FTA

Medical Laboratory
NTQF Level III

Learning guide #14

Unit of Competence:- Providing First Aid and Emergency Response
Module Title: Providing First Aid and Emergency Response
LG Code:-**HLT MLT3 M02 LO2-LG9**
TTLM Code:**- HLT MLT3** TTLM 0919 v1

LO 2: **Provide first aid service**

Instruction Sheet	Learning Guide #14

This learning guide is developed to provide you the necessary information regarding the following **content coverage and topics** –

Identify and respond to infection risks

First aid services

- Communication style in case of emergency
- Using of available resources
- Basic ABC rules and procedures
- Responding causality according to CRC
- First aid procedures
- Obtaining consent in emergency management
- First aid principles and procedures
  - ✓ Respiratory emergencies and artificial respiration
    - ➢ Artificial respiration and management of respiratory accident
  - ✓ Wound care
  - ✓ Bites (Insect, Dog, Snake, Human and Animal)
  - ✓ Dressing of bleeding
  - ✓ Specific injuries
    - ➢ Eye injuries
    - ➢ Head injuries
    - ➢ Scalp injuries
    - ➢ Brain injuries
    - ➢ Face and jaw injuries
    - ➢ Nose injuries
    - ➢ Neck injuries
    - ➢ Open wound of the abdomen
  - ✓ Shock
  - ✓ Bone and joint injuries
    - ➢ Fractures
    - ➢ Specific fractures
    - ➢ Dislocations
    - ➢ Sprain
    - ➢ Strain
  - ✓ Poisoning
  - ✓ Burns
  - ✓ Sudden illness and unconsciousness

- Heart attack
- Stroke
- Fainting
- Convulsion
- Epilepsy

- Operating first aid equipments
- Implementing care according to the organization procedure
- Manual handling techniques
  - ✓ Monitoring and responding of causality
  - ✓ Finalizing causality management

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you **will be able to** –

- Communication style to match the casualty's level of consciousness is adopted
- Available *resources and equipment* are used to make the casualty as comfortable as possible
- Basic ABC rules of life are applied.
- The casualty is responded to in a culturally aware, sensitive and respectful manner
- Relevant first aid procedures are determined and explained to provide comfort
- Consent is sought from casualty prior to applying first aid management
- First aid management is provided in accordance with *established first aid principles and procedures*
- Clinical first aid equipment are correctly operated as required for client management according to manufacturer/supplier's instructions and procedures
- Client care techniques are implemented in accordance with procedures and techniques applicable to health post
- Safe monitoring and responding of causality annual handling techniques are used consistently
- *Casualty's condition* is monitored and responded in accordance with established first aid principles and procedures
- Casualty management is finalized according to casualty's needs and first aid principles

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 16.
3. Read the information written in the "Information Sheets 1". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-check 1" in page 8.

5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Read the information written in the “Information Sheet 2”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
9. Accomplish the “Self-check 2” in page 16.
10. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 2).
11. Read the information written in the “Information Sheets 7”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
12. Accomplish the “Self-check 3” in page 19.
13. Ask your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 3).
14. If you earned a satisfactory evaluation proceed to “Operation Sheet 1” in page 21; However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 3.
15. Read the “Operation Sheet 1 and try to understand the procedures discussed.
16. Do the “LAP test” in page 22 (if you are ready). Request your trainer to evaluate your performance and outputs. Your trainer will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your trainer shall advice you on additional work. But if satisfactory you can proceed to Learning Guide #2.

Information Sheet-1	First aid services

1. First aid services

1.1. Communication style in case of emergency

The role of first aider depends on gaining and honoring the trust of casualties. Maintaining trust requires attentiveness to body language, quality of listening and finding culturally appropriate ways of communicating that are courteous and clear. It may sometimes be necessary to communicate through verbal and non-verbal communication and you may need to identify issues that may cause conflict or misunderstanding. The first aider also needs to maintain respect for privacy and dignity and pay careful attention to client consent and confidentiality.

Relevant communication media and equipment to conveyed emergency services/relieving personnel.

Communication media and equipment may include:

- mobile phone
- UHF/VHF radio
- flags
- flares
- two-way radio
- email
- electronic equipment

Reports

While waiting for help and if time permits, male a brief written report to accompany the casualty to hospital. This will reduce time spent at the scene for ambulance crew and further assist medical with initial patient management. A report can be written on a space piece of paper and should including the following:

- Date , time, location of incident

- Casualty details-name, address
- Contact person for casualty- family member, friend
- What happened-brief description of injury or illness
- First aid action taken- what you did to help the casualty
- Other health problems- diabetes, epilepsy, asthma, etc.
- Medications/allergies
- When casualty last ate or drank
- Observations of vital signs- conscious state, pulse, breathing, skin state, pupils.

Report -keeping

A record of any first aid treatment given should be kept by the first aider and reported to managers on a regular basis to assist reviewing first aid arrangements. First aid treatment records are subject to requirements under Health Records legislation**.**

Self-Check 1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. ……the chance, high or low, that a hazard will cause harm, injury or ill health, or the likelihood, or possibility, which harm(2 point each).
   A. Risk B. Hazard C. Risk Assessment D. Risk control
2. Of the following who is/are at risk of infection (2 point each).
   A. Client
   B. Health worker
   C. Community
   D. All of the above
3. Which of the following is the way for the transmission of nosocomial infections(2 point each).
   A. Invasive procedures have the potential to introduce microorganisms.
   B. Service providers and support staff are constantly performing clinical procedures
   C. Clients receiving services may be harboring microorganisms
   D. ALL

Note: **Satisfactory rating - 16 points** **Unsatisfactory - below 16 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Answer

No	
1	A
2	D
3	D
4	

Information Sheet 2	Basic ABC rules and procedures

2. Basic ABC rules and procedures

Basic life support (BLS) is the level of medical care which is used for patients with life-threatening illnesses or injuries until the patient can be given full medical care at a hospital. BLS is generally used in the pre-hospital setting, and can be provided without medical equipment.

Many countries have guidelines on how to provide BLS which are formulated by professional medical bodies in those countries. The guidelines outline algorithms for the management of a number of conditions, such as cardiac arrest, choking and drowning. BLS generally does not include the use of drugs or invasive skills. Basic life support consists of a number of life-saving techniques focused on "***ABC***"s of pre-hospital emergency care:

- ***Airway***: the protection and maintenance of a clear passageway for gases (principally oxygen and carbon dioxide) to pass between the lungs and the atmosphere.
- **Breathing:** inflation and deflation of the lungs (respiration) via the airway
- **Circulation**: providing an adequate blood supply to tissue, especially critical organs, so as to deliver oxygen to all cells and remove metabolic waste, via the perfusion of blood throughout the body.

2.3.1. Respiratory Emergencies

- **Definition:** A respiratory emergency is one in which normal breathing stops or

in which breathing is so reduced that oxygen in take is insufficient to support life.

Artificial respiration: is a procedure for using air to flow in toand out of person lungs when natural breathing is inadequate or stops

Figure: 1 Mouth to mouth respiration for adult casualty

Cardiopulmonary Resuscitation (CPR) is an emergency procedure that is used on casualties who are unconscious and not breathing. CPR involves chest compressions (pressing down on the chest) and artificial respiration (rescue breathing / mouth to mouth). It has the power to restore blood flow and oxygen to someone suffering cardiac arrest

2.3.2. Common causes of respiratory failure (problems)

- Obstruction of the air way by tongue is dropping back
- Inhalation of a small amount of food, smoke, irritation, foreign objects, carbon monoxide, etc.
- Compression of the neck Respiratory disease
- Drowning
- Strangulation and combustible gases

2.3.3. Signs and symptoms

- Un able to breath
- Loss of consciousness
- General pallor (paleness)
- Difficulty in breathing and may be no visible breathing

2.3.4. First Aid management of Respiratory problem procedure

- Shout for help (depend on the condition)
- Determine the consciousness of the causality by taping the victim on the shoulder and asking loudly “Are you oky!”
- Assess and ensure that patient air way is clear
- Place the patient flat on his back with the head turned to one side
- Remove any thing which is preventing the taking in of air (Remove constraints from the neck)
- Kneel beside the patient’s head place one hand
- Under his neck and the other hand under his lower jaw extend his head and neck gently back ward, this prevents the tongue from falling back in to the throat.

- Place your cheek and ear close to the victim’s mouth and Nose
- Look at the victim’s chest to see if it rises, falls, and listen and fell for air to be exhaled for about 5 seconds.
- If there is no breathing pinch the victim’s nostrils shut with thumb and index finger of your hand that is pressing on the victim’s forehead. This action prevents leakage of air when the lungs are inflated through the mouth.
- Take very deep breath and hold it.
- Fit your mouth tightly over the patients open mouth and forcibly in to the lungs
- While carrying out respiration, check the patient’s pulse every 2 or 3 minutes to ensure the heart has not stopped.
- Continue the breathing procedure at the rate 12 to 18 breaths per minute until the chest is seen to rise and the patient is breathing for himself or until is certain his is dead.
- Once the patient can breathe by himself/her self-place him/her in what is called the recovery position

Fig 2: External cardiac compression

For children, enough pressure is obtained by using the heel of only one hand. **For babies**, use only two fingers. When the casualty starts to breath by himself, put him in a recovery position.

External cardiac compression for an infant

Fig 2 External cardiac compression for an infant

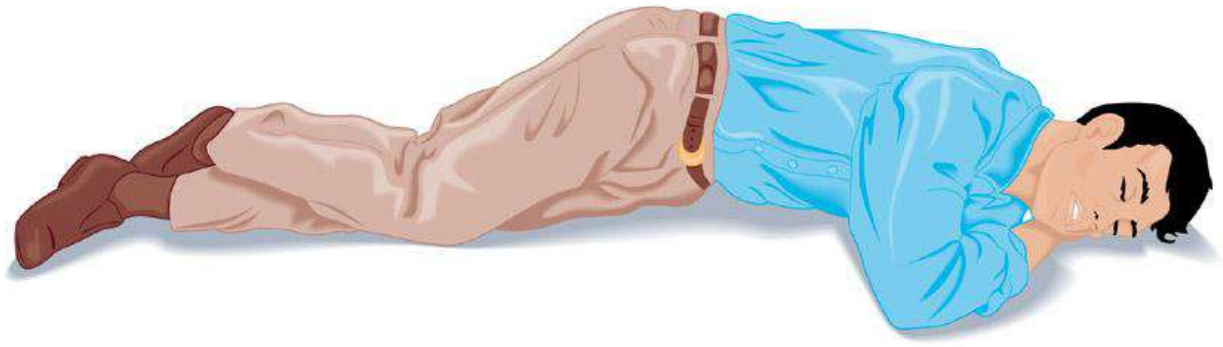

Fig 3 Recovery position

2.4. First aid for wounds

2.4.1. Open wounds:

The skin is cracked open, leaving the underlying tissue exposed to the outside environment, which makes it more vulnerable to bleeding and infections.

2.4.2. Open wounds

Can be classified according to the object that caused the wound. The types of open wounds are:

Types of open wound	Characteristics
Incisions	caused by a clean, sharp-edged object such as a knife, or glass splinter
Lacerations	irregular tear-like wounds caused by some blunt trauma
Abrasions	superficial wounds in which the topmost layer of the skin (the epidermis) is scraped off
Avulsions:	Injuries in which a body structure is forcibly detached from its normal point of insertion.
Puncture wounds	Caused by an object puncturing the skin, such as a splinter, nail or needle.
Penetrating wounds	Caused by an object such as a knife entering and coming out from the skin.

Bites:

- Injuries produced by animal or human bites may cause punctures, laceration or avulsion.
- A. Human bite – The mouth is heavily contaminated
  - Clean the wound with clean H20 and cover it with clean cover
- B. Dog bite – Keep the animal under observation
  - Clean the wound with clean water & soap and clean cover
- C. Snake bites – Lay the casualty down
  - Immobilize the affected part

- Keep it below the level of the heart
- Wash the wound with clean H2o
- Take to hospital

2.4. Stop the bleeding

Put a clean cloth or bandage on the wound, and then press gently on it to apply pressure. It may take 20 to 30 minutes to stop it bleeding. Keep the pressure on the whole time, and don't take it off to check what's happening. Keep the area of the wound raised, if it is possible.

Clean the wound:

This reduces the chance of the wound becoming infected.

- Rinse out the wound with clear water.
- If dirt or debris remains in the wound after washing, use tweezers cleaned with alcohol to remove the particles.

- To clean the area around the wound, use soap and a washcloth
- There's no need to use hydrogen peroxide, iodine or an iodine-containing cleanser.

2.5.2. *Cover the wound:* with a sterile, non-stick dressing

- Cover the wound with a clean dressing and bandage.
- Dressings and bandages can help keep the wound clean and keep harmful bacteria out. A dressing:

✓ done bysterile pad or compress (usually made of gauze or cotton wrapped in gauze)

✓ Should be large enough to totally cover the wound, with a safety margin of about 2.5 cm on all sides beyond the wound.

✓ A bandage is used to secure a dressing in place and to apply pressure to bleeding wounds.

2.5.3. **Closed wounds**:

The skin is intact and the underlying tissue is not directly exposed to the outside world. Even with the skin intact, the damage can reach down to the underlying muscle, internal organs and bones.

The types of **closed wounds** are:

2.5.4. ***Contusions****:*

More commonly known as bruises, caused by a blunt force trauma that damage tissue under the skin.

2.5.5. ***Hematomas****:*

Also called a blood tumor, caused by damage to a blood vessel that in turn causes blood to collect under the skin.

2.5.6. ***Crush injury*****:**

Is an injury that occurs because of pressure from a heavy object onto a body part or from squeezing of a body part between two objects.

2.7. Measures need to be taken in giving first aid to a victim of a closed wound:

2.7.1. Application of direct pressure

Preferably with ice wrapped in a cloth, for several minutes, in order to arrest the bleeding as well as to reduce the swelling.

2.7.2. Elevation of the affected region

Will also support in reducing the pressure as well as the re-absorption process and it should be practiced as and when appropriate

Eye Injuries

Foreign objects are often blown or rubbed in to the eyes causing irritating and scratching the surface of the eye.

Signs and symptoms include

- Redness of the eye
- Burning sensation
- Pain, headache
- Over production of tears
- Swelling and wound
- Presence of foreign body

Precautions

- Keep the victim from rubbing his eye
- Wash your hands thoroughly before examining the victim's eye.
- Do not attempt to remove a foreign object by inserting a match stick tooth pick, or any other instrument
- Refer the victim if something is embedded in the eye; or if something is thought to be embedded but cannot be located.

3.6.3 Injury of the eye lid

- Stop hemorrhage by gently applying direct pressure
- Clean the wound and apply a sterile or clean dressing seek medical help without delay
- Bruises above and below the eye should be treated by immediate cold application to lessen bleeding and swelling

3.6.4 Blunt injury of the eye:

- A contusion occurs from direct blow, such as fist, a vehicle accident or explosions that results in black eye. A dry sterile or clean dressing should be applied and the victim should be, transported lying flat and refer.
- Removal of foreign body from the surface of the eye ball
- Pull down the lower lid to determine the object lies on the inner surface

- Lift it gently with the corner of clean handkerchief or tissue paper
- Flash the eye with water
- Apply dry dressing and send to hospital if the object is not removed

3.6.5 Penetrating injuries of the eye:

- Can cause blindness
- Don't try to remove the objects or to wash the eye
- Cover the eyes with a sterile or clean dressing to avoid movements of the affected eye
- Keep and transport the victim by stretcher

3.Head injury:

- Do not try to clean scalp wound
- Control /Check bleeding
- Place sterile dressing
- Apply bandage to secure dressing

Bleeding from the nose, ear canal or mouth is indicator of **intracranial bleeding** or **skull fracture**. The primary measure for head injury is immediate referral.

- Sit with the head well for ward
- Loosen any fight clothing around the neck & chest
- Advise to breathe through the mouth & to pinch the nose
- Tell the causality to spit out any blood in the mouth
- Release the pressure after 10 minutes
- Do not let the causality raise the head
- Advise not to blow the nose (avoid exertion)
- If after 30 minutes the bleeding persists seek medical care.

Bleeding from the Nose (Epistaxis)

Epitasis or nose bleeding is a common emergency problem. The blood you see may be only a small part of the total blood that may pass down through the throat in to the stomach as the patient swallows. Then patient may become nauseated and start vomiting. Possible causes of

bleeding from the nose are facial injuries, sinusitis, infections, dried or cracked nasal mucosa, or other abnormalities such as high blood pressure

Most non traumatic nasal bleeding may occur from sites in the septum and this type of bleeding can be effectively handled by pinching the nostrils together

1. Have patient sit and lean forward with head tilted forward.
2. Apply direct pressure for at least 15 minutes by pinching nostrils together.
3. Keep the patient calm and quiet.
4. Apply ice over the nose.
5. Maintain pressure until bleeding is controlled.
6. Provide transport.

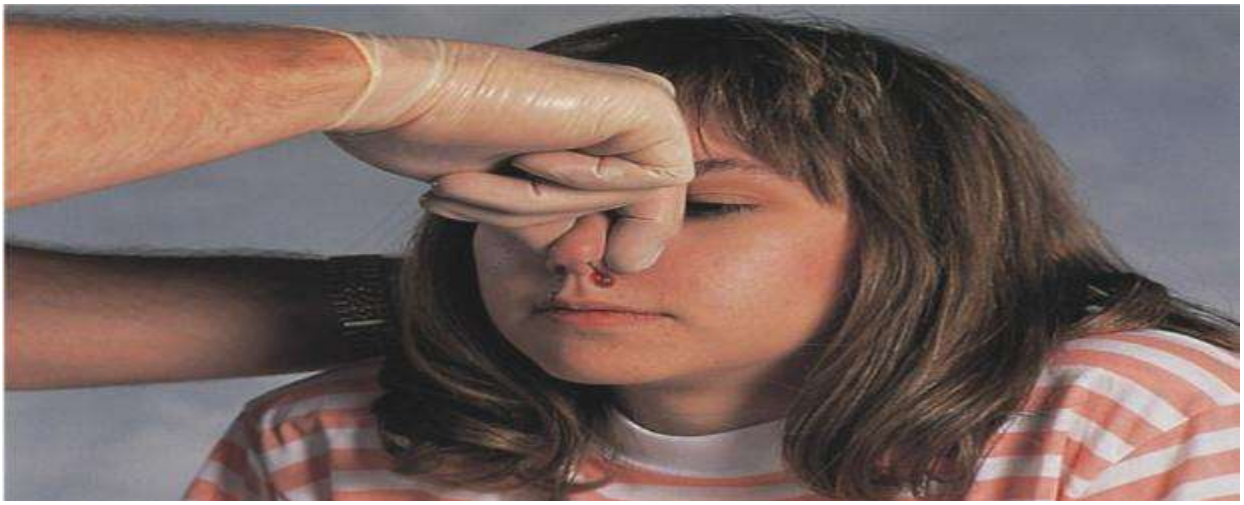

Fig 8: Pinching of the nostril

Abdominal wound:

- Control bleeding
- Place in a half sitting position with the knee bent up
- Apply dressing & secure with bandage and Keep NPO
- Remove to hospital immediately

If part of the intestine is protruded through the wound (eviscerated wound):

- Control bleeding

- Cover with a damp sterile dressing or clean cloth and secured with a loose bandage
- Support the wound while coughing or vomiting
- Take to hospital immediately

Shock:

The condition in which the body fails to circulate oxygen-rich blood to all the parts of the body is known as shock. Shock may result from trauma, blood loss, an allergic reaction, severe infection, poisoning, severe burns or other causes. If left untreated, shock can lead to death. Always look for the signals of shock whenever you are giving care.

3.12.1 Sign and symptom of shock:

- Pale or bluish skin /Mucus membrane
- Cold extremities to touch
- Moist and clammy skin
- Rapid and weak pulse
- Rapid and shallow breathing /especially in abdomen & chest injuries)
- Low B/P and may be unresponsive

3.12.2 First aid management of shock

- Body positioning /lying down to improve circulation
- Keep the head lower and turned on the side
- Body positing depends on the site & type of injury
- E.g. If the injury is on the neck & spine, do not move the victim until he is
- Prepared for transport
- Loosen any tight clothing /assists breathing/
- Don't give fluid by mouth /moisten the lips/
- Call for ambulance or refer.

2.8. First aid for bone and joint injuries

Bone and Joint Injuries

- Fracture: A fracture is a break or crack in the continuity of bone

- Types of fracture

  1. **Complete fracture-** fracture involves a break across the entire cross-section of the bone and is frequently displaced (removed from normal position)

  2. **Incomplete fracture** – the break occurs through only part of the cross-section of the bone. (eg, greenstick fracture),

  3. **Comminuted fracture** is one that produces several bone fragments.

  4. **Closed fracture (simple fracture)** is one that does not cause a break in the skin.

  5. **Open fracture (compound, or complex, fracture)** is one in which the skin or mucous membrane wound extends to the fractured bone. Can be associated with infection

3.16.1 Causes of fracture: Most of the causes are motor accidents, falling accidents, pathological, recreational or sport activities

3.16.2 Signs and symptoms of fracture

- Pain, swelling, tenderness and difficulty of moving the injured part
- Abnormal movement in an area to the body
- Protrusion of the broken bone end out of the skin
- Causality may find it difficult or impossible to move the part normally.
- Crepitus or grating sensation of broken bones due to rubbing of bone fragments against each other
- Shortening of the affected extremity, protrusion, deformities and discoloration.

3.16.3 Objectives of First Aid for fracture

1. To provide all necessary first aid care
2. To keep the broken bone ends and the adjacent joints from moving
3. To give care for shock

3.16.4 First Aid Principles of fracture

- Do not move the causality unless it is absolutely necessary to avoid further injury
- Follow A- Clear air way
  B. Check for breathing
  C. Circulatory assessment (Check pulse)

- Control bleeding in open fracture
- Prevent movements of injured part and the adjacent joint.
- Elevate involved extremities if possible without disturbing the suspected fracture
- If a fragment of bone is protrude, cover the entire wound with sterile dressing
- Don't replace any bone fragment.
- Do not wash, or do not insert your fingers in to the wound.
- Apply splint (are devices applied to the arms, legs or trunk to immobilize the injured part when a fracture is suspected) and transport immediately.
- Use arm sling for arm fracture

N.B splints should be well padded, rigid, and long enough to go along side the joint above and below the fracture.

- Splints protect against further injury
- They have to be wide enough to fit the limb comfortably

3.17 Dislocation

- Is a displacement of a bone end from the joint particularly at the shoulder, elbow, fingers or thumb usually as a result of a fall or direct blow
- Unless proper care is given, a dislocation may occur repeatedly

3.17.1 Signs and symptoms of dislocation

- Swelling
- Obvious deformity
- Pain upon movement
- Tenderness to touch
- Discoloration

3.17.2 First aid measures of dislocation

- Splint and Immobilize the affected joint
- Apply a sling if possible
- Elevate the affected part if a limb is involved
- Never attempt to reduce a dislocation
- Seek medical help

N.B- Never attempt to reduce a dislocation

3.18 Sprain – is an injury to ligament, muscle or tendon in the region of the joint as a result of sudden wrenched or torn of these structures. Commonly occurs on ankle, knee, wrist and finger.

3.18.1 Signs and symptoms of sprain

- Swelling
- Tenderness
- pain up on motion
- Discoloration
- Actually, it is difficult to differentiate a sprain from a closed facture without an X - ray.
- First aid measure: - Rest and support the injured part
- Elevate the injured part
- Apply cold compress
- Support with bandage and seek medical care

3.18.2 First aid measures of sprain

- If ankle or knee is affected, advice the victim not to walk
- Raise the affected limb to prevent swelling
- Apply cold wet pad
- Splint/bandage simply
- If swelling and pain persists seek medical attention.

3.19 Strains:

- Strains are injuries to muscles resulting from over stretching
- Commonly strains occur on the back muscles due to improper lifting technique

3.19.1 First aid measures of strain

- Bed rest until there is no pain
- Application of heat, warm,
- Use of a board under the mattress for firm support

Seek medical care for severe back strains.

13 Poisoning:

It refers to any substance that if taken in to the body in sufficient quantity can cause temporary or permanent damage.

1. Causes of poisoning:

a. Deliberate intake of poisons

b. Accidental intake of poisons

2. **Types of poisons are**:

Household poisons Plant poisons

Food poisoning Drugs poisoning

Alcohol poisoning chemical poisoning

3. General Sign and symptom of poisoning:

Vary according to or depending on the nature of the poison and the method of entry into the body (through the mouth, through the lung by inhalation, by injection and by absorption through the skin).

- Presence of container near the causality known to hold the type of poison
- Delirious and may have convulsion
- Sign and symptom of asphyxia
- Signs of burn around the causality's mouth after contact with corrosive poisoning.

4. General treatment of poisoning

a. If conscious ask the causality quickly what has happened.

b. Do not attempt to induce vomiting

c. If the lips or mouth show signs of burn give water or milk to drink

d. If the causality is unconscious, but breathing normally place in the recovery position.

e. If breathing and heart beat stop begin resuscitation immediately.

f. Remove to hospital immediately.

Take care not to contaminate yourself with any poison that may be around the causality's mouth

2.10.First aid for burns

A burn is a coagulative necrosis of the surface layers of the body caused by heat.

Burns: It is an injury to body tissue caused by heat, chemicals or radiation.

3.14.1 Types of burn

- **Dry burn** – burn caused by flames, lighted cigarettes and hot electric equipment
- **Scalds** - Burns caused by wet heat such as steam, hot 0H2o, or fat produced scalds
- **Cold burn** - burn due to contact with substances such as liquid oxygen & liquid nitrogen.
- **Chemical burns** - Caused by acid or alkalis chemicals
- **Electric burn** - Eclectic current and lightning generate heat and can cause bun.
- **Radiation burn** - Sun rays and light reflected from bright surface.
- **Classification of Burn**- Classified according to the area and depth of the injury
- **Superficial burn / 1st degree burn/** - Involves only the outer layer of the skin

Sign and symptom- Redness, swelling & tenderness

Treatment - Immerse in cold H20

Remove any rings watches and coverings from the injured site

- Dress with clean dressing

Fig 9: superficial burn

Fig 10: superficial burn

Intermediate burn / 2nd degree burn/ - involves the formation of blister

Sign and symptom - Swollen & red. It can be infected

First aid measure - Lay the causality down and check ABC

- Protect the burn area form contact
- Remove any ring watch etc
- Don not removes any thing that is sticking to a burn
- Cover the area with sterile dressing
- Do not apply any ointment/ lotion

- Do not break blisters

Fig 11: Partial thickness burn

Fig 12: Partial thickness burn

Deep burn / 3rd degree burn/ -Involves all layers of the skin

Sign and symptom- The skin appears pale, waxy or charred

- Relatively pain free b/s damaged nerves
- Deep burn always require medical attention

Fig 13: Full-thickness Burns

Fig 14: Full-thickness Burns

First aid measure- Lay the causality down and checks ABC

- Protect the burn area form contact
- Remove any ring watch etc
- Don not removes any thing that is sticking to a burn
- Cover the area with sterile dressing
- Do not apply any ointment/ lotion
- Do not break blisters
- Rinse irrigate chemical burn with clean water

2.1.1 Sudden illness and unconsciousness

Shock:

- It is a condition resulting from a depressed state of many vital body functions due to decreased tissue perfusion that could threaten life as a result of severe pain (Neurogenic

shock), electric burn (electric shock), massive bleeding (hemorrhagic shock), massive fluid loss (hypovolmic shock), hypersensitivity reaction (anaphylactic shock) , etc.

3.12.1 Sign and symptom of shock:

- Pale or bluish skin /Mucus membrane
- Cold extremities to touch
- Moist and clammy skin
- Rapid and weak pulse
- Rapid and shallow breathing /especially in abdomen & chest injuries)
- Low B/P and may be unresponsive

3.12.2 First aid management of shock

- Body positioning /lying down to improve circulation
- Keep the head lower and turned on the side
- Body positing depends on the site & type of injury
- E.g. If the injury is on the neck & spine, do not move the victim until he is
- Prepared for transport
- Keep the causality warm
- Loosen any tight clothing /assists breathing/
- Don't give fluid by mouth /moisten the lips/
- Call for ambulance or refer.

Self-Check 2	Written Test

***Instructions**:* Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

Part 1: Say true if the statement is correct and False if it was Wrong. Each question had 1 point

1. Artificial Respiration is a procedure for making air to flow in to and out of a person's lungs when individual's natural breathing is inadequate or ceased

   A. True B. False

2. The decision to perform mouth to mouth respiration by First Responders is a personal choice.

   A. True B. False

3. The aim of CPR is to compress the heart b/n sternum and the back bone (spine) thus literally squeezing blood out of it.

   A. True B. False

4. Application of Tourniquet is not dangerous of it should be used, use only for sever life-threatening hemorrhage that can't checked by other means

   A. True B. False

5. Bleeding from the nose, ear canal or mouth is not an indicator of **intracranial bleeding** (

   A. True B. False

6. Describe how you will do mouth to mouth respiration (2Point)
7. Mention the steps of CPR (2Point)
8. List sign and symptom of Shock (2Point)

Part II: Matching: Instruction: Match Column –A- with Column -B- (Each had 2 point)

Column A	**Column B**
9. ___ Dry burn	A. Caused by contact with substances
10.___ Scalds	B. Caused by Sun rays and light
11.___ Cold burn	C. Caused by electric heat
12.___ Chemical burns	D. Caused by acid or alkalis chemicals
13.___Electric burn	E. caused by flames, lighted cigarettes
14.___ Radiation burn	F. caused by wet heat such as steam

Note: **Satisfactory rating - 14 points Unsatisfactory - below 14 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____

2_____

3_____

4_____

5_____

6. _____

_____

_____

_____

7_____

_____

_____

8_____

_____

_____

9. _____

10. _____

11_____

12. _____

13._____

14. _____

Information Sheet 2	Operating first aid equipments

Operating first aid equipments

1.6. First aid equipment and resources

1.7.1. First Aid Rooms/Areas

A first aid room should be established at the workplace if a risk assessment indicates that it would be difficult to administer appropriate first aid unless a first aid room is provided. If a risk assessment

determines that a first aid room is not needed, a rest area within the workplace may be suitable to assist an injured or ill person.

The contents of a first aid room should suit the first aid needs of the workplace. The location and size of the room should allow easy access to emergency services as well as movement of injured people who need to be supported or moved by stretcher or wheelchair.

Eye washes and shower facilities permanently fixed eye wash and shower facilities should be provided in any fixed workplace where there is a risk of serious burns to the eyes or a large area of the face or body.

Emergency Medication workplaces are to establish processes for the management of emergency medication based on their risk assessment and the disclosure of staff and student information example, Adrenaline is required in the event of a first time presentation of anaphylaxis of a previously undiagnosed individual student, staff or visitor.

1.7.2. Equipment

First-aid equipment must be adequate, should reflect the kinds of injuries that occur, and must be stored in an area where they are readily available for emergency access. It is

advisable for the employer to give a specific person the responsibility for choosing the types and amounts of and for maintaining these supplies. Employers must provide and maintain a first aid station in the workplace. A specific example of the minimal contents of a workplace first aid includes:

- oxygen resuscitation/cylinders
- AED
- Thermometers
- auto-injectors
- back boards
- stretchers
- soft bag resuscitator
- first aid kit
- casualty's medication
- analgesic inhalers
- analgesic gas equipment
- resuscitation mask or barrier
- spacer device
- cervical collars
- Personal Protective Equipment
- Relevant texts and documentation,
- first aid principles, policies and procedures
- relevant occupational Health and Safety Act and Regulations
- first aid code of practice/compliance codes
- workplace records and blanks

Communication systems and
equipment

1.7.2. First-aid kits

Everyone should have a well-stocked first aid kit at work place. For first aid kits in the workplace, there will be legislation which specifies what must be present; this will depend on the size and type of the workplace.

First aid kits should be

- portable and be made of material that will protect the contents from dust, moisture and contamination
- clearly marked in the workplace,
- sufficient indication of the kit's location for those who are unfamiliar

- Kept well-stocked; supplies do expire, and must be replaced periodically.
- Checked regularly for that the kit is stocked, and
- Replaced for any expired items as required,
- available at every warehouse and
- Inspected regularly for proper storage and distribution

The number of boxes required should be determined by the employer, taking the following into account:

- The type of injuries that are likely to occur at a workplace
- The nature of the activities performed and
- The number of employees employed at such workplace

Contents of first aid kits should match the types of injuries and illnesses likely to occur in the workplace. Where a risk assessment shows there is a need for extra first aid kits and certain first aid requirements (e.g. first aid rooms and/or first aid personnel) these should be made available. The minimum contents of a first aid box are:

1) Wound cleaner / antiseptic (100ml)
2) Swabs for cleaning wounds
3) Cotton wool for padding (100g)
4) Sterile gauze (minimum quantity 10)
5) 1 pair of forceps (for splinters)

6) 1 pair of scissors (minimum size 100mm)
7) 1 set of safety pins
8) 4 triangular bandages
9) 4 roller bandages (75mm x 5m)
10) 4 roller bandages (100mm x 5m)
11) 1 roll of elastic adhesive (25mm x 3m)
12) 1 Non-allergenic adhesive strip (25mm x 3m)
13) 1 Packet of adhesive dressing strips (minimum quantity 10 assorted sizes)
14) 4 First aid dressing (75mm x 100mm)
15) 4 First aid dressings (150mm x 200mm)
16) 2 Straight splints
17) 2 Pairs large and 2 pairs medium disposable latex gloves

- 18) 2 CPR mouth pieces or similar devices

N.B. Anything used in the first aid box is replaced immediately. Inspect the box regularly to make sure that the box haven't run out of anything , that nothing has gone past the expiry date and that the box always has the minimum contents in the list above.

There should also be formal first aid register kept close to the first aid box, so that first aider can make a note of incidents where first aid had to be provided. List of the certified first aider(s) could also be kept in or near the first aid box.

Having the correct first aid and emergency procedures are not only, but also it can save lives and prevent minor injuries from becoming worse.

1.7.3. Design of Kits

First aid kits can be any size, shape or type to suit your workplace, but each kit should be large enough to contain all the necessary items. Kits should also contain a list of the contents for that kit and have a white cross on green background that is prominently displayed on the outside. First aid kits should also be portable and be made of material that will protect the contents from dust, moisture and contamination.

1.7.4. Maintenance of first Aid kit

People with responsibility for administering first aid (first aiders) should:

- monitor access to first aid kits ensuring any items used are replaced as soon as possible after use undertake regular checks of first aid kits to ensure the kit contains a clean and complete set of the required items

ensure items are in good working order, have not deteriorated and are within their expiry dates

report any hazardous situations that have resulted in a person requiring first aid, and record first aid treatments

1.7.5. Automated External Defibrillators

Automated external defibrillators (AEDs) are now widely available, safe, effective, portable, and easy to use. They provide the critical and necessary treatment for sudden cardiac arrest caused by ventricular fibrillation, the uncoordinated beating of the heart leading to collapse and death. Using AEDs as soon as possible after sudden cardiac arrest, within 3-4 minutes, can lead to a 60% survival rate. CPR is of value because it supports the circulation and ventilation of the victim until an electric shock delivered by an AED can restore the fibrillating heart to normal.

All worksites are potential candidates for AED programs because of the possibility of sudden cardiac arrest and the need for timely defibrillation. Each workplace should assess its own requirements for an AED program as part of its first-aid response.

1.7.6. First-Aid Courses/scope

First-aid courses should be individualized to the needs of the workplace. Some of the noted program elements may be optional for a particular plant or facility. On the other hand, unique conditions at a specific worksite may necessitate the addition of customized elements to a first- aid training program.

1.7.7. Trained Personnel

Employers must ensure that first aid is provided by trained and knowledgeable workers. Emergency-level first aid training. Standard-level first aid training is a more extensive program that generally includes:

- Emergency Scene Management
- Shock, Unconsciousness, and Fainting
- Choking
- Severe Bleeding
- One Rescuer CPR

- Fractures
- Head and Spinal Injuries
- Joint, Chest Hand Eye Injuries
- Pelvic, abdominal, and crush injuries
- Burns
- Poisoning
- Medical conditions (diabetes, epilepsy, convulsions, and allergies)
- Environmental illnesses and injuries (exposure to heat or cold)

Self-Check 3	Written Test

Instructions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

1) List Contents of First Aid Kit.
2) What is the use of AED?
3) Discuss First aid Room.
4) First aid training is appropriate for whom?

Note: **Satisfactory rating - 09 points** **Unsatisfactory - below 09 points**
You can ask you teacher for the copy of the correct answers.

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. _____

_____

_____

_____

Information Sheet 8	Manual handling techniques

8. Manual handling techniques

. INTRODUCTION

1.1 MANUAL HANDLING

Manual handling is defined as: “any activity requiring a person to lift, lower, push, pull, carry, throw, move, restrain, hold or otherwise handle any animate, or inanimate, objects.

This includes a wide range of activities.

Manual handling is an integral part of a personal career's role. Some of the tasks that involve manual handling include:

Your role as a personal career

Your job description and written job routine for each client set out your specific duties and how they should be done to ensure the health and safety of both you and your client.

Your job description will set out what tasks should and should not be undertaken. Generally, your role as a personal career should not include any heavy lifting, any activity that involves climbing over one meter high, or activities that should be done by a person with specialized training. These activities could include administering injections or changing dressings where there is a risk of infection or injury to both you and the client.

A service plan is generally prepared after a thorough assessment of the client's needs and their home environment. It might specify, for example, that a particular transfer be performed by two people rather than one. This could be because a personal career has not had enough training to do the task unassisted, the correct equipment for a one person transfer is not available, or the client is prone to spasm during transfers and precautions need to be taken.

These restrictions are not intended to intrude on a client's right to direct their own care or manage their household. They are designed to comply with the legal requirements that exist to keep both of you safe and free of injury. The impact of even a minor accident on someone with a high level spinal cord injury could lead to a medical emergency and severely affect their future quality of life. Similarly, the impact of an injury you incur on the job can affect both your ability to work and your leisure activities and relationships

Domestic tasks

Your employer has a responsibility to minimize the risk of potential injury from manual handling so that you can continue to work and enjoy your family and social activities. Employers are obliged to identify manual handling risks and minimize them by redesigning the task, providing appropriate equipment, and providing information and training. As an employee you are responsible for following procedures, using any safety equipment provided and reporting any manual handling risks immediately.

Looking after yourself while working as a personal career means taking a risk management approach to manual handling. You need to assess the risk involved in each task and minimize that risk by using your knowledge to complete the task as safely as possible

1.2MANUAL HANDLING RIGHTS AND RESPONSIBILITIES

Occupational health and safety (OH&S) is a two-way street – both employers and employees have certain rights and responsibilities under the law. As a personal carer, you have the right to a safe workplace – but that comes with a responsibility to identify and report hazards that exist in your client's home. The service provider then has a responsibility to ensure any hazard is eliminated or minimized.

EMPLOYER RESPONSIBILITIES

Employers must ensure the health and welfare of all their employees by providing:

- A safe workplace environment free of risks to health, with safe entrances and exits
- Safe work systems and procedures
- Procedures for safe handling, storage and maintenance of equipment and chemicals

□□Information, instruction, training and supervision for all employees
□□A process for consulting with employees, involving them in decisions and informing them of decisions that may affect their health and safety
□□Processes for identifying hazards, assessing risks, and eliminating or controlling risks
□□Processes for regular review of risk control measures
□□Personal protective equipment where necessary
□□Amenities including toilets and eating areas in a safe and hygienic condition
□□Emergency procedures and first aid facilities.
Employers must also ensure that people other than employees who are on the worksite are not

Exposed to risks to their health and safety arising from the employer's work systems or Environments.

Employee responsibilities

Each employee is responsible for:

□□Taking reasonable care of the health and safety of others in the workplace

□□Cooperating with employers in their efforts to comply with OH&S requirements such as following procedures and participating in hazard identification and reporting

□□Using equipment properly in order to provide for the health and safety of other people in the workplace

□□Not obstructing attempts to reduce risks or provide aid to injured workers, and not disrupting a workplace by creating health or safety fears

□□Not refusing a reasonable request for assistance to prevent a risk to safety or health

1.2.2Client responsibilities

Your client also has OH&S responsibilities because their home is your workplace.

Clients are responsible for:

- Maintaining their home in a reasonable condition so it does not pose a health or safety risk to personal careers or other service providers
- Cooperating with service providers and personal careers in their efforts to comply with OH&S requirements
- Not directing personal careers to undertake unsafe practices during personal care routines
- Supplying or arranging the supply of any equipment, including personal protective equipment that is their responsibility under the terms of their service agreement
- Not obstructing the efforts of the service provider or personal cares to reduce risks or provide care to not obstructing the efforts of the service provider or personal cares to reduce risks or provide care to injured workers

- Not refusing a reasonable request for assistance to prevent a risk to the health or safety of personal cares, other health professionals in their home, or themselves
- Respecting the right of a personal care to refuse to perform a task that poses a risk to the health or safety of either party.Injured workers not refusing a reasonable request for assistance to prevent a risk to the health or safety of personal cares, other health professionals in their home, or themselves
- Respecting the right of a personal care to refuse to perform a task that poses a risk to the health or safety of either party.

This means that all clients and personal careers have a responsibility to:

Identify hazards

Address them where it's reasonable to do so

Report hazards, injuries or illnesses

Work in a safe manner.

Duty of care

The personal care service provider has a duty of care to both clients and personal careers. They are responsible for ensuring that your workplace is safe and you have the knowledge and resources to perform your duties in a safe manner.

Some strategies for doing this could include:

Providing induction and ongoing training for all personal careers

Having an occupational therapist or other qualified person assess any risks in the client's home, identify safe work practices and resolve problems

Providing or organizing personal protective equipment or manual handling equipment such as hoists etc

Having policies that clearly set out the rights and responsibilities of each party, such as a no lift policy and a smoke free workplace policy

- Having procedures in place to identify safe methods of working and how to deal with a potential hazard or actual injury or illness

1.3MANUAL HANDLING CODES OF PRACTICE

This Code explains how the Health and Safety in Employment (HSE) Act 1992 applies to manualhandling tasks. It describes one way of meeting the requirements of the Act with respect tomanual handling. It follows the logical sequence of identify, assess and control to prevent manualhandling causing harm to employees.

The Code is a statement of preferred practice but also provides practical guidance on the control

of manual handling tasks. Although the Code represents current preferredpractice, employers do not have to follow the suggestions given in it. If they choose, they may use other methods to meet therequirements of the HSE Act. The methods chosen must be at least as effective as the ones in the Code.

The Code is for use by employers, managers, health and safety advisers, health and safetyRepresentatives, consultants and designers. It encourages employers and employees to adopt aCo-operative approach to prevent harm from manual handling.

1.3.1What advantages are there to implementing this Code?

If this Code is followed by employers an overall reduction in the number and severity of serious

Back injuries and other musculoskeletal disorders may be expected. As well, it is reasonable to

Believe that:

- removing risk factors for serious back injuries from manual handling tasks may reduce the incidence, delay the onset, or reduce the severity of an episode of acute low back pain
- preventing recurrent attacks of acute low back pain will prevent more serious persistent
  conditions from developing
- controlling the hazards posed by manual handling tasks, with the intention of bringing themwithin the reach of everyone in an organization (including people with a disability or withacute low back pain) makes a lot of economic sense to employers

1.3.2The appropriate design of manual handling tasks has additional benefits

- ✓ Insight into how to optimize the efficiency and performance of the work

- ✓ reduced injury costs
- ✓ Fewer absences from work and less disruption
- ✓ increased flexibility in work arrangements
- ✓ The retention of skilled employees
- ✓ Safer work, which leads to better morale

1.3.3After using this Code you should be able to:

1. Know when to use this Code and how it fits with the legislation.
2. Use the Manual Handling Hazard Control Record to:
    a. identify aspects of manual handling tasks that may make them hazardous
    b. assess the significance of these hazards
    c. f ind control measures suitable for the tasks and devise action and evaluation plans.
3. Know where to look for further help – for example, how to manage episodes of acute low back pain experienced by employees

1.4 MANUAL HANDLING THREE STEPS PROCESS

1.4.1 Promote patient independence

Where possible, patient independence should be promoted as this will assist to facilitate patient independence, nurses should have knowledge of normal movement and body mechanics.

For example, normal healthy people when rolling over in bed move their body turn their head and push off with their leg. This translates to rolling as follows:

- Lifts the arm and place it over the body in the direction of the roll
- Bend the leg up on the same side as the arm, or bend both legs up
- Push on the knee (the handle) and shoulder in the direction of the roll

1.4.2 Assess

Patient assessment is a critical part of manual handling risk assessment and an important nursing skill. The patient assessment in the patient care plan and update it is needed. It should be used in conjunction with the risk assessment checklist when conducting risk assessments on patient-handling activities.

1.4.3 Plan

Manual handling plans should be specific to the unit, detailing available equipment options. In a unit where there is low turnover of patients and patient dependencylevels are fairly constant (such as in nursing homes and residential care centers), a manual handling plan (instructions) should be developed for each patient.

For patients undergoing rehabilitation and in acute care, the plan should be constantly reviewed as the patient improves.

A checklist for setting out patient manual handling plans lists information that should be included in the patient care plan. The checklist can also be used for detailing risk control strategies in conjunction with the risk assessment

BASIC PRINCIPLES OF SAFE MANUAL HANDLING

- Stretch before and after the activity the same as warming up and cooling down for aerobics, a workout or sport.
- Prepare the surrounding environment make sure there is adequate space, a clear path and all obstacles are removed.
- Size up the load so you know how much weight you are moving. For example have a look inside the box, or read the outside label about the contents and weight, or gently push the load with your hand or foot.
- Know your own limits. Do not try to lift, push, pull or man oeuvre what you know is too much for you. Ask for assistance, use a lifting aid or reduce the load and perform multiple lifts.
- Plan the lift. Use your mental checklist before and during the lift – ready, brace, lift.
- Face the load and position yourself in the direction that the load is to be moved to minimize turning. If you need to turn, turn with your feet not your back.
- Maintain a wide base of support, with your feet about shoulder width apart.
- Knees and hips should do the bending. Use a semi-squat position and adjust working heights where possible.
- Use your strongest muscles your thighs and bend your knees not your back.
- Brace your spine before lifting by tightening your abdominals. When tightening the abdominals, remember to maintain normal breathing patterns.
- Take a firm hold of the load.

- ❖ Keep your back straight in a neutral position and maintain the normal curves in your back.
- ❖ Do not work across the client s midline stand on the side you are working.
- ❖ Keep the weight close to your body hold the object as close to you as possible.
- ❖ Do not over reach either above shoulder height or away from your body. Instead build a bridge – put your knee on the bed to get closer to the client.
- ❖ Do not twist your body while manual handling never ever! Change direction using your legs rather than bending or twisting your spine.
- ❖ Place the load down by reversing these steps.

Avoid quick jerky movements

- ❖ □□Wear suitable footwear comfortable, firm fitting shoes with non-slip soles and no high heelsor platforms.

Remember – do's

- pushing not lifting
- back in neutral position
- hips flexed
- knees bent

-don'ts

- ❖ Lifting too much
- ❖ back over extended
- ❖ carrying item away from your body
- ❖ twisting while lifting
- ❖ Pull or push when possible instead of lifting pushing is less strenuous than pulling.

Self-Check 3	Written Test

Instructions: Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

5) List basic principles of safe manual handling

Note: **Satisfactory rating - 09 points** **Unsatisfactory - below 09 points**
You can ask you teacher for the copy of the correct answers.

Score = _____
Rating: _____

Name: _____ Date: _____

Short Answer Questions

2. _____

_____

_____

_____

Information Sheet ++++	Monitoring and responding of causality

Referral of casualty

- After the required first aid service is provided, according to the condition of the casualty and degree of the injury referral should be considered. During the referral of casualty, written document / profile that explains about the casualty's Age and Sex, Chief Complaint, Responsiveness, Airway and breathing status, Circulation status, Physical findings, SAMPLE history and Interventions provided is mandatory to enable the health care providers provide quick and comprehensive management

3.20.1 The profile of Hand off Report has to contain the followings:

- Age and Sex
- Chief Complaint
- Airway and breathing status
- Circulation status
- Responsiveness
- Physical findings
- SAMPLE history
- Interventions provided

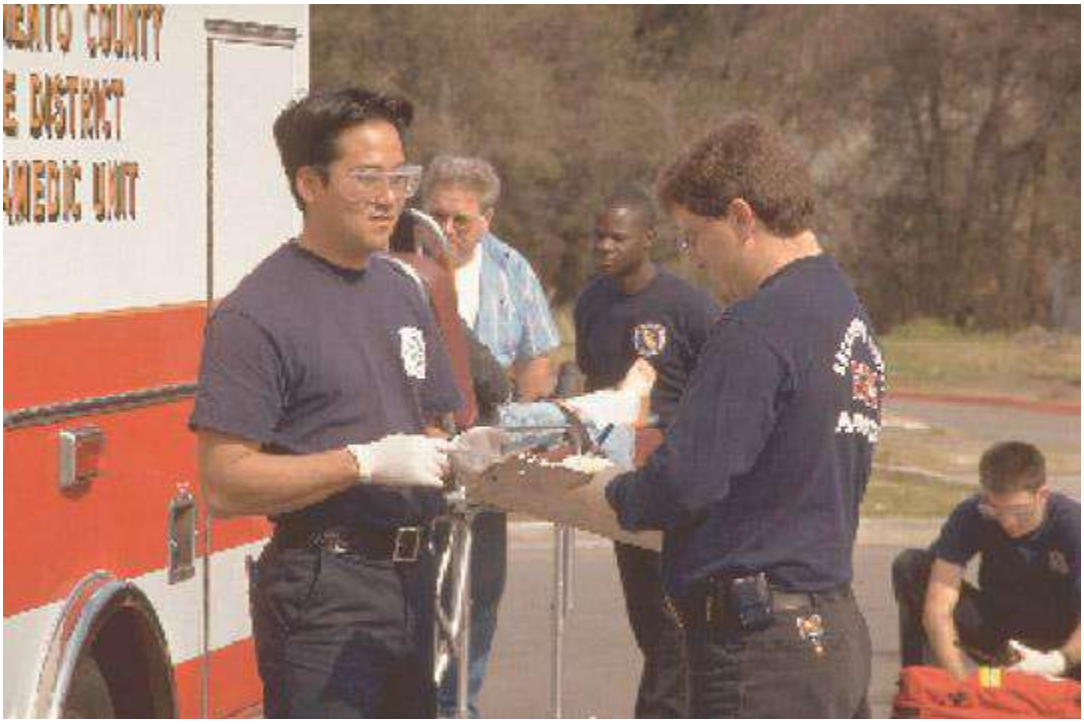

Figure 15: Hand off Report

Operation Sheet	CPR

The steps of CPR involves

Step 1: Determine consciousness by tapping the victim on shoulder and asking loudly ''Are you OK''?

Step 2: shout for help/ call for help

Step 3: Lay the causality on a firm flat surface

Step 4: Kneel close to the side at right angles to him and alongside his/her chest.

Step 5: Tilt the victim's head back so that his/her chin is pointing upward. In this case the two procedures can be applied, i.e. head tilt- neck lift and head tilt and chin lift.

Step 6: Place your cheek and ear close to the victim's mouth and nose. Look at the victim's chest to see if it rises and falls; listen and feel for air to be exhaled for about 5 seconds.

Step 7: If there is no breathing, pinch the victim's nostrils shut with the thumb and index finger of your hand i.e. pressing on the victim's forehead

Step 8: Open your mouth wide.

Step 9: Take a deep breath.

Step 10: Seal your mouth tightly around the victim's mouth and with your mouth forming a wide open circle and blow into the victim's mouth

Step 11: Initially give four quick full breaths without allowing the lungs to fully deflate (empty) between each breath.

Step 12: Maintain the head tilt and again look, listen, and feel for exhalation of air and check the pulse for at least 5 seconds but not more than 10 seconds. If no pulse and breath, do cardiopulmonary resuscitation (CPR). Compression – ventilation 30: 2, for 5 cycles

Step 13: If there is pulse and no breath, provide at least one breath every 5 seconds or 12 per minute for adults and this provides sufficient air.

Step 14: If the airway is clear only moderate resistance to blowing will be felt

Step 15: Watch the victim's chest to see when it rises.

Step 16: Stop blowing when the victim's chest is expanded and check for exhalation

Step 17: Watch the chest to see that it falls.

Step 18: Repeat the blowing cycle.

Step 19: For the mouth -to -nose method maintain the backward head –tilt position with the hand on the victim's forehead and use your other hand to close the victim's mouth

LAP Test	**Practical Demonstration**

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 4 hours.

1. Provide artificial respiration

2. Perform pulmonary resuscitation (CPR)
3. Mange bleeding due to cut on the hand
4. Provide care for the patient having shock
5. Provide care for the patient with burn
6. Provide care for the patient having fracture

Note: **Satisfactory rating - 12 points** **Unsatisfactory – below 12 points**
You can ask your trainer for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Answer

No	
1	
2	
3	
4	

1. Given appropriately response to situations that pose an infection risk in accordance with the policies and procedures of the organization

1.1. Response to infection risks

To successfully identify and respond to infection risks we must understand and follow safe work practices that prevent the transmission of infections.

As a health worker it is also your responsibility to follow recommended procedures in your workplace and take adequate precautions to protect yourself from injury and infection.

Risk management is the process of making health care safer for the patient, staff and visitors by identifying hazards in the workplace and taking action to minimize their harm wherever possible. There are a number of steps in the risk management process:

- ***identifying the hazard***
- ***assessing the risks***
- ***using control measures.***

Identifying a hazard

- A hazard is anything with the potential to cause harm to you, the patients, your co-workers or visitors to the work area. In the sterilization setting this includes chemicals, sharps such as needles, soiled instruments, power, water, steam, noise, and heat.
- In developing procedures or buying new equipment, identify these risks early so that work practices can be developed that ensure the hazard is eliminated as much as possible. Regular safety inspections and audits can help identify and manage hazards.
- All employees, patients, volunteers, contractors and visitors that enter the work place have a responsibility to behave in a safe and responsible manner and report any hazards or near accidents.

Assessing the risks

- It is important to assess the risks associated with each hazard to determine how it can be eliminated.
  - ✓ Is there a high risk of injury or is the hazard a result of a combination of unusual circumstances that may never re-occur?
- Budgets are limited in health care settings, so it is important to look at all the options for dealing with a hazard. You should also document the process to seek additional support for action.

Control measures

- The more serious the consequence, the more urgent it is for the risk to be dealt with and eliminated immediately. If the risk cannot be eliminated it may be possible to circumvent the risk of injury by changing practice. The last alternative is to use some form of personal protection when exposed to the hazard.
- When deciding on control measures this should be a team effort so that management and staff work together. The control measures should not impose another risk.

Monitoring control measures

Self-Check 3	Written Test

Once control measures have been implemented it is important to monitor and re-evaluate practice to ensure compliance with new practice

***Instructions**:* Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page

1. The first step in risk management process is
   A. Identifying the hazard
   B. Assessing the risks
   C. Using control measures
   D. None of the above

Note: **Satisfactory rating - 09 points** **Unsatisfactory - below 09 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Answer

9. _____

_____

_____

_____

Information Sheet 4	Follow ***procedure for risk control*** and risk containment for specific risks

2.1. *Procedures for risk control*

Strategies to identify risks

Strategies for identifying risks vary. Risk identification can be proactive or reactive. The following contains information about proactive and reactive strategies that can help management and workers identify hazards that present risks to health and safety.

Proactive strategies

- A proactive strategy is one carried out to prevent an accident or incident; for example, implementing processes to identify hazards and risks. Two examples are a job safety analysis (JSA) and an audit.
- A JSA contains information about how a job should be carried out, types of risks and control measures.
- Providers should carry out regular internal audits to check that the control measures for infection and other risks are being implemented. External bodies such as state and territory WHS authorities can also carry out audits to check that safety controls are appropriate.

Reactive strategies

- A reactive approach to risk identification involves reviewing accidents and incidents through measures such as report forms and data, as well as establishing consultation processes such as workplace health and safety committees (HSCs).
- Incident and accident report forms are filled out after any incident or accident. Data from these forms is used by HSCs, WHS officers and managers to identify hazards.
- Committees, team meetings and other forums give staff the chance to discuss infection control risks and provide suggestions for policy and procedure improvements.

Carrying out a risk assessment

Once a hazard has been identified, you need to conduct an assessment of the risk of injury, harm or damage. An example of a risk is the likelihood of a hazard resulting in an injury or disease, together with the seriousness of the injury or disease.

The five steps in carrying out a risk assessment are shown here.

Risk assessment steps

1. Evaluate the likelihood of an injury or illness occurring and the likely severity of any injury or illness
2. Review health and safety information relevant to the hazard such as incident reports, SDSs, results of workplace monitoring and inspections and supplier information
3. Identify factors that contribute to the risk such as the physical layout of the workplace, the knowledge, skills and experience of workers, and existing work practices
4. Identify actions necessary to eliminate or control the risk

5. Complete any relevant records

Self-Check 4	Written Test

***Instructions**:* Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page

Information Sheet 5	***Protocols are followed for care following exposure to blood or other body fluids as required***

1. A proactive strategy is one carried out to prevent an accident or incident. True False(2 point each)
2. A reactive approach to risk identification involves reviewing accidents and incidents through measures. True False(2 point each)
3.

Note: **Satisfactory rating - 09 points** **Unsatisfactory - below 09 points**
You can ask you teacher for the copy of the correct answers.

2.2. *Protocols for care of blood borne exposures*

***Definition**: Blood borne Pathogen Exposure - a percutaneous injury (e.g., a needle stick or cut with a sharp object) or contact of mucous membrane or non-intact skin (e.g., exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or other body fluids that are potentially infectious. In addition to blood and body fluids containing visible blood- semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid are also considered potentially infectious. Urine or gastric contents without visible blood are not considered potentially infectious.*

Blood is the most infectious body fluid for the transmission of HIV, HBV and HCV. If the exposure incident involved a body fluid capable of transmitting any of the viruses (HIV, HBV or HCV

Exposure to blood or body substances may be defined as direct contact with blood or other body substances through broken skin, mucous membranes (eyes, nose or mouth) or needle stick injury

Health care workers (HCW) are at risk of acquiring infection through occupational exposure. Hospital employees can also transmit infections to patients and other employees. Thus, an employee's health programme must be in place to prevent and manage infections in hospital staff

Occupational injuries may be divided into:

a) Percutaneous exposure (from needles, instruments, bone fragments, human bite which penetrates the skin layer, etc.);
b) Exposure via broken skin (exposed skin that is chapped, abraded, or afflicted with dermatitis etc.) with blood, tissue, or other body fluids that are potentially infectious; and
c) Exposure via mucous membranes including the eye

Specific post-exposure policies must be developed, and compliance ensured for a number of infectious diseases for example: human immunodeficiency virus (HIV), viral hepatitis, severe acute respiratory syndrome (SARS), varicella, rubella and tuberculosis. Health care workers with infections should report their illnesses/incident to staff clinics for further evaluation and management

Hepatitis B virus (HBV), hepatitis C virus (HCV) and the human immunodeficiency virus (HIV) constitute well-recognized occupational risks for healthcare workers (HCWs). Avoiding occupational blood exposure by the adherence to principles of standard precautions through the use of appropriate work practices and personal protective equipment is a cornerstone for preventing transmission of these blood-borne pathogens (BBP) in the health-care setting.

In general, the risk of viral transmission after a percutaneous injury is highest for HBV, followed by HCV and HIV.

Occupational exposure is serious and every effort should be taken to prevent its occurrence. However, accidents may still happen and if so, risk assessment and counseling constitutes the basis of post exposure management. Appropriate post exposure prophylaxis (PEP) should be provided using a case-by-case evaluation approach.

Each healthcare institution should have personnel responsible for the Sharps Prevention Program

Types of exposure

1. **Percutaneous Injury**
   - Puncture or laceration of the skin that penetrates into or below the dermis.
   - For the purposes of this protocol, a percutaneous exposure to blood/body fluids which has one or more of the following factors present will be defined as a more severe exposure .
     - Deep percutaneous injury
     - Visible blood present on the device associated with the exposure
     - Exposure from a procedure which involved a needle placed directly into the Source's vein or artery
     - Large-bore hollow needle
   - A percutaneous exposure which has none of the above characteristics will be defined as a less severe exposure (e.g., superficial injury, no visible blood present on device associated with the exposure, procedure from which exposure resulted did not involve a needle being placed directly into the Source's vein or artery, solid needle
2. **Mucous Membrane and Non-intact Skin Exposures**
   a. Mucous Membrane Exposure: When blood/body fluids come into contact with mucous membranes (e.g., eyes, oral cavity)
   b. Non-intact Skin Exposure: When blood/body fluids come into contact with an open wound or exposed skin that is chapped, abraded or non-intact because of dermatitis

A larger volume of blood/body fluid is associated with increased transmission risk for mucous membrane and non-intact skin exposures. For the purposes of this protocol, a mucous membrane or non-intact skin exposure involving a major splash of blood/body fluids will be defined as a large volume exposure. Exposures involving lesser amounts (e.g., only a few drops of fluid) will be defined as a small volume exposure.

3. **Human Bites**: Human bites may occur in both occupational and non-occupational settings. The person bitten has a potential percutaneous exposure and the person who was the biter has a potential mucous membrane exposure. Therefore, an individual who bites may be both the Source and Exposed in bite incidents.
   a. As HBV is present in saliva at concentrations 1,000 to 10,000 times less than in blood , for the purposes of post-exposure prophylaxis, generally only exposures to saliva containing visible blood would be considered for HBV PEP (such as deep bites associated with bleeding in the mouth of the biter)
4. **Exposures to Blood/Body Fluids Obtained Through Cuts, Nosebleeds, Physical Assaults, Sports Injuries**

5. **Consensual Sex** (Serodiscordant Partners) HBV and/or HIV PEP should be considered for the following unprotected (e.g., condom breakage) sexual exposures where the Source is known to be positive for the respective viruses

For example

The route of transmission for hepatitis B virus is through body substances such as blood and blood products, saliva, cerebrospinal fluid, peritoneal, pleural, pericardial and synovial fluid, amniotic fluid, semen and vaginal secretions and any other body fluid containing blood**.**

The risk of a health care worker acquiring HIV after a needle stick or other "sharps" injury is less than 0.5%.

Risk reduction must be undertaken for all blood borne pathogens, including:

- adherence to standard precautions using personal protective equipment
- appropriate use of safety devices and a needle disposal system to limit sharps exposure.
- Training for health care workers in safe sharps practice should be ongoing.
- Information on preventive measures must be provided to all staff with potential exposure to blood and blood products.
- Policies which are in keeping with the local and national guidelines must include
    - screening of patients
    - disposal of sharps and wastes
    - protective clothing
    - managing inoculation accidents
    - sterilization and disinfection.
- Hospital policy must include measures to obtain serological testing of source patients promptly where necessary, usually with the patient's informed consent.
- Post exposure prophylaxis should be started as per local or national guidelines.
- In case of hepatitis B, immunization is the best way of preventing transmission to health care staff.
    - All HCWs at risk must be vaccinated.
    - Staff infected with blood-borne pathogens may transmit these infections to patients and require careful evaluation with respect to their duties. This status should not be used as cause for discrimination
- If a staff member has been exposed to **Tuberculosis** (TB) they should report to the Infection Control Practitioner or the Staff Health Nurse depending on the hospital protocol for health care worker exposures.
- Health care workers in close respiratory contact with cases such as **meningococcal meningitis** should receive chemoprophylaxis with ciprofloxacin or an effective alternative agent. Close respiratory contact with the patient includes mouth-to-mouth contact, sharing of drink containers or cigarettes

Sharp injuries Needle

- stick injuries are the most common of sharps injuries, although other contaminated sharp instruments may also cause injuries.
- The majority of reported NIs involved hollow-bore needles (55-62%), and recapping was the most common behavior associated with NI. Overall, more than half of percutaneous injuries

involving hollow-bore needles were potentially preventable through safer work practices or technologies.

- HCWs should prevent skin penetrating injuries by wearing appropriate clothing, shoes and personal protective equipment (PPE) where required. As a break in the skin can allow direct contact with blood and body substances these should be protected by keeping open wounds covered e.g. with a waterproof dressing or with appropriate clothing.
- Skin penetrating injuries can introduce infectious agents directly into the blood stream, e.g. tetanus and blood borne viruses such as hepatitis B, hepatitis C and HIV. It is very important that skin penetrating injuries are minimized e.g. through safe handling and disposal of sharps
- All health care workers with potential exposure should be vaccinated.
    - For other personnel, the risk of hepatitis B, hepatitis C and HIV infection should be assessed and appropriate immunization or chemo prophylactic steps taken.
    - Immediate treatment of such injuries should encourage
        - washing thoroughly with running water and an antiseptic solution.
        - Consult the infection control team for further advice.
- An incident reporting system should be in place. It should not be seen as punitive/disciplinary; active support by managers should encourage prompt and accurate reporting.

Exposures for which PEP is indicated

- Break in the skin by a sharp object (including hollow-bore, solid-bore, and cutting needles or broken glassware) that is contaminated with blood, visibly bloody fluid, or other potentially infectious material, or sharp objects had been in the source patient's blood vessel.
- Bite from a patient with visible bleeding (in the mouth) and which causes bleeding in the exposed worker.
- Splash of blood, visibly bloody fluid, or other potentially infectious material to a mucosal surface (mouth, nose, or eyes).

Remember, Health care workers should have immediate access to post exposure prophylaxis (PEP) , 24 hours a day, 7 days a week to be freely dispensed by any hospital (private or public), regardless of the location or type of work they do. The minimum care following potential exposure to HIV should be risk assessment and, if deemed necessary, the first dose of PEP medication

General procedures

First Aid – when an exposure incident occurs, implement first aid

1. Following any exposure, the wound should be washed immediately and thoroughly with soap and water, flush the eyes with running water immediately following a bodily fluid splash. Alcohol, hydrogen peroxide, Betadine or other chemical cleansers are best avoided. Wound should not be squeezed or sucked.
2. For mucosal contact e.g. spillage into the conjunctivae, the exposed area should be immediately flushed with plenty of clean running water.

3. The exposed HCW is responsible for reporting the exposure incident to his/her supervisor and should then seek immediate medical advice for proper wound care and post-exposure management.
    - The following information should be recorded in the exposed worker's confidential medical record:
        i. details about the source patient (e.g. name, NRIC No, diagnosis and any relevant information)
        ii. date, time and place of the exposure
        iii. details of the procedure being performed
        iv. use of protective equipment at the time of the exposure
        v. the type, severity, and amount of fluid to which the worker was exposed
4. The health care worker should be tested for HIV antibody, HCV, HBV antigen and antibody
5. The source patient's blood (if available) should be tested for HIV, HCV & HBV

Reporting

- All institutions should have a mechanism in place for reporting and managing of sharp injuries and mucosal exposure in the occupational setting. HCWs must know the reporting process to facilitate quick and smooth flow so as to allow the attending physician to evaluate the risk of exposure and provide prompt appropriate post exposure treatment
- In addition, a surveillance system of exposure events should be available to avoid similar incidents from occurring in the future.

Counseling

Until the risk of infection is ruled out, advice should be given to the exposed staff to refrain from donating blood, plasma, organs, tissue or semen. The use of condom during sexual intercourse should also be advised. A place for psycho-social support is clearly indicated

In general

Healthcare workers should practice the following:

- Follow safe work practices at all times
- Be familiar with employer's written departmental policies
- Know the potential health and safety hazards of the job and protective measures by participating in appropriate occupational health and safety training programs
- Use personal protective equipment (PPE) as trained and report any changes in personal medical condition that would require a change in status as to wearing PPE
- Know how to report unsafe working conditions
- Report any work-related injury or illness to supervisor
- Participate in accident and injury investigations
- Know what to do in an emergency – Participate in health and safety committees (when available) can be an important way to improve conditions on the job such as: – Provide a forum for employees and management to work together to solve health and safety problems
- Help prevent injury and illness on the job i.e. conduct regular walk-a-round inspections to identify potential health and safety hazards
- Increase awareness of health and safety issues among employees, supervisors, and managers i.e. analyze injury data, accident reports and report trends

- Develop strategies to make the work environment safe and healthy

Self-Check 5	Written Test

***Instructions**:* Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

1. Blood is the most infectious body fluid for the transmission of (2 point each)
   A. HIV B. HBV C. HCV D. ALL
   B.
2. Puncture or laceration of the skin that penetrates into or below the dermis is(2 point each)
   A. Mucous Membrane exposure
   B. Human bites
   C. Non-intact Skin Exposures
   D. Percutaneous Injury

3. Risk reduction must be undertaken for all blood borne pathogens, including(2 point each)
   A. Post exposure prophylaxis should be started
   B. adherence to standard precautions using personal protective equipment
   C. appropriate use of safety devices and a needle disposal system
   D. ALL

4. In general healthcare workers should practice (2 point each)
   A. Follow safe work practices at all times
   B. Be familiar with employer's written departmental policies
   C. Report any work-related injury or illness to supervisor
   D. Participate in accident and injury investigations
   E. ALL
   F.

Note: **Satisfactory rating - 09 points** **Unsatisfactory - below 09 points**
You can ask you teacher for the copy of the correct answers.

Appropriate signs are placed when and where appropriate

DANGER SIGN

- Used where an immediate hazard exists

CAUTION SIGN

- Used to warn against potential hazards or to caution against unsafe practices

SAFETY INSTRUCTION SIGNS

- Used where there is a need for general instruction and suggestions relative to safety measures

ACCIDENT PREVENTION TAGS

DANGER TAG

- Pla ce d onl y wh ere an im me dia te ha

zard exists

CAUTION TAG

- Used to warn against potential hazards or to caution against unsafe practices

OUT OF ORDER TAG

- Used to identify pieces of or equipment that are out of order

Flammable chemicals

Corrosive chemicals

Explosive chemicals

Summary of universal hazardous symbols

60

Summary of …

Explosive (**E**)

corrosive (C)

Dangerous for Environment

irritant

Harmful

Very toxic (**T+**)

Toxic

extremely flammable

highly flammable

oxidizing agent(O)

61

Self-Check 5	Written Test

***Instructions**:* Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

2. This picture is a sign for

   A. Biohazard
   B. Cytotoxic
   C. Biological item
   D. Waste

3. This picture is a sign for

   A. Irritant
   B. Cytotoxic
   C. Biological item
   D. Waste

4. This picture is a sign for

   A. Toxic
   B. Cytotoxic
   C. Biological item
   D. Waste

Note: **Satisfactory rating - 09 points** **Unsatisfactory - below 09 points**
You can ask you teacher for the copy of the correct answers.

Information Sheet 7	remove ***Spills*** in accordance with the policies and procedures of the organization

2.3. *Spills removal*

Basic Principles:

- Spills of blood or body substances are to be dealt with as soon as possible. Isolate or restrict access to the area if there is an unavoidable delay.
- Standard precautions apply – assume all blood and body substances are potentially infectious and cover cuts, maintain hand hygiene and use appropriate PPE.
- Cover the spill, where applicable, to prevent the generation of splashes and aerosols from the spilled substance - o e.g. granular formulation such as vomit control o use a scraper and pan to remove the absorbed material
- after removing the bulk of the spill, clean the area thoroughly, rinse and dry.
- clean non-disposable cleaning equipment thoroughly after use, rinse and store dry.

Small Spills: e.g. spots or drops of blood and other small spills up to 10cm diameter. - wipe the area immediately with paper toweling - clean with warm water and detergent followed by rinsing - dry the area (as wet areas attract contaminants) - a sanitiser (e.g. alcohol wipe) can be used on the area after cleaning.

Large Spills: e.g. greater than 10 cm diameter.

Wet area – e.g. bathroom with a floor drain –

- wash carefully into the sewerage system using copious amounts of water, taking care to avoid splashes - clean the area with mop and bucket of warm water and detergent
- clean the bucket and mop thoroughly after use using warm soapy water and store dry.
- Carpet - contain and clean with warm water and detergent - do not use disinfectant.

Equipment

- Equipment (mop, bucket and cleaning agents) is to be readily available in a location known to all. Prepare for a range of likely occurrences at your location considering:
  - the nature of the spill (e.g. sputum, vomit, faeces, urine, blood or laboratory culture)
  - the germs most likely to be involved in these different types of spills (e.g. gastrointestinal germs associated with spills of vomit and diarrhoea)
  - the size of the spill
  - the type of surface (e.g. carpet or impervious flooring)
  - the location e.g. whether the spill occurs in a contained area such as a toilet cubicle or in a high traffic area such as a hallway or while in a public place such as on an excursion.

A portable ‘spills kit’ can be made up to manage likely spills for the area/activity e.g.

- a large (10 L) reusable plastic container or bucket with fitted lid, containing the following items
    - leak proof bags and containers for disposal of waste material
    - roll(s) of paper towel to contain and cover a spill
    - a designated, sturdy scraper and pan for spills (similar to a ‘pooper scooper’/dust pan)
    - sachets of a granular formulation containing 10,000 ppm available chlorine or equivalent (each sachet should contain sufficient granules to cover a 10-cm diameter spill) e.g. vomit control - disposable latex, vinyl or nitrile gloves suitable for cleaning - eye protection (disposable or reusable)
    - a plastic apron
    - a respiratory protective device such as a disposable P2 respirator (for protection against inhalation of powder from the disinfectant granules, or aerosols, which may be generated from high-risk spills during the cleaning process).

Self-Check 6	Written Test

***Instructions**:* Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

1. Spills of blood or body substances are to be dealt with as soon as possible True False(2 point each)
2. **Small Spills** wipe the area immediately True False(2 point each)
3. Equipment (mop, bucket and cleaning agents) is to be readily available in a location known to all True False(2 point each)

Operation Sheet 3	**Prepare tools and equipment for identification and measuring Muda.**

1. Discuss and plan to prepare tools and equipment for Muda identification.
2. Prepare tools and equipment for Muda identification.

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks.

Task 1: Identify and prepare tools and equipment for measuring and identification of Muda.

List of Reference Materials

1. First aid manual, Emergency procedures for everyone, at home, at work, at leisure, 8th edition
2. The Federal democratic republic of Ethiopia Minster of health, First Aid learning module Addis Abeba, Ethiopia 2014
3. First Aid and Accident Prevention Lecture Note for Health Science Students the Carter Center, the Ethiopia Ministry of Health, and the Ethiopia Ministry of Education
4. Galmessa A., First aid and Accident prevention, Lecture notes for health Science students, Haramaya University, Ethiopia, Sept. 2006.
5. Ethiopian Red Cross Society, First Aid Training Additional Presentation, Adama-March 2009
6. Federal Democratic Republic of Ethiopia Ministry of Health, Non-Communicable Diseases Emergency Case and Mental Health Blended Learning Module for Health Extension Program.