BASIC FIRST AID MANUAL

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STATE DISASTER MANAGEMENT AUTHORITY
MEGHALAYA, SHILLONG

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PREFACE

First Aid is the emergency care given to the sick, injured or wounded before being treated by medical personnel. Injuries can be sustained by anyone and at any time. The basic knowledge of First Aid will be a great help to any one in times of need and the first aider will be able to provide urgent and immediate life saving assistance to the victims.

It is a common experience that medical personnel may not always be readily available at any time and place and non-medical service providers will have to rely on their skills and knowledge of life sustaining methods to survive in a situation. This booklet on ***"Basic First Aid and Manual"*** which is the first of such publication prepared by **Meghalaya State Disaster Management Authority** and funded by **National Disaster Management Authority, New Delhi ,** I am sure will help in providing basic knowledge to the First Responders and thus enhance the capacity in rendering services and assistance to the victims before the arrival of Emergency Medical Service provider.

The booklet has been recommended for use for the First Responder by the Director of Health Services (Medical Institutions), Meghalaya, Shillong. Any suggestion for improvement of this booklet is welcome.

Dated Shillong
the 15th April, 2014

H.B.Marak
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OFFICE OF THE DIRECTOR OF HEALTH SERVICES
MEGHALAYA :: SHILLONG.

No. HSM/DM/6/11/61/ Dated Shillong the 1/4/14.

To,

The Chief Executive Officer
State Disaster Management Authority Secretariat
Meghalaya, Shillong

Sub : Basic First Aid Manual.

With reference to the subject cited above, I am to say that after going through the Basic First Aid Manual, it is found that the contents are suitable for the purpose.

Joint Director of Health Services (MI),
Meghalaya, Shillong.

Chapter I - Introduction

The primary focus of first aid training is to provide you with the skills and knowledge necessary to minimise the effects of accidents or illnesses. First aiders provide a primary response to emergencies within the community and may sometimes be the first and the only person on the scene, it is necessary for him/her to remain calm, he should be able to make the right decisions in a situation dominated by emotional stress and anxiety.

Definition of First Aid :

First Aid is an emergency care and treatment of a sick or injured person before more advanced medical assistance, in the form of the emergency medical services (EMS) arrives.

Responsibilities of a first aider :

- **Preserve** life and provide initial emergency care and treatment to sick or injured people
- **Protect** the unconscious
- **Prevent** a casualty's condition from becoming worse

- **Promote** the recovery of the casualty.

Philosophy of First Aid:

In the pre-hospital setting, the key contributors to survival and recovery from illness and injury are prompt and effective maintenance of the body's primary functions:

- Airway
- Breathing
- Circulation
- Bleeding control (life threatening)

Medical research data suggests that effective support of these basic functions provides the most significant contribution to positive outcomes for casualties in the pre-hospital setting.

Chapter II - Exposure to Biological Hazards

First aiders may be exposed to biological substances such as blood-borne pathogens and communicable diseases, whilst dealing with a victim.

These may result from dealing with:

- Trauma related injuries
- Resuscitation

There are many different blood-borne pathogens that can be transmitted from a penetrating injury or mucous exposure, in particular, Hepatitis B Virus, Hepatitis C Virus and Human Immune deficiency Virus (HIV). Other diseases not found in human blood may be carried in fluids such as saliva (e.g. Hepatitis A and the organism that causes meningitis) or animal blood and fluid.

Universal Precautions :

First aiders should equip themselves with the use of personal protective equipment (PPE). This equipment is used to minimise infection from disease.

Exposure sources :

The following are common sources of exposure :

- All human body fluids and secretions, especially any fluid with visible blood
- Any other human material.

Exposure routes :

The following are typical means of exposure :

- Punctures or cuts from sharp objects contaminated with blood / fluid
- A spill of blood/fluid onto mucous membranes of the eyes, mouth and/or nose
- A spill of blood/fluid onto skin that may or may not be intact
- A laceration and contamination with blood/ fluid from a bite.

The expression 'universal precautions' refers to the risk management strategy used to prevent the transmission of communicable disease, by reducing contact with blood and other body substances.

Universal Precautions include :

- Wearing appropriate protective equipment for the task
- Treating all persons as if infectious
- Washing following completion of task
- Appropriate disposal of disposable protective items and/or equipment
- Maintaining good hygiene practices before, during and after tasks involving contamination risk.

Immediate action at scene following exposure :

For an open wound

- Encourage the wound to bleed, thoroughly wash with water for 15 minutes and dress
- Do not attempt to use a caustic solution to clean the wound
- Seek medical advice as soon as possible.

For a splash to a mucous membrane

- Flush splashes to nose, mouth or eyes thoroughly with water for 15 minutes

- If the splash is in the mouth, spit out and thoroughly rinse out with water for 15 minutes
- If the splash is in the eyes, irrigate with the eyes open for 15 minutes
- Seek medical advice as soon as possible.

For a splash to the skin

- At the scene, wash thoroughly with soap and water
- Seek medical advice as soon as possible if the exposure is medium / high risk.

Chapter III - The Primary Survey

Basics of First Aid

Most injured or ill service members are able to return to their units to fight or support primarily because they are given appropriate and timely first aid followed by the best medical care possible. Therefore, all service members must remember the basics.

- Check for **BREATHING**: Lack of oxygen intake (through a compromised airway or inadequate breathing) can lead to brain damage or death in few minutes.
- Check for **BLEEDING**: Life cannot continue without an adequate volume of blood to carry oxygen to tissues.
- Check for **SHOCK**: Unless shock is prevented, first aid performed, and medical treatment provided, death may result even though the injury would not otherwise be fatal.

EMERGENCY ACTION PRINCIPLES

1. Survey the Scene

Once you recognized that an emergency has occurred and decide to act, you must make sure the scene

of the emergency is safe for you, the victim/s, and any bystander/s.

Elements of the Survey of the Scene

- Scene safety.
- Mechanism of injury or nature of illness.
- Determine the number of patients and additional resources.

2. Activate Medical Assistance and Transfer Facility

In some emergency, you will have enough time to call for specific medical advice before administering first aid. But in some situations, you will need to attend to the victim first

Phone First and Phone Fast

Both trained and untrained bystanders should be instructed to Activate Medical Assistance as soon as they have determined that an adult victim requires emergency care "**Phone First**". While for infant and children a "**Phone Fast**" approach is recommended.

3. Do a Primary Survey of the Victim

In every emergency situation, you must first find out if there are conditions that are an immediate threat

the victim's life.

1. Check for Consciousness

2. Check for Airway

3. Check for Breathing

4. Check for Circulation

4. Do a Secondary Survey of the Victim

It is a systematic method of gathering additional information about injuries or conditions that may need care.

1. Interview the victim.

2. Check vital signs.

3. Perform head-to-toe examination.

Chapter IV - Basic Measures For First Aid

Lack of breathing, and excessive loss of blood (circulation). A casualty without a clear airway or who is not breathing may die from lack of oxygen. Excessive loss of blood may lead to shock, and shock can lead to death; therefore, you must act immediately to control the loss of blood. All wounds are considered to be contaminated, since infection-producing organisms (germs) are always present on the skin and clothing, and in the soil, water, and air. Any missile or instrument (such as a bullet, shrapnel, knife, or bayonet) causing a wound pushes or carries the germs into that wound. Infection results as these organisms multiply. That a wound is contaminated does not lessen the importance of protecting it from further contamination. You must dress and bandage a wound as soon as possible to prevent further contamination.

OPEN THE AIRWAY AND RESTORE BREATHING

When a victim is unconscious, all muscles are relaxed. If the victim is left lying on the back, the tongue, which is attached to the back of the jaw, falls against the back wall of the throat and blocks air from entering the lungs. Other soft tissues of the airway may worsen this obstruction. The mouth falls open but this tends to block,

rather than open, the airway. The unconscious victim is further at risk because of being unable to swallow or cough out foreign material in the airway. This may cause airway obstruction, or laryngeal irritation and foreign material may enter the lungs. For this reason the rescuer should not give an unconscious victim anything by mouth, and should not attempt to induce vomiting.

Key point :

In an unconscious victim, care of the airway takes precedence over any injury, including the possibility of spinal injury. Airway management is high priority. It is important to check the airway before the breathing. If air cannot enter the lungs due to some sort of blockage, the casualty will not survive for long.

Airway management is required to provide an open airway when the victim:

- Is unconscious;
- Has an obstructed airway;
- Needs rescue breathing.

Airway obstruction:

If during resuscitation the airway becomes compromised, the victim should be promptly rolled onto their side to clear the airway. The victim should then be

reassessed for responsiveness and normal breathing. Most airway problems are caused by the tongue and/or vomit. These can often be resolved by simple airway management.

Tongue :

The muscle tone of the upper airway is directly related to the level of responsiveness: when sleeping, for example, minor degrees of reduced muscle tone may lead to sufficient obstruction to cause snoring. When unresponsive, however, this obstruction can become complete and fatal.

Vomit :

Food remains in our stomach for hours, so most victims will have food in their stomachs, and it is possible for this food to regurgitate up from the stomach into the lungs. This is called aspiration. The acidity of the stomach contents and the particle size can block and damage the airway. Regurgitation is a passive process caused by a rise in stomach pressure overcoming the sphincter. It is usually caused by a full gut, obesity (weight on the stomach), or air.

How to check an Airway:

Ensuring an airway is clear and open -

- Open the mouth and look for foreign objects
- Finger sweep (**only** if an object **can be seen** and can be removed with a sweep of a gloved finger)
- Perform a 'Head-tilt, chin-lift'.

Head-tilt and chin-lift :

Adults and Children (A child is defined as one year to eight years of age).

One hand is placed on the forehead or the top of the head. The other hand is used to provide Chin Lift. The head is tilted backwards **without placing your hand under the neck**. It is important to avoid excessive force, especially where neck injury is suspected. Make sure that you are wearing barrier gloves.

Chin lift is commonly used in conjunction with Backward Head Tilt. The chin is held up by the

rescuer's thumb and fingers in order to open the mouth and pull the tongue and soft tissues away from the back of the throat. One technique involves placing the thumb over the chin below the lip and supporting the tip of the jaw with the middle finger and the index finger lying along the jaw line. Care is required to prevent the ring finger from compressing the soft tissues of the neck. The jaw is held open slightly and pulled away from the chest.

Finger sweep :

The finger sweep is used to clear the mouth of fluid and debris in the unresponsive casualty. It should only be performed if you can see something to remove. It should always be performed with a gloved hand with the casualty positioned on their side in a stable side position. Insert your first finger into the high into the side of the casualty's mouth and perform a single sweeping motion to the opposite side, flicking out vomit, blood, and debris.

Infants : An infant is defined as younger than one year.

The upper airway in infants is easily obstructed because of the narrow nasal passages, the entrance to the windpipe (vocal cords) and the trachea (windpipe). The trachea is soft and pliable and may be distorted by excessive backward head tilt.

Therefore, in infants the head should be kept **neutral** and maximum head tilt should not be used. The lower jaw should be supported at the point of the chin with the mouth maintained open. There must be no pressure on the soft tissues of the neck. If these manoeuvres do not provide a clear airway, the head may be tilted backwards very slightly with a gentle movement.

Breathing :

Normal breathing is essential for maintaining life. Victims who are gasping or breathing abnormally and are unresponsive require resuscitation

Causes of absent or ineffective breathing:

- Direct depression of/or damage to the breathing control centre of the brain
- Upper airway obstruction
- Paralysis or impairment of the nerves and/or muscles of breathing
- Problems affecting the lungs
- Drowning
- Suffocation

Signs of ineffective breathing may include:

- Little or unusual chest movement

- Weak or abnormal breath sounds (wheezing, etc)
- Occasional gasps
- Reduced responsiveness
- Anxiety
- Unusual skin colour (pallor)
- Rapid or slow breathing
- Unusual posture.

How to check for breathing:

The rescuer should -

- **LOOK** for movement of the upper abdomen or lower chest
- **LISTEN** for the escape of air from nose and mouth
- **FEEL** for breath on the side of your face / movement of the chest and upper abdomen.
- **This should take you no longer than 10 seconds.**

Rescue breaths:

Kneel beside the victim's head. Maintain an open airway. Use resuscitation barrier devise. Take a breath,

open your mouth as widely as possible and place it over the victim's slightly open mouth. Whilst maintaining an open airway pinch the nostrils (or seal nostrils with rescuer's cheek) and blow to inflate the victim's lungs.

Because the hand supporting the head comes forward some head tilt may be lost and the airway may be obstructed. Pulling upwards (with the hand on the chin) helps to reduce this problem. For mouth to mouth ventilation, it is reasonable to give each breath in a short time (one second) with a volume to achieve chest rise regardless of the cause of collapse. Care should be taken not to over-inflate the chest

Look for rise of the victim's chest whilst inflating. If the chest does not rise, possible causes are:

- Obstruction in the airway (inadequate head tilt, chin lift, tongue or foreign body);
- Insufficient air being blown into the lungs;
- Inadequate air seal around mouth and or nose.

If the chest does not rise, ensure correct head tilt, adequate air seal and ventilation. Following inflation of the lungs, lift your mouth from the victim's mouth, turn your head towards the victim's chest and listen and feel for air being exhaled from the mouth and nose.

Mouth to nose :

The mouth to nose method may be used where the rescuer chooses to, the victim's jaws are tightly clenched, or when resuscitating infants and small children .The technique for mouth to nose is the same as for mouth to mouth except for sealing the airway. Close the victim's mouth with the hand supporting the jaw and push the lips together with the thumb. Use a resuscitation barrier devise.

Take a breath and place your widely opened mouth over the victim's nose (or mouth and nose in infants) and blow to inflate the victim's lungs. Lift your mouth from the victim's nose and look for the fall of the chest; listen and feel for the escape of air from the nose and mouth. If the chest does not move, there is an obstruction, an ineffective seal, or insufficient air being blown into the lungs.

In mouth to nose resuscitation, a leak may occur if the rescuer's mouth is not open sufficiently, or if the victim's mouth is not sealed adequately. If this problem persists, use mouth to mouth resuscitation. It may be found that blockage of the nose prevents adequate inflation. If this occurs, mouth to mouth resuscitation should be used

C – Cardiopulmonary Resuscitation (CPR)

Effective CPR - 30 compressions followed by 2 Breathes

CPR is a repetitive cycle of :

1. Airway opening.
2. Chest compressions
3. Rescue breathing

External chest compression is the most effective way of artificially circulating blood. Chest compressions are accompanied by rescue breathing which provides oxygen that the blood delivers around the body to its vital organs. This is the only way to keep the heart and brain oxygenated until a defibrillator arrives.

Recognition of the need for chest compressions :

First aiders should use unresponsiveness and absence of normal breathing to identify the need for resuscitation. Feeling for a pulse is unreliable and should not be performed to confirm the need for resuscitation.

When should CPR be performed ?

CPR should be performed on casualties who are not breathing or unresponsive and breathing inadequately. Sometimes a casualty suffering a cardiac

arrest may occasionally gasp, but this does not constitute breathing.

When not to perform CPR :

You should not perform CPR :

- When it is too dangerous to rescuers
- When there are obvious signs of death, for example rigor mortis
- When the casualty's injuries are clearly too severe for survival.

Complications :

Broken ribs are not uncommon during CPR. If this occurs, check your hand position and continue. You can reduce the chance of breaking ribs by placing your hands in the correct position and by avoiding excessive force during compressions. Broken ribs will decrease the effectiveness of chest compressions in generating blood flow, but this cannot always be avoided.

Reassessment :

After every two minutes of CPR, reassess for signs of life (coughing, breathing, or movement). This should take no longer than 10 seconds. If the casualty begins to show signs of life during CPR, reassess the breathing immediately. If the casualty is breathing, place them into the recovery position and monitor continuously.

CPR uninterruptedly until one or more of the following happens :

- The casualty recovers responsiveness and is able to breathe on their own
- You are placed at significant risk
- You cannot continue due to exhaustion
- Advanced help arrives and takes over the care of the casualty.

Compression only CPR :

If Rescuers are unwilling or unable to do rescue breathing they should do chest compressions only. If chest compressions only are given, they should be continuous at a rate of approximately 100 per minute.

Locating the site for chest compressions :

There is insufficient evidence for or against a specific hand position for chest compressions during CPR. For a victim receiving chest compressions, place your hands on the lower half of the sternum. Rescuers should place the heel of their hand in the centre of the chest with the other hand on top.

Avoid compression beyond the lower limit of the sternum. Compression applied too high is ineffective and, if applied too low may cause regurgitation and/or damage to internal organs.

Methods of compression:

Children and Adults

- Two hand technique is used for performing chest compressions in adults
- One hand technique is used to perform chest compressions on children under 8 years old

Infants

In infants the two finger technique should be used by lay rescuers to minimise transfer time from compression to ventilation. Having obtained the compression point the rescuer places two fingers on this point and compresses the chest. Interruptions to chest compressions must be minimised.

Infants requiring chest compressions should be placed on their back on a firm surface (e.g. table or floor) to optimize the effectiveness of compressions. Compressions should be rhythmic with equal time for compression and relaxation. The rescuer must avoid either rocking backwards and forwards, or using thumps or quick jabs. Rescuers should allow complete recoil of the chest after each compression.

Depth of compression :

The lower half of the sternum should be depressed approximately one third of the depth of the chest with each compression.

This should equate to more than 5cm in adults, approximately 5cm in children and 4cm in infants

Rate of chest compressions :

Rescuers should perform chest compressions for all ages at a rate of approximately **100 compressions per minute** (almost two compressions per second). This does not imply that 100 compressions will be delivered each minute, since the number will be reduced by interruptions for breaths given by rescue breathing.

CPR quality :

When performing compressions, if feasible, change rescuers at least every two minutes, to prevent rescuer fatigue and deterioration in chest compression quality (particularly depth). Changing rescuers performing chest compressions should be done with minimal interruptions to the compressions.

Skill Components	Adult	Child	Infant
HAND POSITION	Two hands in center of chest (on lower half of sternum)	Two hands in center of chest (on lower half of sternum)	Two or three fingers in center of chest (on lower half of sternum, just below nipple line)
CHEST COMPRESSIONS **RESCUE BREATHS**	At least 2 inches Until the chest clearly rises (about 1 second per breath)	About 2 inches Until the chest clearly rises (about 1 second per breath)	About 1½ inches Until the chest clearly rises (about 1 second per breath)
CYCLE	30 chest compressions and 2 rescue breaths	30 chest compressions and 2 rescue breaths	30 chest compressions and 2 rescue breaths
RATE	30 chest compressions in about 18 seconds (at least 100 compressions per minute)	30 chest compressions in about 18 seconds (at least 100 compressions per minute)	30 chest compressions in about 18 seconds (at least 100 compressions per minute)

Chapter V - Cardiac Arrest & the Chain of Survival

Cardiac arrest occurs when the heart is no longer able to effectively pump blood around the body. If not treated, this will cause death within minutes. One of the consequences of cardiac arrest is the disruption of the electrical activation of the heart. When this happens, the heart muscle can rapidly contract in an uncoordinated fashion. This rhythm is called **ventricular fibrillation (VF).** While a heart attack is the most common cause of cardiac arrest, it is not the only cause and the majority of people who suffer a heart attack do not have cardiac arrest.

The following signals of a heart attack for prompt action on time :

- *Chest pain, discomfort or pressure.* The most common signal is persistent pain, discomfort or pressure in the chest that lasts longer than 3 to 5 minutes or goes away and comes back.

- Unfortunately, it is not always easy to distinguish heart attack pain from the pain of indigestion, muscle spasms or other

conditions. This often causes people to delay getting medical care. Brief, stabbing pain or pain that gets worse when you bend or breathe deeply usually is not caused by a heart problem.

- The pain associated with a heart attack can range from discomfort to an unbearable crushing sensation in the chest.
- The person may describe it as pressure, squeezing, tightness, aching or heaviness in the chest.
- Many heart attacks start slowly as mild pain or discomfort.
- Often the person feels pain or discomfort in the center of the chest .
- The pain or discomfort becomes constant. It usually is not relieved by resting, changing position or taking medicine.
- Some individuals may show no signals at all.
- *Discomfort in other areas of the upper body in addition to the chest.* Discomfort, pain or pressure may also be felt in or spread to the shoulder, arm, neck, jaw, stomach or back.

- *Trouble breathing*. Another signal of a heart attack is trouble breathing. The person may be breathing faster than normal because the body tries to get the much-needed oxygen to the heart. The person may have noisy breathing or shortness of breath.

Other signals.

The person's skin may be pale or ashen (gray), especially around the face. Some people suffering from a heart attack may be damp with sweat or may sweat heavily, feel dizzy, become nauseous or vomit. They may become fatigued, lightheaded or lose consciousness. These signals are caused by the stress put on the body when the heart does not work as it should. Some individuals may show no signals at all.

- *Differences in signals between men and women*. Both men and women experience the most common signal for a heart attack: chest pain or discomfort. However, it is important to note that women are somewhat more likely to experience some of the other warning signals, particularly shortness of breath, nausea or vomiting, back or jaw pain and unexplained fatigue or malaise. When they do experience

chest pain, women may have a greater tendency to have a typical chest pain: sudden, sharp but short-lived pain outside of the breastbone.

- If you suspect that someone might be having a heart attack, you should:
- Call 108 or the local emergency number immediately.
- Have the person stop what he or she is doing and rest comfortably. This will ease the heart's need for oxygen. Many people experiencing a heart attack find it easier to breathe while sitting.
- Loosen any tight or uncomfortable clothing.

Closely watch the person until advanced medical personnel takes over. Notice any changes in the person's appearance or behaviour. Monitor the person's condition.

- Be prepared to perform CPR and use an AED, if available, if the person loses consciousness and stops breathing.
- Ask the person if he or she has a history of

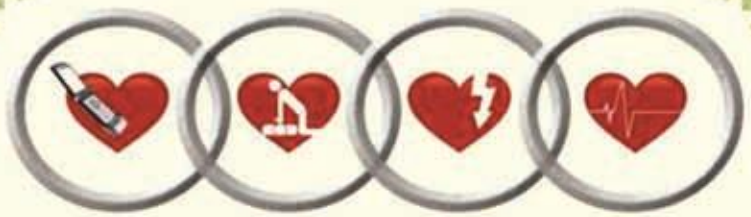
heart disease. Some people with heart disease take prescribed medication for chest pain. You can help by getting the medication for the person and assisting him or her with taking the prescribed medication.

- Offer aspirin, if medically appropriate and local protocols allow,

Adult chain of survival :

The key steps to surviving a cardiac arrest in adults are described as the **adult chain of survival**. There are five links in this chain and each one needs to occur promptly to ensure survival.

1. **Early recognition** by a bystander that a problem exists.
2. **Early 108** call to activate the Emergency Medical Services (EMS).
3. **Early CPR** to maintain artificial ventilation and circulation until the EMS arrives.
4. **Early defibrillation** to deal with the heart's electrical problems.
5. **Early advanced medical care**.



The survival rate for cardiac arrest is **very low** in most countries, including India. It is time-critical, with the chances of survival decreasing by about **10%** for **every minute** you have to wait for a defibrillator.

Chapter VI - Foreign Body Airway Obstruction (Choking)

Choking is a common breathing emergency. It occurs when the person's airway is partially or completely blocked. If a conscious person is choking, his or her airway has been blocked by a foreign object, such as a piece of food or a small toy; by swelling in the mouth or throat; or by fluids, such as vomit or blood.

Airway obstruction :

There are two types of airway obstruction :

Partial :

- Breathing is laboured; Breathing may be noisy; Some escape of air can be felt from the mouth.

Complete :

- There may be efforts at breathing; there is no sound of breathing; there is no escape of air from nose and/or mouth.

Signs and symptoms :

The indications that someone may be struggling with an obstruction are :

- Panic
- Grasping the throat

- Inability to speak
- Inability to breathe
- Colour of face (pallor)
- Inability to cough.

Treatment for choking adults and children

Effective Cough (Partial Airway Obstruction)

- A casualty with an effective cough should be given reassurance and encouragement to keep coughing to expel the foreign material.
- If the obstruction is not relieved the rescuer should call an ambulance.

Ineffective Cough (Severe Airway Obstruction) :

Conscious Victim

- If the casualty is conscious, call an ambulance
- Perform up to **five sharp, back blows** with the heel of one hand in the middle of the back between the shoulder blades. Check to see if each back blow has relieved the

airway obstruction. The aim is to relieve the obstruction with each blow rather than to give all five blows.

Supporting the casualty / Delivering back blows

- If back blows are unsuccessful the rescuer should perform up to **five chest thrusts**. Check to see if each chest thrust has relieved the airway obstruction. The aim is to relieve the obstruction with each chest thrust rather than to give all five chest thrusts.
- To perform chest thrusts, identify the same compression point as for CPR and give up to five chest thrusts. These are similar to chest compressions but sharper and delivered at a slower rate. Children and adults may be treated in the sitting or standing position. If the obstruction is still not relieved, continue alternating five back blows with five chest thrusts.

Chest Thrusts

Unconscious Victim

The finger sweep can be used in the unconscious victim with an obstructed airway if solid material is visible in the airway. **Commence CPR immediately!**

If you are alone and choking;

A) *Bend over and press your abdomen against any firm object, such as the back of a chair.*

B) *Or, give yourself abdominal thrusts by using your hands, just as you would do to another person.*

Treatment for choking infants (less than 1 year):

The following procedure is for a choking infant:

- Check to see if the obstruction can be cleared using the finger sweep.
- Lay the infant in a lying face down position over your forearm, supporting the baby's face and body with your arm. The infant's body should be inclined downwards to utilise the effects of gravity.

- Deliver up to five blows between the infant's shoulder blades.
- If the obstruction is still present, turn the infant onto its back, again with the body inclined.
- Deliver up to five chest thrusts between the infant's nipples (breast bone) using two fingers. Repeat this process until the obstruction is cleared or the infant becomes unresponsive.
- Commence CPR if the infant becomes unresponsive.

Chapter VII - Bleeding

Bleeding is one of the most rectifiable causes of death following trauma, therefore controlling external bleeding is a main priority when administering care in a pre-hospital environment.

There are three main types of blood vessel:

- Arteries
- Veins
- Capillaries

Internal

Bleeding is most likely to occur in the stomach, lungs, or bowels. Blood from the lungs is coughed up; from the stomach vomited; from the bowels it appears in the stools. With internal bleeding, signs of restlessness, weakness, pallor, thirst and a faint, rapid pulse are usually present.In an accident where internal bleeding may have occurred, contact a doctor as soon as possible. While you wait, keep the patient quiet, comfortably warm, and lying flat. Give him nothing to drink—**not even** water. When

moving injured person to advanced medical facilities, only transport (if possible) in a laying position.

External

Place a pressure dressing (several layers of sterile gauze) over the wound. Secure it in place firmly enough to stop the bleeding or hold it in place with firm hand pressure. Whenever possible, elevate the wound.

Types of bleeding:

Arterial bleeding will be profuse and rapid because it is under pressure. It will be spurting as the heart beats, which will make it difficult to control and difficult for clots to form. This bleeding will be bright red as arterial blood is comprised of highly oxygenated red blood cells. Arterial bleeding is a significant and life-threatening blood loss.

Venous bleeding is easier to control because the blood in the veins is under less pressure, which assists clotting. Because it carries less oxygen, venous blood is a much darker red. Dangerous levels of blood loss can occur from venous bleeding.

Capillary bleeding is the most common and easiest to control, as capillaries are closest to the surface of the skin. Blood tends to ooze rather than flow or spurt as the pressure in the capillaries is very low.

Treatment :

- Carry out primary assessment, Danger Response Send for Help, Airway Breathing CPR (Cardiopulmonary Resuscitation) + Control Major Bleeding Defibrillation (DRS ABCD)
- Seek medical attention (make sure EMS are en route)
- Make sure their isn't a foreign body in the wound before applying direct pressure
- Apply direct pressure
- Elevation
- If unresponsive and breathing is adequate, place the casualty in the recovery position
- Carry out secondary survey
- Severe bleeding may lead to unconsciousness and may require life support (CPR)
- Rest and reassure

Direct pressure :

Direct pressure is the **main** treatment used to manage bleeding :

1. After checking for any foreign objects in the wound, apply firm pressure, directly onto and into wound, using large sterile trauma dressings.

2. If blood soaks through the initial dressing, apply further dressings as required.

Elevation :

Elevate the affected area above the level of the heart, if possible.

Tourniquet :

Chapter VIII - Fractures

A fracture is any break in the continuity of a bone. Fractures can cause total disability or in some cases death by severing vital organs and/or arteries

Causes:-

- **DIRECT FORCE** :- Fracture occurs at the site of severe force is applied. eg. Bullet injury, fall on projecting stone, wheel passing over the bone.

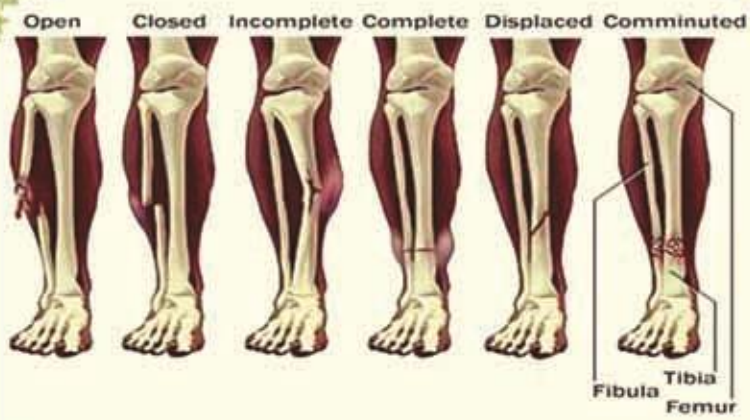
- **INDIRECT FORCE** :- Fracture occurs away from the site of application of force. eg. Collar bone - due to fall on an out stretched hand.

Types of fractures :

- **Open fractures** These are fractures that have punctured the skin. The bone end may have returned and not be visible, but this is still an open fracture.

- **Closed fractures** These are fractures where the surrounding skin remains intact.

- **Complicated fractures** These are fractures that have caused damage to internal structures, such as a punctured lung, or a fracture that involves significant bleeding.



Signs and symptoms

A casualty experiencing a fracture may experience one or more of the following signs and symptoms:

- Pain at the injury site
- Bleeding (internal or external)
- Open wounds with or without exposed bone ends
- Deformity
- Shortening or rotation of the limb
- Inability to move or stand
- The casualty reports hearing the bone break
- Tenderness

- Swelling or irregularity
- Shock like signs and symptoms
- Crepitus (the sound of bones grinding)
- Discolouration
- Shortening of the limb

Treatment

The steps for the management of fractures are:

- Carry out primary assessment, Danger Response Send for Help, Airway Breathing CPR (Cardiopulmonary Resuscitation) + Control Major Bleeding Defibrillation (DRS ABCD)
- Seek medical attention (make sure EMS are en route).
- Control any external bleeding using direct pressure and elevation if possible.
- For a closed fracture, ice packs may be used to assist with pain relief and swelling.
- Minimise any unnecessary movement unless for safety reasons
- If the injured limb needs to be immobilised, make use of whatever you have got at hand to do so e.g. pillows, magazines, or dressings to support the limb.

- Check the circulation below the fracture site.
- Carry out secondary assessment
- Rest and reassure

IMMOBILISING USING SPLINTS :

IMPROVISED SPLINTS:

- It can be made of card board, rolled newspaper or magazines, umbrella, rolled blankets, pillows, etc.

IDEAL SPLINTS:

- It should be wide & long enough to cover joints on both sides of fracture, well padded, and applied over clothing.
- STRAIN : Injury involving tendons
- SPRAIN : Injuries involving ligaments

DISLOCATION: Happens when a bone is moved out of its original position

NOTE:-

- ***Never Try To Put The Dislocated Joint Back Into Place.***

SPLINTING:

Figure 1: Elbow Bent

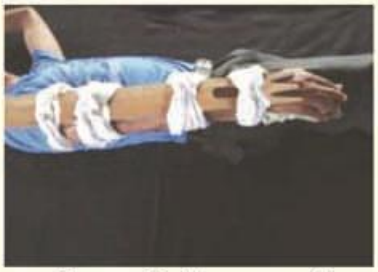


Figure 2: Humerus & Elbow Straight

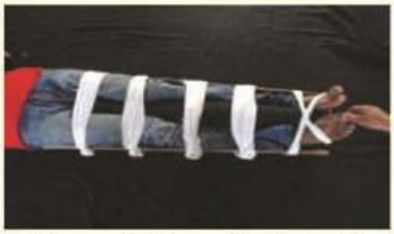


Figure 3: Knee Straight & tibia fibula (5 bandaging method)

Figure 4: Hip, femur, knee, tibia fibula (7 bandaging method)

Figure 5 : Knee bent

Figure 6 : Ankle

Figure 8 : Fingers

- Always check P.M.S. (Pulse, Motor ability and Sensation) before splinting and after splinting.
- Pulse is checked by feeling artery (Carotid or Radial).
- Motor ability is to check if the casualty can move his fingers or toes as the case may be.
- Sensation is acquired by pinching or scratching the palm or the soul of the feet as the case may be.
- When tying a cravat over the chest, always ask the casualty to hold his breath. (If the casualty is conscious). If the casualty is unconscious, place two fingers below the cravat, on top of the chest, then tie the cravat.

GENERAL RULES FOR SPLINTING

1. Feel for a pulse in all extremities.
2. See if feet and toes can move.
3. See if hands and fingers can move.
4. Touch the toes to assess for sensation.

5. Touch the fingers for sensation.

6. If the patient is unresponsive, see if he or she responds to painful stimuli.

7. Manual stabilization means holding the patient's head firmly and steadily in a neutral, in-line position.

8. If allowed, apply a rigid cervical immobilization device to the patient.

Chapter IX - Burns

Burns can be one of the most traumatic injuries to deal with. The victim can be in severe pain, there can be the smell of burnt flesh and depending on the degree of the burn, and charred clothing can be attached to the victim's flesh. The first step in dealing with burns is to determine the level of the burn. It should be realized that First and second degree burns can be caused by prolonged exposure to intense sunlight.

Classification of burn :

- First Degree – skin is reddened
- Second Degree – skin is blistered
- Third Degree – skin cooked or charred, the burn may extend into the underlying tissue. In severe cases skin or appendages may be burned off.

Treatment :

- **First degree and second degree burns, only covering up to about 1% (like the size of a hand) body surface:**

1. Wash/soak burned portions in cold water
2. Wash burned area in soapy water

3. Place sterile gauze over burned area

4. Bandage burned area snugly

- **Large burns of any degree**

1. If a doctor or hospital is available within 30 minutes or less:

- Treat victim for shock
- Get victim to advanced medical treatment, attempt no treatment

2. If advanced medical aid is not readily available (like in an outdoor/camping/backpacking setting):

- Remove clothing from burned area. Cut around clothing/cloth that sticks to burned area
- Apply antiseptic cream to burned area
- Cover burned area with sterile dressings
- Bandage snugly (not too tight however)
- Treat for shock
- If victim is conscious, allow them to drink all the water they desire. Commercial sport drinks are even better than water if available
- Get victim as soon as possible to advanced medical support

Do Not!

- Touch the burned area with fingers
- Breath on the burn
- Break or drain blisters

Change any dressings that have been applied. Only advanced medical support should change or remove any dressings applied as first aid

Management (The 3 C's):

COOL	:	Use tepid, flowing water for at least **20 minutes**. Chemical burns up to **an hour**.
CLEAR	:	**Remove anything** that may keep burning (that isn't sticking). Remove jewellery. **Remove clothing** that is contaminated by chemicals.
COVER	:	Preferably with a **non-adherent dressing**. Cling-film is ideal (if available).

Chapter X - First Aid for Bites and Stings

People are bitten and stung every day by insects, spiders, snakes, animals and marine life. Most of the time, these bites and stings do not cause serious problems. However, in rare circumstances, certain bites and stings can cause serious illness or even death in people who are sensitive to the venom. Bites from humans and other animals, such as dogs, cats, bats, raccoons, and rats, can cause severe bruises and infection and tears or lacerations of tissue.

GENERAL INSECT STINGS

1. If a stinger is present, remove it by scraping away or gently pulling it out with forceps.
2. Apply paste of baking soda and cold cream or use a commercially available sting aid for topical relief of mosquito and other insect bites. Calamine lotion will also relieve itching
3. If multiple stings, or unusual reaction (i.e. excessive reddish skin or breathing issues), or a history of severe reactions, take victim immediately to advanced medical support.

Bed Bug Bites

Description : Bedbugs are flat-bodied, oval, reddish brown and about a ¼ in size. Although not painful at first, bed bug bites usually become red, swollen and itchy. Reactions to bites range from mild to severe.

Treatment : Apply paste of baking soda and cold cream or use a commercially available sting aid for topical relief of bed bug bites.

Bee & Wasp Stings

Description: A very sore area that is red and swollen. Usually there is a stinger protruding from the skin.

Treatment :

1. Scrape the stinger away with the edge of a credit card, knife blade, or thumbnail. Do not try and squeeze the stinger out, as this will cause more bee/wasp venom into the skin.

2. After removing the stinger, wash the area with soap and water.

3. Apply a cool washcloth or ice pack.

4. Some people have symptoms of severe allergic reactions are :

- shortness of breath
- thickening of the tongue
- sweating
- an anaphylactic shock
- Seek medical help immediately if you have an allergic reaction.

Chiggers

Description :

It is generally visible only with magnification. Chiggers are different from mites in that they feed only in the larval stage. The chigger larvae get onto the skin and move around until they meet some obstacle, for example the waistband of underwear, the elastic band of socks, etc. They then attach

to the skin and begin feeding. The area around where they are feeding usually turns red with an itching sensation.

Treatment :

1. Wash the affected area with soap and water
2. Apply local topical hydrocortisone cream; antihistamine, or local anesthetic cream should be applied to reduce the itching. Calamine lotion can also be used.
3. The wounds must not be scratched

Preventive :

Spray your feet and ankles with a quality insect repellent. Dimenthyl phthalate or flowers of sulphur can also be used in the socks and around the ankles

Fire-Ant Sting

Description: After being stung by the fire ant, tiny painful red bumps appear. After an hour or so, they usually change into blisters.

Treatment :

1. Apply ice pack at ten minute intervals for a period up to ½ hour
2. When through with ice pack treatment, apply bite soothing lotion such as calamine.
3. Some people have symptoms of severe allergic reactions which are :
   - shortness of breath
   - thickening of the tongue
   - sweating
   - an anaphylactic shock
   - Seek medical help immediately if you have an allergic reaction.

Flea Bite

Description : Usually flea bites are suspected when tiny itchy red bumps appear below the knee.

Treatment :

1. Reduce itching by applying an ice pack

2. After removing ice pack and drying skin, applying soothing lotion such as calamine

Mosquito Bites

Description : Mosquitoes have a long proboscis (snout) for sucking blood. They are most active in shady, low light, damp or marshy areas.

Treatment : Use sting aid for topical relief of mosquito bites.

Scorpion Sting

Description : Scorpions are usually found in the old wooden houses, grasses, logs etc.

Treatment :

1. Cold packs

2. Get victim to advanced medical support as soon as possible.

Spider Bites

General signals of spider bites and scorpion stings may include:

1. A mark indicating a possible bite or sting.

2. Severe pain in the sting or bite area.
3. A blister, lesion or swelling at the entry site.
4. Nausea and vomiting.
5. Stiff or painful joints.
6. Chills or fever.
7. Trouble breathing or swallowing or signs of anaphylaxis.
8. Sweating or salivating profusely.
9. Muscle aches or severe abdominal or back pain, dizziness or fainting , chest pain, elevated heart rate, infection at the site of the bite .

Treatment.

- Apply an antibiotic ointment, if the person has no known allergies or sensitivities to the medication, to prevent infection.
- Bandage the wound.
- Apply an ice or cold pack to the site to reduce pain and swelling.
- Encourage the person to seek medical attention.

- Children and older adults may need antivenom to block the effects of the spider's venom.
- If you transport the person to a medical facility, keep the bitten area elevated and as still as possible.

TICKS

Description: Ticks is oval with small head, the body is not divided into definite segments. Gray or brown. Measures from 1/4: inch-to 3/4 inch when mature. It can burrow into the skin.

Prevention :

1. Examine body and clothes after any exposure to tick infested areas, and always remove ticks immediately
2. Have a partner inspect your backside
3. Before entering tick infested area, cover neck, legs, back of neck and arms with an insecticide containing Deet 17

Treatment :

1. Grasp the tick with forceps as close

to the skin surface as possible and pull slowly and firmly. Do not twist or crush the tick.

2. After tick removal, swab the area with iodine solution,
3. If you cannot remove the tick, or if its mouthparts remain embedded, get medical care.
4. If rash or flu-like symptoms appear (see list below), get medical help immediately.

- Chills and fever
- Pains in bones, muscles and joints
- back and head aches
- Coughing, vomiting and weakness
- Rash appears in 2 to 4 days

Snake Bites

Poisonous snakes **DO NOT** always inject venom when they bite or strike a person. However, all snakes may carry tetanus (lockjaw); anyone bitten by a snake, whether poisonous or nonpoisonous, should immediately seek medical attention.

• Poison is injected from the venom sacs through grooved or hollow fangs. Depending on the species, these fangs are either long or short.

Signals of a possibly venomous snakebite include :

- Fang marks
- Local pain and bleeding
- Bruising/swelling/redness
- Blistering
- Infection

GENERALIZED

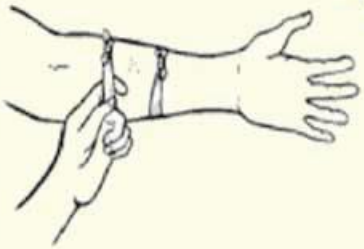
Nausea/vomiting/abdominal pain/weakness/ drowziness

- Visual disturbance
- Signs of shocks
- Swelling of whole body
- Pain whole body

Treatment

- Wash the wound.

- Apply an elastic (pressure immobilization) bandage to slow the spread of venom through the lymphatic system by following these steps:



  Check for feeling, warmth and color of the limb and note changes in skin color and temperature.

- Place the end of the bandage against the skin and use overlapping turns.
- The wrap should cover a long body section, such as an arm or a calf, beginning at the point farthest from the heart. For a joint, such as the knee or ankle, use figure-eight turns to support the joint.
- Check above and below the injury for feeling, warmth and color, especially fingers and toes, after you have applied an elastic roller bandage. By checking before and after bandaging, you may be able to tell if any tingling or numbness is from the elastic bandage or the injury.

- Check the snugness of the bandaging—a finger should easily, but not loosely, pass under the bandage.
- Keep the injured area still and *lower* than the heart. The person should walk *only* if absolutely necessary.

✓ ***Do not*** apply ice.

✓ ***Do not*** cut the wound.

✓ ***Do not*** apply suction..

✓ ***Do not*** apply a tourniquet.

✓ ***Do not*** use electric shock, such as from a car battery.

Animal Bites

The bite of a domestic or wild animal can cause infection and soft tissue injury. The most serious possible result is rabies. Rabies is transmitted through the saliva of diseased animals such as skunks, bats, raccoons, cats, dogs, cattle and foxes.

Signals of an animal bite include:

- A bite mark.
- Bleeding.

Treatment

First Aid.

(1) Cleanse the wound thoroughly with soap.

(2) Flush it well with water.

(3) Cover it with a sterile dressing.

(4) Immobilize the injured arm or leg, if appropriate.

(5) Transport the casualty immediately to a Medical Treatment Facilities (MTF).

Chapter XI - Poisoning

A poison is any substance that causes injury, illness or death if it enters the body

Types of Poisoning

A person can be poisoned by swallowing poison, breathing it, absorbing it through the skin and by having it injected into the body.

Swallowed Poisons

Poisons that can be swallowed include foods, such as certain mushrooms, wild berries, shellfish etc; an overdose of drugs, such as sleeping pills, tranquilizers and alcohol or drugs ; medications such as a high quantity of aspirin; household items, such as cleaning products and pesticides.

Inhaled Poisons

A person can be poisoned by breathing in (inhaling) toxic fumes.

Examples of poisons that can be inhaled include :

- Gases, such as:
  - ✓ Carbon monoxide from an engine or car exhaust.
  - ✓ Carbon dioxide from wells and sewers.

- ✓ Chlorine, found in many swimming pools.
- ✓ Nerve gas.

- Fumes from :
  - ✓ Household products, such as glues and paints.

Absorbed Poisons

Poisons that can be absorbed through the skin come from many sources including plants, such as poison ivy, poison oak and poison sumac, and fertilizers and pesticides.

Injected Poisons

Injected poisons enter the body through the bites or stings of insects and animals or through drugs or medications injected with a hypodermic needle.

The symptoms of poisoning are nausea and vomiting, diarrhea, chest or abdominal pain, trouble breathing, sweating, changes in consciousness, seizures, headache, dizziness, weakness, irregular pupil size, burning or tearing eyes, abnormal skin color, burns around the lips, tongue or on the skin.

Treatment

- Beware of Danger!
- Consider **no** action due to nature of poisoning. **Stay back** at safe arrival point
- Call for assistance (make sure EMS have been notified)
- Carry out primary assessment, DRS ABCD (consider compression only CPR if risk of cross contamination)
- If unresponsive and breathing is adequate, place the casualty in a stable side position
- Try to find out what has been taken, how much and when.
- Keep any containers of chemicals or medication found to show to the ambulance paramedics
- Carry out secondary assessment
- **Do not** induce vomiting, unless instructed from EMS.
- Water or milk should only be given to casualties that have swallowed corrosive substances (always follow instructions from EMS).
- Rest and reassure

Chapter XII - Drowning

Saving a drowning person carries risk. Before swimming out to someone in trouble, be sure you can handle the situation. Many people drown in the brave effort of trying to save someone else because they are not well trained and have not properly thought through the risks of the situation.

- Get the victim out of the water safely.
- If the person is unconscious & is not breathing and has no pulse. Do CPR.
- If victim is breathing and has a pulse, put him or her in the recovery position.
- Take cold, wet clothes off the victim and cover him or her with something warm to prevent hypothermia.

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