

JAMAICA FIRE BRIGADE TRAINING SCHOOL

FIRST AID

PRINCIPLES OF FIRST AID

Objectives:

Provide the candidate with the necessary information related to first aid, the aims, and the responsibilities of a first aider so that when required, he/she will be able to:

- State or list the definition of first aid
- List the aim and responsibilities of a first aider.

WHAT IS FIRST AID?

First aid is the immediate treatment given to someone injured or suddenly taken ill before the arrival of an ambulance, doctor, or other appropriate qualified person.

Composure - At all times remain calm.

The Aims of First Aid:

- To preserve life
- To prevent condition from getting worse.
- To promote recovery.

Responsibilities of a First Aider

- Assess the situation safely.
- Arrive at a diagnoses (don't waste time if puzzled)
- Treat
- Arrange for disposal of patient to appropriate medical facility.

ACTION AT AN EMERGENCY

The First Aider Should:

Assess the situation

- Take in what has happened quickly and calmly.
- Look for dangers to yourself and to the casualty
- Never put yourself at risk.

Make the area safe

- Protect the casualty from danger
- Do not try to do too much yourself

Get help

- Quickly ensure that any necessary specialist help has been summoned and is on its way.

Summary And Question

1. What is first aid?
2. Name the aims of first aid?
3. What are the responsibilities of a first aider?

WOUND :

Any break in the skin or body tissues is known as a wound. *Open wounds* allow blood and other fluids to be lost from the body and germs to enter. *Closed wounds*-if the bleeding is purely internal the wound is closed.

Signs of internal bleeding:

1. Bruising
2. Discoloration
3. Swelling

Types of Wound:

1. Incise wound
2. Lacerated wound
3. Abrasion (graze)
4. Contusion (bruise)
5. Puncture wound
6. Gunshot wound

Description of wounds:

1. **Incise wound** - A clean cut from a sharp edge, such as broken glass. The blood vessels at the wound edges are cut straight across so there may be profuse bleeding. Incise limb wounds may sever underlying structures such as tendons.
2. **Laceration** - Crushing or ripping forces result in rough tears or lacerations. They may bleed less profusely than clean-cut wounds, but there is likely to be more tissue damage and bruising. They are also often contaminated by germs; the risk of infection is high.
3. **Abrasion** - This is a superficial wound in which the top layers of skin are scrapped off, leaving a raw, tender area. Abrasions are often caused by sliding fall or a friction burn. They can contain embedded foreign particles that may result in infection.
4. **Contusion**- A blunt blow or punch can rupture capillaries beneath the skin. Blood then leaks into the tissues, causing bruising. Severe contusion may indicate deeper hidden damage, such as fracture or internal injury.
5. **Puncture wound**- Standing on a nail or being stabbed for example, will result in a puncture wound with a small entry site, but a deep track of internal damage. Since germs and dirt can be carried far into the body, the risk of infection is high.
6. **Gunshot wound**- A bullet or other missile may drive into or through the body, causing serious internal injury, and sucking in contaminants from the air. The entry wound may be small and neat; any exit wound may be large and ragged.

BLOOD:

Components

- 1) Red blood cells
- 2) White blood cells
- 3) Elements involved in forming blood clots, platelets
- 4) Plasma-a watery, salt fluid that carries the blood cells

Volume

- 1) About six (6) liters or twelve (12) pints in a typical adult
- 2) Important because a certain volume of blood must be maintained for proper heart action, blood flow, and exchange between the blood and body cells.
- 3) Excessive bleeding causes the system to collapse, which is followed by death.

Functions

- 1) Respiration - to carry oxygen and carbon dioxide
- 2) Nutrient - to carry food to the tissues
- 3) Excretion - to carry wastes from tissues to organs of excretion
- 4) Body regulation - to carry hormones, water, salt and other compounds needed to keep the body's functions in balance.

Blood Vessels

- a) Arteries carry blood away from the heart to the body (one exception).
- b) Veins carry blood back to the heart from the body (one exception).
- c) Capillaries are thin-walled vessels that allow for the exchange of oxygen and nutrients with body.

BLEEDING:

Classified as external or internal

- a) External bleeding is classified by the type of vessel
- b) Arterial bleeding - blood flow from an artery - bright red, spurting, with rapid and extensive blood loss.
- c) Venous bleeding-blood flow from a vein - dark red, with a steady flow, which can also be profuse.
- d) Capillaries bleeding - blood oozing from a bed of capillaries - red in colour but less than arterial. Flow is slow as found in minor scrapes and shallow cuts.

External Bleeding

- a) Evaluate external bleeding
- b) Arterial bleeding is most serious. Heart action and vessel pressure prevents blood clot formation.
- c) Venous bleeding ranges from minor to severe. It can be seen under the skin surface and occur deep in the body where veins can produce rapid blood loss; may collapse when cut, which helps control bleeding; can suck air bubbles into the system, and can cause cardiac arrest.
- d) Capillary bleeding is slow and clotting takes about 6 to 8 minutes. The larger open surface increases chances of infection.

Controlling External Bleeding - Direct pressure:

- a) Apply direct pressure with your gloved hand.
- b) Apply firm pressure with a sterile dressing or clean cloth.
- c) Apply pressure until bleeding is controlled (may be 10-30 minutes or longer).
- d) Hold the dressing in place with bandages after bleeding is controlled.
- e) Never remove a dressing once it is in place. Add more dressings if blood soaks through dressing.

Elevation

- a) Elevate the injured extremity so that the wound is higher than the heart.
- b) Continue to apply direct pressure to the site of bleeding.

Pressure Point

Upper arm-brachial artery

- a) Apply direct pressure.
- b) If this fails, apply direct pressure with elevation.
- c) If this fails hold the patient's upper arm in the palm of your gloved hand, position your finger in the

- d) medial groove below the biceps muscle, and apply pressure to the brachial artery until bleeding stops and you can no longer feel radial pulse.

Leg/Femoral Artery

- a) Apply direct pressure
- b) If this fails, apply direct pressure with elevation.
- c) If this fails, locate the anterior medial side of the leg where the thigh joins the lower trunk; you will feel the femoral artery pulse.
- d) Use the heel of your gloved hand to apply pressure to the site. Use your body weight to help apply pressure.

Tourniquet

- a) Locate the site for the tourniquet (between the wound and the patient's heart, usually two 2" inches from the wound).
- b) Place a pad on the site over the artery.
- c) Place the tourniquet around the limb and secure it. Then tighten the tourniquet until bleeding has stopped.
- d) Do not loosen the tourniquet once it is in place.
- e) Attach a tag or mark the patient showing the time the tourniquet was applied.
- f) Deliver care for shock. Do not cover the tourniquet.
- g) Splinting can be used to immobilize an extremity to reduce bleeding. Air splints work well as they also apply pressure.

Internal Bleeding

Significance - internal bleeding can be simple (bruising for example) or it can be major and life threatening, producing shock, heart and lung failure, and eventually death. Care for shock is important.

Detect Internal Bleeding - look for:

- Wounds that have penetrated the skull
- Blood or bloody fluid in the ears, and or nose
- Patient vomiting or coughing up blood (coffee ground or frothy red in appearance)
- Bruises on the neck
- Bruises on the chest, possible fractured ribs, penetrating chest wounds

- Bruises or penetrating wounds to the abdomen
- Hardness or spasms of the abdominal muscles
- Abdominal tenderness
- Bleeding from the rectum or vagina
- Fractures especially in the pelvis area and long bones of the upper arm and thigh, and the ribs.

Signs And Symptoms Of Internal Bleeding

- Patient feels weak
- Patient is thirsty
- Patient feels cold
- Patient feels anxious or restless
- Awareness altered or unconsciousness
- Restless or combative
- Shallow and rapid breathing
- Rapid and weak pulse
- Skin-pale, cool and clammy (there may be profuse sweating)
- Dilated pupils

Evaluate Internal Blood Loss

- Severe, if there is penetration of the chest cavity near the heart, liver, spleen or if the pelvic is fractured.
- Suspect blood loss of one liter if there is a major fracture in the upper arm or thighbone.
- Badly bruised skin can contain a 10% blood loss if the size of the bruise is equal to the patient's fist.

Controlling Internal Bleeding

- a) Have someone call for more advance medical help.
- b) Maintain an open airway, and monitor breathing and pulse
- c) Treat for shock.
- d) Loosen restricting clothing.
- e) Be alert for vomiting
- f) Do not give anything by mouth.
- g) Apply pressure dressing if internal bleeding is in an extremity.
- h) Give oxygen if trained to do so.

Summary and Questions:

Restate objectives and enquire from the class how well they have assimilated the lesson, if there are no question from the class ask related question to confirm how well the participants have grasped the lesson.

1. What is/are the function(s) of the blood?
2. State the functions of blood.
3. Name the vessels that are in the human body.
4. State types of bleeding.
5. Name two pressure point found on the human body.

THE CIRCULATORY SYSTEM

6. The circulatory system consists of the heart and a series of tubes or vessels that carry blood throughout the body.
 - a. Blood carries oxygen from the heart and lungs to body cells and vital organs such as the brain.
 - b. Blood carries carbon dioxide from the cells back to the lungs.
7. In combination with the respiratory system, the circulatory system serves to provide the body with the oxygen need for life.
 - i. If breathing stops, the brain dies and the heart stop beating.
 - ii. If the heart stops, breathing stops and the brain dies.

Cardiac Arrest

1. Definition - when the heart stops beating

Signs

- a. Unresponsiveness
- b. No breathing
- c. No pulse

CPR

1. The question, what is it and how does it work?
 - a. An emergency procedure applied when heart and lung actions have stopped.
 - b. Determined by checking ABCs-airway, breathing, and circulation
 - c. Performed with the following procedures:
 - i) Maintain an open airway
 - ii) Breathing for the patient
 - iii) Force the patient's blood to circulate

2. CPR Techniques

When to begin.

- 1) Establish unresponsiveness.
- 2) Position the Patient.
- 3) Open airway.
- 4) Check for Breathing.
- 5) Deliver two breaths.
- 6) Check carotid pulse.
- 7) Begin CPR.

One - Rescuer Cardiopulmonary Resuscitation (CPR)

1. General procedures

- a. *Firm surface* - Place patient on firm surface, such as the ground or a spine board. CPR cannot be performed with the patient in a sitting position.
- b. *Ventilation* - Adequately ventilate the lungs since compression without ventilation is useless.
- c. *Locating compression site* - Locate the position of the hands by finding the lower margin of the rib cage where it meets the sternum. Place the hands on the lower half of the sternum; avoid the sternum notch with a two-finger space margin.
- d. *Positioning of body* - Lean over the patient with your elbow straight so that the weight of your body is assisting in compression of the sternum.
- e. *Positioning of hands* - Place the heel of one hand on top of the other, with fingers raised so that no contact is made with the ribs.
- f. *Amount of compression* - For an adult, compress the sternum about 1½ to 2 inches downwards.
- g. *Rate of compression* - Compress the sternum 80 - 100 times per minute in a rhythmic fashion.
- h. *Ventilations* - Provide two adequate breaths every 15 compression. Breaths should be delivered in 1.5 to 2.0 seconds.

2. One - Rescuer Technique

- a. Establish unresponsiveness.
- b. Have someone call for help.
- c. Position patient and yourself.
- d. Ensure an open airway.
- e. Check for breathing-look, listen and feel.
- f. Perform two adequate ventilations of the lungs.
- g. Clear the patient's airway if obstructed.
- h. Check for carotid pulse; 5 - 10 seconds.
- i. Find compression site.
- j. Position hands properly.
- k. Perform 15 compressions of the sternum at the rate of 80 to 100 per minute.
- l. Provide ventilations - 15 compressions with two adequate ventilations.
- m. Continue.

3. Infants And Small Children

- a. Establish unresponsiveness.
- b. Call for help.
- c. Correctly position the patient.
- d. Open the airway.
- e. Provide artificial ventilation and clear airway obstructions.
- f. Establish the lack of a pulse (use brachial artery for infants).
- g. Have someone alert medical response team.

- 1) Provide chest compressions and ventilations.
- 2) For small children, only the heel of one hand is used and the compression should be 1 to 1½ inches.
- 3) For infants, only the tips of two or three fingers are used and the compression should be ½ to 1 inch.
- 4) The compression rate should be 100 per minute for child, and at least 100 per minute for infant.
- 5) Pressure should be exerted over the CPR compression site.
- 6) Additional support beneath the back will be required for infants and small children since a backward tilt of the head lifts the back. The rescuer's hand or a folded blanket can prevent this.
- 7) Provide one breath every five compressions.

4. Signs Of Effective CPR

- a. A carotid pulse can be felt (when working as a team, the ventilator should feel a pulse with each compression).
- b. Proper chest rise and fall with ventilations.

5. CPR Interruption

CPR should not be interrupted for more than 7 seconds.

6. Problems During CPR

- a. The patient is not placed upon a hard surface.
- b. The proper head tilt is not performed.
- c. An improper seal is made over the patient's mouth, nose, mouth and nose, or stoma.
- d. The patient's nostrils are not pinched shut and the patient's mouth is not opened wide enough during mouth to mouth ventilation.
- e. The wrong compression site is selected or the wrong hand position is used resulting in:
 - 1) Broken ribs
 - 2) Broken sternum
 - 3) Lacerations of the liver, spleen, lungs, or heart
 - 4) Damage to the pleura resulting from broken ribs
- f. Compressions are too shallow or upstrokes are too short.
- g. The wrong rate and ratios are used.
- h. CPR is stopped for more than 7 seconds.
- i. Gastric distension occurs from over-ventilation and is further complicated by vomiting.

7. Beginning And Terminating CPR

- a. CPR is not indicated for patients known to be in the terminal stages of an incurable condition.
- b. Once initiated, CPR should be continued until:

- i) Spontaneous circulation begins (continue rescue breathing).
- ii) Spontaneous circulation and breathing begin.
- iii) An equally or more highly trained person relieves you.
- iv) The patient is turned over to a physician.
- v) You are exhausted and cannot continue.

Special CPR Situations

1. Moving the patient

- a. The First aid provider will only move the patient if there is immediate danger at the scene.
- b. The First aid provider may be asked to assist in CPR procedures while the patient is being transferred to the ambulance.

2. The Accident Scene

- a. Assure your own safety at the scene and wear appropriate protective gear.
- b. Do only what you have been trained to do.
- c. Do not delay CPR due to patient's injuries. If they must be repositioned, stabilize the head and neck as well as possible.

3. Drowning

- a. Do not attempt a water rescue unless you are trained.
- b. Artificial ventilations can be started in the water. Use jaw-thrust for suspected spinal injuries. Mouth-to-mask may be difficult in the water.
- c. Start chest compressions only after the patient is out of the water.

4. Electric Shock

- a. Assure power is turned off.
- b. Start CPR procedures as determined by initial assessment.

Changing To Two-Rescuer CPR

- a. The person performing one-person CPR; assistance arrives, identifies self, and offers to help.
- b. The first rescuer accepts, but continues CPR while the assistant checks for a carotid pulse and breathing.
- c. The assistant then says "stop compressions" and checks for pulse and breathing.
- d. If there is no pulse, the assistant ventilates and says "No pulse, continue CPR." If there is a pulse, the assistant begins pulmonary resuscitation.
- e. If CPR is continued, the first rescuer continues at the rate of 80-100 per minute. The assistant will give ventilation every five compressions.

Two-Rescuer Cardiopulmonary Resuscitation

- 1. Ventilator establishes unresponsiveness. Alert someone for help
- 2. Ventilator ensures an open airway.
- 3. Ventilator gives two adequate ventilations of the lungs, 1.5 to 2.0 seconds per ventilation.
- 4. Ventilator determines pulselessness, checks carotid pulse. Have someone alert medical response.

5. Compressor performs five compression of the sternum at the rate of 80-100 per minute. The compressor counts out loud for the one to five compressions.
6. Ventilator interposes one breath after every five compressions. Compressor waits for delivery of breath.
7. After one minute, stop CPR; the ventilator checks for breathing and pulse.
 - a. Pulse, no breathing-provide pulmonary resuscitation.
 - b. No pulse, no breathing - "No pulse continue CPR".
 - c. Pulse and breathing -"Stop CPR" Monitor the patient.
8. Changing positions-ventilator and compressor effect a smooth change in positions during resuscitation.
9. Ventilator checks for pulse periodically during compressions.

Practice

(No more than six students per manikin for effective demonstration and practice)

1. Each participant should practice two-rescuer cardiopulmonary resuscitation on an adult manikin, using the following steps.
 - a. Establish unresponsiveness.
 - b. Open airway (jaw thrust/head tilt chin lift) establish breathlessness.
 - c. Ventilate the lungs.
 - d. Establish pulselessness.
 - e. Perform two-rescuer CPR
 - f. Change positions.

Summary And Questions:

State preliminary objectives

1. Class questions or comments on the topic of the lesson.
 - a. If one rescuer is rendering CPR what is the compression to ventilation ratio? (15:2)
 - b. Two rescuers CPR-what is the compression to ventilation ratio? (5:1)
 - c. How is the compression site found on an adult, child, or infant?
 - d. Do no interrupt CPR for more than _____?
 - e. Who will command the change of position? (compressor)
 - f. Give the depth of compression for (1) adult (2) Infant. (adult 1 ½ -2 inches, infant ½ -1 inch)

SAFETY

Freedom from risk and danger.

Objectives:

1. Give situations that put first aid providers at risk.
2. Explain why body substance isolation is important
3. Identify four infectious diseases of concern to a first aid provider.
4. List various forms of protective gears.

Firefighters at risk

Firefighters are an essential part of pre-hospital emergency care for many kinds of injuries in a variety of settings in unpredictable situations. They need to protect themselves against exposure to infectious diseases.

Dealing with risk

- a. Learn about infectious disease transmission and prevention.
- b. Follow local guidelines about the precautions to take to reduce your exposure to infectious diseases.
- c. Wear personal protective equipment (ppe) to create a barrier between you and the patient (**body substance isolation** or **BSI** precautions).
 1. Gloves
 2. Face shields or masks
 3. Eye protection
 4. Gowns

Bloodborne And Airborne Pathogens

Bloodborne Pathogens

- a. HIV (human immunodeficiency virus) causes AIDS for which there is no cure and so far has proven to be fatal. Facts to be aware of:
 - 1) HIV does not survive well outside the body and is not as concentrated in body fluids as the hepatitis B virus (HBV).
 - 2) HIV is more difficult to transmit than HBV. Routes of exposure are limited to direct contact of un-intact skin or mucous membranes with blood, semen, or other body fluids, making it difficult for a rescuer using BSI precautions to get the disease on the job.
- b. HBV is a very tough virus that can survive on clothing, newspaper, or other objects days after infected blood has dried. Facts to be aware of:
 - i. Dried body fluids are potentially infectious. Prevent contact.
 - ii. HBV causes permanent liver damage and can be fatal.
 - iii. Several other forms of the disease (hepatitis C and non-A, non-B) are less common than HBV but still present a risk to responders.

2. Airborne Pathogens

- a. Tuberculosis (TB) is lung infection that can also be fatal and has a recent resurgence. Facts to be aware of:
 - i. New strains of the diseases are resistant to treatment with traditional medication.
 - ii TB is spread by aerosolized droplets in the air (the result of coughing or sneezing) and can be contracted without direct contact with the carrier.
 - iii Use of one-way air mask reduces the risk of exposure.

- b. Meningitis is an inflammation of the lining of the brain and spinal cord and is serious especially for children. Facts to be aware of:
 - i. Bacteria cause most infectious varieties.
 - ii. It is transmitted by respiratory droplets but is far easier to contact than TB.
 - iii. It has a rapid onset and needs quick treatment with antibiotics.
 - iv. Emergency care providers and hospital staff should inform first aiders if they have been in contact with a patient who is infected with meningitis.

Protecting Firefighters

1. Currently the BSI standard recommended. BSI assumes that all body fluids be treated as potentially hazardous and all patients are to be treated with the same precautions. Recommended guidelines for employers for workers who run the possibility of exposure to infectious agents.
 - a. Provide a free HBV vaccination.
 - b. Educate employees about infectious diseases.
 - c. Supply personal protective equipment.
 - d. Ensure that all equipment use for breathing is cleaned thoroughly before use.
 - e. Improvise containers for sharps if use is required.
 - f. Proper disposal of cleaning aids

Firefighters' Responsibilities

- a. Adhere to safe work practices to protect yourself, families, and the public.
- b. Wash hands regularly, use gloves and other personal protective equipment, and make safe work practices a habit.

Summary And Questions

Restate primary objectives

- 1) Name three (3) type of protective gear
- 2) Explain in your own way; Bloodborne & airborne.

SCENE SIZE UP:

The scene size up is a quick assessment of the scene and surroundings that will provide you with as much information as possible about the safety of the scene, any mechanism of injury/nature of illness and make assessment for additional help if required.

Remember:

The first step at any scene is to make sure that you are safe. Never become a victim yourself. (Who will rescue the rescuer?).

Components of the Scene Size-Up

Safety of the Scene

1. Personal safety-reduce your risk of exposure to communicable diseases by following BSI techniques. Watch for possible dangers.
(a.) traffic (b). leaking fuel (c). electric lines
(d). hazardous material.
2. Bystander's safety-move bystanders to a safe area.

Mechanism of Injury

This is a guide to predict the potential for injury:

How much force was applied to the body?

How long was the force applied?

What area of the body was involved?

Nature of Illness

This guide is used to determine the illness of an individual.

Ask the patient.

Family member.

Bystanders.

Multiple Patients

How many persons were involved or sick must be a relevant question to ask one's self in this particular situation.

- d. Ascertain correct number of casualty
- e. Call for additional help
- f. Begin a triage system-categorize casualty's base on injuries/illness.

Summary and Questions

1. Explain what is meant by mechanism of injury
2. Based on what factor(s) would you request additional help?
3. Whose safety must be taken into consideration?

THE HUMAN BODY

Objectives:

At the end of this lesson course participants will be able to:

- Match given body functions to specific body systems.
- Use common terminology to list the five major regions of the body and the subdivisions for each region.
- Name two types of structures that are found in every location in the body.
- Name the location of the four major body cavities.
- Locate the anatomical position of the heart, lungs, diaphragm, stomach, liver, gallbladder, pancreas, spleen, small intestine, large intestine, kidneys, urinary bladder.
- Describe the anatomical position.
- Describe the function of at least three body systems.

Introduction: This lesson gives an overview of the design of the human body and introduces terms used to describe relationships between body parts.

The Five Body Regions

a. Head

1. Cranium - housing the brain
2. Face
3. Mandible - the lower jaw

b. Neck

c. Trunk

1. Chest - known as the thorax (tho-raks)
2. Abdomen- extending from the lower ribs to the pelvic girdle.
3. Pelvis - protected by the bones of the pelvic girdle

d. Upper extremities

- 1) Shoulder joint
- 2) Arm
- 3) Elbow
- 4) Forearm
- 5) Wrist
- 6) Hand

e. Lower extremities

- 1) Hip joint
- 2) Thigh
- 3) Knee
- 4) Leg
- 5) Ankle
- 6) Foot

Four major body cavities:

a. Two anterior

- 1) Chest or thorax
- 2) Abdominopelvic

b. Two posterior

- 1) Cranial
- 2) Spinal

Abdominal Quadrants - a division of reference for locating organs:

a. Right upper quadrant (RUQ)

- 1) Most of the liver
- 2) Gallbladder
- 3) Part of large intestine

b. Left upper quadrant (LUQ)

- 1) Most of stomach
- 2) Spleen

3) Part of large intestine

c. Right lower quadrant (RLQ)

- 1) Appendix
- 2) Part of large intestine

d. Left lower quadrant (LLQ)

1) Part of large intestine

Note: The kidneys lie behind the lining of the abdominal cavity. One kidney is located RUQ. The other is LUQ.

BODY SYSTEMS

a. Circulatory System - moves/carries blood, carries oxygen and food to the body's cells, and removes wastes and carbon dioxide. Main elements:

- 3) **Heart** (a pump) - with each beat of the heart deoxygenated blood from the veins enters the right collecting chamber (atrium) and flows into the right pumping chamber (ventricle). The thick ventricle contracts to force the blood via the pulmonary artery to the lungs. At the same time, oxygenated blood returns from the lungs, via the pulmonary veins, into the left atrium. It then passes into the left ventricle, to be pumped out to the body through the aorta.
- 4) **Arteries** - which transport blood containing oxygen to all body system.
- 5) **Capillaries** - through these thin walls oxygen and other products are exchanged with body cells.
- 6) **Veins** - which transport blood containing waste products from body cells to be eliminated.

b. Respiratory System - The delivery of oxygen to the body cells and the removal of carbon dioxide and other gases, with the gas exchange taking place in the lungs.

Anatomy

- i. *Nose* - primary pathway through which air enters and leaves the system.
- ii. *Mouth* - secondary pathway through which air enters and leaves the system.
- iii. *Throat (pharynx)* - common passageway for air found in the neck at the top of the windpipe.
- iv. *Voice box (larynx)* - passageway for air flowing from the pharynx.
- v. *Windpipe (trachea)* - passageway for air flowing from the larynx.
- vi. *Bronchial tree* - tubes that branch out from the windpipe and take air to exchange levels of the lungs. It includes main branches called *bronchi*, smaller branches called *bronchioles*, and microscopic air sacs called *alveoli*
- vii. *Epiglottis* - a leaf-shaped structure that covers the larynx when we swallow food and fluids to prevent them from entering the airway.
- viii. *Lungs* - elastic organs containing the alveoli where

exchange of oxygen and carbon dioxide take place within the blood.

c. Digestive System - consist of the organs such as Esophagus, Stomach, Liver, Gallbladder, Pancreas, Intestines, and Rectum, which permit us to eat, digest, and eliminate foods.

d. Urinary System - consists of the organs such as the Kidneys, Ureter, Bladder and Urethra, which permit us to eliminate certain waste materials filtered from the blood.

e. Reproductive Systems - all structures and hormones needed for sexual reproduction. The male and female reproductive organs.

f. Nervous System - consists of the brain, spinal cord, and nerves that control and permit all body activities and sensations. A muscle will not move if the nerves that serve it are cut.

g. Endocrine System - glands and certain organs that produce hormones that regulate body activities and functions.

h. Musculoskeletal System - consists of tissue that contracts and relaxes to permit body movement or function. The skeletal system provides the framework, protection, and mobility

- 1) *Voluntary Muscles* - those we control at will; for example, the skeletal muscles that permit us to move.
- 2) *Involuntary Muscles* - those that work automatically; for example, the diaphragm that permits us to breathe.
- 3) *Cardiac Muscle* - the walls of the heart are a special type of involuntary muscle that keeps the heart functioning automatically.

i. Immune System - a network of special cells that help prevent disease by killing germs or making them harmless.

j. Integumentary system (skin) - system that protect the body from disease-causing organisms.

Summary and Questions

Class questions or comment on the topic of lesson.

- a. Locate heart
- b. Locate lungs
- c. Locate Liver
- d. Location of other abdominal organs

Special Exercise:

- a. Outline your own major body cavities. What do you find in each cavity?
- b. Point to any of your abdominal quadrants. Can you name any of the organs that are found in each quadrant?
- c. Use a mirror to ensure and clarify various body parts.

DRESSING, BANDAGES AND STABILIZATION

Objectives: provide students with information and practice so that, upon completion of the lesson and any required assignments participants will be able to state the difference between a dressing and a bandage.

Dressing - Bandage used directly to cover a wound

Bandages - Used to hold a dressing in place

Dressings are used to:

- b. Help control bleeding
- c. Cover a wound and protect it, thereby reducing the risk of infection

Bandages are used to:

- a. Maintain direct pressure over a dressing.
- b. Hold dressings, splints, and compresses in place.
- c. Limit swelling.
- d. Provide support to an injured limb or joint.
- e. Restrict movement.

General Rules For Applying Dressings:

- a. The dressing pad should always extend well beyond the wounds edges.
- b. Place dressing directly on a wound
- c. If blood seeps through a dressing, do not remove it; instead, apply another dressing over the top.
- d. If there is only one sterile dressing, use this to cover the wound, and use other clean materials as top dressings.

General Rules for Applying Bandaging:

- a. If the casualty is lying, pass the bandages under the body's natural void (*hollow*) at the ankles, knees, waist, and neck. Then slide the bandages into position by easing them back and forth under the body. To bandage the head or upper torso, pull a bandage through the hollow under the neck, and slide into place
- b. Apply bandages firmly, but not so tightly as to impede circulation.
- c. Leave fingers and toes on a bandaged limb exposed if possible, so that you can check the circulation afterwards.
- d. Use reef knots to tie bandages. Ensure that the knots do not cause discomfort and do not tie the knot over a bony area. Tuck loose ends under a knot if possible.
- e. Regularly check the circulation to the extremity of a bandaged limb; loosen the bandages if necessary.

Bandaging To Immobilize A Limb

- Place some soft, bulky padding, such as towels folded clothing, or cotton wool, between an arm and the body, or between the legs so that the bandaging does not displace any broken bones.
- Bandage around the limb at intervals, avoiding the injury as much as possible.
- Tie the knots on the uninjured side towards the upper part of the body. If both sides are injured, tie knots in the middle of the body or where there is least chance of causing further damage.

Parts of a triangular bandage: 1. Point 2. Ends 3. Bases

Triangular Bandages

These bandages, sometimes sold in sterile packs, can also be made by cutting or folding a square meter of sturdy fabric (such as linen or calico) diagonally in half. They can be used:

- Folded into broad-fold bandages to immobilize and support limbs and secure splints and bulky dressing;
- Folded into narrow-fold bandages to immobilize feet and ankles, and hold dressing in place;
- Straight from the pack and folded into a pad to form a sterile improvised dressing pad;
- Open, as slings to support an injured limb, or to hold a hand, foot, or scalp dressing in position.

Making A Broad-Fold Bandage

1. Open out a triangular bandage and lay it flat on a clean surface. Fold it horizontally so that the point touches the centre of the base.
2. Fold the triangular bandage in half again in the same direction. This completes the broad-fold bandage.

Making A Narrow-Fold Bandage

1. Fold a triangular bandage to make a broad-fold bandage.
2. Fold the bandage horizontally in half again to make a thick, but long and narrow bandage.

Scalp Bandage & Slings

From First Aid Manual pages (231-234).

Summary & Questions

Class comments on lesson and make enquires

Questions

- a. Why apply a bandage/dressing?
- b. What type of material(s) is/are normally used to make a bandage?
- c. What is a bandage/dressing?
- d. Name the parts of a triangular bandage
- e. Demonstrate how to produce a broad bandage/narrow bandage

SPLINTING

Objectives: Provide the student with information so that upon completion of the lesson and any required assignments, each student will be able to:

1. Define *splinting*.
2. State the primary reason for splinting.
3. State the rules for splinting.

4. State or list when rigid splinting should be used as part of the care provided for a patient.
5. List the general steps to follow in all cases requiring the application of splints.
6. Define manual traction, and describe how manual traction is applied to an extremity prior to splinting.
7. List objects that can be used as splints when commercial splints are not available.

THE PROCESS OF SPLINTING

1. What is splinting?

This is the use of any object that for the purpose of stabilization.

Categories:

- c. Soft splint
- d. Rigid splint

2. Why splint?

- a. To reduce pain
- b. To reduce further possible injuries to soft tissues
- c. To reduce and control bleeding
- d. To relieve pressure against vessels
- e. To prevent closed injuries from becoming open injuries

3. Rules for splinting

- a. Reassure the patient and explain what you are going to do.
- b. Splint before moving the casualty unless the environment is threatening.
- c. Expose the injury site.
- d. Control all serious bleeding, but do not apply pressure over the injury site.
- e. Dress open wounds.
- f. Check for distal pulse, sensation, and motor function before and after splinting.
- g. Having all splinting materials ready, use padded splint for comfort if possible.
- h. Attempt to realign an angulated limb or reposition it to regain a pulse.
- i. Apply gentle manual traction, and secure the splint firmly.
- j. Immobilize the injured extremity and the joints above and below the injury site.
- k. Secure the splint leaving fingertips and toes exposed.
- l. Elevate the extremity if there are no spinal injuries.
- m. Be prepared for shock/provide care for shock.

Types of Splints

- a. Commercial splints (manufactured for the purpose of splinting).
- b. Inflatable splints
- c. Improvised emergency splints

Splinting The Upper Extremities

- a. The shoulder girdle
- b. The upper arm
- c. The elbow
- d. The forearm wrist, and hand
- e. The fingers

Splinting The Lower Extremities

- a. The pelvic girdle
- b. The thigh bone
- c. The knee
- d. The leg
- e. The ankle & foot

Summary & Questions:

Take questions from participant(s).

- a. What is referred to as a splint?
- b. Why would you splint?
- c. Have a scenario prepared for role-play to demonstrate lesson.

JOINTS & FRACTURES

Objectives: Provide the student with information and practice so that, upon completion of the lesson and any assignments, each student will be able to:

1. Define what is a joint
2. State or list different types of joints
3. Define a fracture
4. State types of fractures
5. Describe the stated fractures
6. State how force is inflicted
7. Define a sprain & a strain

JOINT:

Where one bone meets another. There are movable and immovable joints. **Immovable joints** are those where the bone edges fit firmly into each other, or are fused together, like the pelvic bones.

Type Of Joints:

- a. **Slightly movable joints** - these allow only slight gliding or rocking movements. Examples are joints between the spinal vertebrae, and in the feet.
- b. **Ball & socket joints** - the round head of one-bone fits into the cup-shaped end of another, allowing a swiveling action in all directions as, for example, in the shoulder.
- c. **Hinge joints**-the bone ends are contoured to allow bending (flexion) and straightening (extension) in only one plane, as in the elbow.

FRACTURES:

What Is A Fracture?

A fracture is a crack or break in a bone.

TYPES OF FRACTURES

Open fracture: Close to the fracture, the skin is broken through which the bone may or may not protrude.

Close fracture: The surrounding skin is unbroken; but internal injury to surrounding tissues may cause local swelling.

Simple fracture: This is a clean break or crack in the bone.

Comminuted fracture: This type of fracture produces multiple bone fragments.

Greenstick fracture: A split in a young, immature bone. This type of fracture is common in children.

Causes of Fractures: (force)-this simply put is a push or a pull.

- a. *Direct force*
- b. *Indirect force*

Direct force - one example of this action is, a moving car's bumper can break the shinbone.

Indirect force - this is produced by a twist or a wrench; a trip or stumble can break a leg bone. For example, force may travel from the point of impact through the body to break bones elsewhere.

Other force - Rarely, violent muscle contraction can fracture a bone to which the muscle is attached.

INJURIES

Strain - overstretching of the muscle, which may result in a partial tearing or pull.

Sprain - wrenching or tearing of the muscle and the tendon that joins it to a bone.

Recognition Of A Fracture

You should suspect a fracture if one or more of the following signs is present in any patient who has a history of injury and reports of pain.

1. **Deformity** - the limb may appear to be shortened, rotated, or angulated at a point where there is no joint. Always use the opposite limb as a mirror image for comparison.
2. **Tenderness** - **Point of tenderness** on palpation in the zone of the injury is the most reliable indicator of an under-lying fracture, although it does not tell you the type of fracture. Be sure to wear gloves if there are any open wounds.
3. **Guarding** - shielding from the site of injury.
4. **Swelling**- Rapid swelling usually indicates bleeding from a fracture site and is typically followed by severe enough, it may mask deformity of the limb. Generalized swelling from fluid buildup may occur several hours after an injury.
5. **Crepitus** - a grating or grinding sensation known as **crepitus** can be felt and sometimes even heard when fractured bones ends rub together.
6. **False motion** - motion at a point in the limb where there is no joint is a positive indication of a fracture.
7. **Exposed fragments** - in open fractures, bone ends may protrude through the skin or be visible within the wound.
8. **Pain** - along with tenderness and bruising, commonly occurs in association with fracture.
9. **Bruising** - fractures are almost always associated with **ecchymosis** (discoloration) surrounding soft tissues. Bruising may be present after almost any injury; it is not specific for bone or joint injuries.

Treatment For Open Fractures

Your aims are:

- to prevent blood loss, movement and infection at the site of injury.
- to arrange removal to hospital, with comfortable support during transport.

1. Cover the wound with a clean pad or sterile dressing, and apply pressure to control the bleeding
2. Without touching an open wound with your fingers, carefully place some clean padding over and around the dressing.
3. Secure the dressing and padding; bandage firmly, but not so tightly that the circulation is impeded.
4. Immobilize the injured part as for a close fracture.
5. Treat the casualty for shock. Check the circulation beyond the bandage every ten minutes.

Do Not move the casualty until the injured part is secured and supported, unless he/she is in danger.

Do Not let the casualty have anything to eat or drink.

Treatment For Close Fractures

Your aims are:

- to prevent movement at the injury site.
- to arrange removal to hospital, with comfortable support during transport.
-

1. Tell the casualty to keep still and support the injured part with your hands until it is immobilized.
2. For firmer support, secure the injured part to a sound part of the body. Bandage from the uninjured side.
 - **For upper limb fractures** - always support the arm against the trunk with a sling and bandage if necessary.
 - **For lower limb fractures** - if removal to hospital will be delayed, bandage the 'sound' leg to the injured one.
3. Treat the casualty for shock if necessary. If possible, raise the injured limb.
4. Check the circulation beyond any bandages every ten minutes, and loosen if necessary.

Do not move the casualty until the injured part is secured and supported, unless he/she is in danger.

Do not let the casualty eat or drink.

Do not try to replace a dislocated bone into its socket.

Soft Tissue Injuries

The **RICE** Procedure

- **R** - rest the injured part
- **I** - apply ice or cold compress
- **C** - compress the injury
- **E** - elevate the injured part

SHOCK

Objectives: At the end of this lesson participants will be able to:

1. Define shock
2. State or list different types of shock
3. List the signs and symptoms of shock
4. Describe orally or written the procedures used to care for shock

Shock is the lessening in function of a vital organ of the body.

Types Of Shock

1. *Hemorrhagic* - bleeding shock caused by blood loss or loss of plasma. (Also called *hypovolemic* shock).

2. *Cardiogenic* - heart shock caused by heart failing to pump enough blood.
3. *Neurogenic* - nerve shock caused when the nervous system is damaged from an injury and it cannot control the diameter of the blood vessel.
4. *Anaphylactic* - allergy shock, a life-threatening reaction caused by something to which the patient is extremely allergic.
5. *Psychogenic* - fainting, disrupting proper blood flow to the brain.
6. *Metabolic* - fluid shock caused by loss of body fluids.
7. *Septic* - bloodstream shock caused by infection.
8. *Respiratory* - lung shock caused by too little oxygen in the blood.

Signs & Symptoms Of Shock

a. Symptoms include:

- i. Weakness
- i. Nausea
- ii. Thirst
- iii. Dizziness
- iv. Restlessness

b. Signs of shock include:

- i. Combativeness
- iii. Disorientation
- iv. Breathing shallow
- v. Pulse, rapid and weak
- vi. Cyanosis
- vii. Face pale
- viii. Pupils dilated

Care For Shock

1. Keep the patient lying down and at rest.
2. Keep the airway open.
3. Control bleeding and splint fractures.
4. Keep the patient warm but do not overheat
5. Properly position the patient.
6. Give the patient nothing by mouth.
7. Elevate legs if possible to improve circulation to the major organs of the body.

Summary & Question

Questions and comments from class.

- a. What is shock?
- b. Name five different types of shock and describe one
- c. Give five signs/symptoms of shock
- d. Why is it important to elevate a patient's legs?

FAINTING

Objectives: To provide information so that at the end of the class participants will be able to:

- a. Explain what is fainting
- b. Recognition
- c. Give treatment to a casualty who has fainted.

Fainting - this is a condition resulting from temporary reduction of blood flow to the brain.

Extras - recovery from a faint is usually rapid and complete. A faint may be a reaction to pain or fright, or the result of emotional upset, exhaustion, or lack of food. It is more common, however, after long periods of physical inactivity, such as standing still, especially in warm atmosphere. The inactivity causes blood to pool in the lower part of the body, reducing the amount of oxygen available to the brain.

Recognition:

- A brief loss of consciousness causing the casualty to fall to the floor.
- A slow pulse.
- Pale, cold skin and sweating.

Treatment:

Your aims are:

1. To improve blood flow to the brain.
2. To reassure the casualty as he/she recovers, and make her comfortable.
 - a. Lay the casualty on the ground and loosen restricted clothing.
 - b. Maintain open airway.
 - c. Elevate lower extremities (Legs)
 - d. Make sure that he /she have plenty of fresh air; open a window if possible.

- e. Reassure casualty and help he/she to sit up gradually.
- f. Look for and treat any other injury.

ASTHMA

Objectives: To provide information so that at the end of this lesson participants will be able to:

1. Explain what is asthma
2. Recognizing asthma
3. Assess
4. Treat

Asthma - this is a distressing condition in which the muscles of the airways swell. This results in narrowing of the airways, making breathing difficult.

Trigger effects

1. allergy
2. cold
3. particular drug
4. cigarette smoke
5. sudden climatic change

How medication works - they dilate the air passages, easing breathing.

Recognizing Asthma

- Difficulty breathing, with a very prolonged breathing-out phase.
- Wheezing as the casualty breathes out.
- Distress and anxiety.
- Difficulty in speaking and whispering.
- In a severe attack, the casualty may be exhausted. Rarely, he/she may become unconscious and stop breathing.
- Labored breathing.
- Using voluntary muscles to breathe.

Treatment

Your aims are:

- To ease breathing
 - To seek medical aid if necessary.
1. Keep calm reassure the casualty. Asthma can be frightening but a reliever inhaler usually works with a few minutes.

2. Let the casualty adopt the position that he/she finds most comfortable, which is often sitting down. Ask the casualty to breathe slowly and deeply; this may help.

Do Not:

- a. make the casualty lie down
- b. try to use a preventer inhaler to help an asthma attack.

If the inhaler is not effective after 5-10 minutes;

1. the casualty is getting worse;
2. breathlessness makes talking difficult;
3. he is getting exhausted.

If the casualty stops breathing or loses consciousness, open the airway and check breathing; be ready to resuscitate if necessary.

Summary and Questions

Questions:

1. What is fainting?
2. Name three (3) situation that would make a person faint
3. How do you treat a fainted casualty?

4. What is asthma?
5. Give four triggers for asthma
6. How would you treat an asthmatic?

SKIN - BURNS & SCALDS

Objectives: At the end of this lesson the participants will be able to:

1. Define superficial, partial thickness and full thickness (first-second and third-degree) burns.
2. Label an adult's and a child's body in terms of the ("Rule of Nines").
3. Differentiate different types of burn & their causes.
4. Treat burns and scalds
5. Label a simple skin diagram.
6. State or list the purposes of the skin

SKIN:

This is one of the largest organs of the body; the skin is made up of two layers of tissue.

Layer 1 - The outer epidermis, Layer 2 - The inner dermis

Other layer - Subcutaneous fat

Purpose:

1. Regulate body temperature
2. Act as an insulator

Types Of Burns And Their Causes:

1. *Dry burn*: - 1. flames 2. friction 3. rope burn 4. contact with hot objects etc..
2. *Scalds*: - 1. steam 2. hot liquids such as tea and coffee or 3. hot fat
3. *Electrical burn*: - 1. contact with high voltage 2. lightning strikes
4. *Cold injuries*: - 1. frostbite 2. contact with freezing metals 3. contact with freezing vapours, such as liquid oxygen or liquid nitrogen
5. *Chemical burn*: - chemical of corrosive type
6. *Radiation burn*: - 1. sunburn 2. over-exposure to ultra violet ray 3. exposure to radiation source, such as an x-ray.

Extent of burns: the extent of a burn area is determined by grading various sections of the body by percentage.

Adult:

- Head - 9%
- Trunk front - 18%
- Trunk back - 18%
- Legs - each 18%
- Hand s- each 9%
- Genital - 1%

Others:

- Head - 18%
- Trunk front - 18%
- Trunk back - 18%
- Hands - each 9%
- Legs - each 13.5%

Treatment:

Your aims are:

- to stop the burning
- to relieve pain and swelling
- to minimize the risk of infection
- arrange for removal to medical facility

1. Follow local (BSI) protocol
2. Move the patient away from the source

3. Gently remove any jewellery, watch, belts, or constricting clothing from the injured area before it begins to swell.
4. Cover the area with a sterile dressing, or any clean, non-fluffy material, and bandage loosely in place. A plastic bag makes a good temporary covering.
5. While cooling the burn, watch for signs of difficulty in breathing, and be ready to resuscitate if necessary.
6. Gather and record details of the casualty's injuries and the circumstances surrounding the incident.
7. While waiting for help reassure the patient and monitor vital signs.

Electrical Burns:

Burns may occur when electricity passes through the body. Much of the visible damage occurs at the points of entry and exit of the current.

Other Form Of Current:

Burns may be caused by a lightning strike or by low or high-voltage current. An electric shock can cause cardiac arrest. If the casualty is unconscious, your immediate priority, once you are sure it is safe, is the ABC of resuscitation.

Treatment

Your aims are:

- To treat the burns and shock.
 - To arrange removal of the casualty to hospital
1. Make sure that contact with the electrical source is broken (knowledge of electricity will assist)
 2. Flood the sites of injury with plenty of cold water to cool the burns and cut away any burned clothing if necessary.
 3. Place a sterile dressing, a clean, folded triangular bandage, or some other clean, non-fluffy material over the burns to protect them against any airborne infection.
 4. Reassure the casualty and treat for shock and arrange for disposal.

Chemical Burns:

Certain chemicals may irritate, harm, or be absorbed through the skin, causing widespread and sometimes fatal damage.

Treatment

Your aims are:

- to disperse the harmful chemical
 - arrange transport to hospital
 - to make the area safe and inform the relevant authority
1. First make sure that the area is safe. Ventilate the area and if possible, seal the chemical container. Remove the casualty from the area if necessary. Ensure that breathing apparatus precautions.
 2. Flood the affected area with water to disperse the chemical and to stop the burning. Do this for at least 20 minutes. (knowledge of chemistry will assist)

3. Gently remove any contaminated clothing while flooding the injury.
4. Take or send the casualty to hospital; watch the airway and breathing closely. Note and pass on any details about the chemical to medical personnel.

Chemical Burns To The Eye

Your aims are:

- to disperse the harmful chemical
- to arrange removal to hospital

Treatment

- Hold the affected eye under gently running cold water for at least 20 minutes.
- Ask the casualty to hold a sterile eye pad or a pad of clean, non-fluffy material over the injured eye, if situation demands, bandage the pad loosely in position.
- Take or send the casualty to hospital. Identify the chemical if possible.

FROSTBITE

This condition usually occurs in freezing and often dry and windy conditions. Those who cannot move are more vulnerable. The tissues of the extremities freeze - in severe case this can lead to permanent loss of sensation and, eventually, gangrene (permanent cell death).

Treatment:

Your aims are:

- To warm the affected area slowly, to prevent further damage.
 - To obtain medical aid if necessary.
- a. Very gently remove gloves, rings, and any other constrictions such as boots. Warm the affected part with your hands, in your lap, or in the casualty's armpit. Avoid rubbing because it can damage skin and tissues.
 - b. Move the casualty into warmth before you thaw the affected part; carry her if possible when the feet are affected.
 - c. Place the affected part in warm water. Dry carefully, and apply a light dressing of fluffed-up, dry gauze bandage.
 - d. Raise and support the limb to reduce swelling. An adult casualty may take two paracetamol tablets for intense pain. Take or send her/him to hospital, if necessary.

HYPOTHERMIA

This is a condition that results from exposure to very temperatures that falls below (35°C (95°F)). Moderate hypothermia can usually be completely reversed. However, deep hypothermia with core temperature below 26°C / 79°F is often, though not always fatal; it is always worth persisting with resuscitation until a doctor arrives to assess the condition.

How Hypothermia Can Be Caused

Hypothermia may develop over several days in poorly heated houses.

Who are affected:

- Infants
- Homeless people
- Elderly people
- Persons who lack agility skill
- Chronic illness
- The fatigue

NB: Death from immersion in cold water may be caused by hypothermia, not drowning. When surrounded by cold water, the body cools **30 times faster** than in dry air, leading to a dangerously rapid lowering of body temperature.

Recognition:

- Shivering and cold, pale, dry skin
- Apathy, disorientation, or occasionally belligerence
- Lethargy or failing consciousness
- Slow and shallow breathing
- A slow and weakening pulse
- In extreme cases, cardiac arrest

Treatment:

Your aims are:

- to prevent the casualty losing more body heat
- to rewarm the casualty
- to obtain medical aid

For A Casualty Indoors:

1. For a casualty brought in from outside, quickly replace any wet clothing with warm, dry garments.
2. The casualty can be rewarmed by bathing if he/she is young, fit and able to climb into the bath unaided. The water should be warm (40°C / 104°F).

3. Put the casualty in a bed and ensure that he/she is well covered. Give him/her warm drinks, soup, or high-energy food such as chocolate.
4. It is important that you call a doctor if you have any doubts about the casualty's condition, or if the casualty is elderly or an infant.

Do not:

1. allow an elderly casualty to have a bath.
2. place heat sources, such as hot-water bottles or fires, next to the casualty.
3. give the casualty any alcohol.

For Casualty Outdoors:

1. Insulate the casualty with extra clothing or blankets, and cover his head.
2. Take or carry the casualty to a sheltered place as quickly as possible
3. Protect the casualty from the ground and the elements. Put him in a dry sleep bag; cover him in a plastic or foil survival bag.
4. Send for help; in an ideal situation. Two people should go. However, it is important that you do not leave the casualty alone; someone must remain with him at all times.
5. Give a conscious casualty warm drinks if available.

GAINING ACCESS TO PATIENT(S)

Objectives:

1. State what factors you need to evaluate at the scene of a motor vehicle accident.
2. Describe several ways in which you can make a motor vehicle accident scene safe so that you can gain access to the patients.
3. List the four major ways to gain access to patients who are in a closed, upright vehicle.
4. Describe how you might stabilize a vehicle that is on its side.
5. State how you would gain access to patients who are in a stabilized vehicle that is on its side.
6. State how you would free patients pinned by parts of vehicles or jammed inside of vehicles.
7. Describe the basic ways in which to gain access to patients found in houses and buildings.
8. List the rules of safety you should follow if there is a fire at the scene.
9. State what you should do if electrical hazards or gas hazards exist at the scene.
10. State how to recognize a possible hazardous materials incident.

FIRST AIDERS SAFETY

1. Personal Considerations

- a. Your own safety
- b. Do only what you have been trained to do
- c. Use proper equipment and number of personnel required for the task
- d. Use proper warning devices
- e. Park vehicles in safe positions

2. Steps To Take At The Scene

- a. Evaluate the scene
- b. Wear proper protective gear
- c. Perform within your training for the safety of others and to prevent further accident
- d. Call dispatch for additional equipment and help as needed

Motor Vehicle Accidents

1. The Scene - responsibilities include:

- Make the scene safe.
- Evaluate the situation and call for help.
- Gain access to patients.
- Evaluate patients and provide emergency care.
- Free trapped patients
- Remove/move patients, if necessary, in order to provide care or to reach another patient in need of life-saving care.

2. Arrival

- Pull your vehicle completely off the road surface if possible, and turn on your emergency flashers. If possible, park no closer than 50 feet from the scene.
- Make sure the vehicle is in a safe location. Turn off the engine and set the parking brake.
- Set flashing lights or flares to warn others.
- Check scene for safety.
- Determine how many potential patients there may be. Alert dispatch as to personnel and equipment needed.
- Gain access, perform assessments, and provide care:

Closed Upright Vehicle

1. Stabilize the vehicle - every vehicle, every time

2. Vehicle positions - possible situations:

- Incline surface - vehicle on a slanting surface that may allow forward or backward roll. Use blocks or similar wedging objects to stabilize it.
- Slippery surface - ice, snow, or oil can cause the vehicle to slide as you gain access. Block wheels and deflate tires.
- Tilted vehicle - upright but tilted to one side or slanted sideways on a hill. Do not work on downside; tie lines to frame of vehicle and secure to stable object.

- Stacked vehicle - vehicles on top of one another. Chock wheels of both; insert materials between elevated portions of vehicle and stable surface; secure vehicles with lines as necessary.

3. Gaining Access

- Opening doors - access to the patient may be made by opening one of the car doors. Often, a door may be easily unlocked.

1) First see if patient is able to unlock a door.

2) Then try various simple tools.

- Windows - if the doors are jammed or inaccessible, the best means of gaining access may be through one of the windows. First see if the patient can roll one down (window).

1. Rear and side windows are typically made of tempered glass and will shatter when struck and present the quickest means of gaining access to a closed vehicle with jammed or inaccessible doors. The windows should be struck with a very sharp instrument (a jack handle point will do) in one of the lower corner.

2. The front windshield may be removed by removing the molding from around the glass with a screwdriver and lifting out the glass after the seal has been cut. In some newer model vehicles (1970s and up), windshields are set in mastic and a special knife is required to cut through the glue. If there is chrome attached to the glass, mastic has been used, the chrome plus rubber plus glass, the chrome can be peeled off from the top and the windshield lifted out.

3 Steps:

- Stabilize vehicle; try door access first.
- Protect yourself with appropriate equipment.
- Select a window away from the patient.
- Gain access through window; attempt to open door from inside.
- Turn off ignition, put in park, set brake.

4. Cutting:

- Any sharp tool and a hammer can be used to cut car metal.
- The roof of a car is probably the easiest place to cut. Roll bars in roof may hamper access.
- Cutting metal, although possible, is time consuming with simple tools. If the rescuer cannot gain immediate access through windows or doors, he should summon the fire department, rescue crew, or other service that has the necessary equipment.

5. Overturned Closed Vehicle:

- General rule - the vehicle should be left in the position in which it is found; that is, upside down or on its side. Righting the vehicle could cause additional injuries to the patient.

