creating a spark when the shock is delivered, so it should not be used in a highly flammable atmosphere (in the presence of petrol fumes for example).

Jewellery

Take care not to place the pads over jewellery such as a necklace. This would conduct the electricity and burn the patient. There is no need to remove pierced jewellery but try to avoid placing pads over it.

Implanted Devices

Certain heart patients may have a pacemaker or defibrillation implanted. You can often see or feel them under the skin when the chest is exposed and there may be a scar. They are usually implanted just below the left collar bone, which is not in the way of the AED pads, but if a device has been implanted elsewhere, avoid placing the pad directly over it.

Inappropriate Shock

AEDs are proven to analyse heart rhythms extremely accurately, however the patient needs to be motionless whilst the AED does this. Do not use an AED on a patient who is fitting (violent jerking movements) and ensure vehicle engines or vibrating machinery are switched off whenever possible.

Section 6 – Unconsciousness

The Main Causes of Unconsciousness

Some of the common causes of unconsciousness can be remembered by using 'FISH SHAPED'. Each of these causes are dealt with individually elsewhere in this.

F – Fainting

I - Imbalance of heat

S- Shock

H- Head Injury

S- Stroke

H- Heart Attack

A – Asphyxia

P – Poisoning

E – Epilepsy

D – Diabetes

Assess Level of Response

In order to accurately measure a person's conscious level, we can use a scale of consciousness call the 'AVPU' scale:

Alert – The casualty is full alert

- They are responsive and full orientated (a casualty in this category will usually know what month it is).

Voice – The casualty responds to your voice

- The casualty may not be fully orientated but opens their eyes or squeezes your hands when asked. The casualty may only grunt or move a limb.

Pain – the casualty responds to painful stimuli

- The patient responds to painful stimuli such as pinching an earlobe, again this may only be a slight response such as a groan or movement.

Unresponsive – Unresponsive

- The casualty is unresponsive to pain and speech.

We use a mnemonic to assist with measuring the AVPU scale – COWS:

C – Can you hear me? O – Open your eyes? W – What's your name? S – Squeeze my hands.

Does the casualty respond? If not, they are 'unresponsive' and you should check 'Signs of Life' such as Colour, Movement, Normal Breathing.

The Australian Resuscitation Council state that assessing a collapsed persons response should not cause or aggravate any injury and that if a casualty is not alert, does not respond to voice commands or gives only a minor response such as groans without opening their eyes, they should be managed as unresponsive, therefore the P in AVPU should be used as a reference tool rather than an assessment tool.

Primary Survey

When you check for Danger, Response, Airway and Breathing this is called the 'Primary Survey'. This can be found in the 'resuscitation' section of this manual. The primary survey ensures that the patient is breathing, so it should be carried out first. Once you are sure that the patient is breathing effectively, it is safe to move on and carry out a secondary survey.

Secondary Survey

If a casualty is unconscious and you are concerned about the airway for any reason (e.g. vomiting), place them in the recovery position immediately. The Secondary Survey should be done quickly and systematically, first checking for major bleeding and then broken bones.

Bleeding

- Do a quick head to toe check for bleeding
- Check the hidden area such as under the arch of the back
- Control any major bleeding that you find

Head and neck

- Clues to injury could be bruising, swelling, deformity or bleeding
- Check the whole head and face
- Feel the back of the neck
- Has the patient had an accident that might have injured the neck?

Shoulders and chest

- Place your hands on opposite shoulders and compare them
- Run your fingers down the collar bones checking for signs of a fracture
- Gently squeeze and rock the ribs

Abdomen and pelvis

- Push the abdomen with the palm of your hand to check for abnormality or response to pain.
- Look for incontinence or bleeding
- NEVER squeeze or pock the pelvis

Legs and arms

- Feel each leg for the signs of a fracture
- Feel each arm for the signs of a fracture
- Look for other clues (Medic Alert bracelets, needle marks etc)
- Ask the victim to reach up to squeeze your hands (note any difference in strength)

Medic Alert: is a piece of jewellery, usually a bracelet or pendant that describes the persons medical condition, allergies, and medications.

Pockets

- Look for clues and make sure nothing will injure the patient as you roll them into the recovery position
- Have a witness if you remove items from pockets
- Be very careful if you suspect there could be sharp objects such as needles
- Loosen any tight clothing

Recovery

- Place the patient in the recovery position
- If you suspect neck injury, get someone to help you keep the head in line with the body as you turn the patient
- Check the back for bleeding and fractures
- Be careful not to cause further damage to any suspected injuries.

Mechanism of Injury

Before you move a patient, it is important to consider the 'mechanism of injury'.

This involves trying to work out what happened and what injuries this could have caused the patient.

- If you suspect spinal injury, get someone to help you keep the head in line with the body at all times.
- If you have to use the recover position, try not to move any suspected injuries.

The Recovery Position

When an unconscious person is lying on their back, there are 3 main dangers that can compromise the airway:

The Tongue: Blocking the back of the throat

Vomit: if the patient is sick

By placing the casualty in the recovery position, the tongue won't touch the back of the throat. If the casualty is sick, the vomit will run out of the mouth and keep the airway clear. Loose dentures may cause an airway obstruction and should be removed. Secure dentures should be left in place.

Step 1

- Remove the casualty's glasses
- Kneel beside the casualty and make sure that both their legs are straight
- Make sure the airway is still open (head tilt, chin lift)

Step 2

- Place the arm nearest to you, out at a right angle to the body, elbow bent with palm uppermost.
- Bring the casualty's arm far across the chest and hold the back of that hand.

Step 3

- With your other hand, grasp the far leg just above the knee, and pull it up, keeping the foot on the ground.
- Keeping the casualty's hand pressed against their cheek, pull on the leg to roll them towards you, onto their side.

NEVER place anything in an unconscious casualty's mouth.

NEVER move a casualty without checking them first.

Step 4

Adjust the upper leg so that the hip and knee are bent at right angles.

- Tilt the head back to make sure the airway remains open.
- Call 000 for an ambulance if this has not already been done.
- Check breathing regularly. Monitor the pulse in the lower arm (radial) if possible.
- If the casualty is in the recovery position for a long period of time, turn them onto their opposite side every 30 minutes.

NEVER place a pillow under the head whilst the casualty is on their back.

NEVER move the casualty unnecessarily.



Serious Head Injuries

Any head injury is potentially a very serious condition. Injuries to the head often lead to unconsciousness, which in turn compromises the airway. Permanent damage to the brain may result from a head injury.

It is important to remember that any patient with a head injury may also have a spinal injury to the neck.

Three conditions that may be present with head injuries are concussion, compression, and fractured skull:

Concussion

Concussion is a condition caused by 'shaking' of the brain.

The brain is cushioned within the skull by 'cerebro-spinal fluid', so if the head receives a blow, the brain can bounce from one side to the other causing widespread disruption to its normal functioning. The casualty may become unconscious for a short period (usually less than 3 minutes), after which the levels of response should improve.

The casualty should recover completely if no complications are present.

Compression

Compression is a very serious condition, because the brain is placed under extreme pressure, caused by bleeding, or swelling in the cranial cavity. The cause of compression can be from a skull fracture or head injury, but can also occur from illness, such as ruptured blood vessel (a type of stroke), a brain tumour or infection (such as meningitis).

Fractured Skull

A skull fracture is serious because the broken bone may directly damage the brain, or cause bleeding, which in turn results in compression. Suspect a skull fracture with any patient who has received a head injury, especially if the patient has lowered levels of response.

Possible Signs and Symptoms

Concussion

Possibly unconscious for a short period, followed by an improvement in levels of response and recovery.

- Short term memory loss (particularly of the incident).
- Confusion, irritability.
- Mild, general headache.
- Pale, clammy skin.
- Shallow / normal breathing
- Rapid, weak pulse (blood diverts away from the extremities)
- Normal pupils, reacting to light.
- Possible nausea or vomiting on recovery.

Compression

Could have a history of recent head injury with apparent recovery, but then deteriorates.

- Levels of response become worse as condition develops.
- Intense headache.
- Flushed, dry skin.
- Deep, noisy, slow breathing (pressure on breathing area of the brain).
- Slow, strong pulse (caused by raised blood pressure).
- One or both pupils may dilate as pressure increases on the brain.
- Condition becomes worse. Fits may occur. No recovery.

Fractured Skull

The patient may also suffer from concussion or compression, so those signs and symptoms might be present.

- Bleeding, swelling, or bruising of the head.
- Soft area or depression on the sculp.
- Bruising around one or both eyes.
- Bruising or swelling behind the ear.
- Bleeding or fluid coming from an ear or the nose.
- Deformity or lack of symmetry to the head.
- Blood in the white of the eye.

Treatment of Serious Head Injury

Warning! A patient suffering from a head injury may also have a neck injury, so treat the patient with care and maintain spinal alignment.

- **Dial 000 for an ambulance** if the casualty has been unconscious, their levels of response deteriorate, or you suspect fractured skull.
- Maintain Airway and Breathing
- If the casualty is unconscious and breathing, use the law thrust method to keep the airway open, because this doesn't move the neck.
- If you can't keep the airway clear using the jaw thrust method, place the patient in the recovery position. Keep the head, neck and body in line as you turn the patient.
- If the casualty is conscious, help them to lie down. Keep the head, neck and body in line in case there is a neck injury.
- Control any bleeding by applying gentle pressure around the wound, but if there is bleeding or discharge from an ear, don't try to plug the ear or stop it bleeding. Place the casualty in the recovery position injured side down, with pad under affected ear.
- Look for and treat any other injuries.

Useful tips for head injury treatment:

- Constantly monitor and record breathing, pulse and the levels of response. Even if the casualty appears to recover, watch out for a subsequent reduction in levels of response.
- Make sure that a concussed casualty who recovers is not alone for the next few hours. Advise them to see a doctor as soon as possible.
- Advise the patient to go to hospital immediately if they suffer from a headache, nausea, vomiting or excessive sleepiness in the next few days,
- Don't allow a concussed sports player to 'play on' until they have seen a doctor.

Stroke

There are two types of strokes. The most common is caused by a blood clot, blocking a blood vessel supplying part of the brain. The other is caused if a blood vessel in the brain ruptures, resulting in an area of the brain being 'squashed' by the pressure of the blood.

In either type of stroke, the signs and symptoms are very similar, and an area of the brain will die. A stroke can happen to a person of any age.

Possible Signs and Symptoms

If you suspect stroke, you should carry out the '**FAST**' test:

F – Facial Weakness – can the person smile? Has their mouth or eye dropped?

A - Arm Weakness – can the person raise both arms?

S – Speech Problems – can the person speak clearly & understand what you say?

T – Time to call 000 – if they fail any part of the test.

Treatment of stroke

- Maintain Airway and Breathing
- **Dial 000 for an ambulance**
- Place an unconscious casualty in the recovery position, wipe away saliva.
- Lay the conscious casualty down, with head and shoulders raised.
- Reassure the casualty – do not assume that they don't understand.
- Monitor and record breathing, pulse and levels of response.

Hypoxia

The medical term 'hypoxia' means 'low oxygen in the blood'.

A low level of oxygen in the blood is potentially fatal, so it is very important that the First Aider recognises the signs and symptoms of this condition and takes immediate action to treat the casualty.

The cause of hypoxia can be separated into 5 areas:

External causes:

Not enough oxygen in the surrounding air, such as:

- Suffocation by gas or smoke
- Suffocation by sand, earth or a pillow etc.
- Drowning
- High altitude.

Airway causes:

Blockage, swelling or narrowing. Caused by:

- The tongue
- Strangulation
- Vomit
- Hanging
- Choking
- Anaphylaxis
- Burns

Breathing causes:

Inability of the lungs to function properly. Caused by:

- Crushing of the chest
- Poisoning
- Collapsed lung
- Asthma
- Chest injury
- Disease of illness

Circulation causes:

Inability of the blood to take up oxygen, a fall in blood pressure, or failure to circulate the blood around the body. Caused by:

- Heart attack
- Severe bleeding
- Cardiac arrest
- Poisoning
- Angina
- Anaemia

Section 7 – Airway and Breathing Problems

Positional Asphyxia

Positional Asphyxia is most simply defined as when a person's body position interferes with respiration, resulting in death from asphyxia or suffocation. Any body position that obstructs the airway or that interferes with the muscular or mechanical components of respiration may result in positional asphyxia.

As first aiders we may be exposed to positional asphyxia when attending the scene of a motor vehicle accident, whereby an unconscious victim's airway is obstructed by their head slumped forward. First aiders may encounter an intoxicated person that has fallen into a small space in a toilet, and due to their reduced level of consciousness they may be unable to physically remove themselves, their body position compromises their breathing and results in asphyxia. Many examples can be illustrated but it is important to realise that any first aider may encounter this silent killer.

Restraint Asphyxia in Security

Restraint Asphyxia is death that occurs due to positional asphyxia caused by:

- Physical restraint, where a person's freedom of movement is prevented by another person's hands and/or other body parts.
- Mechanical restraint whereby a person's freedom of movement is prevented by use of mechanical restraint such as handcuffs, Velcro type ties or even adhesive tape.

Risk Factors

Security personnel should be aware of the type of people who are at greatest risk and how quickly a person's health may deteriorate when restraint methods are required to resolve a conflict situation.

Factors that contribute to Restraint Asphyxia Deaths include:

- Obesity
- Drug or alcohol use causing altered conscious states
- Psychosis from Mental Health Illness
- Pre-existing Medical Conditions such as respiratory or heart conditions

Security Example

Stage 1 Initial Contact: An individual demonstrates intoxicated, drug affected or irrational behaviours with violence or aggression. This altered level of consciousness with exertional behaviour is usually referred to as a state of "excited delirium" and causes extreme total body exhaustion.

Some states of excited delirium are the result of alcohol and/or drug use. However, states of excited delirium can also be produced by post ictal states (after seizures), diabetic hypoglycaemia, head trauma, excited manic-depression, or excited schizophrenic episodes.

Persons with excited post-seizure or low blood sugar episodes, or person with acute head injuries, can experience total body exhaustion in just a few minutes.

Persons with chronic diseases or obesity can become exhausted much faster than otherwise "healthy" individuals, when experiencing excited delirium.

Stage 2 Intervention: Security staff attempt verbal de-escalation strategies, however if this fails, restraint is initiated. If a struggle takes place, the individual experiences additional energy expenditure while wrestling with staff.

Staff often apply prone restraint techniques, sometimes with one or more persons pressing hard on the individuals back and/or hips. This force immediately impedes the exhausted individual's ability to breathe. An obese person's ability to breathe is further compromised by their large abdomen being forced upward, restricting their diaphragm and inhalation.

Stage 3 Continued Struggle: The restrained individual may persist in their forceful and violent attempts to defeat and escape restraint. In fact, they may just be fighting for their life.

At this point, the energy required to fuel the individual's muscular ability to breathe is dramatically reduced. The forcefully prone individual becomes lethally exhausted within seconds. They can enter respiratory arrest, closely followed by cardiac arrest.

Air is drawn in through the mouth and nose where it is warmed, filtered and moistened.

Air then travels through the throat and past the epiglottis (the protective flap of skin that folds down to protect the airway when we swallow).

Air now enters the larynx (more commonly known as the voice box or 'Adam's apple').

It passes between the vocal cords in the larynx and down into the trachea. The trachea is protected by rings of cartilage that surround it to prevent kinking.

The trachea divides into two 'bronchi' that supply air to each lung. The bronchi then divide into smaller air passages called 'bronchioles'.

At the end of the bronchioles are microscopic air sacs called 'alveoli'.

The walls of the alveoli are only one cell in thickness, so oxygen can pass through into the blood, which is carried in capillaries that surround the alveoli.

Carbon dioxide (a waste gas from the body) passes from the blood into the alveoli and is then breathed out.

The trachea, bronchi and lungs are contained in the 'thoracic cavity' in the chest.

To draw air down into the thoracic cavity, the diaphragm flattens, and the chest walls move out. This increases the size of the thoracic cavity, creating a negative pressure which draws air in.

Each lung is surrounded by a two layered membrane called the 'pleura'. Between the two layers of the pleura is thick layer of 'serious' fluid, which enables the chest walls to move freely.

The thoracic cavity is protected by the ribs, which curl around from the spine and connect to the sternum (breastbone) at the front of the body.

Choking

One of the most successful skills that can be learned by the first aider is the treatment of a casualty who is choking.

Objects such as food, sweets or small objects can easily become lodged in the airway if they are accidentally 'breathed in' rather than swallowed.

Possible signs and symptoms

- The patient is unable to speak or cough
- Grasping or pointing to the throat
- Distressed look on the face
- Congestion of the face initially
- Pale skin and cyanosis in later stages
- Unconsciousness in later stages

Chocking Adult or Child *(over 1 year)*

Firstly, encourage the patient to cough. If the choking is only mild, this will clear the obstruction and the patient should be able to speak to you.

If the obstruction is not cleared:

Back Blows

- Shout for help, but don't leave the patient yet.
- Bend the casualty forward so the head is lower than the chest. For a smaller child you can place them over your knee to do this.
- Give up to 5 firm blows between the shoulder blades with the palm of your hand. Check between blows and stop if you clear the obstruction.

If the obstruction is still not cleared:

Chest Thrusts

- Chest thrusts may be delivered with casualty sitting, standing or supine.

- Chest thrusts are similar to the chest compressions used in CPR however they are delivered in a shorted sharped manner.

Repeat Steps 1 and 2

- Keep repeating steps 1 and 2.
- If the treatment seems ineffective, shout for help. Ask someone to dial 000 for an ambulance, but don't interrupt the treatment whilst the patient is still conscious.

Chocking – Baby *(under 1 year)*

The baby may attempt to cough. If the choking is only mild, this will clear the obstruction – the baby may cry and should now be able to breathe effectively.

If the obstruction is not cleared:

Back Blows

- Shout for help, but don't leave the baby yet,
- Lay the baby over your arm, face down, legs either side of your elbow with the head below chest.
- Give up to 5 blows between the shoulder blades with the palms of your fingers. Check between blows and stop if you clear the obstruction.



If the obstruction is still not cleared:

Chest Thrusts

- Turn the baby over, chest uppermost (by laying them on your other arm) and lower the head below the level of the chest.
- Using two fingers on the chest, give up to 5 chest thrusts. These are similar to chest compressions, but sharper in nature and delivered at a slower rate. Check between thrusts and stop if you the obstruction.

Repeat Steps 1 and 2

- Keep repeating steps 1 and 2.
- If the treatment seems ineffective, shout for help. Ask someone to dial 000 for an ambulance, but don't interrupt the treatment yet.

If the casualty becomes unconscious:

- Support the casualty carefully to the ground (or a firm flat surface for a baby).
- START CPR
- Continue CPR until the child starts breathing normally on its own, help arrives to take over or you become exhausted.

Anaphylaxis

Anaphylaxis is an extremely dangerous allergic reaction. The name 'anaphylaxis' means 'without protection' and indeed, the condition is caused by a massive over-reaction of the body's protection (immune) system.

Severe anaphylactic reactions are very rare. The most common reactions are to drugs (such as penicillin). Other common allergies are to things such as insect stings, peanuts, seafoods etc.

The main chemical that the immune cells release if they detect a 'foreign protein' is histamine. Histamine has several effects on the body when it is released in massive quantities:

- It makes blood vessels dilate
- It constricts the bronchioles in the lungs
- It makes blood capillary walls 'leaky', causing severe swelling and shock.
- It weakens the strength of the heart's contractions
- It makes the skin itchy
- It makes the skin come out in a rash

Possible Signs and Symptoms

The allergic reaction can happen in seconds, so fast recognition is essential:

Mild to Moderate Allergic Reaction

- Tingling of the mouth
- Hives, Red, blotchy skin eruption or welts
- Sudden swelling of the face, lips and eyes
- Nausea, vomiting, stomach cramps, diarrhoea.
- Itchy skin

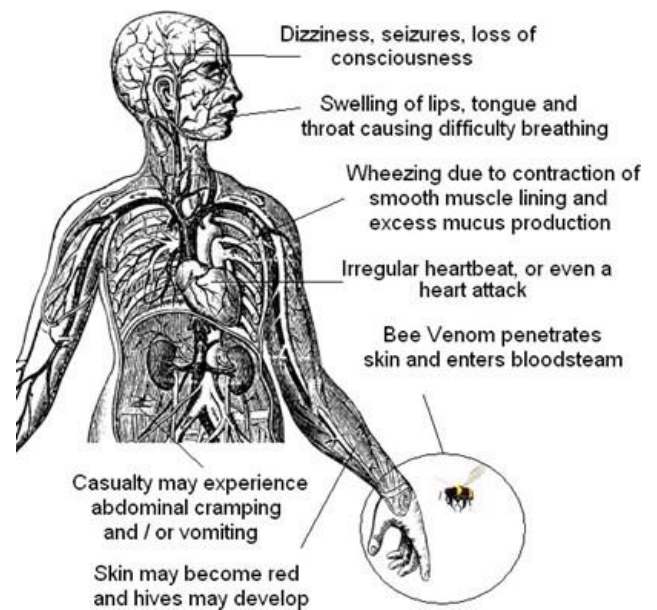
Severe Allergic Reaction – Anaphylaxis

- Difficulty talking, Hoarse voice, lump in throat' developing into loud pitched noisy breathing (which may stop altogether)
- Difficult, wheezy breathing, tight chest (the patient may have the equivalent of an asthma attack as well as a swollen airway)
- Rapid weak pulse
- Swelling of tongue, throat.
- Anxiety – a feeling of 'impending doom'.
- Loss of consciousness and/or collapse.
- Pale and floppy in young children

Treatment

- Dial 000 for an ambulance
- Prevent further exposure to the agent triggering the response if possible.
- Position the casualty in a comfortable position:
- If the casualty has Airway or Breathing problems, they may prefer to sit up as this will make breathing easier – assist with Asthma Medications and Oxygen if trained.
- Administer Adrenaline with EpiPen in line with patient's anaphylaxis treatment plan.
- Further adrenaline should be administered if there is no response after 5 minutes.
- **If the casualty feels faint however – do not sit them up.** Lay them down immediately. Raise the legs if they still feel faint.
- If the casualty becomes unconscious – check Airway and Breathing and resuscitate as necessary.

How Adrenaline Works



Adrenaline treats the effect of histamine and the symptoms of anaphylaxis by acting on alpha and beta receptors in the body. The effect of adrenaline on these receptors:

- Constricts blood vessels which increases blood pressure (alpha)
- Reduces blood vessel permeability which stops the 'leaking' and swelling (alpha)
- Relaxes and open the airway making it easier to breathe (beta)
- Stimulates the heart to beat faster and stronger (beta)

Asthma

Asthma is a condition caused by an allergic reaction in the lungs, often to substances such as dust, traffic fumes, or pollen. Muscles surrounding the bronchioles go into spasm and constrict, making it very difficult for the patient to breathe.

Most asthma patients carry medication around with them, usually in the form of an inhaler. Ask the patient, but usually the blue inhaler is for relieving the attack, dilating the bronchioles to relieve the condition.

As an asthma attack is a traumatic experience for the patient, especially a child, so reassurance and a calm approach from the first aider is essential. If the patient is not reassured and calmed down by the first aider, an attack can lead on to 'hyperventilation' after the inhaler has relieved the constricted airways.

Possible Signs and Symptoms

- Difficulty breathing.
- Wheezy breath sounds, originating from the lungs.
- Difficulty speaking (will need to take a breath in the middle of a sentence)
- Pale, clammy skin.
- Grey or blue lips and skin (cyanosis).
- Use of muscles in the neck and upper chest to help the casualty breathe.
- Casualty will become exhausted in a severe attack.
- May become unconscious and stop breathing in a prolonged attack.

Treatment

- Help the casualty to sit upright, leaning on table or chair if necessary.
- Help the casualty to use their reliever inhaler. This can be repeated every few minutes if the attack does not ease.
- Try to take the casualty's mind off the attack – be calm, reassuring and make light conversation.
- If the attack is prolonged, severe, appears to be getting worse, or the casualty is becoming exhausted; dial 000 for an ambulance.
- Cold winter air can make an attack worse, so don't take the casualty outside for fresh air!
- Keep the casualty upright – even if they become too weak to sit up on their own. Only lay an asthma attack patient down if they become unconscious.
- Be prepared to carry out resuscitation.

If the victim has a personal written action plan, then that plan should be followed.

Asthma First Aid

If a victim has any signs of a severe asthma attack, call an ambulance (Dial triple Zero – 000) straight away and follow the asthma first aid plan while waiting for the ambulance to arrive.

1. Sit the person comfortably upright.
Be calm and reassuring.
Do not leave the person alone.
2. Without delay give four (4) separate puffs of a 'reliever'.

The medication is best given one puff at a time via a space device. If a spacer is not available, simply use the puffer.

Ask the person to take four (4) breaths from the spacer after each puff of medication. Use the victim's own inhaler if possible. If not, use the first aid kit inhaler if available or borrow one from someone else.

The first aid rescuer should provide assistance with administration of a reliever if required.

3. Wait four (4) minutes.

If there is little or no improvement give another four (4) puffs.

4. If there is still no improvement, call an ambulance immediately – 000.

Keep giving four (4) puffs every four minutes until the ambulance arrives.

Hyperventilation

'Hyperventilation' means 'excessive breathing'. When we breathe in and out, there is only a trace of carbon dioxide in it. When we breathe out, we breathe out 4% carbon dioxide. Hyperventilating results in low levels of carbon dioxide in the blood, which causes the signs and symptoms of this condition.

A hyperventilation attack can often result from the patient being very anxious, from a panic attack or sudden fright. The condition of hyperventilation is often mistaken for 'asthma'. Asthmatics may hyperventilate after their inhalers have taken effect (opening airways).

Possible Signs and Symptoms

- Unnaturally deep, fast breathing and rapid pulse.
- A feeling of panic, anxiety or not being in control.
- Dizziness, faintness, shortness of breath.
- Feeling of a 'tight' chest.
- Flushed skin, no cyanosis.
- Pins and needles or cramping in the hands, arms, and feet.
- The patient may think they can't breathe
- If the attack is prolonged, the casualty may pass out and stop breathing or up to 30 seconds.

Treatment

- Be firm and calm but reassuring with the casualty.
- Move them to a quiet place away from the source of anxiety with few people around.
- Explain to the casualty that they are hyperventilating
- 'Coach' the casualty's breathing.
- Asking the patient to take tiny sips of water will reduce the number of breaths they can take.
- Breathing through the nose will reduce the loss of carbon dioxide, but the casualty will need lots of reassurance.
- Call 000 if the attack is prolonged or you are in doubt.

Drowning

Contrary to popular opinion, a casualty who drowns does not usually inhale large amounts of water into the lungs. 90% of deaths from drowning are caused by a relatively small amount of water entering the lungs, interfering with oxygen exchange in the alveoli (wet drowning). The other 10% are caused by muscle spasm near the epiglottis and larynx blocking the airway (dry drowning). The casualty will usually swallow large amounts of water, which might then be vomited as they are rescued, or resuscitation takes place.

It should be remembered that other factors may contribute to the cause of drowning – for example hypothermia, alcohol, or an underlying medical condition such as epilepsy or heart attack.

Treatment

- Do not put yourself at risk by attempting water rescue beyond your own swimming ability.
- 'Reach and throw – don't go'
- Remove person from water as soon as possible and give rescue breathing in water if immediate exit is impossible.

- Place victim in lateral position during initial assessment of airway and breathing.
- Check Airway and breathing – Perform CPR if necessary.
- Do not apply pressure to a distended abdomen.
- If spinal injury is suspected support the person in the water until experienced rescue personnel arrive or if impossible, remove gently from the water maintaining spinal alignment as much as possible.
- Dial 000 for an ambulance, even if the casualty appears to recover.

Collapsed Lung / Sucking Chest Wound

Each lung is surrounded by 2 layers of membrane called the 'pleura'. Between these 2 membranes is the 'pleural cavity', containing a very thin layer of 'serious fluid', which enables the two layers to move against each other as we breathe.

In a penetrating chest injury, where the outer layer of the pleura is damaged, air can be sucked from the outside of the chest into the pleural cavity, causing the lung to collapse (pneumothorax).

In a serious chest injury, the inner layer of the pleura could become perforated. Air may then be drawn from the lung into the pleural cavity, again causing the lung to collapse.

If air continues to be sucked into the pleura cavity but cannot escape, pressure in the collapsed lung can build (tension pneumothorax). This pressure build up can squeeze the heart and uninjured lung, making it difficult for both to function.

Possible Signs and Symptoms

- Severe difficulty breathing.
- Painful breathing.
- Pale, clammy skin
- Fast, shallow breathing.
- Cyanosis of lips and skin.
- Uneven chest movements – the injured side of the chest may not rise.

If there is a sucking chest wound:

- Sound of air being drawn into the wound, with bubbling blood.
- Crackling feeling of the skin around the injury (because of air entry)

Treatment

- Immediately cover a sucking chest wound with your hand (or the casualty's hand if they are conscious) to prevent air entry.
- Dial 000 for an ambulance – send someone to do this if possible.
- Place a sterile pad over the wound, then cover it with plastic, cling film, kitchen foil or other air tight covering.
- Tape the air tight covering on 3 sides (bottom side not taped). The dressing should prevent air from entering the wound, but still allow air to get out.
- If the casualty becomes unconscious: open the Airway, check Breathing and resuscitate if necessary. Place them in the recovery position with the injured side lowest. This will help to protect the uninjured lung.

Flail Chest

This is a condition where the ribs surrounding the chest have become fractured in several places, creating a 'floating' section of the chest wall. As the casualty breathes, the rest of the wall moves out, but the flail segment moves inward. As the chest wall moves back in, the flail segment moves outwards. These are called 'paradoxical' chest movements. Place padding over the flail area and place the arm on the injured side in an elevated sling.

Possible Signs and Symptoms

- Severe difficulty breathing
- Shallow, painful breathing
- Signs and symptoms of a fracture
- Paradoxical' chest movements.

Treatment

- Dial 000 for an ambulance
- Place the casualty in the position they find most comfortable – sitting up, inclined towards the injury if possible.

- Place large amounts of padding over the flail area.
- Place the arm of the injured side in an elevated sling. Squeeze the arm gently against the padding to provide gentle, firm support to the injury.

Hanging and Strangulation

Strangulation and hanging may be the result of an accident caused by clothing or equipment being caught in machinery or intentionally as an attempt at suicide.

Traumatic injuries occur to the cervical spine, throat, and airway of the victim.

Possible Signs and Symptoms

- Blue or mottled skin.
- Swelling of face.
- Deep marks around the neck.
- Severe shortness of breath in the conscious victim.

Management

Quick removal from the constriction around the victims' neck is vital for survival. If the casualty is hanging, support their weight and cut or untie the cord or rope. This is hazardous to the rescue so care should be taken not to injure themselves.

Commence resuscitation following the DRSABCD action plan if unconscious and not breathing.

Remember that spinal injury is likely in the event of hanging so care of the cervical spine is important although this does not take priority over CPR.

Window blinds and curtain cords should be fastened at a height to prevent toddlers and children reaching them and helping to prevent accidental hanging.

The trauma of finding a hanging victim is hard to describe and hopefully something that first aiders will never have to go through. Counselling should be sought if this occurs.

Suspension Trauma

Suspension trauma is said to affect victims suspended motionless above ground in a body harness for a prolonged period of time (between 5 and 30 minutes). If suspended motionless, blood pools in the legs, pelvis, and abdomen without being able to adequately return to the heart, unconsciousness may result and death follow.

Possible Signs and Symptoms

- Feeling faintness
- Shortness of breath
- Sweating
- Pale skin
- Nausea
- Dizziness, lightheaded
- Low blood pressure
- Unconsciousness

Management

- Call for an ambulance (Dial 000)
- If unconscious, follow DRSABCD action plan.
- Rest the conscious victim in a position of comfort, ideally lying down, and provide reassurance.
- Loosen or remove harness
- Administer oxygen if available
- During secondary survey look for and manage associated injuries, but particularly victims who may have fallen or been electrocuted.
- Monitor vital signs (Breathing rate/depth, heart rate, skin colour, and blood pressure if trained).

Section 8 – Circulation Problems

The Circulatory System

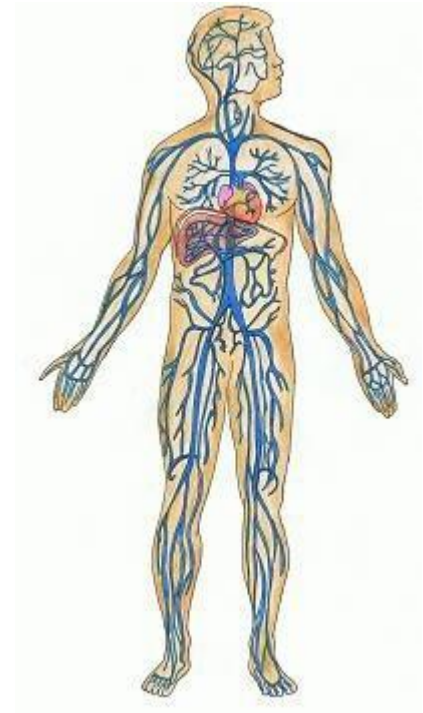
The circulatory system consists of a closed network of tubes (arteries, veins and capillaries) connected to a pump (the heart).

Arteries – Carry blood *away* from the heart. They have strong, elastic, muscular walls which are able to expand as blood from the heart beating surges through. The largest artery, which connects directly to the heart, is called the 'aorta'.

Veins – Carry blood *towards* the heart. They have thinner walls than arteries because blood in them is under less pressure. They have one-way valves, which keep blood flowing towards the heart. The largest veins, which connect to the heart are called 'vena cava'.

Capillaries – Are the tiny blood vessels between the arteries and veins which allow the transfer of oxygen, carbon dioxide and nutrients in and out of the cells of the body.

The Heart – Is a four-chambered pump. The left and right sides of the heart are separate. The *left* side takes blood from the lungs and pumps it around the body. The *right* side takes blood from the body and pumps it to the lungs. The two sides of the heart are separate into two chambers called the 'atria' and the 'ventricles'. The *atria* are the top chambers which *collect blood* as it returns from the lungs and the body and pump it to the *ventricles*. The *ventricles* then pump the blood *out of the heart*, to the lung and around the body.



The Blood

60% of the blood consists of a clear yellow fluid called plasma. Suspended within the plasma are red blood cells, white blood cells, platelets, and nutrients.

Red Cells – Contain haemoglobin, which carries oxygen for use by the cells of the body. Red cells give the blood its colour.

White Cells – Fight Infection.

Platelets – Trigger a complicated chemical reaction if a blood vessel is damaged, forming a clot.

Nutrients – Are derived from the food by the digestive system. When combined with oxygen in the cells of the body, they provide vital energy, keeping the cell alive.

- The blood carries carbon dioxide (the waste produced by the cells) mainly in the form of 'carbonic acid'. Carbonic acid is diluted within the plasma.
- The blood also circulates heat (generated mostly by the liver) around the body. Heat is carried to the skin by the blood if the body needs to be cooled.

The Pulse

Every time the heart contracts a pulsation is pumped through the arteries. The walls of the arteries are elastic and expand as the blood flows rhythmically through. This expansion can be felt at the points where arteries come close to the skin. When checking a pulse use the pads of the fingers, not the thumb (which has its own pulse).

The first aider should make a note of the following:

Rate – Is it fast or slow? How many beats are there per minute?

Rhythm – Are the beats regular? Are there any 'missed' beats?

Strength – Does the pulse feel strong?

The main pulse locations for first aid use are in the neck (carotid pulse), the wrist (radial pulse) and the upper arm (brachial pulse).

Capillary Refill

Circulation to the end of an arm or leg can be checked by squeezing the tip of a finger or toe. The skin will become pale when it is squeezed – If the circulation is effective, the colour should return within two seconds of releasing it (this may take longer if the hands or feet are cold).

Angina

Angina (angina pectoris) is a condition usually caused by the build-up of a cholesterol plaque on the inner lining of a coronary artery. Cholesterol is a fatty chemical which is part of the outer lining of cells in the body. A cholesterol plaque is a hard, thick substance caused by deposits of cholesterol on the artery wall. Over time, the build-up of the plaque causes narrowing and hardening of the artery.

During exercise or excitement, the heart requires more oxygen, but the narrowed coronary artery cannot increase the blood supply to meet this demand. As a result, an area of the heart will suffer from a lack of oxygen. The patient will feel pain in the chest (amongst other symptoms) as a result.

Typically, an angina attack occurs with exertion, and subsides with rest. If the narrowing of the artery reaches a critical level, angina at rest (called 'unstable angina') may result. A patient with angina, especially unstable angina has a high risk of suffering a heart attack in the near future.

Heart Attack

Heart attack (myocardial infarction) is often caused when the surface of a cholesterol plaque in a coronary artery crack and has a 'rough surface'. This can lead to the formation of a blood clot on the plaque, which completely blocks the artery resulting in the death of an area of the heart muscle.

Unlike angina, the death of a heart muscle from heart attack is permanent and will not be relieved by rest.

Possible Signs and Symptoms

It should be remembered that every heart attack is different. Only a few of the signs and symptoms may be present, indeed many heart attacks suffered are 'silent' without any chest pain. Women, diabetics, the elderly, Indigenous Australians, Maori, and Pacific Islanders may have a non-typical chest pain, so it is important that these people have urgent medical assessment even with the mildest signs.

PQRST of Chest Pain

Provoking factors: What actually caused the pain? Walking, exertion or was the person at rest.

Quality: What does it feel like? Sharp, stabbing, heavy, hot, squeezing.

Radiation/Region: Where is the pain? Where does it go? Centre of chest, arm, jaw, shoulder.

Severity: How much does it hurt out of 10? 10/10 being excruciating and 1/10 being mild.

Time of Onset: What time did it start? Is it continuous or intermittent?

Treatment of Angina and Heart Attack

Ask the patient to "take a deep breath".

Cardiac Chest pain generally will not cause increased pain on deep inspiration.

- Sit the casualty down and make them comfortable.
- Do not allow them to walk around. A half sitting position is often the best.
- Allow the casualty to take their own glyceryl trinitrate (G.T.N.) medication if they have it.
- Call 000 for an ambulance.
- Assess the casualty's pain level using PQRST mnemonic above.
- Reassure the casualty. Remove any cause of stress or anxiety if possible.

- According to The Australian Resuscitation Council guidelines if you suspect heart attack and you can positively rule out anaphylaxis or a bleeding disorder it is reasonable to administer 1 chewable aspirin tablet (300mg). This may help reduce further clotting at the area of infarction.

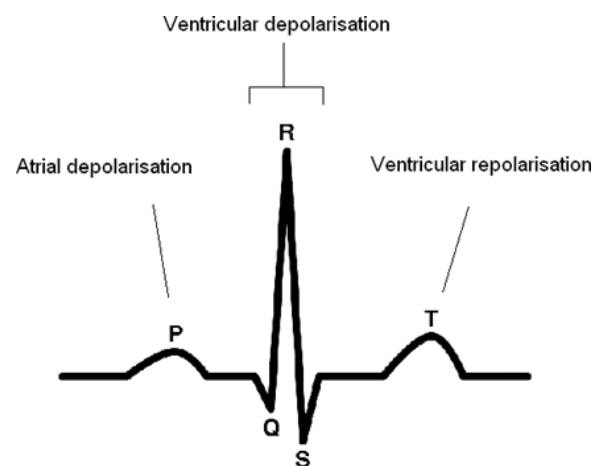
Left Ventricular Failure

Left ventricular failure (LVF) is a condition where the left ventricle of the heart is not powerful enough to empty itself. The right chamber of the heart is still working properly and pumping blood into the lungs. This results in 'back pressure' of blood in the pulmonary veins and arteries of the lungs. Fluid from this back pressure of blood seeps into the alveoli causing severe difficulty in breathing.

This condition can be caused by heart attack, chronic heart failure or high blood pressure. Patients with chronic heart failure often suffer attacks during the night.

Possible Signs and Symptoms

- Severe difficulty breathing
- Crackly often wheezy breathing (fluid on the lungs)
- Pale sweaty skin
- Cyanosis (blue grey tinges to skin and lips)
- Coughing frothy, blood-stained sputum
- Possibility of the signs and symptoms of heart attack.
- The patient needs to sit up to breathe.
- Anxiety, confusion, dizziness.



Treatment

- Sit the patient up, feet dangling.
- Reassure the victim.
- Dial 000 for an ambulance
- Allow the patient to take their own glyceryl trinitrate (G.T.N.) medication if they have it.
- Be prepared to resuscitate – the condition can quickly deteriorate

Shock

To most people the word shock means an unpleasant surprise, an earthquake or what happens if you mess about with electrics.

The medical term is defined as 'inadequate tissue perfusion, caused by a fall in blood pressure or blood volume.'

'Inadequate tissue perfusion' mean an inadequate supply of oxygenated blood to the tissues of the body.

Now that you understand what shock is, you can understand why it can quickly result in death if not treated.

The more common causes of 'life threatening' shock are:

- Hypovolaemic Shock
- Cardiogenic Shock
- Anaphylactic Shock
- Distributive Shock
- Obstructive Shock

Hypovolaemic Shock

Hypo – mean low, vol – means volume, aemic – means blood.

This type of shock is caused by loss of body fluids, which results in a low volume of blood.

Typical causes of hypovolaemic shock are:

- External bleeding
- Internal bleeding including major or multiple fractures and severe trauma
- Burns or scalds
- Vomiting and diarrhoea
- Excessive sweating and dehydration

Possible Signs and Symptoms

The first response is release of adrenaline – this will cause:

- A rise in pulse rate
- Pale, clammy skin.

As the condition worsens:

- Fast, shallow breathing.
- Nausea or vomiting.
- Rapid, weak pulse.
- Dizziness, weakness.
- Cyanosis (grey blue tinges to skin and lips)
- Sweating.

As the brain suffers a lack of oxygen:

- Deep, sighing breathing (air hunger)
- Unconsciousness
- Confusion, anxiety, even aggression.

Treatment

- Treat the cause of shock (e.g. external bleeding)
- Lay the casualty down flat, returning blood to the vital organs (take care if you suspect a fracture) and reassure the casualty.
- Dial 000 for an ambulance
- Keep the casualty warm. Use coats and blankets – place a blanket under the patient if they are on a cold surface. (Do not use hot water bottles or direct heat – this will dilate blood vessels causing the blood pressure to fall even more).
- Loosen tight clothing around the neck, chest, or waist.
- Monitor breathing, pulse, and levels of response.
- Be prepared to resuscitate.

Cardiogenic Shock

This is a fall in the blood pressure, caused by the heart not pumping effectively. This is the most common type of shock.

Typical causes of cardiogenic shock are:

- Heart attack
- Cardiac failure
- Heart valve disease
- Cardiac arrest.

Possible Signs and Symptoms

- Severe difficulty breathing
- Crackly or wheezy breathing (fluid on the lungs)
- Pale, sweaty skin
- Cyanosis (blue grey tinges to skin and lips)
- Coughing frothy, blood-stained sputum
- Possibility of the signs and symptoms of heart attack.
- The patient needs to sit up to breathe.

- Anxiety, confusion, dizziness.

Anaphylactic Shock

Anaphylaxis is an extremely dangerous allergic reaction caused by a massive over-reaction of the body's immune system.

- Blood vessels dilate (causing a fall in blood pressure)
- Blood capillary walls become 'leaky' (causing a fall in blood volume)
- The strength of the heart's contractions weaker (causing a fall in blood pressure)

Distributive Shock

Abnormal dilation of the blood vessels

- Severe infection
- Sever brain / spinal injuries
- Allergic reactions

Obstructive Shock

Blockage of blood flow in or out of the heart.

- Tension pneumothorax
- Cardiac tamponade
- Pulmonary embolus

Fainting

Fainting is caused by poor nervous control of the blood vessels and heart.

When a casualty faints, the blood vessels in the lower body dilate and the heart becomes slow. This results in the blood pressure falling and the patient has a temporary reduction in blood supply to the brain.

Typical causes of fainting are:

- Pain or fright
- Emotional stress
- Long periods of inactivity (such as standing or sitting)
- Lack of food
- Heat exhaustion

Possible signs and Symptoms

- Temporary loss of consciousness, falling to the floor.
- Slow pulse.
- Pale, clammy skin.
- Before the faint the casualty may have suffered nausea, stomach ache, blurred vision or dizziness.
- Quick recovery once supine or laying down with legs raised.

Treatment

- Lay the casualty down and raise their legs in the air, returning blood to the vital organs.
- Check Airway and Breathing.
- Remove causes of stress, crowds of people and allow plenty of fresh air.
- Reassure the casualty as they recover. Do not allow them to sit up suddenly.
- If they feel faint again, repeat the treatment.
- It is always advisable to call an ambulance for a fainting victim. A high percentage of faints are caused by cardiac or other medical condition that may or may not yet have been diagnosed.
- If the casualty does not recover quickly or you are unsure: check airway and breathing again, place them in the recovery position and dial 000 for an ambulance.

Section 9 – Wounds and Bleeding

Wounds and Bleeding

A wound can be defined as an abnormal break in the continuity of the tissues of the body. Any wound will to some extent result in bleeding, either internally or externally.

If blood loss is severe, this could result in shock, so urgent treatment would be necessary. This chapter deals with the different types of wounds, the complications that may occur and their treatment.

Types of wound and basic treatment

Contusion – A bruise. Caused by ruptured capillaries bleeding under the skin. This may have been the cause of a blunt blow, or by bleeding from underlying damage, such as a fracture.

- Coll the area with an icepack or running water as soon as possible.

Abrasion – A graze. The top layers of skin are scraped off, usually as the result of a friction burn or sliding fall. Often containing particles of dirt, which could cause infection.

- Dirt that is not embedded should be removed using clean water and sterile swabs.
- Clean from the centre of the wound outwards, so as not to introduce more dirt into the wound.

Laceration – A rip or tear of the skin. More likely to have particles of dirt than a clean cut, although usually bleeds less.

- Treat for bleeding and prevent infection.

Incision – a clean cut. Usually caused by a sharp object such as a knife. Deep wounds may involve complications such as severed tendons or blood vessels. This type of wound could 'gape open' and bleed profusely.

- Treat for bleeding and prevent infection.

Puncture – A stabbing wound. Could be as a result of standing on a nail or being stabbed. The wound could be very deep and yet appear very small in diameter. Damage may be caused to underlying organs such as heart and lungs and severe bleeding may occur.

- Dial 000 for an ambulance if you suspect damage to underlying organs or internal bleeding.
- Never remove an embedded object – it may be stemming bleeding and further damage may result if removed.

Gun Shot – Caused by a bullet or other missile, which may be travelling at such speed as to drive into and then exit the body. A small entry wound could be accompanied by a large 'crater' exit wound. Severe bleeding and damage to organs usually results.

- Dial 000 for police and ambulance.
- Treat Airway and Breathing problems first.
- Pack the wound with dressings and try to prevent bleeding.
- Treat for shock

Amputation – Complete or partial severing of a limb.

- Treat for bleeding and shock. Indirect pressure may be necessary to control the bleeding,
- Dial 000 for an ambulance.
- Dress wound with non-adherent, non-fluffy dressing.
- Wrap amputated part in a plastic bag, and then place the package into a pack of ice to preserve it.

De-gloved – Severing of the skin from the body, resulting in 'creasing' or a flap of skin, leaving a bare area of tissue. Caused by the force of the injuring object sliding along the length of the skin.



- Put the skin back in place if possible.
- Dial 000 for an ambulance.

Hygiene when dealing with wounds

- Protect yourself by covering your own cuts and abrasions with a waterproof dressing, especially on your arms of hands.
- Wear disposable protective gloves, glasses, and an apron when you are giving first aid.
- Use specialised cleaning agents for cleaning up body fluid spillages. Follow the instructions on the container and use disposable towels.
- Dispose of soiled dressings in a yellow 'clinical waste' bag. Destroy by incineration (send the bag to hospital with the casualty if you have no clinical waste facilities).
- Wash your hands thoroughly before and after dealing with a patient.
- If you regularly deal with body fluids, ask your doctor about vaccinations against Hepatitis 'B'.



Blood Loss

How much blood do we have?

The amount of blood in our bodies varies in relation to our size. A rough rule of thumb is that our blood volume is approximately 7% of our body weight, so the average adult has between 4.5 to 6.5 litres of blood, dependent on their size.

Remember that children have less blood than adults, and as such cannot afford to lose the same amount – a baby only has around 600ml of blood, so can only lose 200ml before the blood pressure falls.

Types of Bleeding

Arterial – Blood in the arteries is under direct pressure from the heart pumping and spurts in time with the heartbeat. A wound to a major artery could result in blood 'spurting' several metres and the blood volumes will rapidly reduce. Blood in the arteries is rich in oxygen and is said to be 'bright red', however this can be difficult to assess. The most important factor is how the wound bleeds.

Venous – Veins are not under direct pressure from the heart, but veins carry the same volume of blood as the arteries. A wound to a major vein may result 'ooze' profusely.

Capillary – Bleeding from capillaries occurs in all wounds. Although the flow may appear fast at first, blood loss is usually slight and is easily controlled. Bleeding from a capillary could be described as a 'trickle' of blood.

Effects of Blood Loss

The table below shows the effects, signs and symptoms of blood loss. Volumes of blood lost are given as a percentage, because we all have different amounts of blood.

As you can see, a loss of 30% of blood volume is critical – the patient's condition rapidly deteriorates from this point onwards. Blood vessels cannot constrict any further and the heart cannot beat any faster, so blood pressure falls, resulting in unconsciousness and then death.

- Any patient with blood loss over 10% should be treated for shock.

Treatment of External Bleeding

The aims of treatment for external bleeding are firstly to stop the bleeding, preventing the casualty from going into shock, and then to prevent infection.

S.E.E.P. will help you to remember the steps of treatment:

Sit or lay – sit or lay the casualty down. Place them in a position that is appropriate to the location of the wound and the extent of their bleeding.

Examine – examine the wound. Look for foreign objects and note how the wound is bleeding. Remember what it looks like, so you can describe it to medical staff when it's covered with a bandage.

Elevate – elevate the wound. Ensure that the wound is above the level of the heart, using gravity to reduce the blood flow to the injury.

Pressure – Apply direct or indirect pressure to stem bleeding.

Direct Pressure

The best way to stem bleeding is by applying direct pressure over the wound. Immediate pressure can temporarily be applied with the hands, however you should take precautions to prevent yourself from coming into contact with the patient's blood, preferably by wearing disposable gloves. The pressure should be continuous for 10 minutes. A firm bandage (not too tight as to stop circulation to the limb altogether!) is usually sufficient to stop bleeding from most minor wounds.

If there is an embedded object in the wound, you may be able to apply pressure at either side of the object.

If major bleeding continues it may be necessary to remove the pad/s to ensure that a specific bleeding area has not been missed. The aim is to press over a small area and thus achieve greater pressure over the bleeding point. For this reason, an unsuccessful pressure dressing may be removed to allow a more direct pressure pad and dressing to be applied to the bleeding location.

Tourniquet

As a last resort, when other methods of controlling bleeding have failed, a tourniquet may be applied to a limb to control life-threatening bleeding.

A wide bandage (of at least 5cm) can be used as a tourniquet high above the bleeding point. The bandage should be tight enough to stop all circulation to the injured limb and control the bleeding. The time of the application must be noted and passed on to emergency personnel. Once applied a tourniquet should not be removed until the victim receives specialist care.

A tourniquet should not be applied over a joint or wound and must not be covered up by any bandage or clothing.

Dressings

A dressing should be sterile and just large enough to cover the wound. It should be absorbent and preferably made of material that won't stick to the clotting blood (a 'non-adherent' dressing).

A firmly applied dressing is sufficient to stem bleeding from the majority of minor wounds, but the dressing should not restrict blood flow to the rest of the limb.

Extra pressure 'by hand' and elevation may be necessary for severe bleeding. If the dressing becomes saturated with blood, remove and put another dressing on the wound.

Embedded Objects

Embedded objects in a wound should not be removed. Use sterile dressings and bandages to 'build up' around the protruding object. This will apply pressure around the wound and support the object. Arrange for the casualty to go to the hospital to have the object removed.

Splinters

If a splinter is embedded deeply, difficult to remove or on a joint, leave it in place and follow the advice for embedded objects above.

Other splinters can be removed as follows:

- Carefully clean the area with warm soapy water
- Using a pair of clean tweezers, grip the splinter as close to the skin as possible. Gently pull the splinter out at the same angle that it entered.

- Gently squeeze around the wound to encourage a little bleeding. Wash the wound again, then dry and cover with a dressing.
- Seek medical advice to ensure the casualty's tetanus immunisation is up to date.

Objects embedded in the nose, ear or other orifice:

Do not attempt to remove anything that someone has got stuck in their ear, nose, or other orifice. Take them to hospital where the professionals can remove it safely.

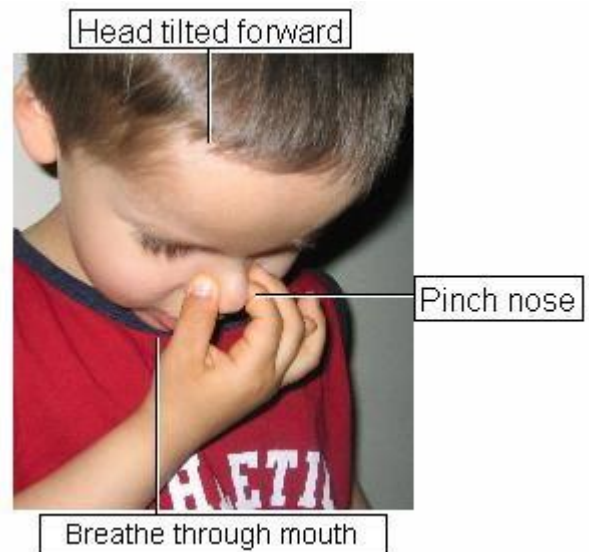
Nose Bleeds

Weakened or dried out blood vessels in the nose can rupture as a result of a bang to the nose, picking or blowing it. More serious causes could be high blood pressure or a fractured skull.

- Sit the patient down, head tipped forward to avoid blood flowing down the throat.
- Pinch the soft part of the nose below the bridge of the nose. Maintain constant pressure for 10 minutes.

(On hot days or after exercise, bleeding may take up to 20 minutes to stop)

- Tell the patient to breathe through the mouth.
- Apply a cold pack to the forehead and back of the neck.
- Give the patient a cloth to mop up any blood whilst the nose is pinched
- Advise the patient not to breathe through or blow their nose for a few hours after bleeding has stopped.
- If bleeding persists for more than 20 minutes, or if the patients take 'anticoagulant' drugs (such as warfarin), take or send them to hospital in an upright position.
- Advise a patient suffering from frequent nosebleeds to visit their doctor.



Ear Injury

Foreign objects can sometimes be lodged in the ear canal. Insects may find their way in and be a source of panic and frustration.

Removal is best done in hospital, however flushing with mineral oil and then water may remove the insect. Seek medical assistance if this is not successful.

Bleeding or fluid leakage from inside the ear can signify a skull fracture. The casualty may have an altered conscious state and have indications of head trauma.

- Place the victim in the side position injured side down.
- Place pad under injured ear to collect blood and fluid.
- Reassure victim and keep them warm.
- Assess conscious state and vital signs.
- Dial 000.

Eye Injury

Small particles of dust or dirt can be washed out of the patient's eye with cold tap water. Ensure the water runs away from the good eye.

Flash burns caused by welders' equipment often causes redness, grittiness and sensitivity to light.

- Rest and reassure the victim.
- Pad injured eye/s with cool damp eye pads.
- Seek medical assistance or call 000.

For a more serious eye injury:

- Keep the patient still and give them a soft sterile dressing to gently hold over the injured eye. This can be carefully bandaged in place later if necessary. Do not remove penetrating objects, pad, and bandage around the foreign object.
- Tell the casualty to close their good eye, because any movement of this will cause the injured eye to move also. If necessary, bandage the good eye to stop the patient using it. Lots of reassurance will be needed.
- Dial 000 for an ambulance.

For chemicals in the eye:

- Wash with copious amounts of clean water, ensuring the water runs away from the good eye.
- Dial 000 for an ambulance

Tooth Injury

A dislodged baby tooth can be replaced and does not need to be put back in. A permanent tooth, can often be saved in prompt action is taken and the tooth is handled with care. A permanent tooth has the best chance of survival if replaced within 30 minutes.

If a Permanent Tooth is Knocked Out:

- Hold the tooth by the crown (the top), not the root.
- Rinse the tooth immediately with saline or milk. Do not scrub the tooth.
- The best place to preserve the tooth on the way to the dentist is in its socket. If a child has been injured and is old enough not to swallow it, replace it gently, then have the child bite down on a gauze pad to keep it in place.
- If the tooth cannot be reinserted, place it in milk. Milk is a good preservative and is compatible with teeth.
- Give the casualty a gauze pad or handkerchief to bite down on, which will help lessen bleeding and ease the pain.
- If a tooth is broken, clean the debris from the injured area with warm water. If trauma to the jaw or mouth causes the injury, place a cold compress on the face next to the injured tooth to help minimise swelling.
- Find all the bits that are missing if possible, and take them to the dentist, keeping them moist. In some cases, broken bits can be bonded back onto the teeth almost invisibly.
- Prevention is much better than cure so when participating in contact sports, wearing a mouth guard fitted by your dentist can often prevent tooth loss.

Abdominal Injury

The liver is the most vulnerable abdominal organ to blunt injury because of its size and location (in the upper right quadrant of the abdomen). The liver is also vulnerable to penetrating trauma. Liver injuries present a serious risk for shock because the liver tissue is delicate and has a large blood supply and capacity. In children, most commonly injured abdominal organ. The liver may be lacerated or contused requiring emergency surgery to stop the bleeding.

Spleen

The spleen is the second most commonly injured intra-abdominal organ in children. A laceration of the spleen may be associated with hematoma (bruise). Because of the spleen's ability to bleed profusely, a ruptured spleen can be life-threatening, resulting in shock. However, penetrating trauma to the spleen, pancreas and kidneys do not present as much of an immediate threat of shock unless they lacerate a major blood vessel supplying the organs, such as renal artery. Fractures of the left lower ribs are associated with spleen laceration in around 20% of cases.

Pancreas

The pancreas may be injured in abdominal trauma, for example by laceration or contusion. Pancreatic injuries are most commonly caused by bicycle accidents (especially by impact with the handlebars) in children and vehicular accidents in adults.

Kidneys

The kidneys may also be injured as they are not completely protected by the ribs. Kidney injury, a common finding in children and blunt abdominal trauma, may be associated with bloody urine.

Bowel

The small intestine take up a large part of the abdomen ironically and is likely to be damaged in penetrating injury. The bowel may be perforated. Bowel perforation requires surgery.

Possible Signs and Symptoms

- History of injury.
- Wound may be present.
- Weak, rapid pulse.
- Cool, pale, clammy skin.
- Pain and guarding of abdomen in foetal position.
- Rigid (tight) abdomen.
- Shallow breathing.
- Signs of shock.

Treatment

- Dial 000 for an ambulance
- Stop any bleeding but Do Not Remove any protruding object, pad around the object to stabilise and support.
- If loops of intestine are visible (evisceration) cover with moist pad or other non-stick dressing such as cling wrap. No Not Replace organs.
- Place victim in position of comfort, laying with knees bent if possible.
- Keep victim warm and reassure but give nothing by mouth.
- Monitor signs of shock.

Amputation

Amputation is the complete or partial severing of a limb, and extremely traumatic for the patient. Modern microsurgery techniques now make the re-plantation of amputated limbs possible, however the majority of amputated body parts are still lost, so you should not make blind promises to a patient.

- Treat the casualty for bleeding and for shock. Indirect pressure may be necessary to control the bleeding.
- Dial 000 for an ambulance
- Dress the casualty's wound with a non-adherent, non-fluffy dressing.
- Wrap the amputated part in a plastic bag, ab the place the package onto a pack of ice to preserve it.

NEVER place an amputated body part directly into ice or water. The part should be wrapped in a plastic bag to keep it dry.

Crush Injury

Crush injuries result from an array of situations, from building side and industrial incidents to traffic accidents and even prolonged pressure of an arm under an immobile person's own body weight. If blood flow is impaired by the weight of a crushing object, there is a danger of toxins building up in the muscle tissues below the site of the compression. These toxins can build up to the extent that they may cause kidney, heart and other physiological problems. This is known as Crush Syndrome.

Crush Syndrome is directly related to how long the victim's body part has been compressed; therefore, all victims should be released as fast as possible regardless of how long they have been trapped.

Victims of crush injury can be alert and not have any outward signs of injury and may not complain of pain but can deteriorate quickly, therefore it is essential to reassess their vital signs and condition regularly.

Compressive forces to the head, neck and trunk should be removed immediately as the resultant asphyxia and heart failure may cause death.

Treatment

- Make sure that the scene is safe for the rescuer and bystanders
- Dial 000 for an ambulance
- Remove all crushing forces from the victim as soon as possible.
- Control any bleeding, reassure, and keep the victim warm.
- Monitor the victims conscious state and vital signs.
- Do not leave the victim unless it is to call an ambulance.
- If the victim becomes unconscious – open airway and check for breathing.
- Commence CPR if the victim is unresponsive and not breathing normally.

NEVER use a tourniquet for the first aid treatment of a crush injury.

Internal Bleeding

Internal bleeding is a very serious condition yet can be very difficult to recognise in its early stages. Internal bleeding can be a result of injury, such as lung or abdominal injuries, yet can also happen 'spontaneously' to an apparently well patient, such as bleeding from a stomach ulcer or a weak artery.

Although blood may not actually be lost 'externally' from the body, it is lost out of the arteries and veins, so shock can quickly develop.

Other serious life-threatening complications can occur from internal bleeding, such as a brain haemorrhage or bleeding into the lungs.

Possible Signs and Symptoms

You should suspect internal bleeding if signs of shock are present, but there is no obvious cause, such as external bleeding.

There may be:

- Signs of SHOCK.
- Pain, or a history of recent pain at the site of bleeding.
- Bruising and/or swelling.
- Other symptoms related to the site of bleeding (e.g., difficulty breathing if the bleeding is in the lungs)

In some cases, the casualty may have a history of illness such as a stomach ulcer or a bowel disorder. Bleeding from these sites results in different signs, for instance bleeding from a ruptured stomach ulcer may see black tarry stools when using the toilet. In contrast red stools may indicate that the bleeding site is lower in the Gastro Intestinal tract.

Treatment of Internal Bleeding

Treatment of internal bleeding should be diagnosed by your local doctor and managed in a hospital.

- Dial 000 for an ambulance
- Treat the casualty for shock as necessary
- Monitor vital signs
- Keep casualty warm.

Musculoskeletal Injuries

Injuries to Bone, Muscle and Joints

The Skeletal System

The skeleton consists of 206 bones, the functions of which are to:

- Provide support for the soft tissue of the body. This gives the body shape.
- Provide protection for important organ such as the brain, lungs and spinal cord.
- Allow movement by incorporation different types of joints and attachment for muscles.
- Produce red blood cells, some white blood cells and platelets in the marrow of bones such as the femur.
- Provide a store of minerals and energy such as calcium and fats.



Causes of Injury – Injury can be caused to the bones, muscles, and joints by different types of force:

Direct force – Damage results at the location where the force was applied, e.g. as the result of a blow or kick.

Indirect force – Damage occurs away from the point where the force was applied, e.g. fractured collar bone, as a result of landing on an outstretched arm.

Twisting Force – Damage results from torsion forces on the bones and muscles, Force e.g. ‘twisting an ankle’.

Violent Movement – Injury results from a sudden violent movement, such as injuring the knee joint by kicking violently.

Pathological – Injury results because the bones have become brittle or weak, due to disease or old age.

Types of Fracture – A fracture can be defined as a ‘break in the continuity of the bone’. The basic categories of fracture are:

Closed – This is a clean break or crack in the bone, with no complications.

Open – The skin has become broken by the bone which may (or may not) still be protruding from the wound. This type of injury has a high risk of infection.

Complicated – With this type of injury, there are complications which have arisen as a result of the fracture, such as trapped blood vessels or nerves.

Green Stick – This type of fracture occurs more commonly in children, who have young, more flexible bones. The bone is split, but not totally severed. Green stick fractures are often mistaken for sprains and strains, because only a few of the sign and symptoms of a fracture are present.

Possible Signs and Symptoms of a Fracture

The following mnemonic can be used to help you remember the signs and symptoms of a fracture: **PILSDUCT**

Pain – at the site of the fracture. Strong pain killers, nerve damage or dementia may mask the pain, so beware.

Irregularity – lumps or depressions along the surface of the bone, where the broken ends of the bone overlap.

Loss of Power – e.g., not being able to lift anything with a fractured arm.

Swelling or Bruising – around the site of the fracture.

Deformity – if a leg is bent in the wrong place, it’s broken!

Unnatural movement – this type of fracture is classed as ‘unstable’ and care should be taken to prevent the fracture from moving.

Crepitus – The feeling and sound of bone grating on bone when the broken ends rub on each other.

Tenderness – at the site of injury.

Treatment of a Basic Fracture

- Reassure the casualty, tell them to keep still (moving around will only cause more pain)

- Keep injury still with your hands until it is properly immobilised. The casualty might be able to do this on their own.
- Don't move the casualty until the injury is immobilised unless they are in danger.
- Don't try to apply a sling to an injury if you have called an ambulance, just keep it still (cover open wounds with a sterile dressing).
- Don't let the casualty eat or drink – they may need an operation.

For an upper limb injury

Carefully place the arm in a sling against the trunk of the body. Lower arm fractures are normally placed in an arm or support sling.

Upper arm fractures in a collar and cuff sling.

Collar bone fractures are normally supported by an elevated sling (keep the elbow down at the patient's side when using an elevated sling for a collar bone fracture). The patient's clothing may be utilised as an improvised sling.

- If the casualty is in severe pain, circulation or nerves to the arm are affected, the casualty has breathing difficulties, or you are unsure, **dial 000 for an ambulance.**

For a fractured jaw

Contact sports and assault may lead to jaw fractures. The victim may have difficulty speaking or swallowing and have severe pain when attempting to bite down.

- Sit the victim down and have them support their chin.
- Keep the casualty warm and still and monitor for a decrease in level of consciousness.

Dial 000 for an ambulance.

For a lower limb injury

- Keep the casualty warm and still. **Dial 000 for an ambulance.**
- Check colour and warmth of foot (for adequate circulation)
- If the ambulance arrival will be delayed (e.g. remote countryside) carefully adjust the position of the limb if necessary and immobilise the injury by bandaging the sound leg to the injured one with padding between.
- Check circulation beyond the injury and any bandages. Loosen bandages if necessary.

Neck of femur

Injury to the Neck of femur (upper thigh) is one of the most common fractures in the elderly after a fall. It is generally characterised by pain to the outside thigh and groin area and clear shortening and outwards rotation of the affected limb.

NOTE: be aware that elderly people living alone may have been unable to move to the telephone for some time and should be treated gently as they may be very cold and dehydrated.

Dial 000 and support the victim in a position of comfort.

For a pelvic injury

Pelvic injuries may have unseen complications.

Manage by placing the victim in a position of comfort (laying supine if possible) with both knees slightly bent. The hips should be supported either side and padding placed under the knees for extra support.

- Keep the casualty warm and still.
Dial 000 for an ambulance.
- Place victim in position of comfort (laying with knees bent slightly and supported is best).
- Pad around hips and under knees for extra support.
- Any movement may cause severe pain and worsen the injury.
- Monitor for shock.

Dislocation

A dislocation is where a bone becomes partially or fully dislodged at a joint, usually as a result of wrenching movement or sudden muscular contraction.

The most common dislocations are the knee cap, shoulder, jaw, thumb, and finger.

There may also be a fracture at or near the site of the dislocation, and damage to ligaments, tendons, and cartilage. It can be difficult to distinguish between a fracture and a dislocation.

Never attempt to manipulate a dislocated joint back into place. This is a job for the experts – the procedure can be extremely painful for the patient, and you may cause further damage.

Sprains and Strains

A sprain is defined as an injury to a ligament at a joint.

A strain is defined as an injury to muscle.

Usually caused by sudden wrenching movements, the joint overstretched, tearing the surrounding muscle or ligament.

Minor fractures are commonly mistaken for sprains and strains.

If you are not sure, you should treat the injury as if it was a fracture.

The only way to rule out a fracture is by x-ray.

Treatment of Sprains and Strains

The best treatment for a sprain or strain is to follow the **RICER** mnemonic:

Rest – rest the injury e.g. don't allow a sports player to carry on playing (it's better to take time out now than miss the next ten matches!).

Ice – apply an ice pack to the injury as soon as possible. This will help reduce swelling, which will speed recovery. Place a tea towel or triangular bandage between the skin and the ice pack. Do this for 10-20 minutes, every 2 hours, for 72 hours for maximum effect.

Compression – apply a firm (not constructive) bandage to the injured area. This helps to reduce swelling. The bandage can be applied over a crushed ice pack for the first 10 minutes.

Elevation – Elevate the injury. Elevation uses gravity to help reduce swelling. Remember: minor fractures can easily be mistaken for sprains and strains. The only way to rule out a fracture is by x-ray, so take or send the casualty to hospital.

Refer – Remember minor fractures can easily be mistaken for sprains and strains so it is important to refer the victim to a medical expert for further assessment.

Spinal Injuries

Spinal injury occurs with approximately 2% of trauma (injury) patients, although this figure appears relatively low, suspecting and correctly treating the injury is essential, because poor treatment of a patient with a spinal injury could result in them becoming crippled for life or even end in death.

The spinal cord is an extension of the brain stem, and travels down the back of the spinal vertebrae. Vital nerves, controlling breathing and movement of limbs travel down the spinal cord. The weakest part of the spinal column is the neck, and indeed a neck injury can be most severe type of spinal injury, because the nerves controlling breathing may become severed.

Suspect a Spinal Injury if the Casualty has:

- Sustained a blow to the head, neck or back (especially resulting in unconsciousness).
- Fallen from a height (e.g. fall from a horse).
- Dived into shallow water.
- Been in an accident involving speed (e.g. car accident or knocked down).
- Been involved in a 'cave in' accident (e.g. crushing, or collapsed football scrum).
- Multiple injuries.
- Pain or tenderness in the neck or back after an accident (pain killers or other severe injuries may mask the pain – beware)
- OR: if you are in any doubt.

Possible Signs and Symptoms of a Spinal Injury

Remember – if some of these signs and symptoms are present, nerves may already be damaged. You should treat a patient who you suspect has an injury to prevent these signs and symptoms from developing.

- Pain or tenderness in the neck or back.
- Signs of a fracture in the neck or back.
- Loss of control of limbs at or below the site of injury.
- Loss of feeling in the limbs.
- Sensations in the limbs, such as pins and needle or burning.
- Breathing difficulties.
- Incontinence.

Treatment of a Spinal Injury

If the patient is conscious and sitting:

- Reassure the patient. Tell them not to move.
- Keep the patient in the position you find them

Do not allow them to move unless they are in severe danger.

- Dial 000 for an ambulance.
- Hold their head still with your hands. Keep the head and neck in line with the upper body.
- Keep the patient still and warm until the ambulance arrives.

If the patient is conscious and breathing normally:

- Do not move the patient unless they are in severe danger.
- If the patient is breathing normally means the airway must be clear, so there is no need to tip the head back. The 'jaw thrust' technique can be used to keep the airway open without moving the head and you will need to constantly monitor their breathing.
- Dial 000 for an ambulance.
- Hold the head still with your hands. Keep the head and neck in line with the upper body.
- If you have to leave the casualty, if they begin to vomit or if you are concerned about their airway in any way, place the casualty in the recovery position. Keep the head, neck and upper body in line as you turn the patient. Doing this effectively takes more than one rescuer, so get local help if you can.
- Keep the casualty warm and still. Constantly monitor Airway and Breathing until help arrives.

Jaw Thrust Technique

If the patient is conscious and breathing but the tongue is starting to obstruct the airway (usually makes snoring type noises) the jaw thrust technique can be used to keep the airway open:

- Kneel above the head of the patient, knees apart to give you balance.
- With your elbows resting on your legs (or the floor) for support, hold the patient's head with your hands to keep their head and neck in line with the body.

- Place the middle and index fingers of your hands under the jaw line of the patient (under their ears).
- Keeping the head still, lift the jaw upwards with your fingers. This gently lifts the tongue from the back of the throat.

DO NOT attempt the jaw thrust technique during CPR – tilt the head to open the airway instead.

If the patient is conscious and not breathing normally:

If the casualty is not breathing normally i.e. noisy breathing (snoring, gurgling or stridor) or the breathing appears to be very shallow or paradoxical i.e. (no chest movement only abdominal movement is detectable), the airway will need to be opened. You will have to log roll the casualty into the lateral position.

Keep the head, neck and upper body in line as you turn the patient. Doing this effectively takes more than one rescuer, so get local help if you can.

- Re-check the breathing once the airway has been opened.
- If the casualty is still not breathing normally, dial 000 for an ambulance, then carry out resuscitation.
- Obtain the help of others to support the head as you resuscitate.

Remember – successful resuscitation that results in paralysis from a neck injury is a tragedy but failing to maintain an adequate airway will result in death.

‘AIRWAY MANAGEMENT takes precedence over a SUSPECTED SPINAL INJURY’

If the patient is unconscious:

If a patient is unconscious and laid on their back, the airway can be in danger from vomit or tongue falling back.

A patient who has not been injured can simply be turned onto the recovery position to protect the airway, but if spinal injuries are suspected, great care must be taken not to move the spine too much. If a patient is already on their side (not one their back) you may not have to move them at all.

ALL UNCONSCIOUS CASUALTY’S MUST BE PLACED ON THEIR SIDE

Log Roll

If you have to leave the casualty, if they begin to vomit, or if you are concerned about their airway in any way, the patient will have to be turned onto their side. The head, neck and upper body must be kept in line as you turn the patient.

The best method of turning a spinal injury patient is the log roll technique, but you will need at least three helpers to roll the patient.

- Support the head of the patient, keeping the head, neck and upper body in line.
- Your helpers should kneel along one side of the patient. Get them to gently straighten the patient’s legs and arms.
- Making sure that everyone works together, the helpers should roll the patient towards them on your count. You gently move the head to follow the body as the patient is rolled.
- Keep the head, neck, body and legs in line at all times. If you can, keep the patient in this position until the ambulance arrives.

Recovery Position

If the patient has to be turned onto their side and you don’t have three helpers, you will need to use the recovery position method when turning the patient.

Keep the head, neck and body in line as you can as you roll the patient over. Have some padding (e.g. a folded coat) to support the patient’s head when they are on their side.

If you have one or two helpers, you can support the head as your helper/s turn the patient.

- Start by supporting the head of the patient, keeping the head, neck and upper body in line.

- Get your helper/s to gently move the patient's arms and legs into position, ready to turn the patient into recovery position.
- Making sure that everyone works together, the helper/s should roll the patients into the recovery position. The helper/s should pull equally on the patients far leg and shoulder as they turn the patient, keeping the spine in line.

Section 10 – Burns and Scalds

Burns and Scalds

Estimating the Severity of a Burn

There are 5 factors that combine to affect the severity of a burn:

Size – The larger the area of the burn, the more severe. The size of the burn is given as a percentage of the body's surface area. An easy way to work this out is to compare the size of the burn with the patient's hand. An area equal to the size of the palm of the patient's hand (including fingers) is equal to 1% of their body area.

Cause – The cause of the burn, as previously described in this chapter, will influence the overall severity – for example, electrical burns may leave a patient with deep internal burns. Some chemicals (such as hydrofluoric acid) could cause poisoning in addition to burns.

Age – The age of the patient will affect the recovery rate and severity. Babies and young children will burn at lower temperatures than adults. Elderly patient's burns take longer to heal, and they may be more susceptible to infection.

Location – The location of the burn can affect the severity – in particular burns to the airway of a patient by inhaling hot gases can be an instant killer. Burns to the eye may result in blindness.

Depth – The deeper the burn, the more severe.

Depth of Burns

The skin consists of 3 layers – the 'epidermis' on the outside, the 'dermis' beneath, which lies on a layer of 'subcutaneous' fat.

Superficial – This involves only the outer epidermis layer and most commonly, and most commonly occurs from scalds and sunburn. The burn looks red, sore, and swollen.

Partial Thickness – This affects both the epidermis and the dermis layers of skin. The burn looks raw, and blisters will form.

Full Thickness – The layers of skin are burned away to subcutaneous fat layer or beyond. The burn may look pale, charred or waxy. The nerve endings will be burned away, so pain in this area may be present, misleading both you and the patient.

Causes of Burns and Treatment

The different causes of burn can be separated into 7 different areas. The treatment for the burn can differ slightly depending on the cause:

Electric Burns

Caused by heat that is generated by an electrical current flowing through the tissues of the body. You may be able to see a burn where the current entered the body, and at the point of exit. There may be deep internal burns which are not visible along the path of the current flow. The extent of the internal burns can be estimated by the severity of the entry and exit wounds.

An electric shock may cause cardiac arrest. In this case, Airway and Breathing become the priority.

- Ensure your own safety – make sure contact with the electricity is broken without touching the victim, use a dry wooden handle or dry clothing to rescue victim. Turn off power and remove plug if safe to do so.
- Ensure Airway and Breathing are maintained.
- Irrigate the area of the burns, including the path between entry and exit, for at least 20 minutes.
- Dial 000 for an ambulance
- Continue treatment as you would for a 'dry heat' burn.

NEVER burst blisters (layer of skin is protecting against infection)

NEVER touch the burn.

NEVER apply lotions, ointments or after – they might introduce infection, and would need to be removed in hospital.

NEVER apply adhesive tape or dressings – the burn may be larger than it first appears.

NEVER remove clothing that has stuck to the burn.

Dry Heat Burns

Any direct contact with a dry heat source or friction.

- Do not put yourself in danger.
- Ensure that Airway and Breathing are maintained.
- Cool the burn immediately with cold (preferably running) water, for at least 20 minutes.

Do this first then move quickly to a water supply if you can. Take care not to cool large areas of burns so much that you introduce hypothermia. Do Not Break Blisters.

- Remove watches, rings etc. during cooling, as burned areas will swell. Clothing that has not stuck to the wound may be removed carefully.
- Elevate wound if feasibly to minimise swelling.
- Dress the wound with a sterile non-adherent dressing. Cling film is one of the best dressings for a burn – the inside of the roll should be sterile, and it will not stick to the burn. Ensure the wound has been cooled beforehand. Do not wrap cling film around a limb – lay it over the burn. Alternatives could be a clean plastic bag, or specialised burns dressings such as Hydrogel.
- **Dial 000 for an ambulance** if the burn appears severe, or the casualty has breathed in smoke or fumes.

Wet Heat (Scalds)

Scalds are most commonly from hot water but may be from hot fats or other liquids that can reach higher temperatures than water.

- Treat as dry heat burn.

Bitumen

Bitumen used primarily in roadwork holds its heat therefore irrigation should be prolonged.

- Bitumen should NOT be removed from the victim's skin.
- Bitumen should be cooled with copious amounts of cool water for 30 minutes.

Chemical Burns

Caused by chemicals which either corrode the skin or create heat (or both).

- Make the area safe – contain the chemical and protect yourself from coming into contact with it.
- Irrigate the burn with lots of running water to wash the chemical away. This should be done for longer than a thermal burn – at least 20 minutes.
- **Dial 000 for an ambulance.** Make a note of the chemical and give this information to the ambulance operator if possible.

- Remove contaminated clothing carefully whilst irrigating the burn.
- If an eye is contaminated, irrigate as above, but ensure that the water runs away from the unaffected eye.
- Some chemicals in the workplace cannot be safely diluted with water – health and safety regulations require an ‘antidote’ to be available in an emergency.
You should be trained in the use of the antidote.

Radiation Burns (Sun Burn)

Most commonly seen as sunburn.

- Remove the casualty from exposure of the sun and cool the area with cold water for 20 minutes.
- If there is extensive blistering, or you are not sure, seek medical advice.
- Give the casualty frequent sips of water to ensure that heat exhaustion does not take effect.

Seek medical advice if:

- The burn is larger than 10% of body surface area.
- The burn is full thickness and covers greater than 5% of body surface area.
- The patient is a child or infant.
- The burn goes all the way around a limb or chest.
- Any part of the burn appears to be full thickness.
- The burn involves hands, feet, genitals, perineum, major joints, or the face.
- Electrical or chemical burns associated with trauma.

Capsicum Spray (Oleoresin)

Capsaicin, the pungent component of chilli peppers that is used in Oleoresin Sprays, has been shown to induce intense pain when applied to the skin and the front of the eye. The spray is available to out Police members to use under their guidelines, however there are some occasions where cross contamination occurs to one or more non targeted bystanders.

Signs and Symptoms

- Skin irritation.
- Inflammation of the mucous membranes, (eyes, nose, mouth, or open wounds).
- Redness, swelling and tearing.
- Coughing, gagging and shortness of breath.

Treatment

- Remove victim from area of exposure to reduce further inhalation – avoid becoming a casualty.
- Remove contaminated clothing and loosen remaining clothing.
- Allow casualty to assume most comfortable position and keep warm.
- If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water.
- If in eyes, wash out immediately with water. In all cases of eye contamination, it is a sensible precaution to seek medical advice.
- If swelling, redness, blistering or irritation **dial 000 for an ambulance.**

Section 11 – Effects of Heat and Cold

This section covers the effects of over exposure to heat or cold on the body.

Severe hypothermia or Heat Stroke are potentially fatal conditions and need skilful treatment from the First Aider.

The people who are most at risk from the effects of heat and cold are the elderly or infirm, babies and children, or people who take part in outdoor activities such as hiking or sailing.

Body Temperature

The body works best when its temperature is close to 37°C. This temperature is maintained by an area in the centre of the brain called the 'hypothalamus'.

If the body becomes too hot, we produce sweat, which evaporates and cools the skin. Blood vessels near to the skin dilate (flushed skin) and the cooled blood is circulated around the body.

If the body becomes too cold, we shiver which creates heat by muscles movement. Blood vessels near to the skin constrict (pale skin), keeping the blood close to the warmer core of the body. Hairs on the skin become erect, trapping warm air (goose pimples)

Injuries resulting from exposure to extremes of temperature can be 'localised' (such as sunburn or frostbite) or 'generalised' (such as hypothermia or heat stroke).

Signs and Symptoms of Body Temperature Change

The symptoms of over-exposure to heat or cold are demonstrated by the diagram. As the temperature of the body becomes too hot or too cold, the area of the brain that regulated temperature (the hypothalamus) stops working, and the condition rapidly becomes worse as the body no longer fights the condition.

Taking a Temperature

Modern, easy to use thermometers are now available, such as disposable strips that can be placed on the tongue or forehead. For these thermometers follow the manufacturer's instruction.

If you only have an 'old fashioned' mercury thermometer however, the following advice may help:

- Take care when handling the thermometer. The mercury centre is poisonous.
- Ensure that it has been properly cleaned.
- Hold the thermometer at the opposite end of the silver mercury bulb.
- Shake the thermometer until the mercury falls well below the 35°C mark.
- Place under the tongue of an adult (who is fully conscious), or the armpit of a child.
- Keep in place for 3 minutes.
- Read the temperature at the level to which the mercury has risen.

Hypothermia

The onset of hypothermia occurs when the body's core temperature falls below 35°C. A patient suffering hypothermia in its mildest form who is treated effectively will usually make a full recovery. If the body's core temperature falls below 26°C the condition will most likely be fatal, however resuscitation has been successful on people with temperatures as low as 10°C, so it is always worth attempting.

The underlying cause of hypothermia is due to environmental factors such as over exposure to cold temperatures, however other causes include Trauma, drugs and/or alcohol, stroke, altered conscious state, metabolic imbalances and infection or malnutrition. Different conditions and types of patients will increase the risk:

- The hypothalamus (temperature control centre) of a baby or young child is under developed, and hypothermia can result from as little as being in a cold room.
- Elderly or infirm patients do not generate as much body heat, so prolonged periods in a cold environment can lower the core temperature.
- Wet clothing, or immersion in cold water results in the body cooling much faster than it would in dry air. Water conducts heat away from the body.
- A person who is not clothed properly in windy conditions will have cold air continually in contact with the skin, resulting in faster cooling of the body.

Possible Signs and Symptoms

Mild hypothermia

- Victim shivering
- Pale, cold skin.
- Impaired coordination
- Slurred speech
- Responsive but with apathy or
- Confusion

Moderate to severe hypothermia

- Absence of shivering
- Increasing muscle stiffness
- Progression decrease in consciousness
- Slow irregular pulse
- Hypotension

Treatment of Hypothermia

If the casualty is unconscious

- Open the airway and check breathing. Resuscitate if necessary.
- Dial 000 for an ambulance.
- Gently place the patient in the recovery position.
- Do not move the patient unnecessarily, because the slightest jolt can stop the heart.
- Place blankets or other insulating materials under and around the patient. Cover the head.
- Constantly monitor breathing. The pulse may be hard to find – it is safe to assume the heart is beating if the casualty is breathing normally.

For a conscious casualty

- If you can shelter the casualty, remove any wet clothing. Quickly replace with dry, warm garments. Cover the head.
- Wrap them in warm blankets. Heat the room to a warm temperature (25°C) if indoors.
- A casualty outdoors should be insulated from the environment and ground. Use a survival bag and shelter if available. Share your body heat with them.
- Give the casualty warm drinks and food.
- Seek medical advice if the patient is elderly, a child, or if you are in any doubt about their condition, or if the condition seems severe.
- Dial 000 for an ambulance.

NEVER give a patient alcohol (it dilates blood vessels, which will make the patient colder)

NEVER place direct sources of heat on or near the patient (they draw blood to the skin, causing a fall in blood pressure and place stress on the heart).

NEVER warm babies or the elderly too quickly (e.g. by placing them in a warm bath).

BEWARE: A hypothermic heart is in grave risk of 'ventricular fibrillation' which causes cardiac arrest. Handle Hypothermic patients with care – the slightest jolt can induce the condition.

Frostbite

Frostbite is a condition caused when an extremity (such as a finger or an ear) is subject to cold conditions. The cells of the limb become frozen. Ice crystals form in the cells, which causes them to rupture and die. Frostbite may also be accompanied by hypothermia, which should also be treated. Serious frostbite can result in the complete loss of a limb, but more commonly fingers or toes.

Possible Signs and Symptoms

- Pins and needles, followed by numbness.
- Hardening and stiffening of the skin.
- Skin colour change – first white, then blue tinges, then eventually black.
- On recovery, the injury will become hot, red, blistered and very painful.

Treatment

- Gently remove rings, watches etc.
- Elevate the affected part.
- Stop the freezing becoming worse if the casualty is still outdoors – place the limb under their arm or hold it with your hands.
- Don't rub the injury – this will cause damage.
- Don't break blisters.
- Don't re-warm the injury if there is risk of refreezing it. Move the patient indoors before you treat them.
- Place the injury in warm water (test the temperature with your elbow as you would for a baby's bath – not with a frozen hand!).
- An adult casualty can take two paracetamol tablets for intense pain.
- Take the casualty to hospital as soon as possible.

Dehydration

Dehydration occurs when the loss of water and salt through excessive sweating and exposure to hot conditions is greater than the input of fluids through drinking. The very young and elderly are most at risk and can lead to heat exhaustion or heat stroke.

Possible Signs and Symptoms

- Headache
- Fainting.
- Pale, cool, sweaty skin.
- Decreased urine output.
- Thirst.
- Infants may have a sunken fontanel or eyes.
- Take the casualty to a cool place.

Treatment

- Remove excessive clothing and lay them down in shade.
- Give the casualty plenty of water to re-hydrate them if fully conscious.
- If the casualty's level of response deteriorate – place them in the recovery position and dial 000 for an ambulance. Monitor Airway and Breathing.
- Treat for heat exhaustion as necessary.

Heat Exhaustion

Heat exhaustion is the body's response to loss of water and salt through excessive sweating. The most common cause of this condition is working or exercising in hot conditions (such as hiking on a very hot day).

Heat exhaustion occurs when the core body temperatures rises above 38°C up to 40°C. If the problem is not treated, it can quickly lead to heat stroke.

Possible Signs and Symptoms

- Confusion, dizziness.
- Fast, weak pulse and breathing.
- Pale, sweaty skin.
- Cramps in the arms, legs, and abdomen.

Treatment

- Take the casualty to a cool place.
- Remove excessive clothing and lay them down in shade.
- Give the casualty plenty of water to re-hydrate them if fully conscious.
- Use atomiser to moisten the skin and fan casualty.
- Obtain medical advice, even if the casualty recovers quickly.
- If the casualty's levels of response deteriorate – place them in the recovery position and dial 000 for an ambulance. Monitor Airway and Breathing.
- Treat for heat stroke as necessary.

Heat Stroke

Heat stroke is a very serious condition, it results from failure of the hypothalamus (temperature control centre) in the brain. The sweating mechanism fails, the body is unable to cool down and the core temperature can reach dangerously high levels (over 40°C) within 10 to 15 minutes.

The condition can be caused by a high fever or prolonged exposure to heat and often follows heat exhaustion.

BEWARE: Do Not leave children or the elderly unattended in a car as the inside temperature can be between 10 and 20 degrees hotter than outside.

Possible Signs and Symptoms

- Severe confusion and restlessness.
- Flushed, hot, dry skin (although in some victims profuse sweating may occur).
- Strong, fast pulse.
- Throbbing headache.
- Dizziness.
- Nausea, vomiting.
- Reduction in levels of response leading to unconsciousness.
- Possibility of fitting if unconscious.

Treatment

- Move the casualty to a cool, shaded area.
- Dial 000 for an ambulance.
- Cool the casualty rapidly, using whatever methods you can:
- Remove outer clothing, and wrap the casualty in a cold, wet sheet. Keep it wet and cold until the casualty's temperature falls to normal levels.

Other methods of cooling can be:

- Continually sponging with cold water and fanning the casualty to help it evaporate.

- Place in a cool shower if they are conscious enough to do so, or apply wrapped ice packs to armpits, groin and neck.
- Spraying with cool water from a garden hose.
- If the casualty has a seizure, treat as you would a febrile convulsion.

Section 12 – Other Medical Conditions

The Digestive System

Diabetes

Diabetes is the name for a condition suffered by a person who does not produce enough of a hormone called insulin.

Insulin breaks down the sugar that we digest, so that it can be used by the cells of the body or stored for later use. In summary, insulin reduces the amount of sugar in the blood.

If diabetes goes untreated, the level of sugar in the blood will climb dangerously high over 1 to 2 days (depending on the severity of the condition).

There are 3 different types of diabetes, which are categorised by their method of treatment:

Diet Controlled – This patient still produces some insulin naturally, so they can control the condition by reducing the amount of sugar that they eat.

Tablet Controlled – This patient still produces a small amount of insulin naturally but needs to take tablets to help reduce the level of sugar in the blood, as well as diet control.

Insulin Dependent – This patient produces little to no insulin and has to inject themselves with insulin 2 or more times a day in order to keep sugar levels under control.

High Blood Sugar (Hyperglycaemia)

Hyperglycaemia is the condition that occurs if diabetes has not been treated effectively with the methods mentioned above.

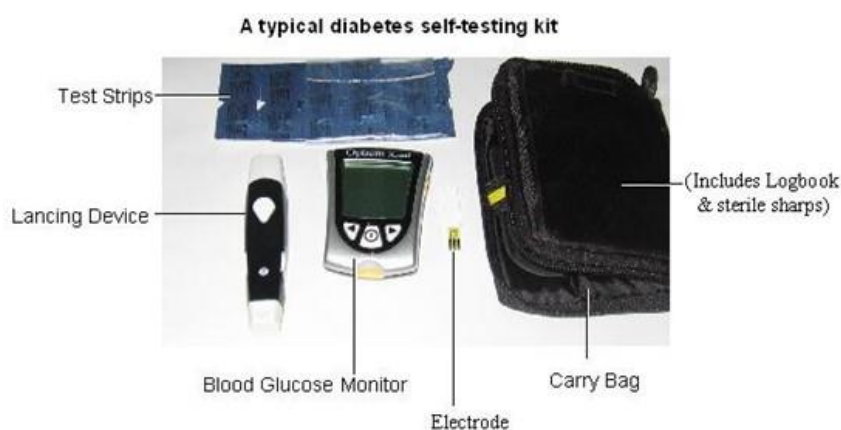
The sugar levels in the blood become higher and acids build up. The signs and symptoms in the table are as a direct result of the body trying to excrete this acid build up.

Low Blood Sugar (Hypoglycaemia)

Low blood sugar occurs mainly with diabetic patients who are insulin dependent because the level of insulin in the body is now a 'fixed' amount because it is injected.

Because the patient has injected this 'fixed' amount of insulin, they have to balance it with the amount of food that they eat.

The blood sugar levels will fall low if:



- The patient does not eat enough food.
- The patient over exercises (burning off sugar).
- The patient injects too much insulin.

Why is low blood sugar dangerous?

Unlike other cells in the body, the brain can only use glucose (sugar) as its source of energy. If the sugar in the blood becomes low therefore, the brain cells are literally starved.

The signs and symptoms of low blood sugar in the table are a result of the hungry brain cells becoming disordered and the release of adrenaline that the disorder in the brain causes.

Treatment of High Blood Sugar

- Arrange for the patient to see a doctor as soon as possible.
- If the patient becomes unconscious, maintain Airway and Breathing, and dial 000 for an ambulance.

Treatment of Low Blood Sugar

If the casualty is conscious

- Sit the casualty down.
- Give the casualty a sugary drink (isotonic sports drinks are best), sugar lumps, glucose tablets, chocolate, or other sweet food.

If the casualty responds to treatment quickly, give them more food or drink such as sandwiches.

- Stay with the casualty and let them rest until the level of response is 'full alert'.
- Tell the patient to see their doctor – even though they have fully recovered.
- If the patient does not respond to treatment within 10 minutes, or they are unmanageable, dial 000 for an ambulance.
- Consider if there is another cause for the patient's symptoms.

Epilepsy

A person diagnosed with epilepsy has a tendency to have recurrent seizures (fits) that arise from a disturbance in the brain. This chapter does not only deal with patients who are diagnosed with epilepsy however, because one person in 20 will have a seizure at some point in their lives.

There are many causes of fitting (including epilepsy), such as hypoxia, stroke, head injury or even the body's temperature becoming too high.

Babies and young children commonly suffer fits from becoming too hot due to illness and fever. This is covered in the topic 'febrile convulsions'.

Minor Seizures – Absence and Complex Partial

A person experiencing an absence seizure may appear to suddenly start day dreaming (even mid-sentence). This may last just a few seconds before recovery, and the patient might not even realise what has happened. Complex Partial seizures may start like an absence seizure but may be accompanied by strange movements, such as twitching the face, jerking of an individual limb, or lip smacking. The patient may make a noise, such as letting out a cry.

Treatment of Minor Seizures

- Remove any sources of danger, such as a knife or hot drink in their hands.
- Do not restrain the casualty.
- Help the patient to sit down in a quiet place and reassure them.
- Stay with the patient until they are fully alert.
- Note the duration of the seizure and pass this information on to ambulance crew.
- If the patient is unaware of their condition, advise them to see a doctor.

Major Seizures

This type of seizure results from a major disturbance in the brain, which causes aggressive fitting, usually of the whole body. Witnessing a major fit can be frightening for the first aider, but calm, prompt action is essential for the patient.

Possible Signs and Symptoms

A major fit usually goes through a pattern:

Aura – If the patient has had fits before, they may recognise that they are about to have one. The warning sign may be anything from a strange taste in the mouth, a smell, or a peculiar feeling. The aura may give the patient chance to seek, or simply lie down before they fall.

‘Tonic’ Phase – Every muscle in the body suddenly become rigid. The patient may let out a cry and will fall to the floor. The back may arch, and the lips may go blue (cyanosis). This phase typically lasts less than 20 seconds.

‘Clonic’ Phase – The limbs of the body make sudden, violent jerking movements, the eyes may roll, the teeth may clench, saliva may drool from the mouth (sometimes blood-stained as a result of biting the tongue) and breathing could be loud like ‘snoring’. The patient may lose control of the bladder or bowel.

This phase can last from 30 seconds to hours, although most fits stop within a couple of minutes. Any fit (or series of fits) lasting more than 15 minutes is a dire medical emergency.

Recovery Phase (Post Ictal) – Starts from the first sign of normal conscious state as their level of response improves. The patient may not be ‘fully alert’ for 20 minutes or so. They may be unaware of their actions and might want to sleep to recuperate.

Treatment of Major Seizures (Fitting)

During the seizure:

- Help the patient to the floor to avoid injury if possible.
- Gently cushion the patient’s head to help avoid injury. This can be done simply with your hands or a folded coat.
- Loosen any tight clothing around the neck to help the patient breathe.
- Move any objects from around the patient that may harm them and ask bystanders to move away.
- If you are concerned about the Airway, roll the casualty onto their side.
- Take note of the exact time the fitting started and its duration.

Dial 000 for an ambulance if:

- The seizure lasts more than 15 minutes.
- The patient’s levels of response don’t improve after the fit within 5 minutes.
- The patient has a second fit or more seizures than normal.
- Injury has occurred or they have food, water or vomit in their mouth.
- The patient is pregnant, not diagnosed as epileptic or this is their first fit.
- You are unsure.

As soon as the seizure stops:

- Check Airway and Breathing. Resuscitate if necessary.
- Place the patient in the recovery position.
- Keep the patient warm (unless temperature caused the seizure) and reassure them).
- Monitor Airway and Breathing.
- Move bystanders away before the casualty awakes and protect modesty.
- Check the levels of response regularly. Dial 000 if they don’t improve within 10 minutes (or for any of the reasons mentioned above).

NEVER place anything in the casualty's mouth (especially your fingers)

NEVER try to hold the patient down or restrain them.

NEVER move the casualty (unless they are in danger).

Febrile Convulsions

In young children and babies, the area of the brain that regulates temperature (the hypothalamus) is not yet fully developed. This can lead to the core temperature of the body reaching dangerously high levels and commonly a child in this situation may fit. Around 3% of children between 6 months and 6 years has a febrile convulsion when they have a fever.

A febrile convulsion can be very frightening for the parents of the child. During the 'tonic' phase of the fit the child may stop breathing, because the diaphragm goes rigid, and the lips and face may go blue (cyanosis). It goes without saying therefore, that calm reassurance will be necessary.

The child may have been unwell over the past day or so and will be hot to touch.

Treatment of Febrile Convulsions

- Place the child on their side, if possible, to protect the Airway.
- Remove nearby objects and use padding to protect the child from injury whilst fitting. Pay particular attention to protecting the head.
- Note the duration of the seizure and pass this information on to the ambulance crew.
- Dial 000 for an ambulance.

- If it's your child's first seizure
- If the seizure lasts longer than 5 minutes
- If the seizure occurs in water and the child has difficulty breathing.
- The child's breathing does not return to normal shortly after the seizure
- The child also has a head injury
- You are not sure

- Constantly monitor Airway and Breathing until the ambulance arrives.

Paracetamol as directed is often given to children with fevers to help them feel better however this does not treat the infection or prevent a seizure from occurring.

Section 13 – Poisons

Poisons

A poison can be described as any substance (solid, liquid or gas) that causes damage when it enters the body in a sufficient quantity.

Poisons can enter the body in 4 ways, they can be:

Ingested – Swallowed, either accidentally or on purpose.

Inhaled – Breathed in, accessing the blood stream very quickly as it passes through the alveoli.

Absorbed – Through the skin

Injected – Through the skin, directly into tissues or a blood vessel.

A poison can either be:

Corrosive – such as: acids, bleach, ammonia, petrol, turpentine, dishwasher powder etc.

Non-Corrosive – Such as: tablets, drugs, alcohol, plants, perfume etc.

Possible Signs and Symptoms

The signs and symptoms of poisoning are wide, varied, and dependent on the substance.

Look for clues such as:

- Containers or bottles.
- Syringes or drug taking equipment.
- Tablets or drugs.
- Smell on the breath.

Other signs that accompany poisoning may be:

- Vomiting or retching.
- Confusion or hallucination.
- Abdominal pains.
- Unconsciousness, sometimes fitting.
- Burns (or burning sensation) around the entry area.
- Breathing problems
- Cyanosis
- Headache.

Treatment

For a Corrosive Substance

- Don't endanger yourself – make sure it's safe to help.
- Dilute the substance or wash it away if possible:
- Substance on the skin – *see chemical burns*.
- Ingested Substances – get the casualty to rinse out their mouth.
- Dial 000 for an ambulance. Give information about the poison if possible. Take advice from the ambulance operator.
- If the casualty becomes unconscious – open the Airway and check for Breathing. Resuscitate as necessary using a protective face-shield. If the casualty is breathing effectively, place them in the recovery position, then dial 000 for an ambulance.

For a Non-Corrosive Substance

- Dial 000 for an ambulance. Give information about the poison if possible. Take advice from the ambulance operator.
- If the casualty becomes unconscious – open the Airway and check for Breathing. Resuscitate as necessary using a protective face-shield. If the casualty is breathing effectively, place them in the recovery position, then dial 000 for an ambulance.

NEVER make the patient vomit. This may put the airway in danger. It helps the paramedics if you:

- Pass on containers, or other information about the substance.
- Find out when it was taken.
- Find out how much has been taken.
- Keep samples of any vomit for hospital analysis

Section 14 – Bites and Stings

Bites and Stings

What are bites and stings?

In Australia, there are many animal and insect species that bite or sting. Most insect bites and stings are not poisonous but the stings of some insects such as wasps, bees and bites of some spiders and snakes can be harmful.

- Stings are used by some insects such as bees and wasps to protect themselves. They inject a painful poison into a person's skin through their stinger, when bees sting, they leave the stinger with the poison pouch attached in the skin of the person has been stung, so poison can keep going into the skin until it is all gone, or the stinger is removed.
- Some insects feed on blood from animals or people. Bites from these insects are usually not poisonous, e.g., mosquitoes, fleas, lice, bed bugs.
- Some biting insects can spread some disease such as Ross River Virus, encephalitis, and malaria.

Possible Signs and Symptoms

Poisonous stings and bites mostly cause pain where the bite is. There is a red swollen area around the bite. (Although not the case with the Blue Ringed Octopus).

Non-poisonous bites usually only cause pain and swelling around the bite at first, followed later by itching. They do not usually cause reactions away from the area of the bite unless the bite becomes infected by scratching.

- Allergic reactions can be caused by some insects (bees, wasp and jumper ants).
 - Common symptoms include, hives, itching, stomach cramps, coughing, wheezing, difficulty breathing and swallowing, and fainting.
 - The most dangerous symptoms are breathing difficulties or drop in blood pressure (shock). Either of these can be fatal. Anaphylaxis is rare but is treatable if responded to quickly.
 - A child who has severe reactions to bite or stings may need to carry an adrenaline auto injector (a syringe carrying adrenaline).

Snakes

Australians are bitten by a variety of snakes. Australian snakes are among the most venomous in the world, so therefore the initial first aid treatment should be commenced immediately. The snake strikes swiftly and can inject the venom below the surface of the skin, which is then absorbed into the lymphatic system, in first aid, every snake bite has to be treated as if the snake has injected the casualty.

Possible Signs and Symptoms

- Paired fang marks (although often only a single mark or a scratch may be present).
- Bruising and/or reddening at the bite site.
- Headache.
- Nausea.
- Vomiting & diarrhoea.
- Abdominal pain.
- Drowsiness.
- Blurred or double vision.
- Muscle weakness.
- Breathing difficulty.
- Coughing or vomiting blood or passing it in urine.

Treatment

- Place the person at rest.
- If on a limb, apply Pressure Immobilisation Technique, by applying a broad pressure bandage over the bite site as soon as possible. Apply a second crepe bandage over the whole limb, starting at the toes of finger tips and work upwards covering as much of the limb as possible. Crepe bandages are preferred but, if not available improvise by using any flexible material; the bandage should be firm as you would apply to a sprained ankle.
- If bitten on a limb, immobilize the limb by tying the legs together to splinting the arm.
- Keep the limb level.
- Do not move the bandage of splints.
- Mark the bite site with pen or marker on the bandage.
- Be prepared to administer CPR.
- Always seek immediate medical help and call an ambulance on 000.

DO NOT:

- *Cut or excise the bitten area.*
- *Attempt to suck the venom from the bite site.*
- *Wash the bitten area.*
- *Apply an arterial tourniquet.*
- *Attempt to capture snake for identification.*

Funnel Web Spider

Funnel-web Spiders are extremely venomous communal spiders that build burrows in moist soil, rockeries, and compost heaps. They can be found in shoes or clothes that have been left on the ground. The funnel-web spider can survive for some time under water and is often found on the bottom of pools or caught in pool filters.

All spiders have fangs and venom sacs, but only the funnel-web spider is an immediate threat to life in Australia. Any bite from a large dark spider should be considered as a dangerous bite and treated immediately. Anti-venom is available.

Signs and Symptoms of a Funnel-Web Spider Bite

- | | |
|-----------------------------|-----------------------------|
| • Intense pain where bitten | • Salivation |
| • Nausea & abdominal pain | • Diarrhoea |
| • Numbness of the mouth | • Difficulty in breathing |
| • Rapid pulse | • Vomiting |
| • Excessive sweating | • Unconsciousness may occur |

Treatment

For a funnel web and mouse spider bites, immediate medical attention is important.

- In significant bites, effects on the body may start quickly, with tingling of the lips and twitching of the tongue.
- Apply pressure immobilisation bandage as you would for “snake bite”.
- Do not use tourniquets, cut, or suck, or apply any chemicals on the wound.
- Always seek immediate medical help and call 000 for an ambulance.

Red Back Spider

Red Back Spiders may cause pain and illness to a baby or small child but are not a threat to life in normal circumstances.

Signs and Symptoms of a Red Back Spider Bite

- | | |
|--|------------------------|
| • Local pain, which can increase and spread. | • Sweating |
| • Swollen glands under armpits or in groin. | • Abdominal pain |
| • Swollen, hot, red bite site. | • Nausea and dizziness |

Treatment

- Apply a wrapped ice pack for up to 20 minutes at a time.
- **Call 000 for transport to hospital.**

White Tail Spider

White-tailed spiders are common. Bites are fairly frequent because spiders are found in homes, especially in clothing or shoes left on the floor.

Treatment

- Apply a wrapped ice pack for up to 20 minutes at a time.
- **Call 000 for transport to hospital.**

Bee or Wasp

Bee

If the person has an allergy to bee stings, they can fall into a life-threatening state of anaphylactic shock.

The only treatment is an injection of adrenaline/ unlike a normal sting or bite reaction, which might show up as a small patch of swelling or soreness, a severe reaction can include a rash, breathing problems and loss of consciousness.

Treatment

- Brush or scrape the barb off the skin to stop any more venom being injected. Use a blunt knife (or similar object) to scrape the stinger out. Avoid pulling or squeezing the barb.
- Apply wrapped ice pack to bite site for 10 minutes, reapply it at frequent intervals for pain if required.
- Raise the bitten area to minimise swelling.
- Support in a sling or an arm.
- Observe the person for any changes.
- If the person is known to be allergic, follow the person action plan, or if any signs of an allergic reaction appear, call emergency services.

Wasp

- A European wasp can sting many times, not just once like a bee.
- Wasp stings cause very painful red lumps which can be several centimetres across. After a few days the site becomes itchy. It usually get better after a week or so.
- To reduce the pain from a sting apply ice pack.
- Wasps are attracted to food and drinks. If they are not noticed, they can sting a person in the mouth or throat which can cause breathing problems.
- If stung in the mouth or throat, or if there is a reaction in any part of the body away from the sting, or if there are a lot of stings get medical treatment urgently.

Ants

Allergic reactions to stinging ants are an important cause of anaphylaxis in Australia.

The proteinaceous venom can be fatal to humans. Allergic reactions to the Jack Jumper ant (also known as the Jumper Ant, Hopper Ant) are a uniquely Australian problem, although other species such as Bulldog Ants (*Myrmecia pyriformis*), the Green Ant of Queensland, and introduced South American Fire Ants cause allergic reaction.

- Nearly all kinds of ants' bite or sting.
- Ant bites can hurt for some hours and be red and swollen.
- Jumping ants are becoming more prevalent in parts of Australia and they can cause very painful bites and allergic symptoms such as swelling around the bite area.

Ticks

- The main tick that causes problems in Australia is found on the eastern coastline of Australia.

- Ticks need a blood meal to be able to grow and produce eggs, ticks in Australia live on kangaroos, other native animals, dogs, sheep and rodents (as well as humans).
- Ticks bury themselves in the skin and then the tick feeds on the blood and swells up over several days.
- Most tick bites do not cause any health problems, but some can cause life threatening diseases including paralysis, tick typhus, Lyme disease, and severe allergic reactions due to a toxin (poison) which is released into a person's body when the tick bites.

Signs and Symptoms

- Muscle weakness
- Local irritation most common
- Difficulty in swallowing and breathing
- Lethargy
- Double vision

Treatment

- If a tick has burrowed into the skin, grasp it behind the head with fine tweezers, as close to the skin as possible. DO NOT grasp the tick's body as this may lead further envenomation and incomplete removal.
- Gently lift or lever it the tick out with steady pressure, making sure you remove the entire body.
- After removal of the tick, wash the site with warm soapy water and then a mild antiseptic.
- Keep the removed tick for identification purposes if the person condition get worse.
- Do not use methylated spirits, alcohol, or anything else to kill the tick before removing as this may cause the tick to inject more poison.

Jellyfish Recognition

If it is difficult to recognise which species of jellyfish has caused an individual sting, management must be based upon the clinical condition of the victim and the known geographic distribution of the dangerous species.

Jellyfish capable of causing life-threatening stings primarily occur along the tropical coastline of Australia i.e. from Bundaberg (Queensland) northwards, across the northern coastline and down to Geraldton (Western Australia).

Significant variation in symptoms and signs and their severity occur with large number of different jellyfish that may have caused the sting.

Visual Evidence of Jellyfish

- Blue tentacles adherent to the skin, in the setting of large number of blue jellyfish washed up on the beach are likely to signify stings from *Physalia* species (bluebottles).
- Other types of tentacles may be present but are difficult to identify from among the hundreds of species of jellyfish present in Australian waters; often no tentacles remain on the skin.

Box Jellyfish and Irukandji

There are many jellyfish that can give you a very painful sting, but there are only two in Australian waters that can kill you. These are the box jellyfish and the Irukandji.

The box jellyfish is considered the most venomous creature in the sea and has caused more than 70 deaths in Australian waters. Their tentacles are armed with up to 5000 nematocysts (stinging cells) and can be up to 3 metres long.

In contrast, the Irukandji is very small (only 1-2 centimetres in diameter) with only four tentacles (one from each corner of its body).

Signs and Symptoms

- An inconspicuous mark which may develop a red flare.
- Multiple white cells welts with surrounding red flare on the skin.
- Tentacles adhering to the skin.

- A 'frosted ladder pattern' in the sting marks on the skin may be seen in the first few minutes.
- Blistering or darkening of the skin pattern may appear.
- Pain from mild irritation to severe sharp or burning pain.
- Pain the lymph nodes in groin or armpits.
- Irrational behaviour
- Nausea, headache, vomiting, prostration.
- Generalized muscle aches.
- Severe muscles cramps in the limbs, chest, and abdomen.
- Painful breathing with extensive stings.
- Major stings, cessation or breathing and cardiac arrest.
- Profuse sweating, sometimes only in the sting area.
- Restlessness and headache.

Treatment

- Liberally douse the sting area with vinegar.
- Do not wash with fresh water.
- If no vinegar available pick off any remnants of the tentacles and wash with Seawater.
- Call 000 and commence resuscitation if necessary.

Blue Bottle Jellyfish and Jelly Blubber

The Blue Bottle, or Portuguese Man o' War, is a common, if unwelcome, summer visitor to Australian beaches. At the mercy of the wind, they are sometimes blown into shallow waters, and often wash up onto the beach.

The Jelly Blubber is a mushroom shaped bell 5-30 centimetres in diameter. No tentacles, but either 'fronds' or 'frills' hanging underneath. The sting causes minor skin irritation.

Signs and Symptoms

- Tentacles may still be attached to the skin.
- Nausea, headache, vomiting can occur.
- Breathing difficulties can occur.
- Marks on the skin, red welts.
- Pain around the bite site.

Treatment of Blue Bottle Sting

- If tentacles are still attached to the skin, remove them with tweezers and rinse with seawater.
- Apply hot water to relieve pain if unavailable cold pack may relieve pain.
- Treat other symptoms as they present.

Other Non-Tropical Minor Jellyfish Stings

- Do not allow rubbing of sting area.
- Do not wash the sting with fresh water.
- Apply cold pack.
- Rinse stung area with seawater.
- If pain is unrelieved – call 000.

Why No Fresh Water?

Fresh water applied to jellyfish stings after the skin has dried can cause remnants of the jellyfish stingers to 'fire' and inject more toxin.

Why Vinegar?

Vinegar deactivates stinging capsules and prevent further injection of venom.

Blue Ringed Octopus and Cone Shell

Blue-ringed octopus occurs in all Australian coastal waters. A blue ringed octopus is only 12cm long from the top of its body to the bottom of its tentacles. When it feels threatened, small fluorescent blue spots appear over its body. An average blue ringed octopus would weigh less than 90g.

The cone shell is a marine snail. Like their land-based relatives, they cannot move very quickly so they are armed with deadly harpoons that inject very toxic and fast-acting venom. This quickly paralyses their prey gives them a chance to catch it. Unfortunately, it has the same effect on humans who try to collect their beautiful shells. Never pick up any cone-shaped shells, even if you think they are empty.

There is NO safe way to pick up a cone shell.

These venoms caused prolonged muscle weakness and in serious envenomation, without Basic Life Support, death from respiratory paralysis can occur within 30 minutes.

Signs and Symptoms

- A spot of blood may be visible, but the bite is painless (blue ringed octopus)
- The sting is usually felt (cone shell).
- Numbness of the lips and tongue.
- The progressive weakness of the muscles of respiration leading to inadequate or cessation of breathing.

Treatment

- Keep the victim at rest, reassured and under constant observation.
- Commence resuscitation, if necessary, follow Basic Life Support Flow Chart.
- Use the Pressure Immobilisation Techniques if possible.
- Call 000 to transport the victim to a medical facility.

Note: despite being unable to move, the victim may be able to hear spoken comments.

Stonefish, Stingray and Bullrout

A painful local reaction may be caused by the spines of a variety of fish.

Stone fish (*Synanceia* Species) and Bullrouts (*Notesthes Robusta*) have venom glands linked to spines which can deposit venom deeply under the skin of a victim causing excruciating pain. Very rarely severe general toxic effects occur. Handling the fish is potentially dangerous.

The powerful spine on the tail of a stingray can inflict a serious wound with subsequent local tissue death. These species have excellent camouflage and stings usually occur when the victim stands on the unseen fish or from pulling fish into a boat.

Signs and Symptoms

- Intense pain.
- Swelling.
- Sometimes a local grey/blue discolouration.
- An open wound.
- Bleeding.
- Irrational behaviour and panic may occur.

Stingray barbs may damage deep structures including major blood vessels, and fragments may remain in the wound.

Treatment

- Place the victim's stung hand or foot in hot water (no hotter than the rescuer can comfortably tolerate).

- In the uncommon even that the heat does not relieve the pain, paradoxically the application of cold may be effective.
- Call 000 to transport the victim to a medical facility.

NOTE: DO NOT use the Pressure Immobilisation Technique. Antivenom is available for stonefish envenomation.

ANAPHYLAXIS

SIGNS & SYMPTOMS

Symptoms are highly variable.
Maybe one or more of the following:

- Difficulty/noisy breathing.
- Swelling of face and tongue.
- Swelling/tightness in throat.
- Persistent dizziness.
- Loss of consciousness/collapse.
- Difficulty talking/hoarse voice.
- Wheeze or persistent cough.
- Pale and floppy (in young children).
- Abdominal pain and vomiting.
- Hives, welts and body redness.
- Signs of envenomation.

HAZARD = TRIGGERS

Certain foods. Insect stings. Tick bites.
Certain medications. Latex. Exercise etc.

RISK = LIFE-THREATENING

Airway, breathing and circulatory
problems. Unconscious. Cardiac arrest.



*EpiPen® Autoinjector
Junior and Adult*

Get someone to call 000,
obtain action plan/s and
autoinjector/s.

Don't allow to stand or walk.

Remove allergen i.e. flick
out stings (Do not remove
ticks, kill them where they
are e.g. use permethrin
cream or an ether-
containing spray).

Use the correct sized
autoinjector as per
instructions.

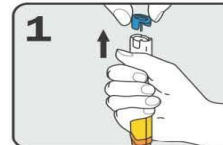
Give more adrenaline if no
response after 5 minutes.

If breathing stops, CPR.

Give oxygen or asthma
medication if required.

HOW TO USE THE EPIPEN® AUTOINJECTOR

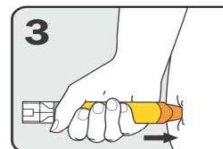
(available in adult and junior sizes).



Form a fist around EpiPen® and
**PULL OFF THE
BLUE SAFETY RELEASE.**



PLACE THE ORANGE END
against the 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 the EpiPen®.

**Ensure Safety
for Self and Others**

FOLLOW ASCIA ACTION PLAN

or FIRST AID PLAN
or these steps.

REMOVE ALLERGEN

Or move away, to prevent
further exposure.

LAY THE CASUALTY FLAT

If breathing is difficult, allow to
sit, but keep still.

USE AUTOINJECTOR

Check contents and follow
label instructions.

**Call the Ambulance
on Triple Zero (000)**

MONITOR CLOSELY

Give another dose if condition
doesn't improve after 5 minutes.

ASTHMA

SIGNS AND SYMPTOMS

	Mild attack	Moderate attack	Severe attack
Speech	Sentences before taking a breath.	Short sentences or phrases before taking a breath.	A few words before taking a breath.
Breathing	Minor trouble.	Clearly having trouble.	Gasping for breath, anxious, pale, sweaty, stressed.
Wheeze	Yes may have a wheeze.	Yes may have a wheeze.	May no longer have a wheeze.
Cough	Small cough, won't settle.	Persistent cough.	May or may not be a cough, lips might be blue, skin sucking in between ribs & base of the throat.



Reliever medication given from a blue/grey puffer through a spacer with a mask.



You can use a puffer without a spacer.

Signs and symptoms and triggers vary from person to person.

May be some or all of those listed.



A blue/grey puffer is a reliever.

Triggers may be exercise, illness, animals, smoke, environment.

IF AVAILABLE FOLLOW THE PERSONS ACTION PLAN

Be calm, provide reassurance, do not leave alone.

Provide puffs through a spacer (and mask if under 4).

A spacer delivers the medication more effectively.

OR

If directly from puffer - puff into mouth directly, breathe in, hold for 4 seconds, do this 4 times.

If after 2 sets of 4 puffs, still cannot breathe normally, call 000 immediately.

A severe attack is life-threatening if not treated.

REPEAT TREATMENT
Until help arrives or recovery.

Ensure Safety for Self and Others

Ask for consent to help.

POSITION SITTING UP

Shake the puffer. Insert in spacer.

4 PUFFS OF A RELIEVER

1 puff into the spacer, 4 breaths.
Shake the puffer.
Repeat 4 times.

WAIT 4 MINUTES

If still not fully recovered...

4 PUFFS OF A RELIEVER

1 puff into the spacer, 4 breaths.
Shake the puffer.
Repeat 4 times.

If still not fully recovered...

CALL 000
say, 'Asthma Emergency'

CHAIN OF SURVIVAL

LINK 1



Early Access to the Ambulance

Purpose - to quickly get medical help.

Recognise the emergency.

Dial 000. Send for a defibrillator.

LINK 2



Early CPR

Purpose - to maintain oxygen circulation.

Sufficient enough to preserve brain function until an AED is available to restart the heart.

LINK 3



Early Defibrillation

Purpose - to restart the heart.

For every minute delayed, there is approximately 10% reduction in survival.

LINK 4



Early Advanced Care

Purpose - to keep alive.

Paramedics provide drug administration, advanced airway procedures, other interventions and protocols.

SIGNS & SYMPTOMS = CARDIAC ARREST

Collapsed and not moving, unresponsive, unconscious and not breathing normally or at all, or gasping with no response.

HAZARDS = NO CIRCULATING OXYGEN TO THE BRAIN AND TIME

Quick timing is vital.

RISKS = BRAIN DAMAGE. DEATH

To increase the chance of revival, follow every link in the chain of survival.

CHEST PAIN

**Ensure Safety
for Self and Others**

**Call the Ambulance
on Triple Zero (000)**

Heart Attack

Sudden blockage

Pain, pressure, heaviness,
squeezing, tightness

In chest, neck, jaw, arm/s,
back, shoulder/s

Dizzy, cold sweat, short of
breath, nausea,
vomiting

Indigestion

Digestion problems

Pain is not relieved by drinking
milk or using antacids

Heart attack is often
mis-diagnosed as
indigestion

**IF PAIN IS STILL PRESENT
AFTER 10 MINUTES**

Angina

Narrowed arteries

Previously diagnosed, yet
pain is different to
past pain

Take medication as prescribed
Rest until recovered

**IF PAIN IS STILL PRESENT
AFTER 10 MINUTES**

CALL TRIPLE ZERO (000) IMMEDIATELY

KEEP CASUALTY STILL - COMFORT - MONITOR - BE PREPARED FOR CPR - SEND FOR DEFIBRILLATOR

Call 000 if symptoms persist
after 10 minutes, even if
previously diagnosed with
angina.

Give the casualty aspirin
(300mg) unless they are allergic
or have a bleeding disorder.

Please note:
Heart attack may be overlooked
as angina or indigestion. These
are some of the symptoms,
there may be others. Not all
heart attacks are accompanied
by pain. Some casualties simply
look and feel unwell.

**HAZARD = LIFE-THREATENING
MEDICAL EMERGENCY**

**RISK = PERMANENT HEART
DAMAGE, DEATH**

CHOKING

COMPLETE / SEVERE
AIRWAY OBSTRUCTION

If the object cannot be dislodged
by coughing - Call 000
Then do the back blow / chest
thrust sequence.



SIGNS & SYMPTOMS

- Trying to breathe
- Gasping, coughing
- Cannot speak or breathe
- No escape of air can be felt
- Hands held to throat
- Extreme anxiety, agitation

HAZARD = Panic. Complete obstruction.

RISK = Unconsciousness. Respiratory arrest. Cardiac arrest. Death.

BACK BLOW / CHEST THRUST SEQUENCE

POSITION THE CASUALTY

Reassure



Give up to
**5 SHARP
BACK BLOWS**

In the middle of the back
Check for removal
between blows

USE THE
HEEL OF
YOUR HAND



Until the
obstruction is
dislodged.



Still choking, give up to
**5 SHARP
CHEST THRUSTS**

In the middle of the chest
Check for removal
between thrusts

IF UNCONSCIOUS

Airway obstruction may not be apparent until assessing the airway and breathing.
Finger sweep if solid material is visible.
Commence CPR for cardiac arrest.

**Ensure Safety
for Self and Others**

**Dial Triple Zero (000)
for an Ambulance**

Child and adult: Back blows - lean forward. Chest thrusts - upright, use your other hand to hold them or position against a stationary/stable object so you don't knock them over (e.g. wall, in a chair etc.)

Infant: Back blows - head downwards so gravity will assist with expulsion. Across your lap/thigh or over your arm. Chest thrusts – turn over.



This is one method for infant- if having to act quickly where no seat is available to allow for positioning over the first aiders thigh.

CONCUSSION

**Ensure Safety
for Self and Others**

**Call the Ambulance
on Triple Zero (000)**

For an incident/accident where concussion is suspected - Stop all activity around the casualty - Follow the 3Rs

RECOGNISE - REMOVE OR STOP - REFER

RECOGNISE - DRSABCD - Do not allow to move until clear of spinal injury - Did they lose consciousness at any time?
Assess for response and breathing - Assess for concussion - Assess for spinal injury

FOR CONCUSSION SYMPTOMS

REMOVE FROM ACTIVITY

Keep still and at rest
Do not leave alone

OR

FOR SUSPECTED SPINAL INJURY

STOP

Keep still
Keep the neck and
spine aligned

IF UNCONSCIOUS

ASSUME SPINAL INJURY

Gain assistance if possible - Assess airway/breathing

If not breathing normally: Provide CPR

If breathing normally: Align and immobilise spine/neck

With help, gently roll on his/her side - Ensure airway is clear

REFER

Take note of symptoms

When - How long - How bad - Record if possible

Report information on handover of the casualty

For spinal injury and/or unconsciousness call 000

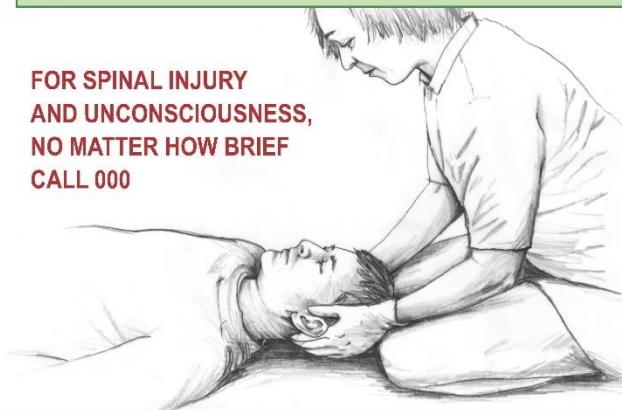
For concussion take to a medical professional

Treat other injuries as required and monitor constantly

Do not allow to return to the activity

Ensure parents/carers are contacted if a minor

**FOR SPINAL INJURY
AND UNCONSCIOUSNESS,
NO MATTER HOW BRIEF
CALL 000**



Signs – visible clues:



Loss of
consciousness



Uncoordinated
Disoriented



Incoherent
speech



Not aware of events
Confused



Memory loss



Dazed or stunned
Vacant stare

Symptoms – what the casualty feels:



Dizziness, Headache or
"pressure" in the head



Cannot
concentrate



Sensitivity to light
and/or noise



Ringing in
the ears



Tired
(fatigued)



Sick/Nauseous
Vomiting

DIABETES

**Ensure Safety
for Self and Others**

**Dial Triple Zero (000)
for an Ambulance**

If the person is able to swallow:

Onset Symptoms:

Is able to swallow
Sweating, pallor
Rapid pulse
Trembling, shaking, weakness
Hunger
Light headed, dizzy
Headache
Lack of concentration
Mood changes

GIVE SUGARY FOOD

COMFORT / REASSURE

GIVE A MEAL

Monitor until fully recovered



Make comfortable.
If the casualty can safely swallow, give high-energy foods, sugar, honey or a glucose tablet.

He/she will respond quickly if low blood sugar levels are the cause.
He/she may be a little confused on recovery.

Make sure a normal meal is eaten.

If the person is unable to swallow:

Emergency Symptoms:

Unable to swallow
Loss of coordination
Can't follow instructions
Slurred speech
Fitting/seizure
Unresponsive
Unconscious

PLACE ON SIDE

CLEAR THE AIRWAY

CALL 000

Monitor and manage

**If drowsy, unable to swallow
or unconscious
IT IS AN EMERGENCY**

DIAL 000 IMMEDIATELY

Say "Diabetic Emergency" and follow instructions.
Do not allow to eat or drink.
Wait with them until the ambulance arrives.

If family member or carer is trained to do so, as required:
Use a blood glucometer
Use a GlucaGen® HypoKit® glucagon injection

INFECTION CONTROL

HOW TO MINIMISE THE RISK OF EXPOSURE AND CONTAMINATION

HAZARD = EXPOSURE

Airborne - sneezing and coughing
Direct contact - body fluids or
contaminated items.

RISK = CONTAMINATION

Being infected by a disease.
Passing on a disease.

FOR FIRST AID

Wash hands with soap and
water or apply an alcohol-based
hand rub.

Use and wear Personal
Protective Equipment (PPE):
i.e. disposable gloves for all first
aid; masks for CPR; eye
protection and plastic aprons to
protect from splashing.

Remove PPE carefully.

Dispose of PPE, used
dressings, bandages and
infectious waste in an
appropriate bin or container.

Wash your hands thoroughly
with soap and water.

WASH HANDS

USE PROTECTION

CAREFUL DISPOSAL
AND CLEAN UP

WASH HANDS

**Ensure Safety
for Self and Others**

**Dial Triple Zero (000)
for an Ambulance**

IN GENERAL

Wash your hands regularly,
before eating, before food
preparation, after toilet use

Immunisation - many diseases
are preventable
Practice hygienic food handling
and preparation techniques
Avoid sharing food, drinks, and
personal items

Wipe away blood and spills
Clean and disinfect
Safely dispose of left over food
and other waste

Avoid transmitting infections and
contact with body fluids

These methods are
STANDARD PRECAUTIONS
Which are safe practices to be
applied for all first aid,
regardless of a casualty's
infectious status.



Reduce exposure.



Wash your hands.



Use hand rub gel.



Use gloves.



Use CPR mask.



Safe disposal.

POISONING

**Ensure Safety
for Self and Others**

**Dial Triple Zero (000)
for an Ambulance**

Protect yourself - wear gloves, use a face mask, wash contaminated area, do not come in contact with the poison.



If unconscious, call 000 first then place on side and maintain airway.

If unconscious and not breathing call 000 first then perform CPR.

Signs & Symptoms

In general

A poison can enter the body by ingestion, injection, absorption, or inhalation.

Unconsciousness
Nausea and vomiting
Blurred vision
Headache
Burning pain in mouth and throat
Seizures
Respiratory arrest
Cardiac arrest

Skin contact

Remove contaminated clothing
Avoid contact with the poison
Flood skin with running cold water
Wash gently with soap and water and rinse well

Enters the eye

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

If swallowed

Give a sip of water to wash out their mouth
DO NOT try to make them vomit
DO NOT use Ipecac Syrup

If inhaled

If safe (don't go into an unsafe environment):
Immediately get the casualty to fresh air
Avoid breathing fumes
Open doors and windows

If swallowed - button battery

Determine:
The type of battery
The battery identification number, found on the package or from a matching battery
The casualty's age, weight and condition
Don't allow them to eat or drink anything
If the battery contents touches the eyes or skin, wash with water for 15 minutes
If in nose or ears, seek urgent medical help
DO NOT use nose or ear drops

Signs & Symptoms

Button batteries - swallowed

Similar to a common cold
Fever
Coughing/difficulty swallowing
Drooling
Lethargy
Irritability
Abdominal pain/vomiting
Loss of appetite
Dark or bloody bowel movements

Button batteries - in ear or nose

Pain and/or a discharge from the nose or ears

RESUSCITATION

DRSABCD RESPONSE

DANGER
Check for hazards & ensure safety.

Infants Under 1 Year



RESPONSE
A casualty who is unresponsive and not breathing normally needs urgent resuscitation.

AIRWAY
Open to check breathing.

BREATHING
If the casualty is not breathing OR breathing abnormally, start CPR.

CPR
30 Compressions: 2 Breaths.
(if unwilling or unable to do breaths, consider compressions only).

DEFIBRILLATE
As soon as available, follow the prompts.

SEND FOR HELP
Call the ambulance - 000.

Adults & Children



Ensure Safety
for Self and Others

Call Triple Zero (000)
for an Ambulance

SIGNS & SYMPTOMS

Unconscious, not responding,
not breathing normally, or not
breathing at all.

CPR DETAILS

	Adults & Children	Infants Under 1 Year
Open Airway →	Head tilt/chin lift	Neutral head
Press with? →	2 Hands	2 Fingers
How hard? →	1/3 chest depth approx 5 cm	1/3 chest depth approx 4 cm
Breath pressure? →	Full breaths	Puffs
How many? →	30 Compressions : 2 Breaths	
How fast? →	Compressions should be done at the rate of almost 2 per second (continuous rate of 100 - 120 per minute)	

For more information visit: www.resus.org.au

CONTINUE CPR / DEFIBRILLATION
Until responsiveness or normal breathing returns, or help arrives.

SEIZURE

**Ensure Safety
for Self and Others**

Signs and Symptoms

Any or all of the following:

- Altered awareness
- Spasm and rigid muscles
- Collapse
- Jerking movements of head, arms and legs
- Shallow or intermittent breathing
- Lips or complexion may change colour
- Change in or loss of consciousness
- Noisy breathing, dribbling
- Faeces or urinary incontinence

****Febrile convulsions are usually associated with a rapid rise in temperature in young children***

Consult the person's Medical Management Plan as soon as possible if they have one.

Step 1

TIME THE SEIZURE

if possible from start to finish

PROVIDE SAFETY

- remove unsafe objects
- protect the head

REMAIN CALM

- reassure the person
- tell them where they are and that they are safe

Step 2

MAINTAIN THE AIRWAY

- roll on his/her side
- when jerking stops, immediately if food, vomit or fluid enters their mouth

DO NOT

- restrain unless in danger
- move unless in danger
- place anything in their mouth

Step 3

MAINTAIN PRIVACY & DIGNITY

STAY WITH THEM

- until seizure naturally ends and they fully recover

REASSURE

- they will be dazed and confused or drowsy

*For further information consult Australian Resuscitation Council guidelines or your local epilepsy organisation or go to www.epilepsy.org.au

**Dial
Triple Zero
(000) for an
Ambulance**

Call 000 if the seizure:

- lasts more than 5 minutes
- is quickly followed by a second seizure
- occurs in water

Call 000 if the casualty:

- is unresponsive more than 5 minutes after the seizure
- goes blue in the face
- is pregnant or is injured

Call 000 if you:

- think it is their first ever seizure
- are concerned about their condition
- are uncomfortable treating them

SNAKE BITE & FUNNEL WEB SPIDER BITE

Ensure Safety for Self and Others
Call an Ambulance - Triple Zero (000)
Lay Down - Keep Still - PIT Immediately

Snake Bite Signs & Symptoms



Any or all of the following:

Fang marks – two, one or a mark or scratch (localised redness and bruising are uncommon in Australia).

Sometimes painless without visible marks.

For Brown snake, may initially collapse, or confusion followed by partial or complete recovery (useful information on handover).

Swollen sore glands in groin or armpit of the bitten limb.

Headache / Abdominal pain / nausea / vomiting.

Blurred or double vision / drooping eyelids.

Difficulty speaking, swallowing, breathing.

Limb weakness or paralysis.

Bleeding due to inability to clot blood and/or muscle damage.

Respiratory weakness or arrest.

Funnel Web Spider Bite Signs & Symptoms

Any or all of the following:

Intense pain at bite site, but little local reaction.

Tingling around the mouth.

Profuse sweating, excessive saliva.

Abdominal pain.

Muscular twitching.

Breathing difficulties.

Confusion leading to unconsciousness.



Pressure Immobilisation Technique (PIT)

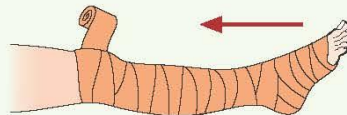
This is one method of immobilisation for bites on a limb. There may be other PIT methods that are acceptable to use.

Step 1 Pressure bandage

Lay the casualty down and stop them from moving.

Apply a broad (10-15cm wide) pressure bandage as firm as for a sprained ankle, starting at the fingers or toes of the bitten limb, continuing upward, covering as much of the limb as possible.

(You should not be able to easily slide a finger between the bandage and the skin).



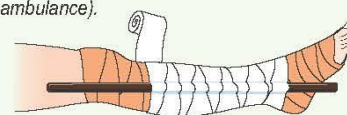
Step 2 Splint the limb

Splint the limb, including the joints, on either side of the bite to restrict movement.

Where possible, use a bandage and a long thin rigid object for the splint.

Keep the casualty and the limb completely still.

Bring transport to the casualty if possible, get to medical care urgently (*preferably ambulance*).



Alternative method

Lay the casualty down and stop them from moving.

Apply firm pressure on the bite.

Start with a broad pressure bandage over the bite as firm as for a sprained ankle.

Continue then with another bandage, following STEP 1 and 2 (*on the left*).



Note: If casualty stops breathing cease all treatment and provide CPR

Elasticised bandages 10-5cm wide are preferred. If unavailable, improvise i.e. use clothing or other material, torn into strips.

If the bite is on the torso, direct pressure on the bite site may be useful. If alone, the casualty should try to apply PIT and seek help. If help can't come to the casualty then they may have to move to find urgent help.

Further advice on all types of envenomation:

- Australian Venom Research Unit: avru.org
- Poisons Information Centre: phone - 13 11 26
- Australian Resuscitation Council: resus.org.au

PIT is also recommended for Blue-Ringed Octopus and Cone Shell bites and stings.

HAZARD = Remote areas/not getting help quickly enough.
Not recognising or ignoring the bite. Panic. Type of snake.
Venom moving through the body.

RISK = LIFE-THREATENING.
Muscle damage. Kidney failure.
Respiratory arrest. Cardiac arrest.

DO NOT kill the snake.
DO NOT cut the bite or use a tourniquet.
DO NOT wash or suck the bite or discard clothing.

SPINAL INJURY

**Ensure Safety
for Self and Others**

Signs & Symptoms

Some or all of the following:

- Evidence of head injury or trauma
- Abnormal position of head or neck
- Nausea, headache, dizziness
- Tenderness, pain
- Altered sensations - numbness, tingling, pins and needles in the hands or feet
- Loss of movement and/or feeling to arms and/or legs
- Altered conscious state
- Breathing difficulties
- Shock
- Change in muscle tone (flaccid or stiff)
- Loss of bladder or bowel control



HAZARD = FURTHER MOVEMENT
Causing further injury

RISK = DAMAGE TO SPINAL CORD
Causing loss of movement and feeling

Urgently Call Triple Zero (000)

Do not move location unless in a dangerous situation

Reassure - Tell them to keep still

MANUALLY SUPPORT NECK

Until the ambulance arrives - This is vital

- Move to the casualty's head
- Position yourself so you are stable
- Gently hold the casualty's head
- Support without movement

IF UNCONSCIOUS

- Align and immobilise the neck with your hands
- Roll on his/her side
- Position neck to neutral to ensure an adequate airway
- Manually support the neck.