



# FIRST AID

Department of Labour | First Aid Level 1

Learner Guide



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## Icon Legend

Icons are pictures and their purpose in this learner guide is to help to you to remember certain aspects and keep you informed about what you are doing in terms of where you are.

| ICON                                                                                                                                                                                                                                       | TITLE                         | DESCRIPTION                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|
|  The icon shows the words "additional info" in white text on a blue background, with three books (black, blue, and orange) standing upright to the right. | <b>Additional Information</b> | The additional information icon indicates to you additional information related to the learning. |
|  The icon shows the word "important" in white text on a blue background, followed by a large blue exclamation mark.                                       | <b>Take Note</b>              | Important information and definitions.                                                           |
|  The icon shows the word "legal" in white text on a blue background, followed by a green illustration of a classical building with columns.               | <b>The Law</b>                | References to specific legislation.                                                              |
|  The icon shows the word "notes" in white text on a blue background, followed by a blue pencil.                                                           | <b>Notes</b>                  | Blank space where you can make some notes.                                                       |
|  The icon shows the word "Remember" in white text on a blue background, followed by a yellow sticky note with a paperclip.                               | <b>Remember</b>               | Important facts to remember.                                                                     |

## New Terms and Definitions

First Aid is the emergency care given and the action taken to assist an injured person using readily available equipment. First aid is given whilst waiting for the relevant emergency assistance to arrive at the scene.

Listed below are possible new terms and definition you may come across in the learner guide. You are welcome to expand on this.

| Term                                       | Definition / Explanation                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Casualty/Patient</b>                    | Injured or sick person.                                                                                                                                                                                                                                                                                                                          |
| <b>Sharps</b>                              | Sharp objects for example needles, syringes with needles, scalpels, blades, disposable scissors, suture equipment, broken test tubes, and glass that may contain human blood, fluids and tissues with pathogens.                                                                                                                                 |
| <b>Mute</b>                                | A person who is unable to speak or communicate verbally.                                                                                                                                                                                                                                                                                         |
| <b>Trauma</b>                              | Shock or injury producing a lasting effect on the mind or body.                                                                                                                                                                                                                                                                                  |
| <b>Respiratory</b>                         | Pertaining to the lungs and other structures used to breathe properly.                                                                                                                                                                                                                                                                           |
| <b>Cardiopulmonary resuscitation (CPR)</b> | Using rescue breathing and chest compressions to help a person whose breathing and heartbeat have stopped. <i>Source: <a href="http://medical-dictionary.thefreedictionary.com">http://medical-dictionary.thefreedictionary.com</a></i>                                                                                                          |
| <b>Hazard</b>                              | A hazard is anything that has the potential to cause injury or harm to health, or damage to equipment or property.                                                                                                                                                                                                                               |
| <b>Substance</b>                           | Any solid, liquid, vapour, gas or aerosol, or combination thereof.                                                                                                                                                                                                                                                                               |
| <b>Risk</b>                                | Means that there is a probability that injury or damage will occur.                                                                                                                                                                                                                                                                              |
| <b>Safe</b>                                | Means free from any hazard.                                                                                                                                                                                                                                                                                                                      |
| <b>Chemicals</b>                           | Substances which are used in factories, farms and homes for a variety of purposes such as cleaning, painting, killing pests, and helping maintain vehicles.                                                                                                                                                                                      |
| <b>Triage</b>                              | A method of ranking sick or injured people according to the severity of their sickness or injury in order to ensure that medical and nursing staff facilities are used most efficiently; assessment of injury intensity and the immediacy or urgency for medical attention.<br><i>Source: McGraw-Hill Concise Dictionary of Modern Medicine.</i> |

# Principles of Primary Emergency Care in the Workplace

## The Aim of Primary Emergency Care

The aim of primary emergency care is to assist injured parties whilst waiting for professional assistance to arrive.

First aid given early and immediately after an accident can save a life. First aid is not intended to replace the expertise of qualified medical professionals, but it plays a vital role in the early identification and care of an injured person. Remember that the first hour after an incident/accident is the most critical. Your role in this first hour is to attempt to stabilise the patient and make them as comfortable as possible until professional assistance arrives.

Managing and taking charge of an emergency scene

### OBJECTIVES OF FIRST AID

First aid is given to a patient in an effort to do the following:

- To Preserve life (to protect from harm/danger, to maintain in safety)
- To Promote recovery
- To Prevent an injury or illness from becoming worse

## PRIMARY ASSESSMENT (SCENE MANAGEMENT)

### H- Hazards

- Your first priority is to ensure that you are safe
- Assess the scene. i.e., note injuries, dangers and number of casualties,
- Take control of the scene. For example, ask bystanders to leave the scene or stand at a safe distance and ask for assistance from those who are qualified to do so
- Call the relevant safety officer or summon medical help
- Identify potential hazards and remove them from the scene if possible
- Check if the injured person is wearing a medic alert and if so, establish the medical condition before attempting treatment
- Identify and treat serious or life-threatening injuries first
- Assist if necessary, the transportation of casualties
- Record accurate and detailed information



### Possible sources of help

- Safety officer
- Bystanders or co-workers
- Fire department
- Police or security
- Other medical personnel – i.e. paramedics

# H-Hello

Establish verbal communication or responsiveness with each one of the patients by tapping him/her on the shoulders and asking, “Hello, Hello!” Persons who do not talk back are more severely injured or ill than those who talk back

# H-Help

### Emergency numbers



The emergency telephone number on **ANY cell phone** worldwide is **112**.

Make sure you know your local appropriate emergency numbers (Ambulance, Fire, Police, and Poisons).



In South Africa the toll-free national **ambulance emergency** number is **10177**.

If you are getting a bystander to call for you, write the number down for them as it is an easy number to forget.



In case of **difficulty with an emergency** number in South Africa, call **1022**

- Give the correct address/closest intersection or landmark to the dispatch.
- Describe the problem
  - Number of casualties or injured people.
  - Types of injuries
  - Mention if CPR will be administered or needed
  - Advise security that professional help will be arriving
  - Send someone to meet the ambulance and show them where to go.
- Assess the scene properly and ensure that the scene is safe. E.g. live wires, or running machinery – contact relevant parties.

# C-Circulation

Feel for a carotid pulse by placing your index and middle finger on the patients ADAM's APPLE. Slide your fingers to the side of the neck closest to you about 2cm into the groove between the trachea and the muscles. Feel for a pulse for at least 5 seconds not more than 10.

**IF NO PULSE START CPR!!!**

# A-Airway



If the airway is not opened sufficiently, the air that you will be blowing into the patient may enter the stomach and not the lungs.

# B- Breathing

Administer two breaths, ensuring that there is chest rise

Hazards also apply here, thus you need to ensure you have a barrier

Look for any chest rise and fall to see if the patient is breathing.

## Personal Protective Devices and Infectious Disease Prevention

When treating an injured person, it is important that you take relevant safety precautions in order to protect yourself from any injury or infection resulting from the treatment of the casualty. We can do this by using the relevant protective clothing and devices.

### EXAMPLES OF PPE

It is important that we use precautionary measures to prevent the transmission of blood-borne pathogens. Some examples of blood-borne pathogens are:

- Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS)
- Hepatitis B (HBV)
- Malaria
- Syphilis



***It is safe to assume that any emergency situation involving exposure to body fluids has the potential for disease transmission for both the rescuer and the casualty. All blood and other body fluids are to be treated as potentially infectious.***

The simple practice of infection control during the treatment of casualties will help prevent the transmission of disease. An emergency response must not be attempted without protecting oneself first. Protective clothing includes latex gloves and the use of a mouthpiece while assisting a patient. If assistance is required from another person, they must also wear gloves before touching the patient.

## Gloves

### Why do we wear gloves?

- We wear gloves to protect ourselves from being infected by infectious diseases which may be present in the patient.
  - Inspect the gloves and ensure that there are no holes or tears in them.
  - If you are wearing jewellery (rings) remove if possible to prevent damaging the gloves.
  - Make sure that the gloves are not too small or too large for you.
  - The gloves should slide easily onto your hands.
  - In the case of open wounds, avoid touching dirty or contaminated surfaces with the gloves prior to treating the wound.
  - More than one patient must never be touched with the same gloves. Gloves must be changed before treating the next patient.

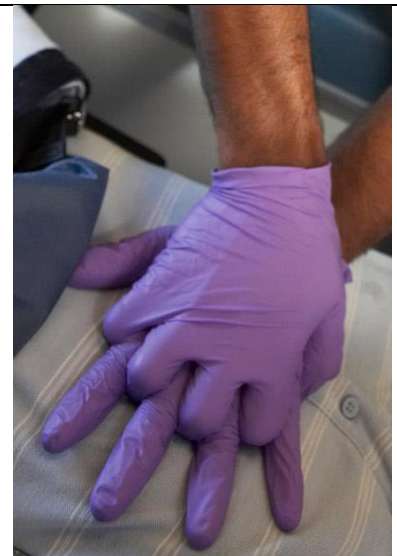


Figure 1: An Example of Gloves



***More than one patient must never be touched with the same gloves. Gloves must be changed before treating the next patient.***

## Universal blood precautions

Universal blood precautions are designed to protect persons from being exposed to Human Immunodeficiency Virus (HIV) or Hepatitis B Virus (HBV), which is the greater threat to people exposed to blood, and other infective agents, which may be present in blood.



***Treat all persons, human blood or other blood containing body fluids and any other potentially infectious material as infectious.***

***Adequate precautions must be taken to avoid direct contact with blood or body fluids from any person.***

## Universal Blood Precautions – Procedure

- Wear gloves in the following situations:
  - When touching blood and body fluids, mucous membranes or a person with broken skin
  - When handling items or surfaces soiled with blood or body fluids
  - When in direct contact with infected material
- Change gloves after contact with each person.
- If you are splashed or become contaminated with blood or body fluids:
  - Wash your hands and other skin surfaces immediately and thoroughly
  - Wash the affected area immediately with soap and water
  - Rinse eyes, nose and mouth with lots of water
  - Use disinfectants, such as alcohol on skin only (external) and not on the wounds itself
- Wash your hands immediately after using gloves.
- Small amounts of used waste paper can be disposed of in flush toilets or in a proper sanitary towel/tampon disposal container.
- Large amounts of contaminated materials must be placed in a sealed plastic bag and labelled as Bio Hazard – these are to be disposed of via Hazardous Waste Services.
- If you have a large amount of contaminated material:
  - Avoid contaminating the outside of the container,
  - If container is contaminated clean with bleach
  - Sealed bags and disposal containers should be disposed of via Hazardous and Medical Waste only



Figure 2: A few examples of medical waste containers.

## Legal Implications Surrounding Primary Emergency Care

### CONSENT

It is the right of everyone to accept or refuse emergency assistance. It is therefore essential that the correct consent be given before emergency procedures are begun.

There are different forms of consent:

- **Implied consent** Where the injured person is unable to give consent, but would have given consent if he or she were able to understand the situation. For example – unconsciousness or a mute.
- **Explicit consent** Where permission is given by the injured person.
- **Indirect/minor consent** Where permission is given by either a parent or guardian of a child less than 18 years of age.

### **Negligence**

If you take any action or perform any skill out of your scope of practice/training that may harm the patient it may be seen as negligence. If you are capable of treating a patient or performing a skill that may save a patient's life, and you did not take that action you may also be held liable.

### **Abandonment**

Abandonment is when you start treatment of the patient and then stop while patient still needs intervention, without handing patient over to same level of qualification or higher. You are obligated to continue with treatment until you can give the patient over to a higher qualified person or a person with the same qualification as yourself

No first aider may administer drugs of any kind to a patient. This can only be done by a medical professional.

# Sustain a Basic Level of Preparedness for Health Emergencies in the Workplace

## Basic First Aid Kit

Legislation exist directing the content of a first aid kit it and is stipulated in General Safety Regulations 2004, Regulation Gazette No. 8336.

According to General Safety Regulations 2004, Regulation Gazette No. 8336, a Regulation 7 first aid kit should consist of the items listed in the table below which can be used to administer general first aid. Please note that this is for the minimum requirements.



### Minimum Contents of a Regulation 7 First Aid Box

*According to Annexure to General Safety Regulations 2004, Regulation Gazette No. 8336.*

| Item   | Description                        | Comment                                                                                                                                  | Picture - Examples                                                                    |
|--------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Item 1 | Wound cleaner / antiseptic (100ml) | For disinfecting wounds - ensure that it is used according to the manufacturer's directions. Using a spray bottle makes applying easier. |  |
| Item 2 | Swabs for cleaning wounds          | Used for cleaning wounds and padding.                                                                                                    |  |
| Item 3 | Cotton wool for padding (100g)     | Used for padding.                                                                                                                        |  |

| <b>Minimum Contents of a Regulation 7 First Aid Box</b><br><i>According to Annexure to General Safety Regulations 2004, Regulation Gazette No. 8336.</i> |                                         |                                                                                                                                                                                                                                                                                               |                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Item                                                                                                                                                     | Description                             | Comment                                                                                                                                                                                                                                                                                       | Picture - Examples                                                                    |
| Item 4                                                                                                                                                   | Sterile gauze (minimum quantity 10)     | Used for cleaning wounds and padding.                                                                                                                                                                                                                                                         |    |
| Item 5                                                                                                                                                   | 1 pair of forceps (for splinters)       | Used for removing splinters, etc.                                                                                                                                                                                                                                                             |    |
| Item 6                                                                                                                                                   | 1 pair of scissors (minimum size 100mm) | Used for cutting bandages and clothing that may be hampering the treatment.                                                                                                                                                                                                                   |    |
| Item 7                                                                                                                                                   | 1 set of safety pins                    | Used to secure bandages.                                                                                                                                                                                                                                                                      |    |
| Item 8                                                                                                                                                   | 4 triangular bandages                   | The “Universal bandage”. It can be used to tie a sling, as a broad bandage, as a narrow bandage or as a support bandage to hold a splint in place. It can also be rolled into a “doughnut” and placed over wounds where there are impaled objects or where bone is sticking through the skin. |  |
| Item 9                                                                                                                                                   | 4 roller bandages (75mm x 5m)           | Used as a support bandage.                                                                                                                                                                                                                                                                    |  |
| Item 10                                                                                                                                                  | 4 roller bandages (100mm x 5m)          | Used as a support bandage.                                                                                                                                                                                                                                                                    |  |
| Item 11                                                                                                                                                  | 1 roll of elastic adhesive (25mm x 3m)  | Used for strapping injured limbs.                                                                                                                                                                                                                                                             |  |

### Minimum Contents of a Regulation 7 First Aid Box

According to Annexure to General Safety Regulations 2004, Regulation Gazette No. 8336.

| Item    | Description                                                               | Comment                                                                                                                                                                                                                                                                                                                   | Picture - Examples                                                                    |
|---------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Item 12 | 1 Non-allergenic adhesive strip (25mm x 3m)                               | Used for: <ul style="list-style-type: none"> <li>• covering wounds</li> <li>• keeping dressings in place</li> <li>• applying extra pressure to minor injuries</li> <li>• holding splints in place, particularly a finger splint</li> <li>• removing debris from a wound by gently using its sticky properties.</li> </ul> |    |
| Item 13 | 1 Packet of adhesive dressing strips (minimum quantity 10 assorted sizes) | Used for covering wounds.                                                                                                                                                                                                                                                                                                 |    |
| Item 14 | 4 First aid dressing (75mm x 100mm)                                       | Used for covering and protecting wounds.                                                                                                                                                                                                                                                                                  |    |
| Item 15 | 4 First aid dressings (150mm x 200mm)                                     | Used for covering and protecting wounds.                                                                                                                                                                                                                                                                                  |   |
| Item 16 | 2 Straight splints                                                        | Used for immobilising and supporting injured limbs.                                                                                                                                                                                                                                                                       |  |
| Item 17 | 2 Pairs large and 2 pairs medium disposable latex gloves                  | Used to protect yourself from contracting infections and diseases from the patient.                                                                                                                                                                                                                                       |  |
| Item 18 | 2 CPR mouth pieces or similar devices                                     | Used to protect yourself from contracting infections and diseases from the patient.                                                                                                                                                                                                                                       |  |
| Item 19 | Adequate supply of absorbent material                                     | For cleaning up blood and body fluids, i.e. kitchen paper.                                                                                                                                                                                                                                                                |  |
| Item 20 | Disinfectant i.e. bleach                                                  | For cleaning the scene of blood or other body fluids.                                                                                                                                                                                                                                                                     |  |



### Minimum Contents of a Regulation 7 First Aid Box

According to Annexure to General Safety Regulations 2004, Regulation Gazette No. 8336.

| Item    | Description                                                         | Comment                                                                          | Picture - Examples                                                                  |
|---------|---------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Item 21 | 2 Pairs large and 2 pairs medium disposable rubber household gloves | To protect the person cleaning the spill from infectious diseases.               |  |
| Item 22 | Suitably sized impervious bag                                       | For safe disposal of blood and other body fluid contaminated biohazard material. |  |



***No clothing may be cut without consent of the patient – unless it is a life-threatening situation and the patient cannot respond for various reasons.***

### Additional Items for the First Aid Box

| Item   | Description                          | Comment                                                                                     | Picture - Examples                                                                    |
|--------|--------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Item A | 1 x Cervical Collar (neck guard)     | Used for supporting the neck in the case of a neck or back injury.                          |   |
| Item B | 10 x Alcohol Swabs                   | For cleaning wounds.                                                                        |  |
| Item C | 2 x Rescue Blankets (Space Blankets) | For covering the patient once he or she is in the recovery position and for treating shock. |  |
| Item D | 1 x Eye Bath                         | To aid in removing foreign objects from the eye.                                            |  |
| Item E | 1 x Sterile Saline Solution          | For irrigating wounds/eyes etc.                                                             |  |

These are the basic contents of a regulation First Aid Kit. Workplaces differ and other items can be added to adapt to the workplace needs.

### Additional Items

- A suitable sized impervious bag – for disposal of contaminated bio-hazard material
- Ice pack – for reducing swelling
- Stretcher – for transporting patients once head and neck injuries have been ruled out. The patient must be properly secured and supported before attempting to transport him/her
- It is recommended that additional gloves and a blanket are kept near the first aid kit.



***Always ask the patient if he or she is allergic or sensitive to Iodine. Not all people can use it and it can cause a severe allergic reaction.***

### Further Information on First Aid Kits

Acts and regulations can be downloaded from: <http://www.labour.gov.za/>

### Maintaining the First Aid Kit

Contents of the first aid kit should be checked and replaced as items are used to maintain a level of preparedness. If the first aid kit is not used for a period of time the kit should be checked periodically according to specific workplace procedures, e.g. once a month. Items such as mouthpieces and sterile dressings should be checked and sterile seals maintained.

### Safety practices in the workplace

#### Positioning and availability of the first aid kit

- First aid equipment should be kept in metal boxes fixed to the wall in the sick room or office of the safety officer and must be visible to all.
- The position of the first aid kit should be clearly identified by means of an approved notice.
- First aid boxes should be secured by means of a lock or cable tie.
- Portable first aid kits should be available for use on site.
- Portable first aid kits used in the field must be kept in a place which is visible or known to all workers in the field and in a bag that is easily identified as a first aid bag.

#### Maintenance of the first aid kit

- The first aid official in charge of equipment is responsible for checking kits.
- First aid boxes and portable kits should be checked monthly or according to workplace specifications.
- These kits must be kept clean and maintained by the relevant first aid or safety officer in the field.



**Figure 2: Example of a Wall Mounted First Aid Box**



**Figure 3: First Aid Sign**



**Figure 4: Manned First Aid Station Sign**

- The first aid officials should ensure that the kits contain at least the minimum contents as contained in accordance with General Safety Regulations.
- Used items must be replaced as they are used.
- Discard contaminated items as well as items such as mouthpieces and sterile dressings where the sterile seal is no longer intact and replace immediately.

### Records and contacts

- The names of first aid officials must be displayed on the first aid kit with accurate and updated contact details.
- The contact details of the authorities should be displayed clearly and accurately on the first aid kit or inside the bag of a portable kit.
- A record must be kept in the first aid kit for the recording of all injuries that require first aid care.

#### Remember

*Due to HIV and Aids and other infectious diseases, it is essential that no first aid procedure is administered unless the correct protective equipment is available, so it is vital that disposable gloves and resuscitation mouth-pieces are in your first aid kit and replaced every time you use them.*

#### Remember

*You should always get permission to help a conscious casualty, regardless of your level of expertise.*

*Never abandon an injured individual without reassuring them that you will be back shortly, and only leave their side if there are other seriously injured casualties that need assistance.*

### Determine priority cases

The name given to prioritising patients or casualties is **TRIAGE**. (The name comes from the French word meaning “sort into three”.) This will now be discussed in more detail.

## Triage

The purpose of triage is to give the best treatment to injured persons. The most experienced medically trained person available is responsible for triage. The process begins at the emergency scene. This person will not be involved with the treatment at this point but will call others to begin treatment. If there is no one else available, this must be done alone.

### Priority One

Priority **one** patients will include:

- Obstructed airways
- Breathing difficulties
- Severe external bleeding
- Severe internal bleeding

- Cardiac arrest
- Unconsciousness
- Severe burn cases

Patients in group one have first priority for removal to hospital.

### **Priority Two**

Priority two patients will include:

- Major fractures
- Multiple fractures
- Burns without complications
- Back injuries with or without spinal damage

Patients in group two are those who need admission to hospital but do not need immediate resuscitation.

### **Priority Three**

Priority three patients will include:

- Minor fractures
- Small wounds

Patients in group three are referred to as “walking wounded”.

### **Priority Four**

Priority four patients are those who are dead or those who have such devastating injuries that they have little chance of survival.

The skills required in handling an emergency situation include assessment of danger and risks, planning the most appropriate action to be taken and to have personal commitment towards safety – bystanders, casualties and yourself. The object of triage is to care for the most serious patients without losing time caring for less urgent injuries. The use of triage maximizes the percentage of survival.

### **Procedure once priority cases have been determined:**

- Start treating the patients starting with the most serious ones first (see priority one patients above).
- Once a patient is stabilized, set them into the recovery position and move onto the next patient.
- Assess the patient for any other injuries and treat accordingly (perform the secondary assessment).
- Monitor the patient and note any changes in the patient’s condition.
- Treat patient for any complications as they arise (continual care).
- Do not leave the patient’s side until professional help arrives.

- Once professional help arrives, hand the patient(s) over to them being sure to report all your findings and the treatment you gave them.
- If necessary, help with the transportation of patients.
- Keep a record of all injuries and all the details of the treatment given to the patients. Put this in a safe place in case you need it later.

## Casualty Ages

Due to the variation of treatments due to the different ages of casualties, casualties have been classified into different age groups, namely infant (under one years of age), child (one to eight years old), adult (eight years and older).

### Emergencies

We'll take a look at the following emergencies:

- Choking
- Rescue breathing
- Recovery Position
- CPR
- Bleeding

## Choking

How many times have you seen someone choking and have had no idea what to do?

**A person who is choking cannot breathe and as a result could lose consciousness.** This could lead to serious consequences, so the aim is to help the person to stop choking before the problem becomes more serious.

### What causes a person to choke?

The throat is used for both swallowing and breathing, and the two pipes that perform these functions have to share a common pipe before they split. This is called the oesophagus.

The oesophagus leaves the mouth down the back of the throat and passes the voice box or larynx.

It then splits into two pipes – one is the **oesophagus or gullet** which leads to the stomach and carries food, and the other is the **trachea or windpipe** which leads to the lungs and carries air. At the split, there is a small flap made of cartilage called the **epiglottis**. This flap opens and closes to let air in and out and sometimes it gets confused and food or other substances enter the windpipe. This causes choking.

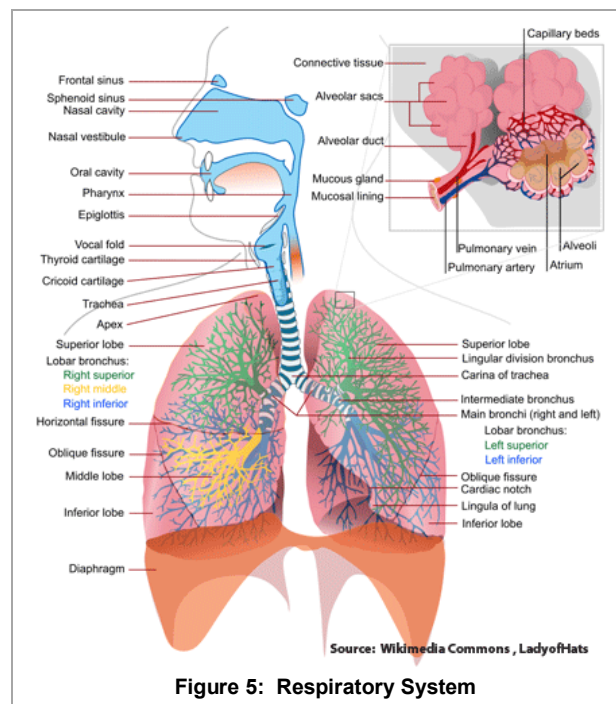


Figure 5: Respiratory System

## Recognising a Choking Patient

- The person clutches his/her throat. (This is the universal choking sign)
- The neck veins stick out
- Face turns red or blue

### Signs and symptoms

- Partial obstruction:
  - Casualty is able to cough
  - Difficulty in breathing but some breath is getting through
  - Clutching the throat
  - Neck veins stick out
  - Anxiousness – fear
  - Breathing has a whistling sound
  - Face becomes red
- Complete obstruction
  - Cannot make sounds or cough
  - Cannot breathe at all
  - Clutching the throat
  - Neck vein sticking out
  - Unconsciousness
  - Turns blue



**Figure 6: Universal Sign of Choking**



***Brain damage can occur after four minutes! So act quickly!***

### Treatment

#### What to ask a choking patient

- Are you choking?
- Can you speak?
- Can you cough?

The response will be in the form of a nod

Instruct the patient to lift his/her arms. If this fails to relieve the choking, do the Heimlich manoeuvre.

## The Heimlich Manoeuvre

- Make sure that the choking person is unable to speak or breathe properly.
- Stand behind the patient and place both arms around the waist as if in a bear hug position from behind and place leg in a supportive position.
- Clench one fist pointing the thumb above the navel on the abdomen.
- Cover your fist with the other hand and make a fast inward and upward thrust.
- Repeat the thrust action until the object is out or patient becomes unresponsive.
- What if the patient is pregnant or very fat?
  - Perform chest thrust just like CPR.



Figure 7: The Heimlich Manoeuvre

## Back slaps

- The majority of protocols now advocate the use of hard blows with the heel of the hand on the upper back of the victim. Give 5 back slaps.
- The back slap is designed to use percussion to create pressure behind the blockage, assisting the patient in dislodging the article.
- The back slap is used on infants and small children who are choking.
- Hold the child over your leg – head lower than its body.
- Slap the back firmly with the heel of your hand as illustrated below.



Figure 8: Back Slaps

If the child is still not able to breathe, you must do chest **thrusts**.

- Turn the infant over onto his or her back and place your arm down on your thigh, making sure the infant's head is lower than his or her chest. Imagine a line across the infant's chest between the nipples.
- Place your ring finger on the infant's breastbone just below the imaginary nipple line. Place the pads of the next two fingers just under the line.
- Compress the infant's breastbone 1,5 to 2,5 cm with the pads of your fingers and then let the breastbone return to its normal position. Give 5 compressions.
- If even after re-tilting the head and trying to give breaths again, air does not go in, perform 5 back blows and then 5 chest thrusts.

- Do a foreign body check: open the infant's mouth, holding the tongue and lower jaw and lifting them upward, and look for an object; if you do see an object, do a finger sweep to remove it with your little finger.
- Then give two (2) slow breaths. If air still will not go in, continue doing back blows, chest thrusts, foreign body check and two (2) slow breaths until the infant starts to breathe or cough or air goes in, or until the infant becomes unconscious. If the infant become unconscious, start CPR immediately.
- If the infant is not breathing but has a pulse, you must perform Rescue breathing. If the infant is not breathing and does not have a pulse, start CPR.

Other forms of choking are strangulation or suffocation. This happens when the throat is constricted so that the windpipe is blocked altogether and no air can get in.

## Rescue Breathing

Rescue breathing is performed on an unconscious non-breathing patient. It is usually done in conjunction with chest compressions – the whole process is known as Cardiac Pulmonary Resuscitation or CPR. We will deal with CPR a little later. For now we will discuss rescue breathing.

### What is Rescue Breathing?

Rescue breathing is the act of breathing for a person who is not breathing, yet has a pulse. If possible, you should always perform rescue breathing on a patient using a mouthpiece or barrier device. This is so that you are protected from any contagious illness the victim may be carrying. The illustrations below show rescue breathing being done without a mouthpiece – this is acceptable if no mouthpiece is available. If the patient is not breathing yet has a pulse, initiate rescue breathing.

Rescue breathing is sometimes called artificial respiration. It is known by a variety of names, such as mouth to mouth resuscitation, offering someone the kiss of life, or expired air ventilation. No matter which names you use, rescue breathing, in simplest terms, refers to inflating the lungs of a non-breathing individual with air coming from your lungs that is expelled via your mouth.

### Rescue Breathing Procedure

- Check for hazards, and make the area safe.
- Assess the patient's responsiveness - ask the patient.
  - "Are you ok?"
  - Tap the patient on the shoulder if there is no response – tap and talk, do not shake and shout.....! If you shake the patient you could aggravate the injuries you cannot see.
  - If there is a response, begin treating the patient without moving him/her.
  - If the patient still does not respond, call for HELP. Look for any signs of life by pinching the foot or the hand slightly.



- Perform rescue breathing by doing the following:
  - Lay the patient on his/her back. (Make sure you use the log roll if a spinal or neck injury is suspected – this is discussed under the section on transportation – Study Unit 6. If a neck or spinal injury is suspected, DO NOT use the Head Tilt – but use the jaw thrust manoeuvre instead.)
  - Loosen any tight clothing around the neck and open the airway by placing the palm of your one hand on the patient's forehead to tilt the head backwards while lifting the bony part of the chin with the fingers of the other hand. This is known as the "Head Tilt – Chin Lift Manoeuvre". This manoeuvre raises the lower jaw, tongue and epiglottis off the back of the throat wall and opens the airway.
  - If a neck injury or spinal injury is suspected, use the jaw thrust method:
    - Sit at the patient's head facing his/her feet.
    - Hold the angles of the jaw with both hands – one on either side of the jaw – with fingertips just below the earlobes and thumbs pointing towards the corners of the mouth.
    - Lift the jaw forwards gently using your fingers and open the patient's lower lip with your thumbs. DO NOT TILT THE HEAD BACKWARDS IF THERE ARE SPINAL/NECK INJURIES!
    - When using the jaw thrust in rescue breathing, you need to close the nostrils with the side of your cheek as you form a seal over the patient's mouth as both your hands will need to be holding the jaw forwards.



**Figure 9: "Head Tilt, Chin Lift Manoeuvre"**

While keeping the airway open, quickly check the breathing by looking at the mouth and then placing your ear next to the patient's mouth and nose, facing the patient's chest and look for movement as in chest rises. Look for chest rises, listen for breathing, and feel for breath on your face. Wait between 5 and 10 seconds to see if the patient is breathing (see figure 13).

### Breathing present

If a patient is breathing adequately and NO spinal injury is suspected, place the patient in the **Recovery Position** in order to stop the tongue from blocking the airway and to stop any vomit or spit entering the airway. The recovery position is discussed a little later.



**Figure 10: Look, listen and feel breathing and a pulse**

## No breathing present

- If a patient is not breathing, start rescue breathing:
  - Kneel in line with the patient's head as illustrated below.
  - Use CPR Mouthpiece.
  - Pinch the soft part of the patient's nostril closed using your thumb and index finger of the hand which is on the patient's forehead.
  - Take a deep breath and form a seal around the outside of the patient's partially open mouth.
  - Blow a slow, full breath into the patient's airway, ensuring the chest moves up as you do so.
  - Take about 2 seconds to fill the lungs adequately.
  - Lift your mouth, and keeping the airway open, turn your head towards the patient's chest to feel the exhaled or breathed out air against your cheek. At the same time, watch as the chest goes down and take a second deep breath and repeat the process.
  - Give only TWO (2) effective breaths, making sure that the chest moves with each breath.
- If the chest does not rise with each breath, it could mean any of the following:
  - The head is not tilted back properly.
  - The nostrils are not being pinched closed properly
  - The chin is not lifted properly
  - The mouth is not properly open
  - A proper seal has not been made.
  - Not enough air is being blown into the patient's lungs
  - The breath was given too quickly
  - The airway is obstructed (refer above)
  - There is excessive wind in the stomach – this happens particularly in infants.

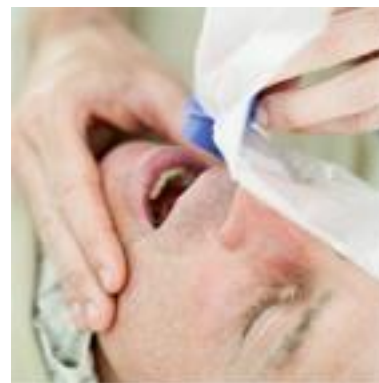


Figure 11: Applying CPR Mouthpiece



Figure 12: Pinch Nostrils Closed

Reposition the airway and re-attempt rescue breathing noting the above points. If the chest does NOT rise, try the chin lift-head tilt again, and give two (2) more breaths. If the chest still doesn't rise, check to see if something is blocking the airway and try to remove it.

## Mouthpieces or Barrier devices

A vast majority of mouth to mouth cases happen in the presence of family and friends, so often a mouth piece is not used.

If however you are against doing mouth to mouth on a patient, or you have to perform rescue breathing on a stranger, a mouth piece must be used, especially if there is blood or other infection around the patient's mouth.

There are many different types of mouth pieces available. A portable, pocket-sized one is best, as they are easily carried in the pocket or handbag and thus readily available in the case of an emergency.



Figure 13: The Mouth Piece

Most have a filter or one-way valve which is placed in the patient's mouth or between the patient's teeth, with a clear protective sheet covering the rest of the patient's face so that there is no physical contact between the patient and you, the rescuer.

When using such a device it must be remembered that the airway must be sufficiently opened and the nose closed off and a proper seal made during rescue breathing.

If the device has a protective plastic sheet, place your hands under the sheet when pinching the nose closed and tilting the chin up.

Form a tight seal by opening your mouth widely and pressing down firmly onto the plastic shield, covering the patient's mouth completely and not just the hard valve of the device, as air will escape from the corners of the mouth.

If you place your hands on top of the device you could have the following happen:

- You could tear or damage the plastic.
- Air could leak out where the plastic is torn or stretched.
- If your hands are contaminated, you will dirty the top of the sheet which comes into contact with your mouth and you will infect yourself.

Anyone using these devices must be properly trained to do so and they must carry it around with them at all times, e.g. in a purse or wallet or on a key ring.



***Never use the same mouthpiece on a different patient. Once used, throw the used mouthpiece away.***

## Recovery Position

The recovery position is used when the patient is breathing adequately on his/her own. The recovery position is used to prevent the tongue and epiglottis from falling back into the throat and blocking the airway. It is also used to prevent vomit and secretions to drain safely from the mouth without being breathed in.

## Adult Recovery Position

### Procedure

- Remove all objects such as keys, pagers, cell phones, weapons, glasses etc.
- Move the patient's arm nearest to you outwards towards you, palm facing upwards.
- Bring his far shoulder over towards you at the same time pull the knee towards you so that the leg crosses over the other leg and the top shoulder is over the bottom shoulder.

## Cardiopulmonary Resuscitation (CPR)

CPR can keep oxygenated blood flowing to the brain and other vital organs until more definitive medical treatment can restore a normal heart rhythm. When the heart stops, the absence of oxygenated blood can cause irreparable brain damage in only a few minutes. Death will occur within eight to 10 minutes. Time is critical when you're helping an unconscious person who isn't breathing.

If there are signs of circulation but the patient is still not breathing, continue with rescue breathing. Correct positioning for performing CPR – kneel next to the patient with knees in line with the chest and shoulder. **Remember** that the position in all cases must be correct.

### No circulation

#### Procedure

- Check for any signs of life – circulation, movement, and breathing, coughing swallowing.
- Check the pulse by feeling for a Carotid Artery pulsing at the side of the patient's neck. This is better achieved with the head in the head tilt position, holding the one hand on the forehead and feeling for a pulse with the fingertips of the other hand level with the "Adam's Apple". Slide your fingers back gently until you find a hollow between the muscles of the neck and the trachea.
- Take ten seconds to assess if there is a pulse. (Feel for a pulse on the side of the neck closest to you to avoid leaning on the patient's neck.)
- If there is no sign of circulation after ten seconds begin chest compressions.
- Place the heel of the hand on the lower half of the chest with the heel of your hand in the breastbone (sternum). Locate the correct position by feeling for the end of the breastbone (the hollow in the middle of the chest) and then measuring two finger widths from the bottom of the breastbone upwards towards the head. This is where the heel of your hand must go.
- Place the hands two fingers above the bottom of the sternum.
- Interlace your fingers by placing the one hand on top of the bottom hand, with the back of both hands facing upwards.

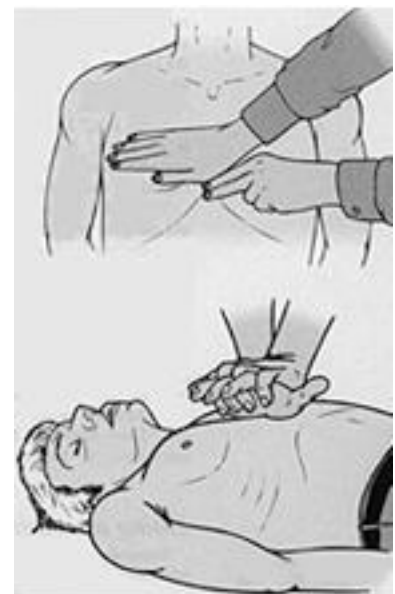


Figure 14: CPR - Hand Placement

- Compress or press down firmly in a smooth motion (no bouncing or jerking) to a depth of about 4 -5 centimetres.
- Count 30 compressions at a rate of 100- 120 compression per minute.
- i.e. One and one thousand, two and one thousand, three and one thousand, four.....until you reach thirty.
- After 30 compressions, immediately return to opening the airway, give two effective breaths, and if no response or improvement, continue with compressions as before.
- Continue with CPR until signs of life return or until professional help takes over.

Once breathing returns and the patient can breath on his/her own, place the patient into the **recovery position**.

The rate of recovery depends on many things such as the patients prior state of health, the time it takes to start CPR, the level of competence of the rescuer/s and the time it takes for emergency services to get to the scene.

The rate of recovery could be directly dependent on your ability to perform CPR efficiently.



#### WHEN TO **STOP** CPR

- S** - Spontaneous pulse and breathing resumes and continues.
- T** - Too dangerous to continue.
- O** - Out of breath or physically exhausted.
- P** - Physician or professional healthcare provider certifies that the patient is brain dead.



***Study the CPR section over and over until you know it well!***

## Bleeding

What are the signs of severe blood loss? Sometimes we may not see that the patient is bleeding at first. There are signs to look for which indicate that a patient is losing a lot of blood.

- Anxious or aggressive behaviour
- The level of consciousness drops
- Rapid pulse rate
- Shallow and fast breathing
- Low blood pressure

The amount of blood lost before a patient dies varies from patient to patient. However a rapid loss of even **one litre** of blood by an adult must be considered as **life threatening!** Regardless of how much blood is lost, if the patient shows signs of shock then the bleeding must be classified as serious. (We will discuss shock in the next module.) There are many risks when dealing with blood and body fluids. General rules for the treatment of external bleeding.

## Treatment

- Protect yourself at all times. WEAR GLOVES. Watch out for splashing or squirting blood in your face.
- Stop bleeding immediately and apply a pressure bandage.
- Do not remove existing clots ( or scabs).
- Loosen tight clothing.
- Calm the patient down and make the patient as comfortable as possible.
- Always treat blood loss first and attend to fractures and other injuries afterwards.
- Raise and support the bleeding part of the body (higher than the heart if possible – unless the limb is fractured - because it reduces the pressure in the vessels).
- Keep the body temperature constant. Usually a patient suffering from blood loss will start showing signs of shock which will reduce the body temperature. Cover the patient with a blanket.
- Do not give fluids – wipe the lips with a wet piece of gauze if the patient is thirsty. (Shock could set in and vomiting may occur).
- In the case of an artery being damaged (main blood vessel) the patient **MUST** receive medical attention even if the bleeding is under control.
- Watch the patient continuously for symptoms of shock. Shock and bleeding normally go hand in hand, so if there is bleeding, the chances are that you will have to treat the patient for shock.

## How much blood do we have in our bodies?

- Adults have about 4500 – 6000 ml.

## What do we classify as severe blood loss?

- Adults – 600 ml

## Controlling External Bleeding

There are different ways of controlling external bleeding.



***Always wear protective gloves!***

## Direct Pressure

This is done by applying pressure **directly onto the wound**. Direct pressure can be applied by your hand, by a dressing and your hand or by a pressure bandage.

When using a bandage be very careful not to apply too much pressure. If the bandage is too **tight** it could restrict blood flow to the rest of the limb.

A dressing should not be removed once it is applied. If the bleeding continues **and** the blood seeps through the bandage **apply a second bandage over the first**. If necessary, keep adding bandages until the bleeding slows down.



*In some areas of the body you may be unable to apply an effective pressure dressing or bandage. You may have to keep the pressure by holding your hand directly over the wound.*

## Elevation

This is used along with direct pressure. When an injured limb is lifted so that the wound is above the level of the heart, gravity helps to slow the bleeding. **Do not use this method if there is a possible fracture, dislocation, spinal injury or where there is an impaled object in the body.**

## Nose Bleeds

When a patient is bleeding from the nose, get the patient to sit forward, breath through the mouth and apply pressure to the soft part of the nose or the top or bridge of the nose. Apply ice to the back of the neck. Do not let the patient put his/her head back as the blood will run into the back of the throat.

# Explain and Manage Shock

## Introduction

### What is shock?

Shock is a state of reduced blood circulation with a result of not enough oxygen getting to the tissues. Shock develops from the effects of severe injury or illness as well as exposure to extreme temperature. Shock is the body's reaction to low blood flow. Once shock sets in too severely, the patient may never recover. It is essential that shock be recognised and treated immediately.

Blood vessels are directly involved in shock. Blood vessels can change their size. They can either **dilate** or **constrict**.

If you are doing exercise, the blood vessels dilate so that blood flow to the muscles increases. At the same time, blood flow to the stomach and intestines slow down because blood vessels supplying these organs constrict. If all the blood vessels in the body dilate at once, there would not be enough blood to fill the whole system so circulation would fail. When this happens shock develops.

Shock can also happen if the heart fails, blood volume is lost or blood vessels dilate too much so that there is too much space to fill and not enough blood.

### Different types of shock

- Cardiogenic shock – decreased circulation to the heart and the rest of the body due to heart attack or aneurism, blood clot, etc.
- Neurogenic shock – brain or spinal injury
- Anaphylactic shock – allergy related shock
- Hypovolemic shock – loss of blood /fluid

- Metabolic shock – loss of metabolism
- Septic shock – infection
- Psychogenic shock – fright/flight

## Signs and symptoms of shock

### Early symptoms

- Increased pulse rate
- Fast breathing
- Restlessness
- Fearfulness (anxiety)

### Later symptoms

- Skin colour changes from pale to bluish in colour
- Very fast but weak pulse rate
- Battles to breathe
- Weakness
- Thirst
- Nausea

### Last stages

- Changes in level of consciousness
- Marked drop in blood pressure
- Weak pulse
- Weakened breathing

No matter what the injury or nature of the illness, if there are signs of shock treat for shock regardless.

### Treatment

- Ensure airway is open adequately.
- Ensure the patient is breathing properly.
- Watch out for nausea and vomiting.
- Reassure the patient and keep the patient as calm as possible.
- Control any bleeding.
- Place the patient in the correct position:
  - Semi-fowler position – half-sitting position. Support the patient with whatever is available so that he/she can stay in this position. Used for conscious patients who suffer from heart or respiratory problems?
  - Shock position – the patient lies flat (supine) on the ground covered with a blanket – usually a space blanket if available as these are designed especially for situations like this.
- Prevent loss of body heat – use a blanket.



- Treat any injuries or fractures.
- Do not give anything to the patient to eat or drink as it could induce vomiting. If the patient is thirsty, wet a gauze swab and wipe the patient's mouth.
- Raise the patient's legs slightly – about 25cm and cover with a blanket. Do not raise the legs if you suspect neck, head or spinal injuries, chest or abdominal injuries, pelvic dislocation or fracture.
- If any of these injuries are present, lay the patient flat on his/her back and cover with a blanket.

## Fainting

A self-correcting, temporary form of shock (sometimes called Syncope)

Fainting is caused by stressful situations but it could indicate a more serious underlying problem, such as blood pressure problems, brain tumour, heart disease, diabetes or even inner ear problems. It often occurs as a result of suspension trauma.

### Treatment

- Watch vital signs.
- Let the patient lie down with his/her feet raised about 25cm (not in cases where there is spinal injury, leg breakages, etc.).
- Reassure the patient. Recommend the patient see a medical practitioner.

## Anaphylactic shock

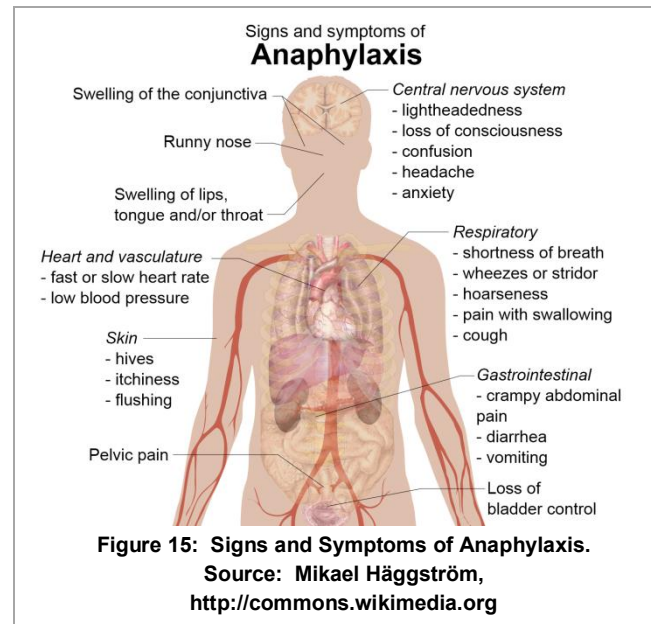
### What is Anaphylactic shock?

Anaphylactic shock is the result of allergy. A patient may suffer from anaphylactic shock after eating something he or she is allergic to (such as sea food) or the patient may be bitten by something that causes him/her to have an allergic reaction. There are many different types of allergies. It is therefore vital that a person with an allergy wear some sort of medic-alert. We do not always know when anaphylactic shock can occur so here is how one would recognise when a patient is in anaphylactic shock.

Anaphylactic shock may begin with any of the following symptoms:

- Difficulty breathing; wheezing
- Changes in consciousness (including confusion, light-headedness, or stupor)
- Rapid swelling throughout the body
- Hives
- Blue skin
- Severe abdominal pain, nausea, or diarrhoea

Be especially alert to the possibility of anaphylaxis in a patient with nut or shellfish allergies, or in any patient who has ever experienced a systemic (whole-body) allergic reaction.



## Treatment

Patients whose doctors have identified them as likely to experience anaphylactic shock will have been prescribed some form of rescue medication and told when to use it. Patients should keep this on their person at all times, and family members and co-workers should learn how to administer this medication in the event that the patient has lost consciousness.

- Call for help immediately or have someone drive the patient to the hospital immediately and call ahead to let the hospital know you're coming. Even with proper administration of medication, many patients with anaphylaxis need additional specialized support.
- Be prepared to administer CPR. Because cardiac arrest is a possibility with anaphylactic shock. If your patient loses consciousness, check their pulse and breathing periodically and administer CPR as appropriate until emergency services arrive.
- If the patient starts to vomit, make sure the head is turned to the side so that he/she does not choke.

In the case of an allergy to bee stings or other allergies proceed as above.

If the patient is not aware of any allergies and goes into anaphylactic shock, call for help immediately or rush the patient to the nearest emergency room. Administer CPR if necessary.

All persons with allergies should wear warnings such as a medic-alert to warn people of the problem.

There are many other forms of shock such as **neurogenic shock**, **cardiogenic shock**, **hypovolemic shock**, etc. Generally, all types of shock are treated similarly.

**Please see the treatment of neurogenic shock under the section on neck and spinal injuries.**

## Medic Alert

"Medic alert" jewellery has evolved over the years and although the standard medic alert bracelet still looks the same, many people are wearing modern pieces that closely resembles ordinary jewellery. In some cases tattoo marks has also been applied to patients' bodies to alert one to their medical condition.

Further information on the Medic Alert Foundation in South Africa can be found at <http://www.medicalert.co.za/>.

## Conduct Secondary Assessments

### Introduction

In the workplace we are often confronted with emergencies and urgent situations which need a cool head and the appropriate action. In this module we will cover various emergency situations and how to treat them. The correct action as a first responder could save a life.

The role of pre-hospital care provider, or an emergency medical technician, is to stabilize an injured or sick patient and then transport them to a higher care facility, such as a hospital emergency room or specialty treatment center. The rescuer, based on what caused the trauma, can determine what steps need to be taken to correctly diagnose problems and to efficiently stabilize the patient for transport to an emergency room.

In this section we will learn how to treat head and neck injuries, fractures and dislocations as well as all types of wounds including amputations, lacerations, abrasions, punctures, embedded objects, gunshot wounds, hand and eye wounds as well as bites and stings. We will also learn how to treat febrile (feverish) patients and deal with environmental injuries, how to classify burns and treat them, manage poisoned patients and manage common illnesses and emergencies which may occur in the workplace such as heart attack etc.

## Neck and Spinal Injuries

### Neurogenic Shock

Here is where we may come across patients where neurogenic shock can set in after a traumatic injury to the neck or spine.

#### Signs and symptoms

- Impaired breathing – if the injury to the spine occurred above the level of C3 (cervical bone 3) the patient will not be able to breathe ever.
- If the injury occurred below the C3, C4 and C5 vertebrae, the patient may have use of his/her diaphragm.

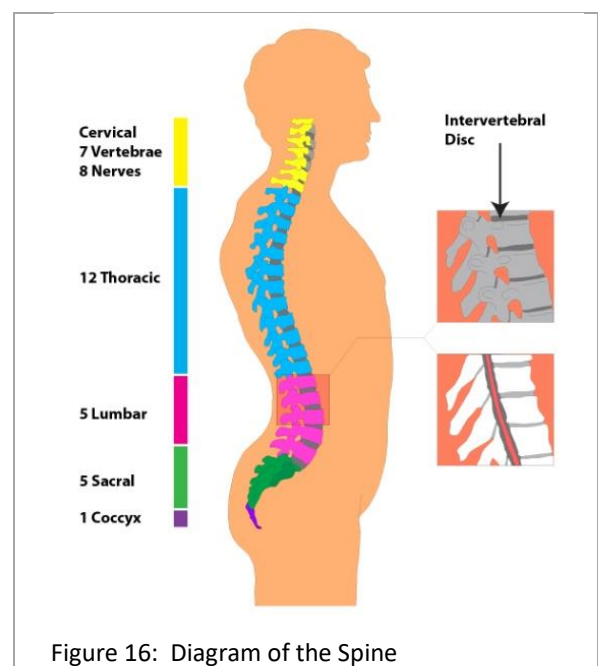


Figure 16: Diagram of the Spine

## Treatment

This type of shock can only be treated by a medical professional. All you can do is make the patient as calm and as comfortable as possible.

## Neck injuries

We will now discuss the two types of neck injuries namely:

- Blunt trauma
- Penetrating injuries

### Blunt trauma to the neck

Any trauma to the neck with a blunt instrument could lead to the collapse of the larynx or trachea and swelling of the tissues which can block the airway.

#### Signs and symptoms

Where a severe injury to the neck occurs a cervical spine injury may be involved.

- Loss of voice or hoarseness
- Signs of airway obstruction
- Contusions or bruising of the neck
- Deformities of the neck
- Fluid under the skin

#### Treatment

- Open airway and maintain.
- Call for medical assistance
- Check circulation
- If oxygen is available, administer it.
- Immobilize the cervical spine
- Transport to hospital as soon as possible.

### Penetrating injuries to the neck

Penetrating injuries can cause profuse bleeding from a main blood vessel such as the Carotid Artery or Jugular vein.

#### Signs and Symptoms

- Arterial bleeding will be very profuse with bright red blood spurting from the wound.
- If a vein is severed, the bleeding will be profuse with dark red to maroon coloured blood flowing steadily from the wound.

## Treatment

- Manage arterial bleeding with direct pressure.
- Manage venous bleeding by covering the wound with a gloved hand and applying a dressing which will close the wound (Occlusive Dressing).
- Assure an open airway.
- Administer oxygen (if available).
- Call for help.
- Transport ASAP to the nearest emergency room.

## Spinal Injuries

Of particular concern are injuries that affect, or potentially affect, the spine of the injured patient. The spinal cord rests within the spinal column and is a major part of the central nervous system which conducts sensory and motor nerve impulses to and from the brain. Injuries to the spinal column or spinal cord can result in serious or devastating permanent disabilities such as irreversible paralysis, loss of control over involuntary muscle function such as breathing, or death.

Spinal injuries occur mainly as a result of motor vehicle accident, falls from heights, penetrating injuries to the neck, diving accidents, contact sports, crush injuries, lightning strikes and poly-trauma patients (multiple injury patients).

The primary care of a patient with a spinal injury is of vital importance as this will determine the future outlook for the patient.

Where the mechanism of injury suggests possible spinal injury, such as a car accident, a fall, or a sports injury, the emergency medical provider must follow the accepted protocol of spinal care. The most essential element of proper spinal care after injury is **immobilization of the spine** so as not to increase or aggravate injury to the spine. This immobilization is effected by **applying a rigid cervical collar** to immobilize the cervical (neck) portion of the spine, and strapping the patient to a long board (spine board), to keep the patient's spine from moving or shifting during transport.



***It is safe to assume that ALL PERSONS WITH HEAD INJURIES HAVE SPINAL INJURIES UNTIL PROVEN OTHERWISE, so treat all patients with head injuries as though they have spinal or neck injuries as well.***

## Signs and Symptoms

- Physical evidence of a spinal injury.
- Hypotension (low blood pressure) with no external sign of bleeding.
- Pain and tenderness over the area.
- Pulse is normal or slow.
- Breathing can be diaphragmatic (deep) or slow, depending on level of injury.
- Skin colour normal.
- Skin warm.

- Priapism in males (erect penis).
- Patient sits with his/her hands up or across the chest.
- Flaccid paralysis (weakness or paralysis in muscles).
- Loss of sensation below the injury.
- Numbness and weakness.
- Sometimes no signs or symptoms!

## Treatment

- Check safety.
- Call for help!
- While you wait, check airways are open.
- Assist with breathing (administer oxygen if available).
- Check circulation – pulse and major bleeding control.
- Do a full secondary survey of the patient:
  - Feel the Vertebrae - lightly feel the spine by pressing your fingertips along it from the base of the head to the shoulders. Note any deformities, tenderness, and swelling, abrasions, bleeding or bruising. (do not attempt to roll the patient onto his/her back if not already positioned in this way)
  - Slide your hand carefully under the injured person and feel along the back and spine for any tenderness, pain, bleeding or irregularities. Be careful to examine the spine one vertebrae at a time. (Be careful not to move the patient).
- Immobilize and remove to a full spinal body board using the log roll method (see below).
- Maintain body temperature by covering with a blanket.
- Transfer to ambulance or vehicle.
- Comfort and reassure the patient but do not lie to the patient.
- Transport carefully to the nearest emergency facility and inform the receiving facility or hospital that you are on the way – they can thus prepare to receive the patient.



***Immobilise the patient fully before attempting to move him/her***

## Techniques of Immobilisation and Patient Handling and Transporting

The spine should be protected at all times during the management of the multiple injury patients. The ideal position is with the **whole spine** immobilised in a neutral position on a firm surface. This may be achieved manually or with a combination of semi-rigid cervical collar, side head supports and strapping. Strapping should be applied to the shoulders and pelvis as well as the head to prevent the neck becoming the centre of rotation of the body.

Manual spinal protection steps should be taken immediately. The application of immobilisation devices should not take precedence over life-saving procedures.

If the neck is not in the neutral position, an attempt should be made to achieve alignment. If the patient is awake and co-operative, they should actively move their neck into line if they can do so without further injury or too much pain. If there is too much pain, they should be encouraged to stay in the position they are in. If unconscious or unable to co-

operate this is **done passively**. If there is any pain, neurological deterioration or resistance to movement the procedure should be abandoned and the neck splinted in the current position.

## Applying a Neck Brace (Cervical Collar)

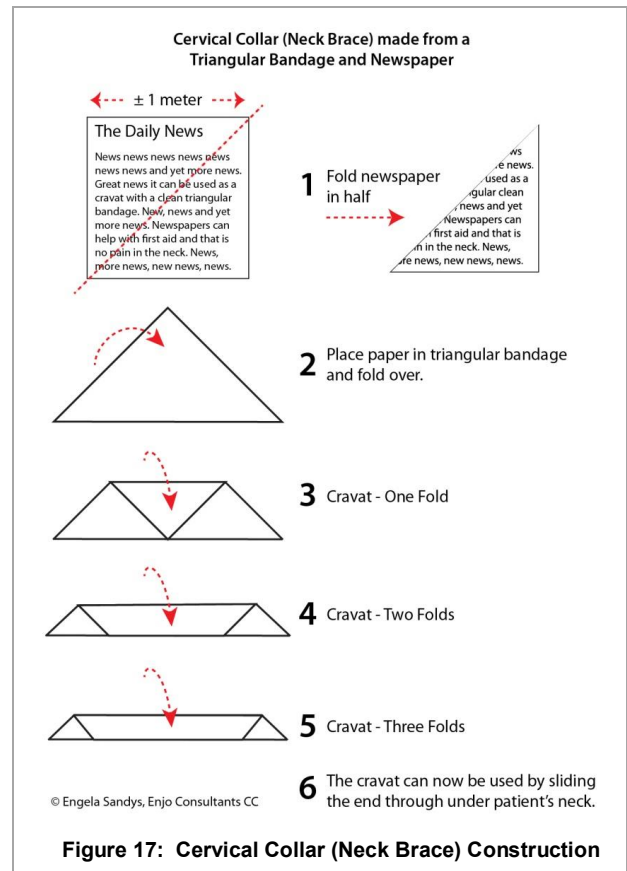
Place one end of the cervical collar through beneath the patient's neck. Pull it through carefully, (ensuring that the head and neck are not moved in any way) and secure it.

If no cervical collar is available, a rolled up jacket or shirt or any pliable item such as newspaper makes an excellent substitute.

How to make a cervical collar using newspaper:

- Measure the width of the patient's hand.
- Fold a newspaper a few times the same width as the patient's hand.
- Bend and fold the newspaper a few times to soften it slightly.
- Cover with a triangular bandage.

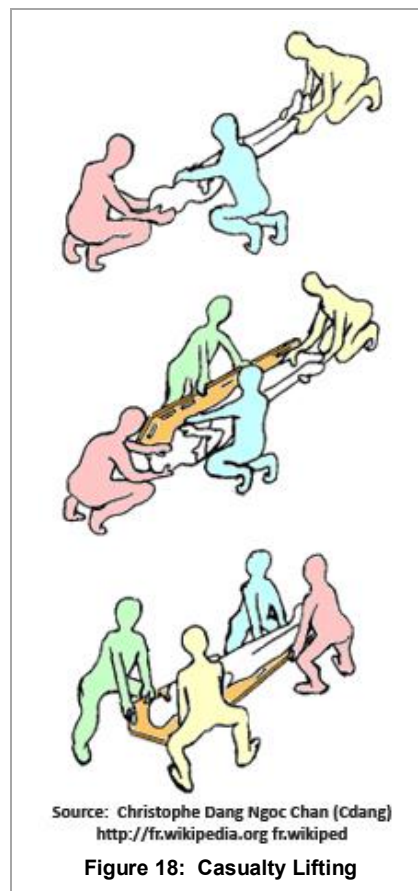
Move the patient onto a spine board using the Log Roll.



## The Log Roll

**You will need two, three or four people to assist you.**

- Position helpers – one at the patient's head, two to three at the patient's side:
  - You at the patient's head will pay particular attention to the neck and upper back (shoulders)
  - One person at the patient's feet
  - One person at the patient's hip
  - One person at the patient's shoulders (adjust to suit number of helpers available)
- The person at the patient's head gives the instructions.
- Always roll the patient towards the helpers on the sides.
- Patient must be moved as a unit. (all working together).
- A long spine board is usually 185cm long and highly waxed or polished to enable one to easily slide the patient onto it.
- Position the board next to the patient.
- Hold patient's ankles and wrists together to make it easier to move the patient in one movement. (You cannot have arms or feet flopping around).
- With the person at the patient's head securely holding the neck in place, count 1, 2, 3 and roll the patient onto his/her side
- Quickly slide the board in underneath the patient and count 1, 2, 3 again and gently roll the patient back onto his/her back onto the board.
- Place support between patient's legs and secure. Place neck support or blocks on either side of the head if available.
- Secure the patient with straps provided.
- Transport carefully.



## Head Injuries

**Level of consciousness (LOC)** is a measurement of a person's arousability and responsiveness to stimuli from the environment. A mildly lowered level of consciousness may be classed as lethargy; someone in this state can be aroused with little difficulty. People who are obtunded (a greatly reduced level of consciousness) or confused cannot be fully aroused.

Those who are not able to be aroused from a sleep-like state are said to be stuporous. Coma is the inability to make any response and the patient is said to be comatose. (Information according to the Glasgow Coma Scale)

## Scalp Injuries – Lacerations (Open Wounds)

Scalp lacerations are the most common head injury. Lacerations can be minor or very serious. The face and scalp are filled with many blood vessels so often these wounds bleed profusely. Even a small cut can cause significant blood loss which can lead to hypovolemia (loss of blood). A laceration to the scalp can be the result of a direct blow to the head, which in turn could lead to a more serious injury.



## Treatment

- HHH CAB
- Immobilize the neck and head.
- Control bleeding by using direct pressure over the wound. If there are any flaps of skin, replace them in the normal position. If a fracture of the skull is suspected DO NOT use excessive force or pressure.
- Apply a dressing to the wound – if the dressing becomes soaked DO NOT remove it but apply a second or third dressing as required.
- Check vital signs
- Do secondary survey (check patient for other injuries or complications)
- Maintain body temperature (cover with blanket)
- Transport to hospital.

## Scalp Injuries – Fractures

A fracture of the skull indicates a significant force has been applied to the head. A skull fracture can be simple or compound.

### Signs and symptoms

- Decrease in levels of consciousness.
- Deep laceration or severe bruising.
- Pain or swelling.
- Deformity of the skull (dent).
- Battle sign (a late sign – bruising behind the ears) and raccoon eyes, usually indicate a fracture at the base of the skull.
- Unequal pupils.
- Sunken eyes.
- Bleeding from ears and or nose.
- Clear fluid leaking from ears and/or nose.

## Treatment

- HHH CAB
- Immobilize the neck with a collar
- Maintain open airway
- Check breathing – may need assisted ventilation
- Control bleeding
- Check vital signs
- Watch out for vomiting – be careful not to turn the head alone if the patient vomits – turn the patient on his/her side using the log roll.
- Be prepared for convulsions and changes in levels of consciousness
- Maintain body temperature (cover with blanket)

- Transport

## Brain Injuries

We will discuss the following brain injuries:

- Concussion
- Cerebral contusion
- Inter-cranial bleeding

### Concussion

Concussion is defined as a “jarring” or bumping of the brain, possibly resulting in loss of consciousness which can be transient (in and out of consciousness)

#### Signs and symptoms

- Transient loss of consciousness
- Amnesia
- Nausea and vomiting
- Headache
- Repetitive questions
- Dizziness
- Irritability
- Disorientation or confusion

#### Treatment

- Keep patient calm and as still as possible
- Do not allow the patient to fall asleep
- Take to hospital ASAP

### Cerebral Contusion



#### Definition

***Bruising of the brain; usually from closed blunt head trauma that injures the brain directly below the site of the injury (coup) or causes the brain to rebound (bounce) against the skull surface causing injury to the opposite side of the brain to the point of impact.***

Contusions cause the brain to swell as with any other soft tissue injury in the body.

## Inter-Cranial Bleeding



### Remember

#### Definition

***Laceration or rupture of blood vessel inside the brain or in the brain membrane (meninges) will cause inter-cranial (inside the skull) bleeding - bleeding inside the skull.***

This will cause pressure to increase inside the skull – the brain is encased in a bony structure called the skull if there is any change to the contents of the skull there will be an increase in pressure within the skull. Cerebral contusion and intracranial bleeding increases the pressure within the skull.

### Signs and symptoms

- Altered levels of consciousness
- Lacerations or contusions on the scalp (bleeding and/or bruising)
- Deformity of the skull
- Unequal pupils
- Fluid leaks from the ears or the nose
- Seizures or fits
- Headache
- Nausea and vomiting
- Blood pressure rises
- Bradycardia (Brady = slow – slow heart rate)
- Altered breathing rhythm
- Paralysis
- Combative or other abnormal behaviour
- Dizziness
- Visual complaints
- Raccoon eyes
- Battle sign (bruising at the back of the head)

### Treatment

- HHH CAB
- Call for help
- Monitor breathing – administer oxygen immediately if available and assist with breathing
- Apply a cervical collar
- Monitor or watch vital signs
- Do full secondary assessment (check other injuries etc.)
- Treat all other injuries
- Place on spinal board using log roll method.
- Maintain body temperature
- Transport to nearest emergency facility

## Impaled Objects in the Skull

Impaled objects **MUST NOT BE REMOVED!** If the object is too long it must be shortened but not removed.

To shorten a long object embedded in the skull:

- Stabilise the object with bulky bandages placed on either side.
- Stabilise the object with something rigid on either side of where the object will be cut.
- The tool chosen should not cause any vibrations or produce too much heat – no power tools!
- If any of the above conditions cannot be met leave the object as it is and transport.
- Apply a ring pad dressing to the site of the injury.
- Place ring pad over the object to secure it – if possible - and secure it with bandages.

## Fractures, Dislocations and Sprains

### Bones

**They are classified into**

- Long bones – e.g., femur, humerus
- Short bones – e.g. vertebra of the spine
- Flat bones – e.g., pelvis and scapula

**Functions of the bones**

- Support – provides the framework supporting and anchoring the soft organs of the body.
- Protection – protects the vital soft organs of the body
- Movement – used as levers for movement
- Storage – minerals such as calcium are stored in bones
- Blood cell formation – blood cells are formed in the marrow of certain bones e.g., the femur.

### Joints

Bones come together at the joints. Joints allow us to move. Joints are classified as follows:

- Hinge – knee and elbow
- Ball and socket – shoulder and hip
- Pivot – wrist and ankle
- Gliding – spine
- Saddle – thumb

A fracture is a discontinuance of a bone whether a complete break or a crack.

## Causes

- Direct force – the fracture occurs at a point of impact.
- Indirect force – the fracture occurs at a distant point.
- Twisting force – severe twisting of a limb will fracture the bone at a site different site from where the force was applied.
- Pathological – where bone is weakened by disease such as osteoporosis.

## Classification of fractures

- Closed fracture – where there is no break in the skin.
- Open fracture – open wound at the site of the break.
- Compound fracture – involves a fracture with underlying damage to organs or tissue, or where the bone is broken in more than one place.

## Signs and symptoms

- Pain and tenderness
- Swelling
- Loss of function
- Crunching of bone
- Shortening of the limb
- Deformity
- Discolouration
- Abnormal movement
- Limited movement
- Exposed bone

## General treatment

- HHH CAB
- Secondary assessment – check for other injuries especially bleeding
- Assess the fracture
- Check pulse
- Check movement
- Check feeling and touch functions
- Use splints
- Use padding
- Immobilize limb to limit movement
- Align limb where possible
- Cover open wounds
- Check circulation by pressing on part of the body lower than the fracture – it will turn pale and should return to normal colour quickly. If it does not, a blood vessel could be severed or cut blocked off.
- Lift the limb

- Check pulse again
- Treat for shock
- Transport patient to emergency facility

## Treatment of Specific Fractures

### Facial Fractures

#### Nose Fractures

**Nose:** usually caused by direct impact to the nose.

##### Signs and symptoms

- Severe swelling and discolouration of the skin
- Bleeding from the nose

##### Treatment

- Stop bleeding as for nose bleed, but do not pinch soft part of nose if it is broken. Just hold the nose closed with gauze and apply as much pressure as is comfortable for the patient.
- Transport to nearest emergency facility.

### Jaw Fractures

**Jaw – Fractures of the cheek bone and upper jaw:** usually these fractures are stable and do not require immobilisation.

##### Signs and symptoms

- Pain
- Discoloration of the face and severe swelling
- Bleeding from the mouth and/or nose
- Denting in the face can sometimes be seen.

##### Treatment

- Refer to a doctor
- Make patient comfortable by raising head and shoulders.

**Jaw – fractures of the Mandible or lower jaw:** usually this type of fracture is caused by a direct impact on the jaw.

## Signs and symptoms

- Pain which is worse with movement
- Difficulty in swallowing or talking because the teeth are not in line
- Spit (saliva) is often stained with blood because gums are torn
- Deformity in the dental line – teeth are not in line
- Irregularity can be felt
- Swelling and discolouration
- Nausea

## Treatment

- Lift lower jaw carefully with the palm of the hand and support it under the upper jaw gently.
- Place the centre of a narrow bandage on the temple. Take one end over the head and the other under the jaw.
- Cross ends on opposite side (at the temple) and take one end around the forehead and the other around the back of the head.
- Tie the ends at the temple.
- If vomiting occurs, remove bandage and support the jaw clean the mouth and replace the bandage.
- If patient is unconscious, turn on his/her side and transport on a stretcher, making sure drainage from the mouth is possible.

# Fractures of Chest, Shoulder Blade and Upper Limbs

## Chest Fractures

**Single rib fracture – usually caused by direct force.**

## Signs and symptoms

- Pain at the site of the fracture
- Increased pain with breathing
- Difficulty in breathing and a lot of discomfort
- Irregularity may be visible or felt
- In some cases, the patient's lips, fingertips and nails may turn blue (Cyanosis)
- Quick onset of shock

## Treatment

- Monitor breathing
- Make patient as comfortable as possible
- Refer to doctor or emergency facility for x-rays

## Two or More Fractured Ribs

### Signs and symptoms

- Pain – breathing makes it worse
- Laboured, paradoxical breathing (moves in and out as the patient breathes)
- Cyanosis (blue)
- Patient coughs up red frothy blood (Haemoptysis) the bubbles and froth indicate a punctured lung.
- Shock

### Treatment

- Raise head and shoulders for easier breathing
- Transport on a stretcher to nearest emergency facility

## Breast Bone Fracture

**Breast bone fracture (sternum)** - usually caused by direct force. With this injury, fractures of the dorsal (chest) vertebrae are possible too.

### Signs and symptoms

- Pain at site of fracture
- Pain increases with movement and breathing
- Swelling and discolouration may occur

### Treatment

- Treat as for Flail Chest

## Fracture of the Clavicle (Collar Bone)

**Causes:** **Direct** force on clavicle (uncommon) – **Indirect** force falling on hand or shoulder.

### Signs and symptoms

- Pain at site of fracture
- Increased pain with movement
- The shoulder on the injured side is displaced forward and is lower than the other side
- Patient support the injured elbow
- Swelling occurs at the site of the fracture and there is visible deformity
- The patient will bend the head towards the injury to lessen the pain.



## Treatment

- If clothing must be removed, start with uninjured side, supporting the injured side at all times
- Fold a triangular bandage and place the arm in a sling. Tie the arm to the body with a straight bandage to prevent movement.
- Transport to nearest emergency facility

## Fracture of the Scapula (Shoulder Blade)

**Causes:** direct impact. Not a very common fracture and difficult to diagnose.

## Signs and symptoms

- Pain with movement of the arm
- Dislocation and bruising over the scapula
- May be accompanied by lung and rib injuries
- Due to the fact that this bone has a lot of muscles attached to it, this fracture is usually stable

## Treatment

- Place a thick layer of cotton wool on the scapula
- Place the arm on the injured side in a high elevation sling and bandage across the Scapula with broad bandages.

## Fracture of the Humerus (Upper Arm)

**Fractures of the humerus mainly occur at four sites:**

**Head and neck of the humerus** – usually caused by falling on outstretched hand or on the shoulder. Often seen in older people.

## Signs and symptoms

- Pain
- Swelling and discolouration
- Total restriction of movement

## Treatment

- Place forearm in position with the thumb in line with the opposite side's armpit.
- Apply a sling
- Place the centre of a broad bandage just above the centre and around the back of the upper arm.
- Bring ends forward and tie in position.

**Fractures of the Humerus shaft (Centre of bone)** – if the patient cannot move his/her fingers or hand and wrist, it could indicate a complicated fracture as the radial nerve may be damaged.

### Signs and symptoms

- Pain
- Discomfort
- Swelling
- Deformity
- Abnormal movement
- Restricted movement

### Treatment

- Feel for pulse below fracture.
- Test for sensory nerve function (feeling) by scratching above the thumb and asking if the patient can feel it. Test for motor nerve function (movement) by asking the patient to move his/her hand.
- Support the arm and put the forearm at a right angle with the thumb on top.
- Apply a padded splint on the upper arm from the shoulder past the elbow.
- Secure the splint with narrow bandages above the fracture as close to the armpit as possible. Place the centre of the bandage on the splint; take ends through under the arm and across. Bring ends forward and tie on splint. Place a second bandage below the fracture on the splint and as close to the elbow as possible. Tie in the same manner as above.
- Support the arm in a sling.
- Test for pulse at the radial artery.

Fracture of the Humerus just above the elbow (Supra-condular fracture of the Humerus) – these fractures present in two ways: lower bone end is displaced backwards, caused by a fall on the hand; lower bone end is displaced forward and is caused by a fall on the elbow.

Complications can be in the form of a damaged brachial artery (upper arm artery), causing insufficient blood flow to the forearm. Feel for radial pulse.

Check for damage to ulna and median motor sensory nerves by asking the patient to place thumb and little finger together. If the patient cannot do this there may be damage to these nerves. Check for feeling on the outside (little finger side) of the hand and above the nail of the middle finger. Any lack of feeling here could indicate damage to the sensory nerve.

### Signs and symptoms

- Pain
- Restriction of movement – can't move elbow at all
- Severe swelling of the elbow – swelling could disguise deformity

## Supra-condular Fracture: (Lower End of the Humerus Bone)

### Treatment (only in cases where pulse can be felt)

- Support the arm and place in such a position so that the pulse can be felt.
- Secure the arm to the patient's body
- Test for pulse

## Fractures of the Radius and Ulna

**Fractures of the Radius and Ulna** – one or both of these bones may be fractured

**Fracture of the Radius and Ulna near the elbow.**

### Signs and symptoms

- Pain
- Swelling
- Restricted movement

### Treatment

- Same as for Supra-condular fractures

## Fracture of the Radius and Ulna Shafts (Centre Parts)

### Signs and symptoms

- Pain
- Swelling
- Deformity
- Restricted movement

### Treatment

- Support the arm and place at a right angle, palm facing the body and thumb at the top.
- Place a well-padded splint from the elbow to the finger tips on the outside of the arm.
- Place the centre of a narrow bandage on the splint above the fracture. Cross the ends under the arm and tie on the bandage layer.
- Place the centre of a narrow bandage over the splint at the fingers. Cross under palm of hand and bring it back over to the front of the cross on the splint and again on the wrist. Tie the bandage on the splint.
- Support arm in a sling.
- Test for circulation.
- Feel for a pulse.

## Fracture of the Radius and Ulna at the Wrist

There are two types of fracture of the wrist.

### Treatment

- Place the injured arm across the chest as for fractures of the radius and ulna shaft.
- Place a layer of cotton wool along a well-padded splint with most of the cotton wool over the site of the fracture.
- Place the splint on the arm and work the cotton wool in under the splint to support the fracture.
- Secure with two narrow bandages – as for fractures of the radius and ulna shaft fractures.
- Support in a sling.
- Check for discolouration of the fingers.
- Test for circulation.
- Feel for pulse.

## Fracture of the Carpi or Small Bones of the Wrist

The bones of the wrist are very small and are situated in two rows of four each.

### Signs and Symptoms

- Pain
- Swelling
- Slight deformity

### Complications

- Fracture with dislocation
- Damage to Median Nerve
- Permanent weakness

### Treatment

- The same as for fractures of the radius and Ulna fractures at the wrist.



***In the case of any injury to the hand, remove any rings or jewellery immediately before any swelling sets in!***

## Fractures of the Metacarpal

**Fractures of the Metacarpal – bones in the hand** – usually caused by direct force.

### Signs and Symptoms

- Pain
- Swelling
- Discolouration
- Deformity

### Treatment

- Place a well-padded splint of about 10cm wide from the fingertips to the wrist. Use cotton wool padding to support.
- Place splint on the palm side of the hand.
- Place the centre of a narrow bandage across the fingers, cross under splint and take ends up. One end should be inside the thumb. Cross the bandage over the inside of the hand and again over the splint just below the wrist.
- Use a sling for support.

## Fractures of the Phalanges

**Fracture of the phalanges or bones in the fingers (also called phalanges)** – each finger consists of three individual bones and the thumb has two.

### Treatment

- If there is more than one finger injured, treat as for fractures of the metacarpal.
- If one finger is injured, place padding around the finger and between the finger and the one next to it.
- Bandage the two fingers together with adhesive plaster or roller bandage. Start at the bottom and work your way up. The fingertips should remain visible.
- Support the arm in a high elevation sling.

As with all the above fractures, all cases should be referred to a doctor for x-rays and treatment.

## Lower Limbs



***In this section, broad bandages refer to triangular bandages unless otherwise stated, but wide stretch or crepe bandages can also be used.***

***Narrow bandages are also triangular bandages which are folded to half the width of the broad bandage.***

***Narrow stretch or crepe bandages can also be used.***

## Fracture of the Pelvis

Usually caused by direct force or if the pelvis is crushed between two objects as well as falls etc. There are many causes. Indirect blows can also cause fractures of the Pelvis – for example if the knee were to be hit hard and the hip joint forced through the ball joint of the pelvis or if the patient were to land on his/her feet from a height.

### Signs and Symptoms

- Pain and tenderness over the pelvic region.
- Increased pain with movement.
- Restricted movement – unable to sit or stand.
- Inability to urinate – or blood is present in the urine.
- Pain increases with pressure on the pelvis.
- Shock may set in.

### Complications

- Damage to the bladder or uterus in females
- Damage to the intestines
- Damage to nerves and blood vessels
- Pelvic deformity
- Limping
- Damage to rectum

### Treatment

- Place patient in apposition he/she finds the most comfortable. Remove any items from the pockets as these may injure the patient further.
- Advise patient not to urinate if possible.
- Support both ankles – toes pointing upwards.
- Pass a broad bandage through the hollow of the back. Slowly bring the bandage over the hips and tie on the uninjured side. If both sides are fractures tie in the centre of the body.
- Use a second broad bandage and place it around the hips in the same manner as the first. It should overlap the first bandage by two thirds. Tie in the same place as the first bandage.
- Place adequate padding between the knees and the ankles.
- Place a broad bandage around the thighs just above the knees and tie in line with the bandage above.
- Place a broad bandage around the lower legs. Cross and tie in line with the other bandages.
- Apply a figure-eight bandage at the feet and tie at the bottom of the feet with the knot at the side if wearing shoes.
- Treat for shock
- Test for circulation at the lower limbs
- Transport on a stretcher to the nearest emergency facility.

## Fracture of the Femur (Long Bone in Upper Leg)

### Signs and Symptoms

- Pain
- Deformity – leg is at an abnormal angle.
- In the case of an open fracture, the bone may be sticking through the skin. (See how to treat this in the section on wounds).
- The injured leg may appear shorter than the other.

### Treatment

- Feel for a pulse below the fracture. (neuro vascular check)
- Treat for shock – this is a serious injury and shock usually sets in.
- Support the leg at the ankle and foot.
- Apply a support bandage trying to keep the leg in a normal position with feet pointing upwards. If possible try to stretch the leg gently while supporting the leg until the leg is immobilized.
- Apply bandages in the following positions: Push broad bandages under the hollows of the leg – e.g. the knee, and place padding between the legs and ankles.
  - First broad bandage at the feet, apply in a figure eight pattern.
  - Second bandage around the thighs, above the fracture just below the groin applied in the same manner as above.
  - Third bandage at the calf also in a figure-eight.
  - Once immobilized raise the legs and support them.
  - Check for circulation in the foot of the injured leg.
  - Transport to the nearest emergency facility.

## Fracture of Both Femurs

### Treatment

- Support and gently stretch both legs at the ankles.
- Put enough padding between the knees and ankles.
- Apply broad bandages as follows:
  - Place first bandage around the feet in a figure-eight.
  - The second bandage above the fracture site around both thighs.
  - The third around the lower legs.
  - Continue stretching gently.
  - Test for circulation in both feet.
  - Raise legs and support.
  - Transport to the nearest emergency facility.

## Fracture of the Knee-Cap (Patella)

Sometimes this injury could be a fracture, a dislocation or a combination of both.

### Signs and Symptoms

- Pain and tenderness
- Deformity and swelling



***Do not attempt to straighten the leg!***  
***Remember to check for circulation and feeling in the feet.***

### Treatment

- Test for pulse below the fracture. (neuro vascular check)
- Pale and cold limbs indicate lack of circulation or blood supply
- Lay the patient on his/her back
- Raise head and shoulders
- Support leg on both sides at the ankle and foot
- Maintain a slightly bent knee as this will relax the nerves and blood vessels at the back of the knee
- Do not remove shoes
- Place padding beneath the knee to support it and between the knees and the ankles
- Apply a broad bandage over the thigh. Wind the bandage around twice if it will go twice
- Place a second broad bandage around the lower legs. Cross and tie on the bandage layer
- Secure both feet with a figure-eight bandage
- Raise and support both limbs
- Test for circulation below the fracture

## Tibia and Fibula Fractures (Shin and Calf)

Can be caused by both direct and indirect actions

### Treatment of fracture close to the knee

The same as for fracture of the patella or knee-cap.



## Fracture of the Shaft of the Tibia or Fibula

### Signs and symptoms

- If the tibia only is fractured, the patient will not be able to walk as the tibia carries the full weight of the body
- Pain and swelling
- In the case of both the tibia and fibula being broken sometimes the fracture is open, so the bone will be visible
- Deformity of the leg

### Treatment

- Support the limb at the foot and at the ankles
- Apply gentle stretching and support in as normal a position as possible
- Use padding between knees and ankles
- Secure with a broad bandage around the thigh
- Apply a second broad bandage around the lower legs and tie in line with the bandage above
- Secure both feet with a figure-eight bandage
- Raise both limbs and support
- Test for circulation below the fracture



**NOTE:** Any pain in the pelvis when pressed or when a leg is in the wrong position could indicate a pelvic fracture.

## Fracture of the Foot

Usually caused by direct force.

### Signs and symptoms

- Pain
- Swelling and bruising
- Deformity of the foot

### Treatment

- Raise and support injured foot.
- Remove the shoe if possible.
- Place the foot on a padded splint. The splint should be the same width and length of the foot.
- Add extra padding if there is a deformity.
- Place a narrow bandage under the splint and over the bridge of the foot, around the ankle, back across the instep and again around the foot and splint. Follow the same pattern once more and tie the two ends on the outside of the foot on the splint.
- Place a second narrow bandage over the first layer and repeat as before. Tie as for above.

- Test for circulation by pressing on the toenail – if colour returns quickly, there is circulation. If not, blood supply is blocked.
- Alternatively, use a crepe bandage and bind the foot in a figure-eight pattern until the foot is covered from toe to heel.

## Fracture of the Small Bones in the Toes

Usually caused by a direct force.

### Treatment

- If more than one toe is injured, treat as for fracture of the foot above.
- If one toe is injured, treat as for finger fracture.

**Open fractures** occur when the skin is broken by the bone. See complicated wounds below.

**Sprains** are injuries to the soft tissue of the body. These could be ligaments or tendons as well as muscles. Sprains usually occur at the joints of the body. In all cases, support bandages must be applied.

**If no bandages are available, clothing makes a good substitute.**



*Splints are often provided with a first aid kit. If no splint is available, any rigid object such as a stick or piece of wood or hard plastic may be used.*

## Bandages

Three types of bandages are used for first aid. These are **triangular bandages, first aid dressings and roller or crepe bandages**.

### The Purpose of Bandages

- Support
- Protection
- Pressure
- Immobilization

### Note

- A dressing is placed directly onto a wound therefore it should be sterile.
- The dressing should extend beyond the edge of the wound.
- A dressing is usually kept in place by a bandage.
- Always ask a patient if they are allergic to adhesive bandages before applying them.
- Never remove a bandage if it becomes soaked in blood. Apply another bandage on top of it.

## Roller Bandages or Crepe Bandages

These are available in different widths. The most common being 50mm, 75mm and 100mm.

When applying roller bandages as a support bandage:

- Where possible try to stand in front of the patient.
- Keep the loose end short.
- Joints must be slightly bent when applying a dressing or circulation will be cut off.
- Apply evenly and overlap each round by two-thirds.
- Fasten with safety pins, clips or adhesive tape.
- Never use wet bandages as when they dry they tend to contract thus cutting off circulation.
- Always ask the patient if the bandage is not too tight and if so, start again.

## Triangular Bandages

They are also known as the universal bandages. These can be folded in many different ways and used in many different ways too.

To prepare a triangular bandage take a square piece of material and fold it diagonally. Cut along the fold line. This will produce two triangular bandages. Each triangular bandage has a base, two sides and a point.

Using a triangular bandage as a large supportive sling:

- Create a sling by folding the middle of the long edge under the arm, with the 90° corner of the triangle at the elbow.
- Bend the arm into a position which is comfortable for the patient.
- Pull the long ends up and around the neck. It's most comfortable if the inner side of the sling goes around the neck on the hand side, while the outer side goes around on the elbow side.
- Tie the sling with a reef knot behind the neck, so the wrist tips slightly upward in relation to the elbow.

Pull the extra cloth out from the elbow and tie a simple overhand knot in it. This keeps the arm in place within the cradle of the sling.



***Tip: Always tie a reef knot when tying a bandage. This will allow quick and easy removal of the bandage should it be required.***

Using a triangular bandage as a high elevation sling: (Used in injuries to the hand and forearm to minimize bleeding).

- Place injured arm on chest.
- Place an open bandage over the arm. The upper end should cover the fingers.
- Fold the base in under the forearm.
- Allow the side of the bandage to rest on the radius.
- Fold the loose end over the elbow towards the body and slide it under the upper arm between the arm and the body towards the back.
- Open the bandage to make it wider and take it across the back towards the shoulder.
- Tie the knot on the uninjured side in the hollow above the collar bone.

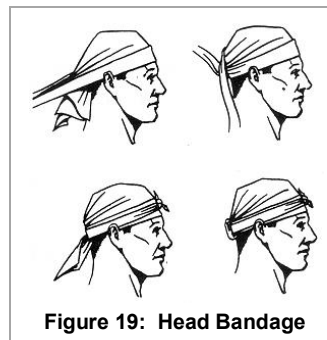


Figure 19: Head Bandage

To give extra protection to the shoulder for upper arm fractures, collarbone or joint separations, add a binder to the sling. This can be a second triangular bandage wrapped around the chest over top of the first sling.

To use a triangular bandage as a head wound compression dressing, place the base of the bandage across the front of the head bringing the two points together at the base of the head. Tie the points and tuck the last part of the bandage in. How to make a **broad** bandage, **narrow** bandage and **ring pad** or doughnut bandage. Fold triangular bandage as shown in diagram.

To make a **ring pad**, hold one point between your thumb and the palm of your hand. Wrap the narrow bandage around your hand twice. Bring the other point through the bandage and wrap around the bandage until a ring is formed. (Use for wounds where fractured bones stick through the skin to elevate the dressing over the wound as well as over an impaled object to support and protect from further injury.

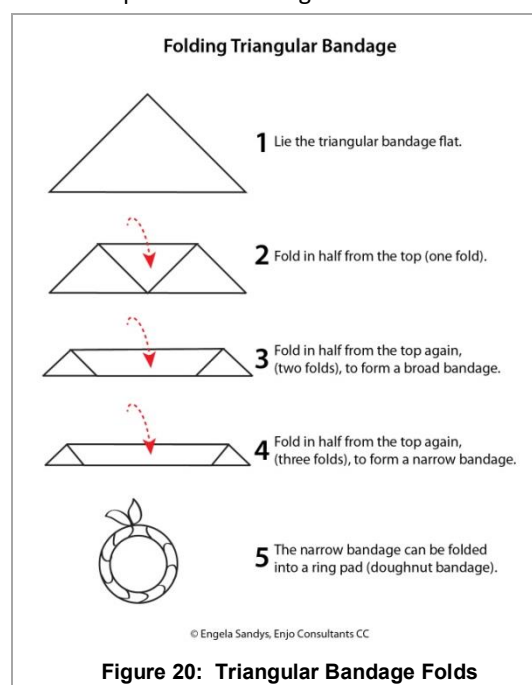


Figure 20: Triangular Bandage Folds

## First Aid Dressings

These are protective bandages. They are usually sterile and supplied with wound dressing attached to the bandage or you can use them with sterile gauze. These bandages have no stretch ability. Triangular bandages can also be used as protective dressings over sterile dressings.

## Crepe or Stretch Bandages

They are made from stretchable material and are used for support, pressure and to hold other dressings in place. To use a roller bandage to cover a **head wound**:

- Place sterile dressing over wound.
- Apply roller dressing around the head securing the dressing in place. If a bleeding wound, slight pressure will help to keep bleeding at bay.
- Secure with clips, safety pin or tape.

To use a roller bandage to **wrap a limb**:

- Start at the wound covering the sterile dressing if there is one, or start on the inside of the limb.
- Start one turn to secure the end and take the next turn upwards and at an angle diagonally around the limb to form a figure-eight.
- Overlap previous layers by two-thirds and secure with clips, safety pin or tape.
- Check circulation.

To use a roller bandage to **wrap a hand**:

- Make sure the width is correct.
- Make one turn around the wrist.
- Take the bandage over the hand to the first joint of the little finger.
- Wind around the fingers and back over the hand to the wrist.
- Continue forming a figure-eight until the entire hand is covered.
- End with one turn around the wrist and secure.

To use a roller bandage to **wrap an elbow**:

- Support the arm in a bent position.
- Put the end of the bandage on the inside of the elbow.
- Turn over the forearm covering half of the first turn.
- Take the bandage across the upper arm making sure it covers half the first turn as well.
- Continue with a figure-eight overlapping by two-thirds.
- End with one final turn over the elbow and secure.

To use a roller bandage to **wrap a knee**:

- Use a suitable width and follow instructions as for the elbow.

To use a roller bandage to **bandage fingers**:

- Use bandage of about 2cm wide.
- Start with a turn around the wrist.
- Take across the hand to the first joint of injured finger and cover the finger with spiral turns going towards the end of the finger and ending back at the base of the finger.
- More than one finger can be bandaged this way, starting with the finger closest to the little finger and moving towards the thumb.
- Leave fingertips open to check for circulation.

To use a roller bandage to **wrap an ankle**:

- Place the tail end of the bandage on the TOP of the foot.
- Apply firm and even pressure, wrapping the bandage from the mid foot area to the ankle. Do not wrap it too tightly since this can lead to additional pain and impair circulation.
- Wrap in a figure-eight pattern.
- Be certain to make sure the heel of the foot also gets wrapped.
- Once you have wrapped the ankle with firm and consistent pressure, secure the bandage by using bandage clips or by securing with some tape.
- Check for circulation.

## Wounds

There are two types of bleeding namely **external** and **internal** bleeding. In order to understand more about bleeding and what happens when a patient is wounded there is certain terminology that you have to be familiar with.

**important!**

**Arteries** are large main vessels that carry oxygenated blood to all parts of the body.

**Veins** are also large main vessels but they carry de-oxygenated blood from all parts of the body.

**Capillaries** are small vessels which carry blood to and from every part of the body.

There are different types of wounds, namely:

- Contusions (bruises)
- Abrasions
- Puncture wounds
- Gunshot wounds
- Lacerations
- Foreign objects
- Amputations



## Contusion

Another name for a contusion is a **bruise**. This is soft tissue damage but the skin or mucous membrane is not broken.

### Causes

Usually violent contact with a blunt object. Contusions can also indicate internal bleeding or a fracture. If a fracture is suspected, do not move the patient. (See the section on fractures in Study Unit 6).

### Signs and Symptoms

- Pain
- Swelling
- Sensitivity to touch.
- Movement is restricted.
- Dislocation – where the limb is not where it should be.
- Shock in severe cases.
- Bruises to the forehead often lead to black eyes. (raccoon eyes).



Figure 22: Bruise with a slight abrasion

### Treatment

- Make the patient as comfortable as possible.
- Raise the limb higher than the heart in a supported position (unless the limb is fractured, in which case assess the injury before moving the patient).
- Treat for shock if necessary.
- Apply ice or an ice pack or cold compress.



*When cleaning a wound always wipe away from the wound*

## Abrasions

It is an open wound that damages the surface of the skin without breaking through all the skin layers.

### Causes

Scraping or grazing of any kind. These are usually superficial (surface) wounds.

### Signs and Symptoms

- Bleeding over a large area of the skin

### Treatment

- Clean the wound with diluted antiseptic
- Remove all loose object from the wound with a gauze swab
- Pour diluted antiseptic onto a gauze pad and clean wound
- Systematically from the inside out. Use a clean swab every time.
- Dry lightly with a dry swab.
- Secure with an adhesive bandage or wrap with a bandage or 1st aid dressing. (Antiseptic cream can be applied. Keep everything sterile)



**Figure 23: An abrasion on the palm of the hand after a fall**

## Puncture

These wounds are open wounds which tear through the skin and destroy tissue in a straight line.

### Causes

Bites, rusty nails, knives, any wounds caused by a sharp instrument.

### Signs and Symptoms

- Deep wound with or without bleeding.

### Treatment

- Clean the wound and apply dressing.



***It is important that an Anti-Tetanus injection be given by a medical practitioner after any puncture wound as dirt can easily enter the wound and infection can set in.***



## Gunshot Wounds

These are puncture wounds which can be classified into two types - *penetrating* or *perforating* wounds. *Penetrating* wounds are puncture wounds with only an entrance wound – i.e. the bullet is still lodged in the body. *Perforated* wounds are gunshot wounds which have an entrance and an exit wound – i.e. the bullet has passed through the body.

### Causes

- Firearms

### Signs and Symptoms

- Round deep wound
- Entrance wound
- Sometimes an exit wound is present



**Figure 24: Gunshot wound showing entrance and exit wound**

### Treatment

- Clean the surface and apply a dressing over the wound.
- If it is bleeding severely, it may be necessary to apply a pressure bandage.
- Seek immediate medical attention. Do not attempt to remove the bullet!

## Laceration

A laceration is an open wound with smooth or jagged edges. Bites can also cause lacerations.

### Causes

- Cuts, tears, bites, deep scratches, etc. Often stitches are required.



**Figure 25: Laceration**

### Signs and Symptoms

- Deep open wound.
- Lower layers of skin are visible.

### Treatment

- Clean the wound and apply a dressing over the wound.
- It may be necessary to apply pressure if there is severe bleeding.
- Often it may be necessary to have an Anti-Tetanus injection.
- Seek medical attention as usually these wounds require stitches.

## Foreign Object

This is a wound where an object is lodged somewhere in the body. We will discuss the treatment of these wounds in more detail later on.

### Causes

A nail embedded in a part of the body, steel embedded, a foreign body lodged in the eye, a knife embedded in the body, etc.



Figure 26: Foreign Object Wound

### Signs and Symptoms

- A sharp object is lodged in the body. This can be glass, a stick, a knife or any sharp object.

### Treatment

- Clean the area around the object very carefully, making sure not to move the object.
- Apply a ring pad or doughnut bandage over the object to stabilize it and secure carefully with a bandage

**Remember how** to make a **ring pad** or doughnut shaped bandage.

- Make a ring with a narrow bandage or narrow but long strips of cloth. (A triangular bandage can also be folded into a long strip and used).
- Start with one end of the narrow bandage and wrap it around all four fingers on one hand until you form a loop.
- Leave a long strip of the bandage material to weave in and around the loop so it doesn't unravel.
- Use this ring pad to apply pressure around the edges of a wound or stabilize an impaled object.



***DO NOT attempt to remove the foreign object as this can cause severe damage to tissues, nerves and underlying organs as well as severe bleeding!***

## Amputated Tissue

This is where a part of the body is severed (cut) completely from the body.

### Causes

These types of wounds happen often where heavy machinery is used or where any steel structures or cutting devices are used, but can happen under any circumstances.

### Signs and Symptoms

- A part of the body is severed (cut off) completely from the body
- Severe bleeding

## Treatment

When tissue is partially amputated - (hanging, but still attached):

- Replace in the normal position
- Cover with a dressing and bandage
- Keep cool with a cold compress or ice pack.
- Seek urgent medical attention.

In the case of completely severed tissue:

- Preserve severed part by placing in a plastic bag in a cold container.
- Keep moist. Do not put ice into direct contact with the severed tissue!
- Bleeding can usually be controlled by applying direct pressure to the wound and elevating the limb.

When working with a bleeding patient who is conscious, you can ask the patient to assist you by putting pressure on his/her own wounds. Always wear gloves when dealing with a bleeding patient!

Remember what we said earlier. Bleeding is an indication of a serious condition and you should always attempt to control any bleeding first. This is part of the **primary assessment** – the assessment that you do when you first arrive at the scene.

## Complicated Wounds

**Avulsion** is when a fractured bone sticks through the skin and causes open wound bleeding.

### Signs and Symptoms

- Pain
- Swelling
- Bleeding at the fracture site
- Bone protruding through the skin
- Severe bleeding

### Treatment

- Reassure the patient.
- Make the patient as comfortable as possible.
- Apply indirect pressure to stop the bleeding.
- Clean the wound away from the wound as above
- Apply a ring-pad bandage or doughnut pad over the protruding bone.
- Secure gently with a bandage.
- Transport to the nearest emergency facility.

## Burns

There are different types of burns. Here are some terms you may come across when dealing with burn victims.

- **Alkali** – a substance that is neither neutral nor acidic.
- **Superficial** – an injury that involves only the top layer of skin. Usually indicated by redness and sometimes swelling.
- **Deep burn wound** – a full thickness burn with all the layers of the skin damaged. Some deep burn wounds are difficult to recognise. Site of the wound can either be charred black or dry and white. The patient may complain of severe pain or no pain at all depending on whether or not nerves have been damaged. This type of burn may need a skin graft as deep burns heal; the scars left are often thick and dense.
- **Epidermis** - outer layer of the skin.
- **Dermis** – The inner layers of the skin.



Figure 27: Large burn wound

There are many causes of burns such as **fire, excessive heat, excessive cold, water or ice, especially dry ice, electricity, radiation and hazardous chemicals**. Often it is a combination of more than one of these factors that we have to deal with.

The skin is the first line of defence against our environment. It is for this reason that many injuries involve the skin. Never limit your thinking to the damage caused by the burn only. There are often underlying or accompanying problems. When determining the severity of a burn, look at the following things:

- The source of the burn
- Body regions burned
- Degree of the burn
- Extent of the burn area
- Age of the patient
- Other illnesses and injuries

The source of the burn can be important when assessing the patient. A minor burn caused by radiation is of **more** concern than one caused by heat sources.

Chemical burns are of special concern as the chemical may remain on the skin and continue to burn for hours or days even, eventually entering the blood stream. This is often the case with some alkaline chemicals.

Any burns to the face are of special concern since it may lead to injury of the eye or airway.



***It is important to get the patient to the nearest emergency facility as soon as possible!***

**Sunburn** can cause severe pain and discomfort. **Blisters** can form as seen in the picture on the right – a case of 2<sup>nd</sup> degree or partial thickness burns.



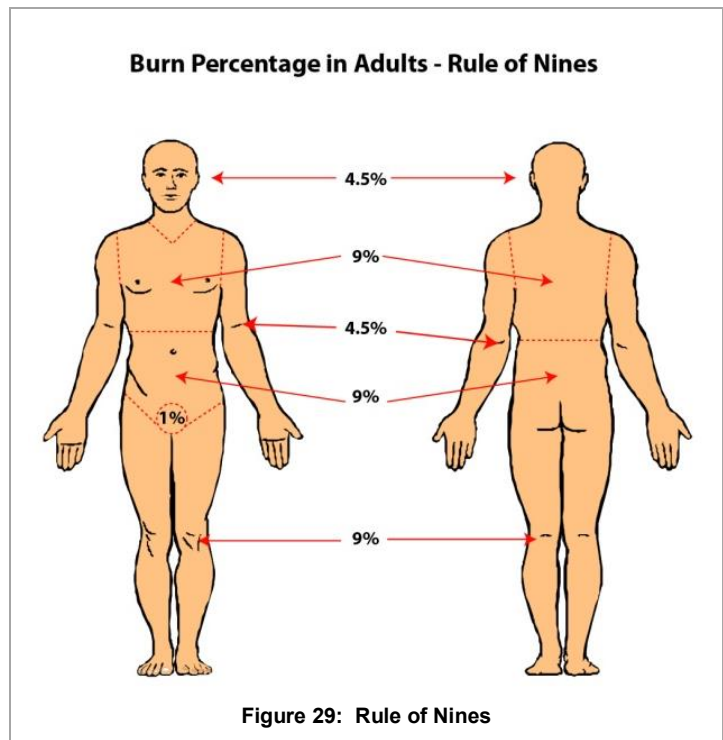
Figure 28: Sunburn

## The Rule of Nines

Each of the following areas represents **9%** of the body surface:

- The head and neck.
- Each arm
- The chest
- The abdomen
- The upper back
- The lower back
- The buttocks
- The front of each leg
- The back of the legs

These make up 99% of the body surface. The remaining 1% is assigned to the genital region. Thus if a person is burned on the chest and both arms, we say the patient has 27% body surface burns. Age plays a major role in burn cases.



***DO NOT attempt to rescue a person trapped by fire unless you are trained to do so!***

## Thermal Burns

Thermal burns are caused by hot objects, steam, scalding liquids, sunburn and flames. Never apply ointments, sprays or butter to a burn site.

### General Signs and Symptoms

- Redness of the skin
- Pain
- Blisters may be present
- Rawness of the skin
- Swelling

## Treatment

- HHH CAB
- Stop the burning process.
- Look for airway injuries.
- Do a primary assessment.
- Treat for shock.
- Treat more serious injuries – e.g. bleeding.
- Evaluate the burn wound:
  - Degree of burn
  - Rule of nine
  - Severity of the burn
- Judging by severity decide if transport to an emergency facility if necessary.
- Call EMS.
- Do not clear debris from the wounds.
- Remove clothing and jewellery where possible.
- Cool the burn area immediately by holding under cool water.
- Cool for at least ten minutes.
- Work as cleanly as possible to avoid infection.
- Never break blisters!
- Apply a burn gel dressing over the wound.
- If only the top layer is affected, treat the wound.
- If any charring or underlying layers are affected stabilize the patient and transport to the nearest emergency care facility immediately.
- Any follow up care will be explained to the patient by emergency staff.

Traditionally thermal injuries were classified as **first, second or third degree burns**. Nowadays many doctors describe burns according to their thickness (**superficial, partial and full**). The signs and symptoms experienced by a burn victim depend largely on the severity of the burn and the number of layers of skin that are affected.

## Classification, Signs and Symptoms of Burns

### Superficial or First Degree Burn

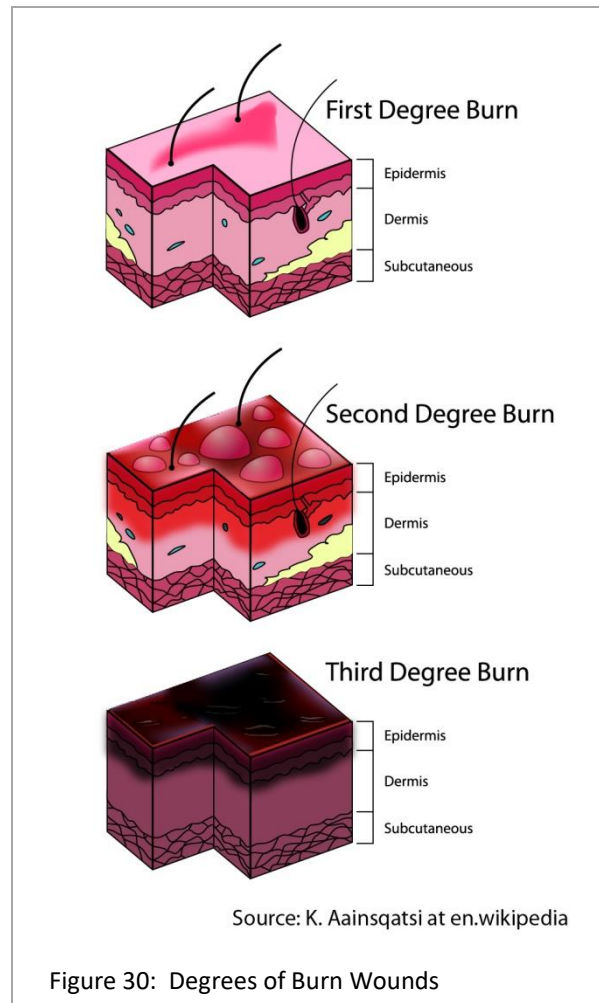
- Involves only the epidermis skin layer.
- May be painful, red and warm, area turns white when touched, no blisters, moist.

### Partial Thickness or Second Degree Burn Signs and Symptoms

- Involves the epidermis and some portion of the dermis.
- Depending on the how much of the dermis is affected the burn is further broken down into superficial or deep.
- Superficial partial thickness burns are usually painful, red, and moist, with blisters, hair still intact.
- Deep partial thickness burns may or may not be painful (nerve endings destroyed), may be moist or dry (sweat glands destroyed), hair is usually gone.

### Full Thickness or Third Degree Burn Signs and Symptoms

- Most severe burn - involves all layers of skin – epidermis and dermis.
- Nerve endings, small blood vessels, hair follicles, sweat glands are all destroyed.
- Subcutaneous fat tissue, muscle and bone may also be involved in very severe burns.
- Burns are painless with no sensation to touch, skin is pearly white or charred, dry and may appear leathery.



## Treating Specific Burn Wounds

### Eyelid Burns

- Cover eyes with sterile dressing and bandages.
- If the burn is as a result of a chemical burn, rinse eye with saline solution for at least 10 minutes.
- Apply wet gauze to eyelids to prevent sticking.
- Close both eyes even if only one eye is injured.
- Transport to emergency facility ASAP.

### Deep Skin Burns

- Cover with Burn Gel and cover with a thick layer of gauze or first aid dressing.
- Transport to nearest emergency facility.

## Mouth and Throat Burns

- Give the patient cold water to drink if he/she is conscious.
- Remove any tight clothing or jewellery from around the neck.
- Apply a cold-compress to the throat and chest.
- Transport to nearest emergency facility immediately.

## Chemical Burns

This type of burn requires immediate care.

- Depending on the type of chemical, wash away any chemical left on the skin with cold water.
- Continue flooding the affected area using a gentle flow of water.
- Remove contaminated clothing, socks, shoes and jewellery from the patient.
- Once you have washed the burn areas, apply a sterile dressing to the burn site.
- Treat for shock.
- Transport to the nearest emergency facility.



***Familiarize yourself with chemicals used in your specific workplace and the treatment of any injuries arising from accidental spillage of these chemicals!***

## Special Precautions

- If dry lime is the burn agent do not wash the burn site with water! Brush the dry lime from the patient.
- Concentrated sulphuric acid produces heat when water is added, but it is still better to wash of rather than leave the acid on the skin.
- At any time if a patient has been exposed to a caustic chemical, he/she may have inhaled the fumes. In such cases, the patient must receive high amounts of oxygen.

# Keep Record of Incident/Accident

## Introduction

When an incident or accident occurs it is vitally important that the correct information is given to the receiving party/parties.

## Reporting to Emergency Personnel

When describing an incident to emergency personnel, be sure to give the following information:

- Number of patients or casualties
- Mention if CPR is in progress
- Types of injuries



- Describe symptoms displayed by casualties
- Describe treatment given to patients
- Describe patient response to treatment given
- If known, give personal details of the patient and medical background
- Advise of any dangers on site
- Give the EXACT location

## Reporting Incidents According to Company Procedure

Each company has its own system for reporting incidences. Normally, interdepartmental communication will take place in the form of a memorandum. This is difficult when you are in the field or on site away from the office.

It is important to note that any verbal communication between you and your supervisor and employees/management should be followed up by some form of written communication. This implies that after you have communicated a problem to your supervisor you must follow it up by writing a report. These reporting templates are provided by your company. When reporting on occupational health and safety matters like all hazards, near misses, incidents and injuries, follow the guidelines of your company policy closely to avoid any problems. You will need to write a report that contains information on such things as:

- The incident/accident that took place
- Possible causes if known
- Number of casualties
- Nature of injuries sustained
- Treatment given
- Patient's response to the treatment given
- Steps taken to ensure safety of patient and co-workers
- Steps taken to ensure safety at the scene
- Emergency services called
- Who the incident was reported to
- How long it took for emergency response to arrive/how long it took to transport patient to emergency facility
- Any other relevant information such as medical history of patient, etc

All companies have different procedures that must be followed. Ensure that you know these procedures and make the procedures visible to all co-workers. Emergency procedures, such as evacuation plans etc should be displayed in a place that is easily accessible and visible to all. Familiarize yourself with your particular company's forms and procedures.

An example of an Incident/Accident Report is on the following page that can be adapted to suit your company's needs.

**Incident/Accident Report****REPORTING PARTY INFORMATION**

|                                        |  |            |  |
|----------------------------------------|--|------------|--|
| Last Name                              |  | First Name |  |
| Tel No                                 |  | Cell No    |  |
| email                                  |  | Position   |  |
| Company                                |  | Department |  |
| Date report completed, in its entirety |  |            |  |

**INJURED PARTY INFORMATION**

|                     |  |                                  |                                                               |
|---------------------|--|----------------------------------|---------------------------------------------------------------|
| Last Name           |  | First Name                       |                                                               |
| Tel No (W)          |  | Tel No (H)                       |                                                               |
| Cell No             |  | email                            |                                                               |
| Address             |  |                                  |                                                               |
| Date of Birth       |  | Age if date of birth is not know |                                                               |
| ID Number           |  | Gender                           | Male <input type="checkbox"/> Female <input type="checkbox"/> |
| Company             |  | Position                         |                                                               |
| Department          |  | Head of Dept.                    |                                                               |
| Next of Kin         |  | Next of Kin Tel No               |                                                               |
| Next of Kin Address |  |                                  |                                                               |

**INCIDENT/ACCIDENT INFORMATION**

|                                                                                                 |  |                  |  |
|-------------------------------------------------------------------------------------------------|--|------------------|--|
| Date of Incident                                                                                |  | Time of Incident |  |
| Place of Incident                                                                               |  |                  |  |
| Describe what injured party was doing when incident occurred, any unsafe conduct or conditions: |  |                  |  |
|                                                                                                 |  |                  |  |
|                                                                                                 |  |                  |  |
|                                                                                                 |  |                  |  |
| Describe specific injuries resulting from incident; note any lost time from work:               |  |                  |  |
|                                                                                                 |  |                  |  |
|                                                                                                 |  |                  |  |
|                                                                                                 |  |                  |  |
| Describe medical care/emergency care provided:                                                  |  |                  |  |
|                                                                                                 |  |                  |  |
|                                                                                                 |  |                  |  |
|                                                                                                 |  |                  |  |
| Name of person(s), doctor(s) providing care:                                                    |  |                  |  |

**WITNESSES / OTHERS INVOLVED IN INCIDENT/ACCIDENT**

|                       |                                                                                |            |  |
|-----------------------|--------------------------------------------------------------------------------|------------|--|
| Last Name             |                                                                                | First Name |  |
| Tel No                |                                                                                | Cell No    |  |
| email                 |                                                                                | Position   |  |
| Company               |                                                                                | Department |  |
| Nature of Involvement | Witness <input type="checkbox"/> Involved in Incident <input type="checkbox"/> |            |  |

|                       |                                                                                |            |  |
|-----------------------|--------------------------------------------------------------------------------|------------|--|
| Last Name             |                                                                                | First Name |  |
| Tel No                |                                                                                | Cell No    |  |
| email                 |                                                                                | Position   |  |
| Company               |                                                                                | Department |  |
| Nature of Involvement | Witness <input type="checkbox"/> Involved in Incident <input type="checkbox"/> |            |  |

|                       |                                                                                |            |  |
|-----------------------|--------------------------------------------------------------------------------|------------|--|
| Last Name             |                                                                                | First Name |  |
| Tel No                |                                                                                | Cell No    |  |
| email                 |                                                                                | Position   |  |
| Company               |                                                                                | Department |  |
| Nature of Involvement | Witness <input type="checkbox"/> Involved in Incident <input type="checkbox"/> |            |  |

|                       |                                                                                |            |  |
|-----------------------|--------------------------------------------------------------------------------|------------|--|
| Last Name             |                                                                                | First Name |  |
| Tel No                |                                                                                | Cell No    |  |
| email                 |                                                                                | Position   |  |
| Company               |                                                                                | Department |  |
| Nature of Involvement | Witness <input type="checkbox"/> Involved in Incident <input type="checkbox"/> |            |  |

**ACTION TAKEN:**

Unsafe conditions to be resolved      Yes ☐ No ☐      (If yes, please comment)

|  |
|--|
|  |
|  |
|  |

Unsafe behaviour to be corrected      Yes ☐ No ☐      (If yes, please comment)

|  |
|--|
|  |
|  |
|  |

No action is required, simply noted      ☐

## Summary

### What Constitutes an Emergency?

A serious injury is defined as being:

- Caused the death of a person; or
- A person requiring medical treatment within 48 hours of exposure to a substance; or
- A person requiring immediate treatment as an in-patient in a hospital;
- A person requiring immediate medical treatment for:
  - The amputation of any part of his or her body;
  - A serious head injury;
  - A serious eye injury;
  - The separation of his or her skin from an underlying tissue (such as de-gloving or scalping);
  - Electric shock;
  - A spinal injury;
  - The loss of bodily function;
  - Serious lacerations;
- Any other injury to a person or other consequences prescribed by the regulations

A dangerous occurrence is defined as being one of the following:

- The collapse, overturning, failure or malfunction of, or damage to any plant that the regulations prescribe must not be used unless the plant is licensed or registered; or
- The collapse or failure of an excavation or of any shoring supporting an excavation; or
- The collapse or partial collapse of any part of a building or structure; or
- An implosion, explosion or fire; or
- The escape, spillage or leakage of any plant, substance or object; or
- The fall or release from a height of any plant, substance or object

**Remember** before you do anything you should note the following:

- Make sure the area is safe. (Do not put yourself or others at risk.)
- Tell your supervisor immediately.
- Perform emergency first aid to any casualties.
- Alert emergency personnel.
- Fill in a Hazard, Accident, and Near Miss Report Form and give it to your manager.
- If desired, you may choose to also discuss the hazard with your Health and Safety Representative.

## Medical Emergency Procedures

- Check that there is no hazard to you, the injured person or other people.
- Notify the first aid officer immediately.
- Assist the first aid officer if required.
- Call for an ambulance and provide the following information:
  - Exact place of the accident, with directions
  - Telephone number of the phone you are using
  - Number of casualties
  - Indication of type and extent of injuries
  - State if other emergency services are required
  - Ask for the likely arrival time
  - Answer any further questions
- Remain at the assembly point until instructed by your superior.
- Fill out a Hazard, Accident & Incident Report.

## References

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