

Module Two

Emergency First Aid

Total hours needed – 16 hours

Total days needed - 02

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Principles and Practices of First Aid

Objective of this session

Participants learn what is first aid and why is it performed. They will learn in this session the aim of first aid and will be introduced to its basic concepts. After the session participants are expected to know well the 'golden rules' in first aid.

Session Plan

Time	Topic	Methodology
20 Minutes	Short introduction with First Aid.	Classroom training, brainstorming sharing experiences, storytelling and Q&A
20 Minutes	Golden Rules Of First Aid	Classroom training, brainstorming sharing experiences, storytelling and Q&A
20 Minutes	Basics of rapid response	Classroom training, brainstorming sharing experiences, storytelling and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

1. First aid is an application of skills to preserve life, Prevent deterioration and Promote recovery.
2. It is a vital skill, that requires learning
3. Golden rules of First aid includes Safety first, perform tasks in a logical order.

Content:

First aid sometimes referred to as EMERGENCY AID is the first skilled [acceptable] assistance given to a victim (sick or injured) on the occurrence of accident or sudden illness in order to preserve life, prevent further injury and relive suffering until qualified medical care is available.

To be effective at any form of true first aid you need to obtain some training or instruction. The following basic first aid instructions are designed to assist you in learning the skill.

First aid is an application of skills and techniques, in a logical and *prioritized* sequence. You need to learn first aid as you will not be able to guess the *priorities*. You can say 'first aid is just common sense', but it is so much more.

The scope of first aid is to apply a consistent set of standards, and treatment, in a logical order. Victim assessment by a first aider is to identify injuries, treat, and transport victims.

GOLDEN RULES OF FIRST AID

- Do the first thing first; this includes assessing the situation for any immediate danger, quickly and methodically without panicking, giving priority to the most urgent situation / condition.
- Remove the victim from the cause of injury or the cause of injury from the victim.
- Resuscitate the victim, if necessary and carry out general treatment of unconsciousness.
- Loosen all tight clothing or materials around the victim's neck waist, wrist, etc.
- Arrest bleeding, cover all wounds, burns or scalds and immobilize all fractures.
- Do not allow people to crowd a victim and do not move a victim unless you really have to (dangerous environment, risk of falling debris, explosion etc)
- Reassure the victim and get help as soon as possible
- Improvise all necessary materials, which are not readily available.
- Guide against or treat for shock
- Dispose/transport the victim properly.

Principles of First Aid

The key guiding principles and purpose of first aid, is often denoted by 3 Ps.

1. Prevent further injuries
2. Preserve life
3. Promote recovery

Rapid Responses to Disasters and duties of rescuer

When disaster strikes, individuals within the affected community and neighbouring communities are the first to respond. Preparedness can make the difference between life and death.

A damage assessment survey should follow three key principles:

- a. **Look:** Make a thorough visual inspection of the damage-affected area;
- b. **Listen** to all sources of information - the community, government records, and media reports;
- c. **Understand** the gravity of the dangers and the suffering of victims as well as the capacity to respond.

The first job of a rescuer is to remain calm and assess the area to determine the extent and particulars of the damage identify any hazards or obstacles to rescue, and gauge whether further damage is likely. The information collected will be crucial in planning the best approach to rescue. Rescuers can get this information by speaking with local leaders and residents within the locality. It is important that appropriate help as per assessment is called. It is important to understand that first aid has limitations and does not take place of a professional medical treatment.

The first actions by First Aiders: DR. CAB

- D** – Danger assessment for self and victim
- R** – Responsiveness of the victim
- C** – Check and assess for pulse
- A** – Assess and ensure clear airway
- B** – Check if person is breathing

Materials available for this session: 1. First Aid PP.ppt

Assessment in First Aid

Objective of this session

In this session participants would be introduced to some important rules of assessing casualty, its process and points that need to be remembered while doing it. After the session participants will be able to recognise signs and symptoms of condition that requires immediate support.

Session Plan

Time	Topic	Methodology
30 Minutes	Situational assessment	Classroom training and Q&A
45 Minutes	Casualty assessment	Classroom training and Q&A
45 Minutes	Assessing and managing vitals	Classroom training and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

1. Signs in casualty can be seen, felt and heard.
2. Signs and symptoms help in an assessment.
3. Where possible history taking from the victim either supports or confirms made assessment.

Content

ASSESSMENT: This is the way we decide on the primary problems, a victim is suffering from. To do this in a methodical way we use a system, known as Primary and Secondary survey. This is vital and should be used in all emergency situations so you will not forget. Victims have to be dealt with in a methodical prioritized fashion.

This site will be set out with life threatening situations and work towards more minor occurrences. We will start with accidents and then medical emergencies. First in each will be immediately life threatening conditions followed by life threatening and then to potentially life threatening, and onto minor. It should be borne in mind that some conditions, which are thought minor and commonplace, such as a simple faint, are in fact potentially life threatening, unless dealt with correctly

Following a disaster, the typical situations requiring First Aid are:

- Breathing and/or circulation problems;
- Severe bleeding;
- Shock;

- Fainting;
- Unconsciousness
- Fracture;
- Head injury

The aims of First Aid are to:

- Preserve life
- Prevent the worsening of the casualty's medical condition
- Promote recovery
- Provide safe transportation to the nearest health care facility

Important Points to be remembered by First-Aiders

1. First-Aiders must always remain calm and assess the situation first before rushing to help the victim.
2. First Aiders must ensure to remove any dangers from the casualty, or remove the casualty from dangers, and prevent the crowding of casualties by bystanders.
3. It is important that the First-Aiders -call for appropriate help as per the assessment of the situation.
4. As most first aid treatment does involve touching the victim, it is very important that the First-Aider gains their permission, so as to avoid causing offence or distress.
5. It is important to understand that first aid has its limitations and does not take the place of professional medical treatment.
6. First Aiders should also take care to listen to any remarks or requests a casualty makes.
7. The First Aider's responsibility ends when the casualty is handed over to the care of a competent health provider.

When faced with a casualty, a First Aider must quickly determine the most appropriate course of action. The First Aider must assess the casualty and the area to gather all relevant information based on the history of the event leading to the injuries and the casualty's signs and symptoms.

DIAGNOSIS: This is the way of finding out the state of the casualty, this is made on the basis of the signs, symptoms and history of the condition.

SIGNS: Signs of a condition are the physical variation from normal, which can either be seen, felt, smelt or heard.

- Signs that can be seen include;
 - Irregular or unnatural movements
 - Swelling
 - Tenderness
 - Bleeding
 - Discoloration

- Bleeding and wounds
- Broken bones in the case of open fracture
- Deformity etc.
- Signs which can be felt include;
 - High or low body temperature
 - Deformity
 - Dampness etc.
 - Signs which can be smell include
 - Smell of alcohol
 - Odour of Acetone (pear drops)
 - Smell of burns
 - Smell of solvents such as kerosene
 - Smell of fumes, etc.
- Signs which can be heard include;
 - Crepitus [grating bones]
 - Noisy breath
 - Speech, etc
- **SYMPTOMS:** Symptoms of a condition are the feelings or sensation which the victim experiences. The victim sometimes may complain of these feelings. Examples of symptoms are:
 - Pain
 - Anxiety
 - Thirst
 - Dizziness
 - Weakness
 - Nausea
 - Heat
 - Cold
 - Headache etc.
- **HISTORY:** History is any information relating to an incident/accident or illness. This information can be obtained by asking questions related to the incident from the victim [if conscious], or from a passer-by or from those who witness the incident. Remember history should include prior to the incident as well. This is important, as if the victim has a pre-existing illness, it may change the treatment regimen you adopt. The sources of history are not only from the victim, victim or those who witness the incident. Other sources of history

How to assess a casualty

Once the First Aider has established that the casualty is breathing and has a strong pulse, he or she can assess the casualty for imminent threats and injuries. Whether the casualty is conscious or unconscious, the assessment should proceed as follows



Assess scene safety

Approach the patients with care, making sure that there is no danger to you, the patients, or any bystanders. Be aware of hazards from electricity, gas etc.

Patient's assessments

Carefully shake the patients shoulder and shouts:

“Hello can you hear me?”

If the victim responds:

1. Leave the victim in the position in which you found him, provided there is no further danger.
2. Try to determine what is wrong with the victim.
3. Call for help if needed.
4. Reassess the victim regularly



The key principle to assessment of a patient is often denoted by the acronym ABC. This stands for:

- **Airway**
- **Breathing**
- **Circulation**

Change from “A–B–C” to “C–A–B.” A major change in basic life support is a step away from the traditional approach of airway–breathing–chest compressions (taught with the mnemonic “A–B–C”) to first establishing good chest compressions (“C–A–B”). There are several reasons for this change.

- Most survivors of adult cardiac arrest have an initial rhythm of ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT), and **these patients are best treated initially with chest compressions and early defibrillation rather than airway management.**
- Airway management, whether mouth–to–mouth breathing, bagging, or endotracheal intubation, often results in a delay of initiation of good chest compressions. Airway management is no longer recommended until after the first cycle of chest compressions — 30 compressions in 18 seconds. The 30 compressions are now recommended to precede the 2 ventilations, which previous guidelines had recommended at the start of resuscitation.
- Only a minority of cardiac arrest victims receive bystander CPR. It is believed that a significant obstacle to bystanders performing CPR is their fear of doing mouth–to–mouth breathing. By changing the initial focus of resuscitation to chest compressions rather than airway maneuvers, it is thought that more patients will receive important bystander intervention, even if it is limited to chest compressions.

Airway: The airway is the series of passages that carries oxygen to the lungs. In an unresponsive patient the tongue may fall back into the throat and block the airway. This is the most common cause of airway obstruction in an unresponsive patient. The airway can be opened by tilting the head back and lifting the chin. These actions draw the tongue forward away from the back of the throat.

Breathing: While keeping the airway open, check whether the patient is breathing normally. If the patient is not breathing you must breathe for him. We will show you how to do this later; for now, look, listen and feel for breathing.

Agonal Breathing For several minutes after cardiac arrest, a patient may take infrequent gasps or air. This process is called 'agonal breathing'. This is not normal breathing and the patient requires immediate CPR

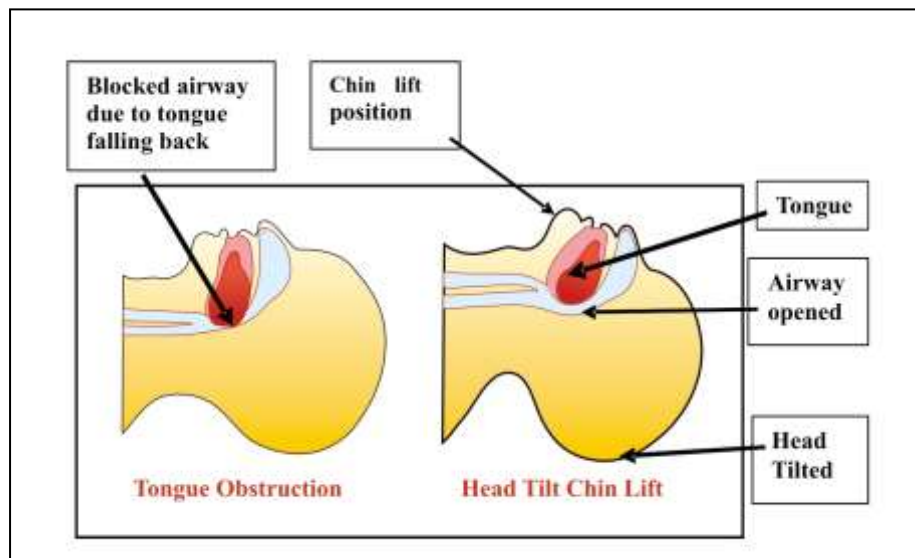
Circulation: At first responder level, the absence of breathing most likely means that the patient's heart has stopped. Task at this point is to restore circulation. Chest compressions are required to pump the blood, particularly to the brain. Patients should be placed lying flat on their back on a firm surface. Once these matters have been attended to, the casualty's other injuries can be treated.

If an unconscious casualty is not breathing, it may be due to one of the following causes:

- The head is tilted forward;
- The tongue is blocking the air passage due to the loss of muscular control in the throat;
- Saliva is lying in the back of the throat and blocking the airway due to impaired reflexes;
- There is a foreign body in the throat blocking the airway (e.g. vomit, dentures and weeds).

Opening the airway in an adult

It is essential to establish a clear airway immediately to ensure the survival of the casualty. Open and clear the airway using the chin lift position.



Head tilt chin lift
resulting in removal of
obstruction of air

- Ensure the patient is on his back; if necessary roll him onto his back.
- Place one hand on his forehead and gently tilt the head back.
- Place the fingers of your other hand along the line of the jaw.
- Lift the chin using the fingers.
- These combined actions, called “head tilt chin lift”, will open the airway.
- Once breathing starts, place the patient in the Recovery Position.

Checking for breathing

Breathing: While keeping the airway open, **check** whether the patient is breathing normally.



Look, Listen and Feel for any sign of respiration:

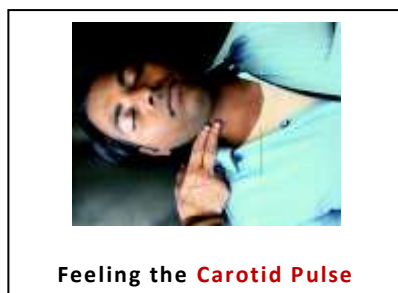
- **Look** for the rise and fall of the chest. If the casualty’s chest fails to rise, assume the airway is not fully open. Adjust the position of the head and jaw and look again;
- **Listen** for breathing sounds;
- **Feel** the air coming out of the nose or mouth.

Agonal Breathing For several minutes after cardiac arrest, a patient may take infrequent gasps or air. This process is called 'agonal breathing'. This is not normal breathing and the patient requires immediate CPR
CPR will be discussed in the following chapter.

When the casualty is breathing independently place the person in the Recovery Position.

Checking for circulation

The only reliable way of establishing lack of circulation is to check the pulse at the neck (carotid pulse). This pulse can be felt by placing the **finger tips** gently on the voice box and sliding them down **into the hollow between the voice box and the adjoining muscle**. (The pulse at the wrist is unreliable).



The carotid arterial pulses are usually examined with the patient supine and the trunk of the patient's body slightly elevated. The **patient's chin should be elevated** to allow easy palpation and yet not enough to tighten the neck muscles. Checking the carotid pulse is not always an accurate method of confirming the presence or absence of circulation.

Agonal gasps are common in the first few minutes of a cardiac arrest (present in up to 40% of victims) and are associated with higher survival, if recognized as a sign of cardiac arrest (and treatment is begun).

Agonal gasps are an indication for starting CPR immediately.

Therefore, first aid providers should begin CPR if the victim is unconscious (unresponsive) and not breathing normally.



CPR is discussed in later chapter.

Materials available for this session:

2. Assessment.ppt

Structure and Function of essential body parts

Objective of this session

This session familiarises participants on structure of human body that may be most prone to injury or needed for first aid access on a victim. The session provides basic information on respiration and circulation.

Session Plan

Time	Topic	Methodology
15 minutes	Introduction with basic body parts useful in first aid	Classroom training, brainstorming/ group work and Q&A
15 minutes	Important body functions – Circulation and Respiration.	Classroom training, brainstorming/ group work and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

1. Skeleton provides support to the body and protection to the vital organs.
2. Oxygen is essential for the support of life and is obtained from the air we breathe.
3. Heart circulates blood through the body which carries blood and important nutrients for life.

Content:

The Human Body Frame

The skeleton forms the supporting framework of the body and consists of separate bones joined together by means of cartilage, ligaments and muscles

The bones in different parts:

- **Head and face:** Skull, two cheek bones and lower jaw bone
- **Body:** Backbone or spine, the ribs and breast bone
- **Upper limbs:** Arm, forearm (long bones), palm (short bones)
- **Hip:** The pelvis
- **Lower limbs:** Thigh and leg ; long bones, feet - short bones

Some important body parts to know:-

The Skull - The bone of the head forms the skull and protects the brain inside. Injury to the head causes bleeding from blood vessels inside the closed box; the blood is unable to escape and gets collected and presses the soft brain tissue. This leads to headache, irritability, unconsciousness and may cause death. To avoid this it is important to place all persons of head injury under care of medical supervision at the earliest.

The Back Bone or Spine (Vertebral Column): It consists of **thirty three** small rounded pieces of bones. There is a central canal through which the spinal cord passes and carries nerve impulses to and from the brain. If there is any injury, one vertebra may be displaced thus the spinal cord is pressed or cut causing paralysis extremely important to handle with care all persons who have suffered severe injury to their back or neck.

The Ribs & Breast Bone (Sternum): This is called the thoracic cage which protects the heart and the lungs. An injury of the rib should be taken seriously and requires urgent hospitalization.

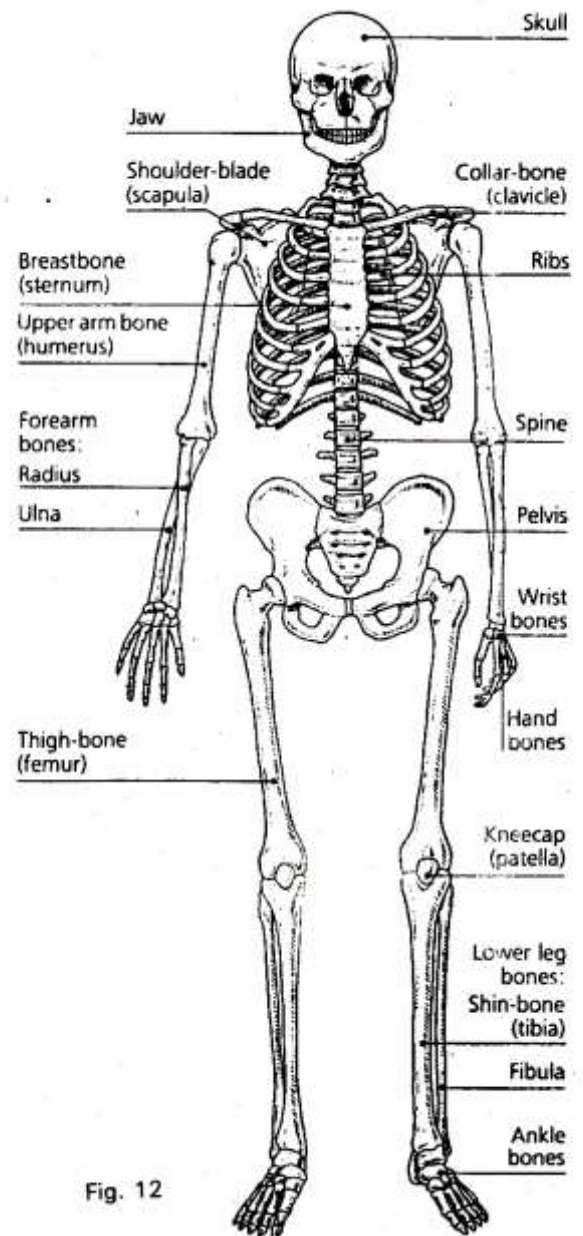
Tongue: The tongue is the muscular organ which lies on the floor of the mouth; it assists in tasting, and swallowing of food. In an unconscious casualty, by falling back on the throat, the tongue tends to obstruct it and thus prevent breathing.

Trunk and its Contents: Inside the body, the arched muscular partition (diaphragm) divides the trunk into two cavities-the upper, the chest (thorax) and the lower (abdomen). The chest contains the heart, the lungs, major blood vessels and the food pipe.

The lower cavity is bounded above by the diaphragm, below by the pelvis, behind by the lower spine and in front and sides by muscular walls of abdomen. It contains several important organs - liver, spleen, stomach, pancreas (behind the stomach), intestines, kidneys and the urinary bladder and reproductive organs.

Functions of the Body

The body consists of distinct parts called organs and their special work is called function. The essential functions of the life such as respiration, circulation, digestion, excretion, etc. are carried on



by a set of organs of closely related parts called as a system (e.g. the digestive system which includes the mouth, the gullet, the stomach, the liver, the pancreas and the intestines).

'2' important organs and their function - Lungs and Heart:-

Oxygen is essential for the support of life and is obtained from the air while we breathe. It is carried to the lungs through the air passage into the blood stream and is circulated throughout the body by heart to the tissue level where exchange of gases takes place and oxygen is absorbed. Oxygen along with the glucose from the digested materials is carried by the blood stream to the tissues to supply for their growth, repair and to produce heat and energy.

During the process of inspiration the chest cavity expands creating a negative pressure which inflates the elastic lungs, which are two in number and are situated in the chest cavity on either side of the heart. When the chest and abdominal muscles relax the chest cavity becomes smaller and the lungs go back to their normal position due to their elasticity. Interference with the respiration may cause serious consequences like asphyxia and unconsciousness due to lack of oxygen and increase in Carbon dioxide accumulation.

The heart is a muscular organ situated at the centre of the chest cavity with slight deviation to the left side. It acts as a pump to circulate blood. When the heart beats impure blood is passed into the lungs where it is purified. During the process of purification, it gives up carbon-dioxide and takes a fresh quantity of oxygen. The pressure in the blood vessels (arteries and veins) varies with the beating of the heart. This pressure exerted on the arteries known as the 'Blood Pressure' and is recorded by the blood pressure instrument or a rough estimate made by feeling the pulse.

Blood is made of cells and a liquid portion called plasma which contains proteins, enzymes and other important ingredients. An average adult has a blood volume of five to six litres which keeps on circulating in the system and carries oxygen from the lungs to all parts of the body and collects the waste products which are partly excreted by the kidneys and the lungs, whenever blood comes in contact with some external material it tends to solidify forming a clot to stop further bleeding.



Materials available for this session:

3. Structure and Function of Body parts.ppt

Basic life support (Resuscitation)

Objective of this session

This session will help participants understand about Cardio Pulmonary Resuscitation:

- What it is?
- Why is it done?
- When to do it?
- How to do it?

Session Plan

Time	Topic	Methodology
45 Minutes	First aid in Airway Obstruction	Classroom training, sharing experiences, film and Q&A
45 Minutes	What is Recovery position?	Classroom training, sharing experiences, film and Q&A
60 Minutes	Principles and practice of Cardio Pulmonary Resuscitation	Classroom training, sharing experiences, film and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

2. Airway obstruction in unconscious victim must be assessed and removed if possible.
3. CPR is an emergency procedure which is performed in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person.
4. In a CPR press down on the sternum at least 2 inches (5-6 cm) at a rate of at least 100 per minute (nearly 2 compressions each second) but no more than 120 per minute.
5. In a drowning victim the priority should be upper airway management and rescue breaths to begin with the CPR.

Content:

This module includes basic life support (BLS) and basic paediatric life support (BPLS) for each situation.

Airway obstruction

Foreign body airway obstruction (FBAO) is one of the more common life threatening emergencies that is seen and can be treated by the lay public.

Guidelines

Combination of back blows followed by chest compression should be used for clearance of FBAO in conscious infants ≤ 1 year old

- Chest thrusts, back blows or abdominal thrusts are equally effective for relieving FBAO in conscious adults and children >1 year old
- These techniques should be applied in rapid sequence until the obstruction is relieved; more than one technique may be needed in conscious adults and children >1 year old

Signs of choking include:

- Coughing, either forcefully or weakly
- Clutching the throat with one or both hands
- Inability to cough, speak, cry or breathe
- Making high-pitched noises while inhaling or noisy breathing
- Panic
- Bluish skin colour
- Sometimes, the person may cough weakly or make high-pitched noises, which indicates he or she is not getting enough air to stay alive.

Common Causes:

The most common cause of choking in adults is airway obstruction caused by food. In infants and children, reported cases of choking occur while eating or with non-food items such as coins or toys during games.

Action:

Foreign bodies may cause either mild or severe airway obstruction. It is important to ask the conscious victim "Are you choking?"

For adults and children >1 year old

If the victim shows signs of mild airway obstruction:

Encourage continued coughing, but do nothing else. Aggressive treatment, with back blows, abdominal thrusts and chest compression, may cause potentially serious complications and could worsen the airway obstruction. Victims with mild airway obstruction should remain under continuous observation until they improve, because severe airway obstruction may develop.

If the victim shows signs of complete airway obstruction and is conscious:

Apply up to five back blows as follows: 1. Stand to the side and slightly behind the victim. 2. Support the chest with one hand and lean the victim well forward so that when the obstructing object is dislodged, it comes out of the mouth rather than further down the airway. 3. Give up to five sharp blows between the shoulder blades with the heel of your other hand. 4. Check to see if each back blow has relieved the airway obstruction. The aim is to relieve the



obstruction with a blow/slap, not to necessarily give all five.

If five back blows fail to relieve the airway obstruction, give up to five abdominal thrusts as follows: 1. Stand behind the victim and put both arms around the upper part of the abdomen. 2. Lean the victim forward. 3. Clench your fist and place it between the umbilicus and the lower rib area. 4. Grasp this hand with your other hand and pull sharply inwards and upwards. 5. Repeat up to five times. 6. If the obstruction is still not relieved, continue alternating five back blows with five abdominal thrusts.

If the victim becomes unconscious: 1. Support the victim, while carefully lowering him or her to the ground. 2. Immediately call for medical support. 3. Begin cardiopulmonary resuscitation (CPR) at the compression part of the sequence.

For infants (≤1 year old)

If the victim shows signs of mild airway obstruction: Continue to watch the infant, but do nothing else. Aggressive treatment with back blows and chest compression may cause potentially serious complications and could worsen the airway obstruction. Victims with mild airway obstruction should remain under continuous observation until they improve, because severe airway obstruction may develop.

If the victim shows signs of complete airway obstruction and is conscious: Apply up to five back blows as follows: 1. Lay the infant face down along your arm with the head lower than the body. Support the infant in a head downward, prone position, to enable gravity to assist removal of the foreign body. 2. A seated or kneeling rescuer should be able to support the infant safely across his or her lap. 3. Support the infant's head by placing the thumb of one hand at the angle of the lower jaw, and one or two fingers from the same hand at the same point on the other side of the jaw. Do not compress the soft tissues under the chin. 4. Give up to five sharp blows between the shoulder blades with the heel of your other hand. 5. Check to see if each back blow has relieved the airway obstruction. The aim is to relieve the obstruction with a blow/slap, not to necessarily give all five.

If five back blows fail to relieve the airway obstruction, give up to five chest thrusts as follows: 1. Turn the infant into a head downward, supine position. This is achieved safely by placing the free arm along the infant's back and encircling the back part of the head with the hand. Support the infant along your arm, which is placed down (or across) your thigh. 2. Find your landmarks, two fingers below the nipple line. 3. Give chest thrusts (compress approximately 1/3 of the depth of the chest). These are similar to chest compressions but sharper and delivered at a slower rate. 4. Repeat up to five times. 5. If the obstruction is still not relieved, continue alternating five back blows with five chest thrusts.



If the victim becomes unconscious or is found unconscious: 1. Support the victim, while carefully lowering him or her to a firm surface. 2. If medical support has not arrived or been called, immediately call for medical help. 3. Open the airway. 4. Give 2 to 5 rescue breaths. During the first attempts at rescue breaths, if a breath does not make the chest rise, reposition the head before making the next attempt. 5. Begin cardiopulmonary resuscitation (CPR) at the compression part of the sequence.

Aftercare and referral for medical examination: After successful treatment for FBAO, foreign material may nevertheless remain in the upper or lower respiratory tract and cause complications later. Victims with a persistent cough, difficulty swallowing or the sensation of an object being still stuck in the throat should be referred for a medical examination. Another reason for medical examination is the possibility of serious internal injuries resulting from abdominal thrusts or injury to the airway from the object that was lodged and removed.

CPR

Cardio Pulmonary Resuscitation (CPR) should begin immediately if the victim is not breathing normally, or unconscious (unresponsive).

C. Cardio

P. Pulmonary

R. Resuscitation

Essential when both breathing and heart beat are affected.

- Steps:**
1. Thumping the heart region.
 2. External Cardiac Compression.
 3. Mouth to Mouth respiration.

If two First Aiders are available one does ECC 30 times followed by the other mouth to mouth respiration twice, repeat. If there is only a single First Aider, ECC 30 times followed by mouth to mouth respiration twice – given by the same person.

If you are not able, or willing to give rescue breaths, **perform compression-only CPR**. Compression only CPR will maintain blood flow to the brain and has proven to be effective.

Guidelines

- For untrained or minimally trained first aid providers treating an adult victim, compression-only CPR should be used.
- For formally trained first aid providers (and professionals) treating an adult victim, compressions with breaths should be provided
- Every effort should be made to shorten the time until compressions and to minimize any interruptions in compressions
- For infants and children with cardiac arrest, the preferred method of CPR is compressions with breaths
- For infants, children and drowning victims who are unresponsive and not breathing, breaths should be given before compressions (Either two or five breaths may be given).

- Professional rescuers may be taught to do a pulse check, but this should not increase assessment time and is preferred to be done with the breathing check
- Professional rescuers should check for pulse and if unsure as to whether the pulse is present, they should act as if the pulse is absent
- For adults, the compression rate may be at least 100 per minute and not exceed 120 compressions per minute
- For adults, the depth of compression may be at least 2 inches (5-6 cm)

Actions:

For the unconscious victim

- Make sure you (and any other first aid providers), the victim and any bystanders are safe. Check the victim for a response by gently shaking his or her shoulders and asking loudly: "Are you all right?"

If the victim responds

- Leave the victim in the position in which you found him or her, provided there is no further danger.
- Try to determine what is wrong with the victim and call for help if needed.
- Reassess the victim regularly.

If the victim does not respond

- Shout for help, turn the victim onto his or her back and then open the airway using head tilt and chin lift.
- Place your hand on the victim's forehead and gently tilt his or her head back, and consider keeping your thumb and index finger free to close the victim's nose if rescue breathing is required (this later step may vary by National Society).
- With your fingertips under the point of the victim's chin, lift the chin to open the airway. (AS in the picture)
- Keeping the airway open, look, listen and feel for normal breathing.
- Look for chest and/or abdominal movement and listen at the victim's mouth for breath sounds or feel for air on your cheek.
- For professional rescuers, a simultaneous pulse check can be done.



Note: In the first few minutes after cardiac arrest, a victim may be barely breathing or taking infrequent, noisy gasps. Do not confuse this with normal breathing. Look, listen and feel for no more than 10 seconds to determine whether the victim is breathing normally. If you have any doubt whether breathing is present, assume it is not. Similarly, for professional rescuers if uncertain as to the presence of a pulse, assume one is not present.

If the victim is breathing

- Turn the victim into the recovery position, if suspected cervical spine injury. (As in the picture)
- Send or go for help.
- Continue to check if the victim is breathing normally.



If the victim is not breathing (for lay rescuers and with no pulse for professional rescuers)

- Send someone for help and start chest compression
- Kneel by the victim's side.
- Place the heel of one hand in the centre of the victim's chest.
- Place the heel of your other hand on top of the first hand and ensure that pressure is not applied over the victim's ribs. Do not apply any pressure over the upper abdomen or the bottom end of the bony sternum (breastbone).
- Position yourself vertically above the victim's chest and, with your arms straight, press down on the sternum at least 2 inches (5-6 cm) at a rate of at least 100 per minute (nearly 2 compressions each second) but no more than 120 per minute.
- After each compression, release all the pressure on the chest without losing contact between your hands and the sternum; compression and release should take equal amounts of time.



Combine chest compression with rescue breaths

- After 30 compressions, open the airway again using head tilt and chin lift.
- Consider pinching the soft part of the victim's nose closed, using the index finger and thumb of your hand that is on the victim's forehead
- Allow the mouth to open, but maintain chin lift.
- Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
- Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
- Take another normal breath and blow into the victim's mouth once more, for a total of two effective rescue breaths.



- Do not attempt more than two breaths each time before returning to chest compressions. Without delay, return your hands to the correct position on the victim's chest and give 30 more chest compressions. Count out loud.
- Continue with chest compressions and rescue breaths in a ratio of 30:2.
- Stop to recheck the victim only if he or she starts to move around and clearly wakes up; otherwise, do not interrupt resuscitation.

Note: If your initial rescue breath does not make the victim's chest rise as in normal breathing, then before your next attempt, check the victim's mouth and remove any obstruction and recheck that there is adequate head tilt and chin lift (as described in the care of a foreign body airway obstruction above). If more than one rescuer is present, rescuers should change over performing CPR every 1–2 minutes to prevent fatigue. Ensure that chest compressions are not interrupted during the changeover of rescuers.

For compression-only CPR

- If you are unable or unwilling to give rescue breaths, give chest compressions only.
- If chest compressions only are given, these should be continuous, at a rate of at least 100 per minute.
- Stop to recheck the victim only if he or she starts to move around and clearly wakes up; otherwise, do not interrupt resuscitation.
- Continue resuscitation without interruption until qualified medical help arrives and takes over, or if the victim starts to breathe normally.

If the victim is not breathing and has a pulse (for professional rescuers):

- Send someone for help
- Kneel by the victim's side.
- Consider pinching the soft part of the victim's nose closed, using the index finger and thumb of your hand that is on the victim's forehead.
- Allow the mouth to open, but maintain chin lift.
- Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
- Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
- Continue delivering breaths at a rate of 1 breath per 5 seconds.
- Periodically recheck for pulse and if the victim begins to breathe and/or move around, perform a complete reassessment.

Note: If your initial rescue breath does not make the victim's chest rise as in normal breathing, then before your next attempt, provide care of a foreign body airway obstruction.

Resuscitation of children (and victims of drowning) after recognizing a cardiac arrest (a victim that is unresponsive and not breathing), first aid providers should perform the following

- Give two to five initial rescue breaths before starting chest compressions. Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
- Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
- If alone (sole rescuer), perform CPR for approximately 1 minute before going for help. Compress the chest by approximately one-third of its depth.

- For a child <1 year old, use two fingers; for a child >1 year old, use one or two hands as needed to achieve a compression of adequate depth.
- Continue giving 30 compressions followed by 2 breaths.
- Stop to recheck the victim only if he or she starts to move around and clearly wakes up; otherwise, do not interrupt resuscitation. If more than one rescuer is present, rescuers should change over, performing CPR every 1-2 minutes to prevent fatigue and use a ratio of 15 compressions and 2 breaths. Ensure that chest compressions are not interrupted during the changeover of rescuers. The same steps of five initial breaths and 1 minute of CPR by a sole rescuer before getting help may improve outcomes for victims of drowning. This modified form of CPR should be taught only to those who have a specific duty of care for potential drowning victims or to professional rescuers (e.g., lifeguards).

If the victim is not breathing and has a pulse (for professional rescuers)

- Kneel by the victim's side.
- Consider pinching the soft part of the victim's nose closed, using the index finger and thumb of your hand that is on the victim's forehead
- Allow the mouth to open, but maintain chin lift.
- Take a normal breath and, making sure you have a good seal, blow steadily into the victim's mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath.
- Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air passes out.
- Continue delivering breaths at a rate of 1 breath per 3 seconds.
- Periodically recheck for pulse and if the victim begins to breathe and/or move around, perform a complete reassessment.

Note: If your initial rescue breath does not make the victim's chest rise as in normal breathing, then before your next attempt, provide care of a foreign body airway obstruction.

Drowning process resuscitation

Maintaining an open airway to allow oxygen to reach some functional lung tissue and minimizing aspiration obstruction of the airway improve resuscitation outcomes. Several methods to remove water, debris and vomitus from the upper respiratory system (oropharynx) have been introduced, debated, and included in drowning process resuscitation protocols over time. In the drowning process resuscitation, upper abdominal thrusts pose a greater risk of precipitating stomach and food pipe regurgitation and subsequent aspiration. Upper abdominal thrusts do not expel sufficient water from the airway or lungs to assist in resuscitation. In addition, upper abdominal thrusts may delay and complicate the start of effective cardiopulmonary resuscitation (CPR). During the drowning process, the priority is to establish an airway and provide ventilations.

Positioning of body

- Several studies and consensus opinions have supported the following for positioning:
- The victim should be in as near a true lateral position as possible, with the head dependent to allow free drainage of fluids.
- The position should be stable, and any pressure on the chest that impairs breathing should be avoided.
- It should be possible to turn the victim onto the side and return to the back easily and safely, having particular regard to the possibility of cervical spinal injury.

Actions

- Drowning process resuscitation must have as the priority upper airway management and early rescue breathing.
- In-water resuscitation consisting of airway and ventilation management should not be attempted in deep water by a single rescuer without flotation support. In this case, the priority should be rescue to shore.
- For unconscious or recovering victims, or during transport of drowning victims, the victim may be in as near a true lateral position as possible, with the head dependent to allow free drainage of fluids.
- In a submersion victim, manual methods should only be used when the mouth and wind pipe is blocked by vomitus or debris that is preventing ventilation.

Materials available for this session:

4. Basic Life Support (CPR).ppt

First aid in emergencies

Objective of this session

This is perhaps the lengthiest and the most interesting sessions. Participants are introduced to some very important commonly occurring accidents and health issues in a crisis. After this session they will be able to take useful decision on an approach to a victim/ casualty for safe handling and quick transportation for professional help.

Session Plan

Time	Topic	Methodology
90 minutes	First aid in burns, scalds and bleeding.	Classroom training, sharing experiences, storytelling, video and Q&A
90 minutes	Signs and symptoms plus First aid in - head and spinal injuries and injuries of extremities.	Classroom training, sharing experiences, storytelling, video and Q&A
90 minutes	Actions in first aid for common problems – fractures, poisoning, bites, dehydration.	Classroom training, sharing experiences, storytelling, video and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

1. First aid providers are not expected to make diagnosis but should be aware of basic life threatening issues in even of crisis and have knowledge of basic life saving skills.
2. Control of bleeding is a core first aid skill
3. Cooling with normal running water in burns is the best start
4. Immobilisation of bone and nearest joints is important to prevent further injury and shock.

Content:

Injuries

- Burns
- Bleeding
- Head and spinal injuries
- Injured extremity
- Wounds

Burns

Burns are injuries that result from dry heat like fire, flame, a piece of hot metal, the sun, and contact with wire carrying high tension electric current or by lightning or friction. Scalds are caused by moist heat due to boiling water, steam, oil, hot tar, etc.

Immediate cooling of thermal burns (chemical, electrical, etc.) with cold tap water, which has been a common remedy for many years, is the best way to start.

Action Guidelines

- Burns must be cooled with cold water (15-25°C [59-77°F]) as soon as possible, and the provider should continue to cool the burn until pain resolves.
- First aid providers should avoid cooling burns with ice water for longer than 10 minutes, especially if burns are large (>20% total body surface area).
- Ice should not be applied to a burn
- Because the need for blister debridement is controversial and requires equipment and skills that are not consistent with first aid training, first aid providers should leave burn blisters intact and cover them loosely
- To treat skin or eye exposure to acid or alkali, first aid providers must immediately irrigate the skin or eye with copious amounts of tap water
- All electrical burns should have a medical evaluation.



Bleeding

Control of bleeding is a core first aid skill.

Guidelines

- First aid providers must control external bleeding by applying direct pressure
- The use of pressure points and elevation is not recommended
- When direct pressure fails to control life-threatening bleeding or is not possible (e.g., multiple injuries, inaccessible wounds, multiple victims), tourniquets should be used in special circumstances (such as disaster, war-like conditions, remote locations or specially trained first aid providers)
- Cooling of the distal limb should be considered if a tourniquet needs to remain in place for a prolonged time.



Raise the limb to reduce bleeding and apply pressure bandage

General Management

- Calm the casualty and call for ambulance
- Remove any non embedded foreign objects like glass, stones, etc if you can see them easily
Apply direct pressure to the wound with a sterile dressing or a clean cloth piece.
- Handle the injured part as gently as possible.
- Make the patient lie down.
- If the wound is on a limb and there are no broken bones, **raise the limb**. If bleeding continues, do not take off the original dressing, but add more pads and bandage firmly.

Management of Severe Bleeding

- Put on disposable gloves if available.
- Remove or cut clothing to expose the wound;
- Apply direct pressure over the wound with the fingers or palm, over a clean piece of cloth or over a sterile dressing or non-fluffy clean pad;
- Raise and support the injured limb above the level of the casualty's heart to reduce blood loss.
- Handle the limb very gently if there is a possibility of fracture; Help the casualty to lie down on a blanket, if available, to protect from the cold.
- Support legs so that they are above the level of the casualty's heart (to avoid shock);
- Secure the dressing with a bandage that is tight to maintain pressure but not so tight that it impairs circulation; If further bleeding occurs, apply a second dressing on top of the first.
- If blood seeps through this dressing, do not remove both dressings and apply a fresh one ensuring that pressure is applied accurately to the point of bleeding; Check the circulation beyond the bandage;
- Support the injured part in a raised position using a sling and/or bandaging; Call for medical help.
- **Monitor and record the casualty's vital signs – responsiveness level, pulse, and breathing. Watch for signs of shock, and check the dressings for seepage.**



Apply direct pressure over the wound with your fingers or palm, over a clean piece of cloth or over a sterile dressing



Ensure that pressure bandages are not too tight; press the finger nail to check the blood supply

Head and spinal injuries

Minor head injury and concussions are common in children, youth and adults. Concussion has many signs and symptoms, such as dizziness or nausea on recovery; loss of memory of any events that occurred at the time or immediately preceding, the injury and mild, generalized headache. Some of these overlap with other medical conditions. Loss of consciousness is uncommon in most head injuries, and if it lasts longer than 30 seconds, it may indicate more significant internal head injury. Although the evidence is questionable as to the ability of first aid providers to identify a spinal injury, they should have a high index of suspicion based on events that have occurred and treat as if a spinal injury was present.

Guidelines

Concussion

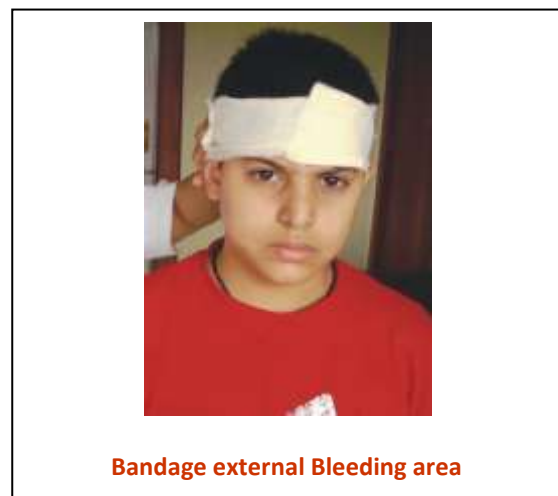
- Persons with concussion should rest, both physically and cognitively, until their symptoms have resolved both at rest and with exertion
- Any person who sustains a concussion should be evaluated by a health care professional, ideally with experience in concussion management, and receive medical clearance before returning to athletics or other physical activity
- Persons with a concussion should never return to any physical activity while symptomatic at rest or with exertion

Head injury

- Any head trauma with loss of consciousness greater than 1 minute must have emergency medical evaluation and care.
- Victims of minor closed head injury and brief loss of consciousness (1 minute) should be evaluated by a healthcare professional and be observed.
- Observation should be done in the office, clinic, emergency department, hospital or home under the care of a competent caregiver.
- Victims of minor closed head injury and no loss of consciousness may be observed in the home, under the care of a competent caregiver.
- Attention should be paid to airway and breathing in all victims with a head injury.

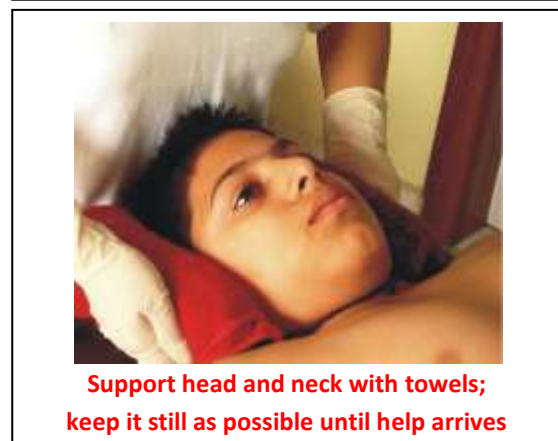
Signs and symptoms of Head Injuries

- Changes in level of consciousness and behaviour
- Severe pain in the head
- Blood or clear fluid coming from the ears or nose.
- Bleeding from the Scalp
- Unusual bumps on the head
- Fits
- Problem of breathing or seeing.
- Nausea or vomiting
- Unequal pupil size
- Slow or fast pulse
- Weakness or an inability to use a leg or arm
- Bruising of the head, especially around the eyes behind the ears/ nose.



First Aid in Head injury

- If bleeding, apply pressure bandage
- Attention should be paid to airway and breathing in all victims with a head injury
- Treat for shock and keep a careful watch on the pulse, breathing, colour of skin, lips and nails
- Transport the casualty to hospital in recovery position taking Special care for Head & Neck



Spinal injury

- Considering the serious consequences of spinal cord injury, most experts agree that spinal motion restriction should be the goal of early treatment of all victims at risk of spinal injury. First aid providers should restrict spinal motion by manual spinal stabilization if there is any possibility of spinal injury
- Because of the absence of any evidence supporting the use of immobilization devices in first aid and with some evidence suggesting potential harm even when these devices are used by health care providers, first aid providers should not use spinal immobilization devices unless specifically trained. Spinal immobilization devices may be used by specially trained providers or in remote locations where extrication is necessary
- First aid providers cannot conclusively identify a victim with a spinal injury but should suspect spinal injury if an injured victim has any of the following risk factors:
 - Age ≥ 65 years old
 - Driver, passenger or pedestrian, in a motor vehicle, motorized cycle or bicycle crash
 - Fall from a greater than standing height
 - Tingling in the extremities
 - Pain or tenderness in the neck or back
 - Sensory deficit or muscle weakness involving the torso or upper extremities
 - Not fully alert or intoxicated
 - Other painful injuries, especially of the head and neck
 - Children < 3 years old with evidence of head or neck trauma
 - First aid providers should assume all victims with a head injury may have a spinal cord injury.

Some symptoms of damage to the spine or vertebrae

- Pain in the neck or back at the injury site;
- This may be masked by other, more painful injuries.
- Rescuer should keep the spine aligned! Avoid any twists in the normal curve of the spine.

When the spinal cord is damaged, there may be:

- Loss of limb control; movement may be weak or absent;
- Loss of sensation, or abnormal sensations such as burning or tingling, in the limbs. The casualty may say that limbs feel stiff, heavy, or clumsy;
- Loss of bladder and/or bowel control;
- Breathing difficulties.

First Aid

The First Aider should aim to:

- Prevent further injury;
- Ensure the airway is clear to facilitate breathing in an unconscious casualty;
- Arrange urgent removal to hospital.

If a First Aider suspects neck or spine injury, he or she should **immobilize** the casualty. Place rolled-up blankets, towels, or items of clothing on either side of the casualty's head and neck while keeping the casualty's head in the neutral position and continuing to support the casualty's head and neck throughout until emergency medical services take over.

1. Reassure the casualty and advise him/her not to move;

2. Kneel behind the casualty's head. Grasp the sides of the casualty's head firmly, with your hands over the ears. Do not completely cover the ears – the casualty should still be able to hear you. Steady and support head in the neutral head position, in which the head, neck, and spine are aligned. This is the least harmful head position for a casualty with a suspected spinal injury;
3. Continue to support the casualty's head in the neutral position until emergency medical services take over, no matter how long this may be. Get help to monitor and record vital signs, such as the responsiveness level, pulse, and breathing;
4. Examining the casualty for any other injury on the body;
5. If casualty is moving his or her limbs because of pain, before preparing to transport the casualty, put bandages on the legs to immobilize them so it will be easier to use the Log - Roll technique, which can be used on a conscious or unconscious casualty;
6. If the airway is blocked in an unconscious casualty and you cannot open the airway using the jaw thrust technique, use the Log-Roll technique.

Log-Roll Technique

This technique should be used if you have to turn a casualty with a spinal injury. Ideally, you need five helpers but the move can be done with three. While you support the casualty's head and neck, ask your helpers to straighten the limbs gently Then, ensuring that everyone works together at the same time, roll the casualty. Keep the casualty's head, trunk, and toes in a straight line at all times. Support the casualty's neck and head and lower the casualty onto a hard plank or hard stretcher and transport to the ambulance.

Injured extremity

While not always life-threatening, extremity injuries have the potential for loss of the limb. In addition, extremity fractures are often painful, and there may be associated bleeding. Such bleeding can be internal at the fracture site, or external in the case of open fractures; if large bones are involved, such as the femur or pelvis, the associated bleeding can be life threatening. Lastly, depending on the position of the extremity and the nature of the injury, there may be challenges for moving the victim. The goals of treating extremity fractures are to preserve the extremity, to limit pain and bleeding and to seek further medical assistance.

Guidelines

- First aid providers should assume that any injury to an extremity can include a potential bone fracture and manually stabilize the injured extremity in the position found.
- A sprained joint and soft-tissue injury should be cooled, preferably with a cold therapy that undergoes a phase change. Cold should not be applied for >20 minutes

Signs and symptoms of Injuries to Bones

- Pain at the spot of fracture and/or around it or pain on gentle pressure over the spot.
- Swelling of the area and discoloration.
- Loss of normal movements of the part.
- Loss of normal shape.
- Sometimes the muscles will pull up the lower free ends causing apparent shortening of the limb.
- Irregularity of the bone: If as in the leg bone, the break is under the skin, the irregular outline of the bone can be felt easily.
- When one end of the broken bone moves against the other, a crackling sound is heard.

Actions

- Provide support to the injured area
- Expose the site of the injury
- Treat any wounds
- Immobilize effectively
- Reassure and monitor

Steady and support the injured part immediately, so that no movement is possible. This stops further injury and helps to stop the bleeding. This can be done by bandages or by using splints (support) where available.

Using Bandages

- Usually it is enough to use the other (uninjured) limb or the body of the patient as the splint (support). The upper limb can be supported by the body, the lower limb by the other limb (Provided that also is not fractured) most fractures (except forearm) can be immobilized

thus. **Do not apply bandage on the site of fracture.**



- The bandaging should be fairly firm so that there is no movement of the fractured ends; but not too tight in which case the circulation of blood to the area will be stopped. If there is further swelling of the injured area the bandage is too tight therefore loosen the bandages slightly.

Using splints

A strip of rigid material used for supporting and immobilizing bone.

It could be wood or plastic material or metal applied used as support.

Reasonably wide splints are better than narrow ones.

They should be long enough so that the joints above and below the fractured bones can be made immobile.

Splints are best applied over the clothing and better if they are well padded with cotton or cloth so as to fit softly and snugly on the injured limb.

In an emergency splints can be improvised with a walking stick, an umbrella, a piece of wood, a book or even firmly folded newspaper.

Some common Injuries and their management

A. Head injury

If breathing is normal:

- Lay the casualty on his back with head and shoulder slightly raised by cushions.
- Turn the head to one side (if there is bleeding from the ear, the head should be turned so that the bleeding side is down)

If breathing is noisy with bubbling of air (This is usually due to secretions in the chest or mouth and windpipe).

- Lay the casualty in the recovery position. Support him in this position by pads in front of the chest and draw up the casualty's upper knee.
- Keep the air passages clear.
- In cases with bleeding from the ear, arrange the position of casualty so as to keep bleeding side down. Do not plug the bleeding ear.
- **Do not give anything to drink.**
- Do not rouse him.
- **Transport the casualty to hospital.**

B. lower jaw injury

1. Ask the casualty not to speak, and do not give anything by mouth.
2. Remove false teeth, if any. Make sure the tongue does not fall back. Ensure and open airway.
3. With the patient leaning forward place the palm or your hand on the chin and gently press the lower jaw upwards against the upper jaw (which acts as splint)
4. Place a narrow bandage under the chin. Carry one end up and over the top the head, cross with the other end over the ear. Carry the shorter end across the front of forehead and the longer and in the opposite direction around the back of the head. Tie just above the opposite ear
5. If the casualty show signs of vomiting, remove the bandage and tie it up again after vomiting stops.
6. Remove him to hospital as early as possible



C. Upper arm injury (Fracture)

- Place a pad of rolled handkerchief in the axilla lightly tie the arm to the chest.
- Bend the elbow and the hand place on the opposite and apply shoulder a triangular sling.
- For all injuries of arm and elbow, always feel the pulse of the injured limb. If the pulse weakens after splintage relax the bandage till the pulse comes back.



D. Lower arm injury (Fracture)

- If elbow can be bent, strap arm to the chest and support forearm in a triangular sling.
- If elbow cannot be bent, strap arm and forearm on the side of body in extended position.

Actions if sling with a splint is placed.

- Place the forearm at right angles to the upper arm, and place it across the chest, the thumb facing upwards and the palm over the chest.
- Roll a folded newspaper or other magazine round the forearm. The paper magazine should be from the elbow to the fingers.
- Apply one bandage above the fracture and the other over the wrist first around it and then as a figure of eight including the wrist and hand.
- Support the limb by a broad arm sling.



Dental injuries

Dental injuries, particularly in children, are common problems seen by first aid providers.

Guidelines

It is not recommended for first aid providers to re-implant an avulsed tooth

Avulsed teeth may be stored in milk and transported with the injured victim to a dentist as quickly as possible.

Actions

- First aid treatment for an avulsed tooth includes the following:
- Clean bleeding wound(s) with saline or tap water.
- Stop bleeding by applying pressure with gauze or cotton.
- Handle the tooth by the top (crown) not the root; i.e., do not handle the part that is below the gum line.
- Place the tooth in milk, or if milk is not available, in water.
- Have victim evaluated by dentist as soon as possible.

Snakebites

In many countries, bites by venomous snakes are a serious health problem. In addition, many people are extremely afraid of snakes and snakebites. Even in countries where only harmless snakes are found, people often panic after snakebite and may possibly provide first aid measures that may be harmful rather than beneficial.

Guidelines

- Suction should not be applied to pull venom out, because it is ineffective and may be harmful

- Properly performed compression and immobilization of extremities should be applied in first aid
- When performing compression for snakebite, the pressure applied should be a bandage that will allow a finger to be inserted underneath (40 to 70 mm Hg).

Actions

In regions where very venomous snakes are found:

Contact the local health centre to find out where and how to get antivenin for victims of poisonous snakes and what specific treatments are needed.

Insect bites

Some insects are not harmful themselves but function as vectors for transmitting diseases such as malaria or tick-borne encephalitis.

Guidelines

- To remove a tick, grab the tick as close to the skin as possible with a very fine forceps/tweezers and pull it gradually, but firmly, out of the skin. The bite site should be thoroughly disinfected with alcohol or another skin antiseptic solution. Avoid squeezing the tick during removal, because squeezing may inject infectious material into the skin
- Use of gasoline, petroleum, and other organic solvents to suffocate ticks, as well as burning the tick with a match, should be avoided
- If a rash develops, the patient should see a physician in case antibiotics or vaccinations are indicated

Actions

- Contact medical centres to find out which of these insect related diseases are common in the region as well as preventive measures such as: Use repellent, use bednets, wear long sleeves and long pants, especially at dawn, when these insects are active.
- Get in touch with medical personnel on how to prevent these diseases, e.g., vaccination for tick-borne encephalitis and pharmaceuticals for malaria prevention.

Poisoning

A large number of poisonous substances are found in the home and worksite. It is important to understand the toxic nature of chemical substances in the environment and the proper protective equipment and emergency procedures in case of toxic exposure. Most frequently, intoxication happens through inhalation or ingestion of poisonous material.

Guidelines

- In rendering first aid to a poison victim, the first priority is the safety of the rescuer/first aid provider, meaning that any direct contact with gases, fluids or any other material possibly containing poisons should be avoided
- In remote areas where further care is delayed giving a diluent (milk or water) may be appropriate

- Activated charcoal should be used as a first aid measure only on the direction of a poison control centre or equivalent agency
- To treat skin or eye exposure to acid and alkali, first aid providers should immediately irrigate the skin or eye with lot of tap water.

Actions

- For a toxic substance exposure, the preferred action is to stop or limit further effect of the poison by stopping continued exposure.
- In the case of inhalation of a toxic gas, the victim should be removed from the area, but this should be done only while maintaining rescuer safety.
- In the case of external or internal contact with a toxic material: Dry chemicals/powders should be removed before the victim is rinsed, body surface should be rinsed, the (caustic) toxin should be diluted.
- Mouth-to-mouth resuscitation should be avoided in the presence of toxins.
- Immediate medical help should be called.

Carbon monoxide

Frequent sources of carbon monoxide (CO) are gas engines, fires, furnaces and space heaters, especially in badly ventilated spaces. Typical symptoms of CO poisoning are headache, nausea, vomiting, muscle weakness (especially in lower limbs), unconsciousness and seizures

Actions

- All doors and windows should be opened
- Move the victim out of the area with the gas, but only if this can be done without endangering the first aid providers
- If the victim is unconscious, maintain a patent airway and perform rescue breathing if needed

Dehydration/gastrointestinal distress

Dehydration can be a consequence of a wide variety of illnesses (vomiting and diarrhea, heat stress or exhaustion, fever, etc.). Common symptoms of gastrointestinal (GI) distress include abdominal pain, nausea and/or vomiting, and/or diarrhea and sometimes fever. Dehydration may result, especially in prolonged or severe vomiting or diarrhea, or in children and older adults.

Guidelines

- For dehydration, first aid providers should rehydrate using an oral rehydration solution
- Either a commercially prepared oral rehydration solution or a pre-prepared salt package for oral rehydration should be used
- In the absence of pre-prepared solutions, a homemade solution may be used
- For diarrheal illness, first aid providers may place the victim in a horizontal position.
- If there is considerable abdominal pain, bending the hips and knees may be helpful

Actions

Symptoms of dehydration include the following:

- Pale and dry skin
 - Dry mouth and tongue
 - Weakness
- Symptoms of GI distress include the following: • nausea/vomiting , diarrhea, abdominal pain, eventually signs of dehydration and/or fever If symptoms appear suddenly,

are serious or are accompanied by dehydration (or the latter appears alone), Emergency treatment may be necessary.

Prepare oral dehydration solution using oral rehydration salt (ORS) packets:

- Wash hands with water and soap or ask before preparing solution.
- Take an ordinary glass and use it to fill 5 glasses of potable water in a bigger pot/jug
- Mix the whole of ORS packet in this water
- Shake it well till it dissolves completely
- In the absence of pre-prepared packets, a homemade solution can be formulated with the following ingredients:
- 1 litre of water + 1/2 teaspoon of salt + 6 teaspoons of sugar



Materials available for this session:

5. First Aid in Emergency.ppt

First aid kit and use of materials

Objective of this session

The session is an introduction of participants to the equipments and contents used in first aid within the field and transportation of casualties. Seeing the contents and relating them with its use would further help participants get familiar with first aid equipments.

Session Plan

Time	Topic	Methodology
30 minutes	Introducing First Aid Kit and its contents.	Classroom training, brainstorming and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

1. A first aid kit is a collection of supplies and equipment for use in giving first aid and can put together for the purpose (by an individual or organization), or purchased complete.
2. Trauma injuries, such as bleeding, bone fractures or burns and infection control are usually the main focus of most first aid kits, with items such as bandages and dressings being found in the vast majority of all kits.

Content:

A first aid box comes in different shapes, sizes and colours. The contents within the box could also differ depending on need and manufacturer standards. There are guidelines (national and international standards) that guide as a check list for equipments and their use. There is a wide variation in the contents of first aid kits based on the knowledge and experience of those putting it together, the differing first aid requirements of the area where it may be used, and variations in legislation or regulation in a given area. The international standard for first aid kits is that they should be identified with the ISO graphical symbol for first aid although many kits do not comply with this standard, either because they are put together by an individual or they predate the standards.

First aid kit contents: -

- Torch – Battery powered.
- Sterile hand gloves – for use on cuts, wounds, abrasions etc.
- Antiseptic liquid – for use on cuts, wounds, abrasions, bites.
- Crepe Bandage – to cover sprains and/ or use on blunt injury of limbs/ joints.
- Triangular bandage -
- Compressed roller bandage – For use on wound with gauze or in making sling and tie splints.
- Surgical cotton rolls – for cleaning e.g. clearing dirt, grime and debris with water/ antiseptic solution.

- Adhesive plaster/ tape – to hold bandage in place.
- Adhesive bandage – to use on cuts/ wounds over body parts that may not require use of large bandages (if needed hair should be shaved to prevent discomfort or further injury)
- Sterile Gauze – to cover cuts, wounds or abrasions for preventing infection.
- Eye Pads – Covering an injured.
- Sterilised paraffin Gauze – to use on burn or scald before covering it with any bandage.
- Silver sulfadiazine ointment – Used on burns and scalds.
- Mouth to mouth resuscitator – Used in assisting mouth to mouth breathing. An infection barrier for performing artificial respiration as part of CPR.
- Scissor – For cutting bandage, cloth, tape etc.
- ORS packets – Oral rehydration solution packets.
- Glucose powder – To be mixed with water as a drink for quick energy and/ or rehydration.
- Forceps – Can be used to hold sterile gauze or access areas that may not be easy to reach.
- Safety pins – For holding bandages or clothes in place.
- Splints - A strip of rigid material used for supporting and immobilizing a broken bone

Materials available for this session:

6. Medical Kits.ppt

Triage

Objective of this session

The participant will be able to appreciate the severity of condition and whether the causality should be given 1st aid, treated on spot or moved to the hospital immediately.

Session Plan

Time	Topic	Methodology
15 Minutes	Basics of Triage	Classroom training, brainstorming/ group work, group activity, open session, sharing experiences, Role Play, story telling and Q&A
15 Minutes	Recognising international colour codes of Triage	Classroom training, brainstorming/ group work, group activity, open session, sharing experiences, Role Play, story telling and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

- Helps to sort patients into those who need critical attention and immediate transport to the hospital and those with less serious injuries
- This step can be started before transportation becomes available

Content:

Triage is to judge the severity of the victim's condition, prioritise and decide on best possible approach beneficial to the individual within constraints of time and professional attention at that place.

International guidelines for Triage (colour coded)

RED – Immediate Care: Most urgent and high survival if attended immediately.

YELLOW PRIME – Beyond Care: Regardless of urgency has poor survival rate.

YELLOW – Urgent Not Immediate Care: Can wait 45 to 60 minutes after stabilisation.

GREEN – Minor Care: Can wait until others have been attended.

BLACK – Dead.

Field Triage Flow Chart Using International Convention Colour Codes

	RED	YELLOW PRIME	YELLOW	GREEN	BLACK
Priority	Transfer immediately to a referral hospital with a medical escort in an equipped ambulance	Transfer only, after evacuating all Red victims, with a medical escort in an equipped ambulance	Transfer to a referral hospital in ambulance with first aid escort	Transfer to an appropriate health care facilities by available vehicles without escort	Transfer to morgue
Urgency	Most urgent (fluids, intubation, Fasciotomy)	Urgent (constant, intensive care)	Urgent (IV line, drugs, immobilise fractures)	Not urgent (splint or dressing)	Non-Urgent
Condition	shock/hypoxia present/imminent	Deep shock, needs exceed available resources	Stable for 1 hour, can wait at field	Stable till end of response	No pulse or respiration No blood pressure or heart beat
Injuries	Life-threatening	Catastrophic	Systemic effects, not yet life threatening	Localised	Fatal
Potential for Survival	High after immediate care & transportation	Very poor	High after support treatment	Good	None
Examples	Intra-abdominal injury, shock status from any cause	Massive skull or chest injuries, extensive and severe burns	Heart attack, compound fractures, severe burns	Minor fractures, burns or wounds	Dead

Materials available for this session:

7. Triage.pptx

Safe handling and transportation of patients

Objective of this session

This is to introduce participants to some common prescribed methods of safe handling and transportation of casualties. The session has a specific focus on safe handling of critical casualties with spine injury.

Session Plan

Time	Topic	Methodology
15 Minutes	Some common and safe methods to carry a victim	Classroom training, Role Play, and Q&A
15 Minutes	Stretcher and its safe use for critical victims	Classroom training, Role Play, and Q&A
15 Minutes	Transporting a casualty with spinal injury	Classroom training, Role Play, and Q&A

Tools and Resources required

Flipcharts; Cut pieces of cards; Markers; Tape and chart stands

Key Messages

- 1.To maintain an open airway.
- 2.To resuscitate the casualty if necessary.
- 3.To prevent further injury (Keeping head and spinal damage in mind).
- 4.To arrange urgent and safe removal to hospital.

Content:

After appropriate First Aid has been given the following principals of transport must be kept in mind.

- The position assumed by the casualty or in which he has been placed, must not be disturbed unnecessarily.
- Throughout the transport a careful watch must be kept on
- The general condition of the casualty.
 - Any dressing that may have been applied.
 - Any recurrence of bleeding.
- The transport must be safe, steady and speedy.

Some common Methods to carry:-

Though it is challenging for a single First-Aider to transport a casualty, certain methods will facilitate the task and can be very effective. These are the Cradle, the Human Crutch, the Pick-a-Back, and the Fireman's Lift-and-Carry.

If one or two volunteers available



Cradle



Human crutch



Pick-a-Back.



The Fireman's Lift-and-Carry

Removal and transportation methods two or more first aiders can use

Four-Handed Seat



This method is used when the casualty can assist the First Aiders by using one or both arms. It requires two people.

Two-Handed Seat



Fore-and-Aft Method:

This method is mostly used to carry a casualty who is unable to assist the bearers by using his arms.



Kitchen Chair Carry

This method is best used for a lightweight casualty over a short distance.

Stretchers



Ordinary stretcher



Telescopic stretcher

Carrying a loaded Stretcher

Depending on the availability of manpower one can decide whether the stretcher is to be carried by four or two persons.

Lowering a loaded stretcher:

(a) "Lower Stretcher" the four bearers will stoop, gently lower the stretcher to the ground and rise together.

(b) Hand Carriage by Two Bearers: "Hand Carriage by Two Bearers - "Lift Stretcher" will pick the stretcher steadily together keeping the stretcher at a straight level.

To Load an Ambulance



Rotate the stretcher, so that the head is loaded first in the ambulance.



Head is carried in first

The stretcher is lowered with its head one pace from the door of the ambulance. The casualty will be loaded head first while loading, take side pace to the ambulance raising the stretcher evenly to the level of the berth to be loaded. The front bearers place the runners in the grooves and then assist the rear bearers to slide the stretcher into its place and secure it. If slings have been used they should be kept with their stretcher.

Transport a Case of Spinal Injury

Injuries to the spine can involve one or more parts of the back and/or neck: the bones (vertebrae), the discs of tissue that separate the vertebrae, the surrounding muscles and ligaments, or the spinal cord and the nerves that branch off from it.

The most serious risk associated with spinal injury is damage to the spinal cord. Such damage can cause loss of power and/or sensation below the injured area. The spinal cord or nerve roots can suffer temporary damage if they are pinched by displaced or dislocated discs or by fragments of broken bone. If the cord is partly or completely severed, the damage may be permanent.

The spinal cord is protected by the vertebrae (back bones). Injury to a vertebra or to an inter-vertebral disc may damage nerve roots that emerge from the spinal cord or damage the cord itself. The Casualty could be either conscious or may be unconscious.

To assess gently tap the shoulder and observe by gently asking the question to see the response, if casualty response indicates consciousness.

If you suspect neck injury place rolled-up blankets, towels, or items of clothing on either side of the casualty's head and neck, while you keep her head in the neutral position. Continue to support the casualty's head and neck throughout until emergency medical services take over.

For an Unconscious Casualty

Steps

- Kneel behind the casualty's head. Grasp the sides of her head firmly with your hands over the ears. Steady and support her head in the neutral head position, in which the head, neck, and spine are aligned.
- If necessary, open the casualty's airway using the jaw thrust method - Place your hands on each side of her face with your fingertips at the angles of her jaw. Gently lift the jaw to open the airway. Take care not to tilt the casualty's neck.
- Transport the casualty with spinal injury with special care to neck, head and spine from hard plank or stretcher as stated above to the ambulance.
- Emergency Method for loading fractures of the spine when there is no blanket under the casualty and none is available -
 - Open out the casualty jacket and roll it firmly so that the rolls are close to each side.
 - Place the casualty on the stretcher adopting the same procedure as described for the standard Method except that the bearers grasp the rolled up jacket and/or the clothing and /or bandage round the casualty's thighs instead of the rolled edges of the blanket. When the clothing is insecure, a broad bandage must be placed round the body just below the shoulder for the bearers to grasp.
 - In the case of cervical injuries, place firm supports such as rolled-up blankets or sandbags on each side of the head to steady it.
 - Place a folded blanket in the hollow above the heels so as to relieve pressure on them.
 - Wrap the casualty.
- If he is to be carried over rough ground, reduce his body movements to a minimum by binding him firmly but not too tightly to the stretcher, with broad bandages. These should

be applied round the pelvis, thighs and calves, and round the body and arms, just above the elbows.

- On reaching shelter, do nothing further until the arrival of medical aid. The above method of transportation of spinal injury case is to be used only if hard board is not available.

Materials available for this session:

8. Safe Handling and Transportaion.pptx