

FUNDAMENTALS OF NURSING

**STUDENT BOOK SENIOR 5
ASSOCIATE NURSING PROGRAM**

First Edition

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ABBREVIATIONS AND ACRONYMS

ABCDE:	Airway Breathing Circulation Disability and Exposure
ACE:	Angiotnsin Conversion Enzyme
Ach:	Acetylcholine
ACS:	Acute Coronary Syndrome
AED:	Automated External Defibrillator
ARD:	Acute Respiratory Distress
BP:	Blood Pressure
BPH:	Benign Prostatic Hyperplasia
Ca+:	Calcium
CAD:	Coronary Artery Disease
CIMS:	Coordinated Incident Management System
CK-MB:	Creatine kinase-myocardial band
CNS:	Central Nervous System
CO:	Cardiac Output
COPD:	Obstructive Pulmonary disease
CPK:	Creatine phosphokinase
CPR:	Cardiopulmonary Resuscitation
cTnl:	Troponin I
cTnT:	Troponin T
CV:	cardio vascular
CVA:	Cerebro-Vascular Accident
CVP:	central venous pressure
DPI:	Dry Powder Inhalers
DRSABCDE:	Dangers Response Shout Airway Breathing Circulation Disability and Exposure
DVT:	deep vein thrombosis
ECG:	Electrocardiograph
ED:	Emergency Department
EKG:	electrocardiogram
FGM/C:	Female Genital Mutilation/Cutting
FIT:	Family Interaction Theory
GABA:	Gamma Aminobutyric Acid
GBV:	Gender Based Violence
GI:	Gastrointestinal
GIT:	Gastro Intestinal Tract
GLU:	Glucose

Hct:	Hematocrit
HF:	Heart Failure
Hgb:	Hemoglobin
ICE:	Ideas, Concerns & Expectations
IHD:	Ischemic Heart Disease
IV:	Intra Venous
K+:	Potassium
LDH:	Lactate dehydrogenase
MAP:	mean arterial pressure
MDI:	Metered Dose Inhalers
mEq:	Milequivalent
mg/dL:	Millegram per deciliter
MI:	Myocardia infarction
MI:	Myocardial Infarction
MIGEPROF:	Ministry of Gender and Family Promotion
Na+:	Sodium
NPO:	Nil Per Oral
PH:	potentiel d' Hydrogene
PIT:	Pressure Immobilization Technique
PPE:	Person Protective Equipment
PRO:	Protein
RDT:	Rapid Diagnostic Test
S1:	Sound one
S2:	Sound two
S3:	Sound three
S4:	Sound four
SMIs:	Soft Mist Inhalers
START:	Simple Triage And Rapid Treatment
SUDEP:	Sudden Unexpected Death in Epilepsy
SVR:	Systemic Vascular Resistance
TIA:	Transient Ischemic Attack
TNF:	Tumor Necrosis Factor
TSH:	Thyroid-stimulating hormone
u/L:	unit per little
X ray:	Rayon X

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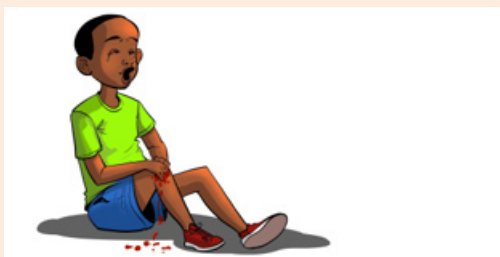
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Key Unit competence

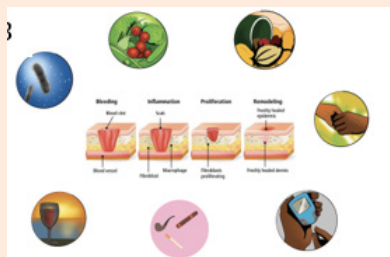
Perform the techniques of simple wound dressing

Introductory activity 1.0

Observe the picture provided and respond to the questions below



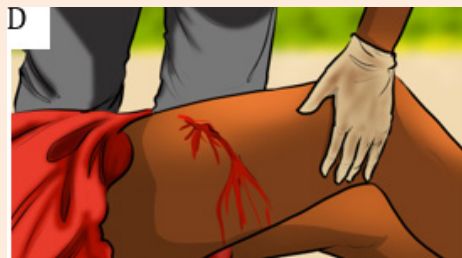
A



B



C



D

1. What do the following picture have in common?
2. What did you notice in the picture A, B, C, and D?
3. If you were an associate nurse, what could you do to care for patient in picture D

The picture shown above represent a wound, process of wound healing and related wound care. The **wound** is the breaking of the skin, underlying tissues or an organ (break of skin integrity). A wound occurs when the integrity of any tissue is compromised (e.g. skin breaks, muscle tears, burns, or bone fractures). A wound may be caused by an act, such as a gunshot, fall, or surgical procedure.

1.1 PRINCIPLES OF SIMPLE WOUND CARE

Learning activity 1.1

1. What do you think should guide a comprehensive wound care?
2. According to what you have experienced, seen or heard regarding wounds, relate causes and types of wounds

1.1.1.Types of wounds

There are several ways of classifying types of wounds, such as the source of the wound, the state of skin integrity, the likelihood and degree of contamination and how much time the wound have been existing.

a) Types of wound per etiology

Wounds are either intentional or unintentional.

- **Intentional wound** occurs as a result of therapeutic reasons. Examples are surgical incisions or venipuncture. This wound is created under the sterile conditions.
- **Unintentional wound** occurs as a result of unplanned event such as a wound caused by an accident. Examples include traumatic wounds, fall, a gunshot wound, and violence, unusual wound (snake or insect bite) or the result of an allergic reaction.

Furthermore, unintentional wound may result from an illness such as vascular an or neuropathic impairment. Thus, the wound may result from either ischemia or blood stasis. Ischemia comes from reduced blood supply caused by the tightening or blockage of blood vessels, and this leads to poor circulation.

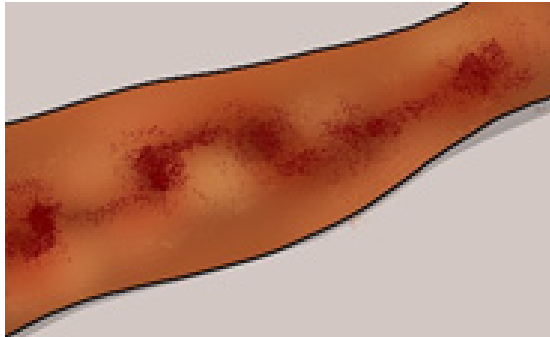
Wounds caused by being immobile, such as bed sores or pressure injuries this is caused by immobilization (or difficulty moving) for long periods.

The wound can be caused by friction when a body part rubs or scrapes across a rough or hard surface

b) Types of wound per skin integrity

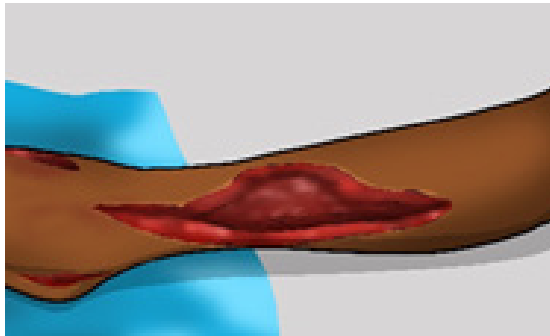
Wounds are mainly open or closed.

- **A closed wound:** is an injury that does not break the surface of the skin but causes damage to the underlying tissues.



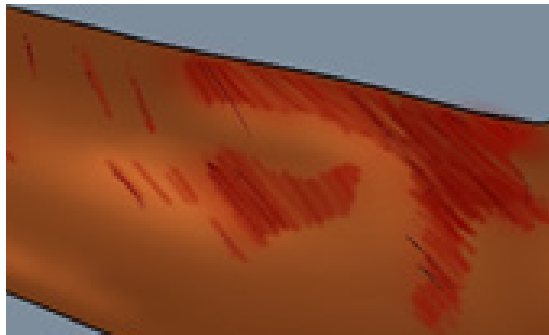
Example: A bruise.

- **Open wounds:** break the surface of the skin and may also damage underlying tissues.



Some examples of open wounds include

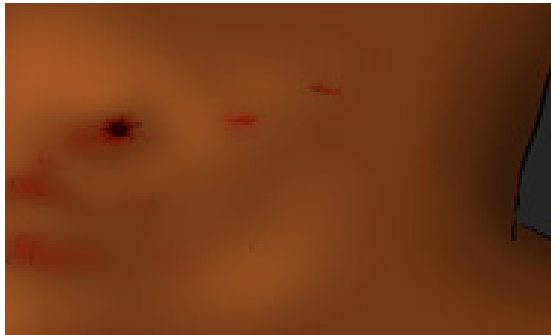
- **Abrasions:** These form as a result of rubbing or scraping the skin against a hard surface.



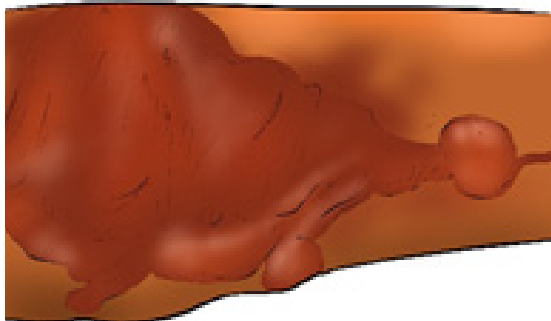
- **Lacerations:** These are deeper cuts caused by sharp objects, such as a knife, or sharp edges.



- **Punctures:** These are small deep holes caused by a long, pointed object, such as a nail.



- **Burns:** These result from contact with an open flame, a strong heat source, severe cold, certain chemicals, or electricity.



- **Avulsions:** This refers to the partial or complete tearing away of skin and tissues.



c) Types of wound per likelihood and degree of contamination

Considering the likelihood and degree of contamination, there are four types of wounds:

- **Clean wounds** - are uninfected wounds in which no or minimal inflammation is encountered and the respiratory, alimentary, genital and urinary tracts are not entered. Clean wounds are primarily closed and surgical wounds.
- **Clean contaminated wounds** - are surgical wounds in which the respiratory, alimentary, genital or urinary tract has been entered. Such wounds show no evidence of infection.
- **Contaminated wounds** - include open, fresh, accidental wounds and surgical wounds involving a major break in sterile technique or a large amount of spillage from the gastrointestinal tract. Contaminated wounds show evidence of inflammation.
- **Dirty or infected wounds** - include wounds containing dead tissue and wounds with evidence of a clinical infection, such as purulent drainage.

d) Types of wound per wound age

Considering how long the wound has been existing, the wound is either **acute** or **chronic**:

- **Acute wounds** are relatively new and occur suddenly in nature as result of surgery or trauma. Their healing move through the stages of healing within the predicted time-frame.
- **Chronic wounds** may develop over time as results of underling chronic condition such as diabetes, ischemic disease, pressure damage resulting from prolonged immobilization, and inflammatory diseases and or as a result of failed healing of an acute wound leading to a lengthened recovery.

1.1.2. Principle of simple wound care

Wound healing is a complex and dynamic physiological process that is affected by various factors. Healthcare providers must understand how to assess these and be able to address them accordingly to optimize the wound healing process. Though wound care is often focused primarily on topical treatment, a comprehensive plan of care should address three areas concerning wound healing affecting factors. Therefore, general principles for holistic wound care are (1) correction of etiologic factors, (2) provision of systematic support for wound healing and (3) topical treatment that create and maintain an optimal healing environment.

Correctly identifying the cause of the wound is key to developing a comprehensive management plan. Failure to addressing the causative factor(s) will result in failure to heal, even if systematic support is provided and topical therapy is appropriate. Thus, initial assessment and intervention must include identification of the etiologic factors and initiation of measures to address these. For example, the most the most critical intervention in the management plan of a pressure ulcer is to eliminate or minimize the pressure that caused the wound.

Systematic support for wound healing is important as wound healing requires increased calorie, protein, and vitamin and mineral intake; sufficient blood flow and oxygen to support repair process; and relatively normal glycemic levels. Thus assessment and correction of systematic conditions that adversely affect repair is the second priority in wound healing.

The goal of topical therapy in wound care is to create a local environment that supports healing, through appropriate cleansing and dressing selected based on individual wound assessment and it should be matched evidence-based guidelines. For instance, if a wound's assessment reveals that it is in proliferative phase, cleansing it should aim at removing exudate without damaging the proliferative cells and newly formed tissues. Moreover, providing topical wound therapy should ensure comfort and dignity of the patient.

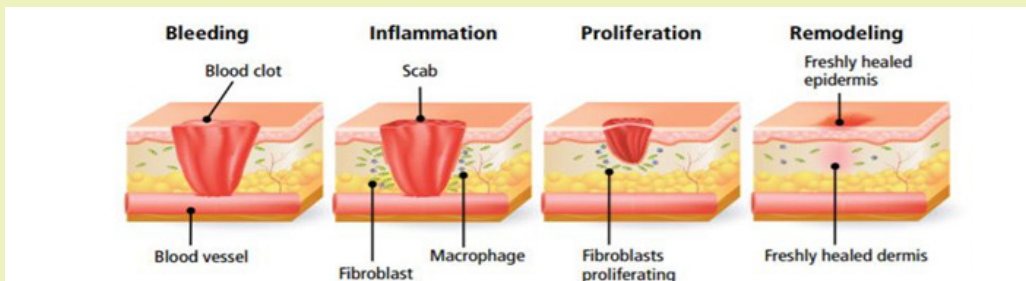
Self-assessment 1.1

1. Your sister accidentally cut her finger while slicing tomatoes. This injury is a(n) (1) _____ (2) _____ (3) _____ (4) _____ wound
2. After finishing a wound dressing, the associated nurse undertook a five minutes' patient education activity regarding a balanced diet and smoking cessation.
 - a. Which principle of wound care was she addressing?
 - b. What other wound care principles should be implemented for a comprehensive and holistic wound care?

1.2. PHASE OF WOUND HEALING

Learning activity 1.2

Analyze carefully the following images and respond to the questions below

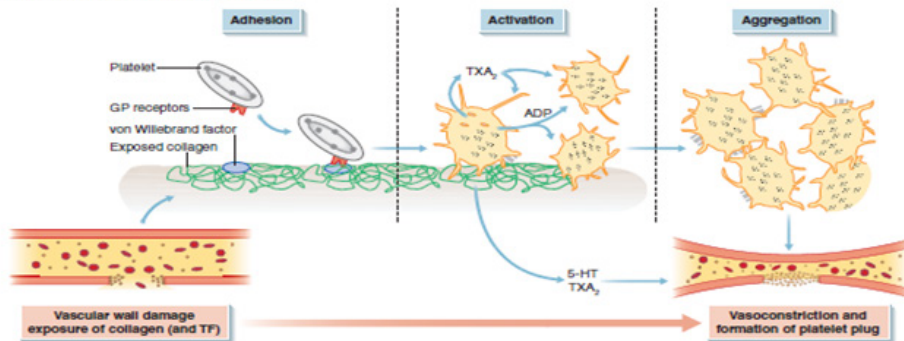


- a. What do you understand with the term wound healing?
- b. According to the image above showing biological changes in body tissues during wound healing process, describe what happens in each picture
- c. Imagine what would happen if one phase of wound healing did not occur?

Wound healing is the complex process in which the skin goes through as it repairs damage from wounds. Destroyed or damaged tissue is replaced by new produced tissue in stepwise fashion and involves the stage of hemostasis, inflammation, proliferation, and maturation.

a) Phase 1 - Hemostasis

Primary haemostasis - formation of platelet plug



Source: Ward and Lindon 2013, figure (a), Chapter 9, p. 28. Reproduced with permission of Wiley & Sons, Ltd.

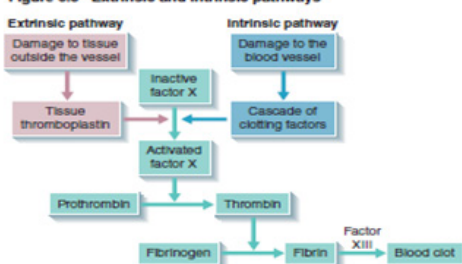
Figure 6.2 Fibrin meshwork

Formation of a clot



Source: Nair and Peate 2013, figure 6.16, p. 167. Reproduced with permission of Wiley & Sons, Ltd.

Figure 6.3 Extrinsic and intrinsic pathways



This phase has the aim of stopping any bleeding where the body activates its blood clotting system. When the blood clots at the opening of a wound, it prevents the patient from losing too much blood and therefore it becomes the first step of the wound closing up. Briefly when tissue is damaged, serotonin, histamine, prostaglandins, and blood from the injured vessels fill the area. Blood platelets form a clot, and fibrin in the clot binds the wound edges together. This step can last up to 2 days depending on the part of the skin which is affected.

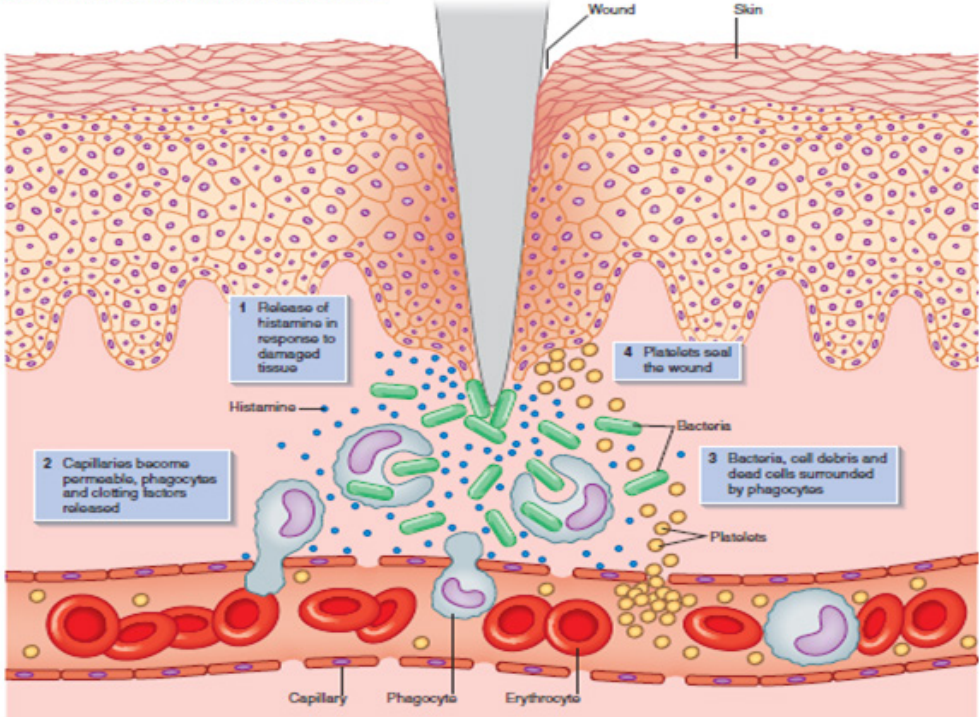
b) Phase 2 - Inflammation

When phase one is complete and the body is no longer bleeding, the body activates its key defense mechanism inflammation.

Figure 7.1 Causes of the inflammatory response



Figure 7.2 The steps of the inflammatory response

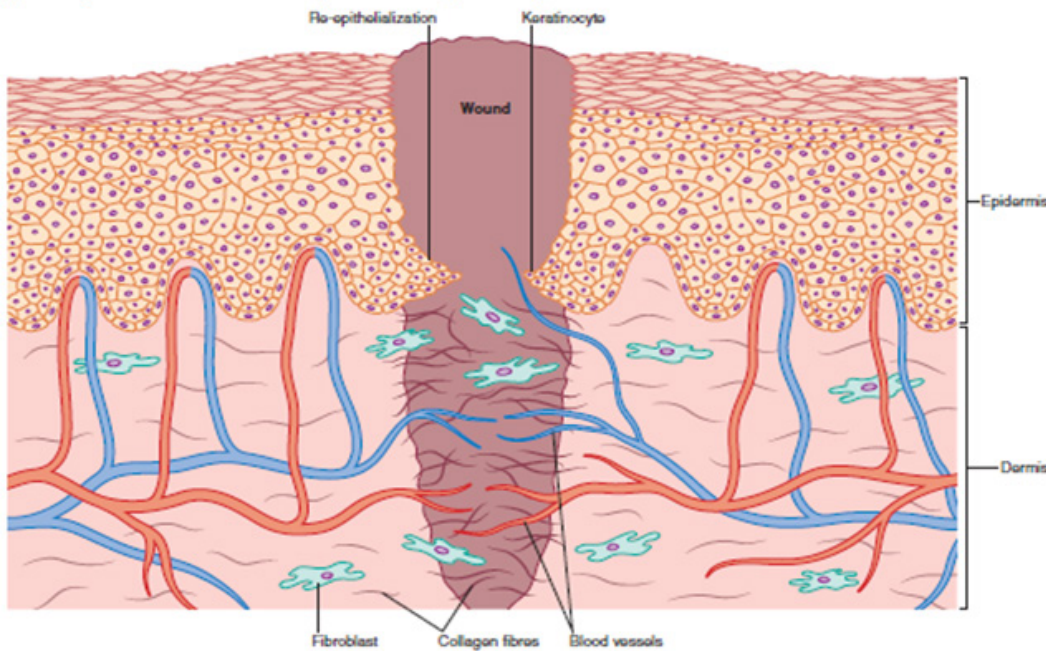


This phase works to kill bacteria and remove debris with white and other blood cells. Inflammation ensures that the wound is clean and ready for new tissue to start growing. This phase is the most painful. Lymphocytes initiate the inflammatory response and this causes increasing capillary permeability. White blood cells from surrounding vessels move in and ingest bacteria and cellular debris, demolishing the clot and healing the wound. Redness, warmth, swelling, pain, and loss of function may occur. Platelets heavily secrete growth factors during this phase. This phase takes up to six days and should go away.

c) Phase 3 - Proliferation or repair

When the wound is clean, the body will begin the proliferation phase of wound healing. This stage involves closing of the wound.

Figure 8.2 Proliferative phase of wound healing showing fibroblasts producing extracellular matrix and re-epithelialization by keratinocytes



This phase can have 3 semi phase which are:

Filling the wound: with new connective tissue and blood vessels.

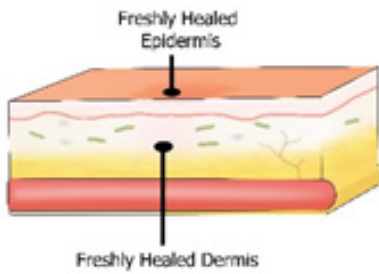
Contracting the edges of the wound: this will feel like the wound is tightening towards the center.

Covering the wound: epithelial cells (cells that create a protective barrier between the inside and outside of your body) flood in and multiply to close your wound completely.

This phase can last four days to almost a month, depending on the surface area of your wound.

d) Phase 4 - Maturation or remodeling

During this phase, the new tissue that body built in phase three, needs to strengthen and build flexibility.



This stage can take the longest, sometimes taking over a year to fully repair. But, once fully recovered, the skin should be pretty close to as strong as it was before it was wounded.

The healing process is one of the body's most surprising functions, but it can be delayed by aggravators like infection and poor wound care. It is good to learn how to properly dress a wound so health care provide can maximize the body's ability.

Self-assessment 1.2

Match phases of wound healing in column A with their respective definitions in column B

COLUMN A	COLUMN B
Phases of wound healing	Definitions
1. Hemostasis	a. The injured blood vessels leak transudate (made of water, salt, and protein) causing localized swelling
2. Maturation	b. The wound is rebuilt with new tissue made up of collagen and extracellular matrix. The wound contracts as new tissues are built
3. Inflammation	c. Cessation of bleeding from a blood vessel
4. Proliferation	d. In this phase the collagen is remodeled and the wound fully closes
	e. It protects deeper body structures and acts as a barrier against invasion by microorganisms and other harmful agents
	f. Change in the color of the wound bed, malodorous and exudate, heat and swelling.

1.3. FACTORS AFFECTING WOUND HEALING

Learning activity 1.3

Observe the following images and answer to questions below



A



B



C



D

- 1) After observing the above images ABCD, list different factors affecting wound healing.
- 2) In group discussion, explain the factors affecting wound healing separately.

There are many reasons why wounds do not heal in a straightforward manner; these reasons can be classified as intrinsic (something internal to the individual) or extrinsic (something external to the individual).

a) Intrinsic factors of wound healing

- **Age:** as we age cell regeneration rates slowdown, which means that wounds usually take longer to heal the older we get. A wound that might take 3 weeks to heal in a youth may take 6 weeks to heal in the older individual. It is therefore important to set realistic goals when planning care.
- **Gender:** the fluctuating hormone levels in females during their lifetime appear to affect skin integrity and therefore healing rates, though in a mild way.

- **Psychological:** it is thought that the psychological state can impact on wound healing, such as high levels of emotional stress, worry and negative thought processes. Evidence of this can be seen where a person develops mouth ulcer or cold sores when they are experiencing such emotional pressures.
- **Physical/structure:** the human form itself can be a factor in wound healing rates, and one example of this is where pressure ulcers exist; the underlying bone that caused the ulcer in the first instance will continue to delay wound healing if pressure relief is not ensured. Other physical factors that must be considered are for example scar tissue, physical deformities, particularly of limbs, amputations, mobility and reduced mobility.
- **Lifestyle:** smoking, alcohol and drug use, although an extrinsic factor, can impact intrinsically on the individual, which could delay healing rates.
- **Nutrition:** this can be both an intrinsic factor (e.g. due to malabsorption conditions or gastric surgery) and an extrinsic factor (due to dietary choices) all of which can result in poor nutritional intake. As wounds require an increased nutritional intake, any reduction will impact on healing rates.
- **Medications,** common medications that impact on wound healing processes and rates are steroids, anti-inflammatory and cytotoxic drugs.
- **Comorbidities** common medical conditions that affect wound healing rates are:
 - i. Diabetes, peripheral artery disease and other conditions that affect the blood circulation such as heart disease and hypertension means a reduced blood supply reaches the wound bed.
 - ii. An inefficient cardiopulmonary circulation due to heart or lung disease means that the wound will receive a reduced supply of essential oxygen and nutrients that will reduce healing rates.
 - iii. Inflammatory diseases, such as rheumatoid arthritis and ulcerative colitis; these conditions affect the inflammatory phase of a wound healing if the condition is in 'flare-up', which can cause a prolonged inflammatory phase; alternatively, if the condition is in remission the patient is usually taking prescribed steroids, which also delay the healing process by delaying or stopping the inflammatory phase. Patients on steroids who are due to have surgery are often required to stop steroids for a short time before and after surgery.
 - iv. Cancer.
 - v. Major or multi-organ failure.

b) Extrinsic factors

- **Environment** – this may include the surface the patient is lying or sitting on; the environment they live in; the support networks available to the patient; social and financial factors. It can also refer to the environment the wound is kept in (see below).
- **Clothing and footwear** – these can impact on healing rates by causing
 - pressure or restriction of blood supply, which means that there is a reduce supply of essential oxygen and nutrients supplied to the wound.
- **Wound site** – wounds sited over joints (e.g. elbows, knees) will usually take slightly longer to heal than wounds over non-mobile areas.
- **Temperature** – of particular importance is the temperature of the wound bed; ideally a wound ought to be retained at body temperature (i.e. 36.9°C). If the wound is not dressed with an appropriate (insulating) dressing the wound bed will cool according to the atmosphere and will result in a reduced blood supply. The temperature of an individual is also important; if a person is allowed to cool the peripheral circulation will be reduced in order to preserve the core temperature. This in turn reduces the amount of blood (and therefore oxygen and nutrients) reaching the wound bed.
- **Nutrition** – it is vital that the patient with a wound takes in additional calories in order to increase healing rates, particularly with regards to increased proteins.
- **Wound care skill/technique:** one of the most common reasons for delayed wound healing is the wound care technique of health professionals. This may include the use of inappropriate dressings, causing trauma on removal of the dressing (causing the wound to revert back to the beginning of the healing process); leaving a dressing in situ for too long, causing saturation and subsequent maceration/excoriation of the wound and peri-wound tissues.
- **Infection:** Both bacteria and endotoxins can lead to the prolonged elevation of pro-inflammatory cytokins such as interleukin-1 and TNF- α and elongate the inflammatory phase

Self-assessment 1.3

Discuss the ways that intrinsic factors (age, lifestyle and medications) and extrinsic factors (nutrition, wound site and wound care skill) affect the wound healing process.

1.4. OVERVIEW ON SIMPLE WOUND CARE

Learning activity 1.4

Patient H. is coming to the health facility where you work as an associate nurse. He is having the bleeding simple wound on elbow after road traffic accident. The senior nurse decided that the wound dressing will be performed.

- 1) Why wound dressing will be done?
- 2) Which type of wound dressing will be performed?

The wounds are different and therefore their dressing differ also. There is:

- **Aseptic dry wound dressing** - is the most common type of dressing for simple wound, it is done using dry gauzes without products and held in place using a tap or a bandage if a non-adhesive dressing material is used. The wound is previously cleaned with sterile gauzes soaked in an appropriate fluid like normal saline 0.9%.
- **Sterile wet wound dressing** - Gauze or other dressing materials is be moistened with saline to keep the surface of open wounds moist. A moist wound surface enhances the cellular migration necessary for tissue repair and healing.

Purpose of wound dressing

- To keep the wound clean
- To prevent the wound from injury and contamination
- To keep in position, the drugs applied locally
- To keep the edges of the wound together
- To apply pressure

Self-assessment 1.4

Mr. J. underwent hernia repair and was discharged home the following day. He presents to you with a discharge summary at a health center.



- 1) What is the type of wound dressing is indicated for Mr. J.?
- 2) Differentiate aseptic dry dressing from sterile wet wound dressing
- 3) What is the purpose of wound dressing for Mr. J.?



1.5. ASEPTIC DRY WOUND DRESSING TECHNIQUES



Learning activity 1.5

- 1) According to your understanding, what do you think the health care provider should do in order to keep the aseptic wound dry?
- 2) What do you think should be attention of nurse to make aseptic wound dressing procedure?
- 3) Perform dry aseptic wound dressing technique to a mannequin as watched on video

Steps of dry wound dressing technique

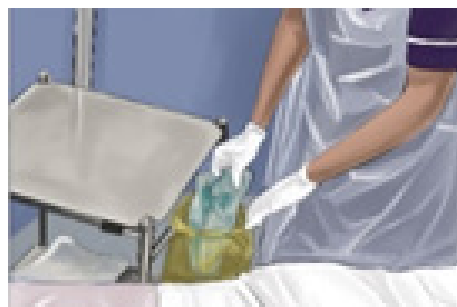
ACTION	RATIONALE
Pre-procedure	
1) Review the medical order for wound care or the nursing plan of care related to wound care	Reviewing the order and plan of care validates the correct patient and correct procedure
2) Gather necessary supplies: <ul style="list-style-type: none"> • Clean, disposable gloves • Additional personal protective Equipment (PPE), as indicated • Gauze dressings • Sterile dressing set (for the sterile scissors and forceps) • Sterile cleaning solution as ordered (commonly 0.9% normal saline solution) • Sterile basin (may be optional) • Sterile drape (may be optional) • Plastic bag or other appropriate waste container for soiled dressings • Waterproof pad • Tape or bandage • Detergent Wipe • Sanitizer for hand rub • Additional dressings and supplies needed or required by the primary care provider's order 	Preparation promotes efficient time management and an organized approach to the task  

3) Identify the patient	Identifying the patient ensures the right patient receives the intervention and helps prevent errors
4) Introduce yourself to the patient, explain and discuss the procedure with him/her, and obtain the consent to proceed	<p>To ensure that the patient feels at ease, understands the procedure and gives their valid consent</p> <p>Patients tend to respond more positively if they understand the treatment they are receiving</p> 
5) Assess the patient for the possible need for non-pharmacologic pain-reducing interventions or analgesic medication before wound care dressing change and check, allergy status	To reduce anxiety and discomfort during the procedure. Some dressings may not be suitable due to allergy
6) Wash hands with soap and water, and put on appropriate PPE.	<p>Hands must be cleaned before and after every patient contact and before commencing the preparations for aseptic technique, to prevent cross-infection</p> 

<p>Clean the trolley with a detergent wipe.</p>	<p>To provide a clean working surface</p> 
<p>Apart the dressing set, place all the equipment required for the procedure on the bottom shelf of the clean dressing trolley. Check the integrity and use-by dates of all equipment (i.e., ensure that packs are undamaged, intact and dry).</p>	<p>To maintain the top shelf as a clean working surface. To ensure sterility of equipment prior to use.</p>
<p>Perform hand hygiene and put on PPE as appropriate</p>	<p>Hand hygiene and PPE prevent the spread of microorganisms. PPE is required based on standard and transmission-based precautions.</p> 
<p>Close the treatment room door or screen the bed area.</p> <p>Position the patient comfortably so that the wound area is easily accessible without exposing the patient unduly.</p> <p>To maintain the patient's dignity and comfort</p>	<p>To This ensures the patient's privacy</p>

Place a waste receptacle or bag at a convenient location for use during the procedure.

Having a waste container handy means the soiled dressing may be discarded easily, without the spread of microorganisms



Place the trolley at a convenient location near patient's bedside

To avoid straining during the procedure

Procedure

Clean hands with an alcohol-based sanitizer.

To reduce the risk of wound infection and cross-contamination

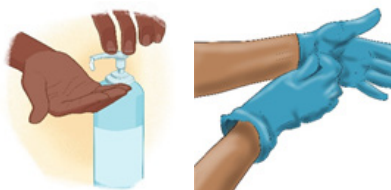



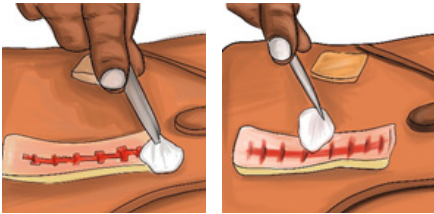
corners of the wrapper) and open other sterile supplies gently onto the center of the sterile field



Clean hands with an alcohol-based sanitizer and put on glove

Hands may become contaminated by handling outer packets, dressing and so on



<p>Loosen the adhesive of any existing dressing and remove it. Place the dressing in the disposal bag. Remove the gloves and dispose of them in the disposal bag.</p>	<p>To reduce the risk of cross-infection. To prevent contamination of the environment</p> 
<p>Clean hands with an alcohol-based sanitizer and put on gloves</p>	<p>To reduce the risk of infection to the wound and contamination of the nurse</p>
<p>Clean the wound from top to bottom and from the center to the outside. Following this pattern, use new gauze for each wipe, placing the used gauze in the waste receptacle</p> <p>Alternately, spray the wound from top to bottom with a commercially prepared wound cleanser</p>	<p>Cleaning from top to bottom and center to outside ensures that cleaning occurs from the least to most contaminated area and a previously cleaned area is not contaminated again. Using a single gauze for each wipe ensures that the previously cleaned area is not contaminated again</p> 
<p>Assess wound healing. Obtain wound measurements and photography (with the consent of the patient) if required.</p>	<p>To assess healing and evaluate wound care</p>
<p>Once the wound is cleaned, dry the area using a gauze sponge in the same manner.</p> <p>Apply ointment or perform other treatments (if ordered).</p>	<p>Moisture provides a medium for growth of microorganisms.</p> <p>The growth of microorganisms may be inhibited and the healing process improved with the use of ordered ointments or other applications</p>

Apply a layer of dry, sterile dressing over the wound.

Forceps may be used to apply the dressing.

Primary dressing serves as a wick for drainage. Use of forceps helps ensure that sterile technique is maintained.



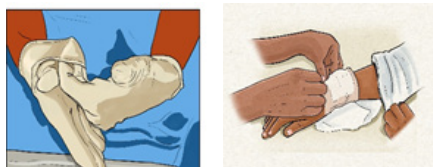
Place a second layer of gauze over the wound site, as necessary.

A second layer provides for increased absorption of drainage.

Remove and discard gloves and apply tape/straps, or roller gauze/bandage to secure the dressings.

Alternately, many commercial wound products are self-adhesive and do not require additional tape.

Proper disposal of gloves prevents the spread of microorganisms. Tape or other securing products are easier to apply after gloves have been removed.



Post-procedure

To complete dressing change:

- Assist patient to comfortable position.
- Lower patient's bed (if raised).
- Draw back the curtains (if applicable).

Taking these steps ensure the patient's continued safety.



Dispose of waste in clinical waste receptacle or bag and sharps in a sharps bin. Remove gloves and apron and wash hands.

To prevent environmental contamination and sharps injury.

Orange is the recognized colour for clinical waste



Record the assessment in the relevant documentation at the end of the procedure.

To maintain an accurate record of wound healing progress



Self-assessment 1.5

Use the simulation lab and perform aseptic dry wound dressing technique on the mannequin respecting the steps of aseptic dry wound dressing.

1.6.WET DRESSING TECHNIQUE

Learning activity 1.6




After having an overview on techniques of wound dressing



- 1) Which techniques do you find as mostly indicated for the illustrated wound image?
- 2) Explain the rationale of choosing that wound dressing technique?
- 3) Perform the indicated wound dressing technique



A saline-moistened dressing promotes moist wound healing and protects the wound from contamination and trauma. A moist wound surface enhances the cellular migration necessary for tissue repair and healing. It is important that the dressing material be moist, not wet, when placed in open wounds. Dressing materials are soaked in normal saline solution and squeezed to remove excess saline so that the dressing is only slightly moist.

Steps of wet wound dressing

ACTION	RATIONALE
Pre-procedure	
<p>Review the medical order for wound care or the nursing plan of care related to wound care</p>	<p>Reviewing the order and plan of care validates the correct patient and correct procedure</p> 
<p>Gather necessary supplies:</p> <ul style="list-style-type: none"> • Gather necessary supplies: • Clean, disposable gloves • Additional PPE, as indicated • Sterile dressing set or suture set (for the sterile scissors and forceps) • Sterile gauze dressings • Sterile kidney dish or gallipot • Sterile cleaning solution as ordered (commonly 0.9% normal saline solution) • Plastic bag or other appropriate waste container for soiled dressings • Waterproof pad • Tape or bandage • Detergent Wipe • Sanitizer for hand rub • Additional dressings and supplies needed or required by the primary care provider's order 	<p>Preparation promotes efficient time management and an organized approach to the task</p>  

Identify the patient	Identifying the patient ensures the right patient receives the intervention and helps prevent errors
Introduce yourself to the patient, explain and discuss the procedure with him/her, and obtain the consent to proceed	<p>To ensure that the patient feels at ease, understands the procedure and gives their valid consent</p> <p>Patients tend to respond more positively if they understand the treatment they are receiving</p> 
Assess the patient for the possible need for non-pharmacologic pain-reducing interventions or analgesic medication before wound care dressing change and check, allergy status	To reduce anxiety and discomfort during the procedure. Some dressings may not be suitable due to allergy
Wash hands with soap and water, and put on appropriate PPE.	<p>Hands must be cleaned before and after every patient contact and before commencing the preparations for aseptic technique, to prevent cross-infection</p> 

Clean the trolley with a detergent wipe.

To provide a clean working surface



Apart the dressing set, place all the equipment required for the procedure on the bottom shelf of the clean dressing trolley. Check the integrity and use-by dates of all equipment (i.e., ensure that packs are undamaged, intact and dry).

To maintain the top shelf as a clean working surface. To ensure sterility of equipment prior to use.

Perform hand hygiene and put on PPE as appropriate

Hand hygiene and PPE prevent the spread of microorganisms. PPE is required based on standard and transmission-based precautions.



Close the treatment room door or screen the bed area. Position the patient comfortably so that the wound area is easily accessible without exposing the patient unduly.

To This ensures the patient's privacy
To maintain the patient's dignity and comfort

Place a waste receptacle or bag at a convenient location for use during the procedure.

Having a waste container handy means the soiled dressing may be discarded easily, without the spread of microorganisms



Place the trolley at a convenient location near patient's bedside

To avoid straining during the procedure

Procedure

Clean hands with an alcohol-based sanitizer

To reduce the risk of wound infection and cross-contamination



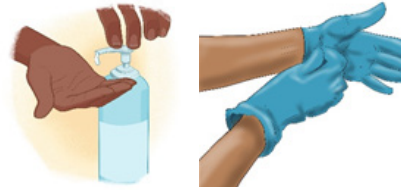
Open the outer cover of the sterile dressing pack (Open the sterile field using only the corners of the wrapper) and open other sterile supplies gently onto the center of the sterile field

To ensure that only sterile products are used



Clean hands with an alcohol-based sanitizer and put on glove

Hands may become contaminated by handling outer packets, dressing and so on



Loosen the adhesive of any existing dressing and remove it. Place the dressing in the disposal bag.

Remove the gloves and dispose of them in the disposal bag.

To reduce the risk of cross-infection. To prevent contamination of the environment



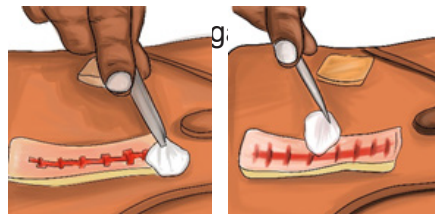
Clean hands with an alcohol-based sanitizer and put on gloves

To reduce the risk of infection to the wound and contamination of the nurse

Clean the wound from top to bottom and from the center to the outside. Following this pattern, use new gauze for each wipe, placing the used gauze in the waste receptacle




Alternately, spray the wound from top to bottom with a commercially prepared wound cleanser

Cleaning from top to bottom and center to outside ensures that cleaning occurs from the least to most contaminated area and a previously cleaned area is not contaminated again. Using a single gauze for each wipe ensures that the previously cleaned area is not



Assess wound healing. Obtain wound measurements and photography (with the consent of the patient) if required.

To assess healing and evaluate wound care

<p>Once the wound is cleaned, dry the area using a gauze sponge in the same manner.</p>	<p>Moisture provides a medium for growth of microorganisms.</p> <p>The growth of microorganisms may be inhibited and the healing process improved with the use of ordered ointments or other applications</p>
<p>By use of two forceps squeeze excess fluid from the gauze dressing. Unfold and apply the gauze dressing over the wound</p>	<p>The gauze provides a thin, moist layer to contact all the wound surfaces.</p> 
<p>Place a second layer of gauze over the wound site, as necessary.</p>	<p>A second layer provides for increased absorption of drainage.</p>
<p>Remove and discard gloves and apply tape/straps, or roller gauze/bandage to secure the dressings.</p> <p>Alternately, many commercial wound products are self-adhesive and do not require additional tape.</p>	<p>Proper disposal of gloves prevents the spread of microorganisms. Tape or other securing products are easier to apply after gloves have been removed.</p> 
<p>Post-procedure</p>	
<p>To complete dressing change:</p> <ul style="list-style-type: none"> • Assist patient to comfortable position. • Lower patient's bed (if raised). • Draw back the curtains (if applicable). 	<p>Taking these steps ensure the patient's continued safety.</p> 

Dispose of waste in clinical waste receptacle or bag and sharps in a sharps bin. Remove gloves and apron and wash hands.

To prevent environmental contamination and sharps injury.

Orange is the recognized colour for clinical waste



Record the assessment in the relevant documentation at the end of the procedure.

To maintain an accurate record of wound healing progress



Self Assessment 1.6

Mr. P. A 29 years old male is a patient who comes regularly at the health center for wound dressing of his right heel which he got from a road traffic accident from his motorcycle. Today is his day-10 to be dressed, and in his small book from the health center (carnet), it is indicated that Mr. P.'s wound is mildly infected. On your observation after removing the old dressing, you find that there are some yellowish discharges coming from the wound in small amount

- 1) Identify the type of dressing technique indicated
- 2) Perform the indicated wound dressing technique

End unit assessment 1

1. Why good hand hygiene is important in wound care?
 - a) Clean hands smell nicer for the patient.
 - b) Prevent the spread of infection
 - c) Dressings don't work if there is any dirt on a wound.
 - d) Nurses don't like dirty hands
2. Which of the following is the correct sequential order of the phases of wound healing?
 - a) Inflammation, remodeling, hemostasis, and repair
 - b) Inflammation, hemostasis, proliferation, and maturation
 - c) Hemostasis, inflammation, repair, and remodeling
 - d) Inflammation, maturation, proliferation, and hemostasis
3. Why is it important to include the patient in your selection of wound dressing?
 - a) Because the ward manager has told you to talk to patients
 - b) Because the league of friends won't supply any more extras for the ward if you don't talk to patients
 - c) Because patients will respond to treatment in a more positive manner if they understand what you are doing and the likely outcomes.
 - d) Because talking to your patient helps the time to pass more quickly when you're doing the dressing explain and discuss the procedure with the patient

True or false questions

- 1) Normal saline solution is the only completely safe cleansing agent and is the treatment of choice for use of wounds
- 2) Use the same swab to cleanse a circular wound more than once
- 3) As long as the aseptic wound dressing is done properly, documentation is unnecessary after performing it

Short answer questions

- 1) Mention the principles of performing wound dressing
- 2) Explain how comorbidities as intrinsic factors affect wound healing process

Case Scenario

Mr. T with 30 years old comes to the health facility where you work, he has bleeding wound on left tibia after road traffic accident. Your senior prescribe for him daily Wound dressing with Normal saline. As a student future associate nurse assigned to take care of Mr.

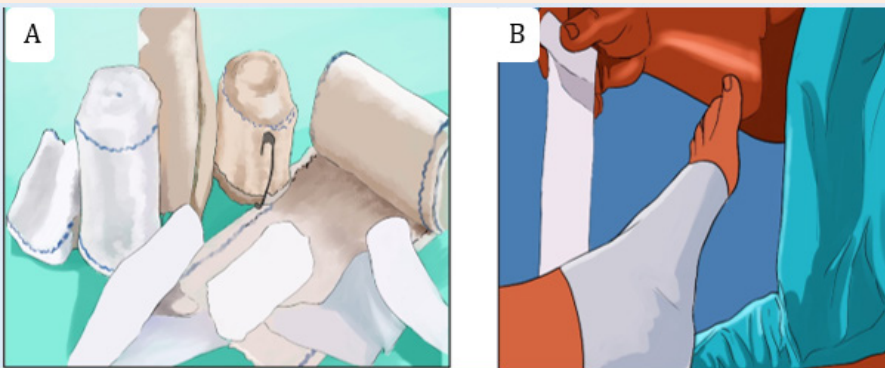
- 1) List at list 3 purpose of wound dressing
- 2) Outline at least 5 precautions that you are going to implement for preventing infections to Mr. T during performing wound dressing
- 3) During the procedure, explain to him the role of diet as well as the example of most preferred nutrient in promoting wound healing
- 4) Which phase of wound healing for Mr. T,s wound

Key unit competence

Apply correctly the techniques of bandaging

Introductory activity 2

Observe the picture provided and respond to the questions below



1. What does the above image A show to you?
2. Which technique is being performed on image B?
3. What do you think the technique performed will help the casualty

2.1. INTRODUCTION TO BANDAGING TECHNIQUES

A bandage applied properly can aid in the recovery of a patient while a carelessly or improperly applied bandage can cause discomfort to the patient, expose the wound to danger of infection and even imperil the life of the patient.

Bandaging is a process of covering a wound or an injured body parts.

A bandage is a strip of cloth used to wrap some part of the body. Applying the right type of bandage for a particular injury is necessary. Moreover, a bandage protects the injury from any kind of germs that might slow down the healing process.

Learning activity 2.1

Observe the illustrated images and answer the following questions



- 1) What do the images give you an idea about?
- 2) What was the purpose of the procedure done?
- 3) Describe the differences in the images illustrated above
- 4) Suggest the types of bandages used
- 5) Comment on the way different body parts bandaged are tightened

2.1.1. Purpose of Bandaging

Bandaging can be done purposefully to immobilize an injured part and relieve pain, to protect a wound and secure dressing, to control bleeding from wounds, and to reduce or prevent swelling.

2.1.2. Rules of applying bandages

The rules of applying bandaging are but not limited to; selecting a bandage of appropriate size and suitable material, putting the patient in a comfortable position, support the injured area while bandaging, if a joint is involved; flex it slightly, face the patient while applying the bandage, except when applying it on the head, hold the roll of the bandage in the dominant hand when applying the bandage and check the circulation in the area distal to the bandage, If necessary, unroll the bandage until the blood supply returns, and reapply it more loosely.

2.1.3.Types of bandages

The types of bandages include the following:

A. Triangular bandage

Triangular bandage consists of a wide triangular piece of cloth usually made from meter square tissue that is cut in half diagonally. The bandage can be used in various ways as sling to support an injured limb, to secure splint or for immobilization of broken bones and soft tissue injuries.



It is valuable in emergency bandaging since it is quickly, easily applied and stays on well. They are used also for applying pressure to a wound to control bleeding.

When opened up, they make slings to support, elevate or immobilize upper limbs. For example, this may be necessary with a broken bone or strain or to protect a limb after an operation.

Folded narrowly, a triangular bandage becomes a cold compress that can help reduce swelling.

B. Roller bandage

A roller bandage is a long strip of gauze or cotton material prepared on a roll. Roller bandages can be used to immobilize injured body parts, provide pressure to control internal or external bleeding, absorb drainage, and secure dressings. Basically, there are two types of roller bandages; an elastic roller bandage which is used to apply support a strain or sprain and is wrapped around the joint or limb many times, another type of roller bandage is linen roller bandages which are used to cover gauze dressings.



They come in many different widths and are held in place with tape or pins; they can also be used for wound compression as they are typically sterile.

Bandages should be applied firmly but not tightly enough to reduce circulation.

C. Tubular bandage

Tubular bandages are used for supporting purpose in case of contusions, light sprains and post-plaster casting, hold dressings on fingers or toes because those areas are difficult to bandage, prevents slipping down in joints and allows full freedom of movement and saves Healthcare provider's time. They're made of seamless fabric tube. You can get elasticized ones to place over joints such as the ankle.



Size of bandages by body part to be bandaged

Part to be bandaged	Width (cm)	Length(m)
Head	5	4-6
Trunk	10-15	6-8
Leg	6-8	4
Arm	5-6	3-4
Fingers	2.5	2
Hand	5	3
Wrist	5	3

Self-assessment 2.1

A 9 years male child X is brought to the health center by her mother saying that he fallen down while he was climbing avocado tree and the child is complaining for left arm pain; through observation you realize that there is a deformity of the left forearm and while you try to palpate the arm this act increases the pain to the child. After consultation you suspect closed fracture and you decide to transfer the child to the nearest District Hospital for full diagnosis and management.

Questions:

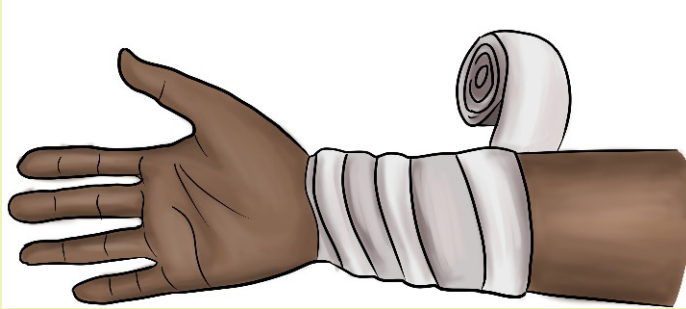
- 1) Choose the best type of bandage you can use for supporting the injured upper limb of child X.
 - a) Roller bandage
 - b) Triangular bandage
 - c) Tubular bandage
- 2) Explain the reason why you choose that type of bandage?

2.2. TECHNIQUES OF BANDAGING

2.2.1. Spiral bandage

Learning activity 2.2.1

A male patient Y. has a wound on his left lower arm and his wound is to be dressed and supported by a spiral bandage. Referring to the aside image of spiral bandage, use the model in simulation lab and make a spiral bandage of the lower arm of the patient.



a) Description

A bandage rounds a part of the body, overlapping the previous section at each turn. Spiral turns are used to bandage parts of the body that are fairly uniform in circumference.

Example: Upper arm, upper leg.

b) Implementation

- Make two spiral turns to anchor the bandage,
- Continue spiral turns at an oblique angle about a 30 degree,
- Each turn overlapping the preceding one by two third the width of the bandage,
- Terminate the bandage with two circular turns and secure the end.

Self-assessment 2.2.1

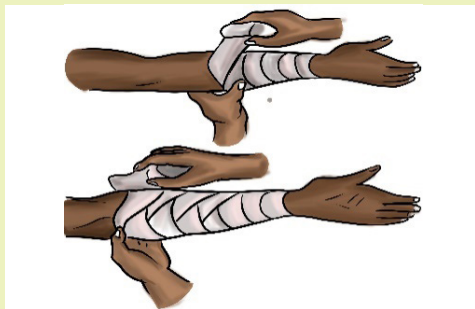
Respecting principles and steps of bandaging techniques,

Perform the spiral bandage of upper arm using the mannequin in simulation lab and respecting principles and steps of bandaging techniques

2.2.2. Spica bandage

Learning activity 2.2.2

A female patient D has fallen down and got a wound on her right upper arm. The wound is to be dressed and supported by a spica bandage to stop bleeding. Referring to the aside image of spica bandage, use the model for bandaging in the simulation lab and make a spica bandage of the upper arm of patient D.



a) Description

A bandage in which a figure of eight turns are applied, each a little higher or lower, overlapping a portion of each preceding turn so as to give an imbricated appearance.

b) Implementation

- Hold the roll in the dominant hand, and the beginning of the bandage in the other hand and face the patient.
- Make 2 circles, the 1st slightly at an oblique angle, then fold up the formed point and maintain it by the 2nd circle.
- Wrap progressively by crossing the bandage towards the top, in a figure 8 fashions.
- Make sure that the crosses are well one above the other.
- End by 2 wraps. Secure bandages with adhesive plaster or a safety pin.

Self-assessment 2.2.2

Perform the spica bandage of the lower arm of mannequin in simulation lab by following the steps of spica bandaging correctly and respecting the rules and principles of applying bandages.

2.2.3. Earlobe bandage

Learning activity 2.2.3

A 20 years female K. had a left earlobe wound infection after piercing her ears. The wound care was done and you are asked to help by covering the dressing using earlobe bandage. Following the image illustrated of earlobe bandage aside, use the mannequin and make an earlobe bandage for K.



a) Description

Earlobe bandage consists of use of a strip of material such as gauze or cloth used to protect, compress, or support a wound dressing of the ear.

b) Implementation

- Make 2 circles facing the patient, the 1st slightly at an oblique angle, then
- Fold up the formed point and maintain it by the 2nd circle.
- Make three oblique drops as for the eye, which means upward from the ear and downward on the parietal region of the opposite side, in order to have a crossing at the location of the brow just above the eye.
- When bandaging the left ear, start from the top of the head at the right side; When bandaging the right ear, start under the ear and avoid covering the eye.
- Secure bandages with adhesive plaster or a safety pin.

Self-assessment 2.2.3

Form groups of two learners and make the earlobe bandage for each other by following steps of earlobe bandage, respecting rules and principles of application of bandages.

2.2.4. Cranial bandage

Learning activity 2.2.4

A 30 years old cyclist had road traffic accident and got head injuries; the multiple wounds cover his head and it is necessary to support the wound dressings using bandage. Referring to the image of cranial bandage also known as capeline of head illustrated, Work in pairs and perform a cranial bandage of your colleague showing the way you can bandage the patient after wound care.



a) Description

Cranial bandage is sometimes used when the whole scalp is to be covered. A double headed roller bandage is used. The patient should be seated and the nurse should stand behind the patient.

b) Implementation

- Place a center of the outer surface of the bandage in the center of the forehead, the lower border of the bandage lying just above the eyebrows.
- The head of the bandage as brought over the temples and above the ears to the nape of the neck where the ends are crossed.
- The upper bandage being carried, round the head and another brought over the center of the top of the scalp to the root of the nose.
- The bandage which encircles head is now brought over the forehead, covering and fixing the bandage which could cross the scalp.
- This bandage is then brought back over the scalp.
- Slightly to one side of the center, thus covering one margin of the original turn.
- At the back, it is again crossed and fixed by the encircling bandage and is turn back over the scalp to the opposite side of center line,
- Now covering the other margin of its original turn.
- These backward and forward turns are repeated to alternate side of the center, each one being, in turn, fixed by encircling bandage until the whole scalp is covered.
- The bandage is completed by a circular turn around the head and pinned in the center of the forehead.

Self-assessment 2.2.4

In groups of two learners perform capeline of head bandage to each other following all steps of the procedure and respecting the rules and principles of bandages application.

2.2.5. Monocular bandage

Learning activity 2.2.5

Mr. G had an injury of the left eye and he needs a monocular bandage to prevent swelling of his injuries.

Referring to the illustrated image, perform a monocular bandage of the left eye for Mr. M.



a) Description

Monocular bandage also known as “Crossed bandage of one eye” is the way of bandaging used to hold dressing of the eye.

b) Implementation

A bandage of 1.5-2 width is required for monocular bandage.

- Start on the forehead by a first circular, turned at an angle, at which it is fold back between first and the second circular without tightening too much.
- Oblique wraps are made, ascending while passing under the earlobe.
- Go up to the interior angle of the affected eye and at the opposite top of the head.
- Cover the first jet of the 2/3rd while moving away from the center, which means, crossing on the face then move away from the nose on the eye-level.
- Make 3 wraps.
- End by a frontal circle.
- Secure bandages with adhesive plaster or a safety pin.
- It is necessary to systematically move up on the ear, and down on the top from the head.

Some people prefer to take the bandage around the forehead between each turn covering the dressing, but this makes a heavy bulk around the head which is not really necessary.

Self-assessment 2.2.5

A 10 years old male child had left eye problem, after being operated, a wound dressing is to be done and supported by a left eye bandage. Use group of two learners and perform eye bandage

2.2.6. Binocular bandage

Learning activity 2.2.6

Mrs. N. a 56 years old woman underwent a surgery of both eyes and there was need for binocular bandage to support the dressing and prevent swelling.

Perform the binocular bandage as illustrated in the aside image.



a) Description

Binocular bandage also known as “Crossed bandage of both eyes” is the way of bandaging used to hold dressings of both eyes.

b) Implementation

- A figure of eight technique is used.
- Start on the forehead and make two circles; the first slight at an oblique angle, then fold up the formed point and maintain it by the second cycle.
- From the nape of neck pass through the right top of the head, the interior angle of the left eye and under the left earlobe.
- Go down in the nape of the neck, under the right earlobe, the interior angle of right eye and pass at the left top of the head.
- Make a frontal circle. Three times, repeat the movement while deviating, on the one hand from the top of the head, on the other hand from the nose: the wraps cross on the face above the nose.

- Do not tighten on the eyes.
- End by two wraps and secure bandages with adhesive plaster or safety pin.

Self-assessment 2.2.6

In classroom and in pair, perform binocular bandage to each other following all steps of binocular bandage and respecting rules and principles of bandage application.

2.2.7. Hand gloved bandage

Learning activity 2.2.7

K. a 10 years old child has a dressing on the back of his hand and there is need to do a hand-gloved bandage in order to protect the wound and support the dressing. Perform a hand gloved bandage of the left arm as illustrated aside.



a) Description

Hand gloved bandage also called complete bandage of hand is used to retain dressings on the back of the hand.

b) Implementation

- Hold the roll in the dominant hand, and the beginning of the bandage in the other hand and face the patient.
- Make 2 circles, the 1st slightly at an oblique angle, then fold up the formed point and maintain it by the 2nd circle.
- If hand is pronated: start with the small finger of the right hand or start with the thumb of the left hand.
- If hand is supinated: start with the thumb of the right hand or start with the small finger of the left hand.
- Form a spiral at each finger, starting with the distal part of each finger.
- Each time, make the bandage pass over the back of the hand before returning to the wrist.
- Make a circle at the wrist before to start wrapping next finger.
- End by 2 circles at the wrist. Secure bandages with adhesive plaster or a safety pin.

Self-assessment 2.2.7

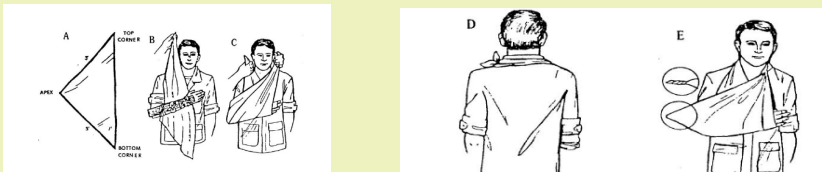
In simulation lab, using the mannequin perform hand gloved bandage using appropriate bandage type, following steps of hand gloved bandage and respecting rules and principles of bandage application.

2.2.8. Triangular Bandage

Learning activity 2.2.8

A 32years old male was injured on his elbow in a motorcycle accident and you are among the people gathering around the accident site.

Work in pairs and perform a triangular bandage of the right arm as illustrated aside.



a) Description

Triangular bandage, also known as handkerchief bandage is used for temporary or permanent dressing of wounds, fractures, dislocations and slings.

It is very valuable in first-aid work since it is quickly and easily applied and can be improvised from any kind of cloth such as a piece of cloth such as a shirt, a sheet, a large handkerchief etc.

b) Implementation

- Ask the patient to bend his arm to be placed in a sling bringing the forearm on the chest, so that the hand is placed higher than the elbow.
- Place the bandage under the Patient's arm on his chest (the center of the triangle base under the wrist, angle point at the level of the elbow, neck scarf at the level of the neck).
- Hold upward lower the sling of the arm, above the wrist.
- Fix a reef knot on the unaffected side (never fix it on the spinal column).
- Fold the excess cloth on the level of the elbow and fix it with safety pins.
- Check the correct setting of the scarf (hand and forearm maintained above the elbow).

Self-assessment 2.2.8

Mr. F. has injured in road traffic accident and he has injured his right elbow, make pairs in class and perform triangular bandage simulating to support Mr. F's arm before evacuation from the accident point.

2.2.9. Stump bandage

Learning activity 2.2.9

Mr. M.'s left leg has been amputated below the knee due to a malignant disease condition. After the surgical operation the stump was sutured, dressed and bandaged. On the 3rd day post-operative, there is need to change the dressing and do a stump bandaging. After the wound dressing, you have to apply a stump bandage.

Perform a stump bandage of Mr. M's left leg on the model in the simulation lab as illustrated in the image.



a) Description

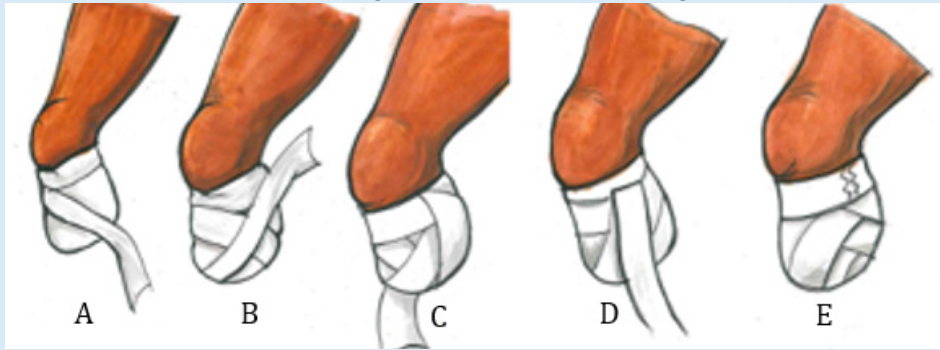
Stump bandage also known as recurrent bandage of the stump is used to control postoperative edema and to shape the stump, hold the dressing around the stump of arm, leg or around finger. The elastic bandage is applied in a recurrent or figure of eight fashion with more pressure applied to the distal, rather than the proximal portion of the limb.

b) Implementation

- Use a four-inch bandage and make two circular turns round the limb and place the end of the bandage in the center of the upper side of the limb.
- Carry the bandage over the center of the stump to the same level behind holding the turns back and front with the thumb and finger of the other hand.
- Repeat the recurrent turns over the end of the stump first on the left and then on the right side of the original turn, until the whole of the dressing is covered.
- Fix the loop with a straight turn round the stump and continue the bandage with figure of eight turns round the limb until the dressing is completely covered.
- Secure with a safety pin.

Self-assessment 2.2.9

In simulation lab, using a mannequin of stump, perform stump bandage and terminate with spica following steps of stump bandage application.

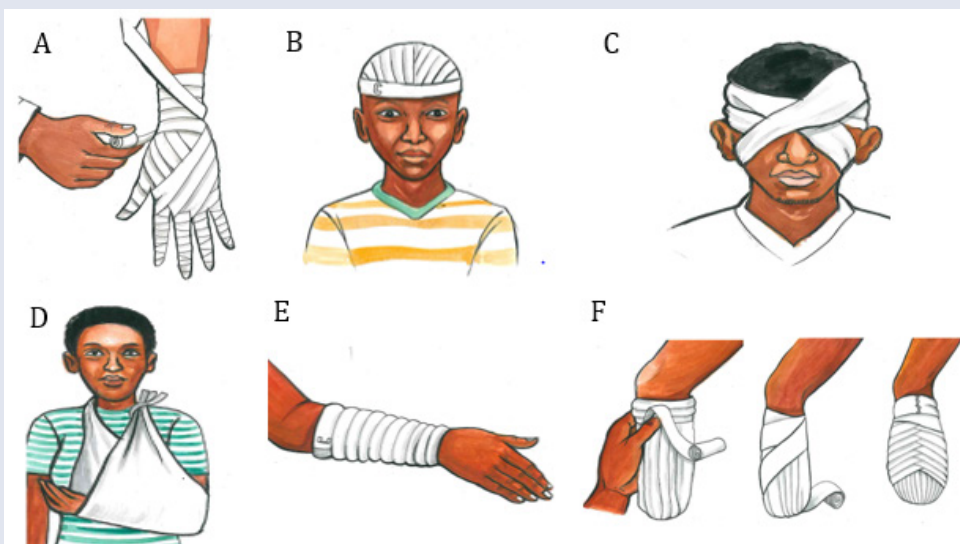


End unit assessment 2

Match the item in column A with the appropriate statement in column B

COLUMN A	COLUMN B
1) Purpose of bandaging	a) Triangle bandage
2) Rule of applying bandage	b) Safety pin
3) Types of bandages	c) Anchor the bandage
4) Bandaging equipment	d) Relieve pain and prevent swelling
	e) Stump bandaging

- (2) Outline at least five rules of bandage application.
- (3) Give two specific examples of roller bandaging techniques.
- (4) Point out 3 purposes of bandaging.
- (5) Appraise why a bandage have to be anchored as a rule of bandaging.
- (6) Describe the consequences of tightening the bandage.
- (7) Indicate the type of bandage performed on the images below.



(8) Reorder the shuffled order of steps followed to make a triangular bandage.

Shuffled order of triangle bandaging technique

- f) Hold upward lower the sling of the arm, above the wrist.
- g) Ask to the patient to bend his arm to be placed in a sling bringing the forearm on the chest, so that the hand is placed higher than the elbow.
- h) Fix a reef knot on the unaffected side (never fix it on the spinal column). Fold the excess cloth on the level of the elbow and fix it with safety pins.
- i) Face the patient and ensure good communication with the patient
- j) Check the correct setting of the scarf (hand and forearm maintained above the elbow).

Place the bandage under the patient’s arm on his chest (the center of the triangle base under the wrist, angle point at the level of the elbow, neck scarf at the level of the neck).

Triangular bandaging steps

1	2	3	4	5	6

(9) Reorder the shuffled order of steps followed to make a stump bandage

Shuffled order - stump

- a) Repeat the recurrent turns over the end of the stump first on the left and then on the right side of the original turn, until the whole of the dressing is covered.

- b) Make two circular turns round the limb and place the end of the bandage in the center of the upper side of the limb.
- c) Carry the bandage over the center of the stump to the same level behind holding the turns back and front with the thumb and finger of the other hand.
- d) Secure with a safety pin.
- e) Fix the loop with a straight turn round the stump
- f) Continue the bandage with figure of eight turns round the limb until the dressing is completely covered.

Stump bandaging steps

1	2	3	4	5	6

Key unit competence

Perform basic Laboratory investigations for common conditions and venipuncture

Introductory activity 3

The following pictures illustrate different procedures. Critically analyze them and respond to the following questions



A



B

1. Describe the procedure you think is being done in picture A and picture B
2. Which procedure do you think is invasive and why do you think so.
3. With clear rationale explain the procedure you think can produce results as quick as possible between A and B
4. What do you think the technique performed will help the casualty

3.1. BASIC LABORATORY INVESTIGATIONS FOR COMMON CONDITIONS

Learning activity 3.1

Search the book of nursing laboratory and diagnostic investigations then define and explain the rationale for each of the following test.

- a) Rapid diagnostic test
- b) Glycemia test
- c) Glucosuria test
- d) Albuminuria test

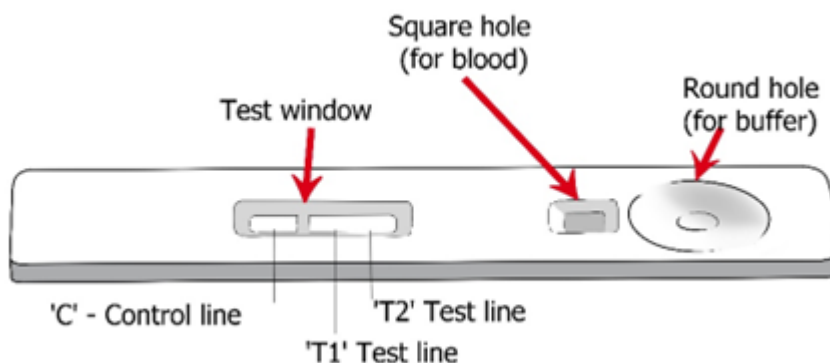
3.1.1. Rapid Diagnostic Test for Malaria (RDT)

Malaria is among serious threat killing many people worldwide. Since infection with *Plasmodium* parasites causes clinical presentation indistinguishable from other fever-causing pathogens, rapid, accurate diagnosis is a crucial component of effective case management.

Malaria rapid diagnostic tests (RDTs) assist in the diagnosis of malaria **by detecting evidence of malaria parasites (antigens) in human blood**. These tests require a drop of peripheral blood, normally collected from a finger or heel prick. Visual read-outs are available typically within 20 minutes or less.

Malaria rapid diagnostic test are frequently used in high malaria endemic area such as sub-Saharan Africa and in low to moderate transmission area such as Asia and South America, where maintenance of capacity for malaria microscopy and its quality control are obvious burdens for malaria control programs.

a) Parts of a malaria rapid diagnostic devices



b) Interpretation of RDT for Malaria

In interpreting rapid diagnostic test for malaria, one of the three possible outcome should be revealed.

When the device shows the appearance of a line near T and C means that there evidence of plasmodium parasites (**Positive**). Line near C and no line near T means that there is no evidence of parasites (**Negative**). Line near T and or no line means that the results is **invalid**. A studies assessing the sensitivity and specificity of two different brand of RDT for malaria used Rwanda has demonstrated that the sensitivity of RDT for malaria were around (80.2%-89.5%) while the specificity was (86.2 %-94.3%).

Such interpretation can be challenging, especially when compared with microscopy exam. There are instances where RDT will be positive but no parasites will be seen

on microscopy, conversely, there are instances where RDT will be negative but microscopy will detect parasites in the blood. There are instances too, when RDT will be positive but there is no clinical malaria or, the fever is not caused by malaria. Despite the fact that RDTs are recommended as a means of laboratory confirmation of malaria before the prescription of antimalarial, the interpretation of test results should be done with caution to ensure better malaria case management.

Table illustrating possible Malaria Rapid diagnostic results

RESULTS	CONTROL LINE	TEST LINE	
	C	T1 p. falciparum	T2 p. vivax
Negative			
Positive p. falciparum only			
Positive p. falciparum only or mixed with other species			
Positive: non p. falciparum (vivax)			
Invalid			
Invalid			
Invalid			

3.1.2 Glycemia test

Glycemia test also referred to as blood glucose test is a test used to measure the level of glucose within the blood, again it is used to find out if the blood sugar levels are in the healthy range.

The highlighted materials will be used in measuring glycaemia: **Glucose meter or glucometer** measures how much sugar is in the blood sample. **Test Strips, Lancets, and Lancet Device:** each small plastic strip contains chemicals that convert the sugar in the blood into an electric current that the meter can read. It is used by putting a test strip into the meter. Prick the side of the fingertip with a small needle called a lancet. The results will be visible on glucometer machine within 1 minute.

If the level of sugar in the blood is high it will be referred as hyperglycemia, and hypoglycemia for low level. Blood glucose test is often used to help diagnose and

monitor diabetes. People with diabetes require regular monitoring of their blood glucose to help them achieve as close to normal blood glucose levels as possible for as much of the time as possible. The benefits of maintaining a blood glucose level that is consistently within the normal range will reduce the short-term, potentially life-threatening complications of hypoglycemia as well as the occurrence rate and severity of the long-term complications of hyperglycemia.

a) Fasting glucose Level

We say fasting glucose when the blood sample is obtained after 8 hours of fasting. In non-diabetic patient, glucose levels vary between 70 mg/dl to 110mg/dl (4.0 to 5.4 mmol/L). In diabetic patient glucose level is more above 110mg/dl but less 126mg/dl or 7.0 mmol/L.

b) Random glucose level

Random glucose level refers to the glucose level checked without regard to the last meal. It is useful for people who need a speedy diagnosis, such as those with type 1 diabetes who require medication as a matter of emergency. Diabetes is diagnosed if random glucose level is above 200 mg/ dl or above 11.1 mmol/l with symptoms of diabetes.

c) Principles of measuring glycemia

The measurement of glucose is one of the longest established and most frequently performed tests in the clinical biochemistry laboratory. Although conventional laboratory techniques measure blood glucose as concentration in plasma or whole blood, not that direct-reading electrode systems measure it as molality in mmol/kg water, which is numerically greater, but results are often factorized and expressed, e.g. as plasma glucose concentration.

In measuring glycemia as an associate nurse, you need to know that glycemia can be measured by **two main methods**. A blood drop sample is usually collected from a fingertip prick. Alternatively, the glycaemia may be measured by taking the blood from the vein.

Ensure that the patient has fasted for at least 8 hours in case of fasting blood glucose. The patient should not eat or drink anything other than water for at least 8 hours before the blood sample is taken.

If **random blood glucose**, the glycemia is taken regardless of when the patient last ate. In this case, several random measurements may be taken throughout the day to allow for identification of fluctuations in blood glucose levels. When the fluctuations vary widely, this may mean a problem.

A **2-hour postprandial blood sugar test** measures blood sugar exactly 2 hours after the patient starts eating a meal. This is useful for diabetic patients who may

need to inquire about the efficacy of insulin being taken, and if the right amount of insulin is being taken with meals.

Sites for rapid blood glucose checking may be alternated and apart from pricking the fingers, there is a way to prick the **earlobe, heel, forearm or palm**. Alternate site testing provides similar results to finger-prick testing, especially in the fasting and two-hour post meal times. Using alternate sites may be less painful but may need a deeper lance. Ensure that the blood glucose machine and its equipment allow the alternate sites. It is recommended to respect principles of asepsis in measuring blood sugar level.

3.1.3. Urine test

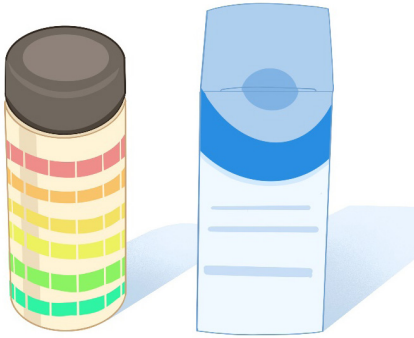
Urine tests sometime referred to as urinalysis are laboratory investigation done to examine the physical and chemical properties of urine and its microscopic appearance to aid in medical diagnosis of different health conditions. Urine test is a simple and noninvasive test that provides valuable information. An associate nurse should be able to perform urine test using urine strips and analyses glucose and albumin in it. After doing the technique of urine collection, Results are obtained by direct comparison of the color blocks printed on the bottle label. The color blocks represent nominal values; actual values will vary around the nominal values.

a) Albuminuria

Albumin is a protein found in human blood. Albumin help to maintain blood volume and pressure. The action of the kidney is to filter the blood to remove waste products and these filters (known as glomeruli) prevent large molecules, such as albumin, from passing through. If these filters are damaged, albumin passes from the blood in to the urine. If kidneys are damaged and albumin leaks into the urine in very small amounts it will be referred as microalbuminuria. As kidney function declines the amount of albumin in the urine increases, and larger or 'macro' amounts of albumin may be present. This is known as macroalbuminuria.

In normal person, albumin is not excreted in the urine. Increase level of albumin may cause major health risk therefore detection of albumin in urine is essential for diagnosis albuminuria related diseases. Several methods to detect albumin in the urine have been identified including calorimetry, radioimmunoassay, immunoenzymatic assay, turbidimetry, and dipsticks tests. Our focus here will be dipsticks test only. The strips technique is simple, cost effective and can give quicker results.

The albumin strip technique can be used even in rural areas where sophisticated laboratory testing facilities are not available.



Interpreting albumin results test is not difficult. Results are obtained by direct comparison of the color blocks printed on the bottle label. The color blocks represent nominal values; actual values will vary around the nominal values.

False positive results may be obtained with highly alkaline urine. Contamination of the urine specimen with quaternary ammonium compounds may also produce false positive results.

In 24-hour urine, 1.0-14.0 mg/dl of protein may be excreted by the normal kidney. A color matching any color block greater than trace indicates significant proteinuria. For urine with high specific gravity, the test area may most closely match the trace color block even though only normal concentrations of protein are present. Clinical judgment is needed to evaluate the significance of trace results.

a) Glycosuria

Glycosuria meaning glucose in the urine, results from the glomerular filtration of more glucose than the renal tubule can absorb. It occurs in all normal individuals in amounts up to 25 mg/dl in random fresh urine. Abnormally increased glycosuria, results from either an elevated plasma glucose, an impaired renal glucose absorptive capacity, or both.

The plasma glucose concentration of 25mg/dl indicating glucosuria is called the *renal threshold* for glucose. Its value is variable, and deviations occur both above and below the commonly accepted «normal» threshold of 180 mg/dl. In diabetic patients, the value is reported to vary from 54 to 300 mg/dl. Although glucosuria greater than 25 mg/dl is considered pathologic, many commercial urine tests for glucosuria that are available to patients fail to detect glucosuria until it reaches a level of 50–250 mg/dl.

Techniques for measuring glucosuria are based upon either glucose oxidase (specific for glucose) or copper sulfate reduction. Strip test are oxidase base and is our focus in this unit. The sensitivity of commercial clinical “strip” methods can be 10–15 mg/dl, although 50 mg/dl is usually detected.



The test of glucosuria using strips is based on a double sequential enzyme reaction. One enzyme, glucose oxidase, catalyzes the formation of gluconic acid and hydrogen peroxide from the oxidation of glucose. A second enzyme, peroxidase, catalyzes the reaction of hydrogen peroxide with potassium iodide chromogen to oxidize the chromogen to colors ranging from blue-green to greenish-brown through brown and dark brown.

Self-assessment 3.1

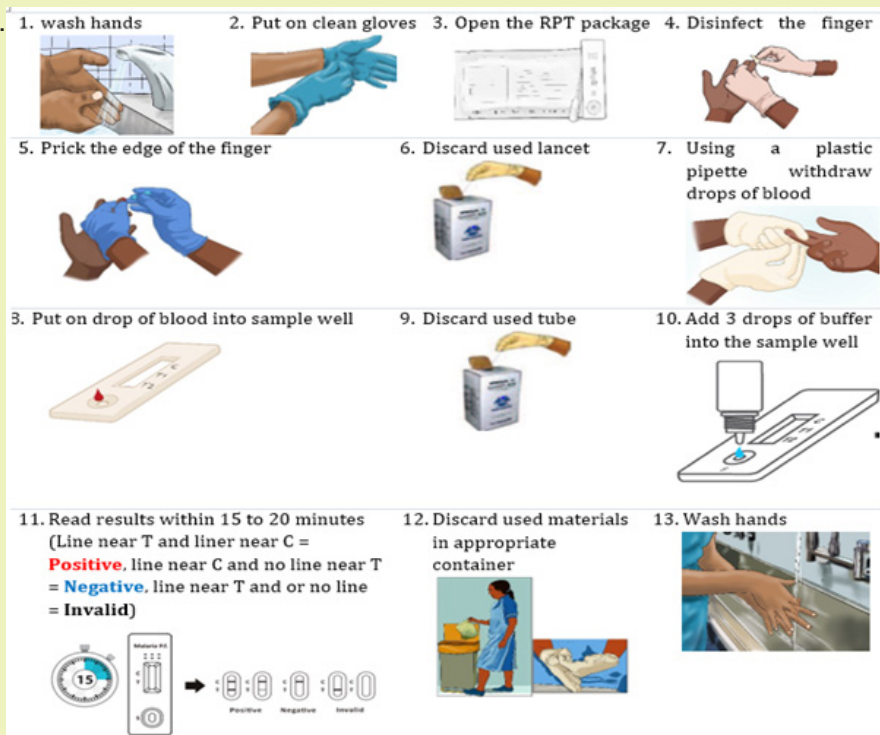
- 1) Explain how does rapid diagnostic test for malaria work?
- 2) How accurate are malaria rapid test?
- 3) In human body glucose level can be tested from the peripheral capillaries or from the urine. Discuss on normal ranges from each method and on the main causes of deviation from normal ranges in each method?

3.2. Techniques of performing basic laboratory investigations for common conditions

3.2.1. The technique of performing Rapid Diagnostic Test for malaria

Learning activity 3.2.1

The following picture illustrate the steps of rapid diagnostic test for malaria. By following the steps as illustrated in the image:



- 1) Perform the technique of rapid diagnostic test on the mannequin in the skills lab
- 2) What do you think would happen if you start the technique without washing your hands?
- 3) After pricking the finger with a lancet it should be thrown in shaft box. Discuss why it should not be thrown in the dustbin
- 4) In step 4, it is stated that the finger should be dried. What do you think as the main reason?

a) Materials

- 1) Gloves
- 2) RDT kit

- 3) Safety box
- 4) Dustbin
- 5) Timer

b) Procedure of Rapid diagnostic test for malaria

1. wash hands
2. Put on clean gloves
3. Open the RPT package
4. Disinfect the finger



5. Prick the edge of the finger



6. Discard used lancet



7. Using a plastic pipette withdraw drops of blood



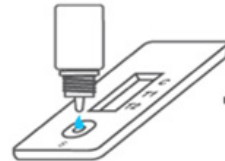
8. Put on drop of blood into sample well



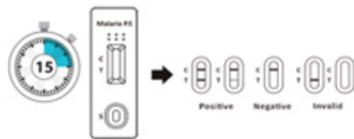
9. Discard used tube



10. Add 3 drops of buffer into the sample well



11. Read results within 15 to 20 minutes
(Line near T and liner near C = **Positive**, line near C and no line near T = **Negative**, line near T and or no line = **Invalid**)



12. Discard used materials in appropriate container



13. Wash hands



Self-assessment 3.2.1

After learning the technique of rapid diagnostic test for malaria make groups of two then go in the skills lab then screen malaria on each other using RDT. Make sure to follow steps as you learnt them.

3.2.2. The technique of performing urine test (Albumin, Glucose)

Learning activity 3.2.2

In pairs of two and perform urine test for albumin and glucose on each other using urine dipstrip available in the simulation lab.

The Urine must be tested within a few hours of voiding as urinary constituents can become unstable and may affect test results.

a) Materials

- 1) Package insert
- 2) Strips
- 3) Specimen container
- 4) Gloves
- 5) Time

b) Procedure of urine test (Glucose and Albumin)

1. Wash hands



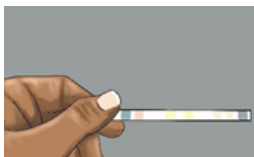
2. Fill a sterile container with urine



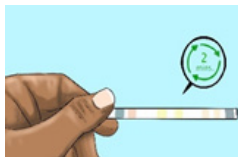
3. Dip the test strip into the urine



4. Turn the strip sideways before reading it



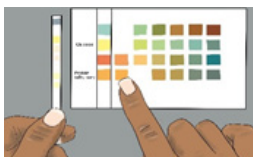
5. Wait approximately 2 minutes for the results



6. Compare the test squares to the color chart



7. Read the test squares in chronological order



8. Inform the result to the patient

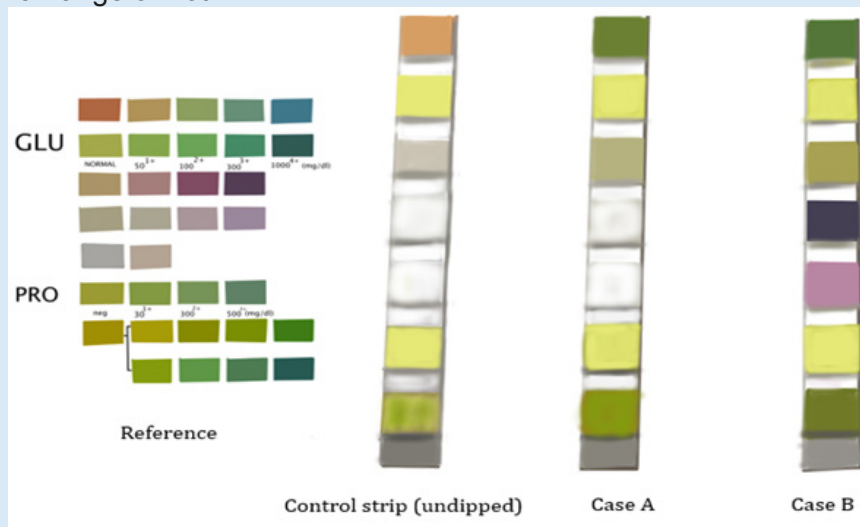


9. When you're finished with testing, dispose the remaining urine sample in the toilet.

10. Wash your hands thoroughly after the procedure

Self-assessment 3.2.2

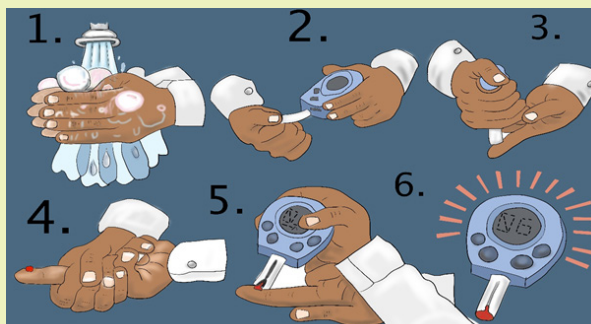
The following picture illustrate a urine test done using dipsticks on two different patients (Case A and B). compare the test results in case A and case B to the reference scale and explain whether the patient's glucose and albumin level are in normal range or not



3.2.3. Techniques of performing Glycemia test

Learning activity 3.2.3

A blood glucose test is a blood test that check if patient have high glucose level in the blood. The following materials are used in performing glycemia test: glucometer, test strips, alcohol swab, lancet, gloves, cotton wool/gauze, sharps box or safety box



- 1) Modeling from the illustrate above perform the technique of glycemia test on the mannequin in the skills lab
- 2) The normal threshold of fasting glucose level and random glucose level are different. Discuss and differentiate the fasting glucose level from the random glucose level.

The technique of glycemia test using strips

a) Materials for glycemia test

Blood glucose monitor

- 1) Test strips (check that they are in date and have not been exposed to the air)
- 2) Alcohol swab
- 3) Single-use safety lancets or lancing device,
- 4) Gloves,
- 5) Cotton wool/gauze,
- 6) Sharps box or safety box,
- 7) Control solution for calibration



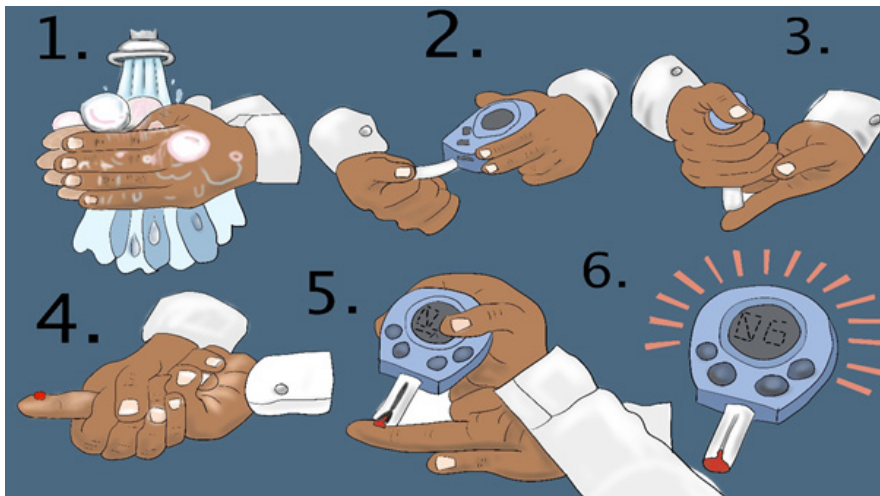
Fig: Glycemia test kit

b) Steps for Glycemia check

- 1) Ask the patient to sit down and explain what you are going to do.
- 2) Wash the hands and put on gloves.

- 3) Choose the site for the blood sample: usually the side of a finger, but the arm or thigh may be used (change the site used if frequent measurements are needed).
- 4) Use an alcohol swab to clean the site and let the alcohol dry.
- 5) Insert the test strip into the monitor, following the instructions
- 6) Use a single-use lancet or a lancing device to draw blood and dispose of it in a sharps container.
- 7) Don't go deeper than necessary
- 8) Apply the blood to the testing strip in the correct way: some strips need the blood drop to be over the whole of the test pad and some suck up the blood directly from the site of the bleeding.
- 9) Place the gauze over the site and hold it there, or let the patient hold it there until the bleeding stops.
- 10) Read and record the result, reporting and/or responding to abnormal readings.
- 11) Tell the patient what the result is, explain it
- 12) Thank the patient
- 13) Dispose of all used equipment safely
- 14) Wash the hands

Graphical illustration of the technique of glycemia test

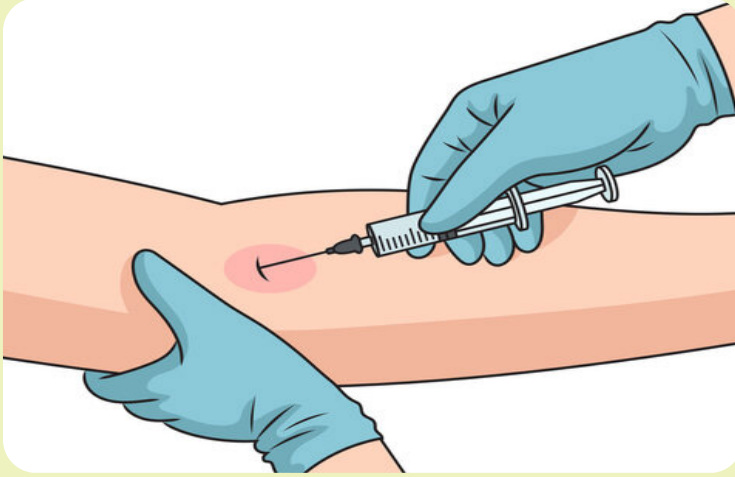


Self-assessment 3.2.3

After learning the technique of screening glycemia group yourself in pair. go in the skills lab, prepare materials for glycemia test and test each other by following the checklist of the technique.

3.3. VENIPUNCTURE

Learning activity 3.3



Observe the images above and answer the following questions:

- 1) Talk about what a person with gloved hands is doing?
- 2) Which materials are being used on image?

3.3.1. Introduction to Venipuncture

Venipuncture (puncture of a vein for collection of a blood specimen) is the process of obtaining intravenous access for intravenous therapy or venous blood sampling. It is a common procedure in clinical practice and is essential for diagnostic testing, administering medications, and fluid replacement.

3.3.2. Indications for Venipuncture

1. Diagnostic Testing:

- **Routine Blood Tests:** Includes complete blood count (CBC), which evaluates overall health and detects a range of disorders, such as anemia and infection. Chemistry panels assess metabolic functions, kidney and liver health, and electrolyte balance.
- **Specialized Tests:** Such as blood cultures to identify infections, or coagulation studies to assess blood clotting functions. Blood tests can also help diagnose conditions like diabetes, thyroid disorders, and cholesterol levels.
- **Genetic and Hormonal Testing:** Involves tests like genetic markers for inherited conditions or hormonal levels for endocrine disorders.

2. Medication Administration:

- **Intravenous Medications:** Venipuncture is essential for administering medications that require rapid onset or precise control, such as antibiotics, pain relief, chemotherapy drugs, and emergency medications. This route allows for immediate absorption into the bloodstream, making it ideal for critical or high-dose treatments.
- **Intravenous Fluids:** Used for hydration, electrolyte replacement, or delivering nutrients. This includes solutions like saline, dextrose, and balanced electrolyte fluids. Proper venous access is crucial for managing fluid balance and supporting patient recovery.

3. Fluid Replacement:

- **Dehydration:** Venipuncture allows for the administration of intravenous fluids to restore fluid balance and prevent complications related to dehydration, such as electrolyte imbalances or organ dysfunction.
- **Blood Loss:** After significant blood loss due to surgery, trauma, or hemorrhage, venipuncture facilitates blood transfusions to restore blood volume and improve oxygen-carrying capacity.

4. Blood Donation:

- **Whole Blood Collection:** Venipuncture is used to collect whole blood for transfusion, which can be separated into components such as red blood cells, platelets, and plasma.
- **Component Collection:** For patients with specific needs, such as platelet or plasma donation, venipuncture allows for the collection of these components while returning the rest of the blood to the donor.

5. Therapeutic Apheresis:

- **Removal of Specific Blood Components:** Venipuncture is used in procedures like plasmapheresis or leukapheresis, where specific blood components are removed for treating conditions like autoimmune diseases or leukemia.

6. Research and Clinical Trials:

- **Sample Collection for Research:** Blood samples are collected for research studies to investigate new treatments, understand disease mechanisms, or validate diagnostic tests. Accurate venipuncture is crucial for obtaining reliable data.

7. Emergency Situations:

- **Rapid Access for Critical Care:** In emergency situations, venipuncture provides a quick and reliable method for accessing veins to administer lifesaving medications, fluids, or blood products.

3.3.3. Anatomy and Site Selection

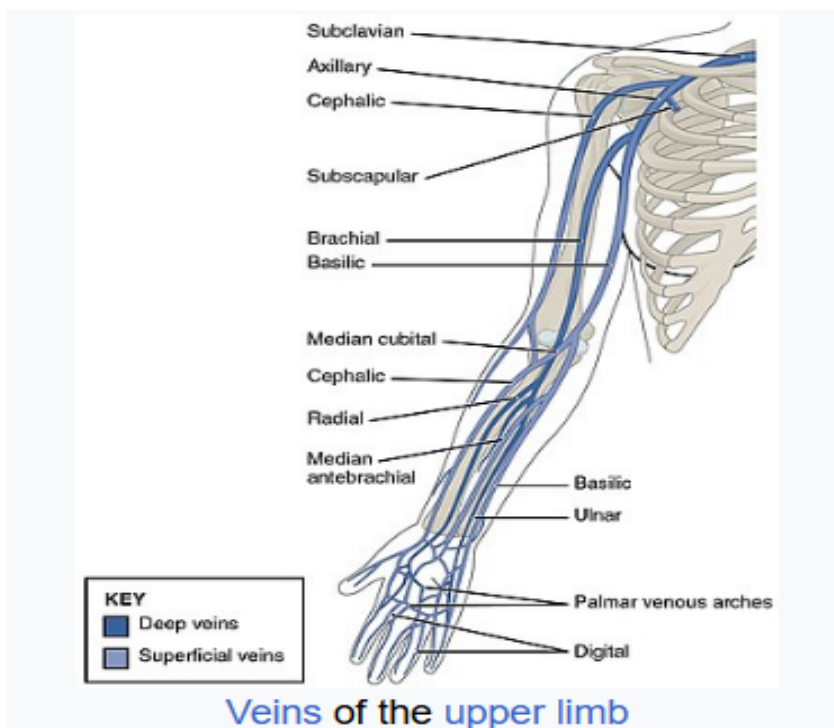
When performing venipuncture, selecting the appropriate vein is crucial for a successful procedure (**figure below**). **The median cubital vein**, located in the antecubital fossa (the inner elbow area), is often the preferred choice. This vein is typically large, centrally positioned, and easily accessible, which minimizes the risk of complications and discomfort. It is generally the first choice for routine blood draws and intravenous access due to its stability and size.

If the median cubital vein is not accessible, the **cephalic vein** can be used. Found on the lateral aspect of the forearm and upper arm, the cephalic vein is usually more visible and palpable than other veins, making it a good alternative when the primary vein is not available. It is particularly useful in patients with challenging vein locations or those who are obese.

The basilic vein, located on the medial aspect of the forearm and upper arm, is another option but should be used with caution. It is often the least visible and most challenging to palpate. Additionally, it is closer to major nerves and arteries, increasing the risk of complications if not handled carefully. The basilic vein is generally considered when other veins are not suitable or accessible.

When selecting a vein, it is essential to avoid those **near joints** or areas with **infection or previous punctures**. Veins that cross joints are prone to movement, complicating the procedure and increasing discomfort. Areas with infection or inflammation should be avoided to prevent worsening of the condition or spreading infection. Additionally, veins previously punctured may be scarred or damaged, making them less suitable for future procedures.

Choosing veins that are both palpable and visible is important. Palpable veins are easier to locate and puncture accurately, while visible veins facilitate better visualization and positioning of the needle. Patient factors, such as age and hydration status, also play a role in vein selection. For instance, in pediatric or geriatric patients, veins may be smaller or less prominent, requiring adjusted techniques and equipment. Ensuring the patient is wellhydrated can enhance vein visibility and reduce complications.



3.3.4. Equipment and Supplies for venipuncture

When preparing for venipuncture, selecting the appropriate equipment and supplies is essential to ensure a successful and safe procedure. **Needles** are a fundamental component, with standard gauges ranging from 21 to 23 commonly used. The choice of needle gauge depends on the patient's vein size and the type of procedure. For pediatric patients or individuals with fragile veins, a smaller gauge needle is preferred to minimize discomfort and reduce the risk of vein damage.

Syringes come in various sizes and should be selected based on the volume of blood required for the tests or the medication being administered. Using a syringe of appropriate size helps maintain accurate measurement and minimizes the risk of unnecessary blood loss or contamination.

Vacutainer tubes are used for blood collection and are available in different types depending on the tests being conducted. It is crucial to choose the correct type of vacutainer tube, as each contains specific additives (such as anticoagulants or preservatives) that are necessary for accurate test results. Incorrect tube selection can lead to erroneous results and compromise the effectiveness of the diagnostic tests.

A tourniquet is used to engorge veins, making them more prominent and easier to access. It should be applied snugly above the intended puncture site but not so tight as to cause discomfort or impede blood flow excessively. Proper application of

the tourniquet enhances vein visibility and facilitates easier needle insertion.

Alcohol swabs are essential for skin disinfection prior to puncture. They help reduce the risk of infection by cleaning the skin surface of potential contaminants. It is important to allow the alcohol to dry completely before proceeding with needle insertion to prevent stinging and ensure effective antisepsis.

Finally, **gauze and bandages** are used for postprocedure care. After the needle is withdrawn, applying gauze to the puncture site helps control bleeding, while a bandage secures the gauze and protects the area from infection. Proper application of these materials aids in promoting healing and ensures patient comfort.

Selecting and using the correct equipment and supplies is crucial for the success of the venipuncture procedure. Each component plays a specific role in ensuring that the process is performed efficiently, safely, and with minimal discomfort to the patient.

3.3.5. Complications of Venipuncture

a. Infiltration (Local)

Infiltration occurs when fluid intended for infusion escapes from the vein and enters the surrounding tissue, usually because the catheter has dislodged or perforated the vein wall. This can result in a range of symptoms including edema or swelling at the site, localized pain, and a noticeable coolness compared to the surrounding area. The affected area may appear pale or blanch, and the infusion flow may slow or stop altogether. Treatment involves discontinuing the intravenous (IV) infusion immediately to prevent further fluid leakage. An alternate site for venipuncture should be selected to continue treatment. To alleviate discomfort and aid in recovery, heat can be applied to the infiltrated area, and elevating the limb can help reduce swelling. Prevention strategies include properly securing the catheter to avoid accidental dislodgement and limiting movement of the limb to ensure the catheter remains in place.

b. Phlebitis

Phlebitis refers to the inflammation of a vein, which can be caused by bacterial, chemical, or mechanical irritation. The primary symptoms of phlebitis include pain, redness, and warmth along the affected vein, which may also feel hard to the touch. Treatment involves discontinuing the IV infusion to prevent further irritation and applying heat to the site to reduce inflammation. In cases where bacterial infection is suspected, antibiotics may be necessary to manage the condition effectively. Preventive measures include ensuring aseptic technique during venipuncture, clearly marking the date and time of insertion on the tape to monitor the duration of catheter placement, and rotating venipuncture sites according to local policy to minimize the risk of vein irritation.

c. Nerve Damage (Local)

Nerve damage can occur if the arm is secured too tightly during venipuncture, compressing nerves in the process. This complication is characterized by symptoms such as numbness or tingling in the fingers, which can be distressing and interfere with normal function. To address this issue, it is important to reposition or loosen the arm board to relieve pressure on the nerves. Prevention involves ensuring that tape or any securing device is not applied too tightly, thereby reducing the risk of nerve compression. Regularly checking the positioning and comfort of the patient's arm can help prevent this complication.

d. Circulatory Overload (Systemic)

Circulatory overload occurs when there is an excessive increase in fluid volume within the circulatory system, leading to complications such as heart failure and pulmonary edema. This condition is often the result of infusing IV fluids too rapidly, overwhelming the heart's ability to manage the increased volume. Symptoms may include difficulty breathing, sudden weight gain, and swelling in various parts of the body. To manage circulatory overload, it is essential to slow or stop the IV infusion and monitor the patient closely. Prevention involves careful regulation of the infusion rate and regular assessment of the patient's fluid balance to avoid exceeding recommended fluid volumes.

3.3.5. Procedure of Venipuncture

Equipment for Venipuncture

- Disposable Gloves
- Alcohol Swabs
- Rubber Tourniquet
- Sterile 2 × 2 Gauze Pads
- BandAid or Adhesive Tape
- Appropriate Blood Collection Tubes
- Labels for Each Collection Tube (with appropriate client information)
- Completed Laboratory Requisition Forms
- Needle/Equipment Disposal Container
- Small Pillow or Folded Towel (to support the extremity if needed)
- Syringe Method:
 - Sterile Needles: 20 to 21 gauge (for adults)
 - 23 to 25gauge Butterfly Needles (for older adults and children)
 - Vacutainer Method:
 - Vacutainer Tube with Needle Holder
 - Sterile Double Needles: 20 to 21 gauge (for adults), 23 to 25 gauge (for children)

ACTION	RATIONALE
<p>1. Greet the Client</p> <ul style="list-style-type: none"> Address the client by name and confirm their identification to ensure correct patient identification. <p>2. Explain the Procedure</p> <ul style="list-style-type: none"> Clearly describe the venipuncture process to the client to help them understand what will happen and to alleviate any anxiety. <p>3. Perform Hand Hygiene</p> <ul style="list-style-type: none"> Wash your hands thoroughly or use hand sanitizer to maintain cleanliness and prevent infection. <p>4. Prepare the Equipment</p> <ul style="list-style-type: none"> Bring all necessary equipment to the bedside or examination room. If applicable, transfer the client to the procedure room to keep their hospital room a “safe haven,” especially for small children. <p>5. Ensure Privacy</p> <ul style="list-style-type: none"> Close the curtain or door to maintain the client’s privacy during the procedure. <p>6. Adjust the Bed and Table</p> <ul style="list-style-type: none"> Raise or lower the bed and table to a comfortable working height to facilitate the procedure. <p>7. Position the Client’s Arm</p> <ul style="list-style-type: none"> Extend the client’s arm to form a straight line from shoulder to wrist. Place a pillow or towel under the upper arm to enhance extension. Position the client in a supine or semiFowler’s position to ensure comfort and accessibility. 	<p>1. Proper Client Identification</p> <ul style="list-style-type: none"> Ensures safety for both the client and the nurse by confirming that the correct patient is receiving the procedure, preventing errors and ensuring appropriate care. <p>2. Explaining the Procedure</p> <ul style="list-style-type: none"> Client rights dictate that any action be explained before proceeding. The client has the right to refuse the procedure. Providing information helps reduce anxiety and fosters cooperation. <p>3. Hand Hygiene</p> <ul style="list-style-type: none"> Reduces the transmission of microorganisms, thereby decreasing the risk of infection for both the client and the nurse. <p>4. Organizing the Equipment and Procedure</p> <ul style="list-style-type: none"> Provides an organized approach to the procedure, making the process more efficient and reducing the likelihood of errors. <p>5. Ensuring Privacy</p> <ul style="list-style-type: none"> Maintains the client’s dignity and confidentiality, which is essential for creating a respectful and comfortable environment. <p>6. Adjusting Bed and Table Height</p> <ul style="list-style-type: none"> Maintains good body mechanics for the nurse during the procedure, reducing physical strain and enhancing the effectiveness of the procedure.

8. Apply Disposable Gloves

- Put on gloves to maintain a sterile environment and protect yourself and the client.

9. Apply the Tourniquet

- Place the tourniquet 3 to 4 inches above the venipuncture site, typically in the antecubital fossa area.
- Ensure the tourniquet can be removed easily with a single pull.

10. Check for Distal Pulse

- Palpate for the pulse below the tourniquet. If the pulse is not felt, the tourniquet may be too tight and needs to be adjusted.

11. Prepare for Venipuncture

- Instruct the client to open and close their fist several times, leaving it clenched prior to the venipuncture to help engorge the veins.

12. Maintain Tourniquet for 1 to 2 Minutes

- Keep the tourniquet applied for no longer than 1 to 2 minutes to minimize the risk of complications such as hemoconcentration and discomfort.

13. Identify the Best Venipuncture Site

- Palpate the potential sites to find the most suitable vein. The ideal site is a straight, prominent vein that feels firm and slightly rebounds when palpated. Assess several veins if necessary to determine the best option.

7. Positioning the Client's Arm

- Helps stabilize the arm and ensures it is in a suitable position for the procedure. The bed should support the client's body to prevent fainting or discomfort during the procedure.

8. Applying Disposable Gloves

- Reduces the risk of infection by adhering to Standard Precautions, which protect both the client and the nurse from potential exposure to pathogens.

9. Applying the Tourniquet

- Improves visibility of the veins by causing them to dilate in response to decreased venous return of blood flow, making it easier to locate a suitable vein.

10. Checking Tourniquet Pressure

- Ensures that the pressure is not too tight, which could impede arterial flow to the extremity and potentially affect the procedure's success.

11. Having Client Open and Close Fist

- Increases venous distension and enhances vein visibility, making it easier to perform the venipuncture. However, vigorous motion should be avoided to prevent hemoconcentration of the specimen.

12. Prolonged time may increase client discomfort and alter some laboratory results (i.e., falsely elevated serum potassium).

14. Select the Vein for Venipuncture

- Choose the vein that appears most suitable for the procedure. If the tourniquet has been applied for an extended period, release it and allow the client to rest for 1 to 2 minutes before reapplying the tourniquet.

15. Prepare to Obtain the Blood Sample

- Syringe Method:
 - Ensure the syringe is equipped with the appropriate needle attached.
- Vacutainer Method:
 - Attach the doubleended needle to the Vacutainer tube and ensure the proper blood specimen tube is ready inside the Vacutainer. Do not puncture the rubber stopper until ready.

16. Cleanse the Venipuncture Site

- Use an alcohol swab or chlorhexidine alcohol to clean the venipuncture site. Apply the antiseptic in a circular motion starting from the site and extending 2 inches beyond. Allow the alcohol to dry completely before proceeding with the venipuncture.

17. Remove the Needle Cover and Warn the Client

- Remove the needle cover and inform the client that they will feel a slight stick as the needle is inserted, which will last only a few seconds.

13. Straight, intact veins are easier to puncture. A thrombosed vein is rigid, or rolls easily, and is difficult to stick.

14. Allowing the client to rest increases client comfort and ensures accurate laboratory results.

15. • A needle with a very small bore can damage the red cells as the blood is drawn and lead to inaccurate test results.

- The long end of the needle is used to puncture the vein, and the short end enters the blood tube.

16. The alcohol solution and mechanical cleaning motion cleans the skin surface of bacteria that may cause infection at the site. Allowing the alcohol to dry reduces the stinging sensation that the client may experience.

17. Remove the Needle Cover and Warn the Client

- Inform the client about the needle stick they will feel for a few seconds. Clients are better able to control their reaction when they know what to expect.

18. Stabilize the Vein

- Place the thumb or forefinger of your non dominant hand 1 inch below the venipuncture site and pull the skin taut. This helps stabilize the vein during needle insertion.

18. Stabilize the Vein

- Place the thumb or forefinger of your non dominant hand 1 inch below the venipuncture site and pull the skin taut to stabilize the vein.

19. Insert the Needle

- Hold the syringe needle or Vacutainer at a 15 to 30degree angle from the skin, with the bevel facing up.

20. Slowly insert needle/Vacutainer

21. Obtain the Blood Sample

- Syringe Method: Gently pull back on the syringe plunger and observe for blood return. Once blood is seen, continue to draw the desired amount into the syringe.
- Vacutainer Method: Hold the Vacutainer securely and advance the specimen tube into the needle holder. Ensure not to advance the needle further into the vein. Blood should flow into the collection tube. After the tube is full, firmly grasp the Vacutainer, remove the tube, and insert additional specimen collection tubes as required.
- Hold the Vacutainer and needle assembly securely and press the specimen tube into the holder. The needle inside the holder will pierce the specimen tube and blood should begin to flow into the tube
- Allow the tube to fill with blood. When it is full, remove the tube and insert additional tubes as needed.

19. Insert the Needle

- Hold the syringe needle or Vacutainer at a 15 to 30degree angle from the skin, with the bevel facing up. This angle reduces the chance of penetrating through the vein and minimizes trauma to the skin and vein.

- 20. Prevents puncture through the other side of the vein

21. Obtain the Blood Sample

- Syringe Method: Gently pull back on the syringe plunger and look for blood return. If blood does not appear, the needle may not be properly positioned in the vein. Continue to draw the desired amount into the syringe.
- Vacutainer Method: Hold the Vacutainer securely and advance the specimen tube into the needle holder. Ensure not to advance the needle further into the vein. If blood does not flow into the collection tube, it may indicate that the needle is not properly positioned in the vein or that the vacuum in the tube has been lost. Pushing the needle through the stopper breaks the vacuum and may cause blood flow issues.

22. Release the Tourniquet

- Releasing the tourniquet reduces bleeding by allowing normal blood flow to return once the needle is removed.

22. Release the Tourniquet

- After the specimen collection is completed, release the tourniquet to restore normal blood flow.

23. Withdraw the Needle

- Apply a 2 × 2 gauze over the puncture site without applying pressure. Quickly withdraw the needle from the vein.

24. Apply Pressure and Dress the Site

- Immediately apply pressure over the venipuncture site with the gauze for 2 to 3 minutes, or until the bleeding has stopped. Once bleeding has ceased, tape the gauze dressing over the site or apply a BandAid to secure the dressing.

25. Syringe Method: Fill Collection Tubes

- Using one hand, insert the syringe needle into the appropriate collection tube and allow the vacuum to fill the tube. Alternatively, you can remove the stopper from each Vacutainer collection tube, detach the needle from the syringe, fill the tube, and replace the stopper.

26. Mix Blood Tubes with Additives

- If any of the blood tubes contain additives, gently rotate them back and forth 8 to 10 times to ensure proper mixing.

27. Inspect the Puncture Site

- Check the client's puncture site for any bleeding. If necessary, reapply clean gauze and tape to control any additional bleeding.

23. Withdraw the Needle

- Apply a 2 × 2 gauze over the puncture site without applying pressure. This positioning helps to prevent the skin from pulling during needle removal and prepares the site for dressing.

24. Apply Pressure and Dress the Site

- Apply direct pressure to the venipuncture site with the gauze for 2 to 3 minutes to stop bleeding and minimize hematoma formation. If no bleeding is present after applying pressure, you may avoid using tape or a BandAid. Many clients are sensitive to tape, and its removal can be painful.

25. Syringe Method: Fill Collection Tubes

- Using a onehanded method to fill the syringe helps reduce the risk of needle stick injury. This approach allows for better control over the speed and amount of blood collected in the tubes.

26. Mix Blood Tubes with Additives

- Gently rotating tubes containing additives ensures that the additive is evenly distributed throughout the specimen, which is crucial for accurate test results.

27. Inspect the Puncture Site

- Inspecting the puncture site and keeping it clean and dry helps prevent further bleeding and promotes healing.

28. Assist Client and Adjust Bed

- Help the client into a comfortable position. Return the bed to a low position with side rails up if appropriate for the client's safety.

29. Decontaminate Tubes

- Check the tubes for any external blood and decontaminate them with alcohol if needed.

30. Verify and Transport Tubes

- Ensure all tubes are properly labeled. Place them into appropriate bags and containers for transport to the laboratory.

31. Dispose of Equipment

- Dispose of needles, syringes, and soiled equipment in the proper sharps or biohazard container.

32. Remove and Dispose of Gloves

- Remove gloves and dispose of them properly.

33. Perform Hand Hygiene

- Wash hands or use hand sanitizer to maintain proper hand hygiene.

34. Send Specimens to the Laboratory

- Ensure that specimens are sent to the laboratory promptly for analysis.

28. Assist Client and Adjust Bed

- Assisting the client into a comfortable position and adjusting the bed for safety provides comfort and ensures the client's wellbeing.

29. Decontaminate Tubes

- Checking and decontaminating tubes with alcohol prevents contamination of other equipment and protects personnel.

30. Verify and Transport Tubes

- Ensuring specimens are properly labeled and placed in appropriate bags for transport guarantees accurate identification and handling.

31. Dispose of Equipment

- Properly disposing of needles, syringes, and soiled equipment prevents the spread of disease and minimizes the risk of needlestick injury.

32. Remove and Dispose of Gloves

- Removing and disposing of gloves reduces the transmission of microorganisms.

33. Perform Hand Hygiene

- Washing hands or using hand sanitizer further reduces the transmission of microorganisms.

34. Send Specimens to the Laboratory

- Timely handling and transport of specimens to the laboratory facilitate accurate test results and efficient processing.

Note:

1. After applying the tourniquet, cleanse the skin at the venipuncture site. Do not let the tourniquet stay on longer than 2 minutes. If you need more time, remove the tourniquet for a couple of minutes to allow the client to rest and begin again.
2. The procedure of performing a venipuncture for the purposes of blood drawing is frequently delegated to properly trained ancillary personnel. Documentation of their competency and skill should be available to the nurse, and periodic reevaluation should occur according to agency and state policy. Ancillary personnel should be reminded not to obtain blood specimens from an extremity above the site of infusing fluids and to report any complications or concerns expressed by the client postprocedure to the nurse.

End unit assessment 3

1. What is the primary purpose of venipuncture?
 - A) To administer medication
 - B) To collect blood samples for diagnostic testing
 - C) To insert a catheter
 - D) To perform a blood transfusion
2. Which vein is commonly preferred for venipuncture in the antecubital fossa?
 - A) Radial vein
 - B) Femoral vein
 - C) Median cubital vein
 - D) Jugular vein
3. Why is it important to use the correct needle gauge for venipuncture?
 - A) To ensure the needle is visible in the blood
 - B) To minimize discomfort and reduce hemolysis or clotting of the sample
 - C) To increase the speed of the blood draw
 - D) To avoid contamination of the sample
4. What is the recommended method for locating a vein for venipuncture?
 - A) Palpation and visualization
 - B) Using a blood pressure cuff
 - C) Asking the patient to flex their arm
 - D) Using an ultrasound machine

5. How should the venipuncture site be prepared before insertion of the needle?

A) By rubbing the area with an alcohol swab

B) By applying heat to the site

C) By using a sterile drape

D) By asking the patient to wash the area with soap 6. What is the significance of allowing the alcohol to dry before performing venipuncture?

A) It helps to increase the visibility of veins

B) It reduces the risk of contamination and irritation

C) It ensures the alcohol doesn't cause discomfort

D) It helps the needle to slide more easily 7. What should be done if blood flow is not obtained immediately after needle insertion?

A) Withdraw the needle and reinsert it in a different location

B) Apply excessive pressure to the site

C) Adjust the angle of the needle slightly

D) Continue to push the needle deeper

8. Why is it important to use a tourniquet during venipuncture?

A) To increase blood flow to the vein

B) To make veins more prominent by restricting blood flow

C) To prevent the vein from collapsing

D) To reduce the pain of needle insertion

9. What are potential complications associated with improper venipuncture technique?

A) Hematoma, phlebitis, and infection

B) Low blood pressure and dizziness

C) Difficulty in drawing blood

D) Enhanced accuracy of test results

10. How should the needle be disposed of after venipuncture?

A) By placing it in a regular trash can

B) By disposing of it in a sharps container

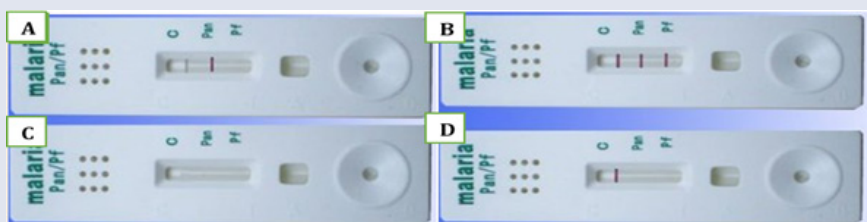
C) By flushing it down a sink

D) By storing it in a biohazard bag

11. What are potential Complications associated with venipuncture

12. Perform the technique of rapid diagnostic test on the mannequin in the skills lab

13. Is it recommended to use one RDT device on more than one person?
 - a) Yes
 - b) No
14. Abnormally increased glycosuria, results from elevated plasma glucose, or from impaired renal glucose absorptive capacity.
 - a) Yes
 - b) No
15. Which of the following confirmed values meet the diagnostic threshold for diabetes?
 - a) Random glucose > 160 md/dl
 - b) Fasting blood glucose equal to 140 md/dl
 - c) 2 hrs post prandial glucose \geq to 126 mg/dl
 - d) Fasting blood glucose \geq 126 md/dl
16. Why is it advised to write down the time after adding the buffer in the RDT and not after adding the blood?
17. The following 4 pictures illustrate real malaria rapid diagnostic results tested from 4 different patients, observe them carefully and explain which one reflect a positive malaria result, a negative malaria result and a malaria invalid results.

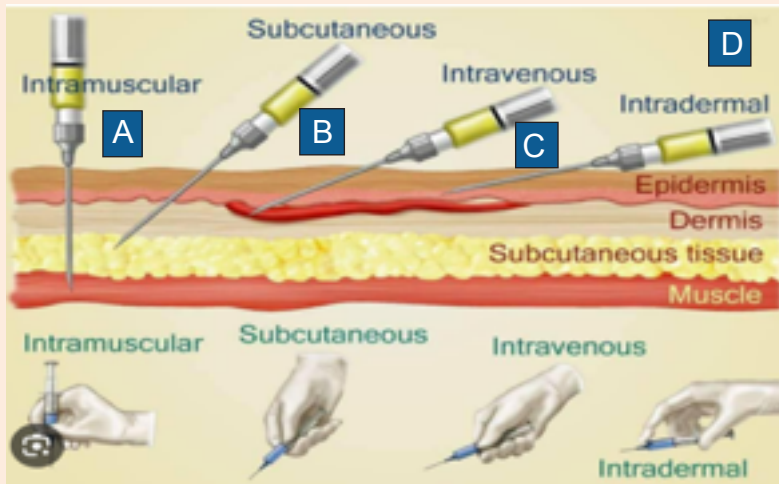


18. Mr. WS comes at the health center where you work as an associated nurse. In consultation room he tells you that he is urinating a lot often at night, is very thirsty, and very hungry. He tells you that before he enters in your consultation room he took 2 bottle of Fanta. You decided immediately to rule out if his blood glucose level is within normal range or not.
 - a) In a stepwise approach describe how you would perform the technique of glycemia test
 - b) After the test you found that his glycemia is 198 md/dl. Interpret such finding and explain whether it is normal or not
- 19) Albumin is a protein found in the bloodstream of mammals, explain what you think as the main cause for it to be found in urine?

Key Unit Competence:

Administer correctly drugs through parenteral routes.

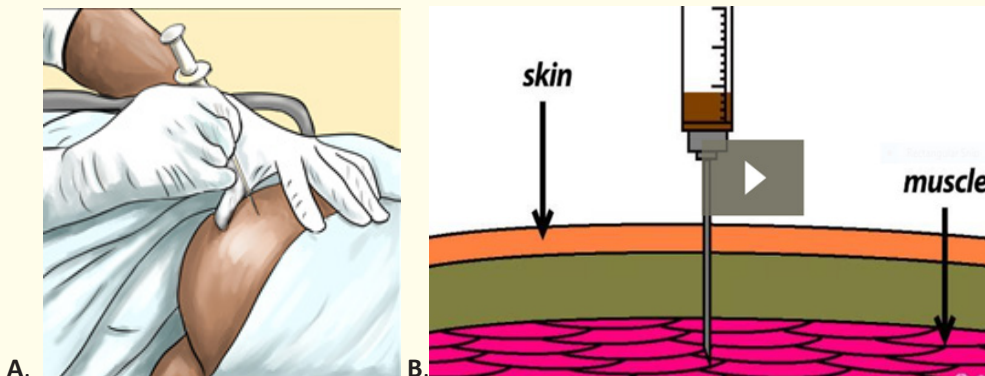
Introductory activity 4



1. What do you see on image A, B, C and D?
2. There is a variation of angles from image A to image D. What do you think is the rationale of varying angles from image A to image D?
3. What do images A, B, C and D represent in general?

4.1. Administering an Intramuscular (IM) injection

Learning Activity 4.1



Observe the images above (A and B) and answer the following questions:

- 1) Talk about what a person with gloved hands is doing?
- 2) What is the relationship and differences between image A and B?
- 3) Which materials are being used on image A

Depending the form of medication or patient's conditions, different routes of drug administration can be applied including parenteral route. **Parenteral route** of drug administration is a way to administer medication in form of solution into the body using injection to attain rapid systemic effect. It can also be injected in a localized organ or tissue in order to achieve high concentration in the site of action or minimize systemic effect. When selecting an injection site, avoid the area with skin abnormalities (e.g: scar tissue, birth marks, tumor) or at bony prominences. The **intramuscular route** is one of parenteral routes which is a method of installing medications via injection into the depth of the bulk of specifically selected muscles. The common sites for IM injection are ventrogluteal, dorsogluteal, vastus lateralis and deltoid muscle. The basis of this process is that the large muscles have good vascularity, and therefore the injected drug quickly reaches the systemic circulation and thereafter into the specific region of action, bypassing the first-pass metabolism.

Always remember to select safe site away from large nerves, bones and blood vessels. Failure to do so may be the origin of different complications such as abscess, necrosis, nerve injuries, lingering pain and periostitis. The amount of 4 ml is considered the maximum dose in a single site for adults in the developed muscle. IM is commonly **indicated** for patients who are noncompliant, **uncooperative**, **reluctant**, and **unable** to receive drugs through other commonly utilized routes.

It is **contraindicated** to use IM in case of active infection such as cellulitis or dermatitis at the site of administration. Acute myocardial infarction- the release of muscle enzymes may provide a confounding bias in making the diagnosis. In case of thrombocytopenia, coagulation defects, hypovolemic shock which cause reduced absorption of the drug due to poor perfusion of that muscle. Myopathies and associated muscular atrophy delay drug absorption as well as adds up the risk of neurovascular injuries.

The **advantages** of IM route are based on its rapid and uniform absorption of the drug, especially those of the aqueous solutions. It has a rapid onset of the action compared to that of the oral and the subcutaneous routes. IM injection avoids the first-pass metabolism as well as gastric factors governing the drug absorption. Has efficacy and potency comparable to that of the intravenous drug delivery system, highly effective in emergency scenarios such as acute psychosis and status epilepticus. A large volume of the drug can be administered compared to that of the subcutaneous route.

The **disadvantages of IM route** is that the administration of medications require a trained personnel. The absorption of the drug is determined by the bulk of the muscle and its vascularity. It is not a best option during emergency. IM injection at the appropriate landmarks may be difficult in a child as well as in patients requiring physical restrain. Inadvertent injection in the subcutaneous plane of the fascia can lead to delayed action of the drug. It is painful, can lead to anxiety in the patient, especially in children. Self-administration of the drug can be difficult. The precipitation of the drug following faster absorption of the solvent may lead to delayed and prolonged action of the drug. Unintended prolonged sequelae following delayed drug release from the muscular compartment.

Common **complications IM** injection can be summarized as muscle fibrosis and contracture, abscess at the injection site, gangrene, nerve injury -the sciatic nerve in gluteal injection, the femoral nerve in vastus lateralis injection, the superior gluteal nerve in dorso gluteal injection and radial nerve in deltoid injection, periostitis, transmission of HIV, hepatitis virus when sharing the needle and persistent pain at the site of injection.

4.1.1. Anatomical landmarks in IM injection

There are specific landmarks to be taken into consideration while giving IM injections so as to avoid any neurovascular injuries. The specific landmarks for the most commonly used sites are discussed below

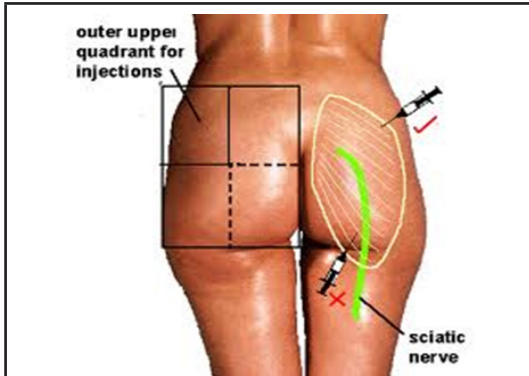


Figure 75 Dorso-gluteal Region

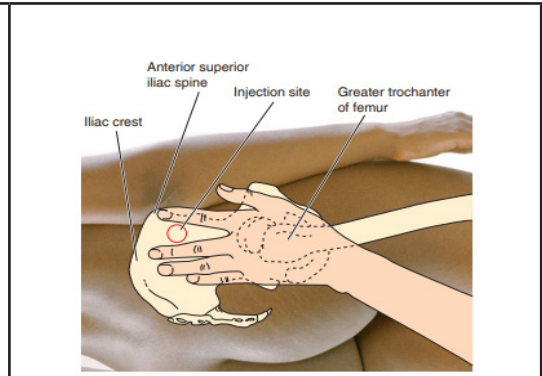


Figure 76 Ventrogluteal Region

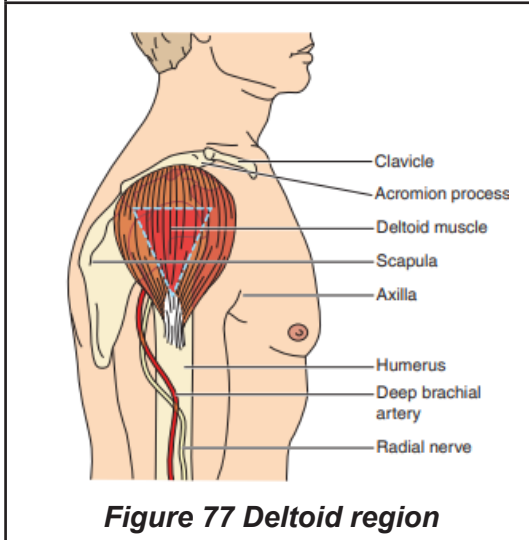


Figure 77 Deltoid region

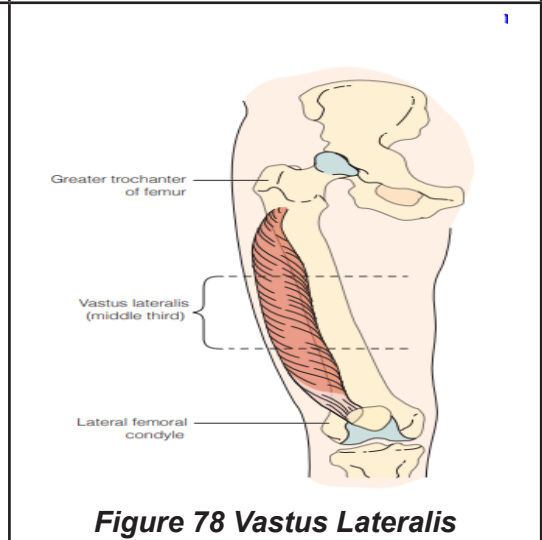


Figure 78 Vastus Lateralis

BOX 4.1.1.

- The dorso-gluteal site is upper outer quadrant of each buttock
- The deltoid site is 2.5 to 5 cm below the acromion process
- During the ventrogluteal site location, the heel of the opposing hand is placed in the greater trochanter, the index finger in the anterior superior iliac spine, and the middle finger below the iliac crest. The drug is injected into the triangle formed by the index, middle finger, and the iliac crest
- The vastus lateralis site is the middle third of the line joining the greater trochanter of the femur and the lateral femoral condyle of the knee.

4.1.2. Intramuscular (IM) injection technique

Materials: sterile syringes and needles, alcohol-based antiseptic solution, drug, medication chart, dry cotton swab, safety box, disposable gloves, dustbin, trolley, plate.

1. Preparation:

- *Introduce yourself to the patient including your name and role*
- *Confirm the patient's name and date of birth*
- *Briefly explain the procedure, indication of the drug using patient-friendly language*
- *Gain consent to proceed with intramuscular injection*
- *Check for any contraindications to performing an intramuscular injection*
- *Check if the patient has any allergies*
- *Ask if the patient has a preferred injection site. If the patient is receiving regular intramuscular injections, ensure that the injection sites are rotated*
- *Position the patient so that they are sitting or lying comfortably according to selected site*
- *Wash your hands*
- *Gather equipment*
- *Do final checks/ rights of drug administration:*
 - *Right patient: ask the patient to confirm their details and then compare this to the patient's wrist band (if present) and the prescription*
 - *Right drug: check the labelled drug against the prescription and ensure the medication hasn't expired*
 - *Right dose: check the drug dose against the prescription to ensure it is correct*
 - *Right time: confirm the appropriate time to be administering the medication and check when the patient had previous doses if relevant*
 - *Right route: check that the planned route is appropriate for the medication you are administering*
 - *Right to refuse: ensure that valid consent has been gained prior to medication administration*
 - *Right assessment: ensure all the precautions are examined before administer any medication*

2. Implementation:

- Wash and dry your hands or use hand rub
- Wear gloves and an apron
- Draw-up the appropriate medication into the syringe using a drawing-up needle
- Remove the air bubbles from the syringe
- Remove the drawing-up needle and immediately dispose of it into a sharps bin, then attach the needle to be used for performing the injection
- Choose an appropriate site for the injection
- Position the patient to provide optimal access to your chosen site
- Clean the site
- Gently place traction on the skin with your non-dominant hand away from the injection site, continuing the traction until the needle has been removed from the skin. If the patient is elderly with reduced muscle mass or the patient is emaciated, do not apply traction, instead, bunch the muscle up to ensure adequate bulk before injecting.
- Warn the patient of a sharp scratch
- Holding the syringe like a projectile in your dominant hand, pierce the skin at a 90° angle.
- Insert the needle quickly and firmly, leaving approximately one-third of the shaft exposed (however this varies between sites and patients).
- Aspirate to check if the needle is not in a blood vessel
- If aspiration does not reveal blood (evidence of intravascular needle placement) inject the contents of the syringe whilst holding the barrel firmly.
- If the aspiration reveal blood into syringe (this is a sign of intravascular injection), do not inject medication, remove syringe and needle immediately, discard it with contained medication and start over with anew medication.
- Inject the medication slowly at a rate of approximately 1ml every 10 seconds.
- Remove the needle and immediately dispose of it into a safety box
- Release the traction you were applying to the skin
- Apply gentle pressure over the injection site with a cotton swab or gauze. Do not rub the site.
- Discard the gauze

3. Finishing:

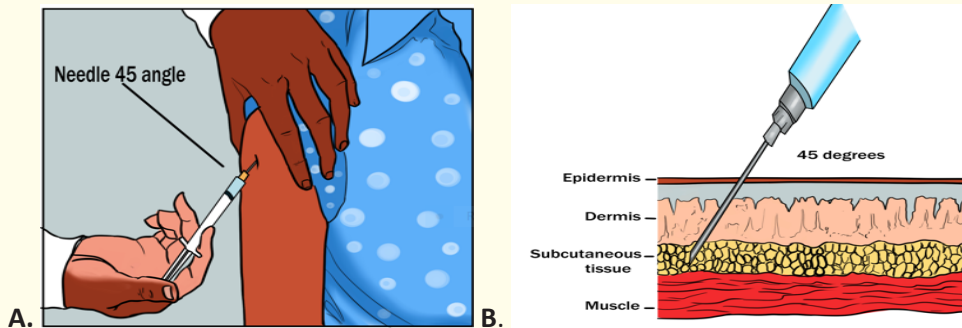
- Offer a comfortable position and arrange patient's environment
- Explain to the patient that the procedure is now complete
- Thank the patient for their time
- Remove of your gloves and equipment into an appropriate clinical dustbin
- Arrange used materials
- Wash your hands
- Document the details of the procedure and the medication administered
- Evaluate the client response to the medication within time flame

Self-assessment 4.1

- 1) What are the advantages and disadvantages of intramuscular injection?
- 2) List the commonly used sites for intramuscular injection
- 3) List the commonly used sites for intramuscular injection
- 4) KALISA a 39-year-old man is admitted in surgical ward following road traffic accident. He is still complaining about pain even though he received diclofenac 100mg suppository every 12 hours 1gr Paracetamol tablets every 8 hours. As an associate nurse, which route would you propose to bring a quick control on patient's pain? Explain why of the proposed route.

4.2. Administering a Subcutaneous (SC) injection

Learning activity 4.2



Observe the image above (A and B) and answer the following questions:

- 1) Describe the action which is being done on the image A
- 2) What is the meaning of 45 degrees on both image A and B
- 3) What are the advantages and disadvantages of the action on the image A

Subcutaneous route of drug administration is another parenteral way of drug administration. It consists of deposits the medication into the subcutaneous layer below the skin and above the muscle layer. The drug to be used must be isotonic and must be the same pH as the tissue in order to prevent irritation and tissue damage. There are different sites of subcutaneous injection as illustrated on the picture below:

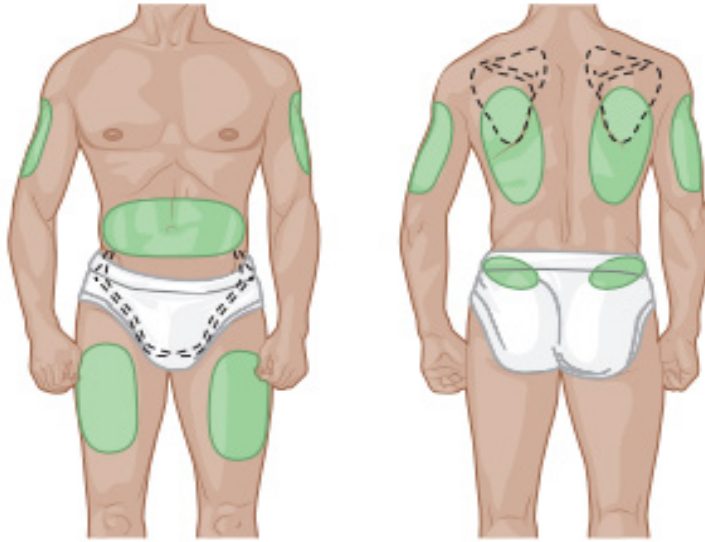


Figure 79 Subcutaneous sites

The sites for subcutaneous injection are the following: The back of the upper arms, the abdomen (but stay a minimum of 5cm away from the umbilicus), the anterior thighs, the area of the back just below the scapulae and the upper buttocks.

SC is **indicated** when slow and continuous absorption is required and long duration of action. E.g. Insulin, heparin. It is **contraindicated** in case of edema or inflammation at the planned site of injection, shock and peripheral hypoperfusion (because it can impair absorption), and when patients refusing consent to the procedure. It **serves** to provide complete drug absorption. It is less invasive than intramuscular as it ends up in the subcutaneous tissues. It is also possible to train the patient for self-administration especially if he or she is taking lifelong medication. E.g: insulin.

SC route has some **disadvantages** as it is expensive than oral route as it involves some degree of education and materials. On the other hand, it is slower than intramuscular injection. The procedure of SC injection breaks the skin barrier, causes pain, can irritate tissues and may be a source of anxiety. SC drug administration is applicable for limited quantities of medications not exceeding 1.5 to 2 ml, the greater amount will cause pain.

Procedural steps

Materials

To perform SC injection, there is a need of different equipment such as needles and syringe, drug for administration, medicines administration prescription, tray to carry the drug, sharps container, alcohol swab or cotton and disinfectant

1. Preparation:

- *Introduce yourself to the patient including your name and role*
- *Confirm the patient's name and date of birth*
- *Briefly explain the procedure, indication of the drug using patient-friendly language*
- *Gain consent to proceed with intramuscular injection*
- *Check for any contraindications to performing an intramuscular injection*
- *Apply folded screen around the bed patient to ensure privacy during the procedure.*
- *Check whether the patient has any allergies.*
- *Check if the prescription is correct and follow the rights of medicines administration*
- *Wash and dry hands to reduce the risk of infection.*
- *Assemble the syringe and needle and then draw the required amount of drug from the ampoule. Some drugs are available in pre-filled syringes and manufacturer's instructions should be followed, example enoxaparin.*
- *Remove any air bubbles from the syringe.*
- *Change the needle to ensure that the one you are about to use for injecting the drug is sharp, thereby reducing pain.*
- *Dispose of the needle used to draw the drug in a sharps container according to local policy and apply a new one.*
- *Place the injection in a tray and take it to the patient, along with a sharps bin so the used needle can be disposed of immediately after the procedure.*
- *Position the patient comfortably with the selected injection site exposed.*
- *Check the site for signs of oedema, infection or skin lesions. If any of these are present, select a different site.*
- *Wash and dry hands or rub the hands*
- *Put gloves on*

4. Implementation:

- *Disinfect the skin with alcohol swab.*
- *Inform the patient that you are going to carry out the injection. Use distraction and relaxation techniques to reduce anxiety if needed.*
- *Hold the syringe and needle in your dominant hand and pinch the skin together using the non-dominant hand to lift the tissue away from underlying muscle*
- *Insert the needle at the required angle 45 degree or 90 degrees for the obese patients to ensure that you inject medication in subcutaneous tissue.*
- *Aspiration to check whether the needle is not in a blood vessel, if so, remove the needle and discard both the needle and syringe then prepare a new medication.*
- *If no blood appears, inject the drug slowly over 10-30 seconds*
- *Massage the area gently with a swab but don't massage after insulin and heparin SC injections (massage heparin injection after SC foster bruising whereas it speeds up the absorption of insulin)*
- *Release the lifted skinfold*

5. Finishing:

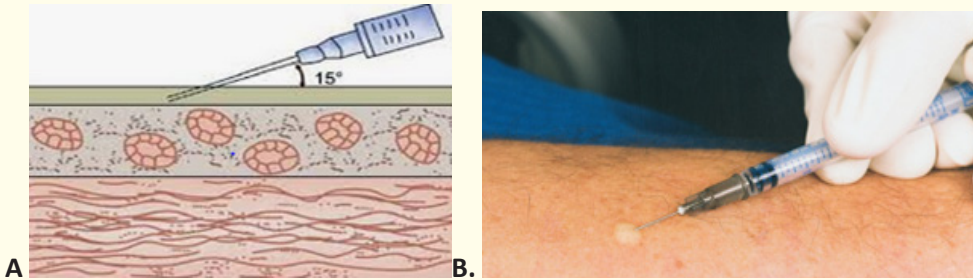
- *Dispose of sharps directly into the sharps bin and dispose of the syringe according to local policy.*
- *Ensure the patient is comfortable and wash hands.*
- *Record administration on the prescription chart. Also record administration site so that the same site is not repeatedly used. This is to avoid lipohypertrophy.*
- *Monitor the patient for any effects of the prescribed medicine and any problems with the injection site.*
- *Patients receiving injection in a health center or outpatient department may need to wait for a period of time to monitor for any reaction to the drug. Local policies should be followed.*

Self-assessment 4.2

- 1) Dr. MUTESI writes a prescription for 5mg of morphine in SC every 12 hours. The medication is available in a concentration of 10 mg per 2ml
 - a) Describe the commonly used sites for subcutaneous injections?
 - b) What is the rationale to inject at 45 degrees in subcutaneous injection?
- 2) MUKASINE a 78-year-old woman needs a SC injection of anti-tetanic vaccine. You realize that she is having generalized edema. What will do in this situation?

4.3. Administering an Intradermal (ID) injection

Learning activity 4.3



Look carefully the image posted here and respond related questions.

- 1) What do you see on the site of injection in picture B?
- 2) What is the relationship between image A and B.
- 3) Why is the angle of 15° applied

Another parenteral route of drug administration is the intradermal (ID) route. ID is the administration of a drug into the dermal layer of the skin just under the epidermis. ID is **indicated** frequently for allergy testing before administering larger amounts of drug by other routes or in case of tuberculosis vaccination and screening. The **advantage** of these tests is that the body reaction is easy to visualize, and the degree of reaction can be assessed. Before using this route choose an injection site that is free from lesions, rashes, moles, or scars, which may alter the visual inspection of the test results. Once the ID injection is completed, a bleb (small blister) should appear under the skin. Its **disadvantages** are based on the longest absorption time of all parenteral routes. The procedure is usually painful, so make sure that the needle is inserted into the epidermis at an angle of 10 to 15 degrees and not into enter the subcutaneous to reduce patient discomfort. To make the intradermal injection, we need **materials** such as sterile syringes and needles specific for ID, alcohol-based antiseptic solution, drug, medication chart, dry cotton swab, safety box, disposable gloves, dustbin, trolley, plate.

Intradermal procedure

- *Gather all the equipment needed and check the physician order*
- *Explain the procedure to the patient, the purpose, site for injection, and how he/she has to cooperate.*
- *Wash hands and wear disposable gloves*
- *Prepare medication from ampule or vial.*
- *Position the patient and select the inner aspect of the forearm, upper chest, or upper back beneath scapulae that is not very hyperpigmented or covered with hair.*
- *Cleanse the site with an alcohol swab in a circular motion moving outward. Allow skin to dry. Keep cotton in the clean tray for reuse when taking out the needle.*
- *Remove the needle cap with the non-dominant hand by pulling it straight off.*
- *Use the non -dominant hand to spread skin taut over the injection site.*
- *Place the needle almost flat against the patient's skin. Insert 0.4cm bevel up so that needle can be seen through the skin.*
- *Slowly inject the drug (0.01ml-0.1ml do not exceed 0.5ml) watching for a bleb to develop (appearance of the bleb indicates that the needle is in intradermal tissue). If not, remove the needle and restart.*
- *Withdraw the needle quickly at the same angle as it was inserted*
- *Do not massage the area.*
- *Do not recap the needle. Discard syringe and needle into the appropriate receptacle*
- *Thank the patient and arrange his or her environment*
- *Offer appropriate health education*
- *Remove glove and wash hands.*
- *Record the medication administration-the medication administered, amount, dose, site, and patients' response*
- *Draw a circle using blue/black pen around the injection site. Write the date and time of administration of medication.*
- *Check the reaction within a specified interval of time; usually, it depends on the hospital protocols.*
- *Inform the physician of a medication reaction*

Self-assessment 4.3

- 1) Intradermal injections should be administered at a ___ degree angle
 - a) 10-15
 - b) 25
 - c) 45
 - d) 90
- 2) What will indicate you that you successfully injected a drug in intradermal route?
- 3) Associate nurse M. is going to administer a small dose of penicillin to a patient to test for hypersensitivity or allergy on that drug. Which route will M. use? What is the maximum dose not to be exceeded is?

4.4. Intravenous (IV) drugs administration

Learning activity 4.4

Do searching of the Fundamentals of Nursing book, read the materials on intravenous drugs administration and come up with a summary of the following:

- 1) Definition of intravenous drugs administration
- 2) Description of different ways of intravenous drugs administration
- 3) Advantages and disadvantages of intravenous drugs administration
- 4) Equipment needed for intravenous drugs administration

Intravenous (IV) administration of medications involves delivering the drug directly into the bloodstream via a vein. This method allows for the rapid distribution of substances throughout the body, providing quick onset of action and precise dosing. Medications administered via the IV route are typically given intermittently to address emergent concerns and are delivered directly into the bloodstream, bypassing the process of drug absorption and breakdown. The **intravenous route** is the most dangerous route of administration because the drug is placed directly into the bloodstream, it cannot be recalled, and its actions cannot be slowed. Intravenous administration is the route used in most emergency situations when immediate absorption is required. There also are many nonemergency clinical situations in which drugs are administered intravenously. IV therapy is particularly useful for patients who are unable to take oral medications or need urgent medical intervention. It is also appropriate when a rapid effect is required or when medications are too irritating to tissues to be administered by other routes.

Utilizing an established IV line for this route avoids the discomfort associated with other parenteral methods.

There are several ways to administer medications intravenously:

- **Direct Intravenous medications administration into an existing IV line**

The direct IV route usually involves a single injection of a small volume of fluid or medication (up to 20 ml) manually through a syringe into an existing IV line or saline lock. The drug is administered very slowly over at least 1 minute, to minimize potential adverse effects (Perry et al., 2014).

Historically, IV medications have been called IV bolus or IV push medications. However, it is recommended that these terms be avoided, as they can be misinterpreted as indicating that the drugs should be pushed quickly, in less than a minute (ISMP, 2003). Only specific medications are suitable for direct IV administration, and it is crucial to adhere to guidelines to ensure safe and effective delivery.

i. Medications via Intravenous Solution

Medications may be added to the patient's infusion solution. When medication is administered by continuous infusion, the patient receives it slowly and over a long period. Although this can be an advantage when it is desirable to give the medication slowly, it is a disadvantage when the patient needs to receive the drug more quickly. Also, if for some reason not all of the solution can be infused, the patient will not receive the prescribed amount of the medication. Check the patient receiving medication by a continuous intravenous infusion for possible adverse effects at least every hour.

ii. Medications via Intermittent Intravenous Infusion

Medications can be administered by intermittent intravenous infusion. The drug is mixed with a small amount of the intravenous solution, such as 50 to 100 mL, and administered over a short period at the prescribed interval (e.g., every 4 hours). The administration is most often performed using an intravenous infusion pump, which requires the nurse to program the infusion rate into the pump.

Intravenous (IV) therapy is a fundamental aspect of modern medical care, serving a variety of critical purposes:

- **Maintaining or Restoring Fluid Balance:** IV therapy is crucial for managing fluid balance in patients who are dehydrated or at risk of dehydration. By delivering fluids directly into the bloodstream, it helps rehydrate patients, restore normal fluid levels, and prevent complications associated with dehydration, such as electrolyte disturbances and impaired kidney function.

- **Correcting Electrolyte Imbalances:** Electrolytes, such as sodium, potassium, and calcium, are vital for numerous bodily functions, including nerve signaling and muscle contraction. IV therapy allows for the rapid correction of electrolyte imbalances, which can occur due to various conditions such as severe vomiting, diarrhea, or kidney dysfunction. This quick adjustment helps maintain cellular and systemic functions and prevents complications.
- **Delivering Medications:** One of the primary uses of IV therapy is the administration of medications. This method ensures that drugs are delivered directly into the bloodstream, leading to immediate therapeutic effects. It is especially useful for medications that need to act quickly, such as antibiotics in severe infections, or for drugs that are poorly absorbed orally. IV therapy also allows for precise control over medication dosages and infusion rates.
- **Providing Hydration:** For patients who cannot drink fluids due to illness, surgery, or other medical conditions, IV therapy is an effective way to ensure adequate hydration. This is crucial for maintaining fluid balance, supporting bodily functions, and aiding in recovery.
- **Emergency Situations:** In emergency settings, IV therapy is often used to provide rapid access to medications and fluids. This is essential in critical situations such as trauma, shock, or severe allergic reactions, where immediate intervention can be lifesaving. IV therapy facilitates quick and effective treatment, which can be critical in stabilizing patients.
- **Total Parenteral Nutrition (TPN):** Total Parenteral Nutrition (TPN) is a form of IV therapy used to provide essential nutrients to patients who cannot eat or absorb nutrients through their digestive system. This includes individuals with severe gastrointestinal conditions, those undergoing certain types of surgeries, or patients with significant malnutrition. TPN supplies a comprehensive mix of carbohydrates, proteins, fats, vitamins, and minerals directly into the bloodstream, supporting growth, healing, and overall health.
- **Blood Transfusions:** IV therapy is also used for blood transfusions, which are necessary for patients who have lost significant amounts of blood due to surgery, trauma, or medical conditions such as anemia or hemophilia. Administering blood or blood products via IV helps restore blood volume, improve oxygen-carrying capacity, and support overall blood function.

- **Advantages and disadvantages of intravenous medications**

Intravenous medications	
Advantages	Disadvantages
Intravenous medications can deliver an immediate, fast-acting therapeutic effect, which is important in emergent situations such as cardiac arrest or narcotic overdose. They are useful to manage pain and nausea by quickly achieving therapeutic levels, and they are more consistently and completely absorbed compared with medications given by other routes of injection.	Once an intravenous medication is delivered, it cannot be retrieved. When giving IV medications, there is very little opportunity to stop an injection if an adverse reaction or error occurs. IV medications, if given too quickly or incorrectly, can cause significant harm or death.
Doses of short-acting medication can be titrated according to patient responses to drug therapy. Medication can be prepared quickly and given over a shorter period of time compared to the IV piggyback route.	Any toxic or adverse reaction will occur immediately and may be exacerbated by a rapidly injected medication.
Minimal dilution is required for some medications, which is desirable for patient's own fluid restrictions.	Extravasation of certain medications into surrounding tissues can cause sloughing, nerve damage, and scarring.
There is minimal or no discomfort for the patient in comparison to SC and IM injections.	Not all medications can be given via the direct IV route.
They provide an alternative to the oral route for drugs that may not be absorbed by the GI tract, and they are ideal for patients with GI dysfunction or malabsorption, and patients who are NPO (nothing by mouth) or unconscious.	There is a high risk for infusion reactions, mild to severe, because most IV medications peak rapidly (i.e., they have a quick onset of effect). A hypersensitivity reaction can occur immediately or be delayed, and requires supportive measures.
IV direct route provides a more accurate dose of medication because none is left in the intravenous tubing.	Route for administering medications may damage surrounding tissues. There is an increased risk of phlebitis with highly concentrated medication, especially with small peripheral veins or a short venous access device.

IV TREATMENT

SKILL 1: ADMINISTRATION OF IV DRUGS

PREPARATION

NURSE

Clean uniform (dress or gown).

Hair tied properly

Remove watch, jewelery, etc.

Wash hands.

Data-collection

Patient identification

Physical and psychological condition of the patient.

Assess the patient's pathology.

Verify the medical prescription.

Verify the rights of drug administration

PATIENT

Respect patient privacy

Assess the patient's ability to understand and co-operate

Inform and explain to the patient/family: objective, procedure, etc and care.

Assess the puncture site for hygiene and integrity

MATERIAL

Clean and disinfected Trolley/tray.

Sterile cup/gallipot.

Sterile gauze

Drugs for injection (bottle or ampule), according to medical prescription

Solvent, according to medical prescription

Check drug and solvent (aspect, expiry date, verify prescription).

IV needles

Drug drawing needles

Syringes with a capacity according to the volume of drug.

Kidney dish.

Protective gloves.

Protection for bed.

Adhesive tape

Scissors.

Tourniquet

Container for sharp objects.

Disinfectant (alcohol).

Patient's file / chart

Material for taking vital signs.

IMPLEMENTATION

Wash hands.

Take vital signs.

Prepare the drug.

Position the patient in dorsal decubitus.

Apply protective gloves.

Select the limb where injection should be administered.

Place protection under the limb to be punctured.

Inspect the patient's surface anatomy and venous system in the chosen venipuncture site before applying the tourniquet

Locate the vein, stimulating the circulation, if necessary.

Place the tourniquet at approximately 10 cm above the puncture site.

Massage along the vein in the direction of venous return

Select the vein.

For 1 minute widely disinfect the selected puncture site in circular motion

Take the catheter packing and open it.

Visualize the vein and begin by stretching the skin downward below the anticipated venipuncture site with the opposite hand to anchor the vein and limit vein movement

Penetrate in the vein, either from the top, or from the side.

Insert the needle with the bevel up at about a 15- to 30-degree angle so that the needle penetrates halfway into the vessel

When the needle has entered the skin, lower the needle until it is almost parallel with the skin

Keep securely the needle in the vein.

Visualize the flashback of the blood to assure the needle is in the vein

Inject the drug very slowly, observing the patient's reaction and assuring it is entering the vein

Monitor vital signs

Maintain pressure at the puncture site for 30 seconds

Fix a small bandage with adhesive tape

COMPLETION

Patient

Position the patient comfortably and appropriately

Arrange personal effects of the patient and put them within reach.

Thank the patient for his or her collaboration.

Material

Eliminate waste, separating the sharp objects.

Clean and arrange material.

Nurse

Education/ Care-related guidance.

Submit a verbal or written report of Care provided and sign

Wash hands.

Tick and sign for the administration of the drug.

IV TREATMENT

SKILL 2 : INTRAVENOUS (IV) DRUGS ADMINISTRATION- PATIENT HAS AN IV LINE

PREPARATION

NURSE

Clean uniform (dress or gown).

Hair tied properly

Remove watch, jewelry, etc.

Wash hands.

Data-collection

Patient identification

Physical and psychological condition of the patient.

Assess the patient's pathology.

Verify the medical prescription.

Verify the rights of drug administration

PATIENT

Respect patient privacy

Assess the patient's ability to understand and co-operate

Inform and explain to the patient/family: objective, procedure, etc and care.

Assess the IV line site for hygiene and any sign of inflammation

MATERIALS

Clean and disinfected Trolley/tray.

Sterile cup/gallipot.

Sterile gauze

Drugs for injection (bottle or ampoule), according to medical prescription

Solvent, according to medical prescription

Check drug and solvent (aspect, expiry date, verify prescription).

1 drug drawing needle

1 needle for drawing normal saline

Syringe with a capacity according to the volume of drug.

10ml Syringe for flushing

0.9% normal saline solution

Kidney dish.

Protective gloves.

Protection for bed.

Container for sharp objects.

Disinfectant (alcohol).

Patient's file / chart

Material for taking vital signs.

IMPLEMENTATION

Wash hands.

Take vital signs.

Prepare the drug and 10ml of 0.9% NS for flushing
Position the patient in dorsal decubitus.
Place protection under the limb with IV line for injection.
Apply protective gloves.
Slip sterile gauze under the catheter pavilion.
Clean the external part of the catheter if necessary
Verify the patency of the vein with 5ml of normal saline; aspirate to make sure that there is no clot into the catheter. If there is no clot, use it to flush the line.
NB: If the patient has the running infusion, flushing is not necessary. Use injection port for giving the drug.
Inject the drug very slowly, observing the patient's reaction and assuring it is entering the vein
Flush the line again with 5ml of normal saline
Lock the catheter and Monitor vital signs
COMPLETION OF THE PROCEDURE
Patient
Position the patient comfortably and appropriately
Arrange personal effects of the patient and put them within reach.
Thank the patient for his or her collaboration.
Materials
Eliminate waste, separating the sharp objects.
Clean and arrange materials.
Nurse
Education/ Care-related guidance.
Submit a verbal or written report of Care provided and sign
Wash hands.
Tick and sign for the administration of the drug.

IV TREATMENT

SKILL 3 : IV INFUSION OR INTRAVENOUS PERFUSION

PREPARATION

NURSE

Clean uniform (dress or gown).

Hair tied properly

Remove watch, jewelry, etc.

Wash hands.

Data-collection

Patient identification

Physical and psychological condition of the patient.

Assess the patient's pathology.

Verify the medical prescription.

PATIENT

Respect patient privacy

Evaluate the patient's ability to understand and collaborate

Inform and explain to the patient/family: objective, procedure, of the care etc..

Assess the puncture site for hygiene and integrity

Make sure that clothing can be withdrawn easily.

MATERIALS

Clean and disinfected Trolley/tray.

Sterile cup/gallipot.

Sterile gauze

Infusion solution

* Check the solution (aspect, expiry date)

* Calculate the drip rate

Infusion kit

Adapted catheter.

Tourniquet

Kidney dish.

Protective gloves.

Protection for the bed

Adhesive tape
Scissors.
Bracket/IV stand/ drip stand.
Container for sharp objects.
Disinfectant (alcohol).
Fastener for bottle, if necessary.
Watch with second hand.
Label.
Material for taking vital signs.
IMPLEMENTATION
Wash hands.
Select the opposite limb of the dominant side (left for right-handed and right for left-handed persons).
Determine, with the patient, the position of the arm
Place protection under the limb to be punctured.
Take vital signs.
Prepare the IV set for infusion:
* Move the drip regulator approximately 5 cm from the dropper.
* Close the drip regulator
Disinfect the cap of the bottle / nozzle of the bag.
Connect the infusion set to the bottle / bag
Hang the bottle and tubing to the bracket (drip stand).
Fill the dropper halfway
Open the “tube-tightener” and purge the case.
Close again the “tube-tightener” and put back the cap on the nozzle of the case.
Hang the infusion container on the bracket.
Apply protective gloves.
Locate the vein, stimulating the circulation, if necessary.
Place the tourniquet at approximately 10 cm above the puncture site.
Massage along the vein in the direction of venous return
Select the vein.

For 1 minute widely disinfect the selected puncture site
Take the catheter packing and open it.
Visualize the vein and begin by stretching the skin downward below the anticipated venipuncture site with the opposite hand to anchor the vein and limit vein movement
Penetrate in the vein, either from the top, or from the side.
Puncture the vein using direct or indirect entry:
Direct (one step, used for larger veins): Hold the over-the-needle assembly at 15 to 20 degrees above the site and enter the vein directly.
Indirect (two steps, used for smaller veins): hold the assembly 15 to 20 degrees above the site and 20 degrees lateral to the vein, insert the catheter into the skin, and then advance into the vein.
When the vein is punctured, blood should appear in the flash chamber: withdraw slightly the needle while slipping the catheter into the vein.
Put a small compress below the end of the needle.
Remove the needle by slightly pressing on the skin from the top of the catheter extremity.
Maintain the catheter holder in place.
Loosen the tourniquet and remove it.
Quickly connect the case to the catheter.
Open the drip regulator and adjust it to the prescribed rate of infusion
Slip sterile gauze under the catheter pavilion.
Fix the catheter with adhesive tape
Adjust the flow according to the prescription.
Place the label (name of the patient, n° of bed, dates, hour of beginning, hour of end, flow rate, drugs added, signature)
Label the catheter inserted (date of insertion, time, date of removal/replacement)
Monitor the patient reactions
COMPLETION OF THE PROCEDURE
Patient
Position the patient comfortably and appropriately
Arrange personal effects of the patient and put them within reach.
Thank the patient for his or her collaboration.

Materials

Eliminate waste and separate the sharp objects

Clean and arrange the materials.

Nurse/Nurse

Education/ Care-related guidance.

Submit a verbal or written report of Care provided and sign

Wash and disinfect hands.

Tick and sign the administration of drug, if applicable

Monitor the infusion

Self-assessment 4.4

1. Which of the following routes is considered the most dangerous route of drug administration?
 - a. Intramuscular (IM) route
 - b. Intravenous (IV) route
 - c. Intradermal (ID) route
 - d. Subcutaneous (S/C) route
2. Identify at least the three ways in which the intravenous drug can be administered.
3. Give at least the three indications of IV Drug administration

End unit assessment 4

- 1) Why an intravenous (IV) is considered the most dangerous route of drug administration?
- 2) Which disadvantage is associated by IV medication administration via continuous infusion?
- 3) The administration route for a drug injected just beneath the top layer of the skin is called:
 - a) Intradermal
 - b) Subcutaneous
 - c) Vaginal application
 - d) Transdermal application
- 4) The drug administration route where the needle is inserted at 45 degrees is:
 - a) Intradermal
 - b) Subcutaneous
 - c) Intramuscular
 - d) Sublingual
- 5) If blood appears in the syringe when the plunger is pulled back during subcutaneous and intramuscular injections the nurse should
 - a) Inject drug
 - b) Inject drug followed by a small amount of bubble air
 - c) Insert needle one cm further
 - d) Start over with new syringe
 - e) Ignore it because the presence of blood has no significance
- 6) Drug administration way which is least expensive, using little equipment, and minimal training is the:
 - a) Enteral route
 - b) Skin application
 - c) Vaginal application
 - d) Intradermal route
- 7) Intramuscular injections should be administered at a ___ degree angle
 - a) 10-15
 - b) 25

- c) 45
 - d) 90
- 8) List at least 5 purposes of IV therapy
- 9) Intradermal injections should be administered at a ___ degree angle
- a) 10-15
 - b) 25
 - c) 45
 - d) 90
- 10) How much medication can the nurse safely administer into the deltoid muscle?
- a) 4 ml
 - b) 1-2 ml
 - c) 10 ml
 - d) 2-3 ml
- 11) When giving injections in the buttocks the nurse must properly identify appropriate land marks to prevent damage to the ___
- a) Sciatic nerve
 - b) Spinal cord
 - c) Coccyx
 - d) Atlas
- 12) Nurse Carine has completed giving Ms. Smith her injection. Which method is the BEST method for Nurse Carine to use to dispose of the needle after giving the injection?
- a. Nurse Carine should sit the needle on the bedside table and make sure she disposes of the needle before she leaves the room.
 - b. Nurse Carine should immediately discard used needle in the nearest sharps container.
 - c. Nurse Carine should discard needle when she completes the injection.
 - d. Nurse Carine should recap needle and place into the nearest sharps container
- 13) List at least 4 muscles that are used for IM injection.

- 14) The Dr. prescribe to Mr. JO an injectable cyanocobalamin 10mg to be administered in intramuscular, the available vial has a concentration of 2 mg/1 ml.
- Calculate the correct volume of cyanocobalamin to be administered to Mr. JO.
 - Discuss the advantages and disadvantages of IM injection?
 - What are the indications and contra indications of IM route of drug administration?
- 15) Name the materials used in IM technique of medication administration
- 16) Subcutaneous route of drug administration consists of deposits the medication into the subcutaneous layer below the skin, give out the 3 commonly used site in this route.
- 17) ISARO and KEZA, 3 and 7 years old girls admitted in general ward of pediatric unit. ISARO has persistent fever of 38.7°C whereas KEZA is having vomiting and diarrhea. The physician prescribed for ISARO, paracetamol 250 mg to be inserted in anus three times a day. KEZA received Metronidazole 500 mg by mouth to be taken 2 times a day. The ward nurse is coming for a new shift, is assigned to care for the above patients. She read their files and discover that it is time to give medication to ISARO. She went in the patients' room and starts identifying these children by asking the mothers and compare the names on the files. She takes body temperature of Isaro and finds that it is now 38.3°C. She approaches the ISARO'S mother to explain that her child is still having fever and a need to administer the paracetamol 250 mg to control fever. The mother accepts the request of the nurse. She then takes the drug from patient's box and prepare it and introduce in the anus of ISARO as it was written in the file. She thanks the patient and write this activity in the patient file. After 30 minutes she returned to ISARO and take again her body temperature which is now 37.2°C. Finally reassure the mother on the effectiveness of the medication.
- What are the key actions done by the nurse while caring for ISARO?
 - Which route of drug administration used in this case?
 - Compare and contrast the intramuscular to intradermal routes of drug administration.

Key unit competence

Provide first aid in case of emergencies

Introductory activity 5



- 1) What are similarities in these pictures?
- 2) Each picture represents an emergency situation. Attempt to describe the situation and what is being done
- 3) What should be expected from a first aider?

5.1. First aid

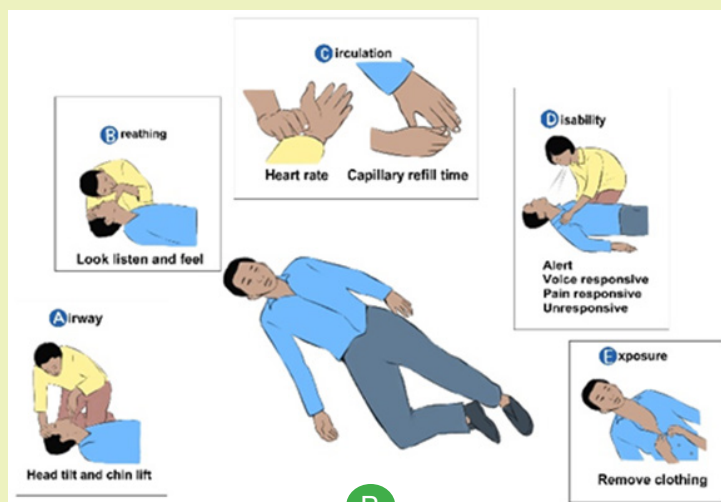
5.1.1. Concepts of first aid, triage in emergency care

Learning activity 4.1.1

A



A



B

- 1) What do you observe on picture A and B
- 2) Assume that you are the first bystander at car accident, how can you behave

a) Concepts of first aid

First aid referred as “**Emergency aid**” or immediate care is the first skilled [acceptable] assistance given to a **victim** (sick or injured) on the occurrence of

accident or sudden illness in order to preserve life, prevent further injury and relieve suffering until qualified medical care is available. For minor conditions, first aid care may be enough while for serious or complex problems, first aid care should be continued until more advanced care becomes available. The person who provides this emergency aid is called a **first aider** and has a responsibility to keep everyone involved safe while taking care of the victim.

- **An emergency** is a situation that poses an immediate risk to health, life, property or environment and requires immediate action.
- **A Casualty or a Victim** is a person who is injured or killed in an accident or in a war.
- Bystander is a person/witness who is present at an event or incident but does not take part.
- **Triage** is a sorting process used to identify the sickest patients or those at greatest risk of demise so immediate medical needs can be rapidly addressed. It is important to obtain a verbal consent before attempting first aid as most first aid activities involve touching to avoid causing offence or distress. A consent is an approval of what is done or proposed by another or an agreement as to action or opinion. However, if you encounter a confused casualty who is critically injured or ill, you can assume that they would want you to help them.

b) Triage in emergency care

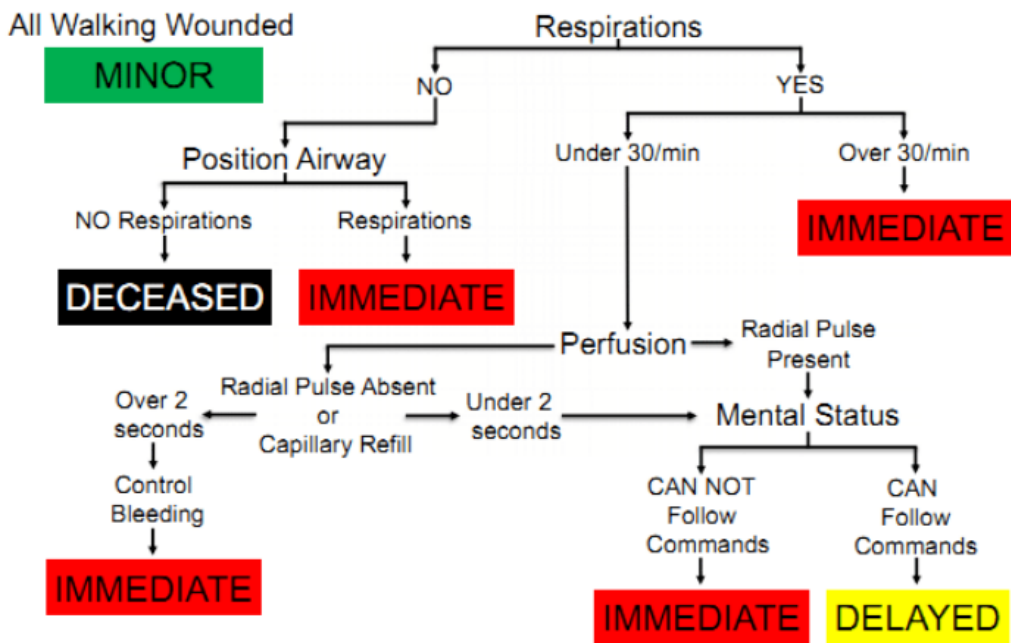
Triage is an effective system that classifies patients into groups according to acuity of illness or injury and aims to ensure that the patients with life-threatening illness or injury, receive immediate intervention and resource allocation. It can be a difficult decision to make as to who to treat first, however, you should work under the principle of acting in a way that gives the greatest number of people the greatest chance of survival.

To meet its goals, the process of triaging considers the following questions and uses the START triage system to categorize casualties:

- How sick or injured is the victim?
- What is this victim's potential for demise?
- How quickly do interventions, care and treatment need to be delivered?
- What is the evacuation plan after initial intervention?

The START triage system

“START” stands for Simple Triage And Rapid Treatment and is a simple way that allows rapid assessment of victims within 15 seconds per casualty/victim. It is based on respiratory, perfusion and mental status assessment.



The START triage system

Self-assessment 5.1.1

- 1) Why do we learn first aid?
- 2) Briefly explain the START triage flow chart.

5.1.2. Principles of first aid care

Learning activity 5.1.2

- 1) Imagine you are a casualty in a road traffic accident. What would you expect from the attending first aider?
- 2) What qualities do you think should the first aider possess to be effective in helping casualties?

It is important that when engaging in the application of first aid that you adhere to the established first aid principles. Four basic principles and concepts underlying the practice of first aid are:

a) Preserve life:

The first aim of first aid is to preserve life, which involves the key emergency practices to ensure that the casualty isn't in any mortal danger. Remember though, this includes preserving your own life as you shouldn't put yourself in danger in order to apply first aid.

b) Prevent deterioration:

Once the first principle is met, as first aider your next priority is to prevent further illness or injury and or worsening of illness or injury. This can be achieved through keeping the victim still to avoid aggravating their injury, or from complicating any unseen issues.

c) Promote recovery

This encompasses steps the first aider follow to lessen the time taken for a casualty recover from an accident and aid in minimizing lasting damage and or scarring. For example, applying cold water to a burn as soon as possible to lower the chance of long-term scarring and helps speed up the healing process.

d) Protect the unconscious casualty

This involves placing an unconscious casualty into the recovery position to keep their airway clear

5.1.3. Quality of First aid worker

Providing an effective require more than just technical skills. Therefore, a quality first aider worker should possess several personal qualities and skills to be able to work under pressure and use common sense.

a) Good communication skills

Communicating with sick and injured people can be challenging. Therefore, a first aider should have excellent communication skills and a natural ability to talk to people. Communication is key to good casualty care and is very important when passing the casualty onto the next level of care. First-aiders should also take care to listen to any remarks or requests a casualty makes.

b) Ability to work in a team

First aiders are often required to work alongside members of the emergency services, especially the ambulance service; thus required to be good team player.

c) Ability to work under pressure

First aid situations can range from the mundane e.g. a small cut wound to incredibly stressful and demanding situation such as cardiac arrest. A first aider must always remain calm and assess the situation first before rushing to help the victim. This will

help reduce the overall stress levels of the injured person as well as bystanders who may be concerned. Furthermore, it will help him/her manage tasks whilst having an awareness of the overall situation. Panic is likely to make the situation much worse and cause further distress and physical harm to the casualty as a result of wrong decisions.

d) Good leadership skills

First-aiders must ensure the removal of any danger from the casualty, or remove the casualty from dangers, and prevent the crowding of casualties by bystanders. A first aider may therefore have to take command of a potentially volatile situation. He or she may be looked upon by his/her colleagues to provide leadership during an emergency. A first aider may also have to organize bystanders to assist in various tasks, such as moving the casualties.

e) Knowledge of their own limitations

A key skill of first aid is being able to recognize someone who needs quick emergency help. However, a first aider should know the limits of their skills and knowledge and be able to call for further appropriate help when required rather than try to do it alone. Calling for help should be done as soon as possible by the first aider him/her-self or by asking a bystander to do so if preoccupied by handling the victim. This will ensure that a medical professional arrives quickly to handle the situation in a more comprehensive manner and provide more specialist treatment. First-aiders should also understand that first aid has its limitations and does not take the place of professional medical treatment and that their responsibility ends when the casualty is handed over to the care of a competent health provider.

Self-assessment 5.1.2

A first aider was attending a multiple casualty at the scene below. Comments on her intervention reflecting on what you have learnt regarding principles of first aid and qualities of a good first aider.



A



B



C



D

5.1.4. Emergency gestures

Learning activity 5.1.3

With reference to “picture B” illustrated in learning activity 4.1.1) figure out what ABCDE approach involves for, for effective emergency care provision and attempt to practice what you see on model mannequin in skills lab.

It is vital for a first aider to provide first aid in an organized and structured manner for all casualties that is following DRSABCDE sequence. DRSABCDE involve checking and addressing issues related to Dangers (for you as a first aider, the victim and others involved people), Response (a quick assessment to find out whether a casualty is conscious or unconscious), Shout or Send for help, Airway maintenance with cervical spine protection, Breathing and ventilation, Circulation with hemorrhage control, Disability and Exposure.

a) Airway maintenance with cervical spine protection

Check that a casualty's airway is open and clear. If a casualty is alert and talking to you, it follows that the airway is open and clear. If, however, a casualty is unconscious, the airway may be obstructed. Obstructed airway dictates some lifesaving gestures to open and clear the airway namely jaw thrust or chin lift/head tilt as appropriate. Never move to next step until it is open and clear. For any known traumatic injuries, the cervical spine immobilization is required.

b) Breathing and ventilation

Check whether the casualty is breathing. If he/she is alert and or talking to you, he or she will be breathing, however you have to determine if the casualty is breathing normally through noting the rate, depth, and ease with which he or she is breathing which requires to look, listen, and feel for breaths. If an unconscious casualty is not breathing, the heart will stop. Chest compressions and rescue breaths must be started immediately. Note that a victim who is speaking full sentences is likely breathing sufficiently. If the casualty is unconscious and breathing normally, put him/her in recovery position.

c) Circulation with hemorrhage control

Quickly estimate the patient's heart rate and determine the quality of the pulse and evaluate the patient's skin temperature, color, capillary refill and moisture to assess perfusion. Check for bleeding (absent or present, if present is it controlled or not). Injuries that result in severe bleeding can cause blood loss from the circulatory system, so they must be treated immediately to minimize the risk of a life-threatening condition known as shock. If a pulse is present and capillary refill is < 2 seconds, the patient's circulation is likely sufficient.

d) Disability

Briefly evaluate the neurologic status and note any neurologic deficit. Any change in mentation from baseline should be concerning.

e) Exposure

Expose the casualty both anterior and posterior body surfaces and look for injuries, rash, etc., ask about recent exposure to infectious diseases note and address environmental concerns (hypothermia/hyperthermia).

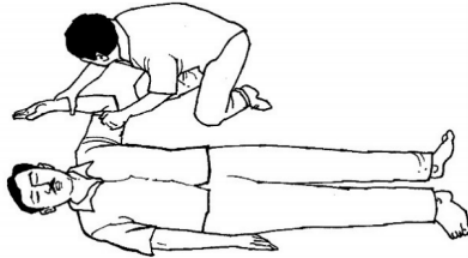
f) Recovery position

Putting a victim in a recovery position is a frequent emergency aid gesture used for unresponsive victims who have open airway and are breathing. This position helps keep the victim airway open and allows any vomit to drain onto the floor preventing the victim from choking on it as well as from asphyxiation due to body position.

Following are the steps for putting the victim into the recovery position:

- 1) Put the person on the floor if he is not there already
- 2) Remove the person's spectacles if necessary
- 3) Kneel down by the side of the casualty
- 4) Make sure both victim's legs are outstretched

- 5) Place the nearest arm (the one on the side you are kneeling next to) at right angles to the victim's body



- 6) Bend the forearm upwards with palm facing up

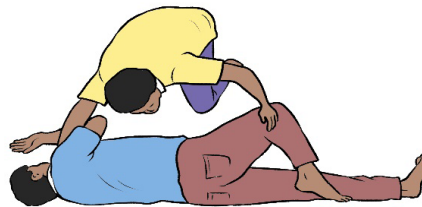
- 7) Lay the person's other arm across his chest.

- 8) Hold the back of this hand against his cheek on the side at which you are kneeling.



- 9) Keeping that hand in that position, with your other free hand, grasp the leg on the other side of the victim's body under the knee.

- 10) Raise that leg, but leave the person's foot on the ground



- 11) Pull the raised leg towards you.

- 12) In the meantime, keep the back of the victim's hand held against his cheek. Roll the person towards you so he turns on his side.



- 13) Position the victim's upper leg in such a way that his hip and knee are at right angles. This will allow the victim to maintain lateral position.



- 14) Tilt the head of the person backwards to keep the airway open.

- 15) Make sure the mouth is angled towards the ground. This will prevent the risk of choking on blood or vomit.



- 16) Adjust the hand under the cheek if necessary so that the head remains tilted backwards and the mouth remains at a downward angle.

- 17) Do not leave a casualty alone and continue observing his condition and monitoring his breathing. If the person stops breathing, start resuscitation.

Note:

An unconscious, breathing casualty who is **heavily pregnant**, should be placed on their **LEFT side** so the weight of the baby does not put pressure on a major vein on the right side of the abdomen.

Self-assessment 5.1.3

In your groups go in the simulation lab and perform the ABCDE used emergency situation on model mannequin and attempt to put the mannequin in the recovery position.

5.2. First aid in the selected common emergency situations

Introductory activity 5.2



- 1) Observe and describe each of the above pictures?
- 2) Summarize the emergent interventions to a snake bite used in your community
- 3) Which of the following are considered personal protective equipment?
 - a) Gloves
 - b) Mask
 - c) Eye shield
 - d) All of the above

5.2.1. Burns

Learning activity 5.2.1

Outline the causes of burn you known.

Burns are injuries that result from direct contact with fire, hot liquid or steam, hot object, electrical current, radiations sources, certain chemicals and exposure to extreme cold. The burn is characterized by its appearance, its location, its extend, its degree and the presence of pain. Burns can vary from minor superficial burns to very deep burns that damage muscles, tendons, nerves, and even bones.

First aid interventions in case of burn include:

- **Assess** the situation quickly and calmly to get an understanding of what happened
- Calm and motivating the victim to collaborate.

- Ensure that the source of the burn has been dealt with, and the scene is safe.
- Wear personal protective equipment, and get the first aid kit if available.
- Gently remove any clothing and jewelry from the burned area. DO NOT try to remove any clothing that is sticking to it
- Rinse the burn in cool or cold water for about 20 minutes. If the area cannot be immersed such as the face, towel, sheets or wet clothes that have been soaked in water can be applied. Change/rewet these regularly as they will absorb heat from the burn.
- For small burn apply antibiotic / burn cream if available and the victim is not allergic to it
- Cover the burn with a clean, dry non-stick dressing and loosely bandage in place. If this is not available or the burn covers a large area use a dry, clean sheet or other tissue material
- Have the person follow up with a health care provider.
- Do not apply ice to a burn. This technique will result in a cold injury on top of a burn and cause further tissue damage

Note: Do not apply ice to a burn. This technique will result in a cold injury on top of a burn and cause further tissue damage

Self-assessment 5.2.1

Your classmate, was using an iron that is in its maximum warming up accidentally, it /falls on his/her left foot cause a superficial burn. You are warned by a loud scream of pain. You jump to see what happen. What will you do to help him/her?

5.2.2. Drowning

Learning activity 5.2.2

- 1) Observe and describe the picture aside.
- 2) What can you do to help the drowned victim?



Drowning is a type of suffocation induced by the submersion or immersion of the mouth and nose in a liquid. Drowning can result in death from hypothermia due to immersion in cold water, sudden cardiac arrest due to cold water, spasm of

the throat blocking the airway and/or inhalation of water and consequent airway obstruction. You should not endanger your own life in trying to rescue the casualty from water; if possible use an item that floats to rescue the victim from water. Once the victim is out of water, turn him or her onto one side, open the airway and let any water or vomit drain out and if no signs of life immediately start cardiorespiratory resuscitation. It is important to recognize early drowning victim's distress signs.

The assistance to the drowning victim should be initiated as soon as possible. Note that the chance for survival decreases as the time goes on. A drowned person rescued within the first minute has a 95% survival chance, only 25% survival chance if after 6 minutes, and these drop to only 3% survival chance if after 8 minutes.

The first thing to be done is to assist the victim to get out of the water by giving directions. However, as a first aider, you should not endanger your own life in trying to rescue the casualty from water; if possible, use an item that floats to assist get the victim to the dry land.

Once the victim is out of water:

- Turn him or her onto one side keeping the victim's head lower than the rest of the body to reduce the risk of inhaling water.
- Open the airway and let any water or vomit drain out and if no signs of life immediately start cardiorespiratory resuscitation (CPR).
- Treat the victim for hypothermia that is remove wet clothes and cover him/her with dry warm blanket. If the person regains full consciousness, give him/her a warm drink.

When giving the emergency aid to a drowning casualty you should aim to restore adequate breathing and keep the casualty warm while seek medical assistance and or hospital care. Note that any casualty rescued from a drowning incident should always receive medical attention even if he or she seems to have recovered as any water entering the lungs causes them to become irritated, and the air passages may begin to swell several hours later.

Self-assessment 5.2.2

Demonstrate how to position a drowning victim once out of water.

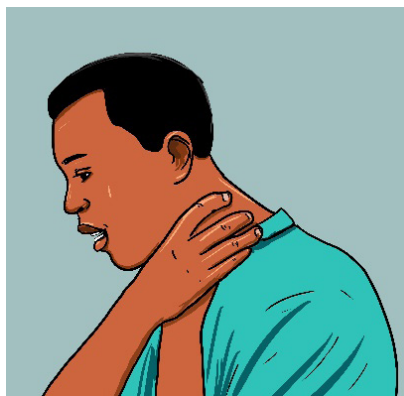
5.2.3. Choking

Learning activity 5.2.3

A group of teen in your village are celebrating their achieving with a steak dinner. During the meal, one of them suddenly clutched his throat, with severe difficulty breathing and he was unable to speak.

- 1) What do you think happened?
- 2) As a first Aider, attempt to rescue him

Choking is the result of either a totally or partially obstructed airway caused by swollen tissues or a foreign body. Food or other material entering the windpipe instead of the esophagus. Early recognition and intervention are the key to successful outcome. Choking should be distinguished from other conditions that may cause sudden respiratory distress but require different treatment such fainting, stroke, heart attack, seizure, drug overdose, among others. Signs of choking range from mild to severe airway obstruction and these along the age of the casualty dictate steps emergency aid interventions.



Universal choking sign

SIGNS	RESCUER INTERVENTIONS
Mild airway obstruction <ul style="list-style-type: none">▪ Good air exchange▪ Can cough forcefully▪ May wheeze between coughs	<ul style="list-style-type: none">▪ As long as good air exchange continues, encourage the victim to continue coughing.▪ Do not interfere with the victim's own attempts to relieve the obstruction, but stay with the victim and monitor the condition.▪ If mild airway obstruction continues or progresses to signs of severe airway obstruction, activate the emergency response system

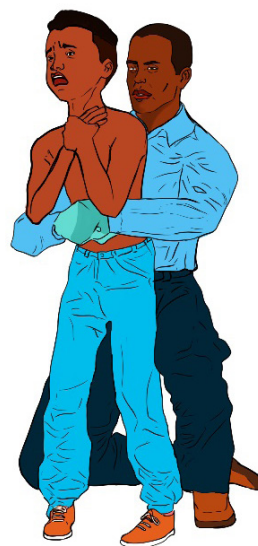
<p>Severe airway obstruction</p>	<ul style="list-style-type: none"> ▪ Clutching the throat with the thumb and fingers, making the universal choking sign ▪ Unable to speak or cry ▪ Poor or no air exchange ▪ Weak, ineffective cough or no cough at all ▪ High-pitched noise while inhaling or no noise at all ▪ Increased respiratory difficulty ▪ Possible cyanosis (turning blue) 	<ul style="list-style-type: none"> ▪ If the victim is an adult or child, ask him if he is choking. If the victim nods “yes” and cannot talk, severe airway obstruction is present. (an infant can’t respond to questions). ▪ Take steps immediately to relieve the obstruction. ▪ If severe airway obstruction continues and the victim becomes unresponsive, start cardiopulmonary resuscitation “CPR”. ▪ If you are not alone, send someone to activate the emergency response system. If you are alone, provide about 2 minutes of CPR before leaving to activate the emergency response system.
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a) Choking relief in a responsive adult or child

Abdominal Thrusts also known as “**Heimlich maneuver**” is used to relieve choking in a responsive adult or child. Individual thrust is given with the intention of relieving the obstruction and it may be necessary to repeat the thrust several times to clear the airway. This maneuver should not be used to relieve choking in an infant. Moreover, this maneuver is avoided in pregnant or obese victims where chest thrusts are performed instead of abdominal thrusts.

Steps for abdominal thrusts with victim standing/ sitting

- 1) Stand or kneel behind the victim and wrap your arms around the victim’s waist
- 2) Make a fist with one hand.
- 3) Place the thumb side of your fist against the victim’s abdomen, in the midline, slightly above the navel and well below the breastbone.
- 4) Grasp your fist with your other hand and press your fist into the victim’s abdomen with a quick, forceful upward thrust.
- 5) Repeat thrusts until the object is expelled from the airway or the victim becomes unresponsive.
- 6) Give each new thrust with a separate, distinct movement to relieve the obstruction.



b) Choking relief in an unresponsive adult or child

In severe airway obstruction, the victim will be unable to speak, cough, or breathe, and will eventually lose consciousness. If the rescuer is certain that the victim's condition is caused by a foreign-body airway obstruction the following steps are undertaken to help the victim.

- 1) Shout for help. If someone else is available, send that person to activate the emergency response system.
- 2) Gently lower the victim to the ground if you see that he is becoming unresponsive.
- 3) Begin CPR, starting with chest compressions. Do not check for a pulse.
- 4) Each time you open the airway to give breaths, open the victim's mouth wide. Look for the object.
 - If you see an object that can be easily removed, remove it with your fingers.
 - If you do not see an object, continue CPR.
- 5) After about 5 cycles or 2 minutes of CPR, activate the emergency response system if someone has not already done so.

Note:

- Sometimes the choking victim may already be unresponsive when you first encounter him. In this situation you probably will not know that a foreign-body airway obstruction exists. Activate the emergency response system and start high-quality CPR.
- If the victim is pregnant or obese, perform chest thrusts instead of abdominal thrusts
- You can tell if you have successfully removed an airway obstruction in an unresponsive victim if you feel air movement and see the chest rise when you give breaths or see and remove a foreign body from the victim's mouth

c) Choking relief in infants

Back slaps and chest thrusts are used to relieve choking in responsive infant rather than abdominal thrusts through the following steps:

- 1) Kneel or sit with the infant in your lap.
- 2) If it is easy to do, remove clothing from the infant's chest.
- 3) Hold the infant facedown with the head slightly lower than the chest, resting on your forearm. Support the infant's head and jaw with your hand. Take care to avoid compressing the soft tissues of the infant's throat. Rest your forearm on your lap or thigh to support the infant.

- 4) Deliver up to 5 back slaps forcefully between the infant's shoulder blades, using the heel of your hand. Deliver each slap with sufficient force to attempt to dislodge the foreign body.



- 5) After delivering up to 5 back slaps, place your free hand on the infant's back, supporting the back of the infant's head with the palm of your hand. The infant will be adequately cradled between your 2 forearms, with the palm of one hand supporting the face and jaw while the palm of the other hand supports the back of the infant's head.

- 6) Turn the infant as a unit while carefully supporting the head and neck. Hold the infant face-up, with your forearm resting on your thigh. Keep the infant's head lower than the trunk.

- 7) Provide up to 5 quick downward chest thrusts in the middle of the chest, over the lower half of the breastbone (the same location as for chest compressions during CPR). Deliver chest thrusts at a rate of about 1 per second, each with the intention of creating enough force to dislodge the foreign body.



- 8) Repeat the sequence of up to 5 back slaps and up to 5 chest thrusts until the object is removed or the infant becomes unresponsive.

d) Choking Relief in an Unresponsive Infant

If the infant victim becomes unresponsive, stop giving back slaps and begin CPR, starting with chest compressions. To relieve choking in an unresponsive infant, implement the following steps:

- 9) Shout for help. If someone responds, send that person to activate the emergency response system.
- 10) Place the infant on a firm, flat surface and begin CPR starting with compressions with 1 extra step: each time you open the airway, look for the object in the back of the throat. If you see an object and can easily remove it, remove it. You should never perform a blind finger sweep in attempt to remove the foreign body as it may push the foreign body back into the airway, causing further obstruction and or injury. Note that you do not check for a pulse before beginning CPR.
- 11) After about 2 minutes of CPR, if no one has done so, activate the emergency response system.

Self-assessment 5.2.3

- 1) A nine months old boy was playing with small block toys with his older sister, and suddenly became unresponsive and his lips turned blue.
 - a) What do you think happened to the boy?
 - b) As a first aider on premises, what will you do step by step to help this kid?
 - c) What type of choking is the kid suffering from?
- 2) What are specific considerations for relieving a choking 32 weeks pregnant women?

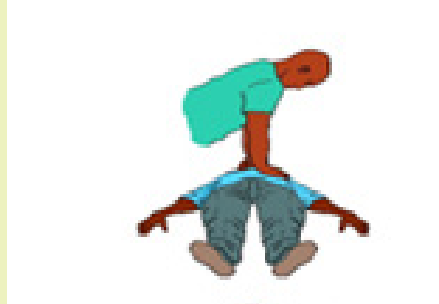
5.2.4. Cardio respiratory distress

Learning activity 5.2.4

- 1) Observe and describe the pictures ABCD below
- 2) If the victim is not breathing, how can you help him/her?



A



B



C



D

A **distress** is an urgent situation in which a person is suffering or is in danger and therefore in urgent need of help. It requires **urgent** intervention to prevent worsening of the situation.

The **cardio respiratory distress** is relating to the heart, the lungs and the airway passages and breathing muscles. Severe cardio respiratory distress results in cardiac arrest which can be witnessed or unwitnessed. Lack of quick interventions to restart the heart can result in serious complications such as brain damage which can be irreversible and the death follows in fact timing of intervention is crucial as the brain may die within 4 to 6 minutes without oxygen.

Cardio Pulmonary Resuscitation (**CPR**) is the name given to the technique combining chest compressions, airway management, and rescue breathing aiming to restart the heart and is indicated when a casualty has no pulse, stops breathing or only

gasping for air and becomes unconscious. To deliver high-quality CPR, you must begin high-quality chest compressions quickly, as these are considered the most important factor in giving the person a chance to recover. Compressing the chest circulates blood to the brain and the heart. High-quality chest compressions are delivered at a rate between 100 to 120 beats per minute and at a depth between 2 to 2.4 inches (5 to 6 cm) in adult casualty.

Fundamental aspects of an effective CPR include:

- Immediate recognition of respiratory distress and cardiac arrest
- Activation of the emergency response system, getting help and equipment
- Early cardiopulmonary resuscitation (CPR)
- Rapid defibrillation with an automated external defibrillator (AED)

a) Steps in CPR

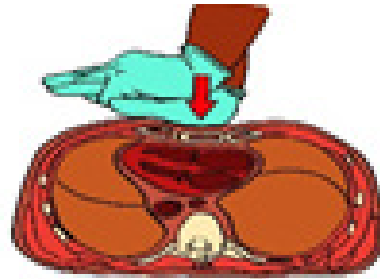
- Place the victim on a hard surface, often on the ground
- Check for responsiveness-stimulate patient: tap the victim on the shoulder and ask if he or she is okay
- Look for the chest to rise and fall, listen for sounds of air movement at the mouth and nose, feel for the breath against your cheek
- Shout for nearby help



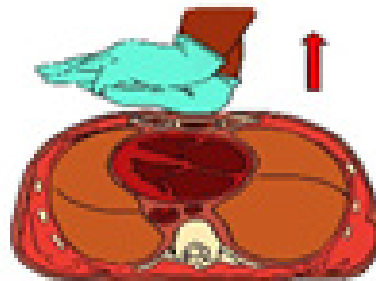
- Check for pulse and breathing: this should take **no more than 10 seconds** to assess for breathing and check for a pulse. If rescuer does not definitely feel a carotid pulse in adults and brachial pulse in children within that time period, rescuer should start chest compressions.



- Open the airway
- If no breathing or only gasping and no pulse, begin cycles of 30 compressions and 2 breaths until AED is available
- Chest compressions:
- Kneel by the victim's side
- Place the heel of one hand in the centre of the victim's chest.
- Place the heel of your other hand on top of the first hand and ensure that pressure is not applied over the victim's ribs.
- Do not apply any pressure over the upper abdomen or the bottom end of the sternum
- With your arms straight, press down on the sternum at least 5-6 cm at a rate of at least 100 per minute (nearly 2 compressions each second) but no more than 120 per minute.



Chest compression



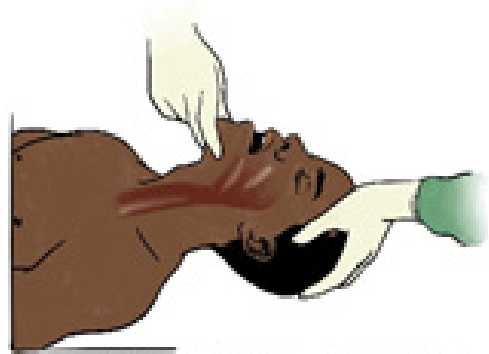
Chest recoil

- After each compression, release all the pressure on the chest without losing contact between your hands and the sternum to allow chest recoil (chest compression and chest recoil/relaxation times should be approximately equal)

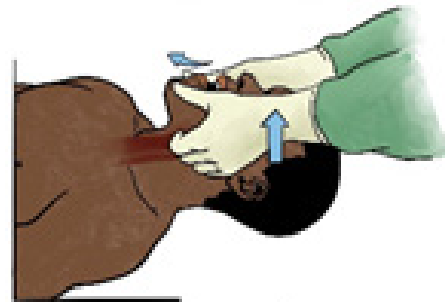


- Minimize frequency and duration of interruptions in compressions.
- Once chest compressions have been started, a trained rescuer should deliver breaths by bag-mask to provide oxygenation and ventilation at a ratio of 30 compressions: 2 breaths in adults and a rate of 15 compressions: 2 breaths if 2 or more rescuers involved (if 1 rescuer involved a rate of 30 compressions: 2 breaths)

- Managing the Airway:
 - Use a head tilt–chin lift maneuver to open airway of a victim with NO evidence of head or neck trauma.
 - Use cervical spine injury is suspect, open airway using a jaw thrust without neck extension.
- Give breaths using a mask; however, mouth-to-mouth can also be performed (Should not be done in a hospital setting unless you have a barrier but can be used at home with family or people you know)
- Use ambubag-valve-mask attached to oxygen once available:
 - Choose the right mask size to cover the mouth and nose
 - Give breaths slowly (over one second)
 - Watch for chest rise. Don't over-inflate, especially infants
 - Reposition if no chest rise
- 5 cycles of compressions: breaths should be done in about 2 minutes
- Check for pulse every 2 minutes



Head tilt-chin lift



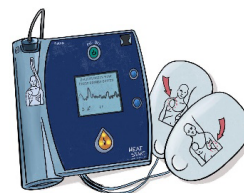
Jaw thrust

Note:

- Rescuer fatigue may lead to inadequate compression rates or depth. Therefore, if 2 or more rescuers are available switch chest compressors approximately every 2 minutes to prevent decreases in quality of compressions. Every effort should be made to accomplish this switch in 5 seconds
- CPR should continue and can be stopped when rescuers are physically exhausted or decision to stop is made by a doctor.
- If you can feel the pulse and the victim airways are open and can breathe, put him/her in recovery position and continue monitoring the victim carefully, checking regularly the pulse and watching for signs of reduced air passage such as weak, ineffective cough, a high-pitched wheeze during inhalation, increased strain during breathing, clutching at the throat slight cyanosis.

b) The automated external defibrillator (AED)

An automated external defibrillator (AED) is a small, lightweight, portable and easy to operate device used to give an electric shock to restore when the casualty is having a sudden cardiac arrest. This device once attached to the victim analyzes the casualty's heart rhythm and advise you what action to take at each stage. Starting CPR immediately and quickly using an AED improves the chances of survival.



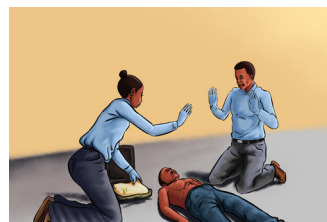
AED

Following are universal steps for operating an AED:

- 1) Perform CPR until an AED arrives
- 2) Once AED obtained, turn the power on
- 3) Expose the victim chest and attach the adhesive AED pads to the victim's bare chest
- 4) Clear the victim to make sure no one is touching any part of the victim, let the AED analyze the rhythm and wait until the AED tells you what to do
- 5) Follow the AED advice such as shock advised, no shock advised, continue CPR, check connection, etc.
- 6) If a shock is indicated and other people are present, warn them to keep clear and ensure your body is not touching the person:
- 7) Say, "I'm going to shock on three. One, I'm clear. Two, you're clear. Three, everybody's clear."
- 8) Check to make sure no one is touching the person or the AED then press the "Shock" button to give a chock
- 9) Resume CPR with compressions for 2 min
- 10) After 2 min of CPR, the AED will prompt you with further verbal and visual cues



Pads attached



Clear the victim

Note:

- The pads should be placed in a position that maximize current flow through heart (Sternum/apex or Anterior/posterior)

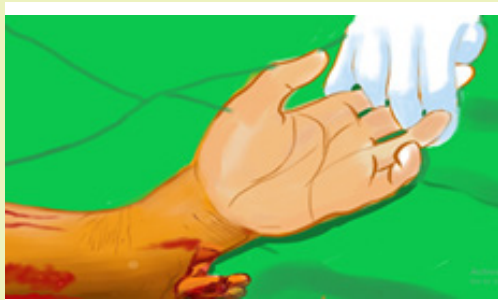
- When no pediatric pads available adult can be used for children > 8 years old or weighing > 25 Kg
- Ensure that victim is not lying in water and wet areas on victim are dried before using AED

Self-assessment 5.2.4

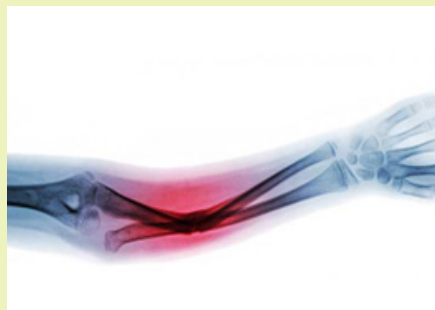
- 1) What should be done immediately when you find a person with apnea before performing a CPR?
- 2) Perform a CPR on model mannequin

5.2.5 Fractures

Learning activity 5.2.5



A



B

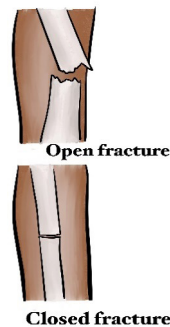
Observe carefully the figure above and attempt to answer the following questions:

- 1) What do you understand by fracture?
- 2) Contrast and compare image A and image B

Musculoskeletal injuries are common occurrences and these results into **bone fractures** (break or crack in the continuity of the bone), **joint dislocation** (the bones are partially or completely pulled out of their normal position), **strains** and **sprains** (injuries to soft structures surrounding bones). All of these injuries results in almost similar complaints. Use of x-ray is paramount to rule out fractures. Fractures are broadly classified as either open or closed fractures.

Open fractures – also called “*compound fractures*”, are fracture in which there is an open wound or break in the skin near the site of the broken bone. Involved bone is exposed at the surface where it breaks the skin but both sides of the fracture do not need to be visible.

Closed fractures – are fractures in which the skin is unbroken although the bone ends may damage nearby tissues and blood vessels.



Fractures can become life-threatening if there is severe internal or external bleeding and due to the risk of shock. If organs or major nerves or other structures/systems are also injured.

Common signs and symptoms of fracture include:

- Deformity, swelling, and bruising at the fracture site
- Pain and or difficulty in moving the area
- Shortening, bending, or twisting of a limb
- Coarse grating (crepitus) of the bone ends that can be heard or felt (by casualty). Do not try to seek this.
- Signs of shock, especially if femur or pelvis are fractured
- Difficulty in moving a limb normally or at all (for example, inability to walk)
- A wound, possibly with bone ends protruding

First aid interventions in case of fracture should aim at preventing movement at the injury site (immobilization) and at arranging transportation to the hospital, with comfortable support during transit.

First aid care for broken bones includes the following:

- 1) Ensure the scene is safe and wear personal protective equipment.
- 2) Apply gauze to any open wounds.
- 3) Do not attempt to push the bone back in (if open fracture) and/or straighten the extremity
- 4) Splint the bones in the position you find them in, never attempt to manipulate or correct an abnormally positioned bone or joint. Splints can be made by using magazines, wood, or rolled-up towels. Splint material are placed on either side of the injured extremity, supporting the joints above and below the injury and secure in place using tape or gauze ensuring they are not compromising blood circulation. The fingertips or toes in a splinted extremity should remain warm and pink.

- 5) Use a triangular arm sling to secure arm and shoulder injuries
- 6) Move the fractured body part as little as possible or handle gently to prevent making the fracture worse (e.g. a closed fracture may become an open fracture) and to lessen the person's pain.
- 7) Encourage further evaluation by a health care provider and avoid use of the injured part

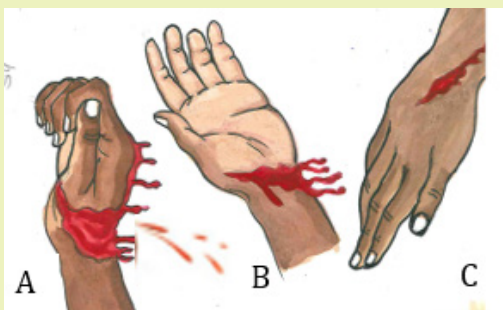
Self-assessment 5.2.5

Referring to Images of learning activity 4.2.5, attempt the following questions:

1. What do you think is the right course of action by the first aider? (Multiple answers are possible):
 - a) Try to straighten the limb in image B
 - b) Avoiding moving the victim
 - c) Immobilizing the limb in the position he/she found it in by use of tree branches and clothes holding
 - d) Pushing back the protruding bone in picture A and apply pressure dressing to control bleeding
2. Using the knowledge and skills learnt previously on bandaging, attempt to immobilize these fractures

5.2.6. Hemorrhages

Learning activity 5.2.6



- 1) What do you see on the picture aside?
- 2) Based on your knowledge on blood circulation attempt to explain any observed difference between picture A, B and C
- 3) What do you think as a first aider, can be done to rescue the victim in this situation?

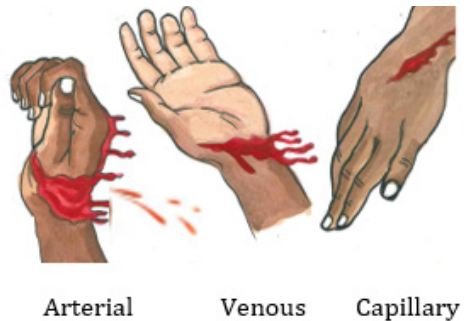
The body must have enough circulating blood volume to keep the body functioning and keep the organs supplied with oxygen. Blood is moved around the body under pressure by the heart and blood vessels. Without adequate blood volume and pressure, the human body soon collapses. When blood vessels rupture due to a severe injury, bleeding or hemorrhage, poses a threat. Note that hemorrhage is

a feature of many presentations particularly, but not exclusively, those involving trauma. It is a loss of blood from damaged blood vessels and it may be internal or external. The aim of the first aider is to reduce loss of blood from the casualty.

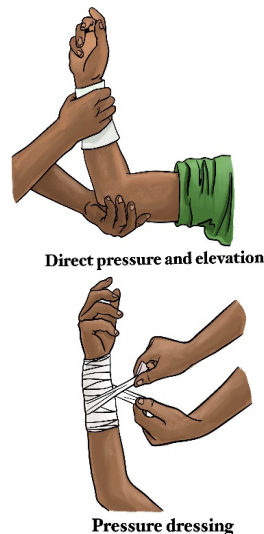
a) External bleeding

External bleeding is usually associated with wounds (cuts, abrasions, amputations, incisions, lacerations and punctures). Serious wounds involve damage to blood vessels. External Bleeds can be categorized into three main types with regard to their origin:

- Arterial bleeding: as a result of damage to an artery and is characterized by blood which can 'spurt' and 'pulse' with each heartbeat.
- Venous bleeding: as a result of damage to veins in which bleeding tends to flow, sometimes heavily, rather than spurt.
- Capillary bleeding: as a result of damaged capillaries, this is associated with wounds close to the skin and oozes rather than flows.



Always use personal protective equipment prior to caring for an injured and bleeding casualty. The casualty can be instructed to perform some self-care such as temporarily applying and holding pressure on some areas while you put on your personal protective equipment. Note that the most effective way to stop bleeding from a wound is to apply direct pressure, hence important to continue holding the pressure until the bleeding stops. Whenever possible, the bleeding area should be elevated above the level of the heart



If there are multiple wounds, apply pressure dressings to the worst injuries first, and then to the lesser bleeding injuries. However, some massive bleeding involving limbs may require the use of tourniquet. Tourniquets can consist of a blood pressure cuff, belt, or premade versions. Understand that the application of a tourniquet is painful but may be necessary to prevent life-threatening blood loss and that its use is difficult and can be dangerous if done incorrectly.



Direct pressure should be applied first. The tourniquet should be applied approximately 5 cm above the bleeding wound and tightened until the bleeding stops.

Record the time the tourniquet was applied and stay with the casualty and do not release tourniquet. Only a medical professional should remove a tourniquet. Help casualty into a comfortable position, if possible have him/her lying down. If the casualty becomes unresponsive and not breathing normally follow ABCDE.

Note that blood loss often gets the most attention and many times the amount of bleeding is overestimated and draws attention to wounds when more serious injuries should be dealt with first. Therefore, whenever confronted with bleeding, perform a quick overview of the person to make sure something more serious is not being overlooked, the rescuer should be calm and reassuring.

b) Internal bleeding

Always consider internal bleeding after injury, understanding it cannot be controlled by the first aider. Internal bleeding is classified as either visible (where the bleeding can be seen) or concealed, (where no direct evidence of bleeding is obvious). Obtaining an adequate history of the incident or illness will, in most instances, give the first aid provider the necessary clue as to whether internal bleeding may be present. You should remember that current signs and symptoms or the lack of them, do not necessarily indicate the casualty's condition. Due to the stealth of bleed, certain critical signs and symptoms may not appear until well after the incident, becoming apparent despite there being no visible cause, only when the casualty worsens.

Visible internal bleeding is referred to in this way because the bleeding can be seen from:

- Ears: Blood or blood mixed with clear fluid.
- Lungs: Frothy, bright red blood coughed up by the casualty.
- Stomach, bowel or intestines: Bright, dark or tarry blood coughed up by the casualty.
- Under the skin (bruising): The tissues appear dark due to blood under the skin.

In concealed internal bleeding, detecting internal bleeding relies on good observation and an appreciation of the physical forces that have affected the casualty. In these cases, the first aid provider considers the history, signs and symptoms. If you are unsure, assume the worst and treat for internal bleeding. Consider important observations that may indicate internal bleeding, which include:

- Rapid, shallow, or irregular breathing
- 'Guarding' of the abdomen, with foetal position if lying down
- Pain or discomfort and/or swelling of the abdomen
- Nausea and/or vomiting
- Altered consciousness
- Pale, clammy skin

To help a casualty with an internal bleeding:

- Call emergent help/ambulance
- Wear personnel protective equipment
- If conscious, lie the casualty down on their back with both legs bent at the knees and if unconscious, in recovery position with both legs bent at the knees

c) Nosebleeds

Nosebleeds are not usually serious though sometimes they can be quite dramatic and are often messy. They commonly occur because of dry air or high altitude, an injury to the nose, or a medication (especially a blood thinner such as warfarin). Blowing or picking the nose can also cause a nosebleed. People with nosebleeds often swallow a fair amount of blood, which may result in vomiting. Therefore, be sure to wear personal protective equipment and eye protection when attending to nosebleeds.

- After ensuring that the scene is safe and protective equipment is on, press both sides of the nostrils just below the bony portion of the nose for a minimum of 5 to 10 minutes.
- Sit the casualty upright and lean his/her body and head slightly forward. This will keep the blood from running down his/her throat, which can cause vomiting.
- If bleeding continues, try holding pressure for an additional 10 minutes.
- If bleeding continues after this the victim has trouble breathing or shows signs of severe distress, seek further medical care.



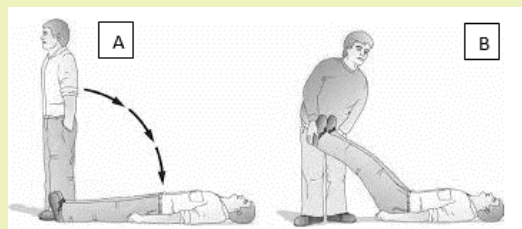
Note: If a severe bleeding is not managed promptly and correctly, it results into a life-threatening condition called “**Chock**”. Hemorrhagic chock can result either from severe external bleeding, internal bleeding or both

5.2.7. Loss of consciousness

Learning activity 5.2.7

Mr X in image A aside has been standing for more than 8 hrs. the following illustrations show happened next.

- 1) What do you think happened to him?
- 2) With rationale explain what you think the guy in image B is doing to Mr X?



Loss of consciousness we are referring to is synonymous to “**fainting**” which is a common reaction to a variety of conditions. It is the body’s reaction to the decreased blood flow to the brain that causes the person to pass out. Individuals may faint at the sight of blood, reaction to pain, exhaustion, hunger or during periods of intense emotional stress. Fainting also may result from long periods of physical inactivity, such as standing or sitting still, especially in a warm atmosphere. More serious conditions, such as an abnormal or erratic heart rhythm, can also cause fainting. Moreover, severely dehydrated persons may faint when standing up suddenly. Fainting is characterized by a brief loss of consciousness that causes the casualty to fall to the ground, a slow pulse and the victim become pale, cold skin and he or she is sweating.

The rescue a fainted victim aims at improving blood flow to the brain and at reassuring the casualty and making him or her comfortable. When a casualty feels faint, advise him/her to lie down. Approach the victim and kneel down, raise his/her legs, supporting his ankles on your shoulders to improve blood flow to the brain. Ensure that the casualty has plenty of fresh air; ask someone to open a window if you are indoors. In addition, ask any bystanders to stand clear. As the casualty recovers, reassure him/her and help him/her sit up gradually. If he/she starts to feel faint again, advise him to lie down once again, and raise and support his legs until he recovers fully.

Self-assessment 5.2.7

- 1) Enumerate signs and symptoms of fainting
- 2) Arrange the follow activities done to support a fainting uninjured causality in a sequential manner using the table below
 - a) Continue CPR until help arrives or the person begins to breathe
 - b) To reduce the chance of fainting again, don’t get the person up too quickly.
 - c) Call our local emergency on 912.
 - d) Position the person on his or her back.
 - e) begin CPR,
 - f) If the person isn’t breathing,
 - g) Raise the person’s legs above heart level,
 - h) Check for breathing.
 - i) If the person doesn’t regain consciousness within one minute,
 - j) Loosen belts, collars or other constrictive clothing.

1	2	3	4	5	6	7	8	9	10

5.2.8. Snake bites

Learning activity 5.2.8

You were camping with your friends and suddenly one of them screamed “I am pricked by something on my left leg”. Looking around, you saw multicolor snake leaving your tent. Your friend leg present two puncture marks with parallel scratches on skin area he felt pricks.

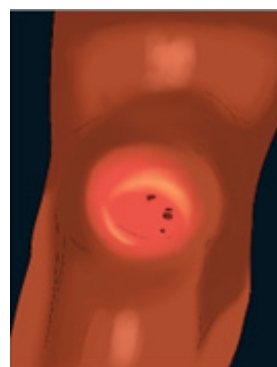
- 1) What do you think of this situation?
- 2) What first aid care do think is need to help him?

Many animals can bite or sting. Whereas most such bites and stings are painful, only a few types can cause sickness, allergic reactions, or death. Poisonous snakes inject a toxic venom when they strike their victim. It's difficult to accurately identify a snake once it has bitten someone, as snakes are similar in shape and have many different colours, even within the same species. The effects of snake venom can take up to 2 hours to become apparent, so symptoms are not always obvious straight away. All snake bites are emergency and must be treated as venomous until proven otherwise and the bite may be painless and without visible marks.

Do not attempt to kill or capture the snake that bit the casualty. But, if possible, make a note of the snake's appearance to help doctors identify the correct antivenom. Take precautions to prevent other people from being bitten.

a) Signs and symptoms

- Puncture “**fangs**” marks or parallel scratches on skin, rarely any pain
- Discoloration around the bite site (not always)
- Pale, cool skin with progressive onset of sweating
- Rapid, shallow breathing
- Blurred vision, drooping eyelids
- Difficulty swallowing and speaking
- Abdominal pain, nausea and/or vomiting
- Headache
- Collapse and progressing to unconsciousness



← fang marks
← The bite of most poisonous snake leaves marks of the 2 fangs (and sometimes, marks made by the other teeth)

b) Care and treatment

The first aid principles for treating any kind of snake bite are the same. The main treatment for snake bite is the application of “**Pressure Immobilization Technique**” (PIT).

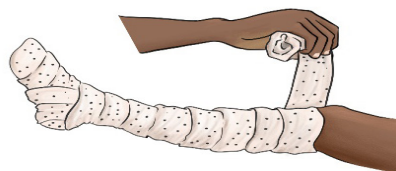
- Follow DRABCDE and be prepared to perform cardio pulmonary resuscitation
- Ensure the casualty remain as still as possible to slow venom travelling through the body
- Keep casualty under constant observation and at rest and provide reassurance.
- Apply the **pressure immobilization technique (PIT)**:

- 1) Have the victim lie down Stay quiet; do not move the bitten part. The more it is moved, the faster the poison will spread through the body. If the bite is on the foot, the person should not walk at all.
- 2) Remove any rings, watches, or bracelets because swelling can spread rapidly.

- 3) Wrap the bitten area with a wide elastic bandage (10 – 15 cm wide) or clean cloth to slow the spread of poison. Keeping the arm or leg very still, wrap it tightly, but not so tight it stops the pulse at the wrist or on top of the foot. If you cannot feel the pulse, loosen the bandage a little



- 4) Apply a second heavy elastic bandage, starting from the fingers or toes and winding as far up the limb as possible. Consistent coverage (overlapping half over half), and consistent pressure (firm but not cutting circulation) are the key to an effective PIT



- 5) Immobilize the limb and joints with a splint so that limb movement is restricted (use a sling for a bite to the arm)



Note:

- Keep the limb immobilized until medical assistance arrives
- If only one bandage is available, start just below the bite site and wind as far up the limb as possible, ensuring to cover the bite site.
- If no bandages, or splints available, improvise with clothing or whatever you can from the surrounding environment.

- Do not wash the bitten area, as a venom sample may be obtained.
- Do not elevate the limb.
- Do not use an arterial tourniquet.
- Do not remove the bandage once it has been applied, even if casualty is feeling well as long as there is no compromised blood circulation.
- Do not try to capture or kill the snake.
- Do not cut the bite and suck the venom out.

Self-assessment 5.2.8

A 12 years' kid was passing through a forest to fetch water and sustained snake bite on the right leg about 2 cm above lateral malleolus

- 1) Critic and comment on the following bystander emergency aid to this victim:
 - a) Used a vascular tourniquet to stop the venom to spread
 - b) Advised the victim to run fast and leave the forest
 - c) Took a short clip of the snake that was leaving the scene of incident
 - d) Reassured the victim
 - e) Once out the forest, he widened that wound to wash out the venom
- 2) What would do have done differently?

5.2.9. Epilepsy

Learning activity 5.2.9

You live in place where a family has a kid who experiences seizures several time.

- 1) The parents of that kid cognizant that you are an associate nurse ask you this question "what do you think to be the cause of that condition?"
- 2) What would you do when you find this kid in crisis?

Epilepsy is a common cause of **seizures**. Seizures are a disruption of brain function that interrupts normal electrical activity of the brain. They consist of involuntary contractions of many of the muscles in the body. It is only when there's a tendency for recurrent and major disturbances of brain activity seizures that epilepsy is diagnosed.

No matter what the cause of the seizure, care must always include maintaining an open, clear airway and a monitoring of the casualty's level of response, breathing,

and pulse. You will also need to protect the casualty from further harm during a seizure and arrange appropriate aftercare once he or she has recovered.

First aid management **DOs** in epilepsy include:

- Stay calm and remain with the casualty
- Note the start time and length of the seizure
- Protect the head from impacts
- Remove nearby objects and/or bystanders to protect from harm as cuts, abrasion, suffocation, burns, and broken bones or teethes...
- Loosen tight clothing
- Follow the casualty's seizure management plan (if there is one in place)
- When convulsions stop, or if vomiting starts, roll into recovery position and maintain airway
- Observe and monitor breathing
- Call for an ambulance
- Reassure and let the person rest until fully recovered

First aid management **DO NOTs** include:

- Do not put anything in the casualty's mouth
- Do not restrain the casualty
- Do not move the casualty unless they are in danger

Self-assessment 5.2.9

Witnessing a seizure in the street is impressive. How do you react as a first aider?

End unit assessment 5

- 1) What does ABCDE stand for?
- 2) How should you open the airway of an unconscious casualty?
 - a) Head tilt and chin lift.
 - b) Jaw thrust.
 - c) Head tilt and jaw thrust.
 - d) Lift the chin.

3. What should your first action be when treating an electrical burn?
 - a) Ensure that the casualty is still breathing.
 - b) Wash the burn with cold water.
 - c) Check for danger and ensure that contact with the electrical source is broken.
 - d) Check for level of response.
4. What is an open fracture?
 - a) A fracture in which the bone ends can move around.
 - b) A fracture in which the bone is exposed as the skin is broken.
 - c) A fracture which causes complications such as a punctured lung.
 - d) A fracture in which the bone has bent and split.
5. Which of the first aid duties below has the highest priority for you as a first aider?
 - a) Re-assure the victim
 - b) Arrange medical attention
 - c) Be aware of the danger
 - d) Begin CPR
6. You are attending a party in your family and suddenly your 3 years old niece become unresponsive after brief episode of coughing and crunching of her throat.
 - a) What might be the cause of this unresponsiveness status?
 - b) As a first aider at the premises what steps would you undertake to help her?
7. On your way while jogging, you find 2 victims involved in road traffic accident. One of the victim is bleeding a lot on his left leg and his right arm is broken and you can see forearm bones piercing through the skin. The second victim, is unresponsive and has contusion on his forehead.
 - a) What would you do first to rescue these victims?
 - b) Who among the two victims should be attended to first and why?
 - c) Stepwise execute steps appropriate for bleeding control
 - d) Immobilize these fractures

8. What is the first question you must ask before you respond to any first aid situation?
 - a) What is the age of the victim?
 - b) Is the scene safe?
 - c) What happened?
 - d) What time did you get hurt?
9. After observing picture B, what do you think is the first action when examining the condition of a patient?
 - a) check for breathing
 - b) Check for airway and c-spine immobilization (if appropriate)
 - c) Check for insurance
 - d) Speak to Victim and shake his shoulders
 - e) Check for external injuries
10. How do you check for breathing referring to picture B?
 - a) Listen
 - b) Look for rising chest
 - c) Feel with the cheek
 - d) Look, Listen and feel

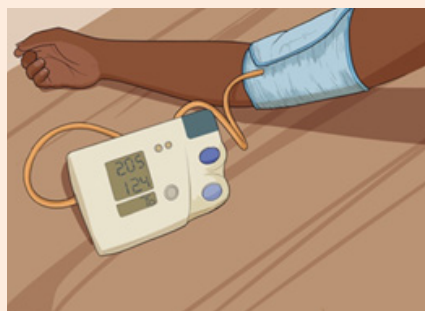
Key unit competence

Apply correctly the techniques of victim's evacuation and intervention during emergencies

Introductory activity 5.0



A



B



C



D

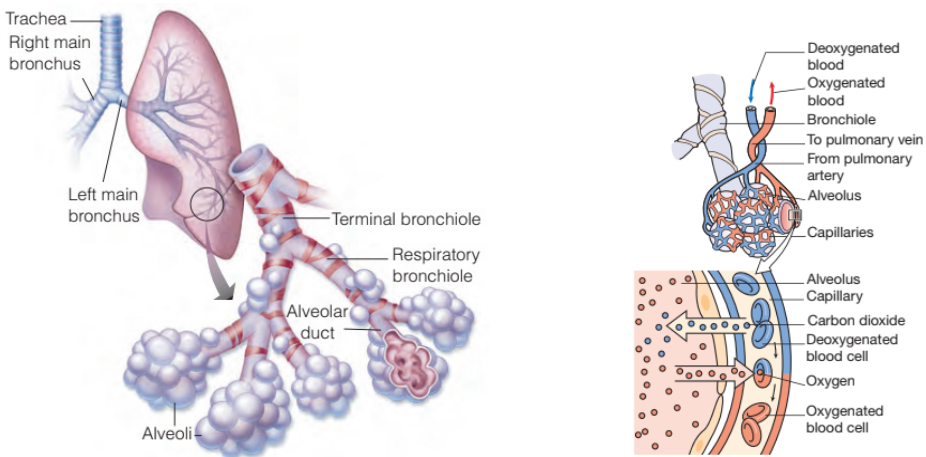
The above images represent health conditions that require emergency attention. Observe them carefully and attempt the following questions:

1. Which health conditions do you think are portrayed in picture A, B, C and D?
2. Apart from the health condition addressed in question 1, what would you think more of picture A and picture D? As a nurse, what could you do to care for the patient in picture D?

6.1. Respiratory system pathologies

6.1.1. Brief anatomy and physiology of the respiratory system

The respiratory system is one of the major systems of the body and primarily consists of two lungs. Its main function is to facilitate gas exchange through ventilation (the process of breathing) and respiration. Respiration can be expressed in two ways: internal respiration and external respiration. External respiration refers to exchange of gases at alveolar/ capillary level, whereby oxygen enters the blood and carbon dioxide leaves to be excreted through exhalation. Internal respiration refers to metabolism at cell level where oxygen is combined with carbohydrates to produce energy; carbon dioxide is a waste product of this metabolic process. Below is the representation of some respiratory system structures and external respiration physiology:



Learning activity 6.1.1



A



B

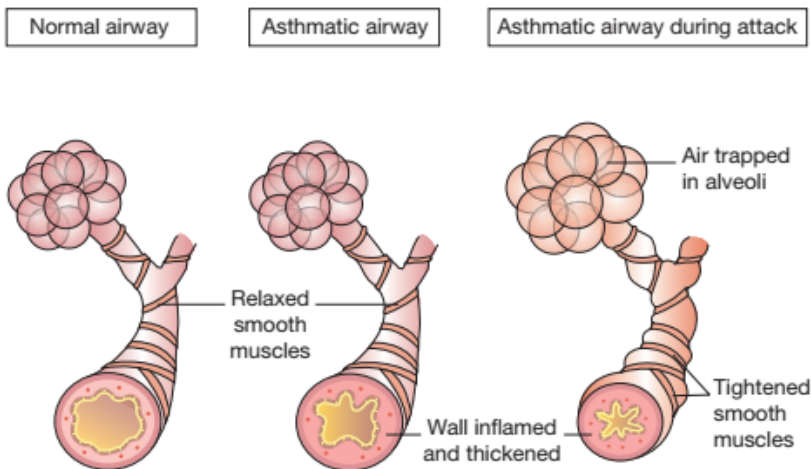
Observe carefully the above pictures and answer the following questions

- 1) What do you think of picture A
- 2) What do you think the person in picture B is doing?

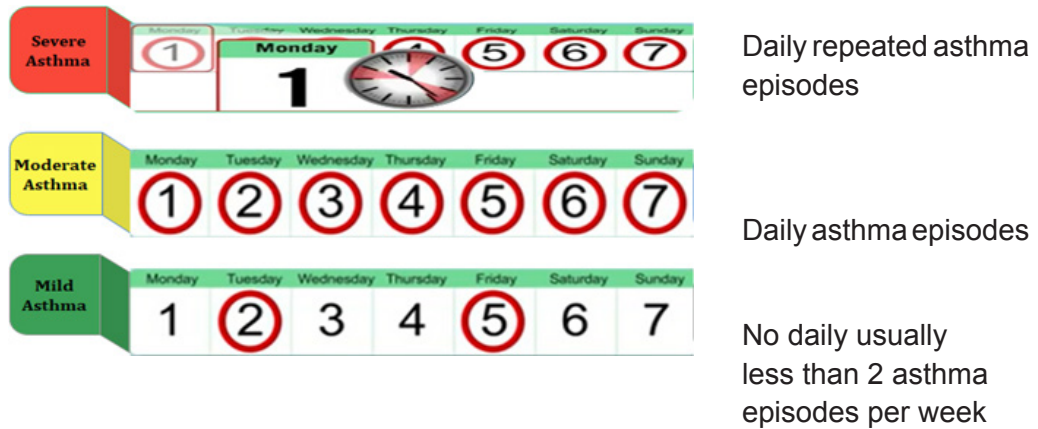
Asthma is a chronic inflammatory lung disease that causes airway hyper-responsiveness, mucus production, and mucosal edema resulting in reversible airflow obstruction triggering coughing, wheezing and shortness of breath. In fact, "**Asthma**" is an ancient Greek word meaning "**short breath**," and as the name implies, it can leave the sufferer gasping for air.

Though, asthma is a common chronic inflammatory condition of the airways, its course is not completely understood. As a result of inflammation, the airways are hyper-responsive and they narrow easily in a response to a wide range of stimuli regarded as precipitating or triggering factors. Allergens, irritants, air pollutants, pollen, pollution, tobacco smoke, cold weather, physical exertion, strong odors, and medications are common predisposing factors for asthma. Exercise and stress can also be an asthma trigger for some.

Pathophysiologically, when a susceptible individual is exposed to a trigger, an immediate inflammatory response with bronchospasm happens. This inflammation causes increased responsiveness of the airways to multiple stimuli leading to recurrent episodes of asthmatic symptoms. The response to an irritant in the airways causes muscle tightening and narrowing of the lumen and with inflamed airway lining mucus production increases. This leads to the clinically recognized symptoms of shortness of breath, wheezing (high pitched whistling) chest tightness, coughing with sputum occasionally.



For some people, asthma is a minor nuisance while for others, it can be a major problem that interferes with their daily activities and may lead to a life-threatening asthma attack. Simply classified, exist mild asthma, moderate asthma and severe asthma. The below figure illustrates asthmatic events experienced in each severity class:



Accurate history taking is possibly the most important aspect of patient assessment and can provide a great deal of the information required for a diagnosis. Clinical diagnosis is based on the recognition of a characteristic pattern of symptoms and signs and the absence of an alternative explanation for them.

The management of asthma consist of both symptoms management and avoiding triggering factors. The goal of management is for people to be free from symptoms and able to lead a normal active life. This is achieved partly through treatment, tailored to the person, and partly by people getting to know what provokes their symptoms and avoiding these triggers as much as possible. Since asthma is a chronic condition, people with asthma may require daily medication to keep it under control. These medications are prescribed and used in a step-wise approach to prevent and control asthma symptoms, reduce the frequency and severity of exacerbations, and reverse airway obstruction. However, for all patients, an inhaled short-acting beta2 agonist (SABA) is recommended for quick relief of acute symptoms. Strategies for long-term control vary and may need to be modified if a short-acting bronchodilator is needed more than twice a week.

Inhaled therapy is the mainstay of treatment for people with asthma. Thus, drugs are delivered directly to the airways where they are needed, work quickly and effectively. Inhalers allow use of lower doses which is associated with fewer side effects than with oral drugs. Inhaled therapy requires a delivery device to be able to hold the drug, and to deliver it to the airway at the required moment. Health care professionals should be well versed with the correct inhaler technique to effectively support patient in need.

Three major types of inhalers are used to deliver asthma and chronic obstructive pulmonary disease (COPD) medications: metered dose inhalers (MDIs), dry powder inhalers (DPIs), and soft mist inhalers (SMIs). Each type has advantages and disadvantages. Nevertheless, the two first types of inhalers i.e. metered dose inhaler (MDI) and dry powder inhaler (DPI) are most common. In an MDI, a chemical propellant is used to deliver the medication when the canister is depressed. In contrast, a DPI contains no propellant. Instead, the medication is released by inhaling rapidly through the mouthpiece. Manufacturers' instruction leaflets, which accompany each device, contain useful information about breath-hold, cleaning, storing and problem solving; and should be read carefully before use and kept for future reference if needed.

Self-assessment 6.1.1

- 1) An asthma.....occurs when asthma symptoms became worse than usual
- 2) Asthma is a chronic respiratory disease TRUE FALSE
- 3) I cough frequently during the middle of the night, after exercise, and when I am around cats, but I have never wheezed. This means that I do not have asthma.
- 4) TRUE FALSE
- 5) What are the signs that indicate that I may be about to have an asthma attack?
- 6) A dry powder inhalers is used inof asthma attack

Learning activity 6.1.2



A



B



C

Observe carefully the above pictures and answer the following questions:

1. What do you think picture A represent?
2. What do you think is happening in picture B
3. What do you think of picture C

6.1.2. First aid interventions in case of asthma attack

An asthma attack also known as an *asthma exacerbation* is a sudden worsening of asthma symptoms and lung function caused by the tightening of muscles around your

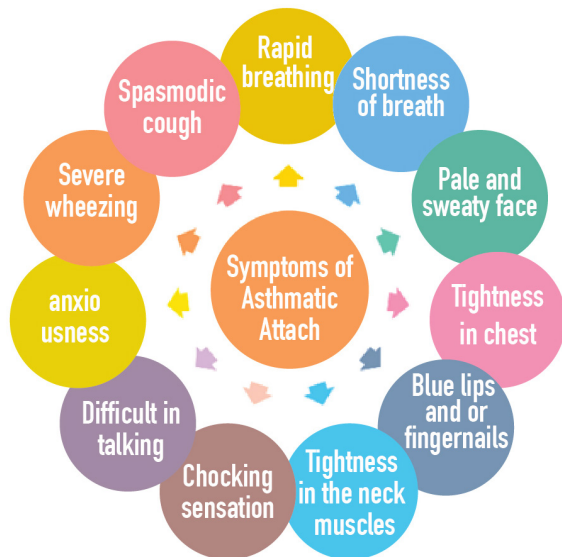
airways (bronchospasm) leading to distress. This distress can be the presenting manifestation of asthma or occur in patients with known asthma diagnosis in response to environmental triggers, to viral upper respiratory infection, lack of adherence to controller medication or an unknown stimulus.

A **distress** is an urgent situation in which a person is suffering or in danger and therefore in urgent need of help to prevent a worsening of the situation. The best strategy for management of asthma attack is early recognition and intervention before attacks become severe and potentially life-threatening. Patients with long standing asthma are generally able to determine when they have an exacerbation.

The assessment should include the onset of symptoms, the likely cause of severity of symptoms, current medication and response to treatment of previous and risk factors for asthma related death.

Symptoms of severe asthma attack include:

- Intractable coughing
- Mucus secretions
- Sensation of air hunger
- Chest tightness
- Inability to speak in complete sentences because of labored breathing
- Worsening of distress when attempting to lie flat
- Quiet chest
- Decreased oxygen saturation
- Agitation.



Risk factors for fatal asthma attack include:

- Previous life-threatening attack requiring intubation or intensive care admission
- Asthma attack despite current course of oral glucocorticoids
- More than one hospitalization for asthma in the last 12 months
- Use of more than one canister of SABA per month

- Comorbidities such as cardiovascular or chronic lung disease
- Not currently using inhaled glucocorticoids
- Food allergy in patient with asthma
- Three or more visits to emergency department for asthma in the past 12 months
- History of poor adherence to asthma medications and or written asthma plan
- Illicit drug use and major psychosocial problems including depression
- Difficulty perceiving asthma symptoms or severity of attack

First aid

- Sit the person comfortably upright, remain calm and speak calmly to patient and do not the person alone
- Remove any obvious triggers in immediate patient environment area
- Give 4 puffs of reliever inhaler (e.g., Ventolin) and use a spacer if available. Give 1 puff at a time with 4 breaths after each puff. Use the person's own inhaler if possible, otherwise use the one in a first aid kit or borrow one
- Wait for 4 minutes, if the person still cannot breathe normally give more 4 puffs
- If the person still cannot breathe normally Call an ambulance (SAMU – 912) and say that the person is having an asthma attack. And keep giving reliever every 4 minutes till the ambulance arrives (4 puffs each time are safe dose for children; in adults with a severe attack, you can give up to 6 – 8 puffs every 4 minutes)
- Keep monitoring the person and never leave him or her alone

In a healthcare facility setting:

- Start treatment immediately
- Semi-sitting position
- Give O₂ to keep saturation above 90%
- Start short acting Beta 2 agonist nebulization (e.g., Salbutamol 5 mg in 5 ml of normal saline over 10 minutes repeated ½ hour later)
- Hydrocortisone 100 mg IV every 6 hours
- Assess the need of ventilation according to the response to therapy
- Avoidance of the triggering agent if known

Note:

Close friends and family members of an asthmatic person should be aware of how to manage an individual who is having an asthma attack, thus, paramount to educate them on this.

Steps in the use of Metered Dose Inhaler (Also known as “MDI” or “Puffer”)

Without spacer

- 1) Remove the cap
- 2) Prime your inhaler if this is the first time you are using it, if you have not used it for several days, or if you have dropped it
- 3) Shake the inhaler to mix the drug and propellant
- 4) Hold the MDI upright with your index finger on the top of the medication canister and your thumb supporting the bottom of the inhaler.
- 5) Breathe out, away from the inhaler
- 6) Secure a good seal with the lips around the mouthpiece
- 7) Commence a slow breath in
- 8) Compress the canister to activate, and continue to breathe in slowly and deeply
- 9) Hold the breath for about 5–10 seconds



With spacer

- 1) Remove the cap
- 2) Prime your inhaler if this is the first time you are using it, if you have not used it for several days, or if you have dropped it
- 3) Shake the inhaler to mix the drug and propellant
- 4) Place the MDI into the aperture of the spacer
- 5) Hold the MDI upright with your index finger on the top of the medication canister and your thumb supporting the bottom of the inhaler.

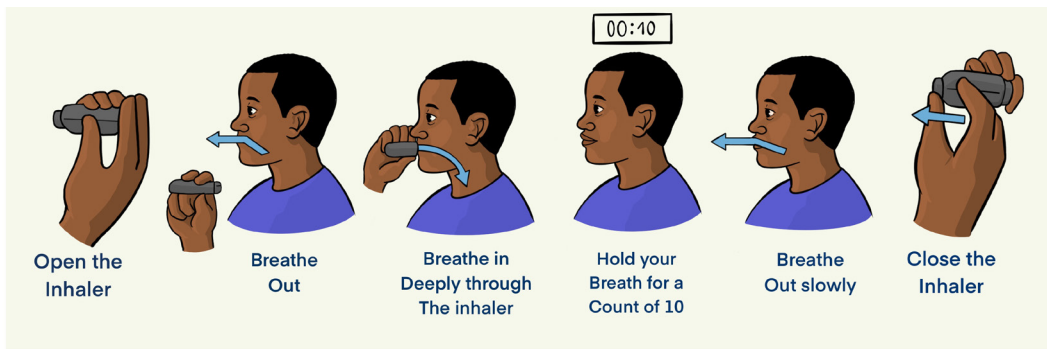


- 6) Secure a good seal with the lips around the mouthpiece of the spacer
- 7) Compress the canister to activate, and continue to breathe in slowly and deeply
- 8) Take four or five deep breaths

Note:

- The use of a spacer with an MDI is recommended to increase lung deposition and reduce risks of failing to synchronize inhalation and activation of the MDI. In fact, large volume spacers have been shown to be comparable to a nebulizer in an emergency
- If your inhaler contains a steroid medicine, rinse the mouth (gargle with water after you use and then spit out the water)

Steps in use of capsule dry powder



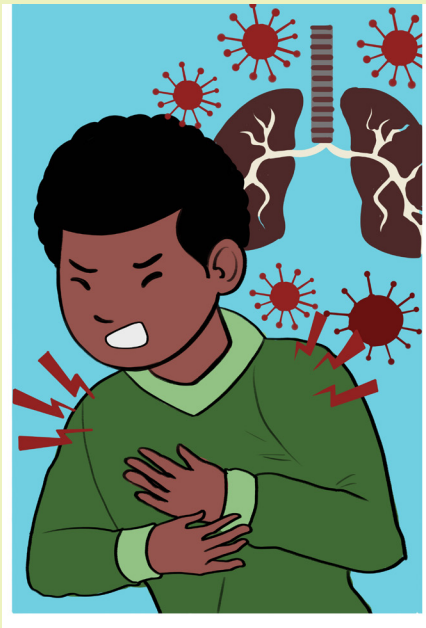
- 1) Remove a capsule from the foil blister packaging, observing the manufacturer's instructions
- 2) Open the inhaler, and place the capsule inside the chamber
- 3) Close the inhaler
- 4) Pierce the capsule by squeezing the button on the side of the inhaler
- 5) Secure a good seal with the lips around the mouthpiece
- 6) Inhale as hard as possible
- 7) Hold the breath for 5–10 seconds
- 8) If any powder is left, repeat steps 5–6.

Self-assessment 6.1.2

- 1) Which of the following best describes asthma?
 - a. Intermittent airway inflammation with occasional bronchospasm
 - b. A disease of bronchospasm that leads to airway inflammation
 - c. Chronic airway inflammation with superimposed bronchospasm
 - d. Relatively fixed airway constriction
2. What first aid interventions should be done for a person with asthma attack?

6.1.3. Acute Respiratory distress (ARD)

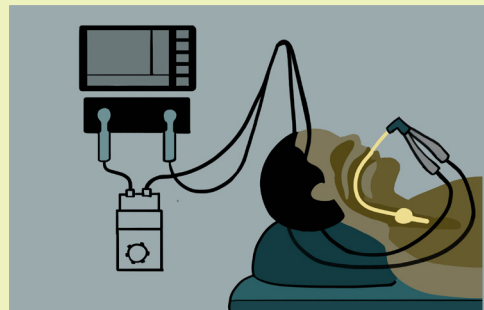
Learning activity 6.1.3



A



B



C

Observe the above picture and answer the following question:

1. To you, what image A represent?
2. What do you think image B tries to portray?
3. What do you think is being done in image C?
4. Attempt to establish, if any, relationships across the above images

6.1.3.1. Overview of acute respiratory distress (ARD)

a) Definition

Acute respiratory distress (ARD) is a severe lung condition that occurs when fluid builds up in the tiny, elastic air sacs (alveoli) in the lungs. This fluid keeps the lungs from filling with enough air, which means less oxygen reaches to the bloodstream.

Too much fluid in the lungs can lower the amount of oxygen or increase the amount of carbon dioxide in the bloodstream. ARD can prevent the organs from getting the oxygen they need to function, and it can eventually cause organ failure.

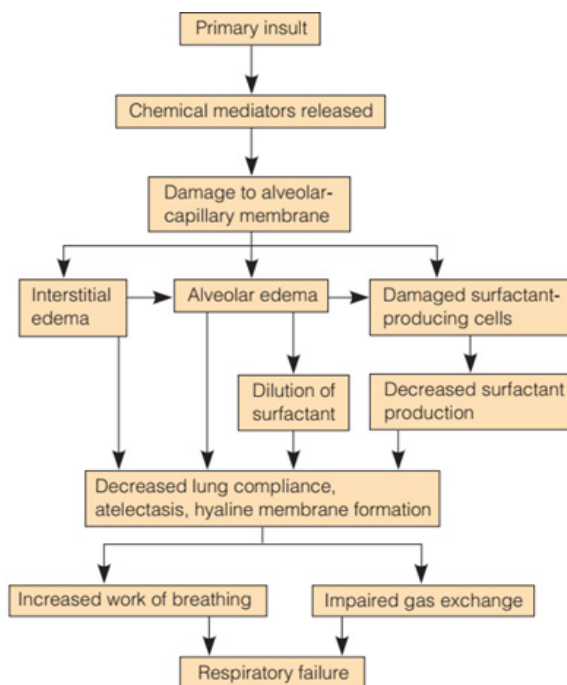
b) Etiology and pathophysiology

Although the exact cause of ARDS is unclear, it is known that ARDS does not occur as a primary process but may follow a number of diverse conditions producing direct or indirect lung injury. Direct injuries are those in which the lung epithelium sustains a direct insult. Indirect injuries are those in which the insult occurs elsewhere in the body and mediators are transmitted via the bloodstream to the lungs.

- **Direct injuries include:** aspiration, pneumonia, fat embolism, near drowning, oxygen toxicity, pulmonary contusion, and toxic inhalation.
- **Indirect injuries include:** severe and widespread bacterial infection in the body (sepsis), severe injury to the body that causes low blood pressure (shock), excessive blood transfusions, anaphylaxis, disseminated intravascular coagulation, and acute pancreatitis, drug overdose, embolism and long bone or pelvic fractures.

The injuries result in an inflammatory reaction. This releases body chemicals into the bloodstream. Typically, this reaction would protect the body and help fight infection or heal from an injury. However, in some people these inflammatory chemicals will cause the smallest blood vessels in the lungs to leak fluid. Fluid leaves these small vessels and goes into the tiny air sacs in our lungs, called **alveoli** causing a non-cardiogenic pulmonary edema. Pulmonary edema interferes with allowing carbon dioxide to be excreted (hypercarbia) and oxygen to be absorbed (hypoxemia).

Increased capillary pressure can cause pulmonary hypertension leading to atelectasis and a reduction in functioning lung volumes.



c) Signs and symptoms

Initial manifestations of ARDS typically develop 24 to 48 hours after the initial insult and they vary depending on its cause and severity, as well as the presence of underlying cardiorespiratory comorbidity. Dyspnea, tachypnea and anxiety are early manifestations.

Common clinical manifestation of ARDS include:

- Acute onset of severe dyspnea, tachypnea, tachycardia, intercostal retractions and use of accessory muscles, cyanosis.
- Increasing requirements of oxygen therapy. Hypoxemia refractory to supplemental oxygen therapy.
- Scattered crackles and rhonchi heard on auscultation.
- Decreased pulmonary compliance, evidenced by increasing pressure required to ventilate patient on mechanical ventilator
- As respiratory failure progresses, mental status changes such as agitation, confusion and lethargy occur.

The diagnosis of ARDS is based on clinical, hemodynamic, and oxygen criteria. The hallmark signs for ARDS include acute-onset, severe hypoxemia, despite increasing oxygen therapy, and chest x-ray exhibiting bilateral infiltrates.

d) Treatment

Recognizing and promptly treating ARDS is critical to reduce the associated high mortality. The treatment aims at maximizing clinical stability and managing symptoms while treating the underlying cause as if this is not treated the ARDS will not resolve. Thus, Current ARDS treatment is primarily supportive. Supportive measures assist the patient while the underlying cause is being treated. Mechanical ventilation is nearly always required to decrease work of breathing and improve oxygenation. Fluid management must be maintained. The patient may be hypovolemic because of the movement of fluid into the interstitium of the lung. Along medications to treat the underlying cause, adequate nutrition should be initiated early and maintained.

Self-assessment 6.1.3

- 1) Acute respiratory distress (ARD) is defined as:
 - a) Acute respiratory distress syndrome occurs due to the collapsing of a lung because air has accumulated in the pleural space
 - b) A conditions which causes the alveolar capillary membrane to leaks fluid into the alveolar Sac
 - c) ARDS is a pulmonary disease that gradually causes chronic obstruction of airflow from the lungs
- 2) Which patient below is at most risk for developing ARD:
 - a) A 50 years old patient with pneumothorax
 - b) A 49 years old patient with diabetes
 - c) A 70 female patient with sepsis caused by bacterial infection
- 3) As an associate nurse you know that ARD can be caused by direct or indirect lung injury. Choose below all indirect causes of ARD
 - a) Drowning
 - b) Aspiration
 - c) Sepsis
 - d) Blood transfusion
 - e) Pneumonia
 - f) Pancreatitis

6.1.3.2. First aid in difficult breathing due to ARD

Learning activity 6.1.3.2

While you are traveling in the village you meet with a male person with breathing faster a fast heartbeat, extreme tiredness, coughing that produces phlegm and fainting. As first aider. Which position are you going to give him, make him comfortable?

The primary goal of first aid is to ensure that a person has enough oxygen to prevent organ failure. If person is having breathing difficulty, immediately call for help (SAMU – 912) then:

- Position the patient in prone position - Prone positioning is widely used to improve oxygenation of patients with acute respiratory distress syndrome (ARDS)
- Check the person's airway, breathing, and pulse. If necessary, begin CPR.
- Loosen any tight clothing.
- Help the person to use any prescribed medication (such as an asthma inhaler or home oxygen) if he/she has
- Continue to monitor the persons breathing and pulse until medical help arrives.
- Do NOT assume that the person's condition is improving; if you can no longer hear abnormal breath sounds, such as wheezing.
- If there are open wounds in the neck or chest, they must be closed immediately, especially if air bubbles appear in the wound. Bandage should be performed on such wounds at once. A "sucking" chest wound allows air to enter the person's chest cavity with each breath. This can cause a lung collapse. Bandaging the wound with gauze pads allows trapped air to escape from the chest, but it prevents air from entering the chest through the wound.
- Do NOT give the person food or drink.
- Do NOT move the person if there has been a chest or airway injury, unless it is absolutely necessary.
- Do NOT place a pillow under the person's head as this can close the airway.
- Do NOT wait to see if the person's condition improves before getting medical help. Call for help immediately

Self-assessment 6.1.3

- 1) You are caring a patient with ARD, as an associate nurse which position is beneficial for this patient
 - a) Lateral position
 - b) Prone position
 - c) Spine position
- 2) How can you help someone with ARD out of health facility?

6.2. Cardiovascular system pathologies

6.2.1. Brief review on blood pressure physiology and blood pressure measuring

Learning activity 6.2.1



Observe the aside picture and attempt to the following:

- 1) What you think this old man is doing?
- 2) Do you think this old man is worried? If so what might be the reason?
- 3) Do you think he is in the best position for BP checking? Describe the correct position.

a) Definition and classification of blood pressure (BP)

Blood pressure (BP) is the force exerted by the blood against the walls of the blood vessel and must be adequate for tissue perfusion to be maintained during activity and rest. It is traditionally measured by use of auscultation with a mercury-tube sphygmomanometer, measured in millimeters of mercury and expressed in terms of systolic pressure (SBP) over diastolic pressure (DBP). SBP is the highest arterial pressure when the heart contracts and empties. DBP is the lowest arterial

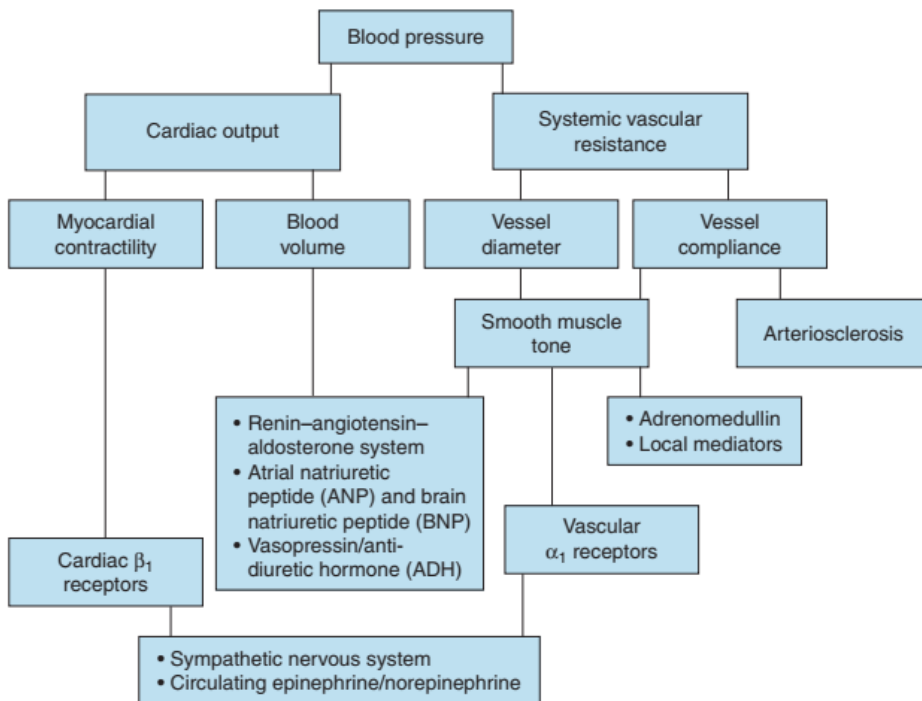
pressure when the heart relaxes to fill with blood. BP is one of the most commonly measured clinical parameters and blood pressure values are major determinants of therapeutic decisions.

In healthy adults the average systolic pressure is less than 120 mmHg and the average diastolic pressure is less than 80 mmHg. The difference between the systolic and diastolic pressure, known as the pulse pressure and reflects stroke volume, ejection velocity, and systemic resistance and is a noninvasive indicator of CO (normally ranging between 30 to 40 mm Hg, if less than 30 mm Hg indicate decreased CO). The mean arterial pressure (MAP) is the average pressure in the arterial circulation throughout the cardiac cycle, and it can be calculated using the formula $(\text{systolic BP} + \text{diastolic BP} + \text{diastolic BP})/3$. Diastole counts twice as much as the systole because two-thirds of the cardiac cycle is spent in diastole. The table below attempt to classify BP measurements with emphasis on hypertension.

BP Classification	SBP mmHg	DBP mmHg
Hypotension	< 90	< 60
Normal	< 120	< 80
Elevated or Prehypertension	120 - 129	< 80
Stage 1 hypertension	130 - 139	80 - 89
Stage 2 hypertension	> 140–159	> 90

b) Factors affecting the blood pressure

The BP is primarily a function of cardiac output (CO) which is the volume of blood ejected from the heart per minute and systemic vascular resistance (SVR) that is the force opposing the movement of blood within the blood vessels. Thus, factors that influence any of these influence the BP. Factors that influence the BP are represented in the following figure:



A certain amount of pressure within the circulatory system is necessary to maintain open vessels, capillary perfusion and oxygenation of all body tissues. The predominant mechanisms of blood pressure control are the central nervous system (CNS), the renin-angiotensin-aldosterone system, and extracellular fluid volume.

c) Blood pressure measurement

Accurate clinical assessment depends on proper measurement of BP. The patient should be seated in a chair with feet flat on the floor, without crossed legs, with arm supported at heart level, for at least 5 minutes before taking the BP measurement. This allows standardization from visit to visit and avoid falsely elevated readings.

If possible, take pressure in both arms and note differences (5 to 10 mm Hg difference is normal). Differences of more than 10 mm Hg may indicate subclavian steal syndrome or dissecting aortic aneurysm.



Note:

- Some patients may have elevated BP readings in a clinical setting and normal readings when BP is measured elsewhere. This phenomenon is referred to us, as “**white coat**” hypertension”.
- Some other patients have normal BP when in clinical setting and elevated BP at home. This phenomenon is referred us, as “**masked hypertension**”.
- Naturally, both systolic and diastolic BP tend to move together (i.e. climb of fall together). However, that is not always the case as isolated rise or fall of systolic or diastolic readings exist; e.g. isolated systolic hypertension, isolated diastolic hypertension.

Self-assessment 6.2.1

- 1) A BP elevation noted only at an office visit is commonly known as _____ hypertension.
 - a) Provider-induced
 - b) Clinical
 - c) White coat
 - d) Pseudo
- 2) How to calculate mean blood pressure?
- 3) Both systolic and diastolic BP always rise or fall together True
False

6.2.2. Hypertensive Crisis

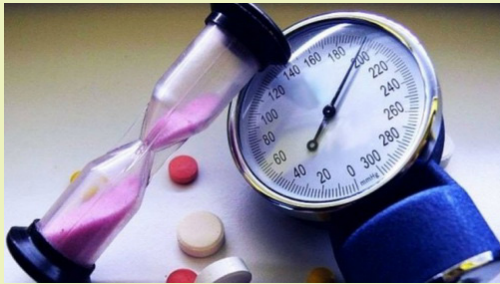
Learning activity 6.2.2



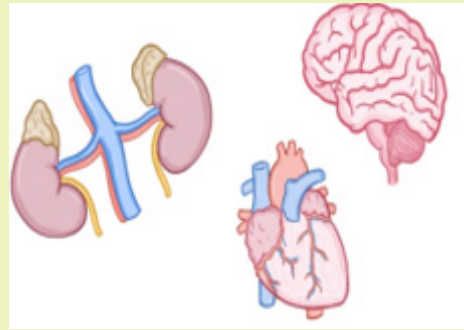
A



B



C



D

Observe carefully the above pictures and attempt to the following questions:

- What does picture A tells you?
- What do you think of picture B?
- What do you think image C tries to express with regard to picture A and D?

6.2.3.1. Brief review of hypertension

Hypertension is a disease of vascular regulation in which the mechanisms that control arterial pressure within the normal range are altered characterized by a persistently elevated systemic blood pressure. Thus, hypertension is **consistent blood pressure readings of ≥ 140 mmHg systolic or ≥ 90 mmHg diastolic**, based on the average of three or more readings taken on separate occasions. While it rarely causes symptoms or noticeably limits the person's functional health patterns, hypertension is a major risk factor for coronary heart disease, heart failure, stroke and kidney failure.

Its cause is not identifiable in 90% of all of hypertension; this types of hypertension is referred to us as "*Essential or Primary Hypertension*" while in the remaining 10% exist an identifiable cause referred to us as "*Secondary of hypertension*". A number of risk factors have been identified for primary hypertension. Both genetics and environmental factors play a role in the development of hypertension. Family history, age, Genetic factors and race are non-modifiable factors linked to hypertension. More others factors such as high sodium intake; low potassium, calcium and magnesium intake; obesity; excess alcohol consumption and insulin resistance are regarded to be modifiable factors linked to hypertension.

6.2.3.2. Definition and classification of hypertensive crisis

Hypertensive crisis is a severe and potentially life-threatening increase in blood pressure therefore a medical emergency, defined as systolic blood pressure ≥ 180 mmHg and or diastolic blood pressure ≥ 120 mmHg.

As a result of this severe increase in BP, the blood vessels and organs may become damaged. Therefore, hypertensive crises can be divided into hypertensive emergencies or ***hypertensive urgencies*** according to the presence or absence of acute target organ damage, respectively. ***Hypertensive emergencies*** include hypertensive encephalopathy, intracranial or subarachnoid hemorrhage, acute left ventricular failure with pulmonary edema, heart attack, renal failure, dissecting aortic aneurysm and eclampsia (during pregnancy).

This differentiation is an extremely useful classification in clinical practice since a different management is needed, which in turn has a significant effect on the morbidity and mortality of these patients.

6.2.3.3. Signs and symptoms

Hypertensive crisis is characterized by rapid onset of systolic pressure higher than 180 mmHg and or diastolic pressure higher than 120 mmHg often associated with headache, blurred vision, papilloedema, nausea, vomiting, seizures, stupor and altered mental status. Moreover, there may be typical signs and symptoms related to resultant target organ damage.

- Brain effects:
 - Signs and symptoms of encephalopathy (probably as a result of cerebral edema and spasms of cerebral vessels)
 - Signs and symptoms of stroke
 - Progressive headache, stupor and seizures
- Kidney effects:
 - Signs and symptoms of decreased blood flow and vasoconstriction
 - Signs and symptoms of elevated blood urea nitrogen (BUN)
 - Signs and symptoms of increased plasma renin activity
 - Lowered urine-specific gravity
 - Proteinuria
 - Signs and symptoms of renal failure
- Cardiac effects:
 - Signs and symptoms of left-sided heart failure
 - Signs and symptoms of acute myocardial infarction (MI)
 - Signs and symptoms of right-sided heart failure.

6.2.3.4. Management of hypertensive crisis

Hypertensive crisis requires an immediate medical attention and its treatment may involve hospitalization and the use of oral and/or intravenous medications after

thorough assessment and classification. The goal of care is to reduce the blood pressure by no more than 25% within minutes to 1 hour, then towards 160/100 within 2 to 6 hours. It is important to avoid rapid or excessive blood pressure decreases that may lead to renal, cerebral or cardiac ischaemia. Blood pressure is monitored frequently (every 5 to 30 minutes) during a hypertensive emergency. The serum urea, creatinine, calcium and total protein levels are carefully.

Immediate interventions to be implemented when hypertensive crisis is suspected include

- Assess BP in both arms
- Elevate the head of the bed to approximately 30° - 45°
- Administer supplemental O₂
- Notify the physician
- Perform a focus assessment to assess and document level of conscience, respiratory status, neurological deficits, baseline vital signs including oxygen saturation (if possible), note any visual disturbance, chest pain, peripheral edema and hematuria
- Keep close monitoring including assessing changes in cardiac rhythm if patient is on a monitor and in and out
- Anticipate and prepare to get ready to implement physician orders such as obtain an IV access, order laboratory tests (BUN, creatinine, electrolytes, administering medications and transferring the patient to intensive care unit.

Self-assessment 6.2.2

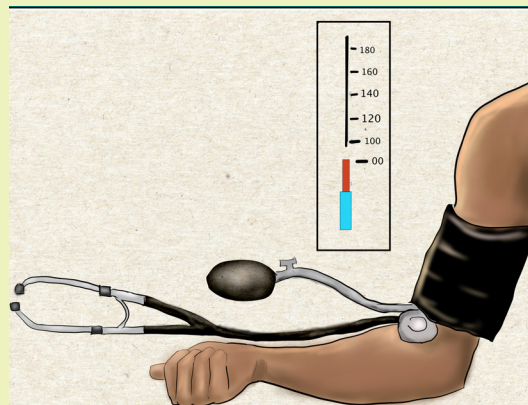
- 1) What is an essential hypertension?
- 2) Define and classify hypertensive crisis events
- 3) Should we aim at obtaining normal BP reading values when treating hypertensive crisis? Explain your answer

6.2.3. First aid for acute hypotension

Learning activity 6.2.3



A



B

Observe the images and attempt to figure-out what is happening:

- 1) What do you think of picture A?
- 2) What does image B represent and shows?

6.2.3.1. Overview of hypotension

a) Definition

Hypotension is a decrease in systemic blood pressure below normal value i.e., a systolic pressure below 90mmHg and a diastolic below 60mmHg. It is a relatively benign condition that is under-recognized mainly because it is typically asymptomatic. However, it can be a sign of underlying condition especially in elderly. Hypotension a concern once pumping pressure is so low to perfuse key organs with oxygenated blood.

b) Types of hypotension

There are several types of hypotension. Low blood pressure is categorized according to when it happens and what's causing it.

- **Orthostatic or postural hypotension** – is the drop in blood pressure that occurs when you move from sitting or lying down to standing. As the body adjusts to the position change, someone may feel dizzy or lightheaded. This is what some people refer to as “seeing stars” when they get up. Being the most common form of hypotension, it can affect people of all ages, but it's especially common in older adults. Other reasons associated to hypotension include pregnancy, dehydration, exhaustion, strong emotions and medication

(e.g., taking anti-hypertensive drugs or drugs that have hypotension as a side effect. Conditions affecting the autonomic nervous system, such as Parkinson's disease and diabetes, can often lead to orthostatic hypotension.

- **Postprandial hypotension** - is a drop in blood pressure that occurs after eating. It is more common in older adults and people with autonomic dysfunction.
- **Neurally mediated hypotension** - happens when there is an abnormal reflex interaction between the heart and the brain. People with this disorder feel faint, dizzy, and nauseous after exercising or standing for a long time. Children experience this form of hypotension more often than adults as result of standing in one position for a long time. Having a strong emotional response, such as feeling shocked or scared also can result into this type of hypotension in some people
- **Severe hypotension** - this type of hypotension is linked to shock. During shock the BP drops to dangerously low levels, and the brain and organs can't get enough blood to function properly therefore life threatening if not treated quickly. Shock can happen as a result of:
 - Decreased effective circulating volume (hypovolemic shock)
 - Impaired cardiac output due to heart pump dysfunction or obstruction to cardiac filling (cardiogenic shock)
 - Impaired peripheral i.e., loss of vascular tone (distributive shock)

c) Signs and symptoms of hypotension

The patient present with systolic pressure that is below 90mmHg or systolic BP 40 mm Hg less than baseline. Depending on how low the blood pressure is the patient may have an altered level of consciousness; cool, pale, cyanotic, diaphoretic skin; nausea and vomiting; shortness of breath; dizziness, blurry vision, weakness and decreased urine output.

Immediate interventions

Using DRSABCD approach:

- Place patient in a supine position with head of the bed slightly elevated if compromised airway
- Assess level of conscious, orientation, baseline vital signs with emphasis on pulse quality and rhythm. Assess skin for color, temperature, moistness, turgor, and capillary refill
- Call for medical assistance indicating patient's status,
- Administer oxygen if inadequate respiratory effort
- Control any bleeding with direct pressure

- Obtain an IV access and give IV fluids if appropriate (hypotension may be due to cardiac compromise, in which case fluids might be contraindicated)
- Definitive management is established once the cause is identified (use of clinical and para-clinical data). Depending of severity, this may include administration of vasoactive medications and transfer of patient to a critical care unit.

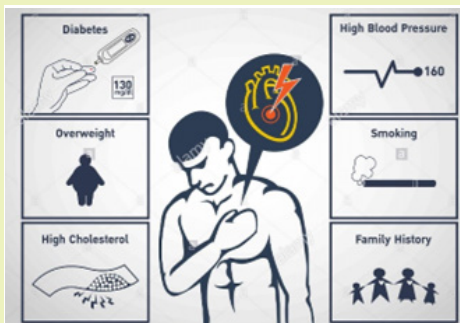
Self-assessment 5.2.3

Which of the following statements concerning postural hypotension in the elderly is false?

- 1) It increases the risk of falls and syncope
 - a) It is characterized by a drop in blood pressure when going from a standing to a sitting position
 - b) It increases the risk of cardiovascular events
 - c) It is associated with the use of vasodilating medications
- 2) List four types of hypotension
- 3) What are the main mechanisms behind severe hypotension also known as shock?

6.2.4. Heart Attack

Learning activity 6.2.4



A



B

Observe the above pictures and attempt to describe what you see and establish any association or similarity if any

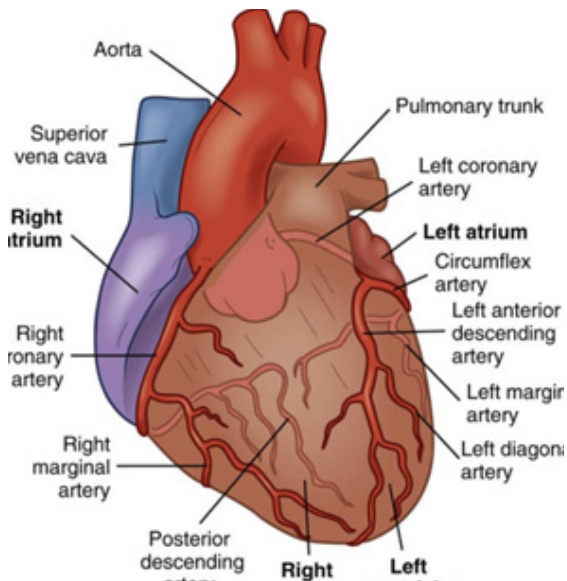
A. Overview of coronary artery disease

a) Introduction

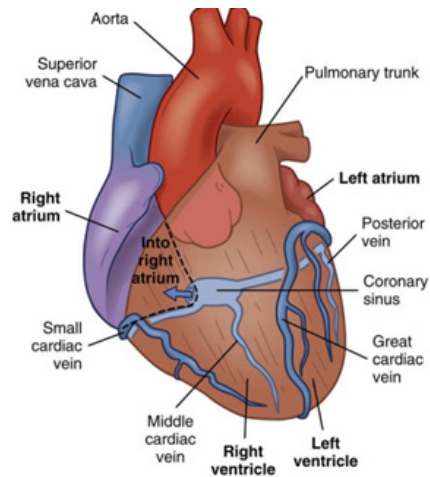
The heart as a muscular pump responsible for moving blood throughout the body. It needs an excellent blood supply to provide enough blood, oxygen and nutrients to keep its pumping function effective. This is accomplished through coronary circulation. With diseased coronary arteries, the supply of blood, oxygen and nutrients to the heart is compromised which may lead to reversible or irreversible injury to heart structures.

b) Review of vascularization anatomy of the heart

The heart structures are supply with oxygen rich blood by coronary arteries and then the deoxygenated blood return into the general circulation through coronary veins. The right and left coronary arteries arise at the base of the aorta, immediately above the aortic valve.



Coronary arteries



Coronary veins

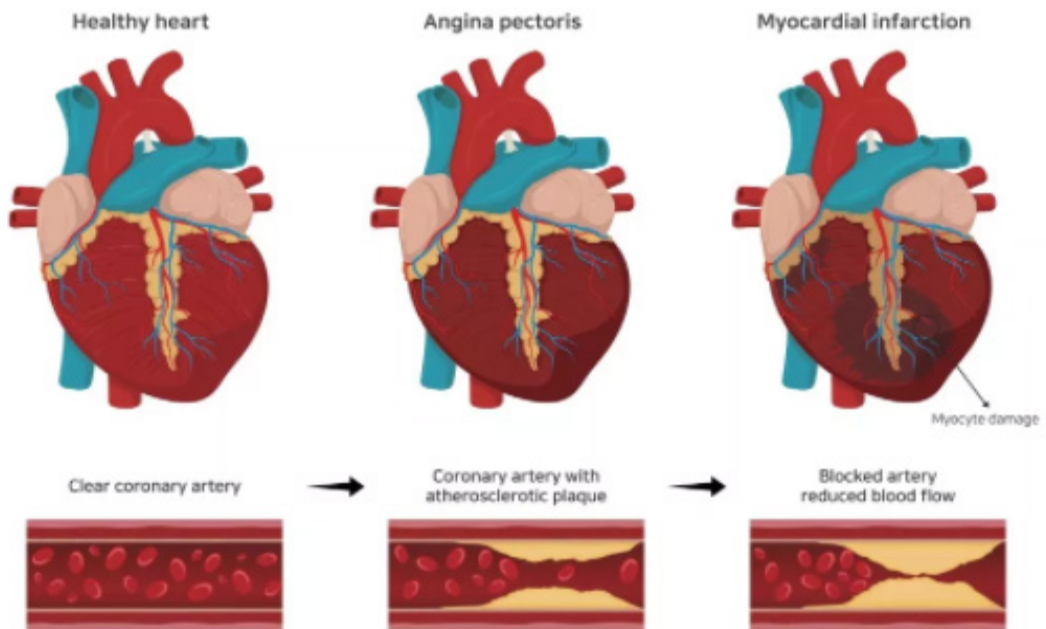
They supply a discrete area of the myocardium and have limited collateral circulation and are susceptible to obstruction by atherosclerotic plaque or thrombus that can result in loss of blood flow to the myocardial muscle normally supplied by that artery. This can be fatal, depending on the location of the obstruction. Blockage of coronary arterial blood flow, especially in the left main coronary artery, usually results in death from massive infarction of the left ventricle. However, if the blocked artery supplies a smaller section of myocardium this may result not death.

c) Pathophysiology and classification of coronary artery diseases

The term of coronary artery disease (CAD) is a broad term used to refer to the narrowing or occlusion of the coronary arteries. Pathophysiologically coronary atherosclerosis (plaque buildup within the layers of the coronary arteries) is the most common cause of CAD. The plaques progressively enlarge, thicken, and calcify, causing a critical of the coronary artery lumen, resulting in a decrease in coronary blood flow and an inadequate supply of oxygen to the heart muscle. The term of “ischemic heart disease (**IHD**)” is used to indicate a condition in which there is an inadequate supply of blood and oxygen to a portion of the myocardium.

Coronary heart diseases may be asymptomatic or symptomatic and are generally divided into two categories:

- **Chronic ischemic heart disease** – this category includes stable and unstable angina and silent myocardial ischemia.
- **Acute coronary syndromes** – this category ranges from unstable angina to myocardial infarction (MI).



Pathophysiologic representation of ischemic heart diseases

Both modifiable and non-modifiable factors promote the occurrence of the disease in genetically susceptible persons. Non-modifiable factors include age, gender, race and family history. Modifiable factors include high level serum cholesterol, smoking habits, obesity, diabetes, sedentary lifestyle and hypertension.

d) General manifestation of coronary artery disease

The cardinal manifestation is chest pain, characterized as either pressure, heaviness, squeezing, choking, strangling, and/or cramping pain or discomfort.

This pain is usually localized behind middle or upper third of the sternum and the patient will generally make a fist over the site of the pain rather than point to it with his or her finger. It usually radiates to the neck, jaw, shoulders, arms, hands, and posterior intrascapular area. Its duration depends on how severe the myocardium is affected.

The OLDCART acronym can be used to adequately assess this chest pain. That is Onset, Location, Duration, Characteristics, Aggravating symptoms, methods to Relieve the pain, current Treatment. For instance, in chronic stable angina such pain is associated with a specific level of physical or emotional stress and reliably resolves with rest, relief of the stress, or nitroglycerin therapy and this last for less than 10 minutes while for unstable one, this last usually for 10 – 20 minutes.

Associated symptoms may include diaphoresis, nausea, indigestion, dyspnea, tachycardia, and increase in blood pressure.

e) Diagnosis and management of coronary artery disease

Laboratory tests may confirm the presence of risk factors, such as an abnormal blood lipid profile and elevated blood glucose. Other common diagnostic tests to assess for coronary heart disease include electrocardiography, stress testing, nuclear medicine studies, echocardiography (ultrasound) and coronary angiography.

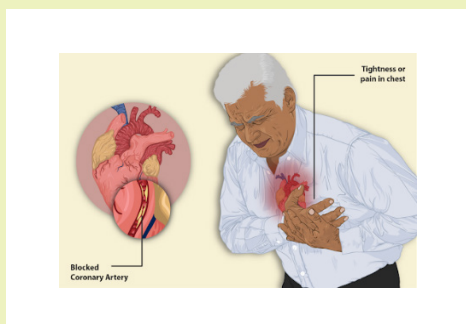
Drugs may be used for both acute and long-term relief CAD. The goal of drug treatment is to reduce oxygen demand and increase oxygen supply to the myocardium. Three main classes of drugs are used to treat angina: nitrates, beta-blockers and calcium channel blockers.

Self-assessment 6.2.4

- 1) What causes the pain that occurs with myocardial ischemia?
 - a) Death of myocardial tissue
 - b) Dysrhythmias caused by cellular irritability
 - c) Lactic acid accumulation during anaerobic metabolism
 - d) Increased pressure in the ventricles and pulmonary vessels
- 2) What are modifiable risk factor for CAD?
- 3) How would you ascertain the chest pain is of CAD origin?

6.2.5. First aid intervention for heart attack

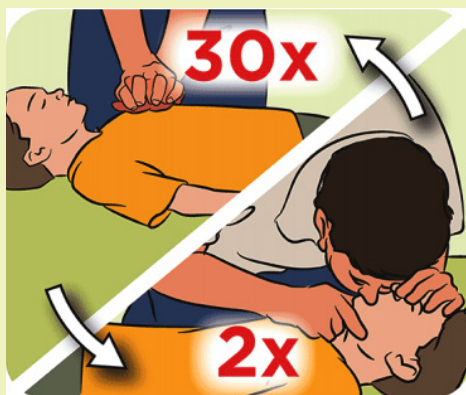
Learning activity 6.2.5



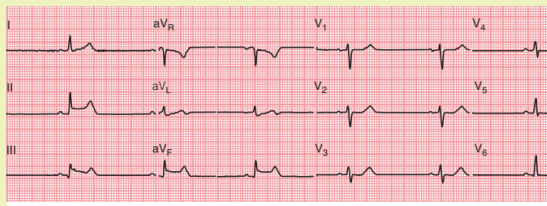
A



B



A



B

Observe the above images and attempt to answer the following questions:

- 1) What do you think of image A?
- 2) What image B represent according to you?
- 3) What do you think is happening in image C?
- 4) What do you think image D represent?

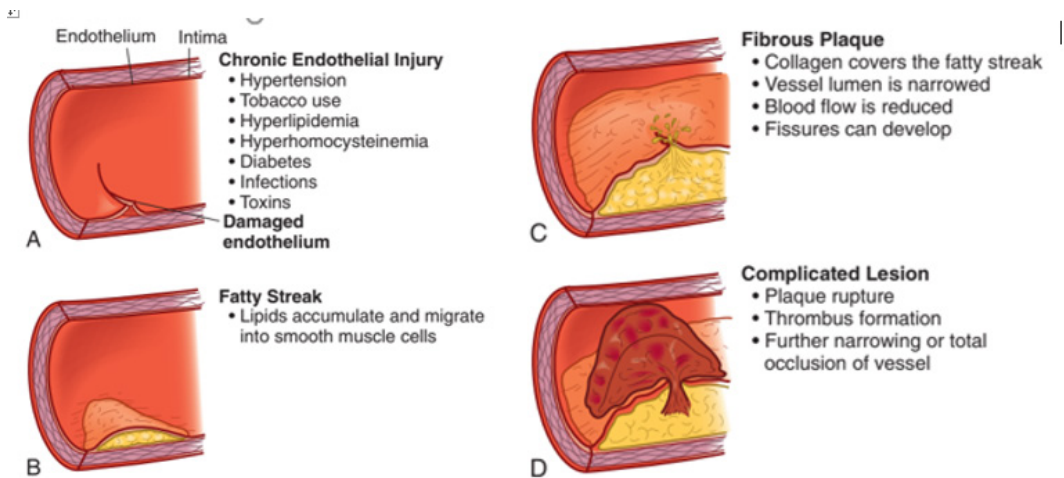
a) Introduction

Heart attack also known as **Myocardial Infarction (MI)** is one of the manifestations of acute coronary syndrome (ACS) and is a life-threatening event. It refers to a dynamic process by which one or more regions of the heart experience a prolonged decrease or cessation in oxygen supply because of insufficient coronary blood flow with subsequent necrosis or “death” to the affected myocardial tissue. If circulation to the affected myocardium is not promptly restored, loss of functional myocardium

affects the heart's ability to maintain an effective cardiac output. This may ultimately lead to cardiogenic shock and death.

b) Brief heart attack pathophysiology

Most MIs occur as a result of coronary artery atherosclerosis, followed by rupture of an unstable atheromatous plaque, platelet activation, and fibrin clot formation. The resultant thrombosis interrupts blood flow and leads to an imbalance between myocardial oxygen supply and demand and eventually myocardial tissue necrosis.



A: Damaged endothelium B: Fatty streak and lipid core formation C: Fibrous plaque D: Complicated lesion

Non-atherosclerotic causes of MI include coronary artery spasm, congenital abnormalities, coronary artery embolus, and connective tissue disorders.

c) Manifestations of Myocardial Infarction (MI)

Chest pain is the cardinal feature of MI, even though it is not universally present. It is of the same character as angina pectoris; described as heavy, squeezing, or crushing and is localized to the retrosternal area or epigastrium, sometimes with radiation to the shoulder, arm, lower jaw, or neck. However, in contrast to stable angina, however, it is more severe and persists for more than 20 minutes and is not relieved by rest or Nitroglycerine.

Its onset is sudden and usually is not associated with activity. In fact, most MIs occur in the early morning. The pain often is accompanied by sweating, nausea, vomiting, and/or the sense of impending doom. People with a history of angina may have more frequent anginal attacks in the days or weeks prior to an MI.

d) Immediate interventions

Early recognition and intervention is key for patient survival.

d.1. Prehospital first aid

Any heart attack might lead to cardiac arrest, but prompt action may prevent further damage to the heart. A person suffering from a heart attack has a far better chance of living than does a person whose heart has stopped. Therefore, the most important first aid measure is to be able to recognize the signals of a heart attack and take appropriate action promptly.

A person having a heart attack may deny the seriousness of the signals he or she is experiencing, or believe the signals are just muscle soreness, indigestion or heartburn. Therefore, do not let this denial influence you. If you think that the person might be having a heart attack, you must act.

Though CPR is often what comes to mind when people think of first aid for a heart attack or cardiac arrest, this is only part of a broader picture of what is needed for the victim survival. There are five steps that are important when helping someone with heart problems.

- 1) Early **recognition** and activation of emergency medical services system such as SAMU Call 912.
- 2) Early **CPR** with an emphasis on chest compressions.
- 3) Early **defibrillation**.
- 4) Effective **advanced life support**.
- 5) Integrated **post-cardiac arrest care**.

Note: Each of these steps is as important as the others and time is a vital ingredient.

The following are important intervention steps for first aid:

- a) Perform a scene survey, then do a primary survey to ascertain the acute coronary syndrome (consider signs and symptom above by use of OLD CART acronym).
- b) Call for medical help (e.g., Call SAMU - 912) and get a defibrillator and importantly ensure the emergency department is informed of heart attack.
- c) Have the person stop what he or she is doing and rest comfortably. This will ease the heart's need for oxygen and many people find it easier to breathe while sitting.
- d) Loosen any restrictive or uncomfortable clothing

- e) Ask the person if he or she has a history of heart disease. Some people who have heart disease take prescribed medications for chest pain and you can assist them taking them (e.g., sublingual Nitroglycerin)
- f) Offer aspirin, if not contraindicated to lessen heart attack damage as Aspirin acts to thin the blood and prevent further clot formation. A dose of 165 - 300 mg dose of Aspirin to be chewed by the victim
- g) If feasible:
 - Give oxygen if oxygen saturation is <90% or if the patient is short of breath
 - Start IV fluids
 - Give morphine as indicated e.g., 2 – 5 mg if the pain not relieved by Nitroglycerin
- h) Monitor the person closely until emergency medical services personnel arrive. Note any changes in the person's appearance (i.e., loss of consciousness) or behavior and record as well interventions undertaken.
- i) Be prepared to perform CPR and use an AED if the person loses consciousness and stops breathing.
- j) Keep a calm and reassuring manner as comforting the person helps reduce anxiety and ease some of the discomfort

d.2. Intra-hospital care at emergency department (ED)

Once arrived to the hospital, an immediate ED assessment and treatment should be initiated.

- The assessment should include a brief targeted history and physical examination; fibrinolytic checklist, especially contraindications
- Keep vital signs and O2 saturation monitoring
- Obtain IV access if not done
- Continue MONA (morphine, oxygen, nitroglycerin, aspirin)
- Obtain and analyze a 12-lead electrocardiograph (ECG)
- Obtain blood sample to get initial serum cardiac marker levels and evaluate initial electrolyte and coagulation studies
- Obtain chest radiograph
- The definitive management is initiated depending of the outcome of the investigation

Self-assessment 6.2.5

- 1) You suspect a stable angina rather than MI pain in the patient who reports that his chest pain
 - a) Is relieved by NTG.
 - b) Is a sensation of tightness or squeezing.
 - c) Does not radiate to the neck, back, or arms.
 - d) Is precipitated by physical or emotional exertion.
- 2) A patient hospitalized for evaluation of unstable angina has severe chest pain and calls the nurse. Prioritize the subsequent interventions from 1 (highest priority) to 6 (lowest priority). The appropriate medical prescriptions and protocols are available to the nurse.
 - a) Notify the provider.
 - b) Obtain a 12-lead ECG.
 - c) Check the patient's vital signs.
 - d) Apply oxygen per nasal cannula.
 - e) Perform a focused assessment of the chest.
 - f) Assess pain (OLDCART) and medicate as ordered.
- 3) Is CPR the first intervention that should be undertaken in case of heart attack? Explain your answer.

6.3. Neurological system pathologies

6.3.1. Stroke

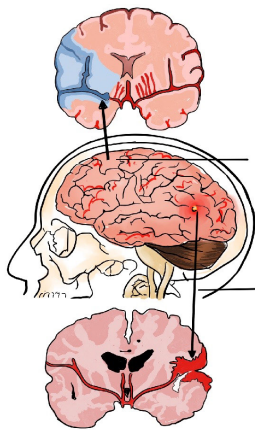
6.3.1.1. Overview of Stroke

Learning activity 6.3.1

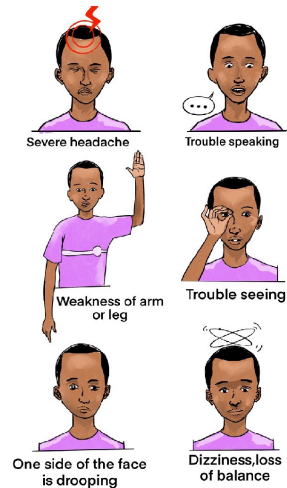
Cat.a



Cat.b



Cat.c



- 1) Carefully observe the above the above three categories of images and attempt give a general name to each category
- 2) Try to establish a coherent relationship across these group categories
- 3) What do you think differentiate the top image from the bottom image of category B in relation to the middle one?

a) Definition of stroke

Stroke also known as *Cerebro-Vascular Accident (CVA)* or **Brain Attack** is an interruption of the blood supply to any part of the brain. is a vascular insult producing rapid onset of neurological deficit lasting for more than 24 hours, as a result of inadequate blood flow to a part of the brain or hemorrhage into the brain. Thus, an insult that results into neurological deficit that resolve within 24 hours is referred to us as "*Transient Ischemic Attack (TIA)*". The severity of the loss of functions varies according to the location and extent of the brain involved and may involve loss or impairment of functions such as movement, sensation or emotions.

b) Etiology and pathophysiology of stroke

Two important mechanisms are involved into occurrence of stroke. The blood flow to a part of the brain is interrupted either by a blocked artery (Ischemic Stroke) or by a ruptured blood vessel in the brain (Hemorrhagic Stroke).

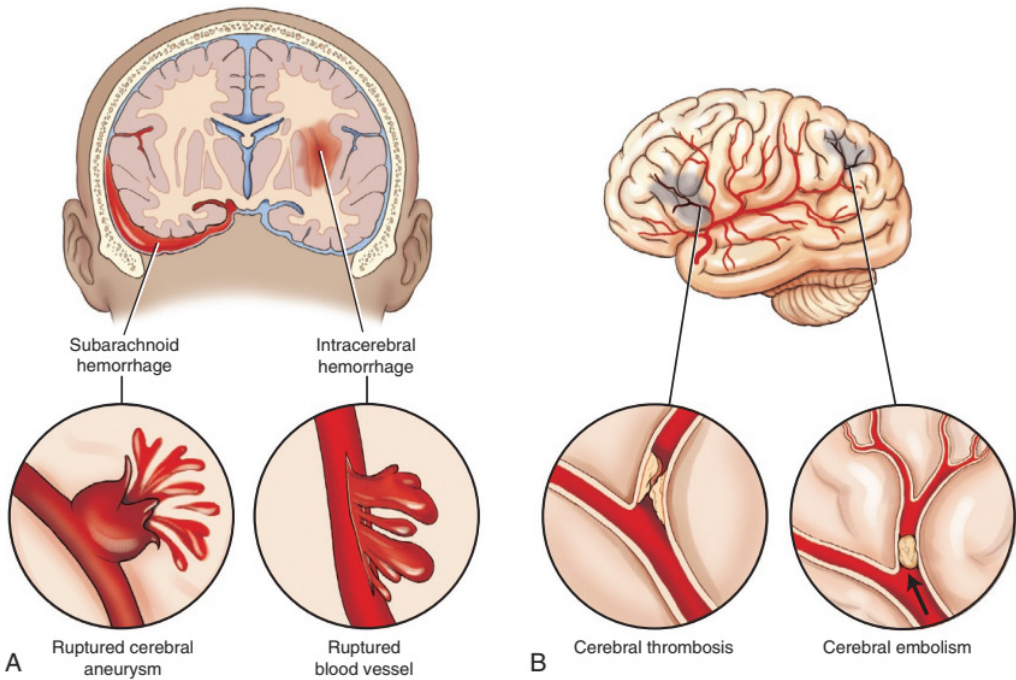


Fig. 8.2 A, SAH, ICH. B, Ischemic stroke. (From Brooks ML, Brooks DL. *Exploring medical language, a student-directed approach*, ed 9. St. Louis, 2014. Mosbv.)

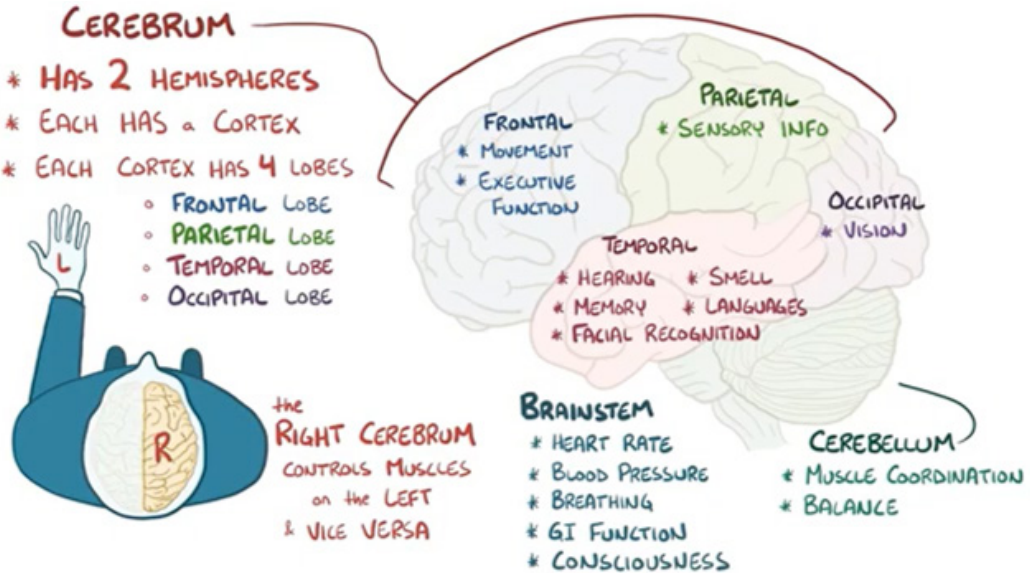
Note that ischemic stroke is the most common and is linked to some risk factors such as increasing age, male sex, family history of vascular disease, hypertension, smoking, excess alcohol, high cholesterol, diabetes and structural heart (especially recent myocardial or atrial fibrillation).

c) Sign and symptoms of stroke

Manifestations of a stroke vary depending on the vessel affected and the cerebral territories it perfuses. They are always sudden in onset and usually multifocal one sided. Headache may be a sign of impending cerebral hemorrhage or infarction; however, it is not always present. The most common clinical manifestations include:

- Numbness (paresthesia), weakness (paresis), or loss of motor ability (plegia) on one side of the body
- Difficulty in swallowing (dysphagia)
- Speech difficulties

- Visual difficulties of inattention or neglect (lack of acknowledgment of one side of the sensory field), loss of half of a visual field (hemianopsia), double vision, photophobia
- Altered cognitive abilities and psychological affect
- Dizziness, loss of balance
- Self-care deficits.



Representation of areas of the brain and associated area functions

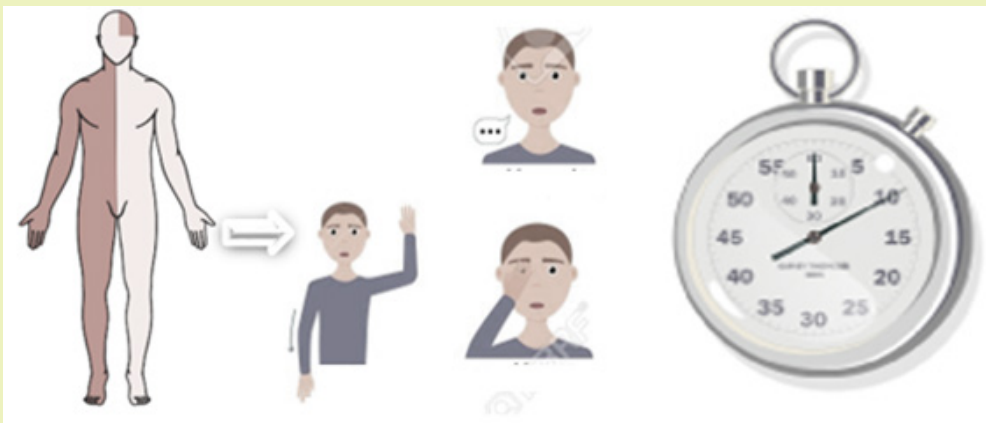
Self-assessment 6.3

- 1) You suspect a stable angina rather than MI pain in the patient who reports that his chest pain
 - a) Is relieved by NTG.
 - b) Is a sensation of tightness or squeezing.
 - c) Does not radiate to the neck, back, or arms.
 - d) Is precipitated by physical or emotional exertion.
2. A patient hospitalized for evaluation of unstable angina has severe chest pain and calls the nurse. Prioritize the subsequent interventions from 1 (highest priority) to 6 (lowest priority). The appropriate medical prescriptions and protocols are available to the nurse. Perform a focused assessment of the chest.

- a) Notify the provider.
 - b) Obtain a 12-lead ECG.
 - c) Check the patient's vital signs.
 - d) Apply oxygen per nasal cannula.
 - e) Perform a focused assessment of the chest.
 - f) Assess pain (OLDCART) and medicate as ordered.
3. Is CPR the first intervention that should be undertaken in case of heart attack? Explain your answer.

6.3.2. First Aid in Stroke

Learning activity 6.3.2



What do you think the above picture attempt to describe?

The overall goal of stroke care is to minimize brain injury and optimize the individual's recovery. The emphases on:

- Rapid recognition of stroke symptoms,
- Early activation and dispatch of Emergency Medical service (EMS)
- Rapid EMS identification, management, and transport (preferably to stroke center),
- Rapid triage, evaluation, and management in Emergency department (ED)
- Rapid stroke expert decision and therapy selection
- Fibrinolytic therapy
- Rapid admission to the stroke unit or critical care unit

i.Pre-hospital

Prehospital providers should take quick and rapid action. The following steps should be undertaken following DRSABCD approach bearing in mind FAST acronym as vital to ensuring rapid treatment of a person suffering a stroke. FAST is about:

- **FACE** – check for facial droop by ask the victim to smile; one side of the face may not move as well as the other side.
- **ARMS** – check for arm drift by ask the casualty to hold both arms out with the palms up, and close their eyes. One arm may not move or drifts down compared to the other arm.
- **SPEECH** – check for speech slurred by ask the victim to repeat a phrase you say. The casualty may slur words, use the incorrect words or is not able to speak. Also check whether the victim understand you.
- **TIME** – the time is critical. If you see any of these signs call 912 immediately (alert the hospital “possible stroke patient”. Ensure as well you have information regarding the onset of symptoms by asking the casualty, or their family, friends or bystander.
- Undertake the following as part of initial assessment and stabilization:
 - Check and support ABCs vital signs; give oxygen if hypoxemic
 - Place the casualty at rest in the semi-sitting position
 - Check blood glucose level as hypoglycemia can mimic stroke symptoms
 - Obtain iv access and start IV fluid if possible (avoid excess fluids)
 - Keep victim close monitoring and be calm and comforting while waiting victim medical evacuation
 - If the casualty becomes unconscious, follow first aid steps for unconscious victim
 - If there is paralysis, position the casualty with the paralyzed side up.
 - Keep the victim nil per oral (NPO)

ii.Intra-hospital care at emergency department (ED)

Once arrived to the hospital, an immediate ED assessment and treatment should be initiated.

- Check ABCs, vital signs; give O2 if hypoxemic
- Start IV fluids if not done in prehospital
- Obtain blood samples and a 12-lead ECG
- Check blood glucose level and correct any hypoglycemia or hyperglycemia

- Perform general neurologic screening assessment including use of specific stroke assessment scale
- Initiate emergency CT scan or MRI of brain
- Based on assessment and results of investigations the decision is made and appropriate therapeutic strategies implemented
- Admission to the stroke unit or critical care unit

Self-assessment 6.3.2

- 1) What does FAST entails with regard to stroke management?
- 2) Why should you keep a stroke victim NPO?

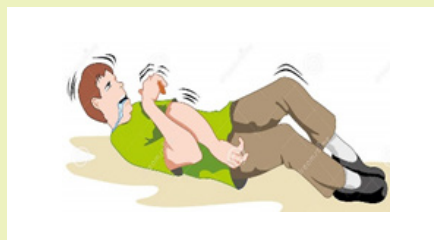
6.3.3. Epilepsy

Overview of epilepsy

Learning activity 6.3.3



A



B



C

Observe the above picture and try to figure out what each of them represent then after attempt to establish any existing relationship.

a) Definition

Epilepsy also known as “**Seizure Disorder**” is a chronic disorder of the brain in which there is abnormal, recurring, excessive and self-terminating electrical discharge from neurons leading to seizures. Epilepsy is characterized by recurring and unprovoked seizures, thus, a single seizure not sufficient to make a diagnosis of epilepsy. Seizures occurring solely in association with precipitants (e.g. fever in young children, metabolic disturbance, alcohol or drug abuse, acute head injury) are termed acute symptomatic or situation related seizures.

A **seizure** sometimes called a “convulsion” is a single event of paroxysmal, synchronous and excessive discharge of neurons in the cerebral cortex manifesting as a stereotyped disturbance of consciousness, behavior, emotion, motor function or sensation. An epileptic seizure typically has a sudden onset, lasts seconds to minutes and usually ceases spontaneously. However, in case of Status epilepticus there is sustained or recurrent seizures, with failure to regain consciousness between seizures over 30 minutes. Status epilepticus constitute a medical emergency and has a mortality rate of 10–15%.

b) Etiology and pathophysiology

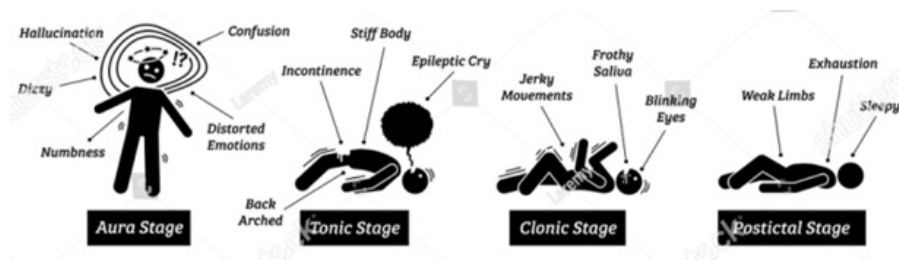
Epilepsy is a symptom of numerous disorders but in more than 50% of patients with epilepsy, no apparent cause is found, in spite of full investigation. It can affect any person though most common in children and elderly. Seizures are thought to results from imbalances of excitatory and inhibitory neurotransmitters such as acetylcholine (ACh) or gamma aminobutyric acid (GABA). Vascular disease (especially stroke), alcohol abuse, cerebral tumors and head injury are the most common factors associated with seizures. Other factors associated with seizures include family history (especially for absence seizure), antenatal and perinatal, metabolic disorders, sleep deprivation, hypoxia, etc...

c) Signs and symptoms

Since seizures can affect any process your brain coordinates, signs and symptoms of epilepsy vary across patients and depending of type of seizure. They may include temporarily confusion, staring spell, jerking, altered mental status, psychological symptoms such as fear, anxiety. Seizures may cause a person to have convulsions (general term that people use to describe uncontrollable muscle contractions), but this is not always the case.

Seizures are either classified as **generalized** or focalized. Generalized seizures result from abnormal electrical activity affecting the entire cerebral cortex while **focal** or **partial seizures** affect specific region of the brain. These seizures can also be categorized as simple or complex depending on how they affect the level of consciousness. In Simple **focal seizures consciousness** is retained whereas consciousness is impaired in **complex focal seizures** Below is represented signs

and symptoms of typical epileptic seizure.



d) Management of epilepsy

The aim of management is preventing or at least reducing the frequency of seizures through medication and lifestyle modification; and is dependent on the seizure type and patient. Anticonvulsant drug therapy is usually initiated after a patient suffers a second unprovoked seizure and the dose is titrated to control seizures while minimizing side effects. Non-pharmacological management of epileptic patient involves avoiding activities that would be hazardous if a seizure were to occur e.g. swimming, operating heavy machinery and driving.

Self-assessment 6.3.3.

- 1) Differentiate seizures from convulsions.
- 2) Who can get epilepsy?
- 3) Enumerate at least one symptom of epileptic seizure on different stage

6.3.2.2. First aid for epilepsy

Learning activity 6.3.4



With reference to image above

1. What type of seizure do you think is illustrated there?
2. What would you do to help through?

First aid interventions should include the following:

- Protect the patient from injury
- Manage the seizure or convulsion
- Manage the “After the seizure”
- Advise for Aftercare follow-up

Use the DRSABCD approach and:

- Keep other people out of the way.
- Check the immediate area for hazards, clear hard or sharp objects away from the person.
- Look at the watch at the start of the seizure, to time its length
- Don't try to hold the victim down or stop the movements.
- Place the victim on the floor so he/she do not fall and hurt him/herself
- Place the person on the side, if they have food or fluid in the mouth, roll him/her onto the side immediately to help keep the airway clear so he/she can breathe easier.
- Keep bystanders clear and reassure them that the seizure will end soon.
- Place something soft and flat under the head such a good soft pillow
- Loose or remove anything around the patient neck, such as a tie or a necklace
- Remove glasses
- Protect the person from injuries.
- Keep the person safe until the seizure stops out at its self
- As soon as the seizure ends, quickly put the patient in safety recovery position
- Cover the patient lightly with a coat or blanket.
- Check that normal breathing has resumed.
- Allow the patient to sleep until fully recovered, but check for a response every few minutes.
- Stay with the person after the seizure stops
- If the patient does not wake up within 10 minutes, is not breathing well, or it is the first seizure – call for an ambulance (SAMU – 912)
- Stay calm all the time.
- Do not restrain or put anything in the mouth
- Clear area around
- Reassure the person until he/she totally recovers

- After seizure ends, help the person sit in a safe place.
- If the patient has limited walking or standing ability, or is pregnant, has cardio-respiratory conditions.... ask for help and put him in a rest position.
- If the seizure last more than five minutes, Breathing or consciousness doesn't return after the seizure stops, a second seizure follows immediately, if the patient has high fever, the patient is pregnant, diabetic, the patient injured her/himself during the seizure **don't wake up the person, call for help**
- The medications for epilepsy are incredibly effective. More than half of the cases are seizure-free after their first medication. check that any prescribed medication is adequate Give the prescribed medication.
- Advise the patient not to drive. Try to arrange for someone to be with the patient until he is safely home or in the ward.
- Advise the patient to report the seizure
- Advise the patient to continue taking anti-seizure medication.
- If the patient is known to have epilepsy, there is no need for medical aid or an ambulance unless the seizure lasted more than 5 minutes or a second seizure followed
- Check for any injuries and apply necessary first aid
- Reassure the patient as full consciousness is restored.
- Advise the patient not to drive. Try to arrange for someone to be with the patient until he is safely home or in the ward.

Be aware about possible complications:

- Having a seizure at certain times can lead to circumstances that are dangerous to the patient or others.
- **Falling:** fall during a seizure can injure the head or break a bone.
- Drowning. An epileptic person 13-19 times more likely to drown while swimming or bathing.
- **Car accidents.** A seizure that causes either loss of awareness or control can be dangerous if the patient is driving a car or operating other equipment.
- **Pregnancy complications.** Seizures during pregnancy pose dangers to both mother and baby, and certain anti-epileptic medications increase the risk of birth defects.
- **Emotional health issues.** People with epilepsy are more likely to have psychological problems, especially depression, anxiety, and suicidal thoughts and behaviors. Problems may be a result of difficulties dealing with the condition itself as well as medication side effects, but even people with well-controlled epilepsy are at increased risk.

Uncommon, complications but may happen, such as:

- **Status epilepticus.** This condition occurs if frequent recurrent seizures without regaining full consciousness in between them. People with status epilepticus have an increased risk of permanent brain damage and death.
- **Sudden unexpected death in epilepsy (SUDEP).** People with epilepsy also have a small risk of sudden unexpected death. The cause is unknown. This occurs to People with frequent tonic-clonic seizures or whose seizures aren't controlled by medications.

Nursing care in this situation should focus on:

- Accurate assessments and regular monitoring (immediate attention to ABCDE and blood glucose monitoring: ongoing monitoring of neurological status, vital signs and seizures)
- Symptom control and management (IV line and medications)
- Communication with the healthcare team, patient and family
- Risk assessment and management (safety, e.g. padded bed rails; maintenance of secure IV line if continual seizures)

Self-assessment 6.3.4

- 1) What is the main role of a first aider in case of epilepsy seizure?
- 2) What can you do if the seizures last more than five minutes?
- 3) Epilepsy seizure can lead to some complications. Enumerate at least four of them
- 4) What is the meaning of Status epilepticus?
- 5) In skill lab perform first aid interventions for:
 - a) A client with focal seizures
 - b) A client in tonic-clonic seizures

End unit assessment 6

1. An 18-year-old high school student presents, asking for a letter stating that he should not participate in gym class because he has asthma. The most appropriate action is to:
 - a. Write the note because gym class participation could trigger asthma symptoms
 - b. Excuse him from outdoor activities only to avoid pollen exposure
 - c. Assess his level of asthma control and make changes in his treatment plan if needed so he can participate
 - d. Write a note excusing him from gym until his follow-up examination in 2 months.
2. Risk factors for transient ischemic attack (TIA) include all of the following except:
 - a. Atrial fibrillation.
 - b. Carotid artery disease.
 - c. High cholesterol level.
 - d. Pernicious anemia.
3. Which of the following conditions is least likely to contribute to an increased risk of stroke?
 - a. Hyperlipidemia
 - b. diabetes mellitus
 - c. Crohn's disease
 - d. hypertension
4. Which characteristics describe unstable angina (select all that apply)?
 - a. Usually precipitated by exertion
 - b. New-onset angina with minimal exertion
 - c. Occurs only when the person is recumbent
 - d. Characterized by increased duration or severity
 - e. Usually occurs in response to coronary artery spasm

5. What is asthma?
 - a. A noise a person makes while breathing.
 - b. The way a person breathes when they are scared.
 - c. An illness that causes the airways to swell and get tight.
 - d. Something that a person gets from running too much.
- 6) What can trigger an asthma attack?
 - a) Being allergic to your cat.
 - b) Bing near someone who is smoking.
 - c) Being inside a room that is dusty.
 - d) All of the above.
- 7) What is the primary concern when assisting a person having a seizure?
 - a) Holding them still
 - b) Keeping them safe from harm
 - c) Placing them flat on their back
 - d) Stopping seizure
- 8) A 20-year-old person is having suddenly a seizure and make movements and have froth around the mouth. The first best action to do by the first aider is:
 - a) Keep other people out of the way
 - b) Stopping seizure
 - c) Wakeup the patient
 - d) Give medication
- 9) Stroke is a vascular insult producing rapid onset of neurological deficit lasting for more than 24 hours; manifestations of a stroke vary depending on:
 - a) Personality of patient
 - b) The etiology of stroke
 - c) The affected body system
 - d) The vessel affected and the cerebral territories it perfuses

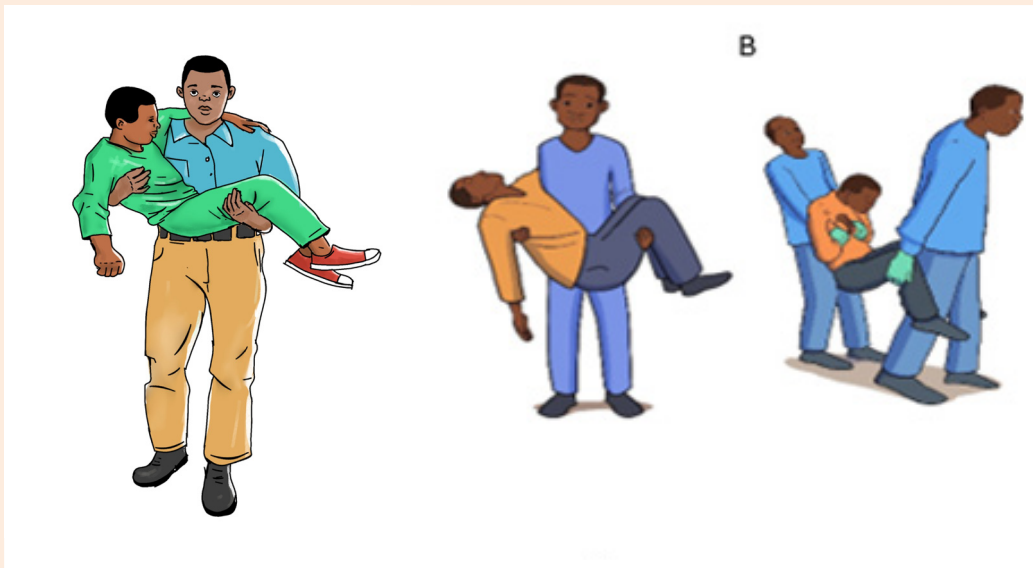
- 14) Enumerate at least three advises to give to the patient/family after a crisis of seizure.
- 15) How can you help if someone is having an asthma attack?
- 16) Both transient ischemic attack (TIA) and cerebral vascular accidents (CVA) are vascular insult to brain tissue. Contrast these two conditions?
- 17) Through which mechanism does stroke occur?
- 18) List five steps that are important when helping someone with heart problems.
- 19) A 67 years old is suffering from ischemic stroke that affects his left temporal area; what functions are likely to be affected?

Key unit competence

Apply correctly the technique of victim's evacuation during emergencies

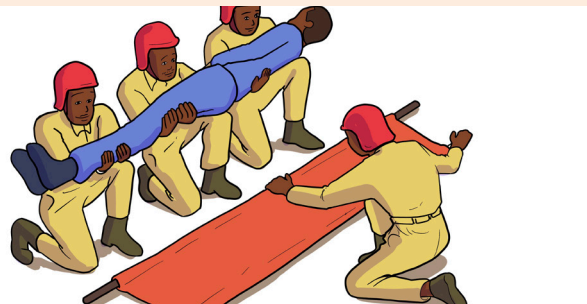
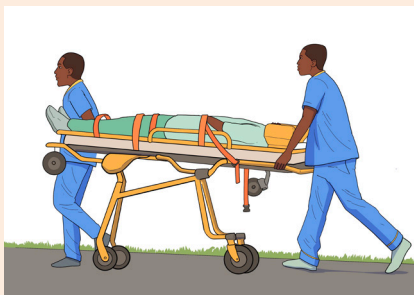
Introductory activity 7

Observe the image below and respond to the asked questions



A

B



C

D

1. What does the illustrates A, B, C and D above show?
2. What are the materials do you see in use in the mentioned illustrate?
3. Differentiate different technique for victim evacuation observed on the illustrate above.

7.1. Basic concepts of emergency response and management (ERM)

Learning activity 7.1



A



B

- 1) Observe the image above and mention what they all have in common.
- 2) Referring to the above image explain the term emergency and emergency response

a) Emergency /Disaster

An **emergency** is a situation that poses an immediate risk to health, life, property, or environment. Most emergencies require urgent intervention to prevent a worsening of the situation. While some emergencies are self-evident (such as a natural disaster that threatens many lives), many smaller incidents require that an observer (or affected party) decide whether it qualifies as an emergency.

b) Emergency Response

Response is a reaction to an emergency situation or event. Response can range from individual to national level. The response phase of an emergency may commence with search and rescue but in all cases the focus will quickly turn to fulfilling the basic lifesaving and humanitarian needs of the affected population.

For the disaster, emergency response is the phase of the disaster-management cycle that often attracts the most attention and resources. It should therefore be seen as a critical part of the disaster management cycle. Emergency response is a cyclical process, involving repeated assessment, planning, action and review, to respond appropriately to needs and capacities as they evolve. It starts with an initial assessment and may be triggered spontaneously by the disaster event, or officials may authorize the mobilization of people and resources. Rapid and effective mobilization is facilitated by proper disaster preparedness.

-Aim of the Emergency Response Management

To reduce mortality rate and damage to property thereby reducing the impacts of disaster and to ensure successful recovery of maximum number of people

-Importance of a Timely and Coordinated Response

Depending on injuries sustained by the victim, outside temperature, and victim's access to air and water, the vast majority of those affected by a disaster will die within 72 hours after impact

-Activities included in emergency response management

- Search & Rescue
- Fire Fighting
- Emergency Medical Assistance including first aid, mass casualty management and physiological first aid etc.
- Transportation of victims
- Need Assessment Survey
- Hospital Preparedness
- Evacuation
- Provision of food and non-food items
- Temporary shelter
- Emergency repair of critical facilities
- Security measures/tracing/family reunification

c) Emergency management

Emergency management is the organization and management of the resources and responsibilities for dealing with all humanitarian aspects of emergencies. The aim is to reduce the harmful effects of all hazards, including disasters.

The emergency management has 4 phases. preparedness, response, mitigation, and recovery

Emergency Preparedness is a research-based set of actions that are taken as precautionary measures in the face of potential disasters. These actions can include both physical preparations (such as emergency supplies depots, or adapting buildings to survive earthquakes) and trainings for emergency action. Preparedness is an important quality in achieving goals and in avoiding and mitigating negative outcomes.

Disaster Mitigation is the ongoing effort to lessen the impact disasters have on people and property. Mitigation involves keeping homes away from floodplains, engineering bridges to withstand earthquakes, creating and enforcing effective

building to protect property from sliding etc. Mitigation describes the ongoing effort at the federal, state, local and individual levels to lessen the impact of disasters upon families, homes, communities and economy.

Recovery is those activities that continue beyond the emergency period to restore lifelines. Examples include providing temporary shelter, restoring power, critical stress debriefing for emergency responders and victims, job assistance, small business loans, and debris clearance

Self-assessment 7.1.

- 1) Mitigation in the disaster management cycle involves what activity?
 - a) Prevention of disasters if possible
 - b) Caring for the birds injured
 - c) Responding to the disaster
 - d) Preparing for litigation after the event
- 2) Disasters can happen at any time. What is the first part of the disaster management cycle to consider?
 - a) Response
 - b) Litigation
 - c) Recovery
 - d) Preparation
- 3) Most emergencies require urgent intervention to prevent a worsening of the situation
 - a) Yes
 - b) Not
- 4) installing electricity destroyed after an earthquake strike is considered an activity of:
 - a) Emergency Recovery
 - b) Emergency preparedness
 - c) Emergency mitigation
 - d) Emergency litigation

7.2. Local level search and rescue technique

Learning activity 7.2



A



B

Analyze carefully the following images above and respond to the question aside.

- 1) Explain the common features observed among people on this picture?
- 2) What are different tasks are they doing?
- 3) How do you find the place where they are performing their duties?
- 4) What might be the cause of the situation observed on these pictures?

Search and rescue is a technical activity rendered by a group of specially trained personnel, who rescue and attend to the casualties under adverse conditions, where life is at threat. Search and rescue is organized in close cooperation with the community and in a team approach. The search and rescue activities are undertaken in two ways such as community local rescuers and outside community rescuers.

7.2.1. Community Local Rescuers

With adequate safety measures, rescue immediately after any natural calamities such as cyclone, flood, earthquake and fire in a community.

7.2.2. Outside Community Resources

Circumstances where the situation is grave and the local rescuers do not have required efficiency and equipment, then specialist assistance from outside the community is required. The role of public health providers is to promote, protect, and improve the health of individuals and communities. The community rescuers shall have to be in readiness to respond quickly, when a cyclone, flood, earthquake and fire occur. The rescuers efficiency level has to be maintained through practice

and demonstrations /mock-drills during the non-disaster period. The rescue team should undergo standard training from time to time.

7.2.3. Rescue workers

An event requiring rescue operations will usually create three categories of rescue workers survivors, untrained personnel and trained personnel.

a) Survivors

The immediate reaction of survivors in a major incident, once discovered that they are not injured, is to help their neighbors and families. They often do not know what to do, but obviously it is a serious situation and thus they feel they must do something.

b) untrained personnel

The second 'wave' of rescue workers is drawn from people either witnessing the event from the immediate vicinity, or are drawn to the site by curiosity and a desire to assist the victims. Although not quite as emotionally involved as the survivors, the danger inherent in utilizing untrained personnel is still a factor which must be considered. On the positive side, they often bring necessary resources with them and can be effective if brought under control and properly supervised.

c) Trained personnel

The last group to arrive at the scene is the trained rescuers: Police, Fire, Civil Defense, etc. It takes some time for various emergency services to mobilize and arrive at the scene. The quicker they can arrive, the less time there will have been for the first two groups to aggravate the situation and create more dangers to surviving victims and themselves. The well-trained team will know what to do, and how to utilize the available resources and untrained personnel in efficiently carrying out the necessary tasks in a manner that will not further endanger anyone.

7.2.4. Team composition

Team composition will be determined by the various organizations within each area on the basis of safe accomplishment of set tasks. Regardless of the team composition, a team leader must be appointed. A team of 6 – 8 members is required for effective general rescue teamwork. It is essential that each safe shelter form a rescue group, comprising of 8 members; Team leader: 1, Skilled persons: 2 Members: 5

-Activation

Each team should have a call out system established, and have determined the time necessary to ensure a full team response. This system should include such details as:

- Who calls out the team
- Who will be responsible for them
- Where to report
- What functions the team will perform
- What equipment to take
- Likely duration of task or event.

-Deployment

On call-out, teams should state clearly to the organization requesting their support, details of accommodation and any feeding assistance that may be required.

If practicable, each team should be self-sufficient in the provision of food for the first 24 hours.

-Coordinated incident management system (CIMS)

The Coordinated Incident Management System) provides the model for command, control, and coordination of an emergency response. It provides a means of coordinating the efforts of agencies as they work towards the common goal of stabilizing an incident and protecting life, property, and the environment.

Self-assessment 7.2

- 1) Mention the two ways/levels search and rescue activities are undertaken.
- 2) Explain role of the three types of rescue workers.
- 3) How is the rescue team composed?
- 4) How does a rescue team coordinated.

7.3. Introduction to basic rescue victim's techniques

Learning activity 7.3

Analyze carefully the following image below and respond to the questions that follow



- 1) What is the purpose of the different activities depicted on the image above
- 2) Distinguish different techniques observed on the image above.

7.3.1. The aim of rescue

The aim of rescue is to save the greatest number of lives in the shortest possible time and to minimize further injury to people and damage to property.

-Basic rescue evacuation techniques: Evacuation and safe rescuing of a victim by applying simple manual techniques can save the life of the victim. Regular hands-on practice and drills will help the rescuer to save lives in quicker and safer manners.

Rescue drag and **victim evacuation techniques,**

- Required to evacuate an injured person from an emergency scene to a location of safety.
- Manual carries are tiring for the rescuer and involve the risk of increasing the severity of the casualty's injury.
- Choose the evacuation techniques that will be least harmful, both to rescuer and the victim.

- Casualties carried carefully and correctly handled, otherwise their injuries may become more serious or possibly fatal.
- Situation permitting, evacuation of a casualty should be organized and un-hurried.
- Each movement should be performed as deliberately and gently as possible.

All rescuers must be aware that the safety of the casualty is paramount even when immediate evacuation from a hazardous environment is necessary. A careful assessment must be made of the casualties' injuries, condition, and possible entrapment, and a final check must be made to ensure that the casualty is actually ready to move and is not caught or entangled in some unseen object. Selection or sorting of casualties before evacuation of casualties where multiple casualties need attention, the rescuer will be required to select casualties for treatment and rescue by order of priority. This selection or sorting of casualties is known as triage.

Rescuers may be called upon to perform the triage role at a rescue site as a specific task, or this may be a part of the overall reconnaissance element of a rescue. While moving fairly quickly from casualty to casualty, the rescuer performing triage must:

- Quickly assess the condition of casualties and label them.
- Place any unconscious person in a lateral recovery position – care for airway, breathing, and circulation.
- Temporarily control any serious bleeding by the use of bystanders or other rescuers as necessary.
- Choose the casualties with the greatest chance of survival.

It must be noted that it will sometimes be necessary to treat and rescue casualties of relatively low priority in order to access and clear the way for treatment of high priority casualties. Additionally, the principle of 'remove the casualty from the risk or remove the risk from the casualty' should be adopted where a site hazard presents a risk to casualties being treated prior to rescue.

-casualty sorting

Before transporting the casualties, it is important to start by sorting them, in order of priority.

Red: Priorities are displayed using a color code system.

- Those victims who need immediate advanced medical treatment (within 1 hour) to survive.
- These victims would have first priority for transport to a medical facility, if available.

Yellow: These victims have serious injuries, but are not life threatening. They will survive without advanced medical treatment and their situation can be maintained through proper basic emergency care.

Green: Minor injuries that can be dealt with by first aid, or can wait for some time without treatment

Black: Deceased, or who are unlikely to survive given the situation.

NOTE: These colour codes may constantly change, as the assessment of the casualties and their injuries is an ongoing process. The victim's colour code may change as the situation changes (e.g., the availability of transport, medical supplies, etc). In a major incident, be prepared to wait some time without either advanced care on-site, or transport to an appropriate facility. After removal, many casualties will have to be carried over piles of debris and uneven ground before being handed over to the ambulance service or first aid station. Whilst speed of removal is important, it must be consistent with safety and proper handling to prevent further injury.

The technique used will depend on the immediate situation, the condition of casualties, types of injuries, and available equipment. Rescue leaders should conduct frequent exercises in the removal of casualties, using live people as casualties to give team members understanding and confidence in the various methods, enabling them to make decisions promptly in times of emergency. As important as learning methods; rescuers should experience the physical effort required in transporting casualties, either by stretchers or by some improvised method. The transportation of casualties over long distances is a very tiring task and requires fit personnel.

There are many types of victim evacuation techniques but in our context, we shall focus on:

- Ankle pull
- Shoulder pull
- One-person lift
- Pack-strap car
- Two-person arm carry
- Two person carry by arms and legs
- Chair carry
- Improvised stretcher
- Fireman's carry and
- Blanket drag

Rescue tools

NAME	ILLUSTRATION
Folding stretchers	
Basket stretcher—incorrectly referred to as the Stokes Litter, or Ferno-Washington	 <p>Basket stretcher, Lifesaving Equipment ...</p>
Board Rescue stretchers	
Blanketing the Stretcher	
Chair	

Self-assessment 7.3

- 1) Explain the methods used to sort or selecting the victim evacuation in other of priority
- 2) Outline the Rescue drag and victim evacuation techniques
- 3) Mention and differentiate at least 2 different victim evacuation techniques

7.4. Ankle pull

Learning activity 7.4

Observe and describe the picture aside.

- 1) Discover what the standing guy is doing.
- 2) In which circumstance do you think this technique is indicated.



a) Description

Ankle pull evacuation technique is also known as ankle drag evacuation technique and is used to move a victim who is too large to carry or move in any or other way.

Generally, the movement of a victim by lifting part of their body as the other part drags is often used when a carry isn't possible or practical. Regardless of whether you carry or drag a victim to safety, you must remember to keep your own safety a high priority. It doesn't sound heroic to say, but it does no good for anyone if you injure yourself and become part of the problem rather than the solution.

Things to consider before deciding to use ankle pull technique.

- How many victims are in need of rescue?
- How many rescuers are available?
- What are the capabilities and conditions of the rescuers?
- What is the size and condition of the victim(s)?
- What is the safety and stability of the environment?

The feet drag is a last resort. Moving a victim in this manner will most certainly be uncomfortable for the victim and will likely cause greater injury. It's a "life over limb" technique. This can really be accomplished only if the victim is unconscious because of the pain of dragging their torso and head along the ground. To perform ankle pull evacuation technique, the rescuer has to grasp firmly the ankles of victim and move backward, victim's arms should be crossed over his/her chest, the rescuer pulls the victim to safety in a straight line. The technique should not be used if the victim is suspected to have a spinal cord injury, head or neck injuries.

b) Procedure



- Squat at the feet of the victim and grasp the victim by both ankles or pant cuffs.
- Pull with your legs, not your back.
- Keep your back as straight and in line as possible.
- Try to keep the pull as straight and in line as possible.
- Keep aware that the head is unsupported and may bounce over bumps and surface imperfections

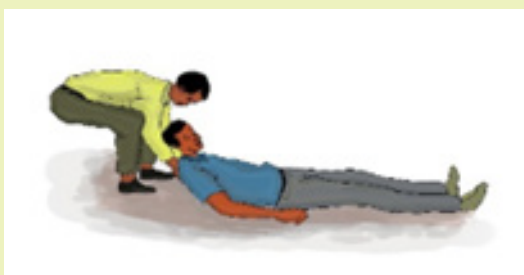
Self-assessment 7.4

In simulation lab or in classroom make pairs and perform the ankle pull victim's evacuation technique.

7.5. Shoulder pull

Learning activity 7.5

- 1) What do you think the man in squat position aside is doing?
- 2) in skills lab model from the illustrate aside and perform the should pull technique for victim evacuation



a) Description

The shoulder pull technique is a one-man rescue technique used to evacuate the casualty from the danger area to the safe area or from the incident area to the hospital. Because in this procedure the rescuers use his own hand, therefore it does not require equipments. However, for trauma patients, it is always advised to evacuate them using equipment that allows stabilization of the whole body and safe handling of the injured in vertical and horizontal planes because maximum care must be taken to avoid to worsen an unstable trauma. The head-neck-chest axis must be kept straight to protect the spine, and the first responders must keep the patient's body stable (no movement of the feet) before the pull.

The shoulder pull is preferred to the ankle pull. It supports the head of the victim. The negative is that it requires the rescuer to bend over at the waist while pulling.

b) Procedure

- Grasp the victim by the clothing under the shoulders.
- Keep your arms on both sides of the head.
- Support the head.
- Try to keep the pull as straight and in-line as possible
- Pull the victim

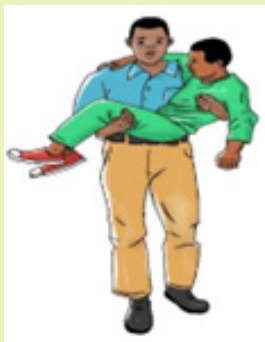
Self-assessment 7.5

In group of 2 go in the skills lab and perform the technique of shoulder pull on each other

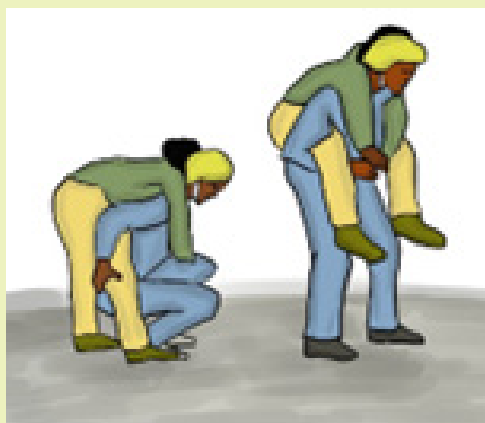
7.6. One-person lifting

Learning activity 7.6

Observe the image aside and respond to the following questions: Discover what the standing guy is doing.



- 1) What do you understand with one person lifting technique?
- 2) The illustrated image show which technique for victim evacuation among the following: (select all that apply)
 - a) Fireman's lift and carry
 - b) Arms or sweetheart carry
 - c) Assist to work and carry
 - d) Fore and aft carry



One-person transport methods

- Fireman's Carry- the easiest way to transport a light and smaller victim.
- Piggy Back- when the victim is conscious.
- Pack Strap Carry- when the victim is smaller than the first aider.
- Shoulder Drag- used when the floor is smooth, short distance transport.
- Fireman's Drag or Tied-hands Crawl- used when the first aider and the victim must crawl underneath a low structure.
- Blanket Drag- used when the victim is seriously injured and should not be lifted.

Factors to Consider before lifting the casualty by one-person lift:

- Weight and height of the victim
- Status of the victim (conscious or unconscious)
- Environment (safe, floor is smooth, narrow or wide)
- Special need considerations (injuries of the victims)

A single person who cannot walk but who does not need to be on a litter (one with, for example, a broken ankle, mild exhaustion, or acute mountain sickness) may be carried on the back of a strong rescuer using a rope seat. This is fashioned by passing a long 1 inch (2.5 cm) rope or strap across the victim's back and under his arms, then crossing the rope in front of his chest.

The victim is loaded piggyback onto the rescuer's back, and the rope ends are passed forward over the shoulders of the rescuer, under his arms, and around to the rescuer's back, then between and through the victim's legs from the front, and around the outside of the victim's legs just under the buttocks, to be tied snugly in front of the rescuer's waist. Such a rope seat is far preferable to a standard fireman's carry, which is very fatiguing. A blanket drag is only good for very short distances, such as to pull a person quickly away from an immediate hazard.

One rescuer handling technique

One Rescuer Human Crutch

All single rescuer techniques involve the risk of injury to the rescuer.

For this method to work, the casualty must be conscious and capable of giving the rescuer some assistance.

Image aside show clearly how the single rescuer human crutch technique is done.

- One rescuer hand holds the casualty wrist.
- The other hand taking a firm grip of the clothes at the waist on the far side of the body.
- The injured side of the casualty should be closest to the rescuer.



One-Person Lift arms carry

This only works with a child or a very light person.

1. Place your arms under the victim's knees and around their back.



Pick-A-Back

This method is better for longer distances to lift a victim safely: Place both the victim's arms over your shoulders.

- Cross the victim's arms, grasping the victim's opposite wrist.
- Pull the arms close to your chest.
- Squat slightly and drive your hips into the victim while bending slightly at the waist.
- Balance the load on your hips and support the victim with your legs.



Fire Man Carry

- The victim is carried over one shoulder.
- The rescuer's arm, on the side that the victim is being carried, is wrapped across the victim's legs and grasps the victim's opposite arm.



Application activity 7.6

- 1) What are the factors to Consider before lifting the causality by one-person lift?
- 2) In Fire Fighters Carry, the victim is carried over one _____.
 - a) knee
 - b) arm
 - c) shoulder
 - d) leg
- 3) Go in the simulation lab, pair yourself and perform the one-person lift arms carry technique for victim evacuation.

7.7. Pack- strap carry victim evacuation technique

Learning activity 7.7

Analyze carefully the following images and respond to the questions below:



- 1) The victim evacuation technique illustrated above is appropriate to a) unconscious patient, b) conscious patient, c) adult causality.
- 2) describe in a stepwise approach the technique of pack-strap as observed on the illustrate A, B and C above.

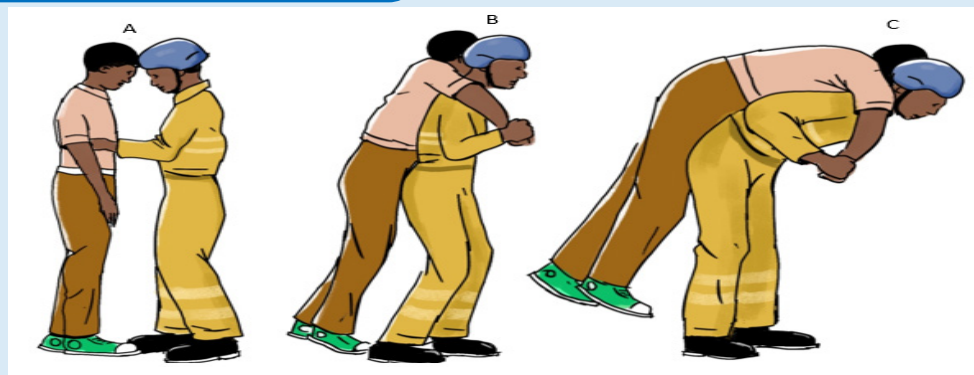
a) Description

The pack-strap carry is a rescue technique using no equipment for appropriate victim evacuation; the pack-strap carry technique involves only one rescuer handling maneuvers to evacuate the casualty from one area to another for appropriate care. This technique is used on the conscious casualty with no fractures of the extremities.

b) Procedure

- The rescuer turns his/her back to the standing casualty.
- The rescuer after turning the back to the casualty brings the casualty's arms over his/her shoulders to cross his/her chest.
- The arms of casualty must be kept straight as possible, the armpits over the shoulders of rescuer.
- The rescuer holds casualty's wrists, bends, and pulls the person onto his/her back.

Self-assessment 7.7



In your class make groups of two students one student will play the role of casualty while the second one will play the role of rescuer then perform the “pack- strap carry” victim’ evacuation technique modeling on the illustrate above.

After performing the first round exchange the role and reperform the “pack-strap car” victim’s evacuation technique

7.8. Two person arms carry

Two-person arms carry is a technique for victim evacuation which involve two rescuers to drag the victim in a safe place using their hands. Both conscious and unconscious victims can be carried with this technique. Two person carry involve human crutch/two person drag technique, two handed seat technique and four-handed seat technique.

7.8.1. Human crutch/two-person drag

a) Description

For the conscious victim, this carry allows the victim to swing their leg using the rescuers as a pair of crutches. For the unconscious victim, it is a quick and easy way to move a victim out of immediate danger

b) Procedure



- 1) Start with the victim on the ground.
- 2) Both rescuers stand on either side of the victim's chest.
- 3) The rescuer's hand nearest the feet grabs the victim's wrist on their side of the victim.
- 4) The rescuer's other hand grasps the clothing of the shoulder nearest them.
- 5) Pulling and lifting the victim's arms, the rescuers bring the victim into a sitting position.
- 6) The conscious victim will then stand with rescuer assistance.
- 7) The rescuers place their hands around the victim's waist.
- 8) For the unconscious victim, the rescuers will grasp the belt or waistband of the victim's clothing.
- 9) The rescuers will then squat down.
- 10) Place the victim's arms over their shoulders so that they end up facing the same direction as the victim.
- 11) Then, using their legs, they stand with the victim.
- 12) The rescuers then move out, dragging the victim's legs behind

Self-assessment 7.8.1

In your groups model from the illustrate above and perform the technique of human crutch /two-person drag

7.8.2. Two Handed- seat technique

a) Description

This technique is for carrying a victim for longer distances. This technique can support an unconscious victim.

b) Procedure



- 1) Two rescues form a kind of bridge with their two arms.
- 2) Pick up the victim by having both rescuers squat down on either side of the victim.
- 3) side if the victim.
- 4) Reach under the victim's shoulders and under their knees.
- 5) Grasp the other rescuer's wrists.
- 6) From the squat, with good lifting technique, stand.
- 7) Walk in the direction that the victim is facing.

Self-assessment 7.8.2

Pair yourself in groups of two and perform the technique of two handed- seat for victim evacuation modeling from the illustrate above

7.8.3. Four handed- seat

a) Description

This technique is for carrying conscious and alert victims in a moderate distance. The victim must be able to stand unsupported and hold themselves upright during transport.

b) Procedure



- 1) Position the hands as indicted in the graphic.
- 2) Lower the seat and allow the victim to sit.
- 3) Lower the seat using your legs, not your back.
- 4) When the victim is in place, stand using your legs, keeping your back straight

Self-assessment 6.8.3

Pair yourself in groups of 3 then model from the image above and perform the technique of four handed seat for victim evacuation.

7.9. Two person carry by arms and legs

Learning activity 7.9

- 1) Referring to the image aside describe what the technique of two person carries by arms and legs involve
- 2) In your respective groups of two, model from the image aside and perform the two persons carry by arms and legs technique



Two persons carry by arms and legs technique is a method of victim evacuation where one rescue holds the victim legs and the other one hold the arms to drag the victims out of danger.

a) Things to consider before attempting the two arms and legs carry technique

- **Explain the Procedure to the casualty.** If the casualty is conscious, tell him what you are going to do. The explanation will help to calm his fears and will help you to get his cooperation.

- **Perform necessary measures before transporting.** Make sure the casualty is breathing properly, open wounds have been dressed and bandaged, and fractures have been splinted before transporting the casualty.
- **Have one person in charge.** One person must give the instructions to the remainder of the team so actions will be performed in union.

b) Precautions:

- Do not transport a casualty with a suspected fracture of the neck or back unless a life-threatening hazard is in the immediate area. Wait until medical personnel arrive.
- Go slowly to avoid further injury. If the injured person is able to talk, check in frequently to make sure they are comfortable throughout the process.
- In the event the injured person is unconscious, you may want to tie their hands loosely together at the wrists. This can make the carrying process easier.
- Do not use anything thin or sharp to tie the person's hands this could cut their wrists.

c) Procedure

Two persons carry by arms and legs



- 1) Rescuer 1 squats at the victim's head and grasps the victim from behind at the midsection.
- 2) Rescuer 2 squats between the victim's knees, grasping the outside of the knees.
- 3) Both rescuers rise to a standing position.

The 'Fore and Aft' Method



- This is a method where each rescuer grasps their left wrist and the hands are joined up to provide a comfortable seat for the casualty.
 - The casualty wrists are tied together
- 1) The first rescuer bends at the back of the casualty. Reaching under the casualty's arms, then holds the casualty's wrists.
 - 2) The second rescuer bends between the casualty's legs grasping them underneath the knees.
 - 3) The standard lift orders are given and the casualty is lifted into the carrying position.
 - 4) Should the casualty have a leg injury, the effects of this can be minimized by the front rescuer crossing the casualty's legs over, then carrying them to one side.

The advantage of this method is that the rescuer supporting the casualty's feet has a free hand with which to open doors, clear debris, etc.

Self-assessment 7.9

- 1) What do you need to consider before evacuating a victim with arms and legs.
- 2) Describe what the Fore and Aft method involves in two person carry by arms and legs evacuation technique.

7.10. Chair carry technique

Learning activity 7.10

Observe the image demonstrating chair carry technique aside.

Make groups of three students and perform the same technique to transport a casualty from area of danger.



a) Description

A chair carry technique is a method often used to move a sick or injured person away from a position of danger. The casualty is seated on a chair and a chair is carried by two rescuers. The two-person seat carry requires a second responder. This carry can be used by any person who is conscious and not seriously injured. This method is prohibited if the casualty is suspected to have head, neck or spinal injuries.

A chair carry method is a victim's evacuation methods which doesn't require equipments; only an appropriate chair is used.

This is a good method for carrying victims up and down stairs or through narrow or uneven areas.

b) Procedure



- 1) Pick the victim up and place them or have them sit in a chair.
- 2) The rescuer at the head grasps the chair from the sides of the back, palms in.
- 3) The rescuer at the head then tilts the chair back onto its rear legs.
- 4) For short distance the second rescuer should face in and grasps the chair legs.
- 5) For longer distances, the second rescuer should separate the victim's legs, back into the chair and, on the command of the rescuer at the head, both rescuers stand using their legs.

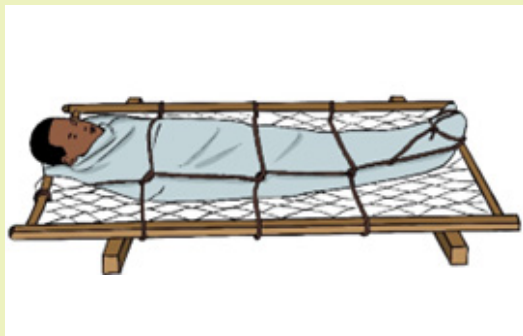
Self-assessment 7.10

In your class make groups of three students. One student will play the role of causality while the two others will play the role of rescuers then perform the "chair carry" victim' evacuation technique. After performing the first round exchange the role and reperform the "chair carry" victim's evacuation technique. Every student should play the role of rescuer.

7.11. Improved stretchers

Learning activity 7.11

- 1) Define the term improvised stretchers
- 2) Describe how you think this causality is going to be carried.



A stretcher is a light frame made from two long poles with a cover of soft materials stretched between them, used for carrying people who are ill, injured, or dead. Casualty evacuation from the danger area to the safe area or from the incident area to the hospital is crucial to save life. However, in some situation there may be insufficient stretchers for the number of casualties involved. Therefore, improvised stretchers have to be used to carry victims.

There are many methods of improvisation

METHOD OF STRETCHER	PICTURE
<p>1.Doors: Appropriate doors can be used as improvised stretchers.</p> <p>Bore two holes at one end of the door adjacent to the position for the casualty's head. Commence the lashing by tying the rope end through one hole. The casualty is then lashed in the normal manner and the lashing is finished by tying through the remaining hole.</p>	An illustration of a person lying on a door stretcher. The door is propped open, and the person is lying on it. The person is covered with a light blue blanket. The door is supported by a wooden frame. The person is lying on their back, and the door is lashed to the frame with ropes.

2. Blankets

Blankets make excellent improvised stretchers, and in residential areas, should be in fair supply. These stretchers are very simple to make and in addition to the blankets, require two poles about two meters long. Firm broom handles, water pipe or 50mm x 25mm wood would do the job.

- Place the blanket flat on the ground and lay the poles on the blanket about 600mm apart.
- Fold each side of the blanket across each pole and the stretcher is ready.
- To make it more secure, nails can be used to pin the two top folds together.



3. Bags: Two bags and two poles make a first-class stretcher.

Cut the stitching in the bottoms of two bags, just enough to permit the poles to be passed through. Slide the end of the second bag a short distance over the foot of the first bag.



4.Overcoats: Two overcoats with the sleeves turned inside out and poles slid through them make a good stretcher. Do up all the buttons on the front of each coat and if necessary, use nails to close the tail flaps.

- The coats are placed head to tail with the fronts of the coats uppermost.
- Heavy shirts or overalls can also be used in the same manner.



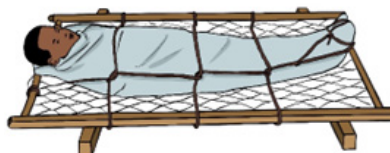
5.Ladders: Where for any reason, a very narrow stretcher is required, such as for passing through small window openings, tunnels, etc, a small ladder or one half of a small extension ladder can be used to advantage.

A decking of boards should be placed on the ladder (if available) and it is then blanketed in the normal way

Two loose, round turns are then taken around the ladder and the lashing Half Hitched to the center of the turns. From here, three Half Hitches are taken around the body in the usual positions. The lashing is tied off with a Clove Hitch to a rung above the casualty's head



6.Bedframe: a bedframe can also be used as an improvised stretcher. a patient is tied to the bedframe and can then be carried.



7.Chair

A casualty can be sited on a chair and two persons can carry the casualty as displayed in the illustrate aside.



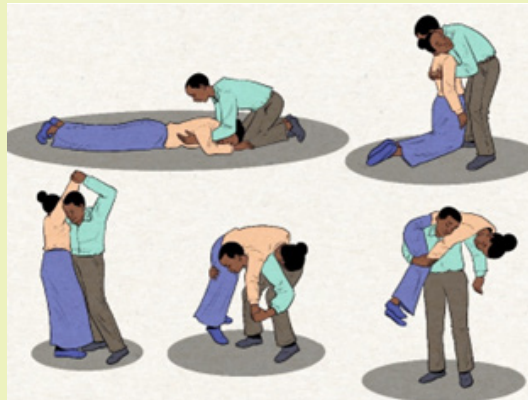
Self-assessment 7.11

- 1) What are the materials needed to make a blanket stretcher
- 2) Describe the process of making a stretcher with a door.

7.12. Fire man's carry technique

Learning activity 6.12

Carefully observe the image below and describe the technique of fireman's carry which is being done



a) Description

A fireman's carry or fireman's lift is a technique allowing one person to carry another person without assistance. It requires placing the carried person across the shoulders of the carrier. This technique is for carrying a victim in longer distances.

It is very difficult to get the person up to this position from the ground. Getting the victim into position requires a very strong rescuer or an assistant.

Fireman's carry technique was commonly used by firefighters to carry injured or unconscious people away from danger, but has been replaced in firefighting due to the drawback that smoke and heat are greater higher up, and may be fatal to the person being carried. The «fireman's carry» technique is still taught for use outside firefighting. Soldiers use this technique to carry the wounded. Lifeguards are sometimes trained to use the fireman's carry.

b) Advantage

Carrying someone in this manner has several advantages over other methods of moving another person. The subject's torso is fairly level, which helps prevent further injuries. When the subject's weight is evenly distributed over both shoulders, it is easier to carry them for a longer distance mainly 15 meters or more.

The fireman's carry is preferred over a single-shoulder carry if someone is seriously hurt or if the person must be carried for a considerable amount of time. A person being carried over one shoulder would experience more shaking as his or her body is hanging more freely over the carrier's shoulder. Also, blood would be unevenly distributed if someone was hanging upside-down over the carrier's shoulder for an extended period of time. This could also be a very uncomfortable position for the carried person if he or she is still conscious.

The fireman's carry allows a soldier to carry an injured comrade securely using only one hand, leaving their other hand free to carry and fire their weapon if required

c) Disadvantages

In firefighting, smoke and heat are greater higher up, and may be fatal to the person being carried. The person carried is largely outside the rescuer's field of vision, and almost all vital areas are out of the rescuer's view. Thus, dangerous changes in their condition can be missed, and an inexperienced rescuer can inadvertently create or further compound injuries via collision with obstacles. Furthermore, the rescuer's obstructed peripheral vision puts both persons at risk if the incident that caused the injury is still ongoing (fire, combat, public disturbances, etc.). It is also harder to get a patient onto a rescuers shoulders than it is to drag a patient by their shoulders.

The fireman's carry presents severe hazards if the person being carried has or may have a spinal injury, and should be avoided.

d) Procedure



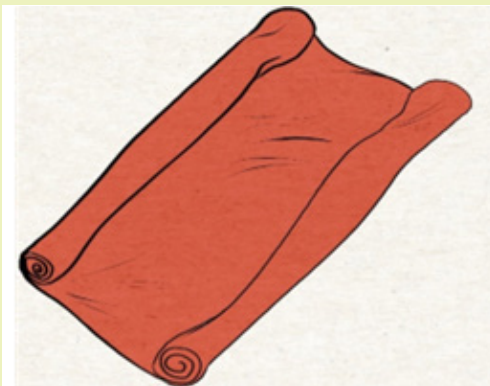
- 1) The victim is carried over one shoulder.
- 2) The rescuer's arm, on the side that the victim is being carried, is wrapped across the victim's legs and grasps the victim's opposite arm.

Self assessment 7.12

Go to the playground, pair yourself in groups of two of the same weight the perform the technique of fireman's carry.

7.13. Blanket drag technique

Learning activity 7.13



A



B

- 1) Explain the material observed on the first above image.
- 2) Outline the advantages of victim evacuation technique observed on the above image?

a) Description

The blanket drag technique also known as “blanket lift or blanket carry” technique is an effective method for loading or moving a casualty in a confined space. This technique can be used to transport suspected spinal injured casualties with correct immobilization of the spine and with particular attention paid to the head and neck. This ‘blanket carry’ can also be used as an improvised stretcher for carries over moderate distances. This technique involves four or six rescuers.

b) Procedure

- Make a stretcher ready using one blanket.
- Roll a blanket lengthways for half of its width and lay the rolled section along the side of the casualty (casualty flat on back).
- The leader then directs two (or three) rescuers to kneel down on each side of the casualty.
- The rescuers on one side ease the casualty over on one side and the rolled section of the blanket is pushed well underneath the casualty.
- With the rolled up section of the blanket now under the center of the casualty, the casualty is eased over in the opposite direction and the blanket is unrolled. The casualty should now be lying flat on their back.
- The sides of the blanket are rolled up close to the casualty’s body to provide handgrips for the bearers.
- On the order from the leader, the casualty is lifted waist high, and carried to the stretcher.
- On the order from the leader, the casualty is lowered onto the stretcher.
- The blanketing is then completed with one blanket, leaving the lifting blanket in position.

Self assessment 7.13

In your class, make groups of seven students. One student will play the role of casualty while other students will be rescuers; then perform the “Blanket drag” evacuation technique

End unit assessment 7

From question 1-9; Select the best answer, only one option is accepted:

- 1) It is critical to know background information about the patient you are transporting because:
 - a) It helps you remain proactive in the prevention of injury
 - b) It can help you do your job better
 - c) Such information can help to diagnose the patient
 - d) You might have to relay the information to someone else
- 2) A technique/method where rescuer 1 grasps the victim from behind at the midsection while the other rescuer grasping the outside of the knees is.
 - a) Two-Person Carry by arms and legs
 - b) Ankle Pull
 - c) Blanket Drag
 - d) Two Handed Seat
- 3) The following are the methods in carrying and transporting a victim EXCEPT?
 - a) fighters carry
 - b) shoulder pull
 - c) ankle pull
 - d) chair carry
- 4) In Fire Fighters Carry, the victim is carried over one _____
 - a) knee
 - b) arm
 - c) shoulder
 - d) leg

5) What technique/method is shown in the image below?



- a) Four handed seat
 - b) One-person carry
 - c) Ankle pull
 - d) Shoulder pull
- 6) Which of the following technique is the best in moving downstairs a casualty who has head or spinal injuries.
- a) Blanket drag
 - b) Chair carry
 - c) Rope carry
 - d) Crutch carry
- 7) A technique/method of carrying where in rescuers get on both sides of the victim is.
- a) Hammock Carry
 - b) Chair Carry
 - c) Three Person Carry
 - d) Two Handed Seat
- 8) This carry allows the victim to swing their leg using the rescuers as a pair of crutches.
- a) Blanket Drag
 - b) Human Crutch
 - c) Hammock Carry
 - d) Crawling Technique

- 9) What type of carry is desirable for picking up persons and carrying abreast in a straight for passing through a narrow place?
- a) Four-man carry
 - b) Three-man hammock carry
 - c) six-man carry
 - d) Three man carry from one side

Open questions

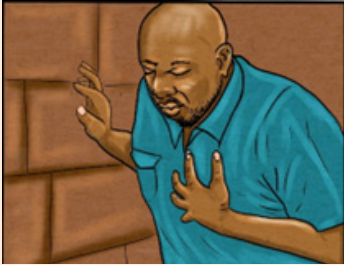
- 1) What are the precautions to consider before carrying the casualties with two arms?
- 2) Explain the method of two-handed seat:
- 3) Describe the steps to follow when performing the technique of human crutch Carry?
- 4) Clarify things to consider before attempting carrying the victim with two arms and legs
- 5) List and explain the methods used to sort or selecting the victim evacuation in order of priority
- 6) Explain with description the technique of fireman's carry.
- 7) Describe the method of blanket drag technique for victim evacuation

Key unit competence

Take appropriate action based on findings of nursing assessment of cardio vascular system

Introductory activity 8.0

Observe the image below and respond to the asked questions;



A



B



C

1. Look on the image A and interpret the status of the client?
2. Look on image B:
Where are these two people?
What is the person with white coat doing?
3. What is the relationship between B and C

8.1. Specific history taking on cardiovascular system

Learning activity 8.1



1. The images above show the nurse and the client who is complaining for heart problems.
 - a) What are the chief complaints the client may present while consulting the nurse?
 - b) Outline the questions a nurse will ask to the client for more understanding the client's heart's problems?
2. Explain why the history taking is important for cardiovascular assessment?

8.1.1. Specific history taking on cardio vascular system

Among the assessment techniques essential to valid diagnosis, performing a fact-finding history is a key. To obtain adequate history, providers must be well organized attentive to the patient's verbal and nonverbal language and able to accurately interpret the patient's responses to questions.

In many instances, the history may be more telling than the physical examination. It is important to take a deep history for signs and symptoms of heart diseases but also to alert the patient to the need for lifestyle education. The evaluation regarding smoking, hypertension, exercise habits, diet, profession and personal life behavior should be conducted. Many complaints are to be investigated like chest pain, pressure or heaviness, left arm or jaw pain or numbness, dyspnea on exertion, cough, paroxysmal dyspnea, hemoptysis, syncope, palpitations, fatigue and edema. Complaints indicating peripheral vascular diseases such as claudication, skin changes especially in the lower extremities, dependent edema, or pain, also should be investigated.

Determine the date of the last chest x-ray and electrocardiogram (EKG). Inquire about comorbid conditions or other factors that may increase the patient's risk for heart disease and peripheral vascular diseases.

c. Past Medical History

History of heart disease includes any previous diagnoses of congenital heart disease, murmurs, palpitations, arrhythmias, abnormal EKGs, acute coronary syndrome, **angiography** (Angiography or arteriography is a medical imaging technique used to visualize the inside, or lumen, of blood vessels and organs of the body, with particular interest in the arteries, veins, and the heart chambers), **angioplasty** (is a minimally invasive endovascular procedure used to widen narrowed or obstructed arteries or veins, typically to treat arterial atherosclerosis), **stent placement** (A stent is a tiny, expandable metal mesh coil put into the newly opened area of the artery to help keep the artery from narrowing or closing again), or **coronary artery bypass graft** (is a surgical procedure to restore normal blood flow to an obstructed coronary artery).

In summary: Note whether there have been any heart attacks, any history of angina and any cardiac procedures or operations (type and date of intervention and outcome). Previous levels of lipids if ever checked or known. Ask whether there is any history of rheumatic fever or heart problems as a child.

d. Family History

Family history is particularly important for cardiac assessment because hypertension, hyperlipidemia, and other vascular diseases often have a familial association that is not easily ameliorated by lifestyle changes. If there are deaths in the family related to cardiovascular, determine the age and exact cause of death, because cardiovascular disease at a young age in the immediate family carries an increased risk compared with cardiovascular disease in an elderly family member.

Ask about sudden death, which might indicate a congenital disease such as “**Marfan’s syndrome**” which is an inherited disorder that affects connective tissue. This is especially important to ask during pre-sports physicals because sudden death in athletes is often related to congenital or familial heart disease.

8.1.2. Cardiovascular review of symptoms

The review of cardiovascular symptoms is a list of questions, arranged by cardiovascular system, designed to uncover dysfunction and disease within that system. A thorough history is vital for the diagnosis of patients with issues such as chest pain, heart failure symptoms, palpitations or syncope. The most essential questions for cardiovascular system review include the following:

- Have you had any **shortness of breath**? Describe features.
- Do you have **chest pain** or discomfort?
- Do you notice that **your heart is beating faster**? Are you having skipped or **extra beats**?
- Have you had a **loss of consciousness**?
- Have you noticed any **swelling** in your feet, legs, or hands?
- Have you been especially **fatigued** or **tired**?
- Do you have **blood in your expectoration**?
- Have you had difficulty **sleeping**? How many pillows do you use? Do you awaken short of breath?
- Have you noticed any **excessive sweating**? Describe features?

Shortness of breath/Dyspnea



difficulty breathing, breathlessness or a feeling of suffocation. If the patient experiences shortness of breath, record the amount of work or effort that causes this symptom. Ask about nocturnal orthopnea or related difficulty sleeping. Specifically, ask about the number of pillows the patient uses to sleep and about the sleeping position. A patient may use no pillows and rest comfortably only in a

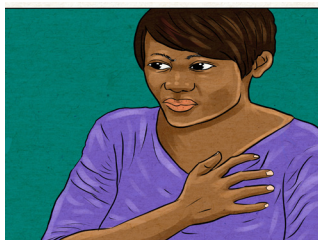
recliner. Shortness of breath is described as an intense tightening in the chest, air hunger

Chest pain



Chest pain is a sensation of pressure or a squeezing sensation, especially after exertion; the coronary arteries supply blood to the heart muscle. A blockage in one of the coronary arteries results in decreased blood supply, and, when the lesion becomes significant, myocardial ischemia and chest pain occur.

Palpitation



Subjective sensation of conscious perception of heart beats. Palpitations are characterized by an awareness of the beating of the heart. A sensation that the heart is racing, pounding, fluttering or skipping a beat, often bothersome, but hardly ever a sign of heart disease

Syncope



Transient loss of consciousness in seconds or minute but is not coma. Objective symptom which consists in loss of consciousness with preserved vital signs or their short term abolition (3-4 minutes), due to temporarily decreased cerebral perfusion.

Fatigue



This is a common symptom of decreased cardiac output. Fluid may accumulate in organs and dependent areas as a result of problems with blood flow.

Hemoptysis



Hemoptysis is the coughing up of blood from the lungs. Before using the term “hemoptysis,” the source of bleeding should be confirmed by both history and physical examination. For patients reporting hemoptysis, the volume of blood produced is also assessed. Hemoptysis is confirmed by the presence of Cough, Sputum, Alcalin PH, and Alveolar macrophage

Orthopnea



Patients with heart failure may have fluid in their lungs, making it difficult to breathe when flat. They may wake up suddenly as the fluid is redistributed from edematous legs into the lungs, typically after a few hours of sleep. They may awaken feeling tired, anxious, or restless

Diaphoresis



Nighttime diaphoresis or having the power to increase sweating is associated with tuberculosis. Diaphoresis in response to exercise or activity may be related to cardiac stress.

Edema



Edema is defined as a clinically apparent increase in the interstitial fluid volume. A detectable excess of fluid in the interstitial spaces, is most commonly located in the ankles and feet and is referred to as peripheral or ankle edema. Edema may be localized or generalized distribution.

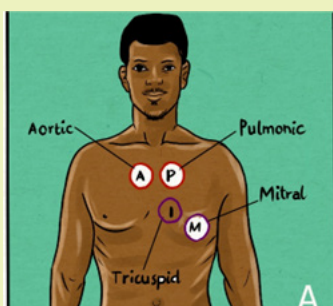
Self-assessment 8.1

1. In case the client consults the health care provider for cardiovascular problems, the health care provider should take a family history for the following reason:
 - a) Family history taking concludes the cardiovascular diagnosis
 - b) Cardiovascular diseases often have a familial association that is not easily ameliorated by lifestyle changes Exposure to outdoor allergens.
 - c) The families who have cardiovascular diseases history have the risks to have also respiratory diseases
2. Cardiovascular past medical history involves the following except:
 - a) The history of congenital heart diseases
 - b) Cardiovascular exams taken (angiogram and electrocardiogram)
 - c) The habit of physical exercises
3. A clinically apparent increase in the interstitial fluid volume and detectable excess of fluid in the interstitial spaces is most commonly located in the ankles and feet and is referred to as:
 - a) General distributed edema
 - b) Central edema
 - c) Peripheral edema
4. The following are attitudes of health care provider to obtain adequate history:
 - a) The provider must be well organized
 - b) The provider must be attentive to the patient's verbal and non verbal response
 - c) The provider must be able to interpret patient's response to asked questions
 - d) All the above
5. During cardiovascular specific history taking the questions should include the following:

- a) Smoking and diet
- b) Exercise habit
- c) History of intestine disorders
- d) Profession and personal life behavior
- e) A, B, D are true

8.2. General physical examination of cardiovascular system

Learning activity 8.1



A



B



C



D

Analyze carefully the following images and respond to the questions below;

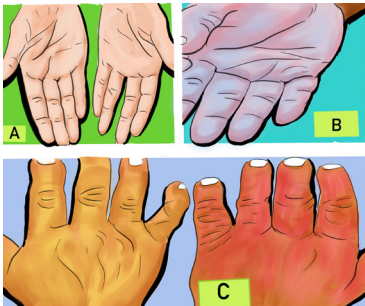
The above images show the physical examination of cardiovascular system;

- a) How many heart auscultation locations shown on image A
- b) The image B is showing the nurse who is auscultating the client's heart beat; name the equipment/material being used?
- c) The image C is showing the cyanosis sign which is a bluish discoloration of the skin due to poor circulation or inadequate oxygenation of the blood; recall the causes of inadequate oxygenation in blood?
- d) The nurse is touching on client's chest on image D; identify what he/she can feel on that left side of client's chest?

The patients with impaired blood circulation may become irritable, somnolent, restless, confused, or aggressive; the first step for a nurse is to conduct an initial survey to determine the degree of consciousness if the patient is attentive, cooperative, and normally oriented.

General signs of heart or circulatory disease include pallor, cyanosis, diaphoresis, edema, restlessness, and confusion. Diminished or accentuated peripheral pulses are indicative of Valvular Heart Diseases or tamponade. Jugular venous distention and hepatojugular reflux suggest an increase in right ventricular pressure.

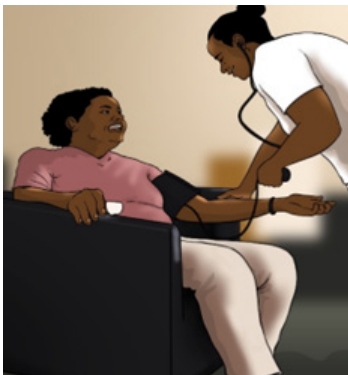
The color and temperature of extremities



Cold skin may suggest existing or new circulatory related issues. On extremities again you may assess there the numbness and tingling. One of the most common symptoms of poor circulation is **numbness and tingling** in the hands and feet. When something is restricting the flow of blood, and blood cannot reach the extremities in sufficient

During general assessment, nurse may check the person's **Color of Skin & Mucous Membrane**; this may show Cyanosis (a bluish discoloration of the skin due to poor circulation or inadequate oxygenation of the blood.) which may suggest inadequate oxygenation and CV compromise

Blood pressure



Blood pressure, heart rate and oxygen saturation: Baseline vital signs are important in any assessment. Vital signs should be compared to the patient's normal values. Patterns and trends outside of the normal range should be reported to the appropriate person

Usually hypertension is defined as blood pressure above 140/90, and is considered severe if the pressure is above 180/120.

High blood pressure often has no symptoms. Over time, if untreated, it can cause health conditions, such as heart disease and stroke.

Capillary Refill



Health care provider should think about Capillary Refill which is a rapid test used for assessing the blood flow through peripheral tissues. It's a quick test performed on the nail beds to monitor the amount of blood flow to tissues and dehydration. Release the pressure

and count how many seconds until the patient's full color returns.

- **Brisk capillary refill: < (less than) 2 seconds**
- **Delayed capillary refill: > (greater than) 2 seconds**

Edema



Edema is swelling caused by excess fluid trapped in your body's tissues. Although edema can affect any part of your body, you may notice it more in your hands, arms, feet, ankles and legs. If you have congestive heart failure, one or both of your heart's lower chambers lose their ability to pump blood effectively. As a result, blood can back up in your legs, ankles and feet, causing edema.

Jugular vein distension (JVD)



JVD is a sign of **increased central venous pressure (CVP)**. That's a measurement of the pressure inside the vena cava.

JVD should not be present in the upright position or when the head of bed is at 30-45 degrees.

Self-assessment 8.2

1. Explain why it is crucial to assess the level of consciousness to the client with cardiovascular problem firstly
2. Why Capillary Refill is performed to the patient with poor blood circulation?
3. Why it is necessary to assess the skin of patient with cardiovascular problems?
4. When you are caring the patient, you observe that he has a jugular vein distension(JVD) what is the cause of this JVD ?

8.3. Focused Physical examination of cardiovascular system and laboratory test

Learning activity 8.3

The images below illustrate the focused cardiovascular physical exam



A



B



C

1. Describe what you are observing on above images A, B and C?
2. What is common between images A and B?

I. Approach to physical examination of the cardiovascular system

While the patient is in a supine or lateral position, a focused physical examination can be used to examine the patient's chest. Inspection, palpation, percussion, and auscultation are the four steps or procedures used in the process.

A. Inspection

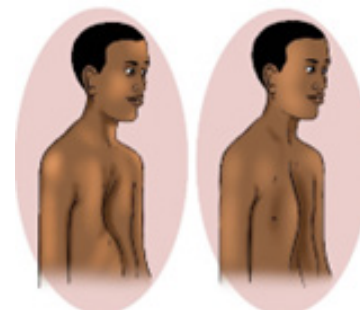
This phase/technique of assessment requires the use of the eye of health care provider to observe **the client** for pallor and extremities for cyanosis. A nurse should observe **the neck** for jugular vein. A thorough examination of the patient is required, with special attention paid to short or tall stature, which could indicate Turner's or Marfan's syndromes, both of which are connected to congenital cardiac problems.



A

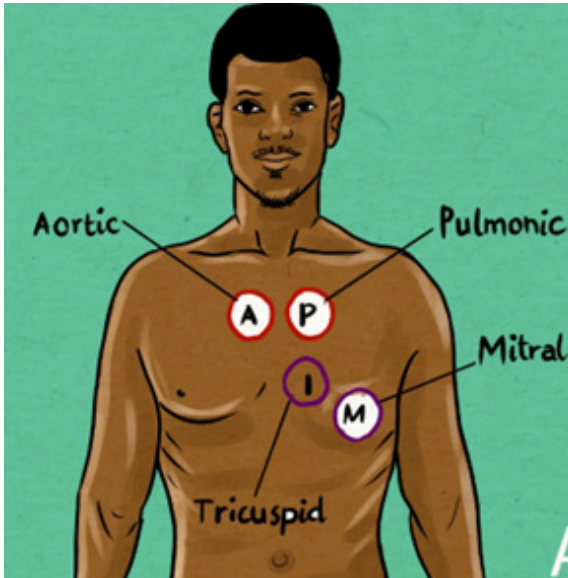


B



C

B. Auscultation



This picture is showing the Cardiac auscultation locations

The most useful element of the heart examination is usually auscultation. A stethoscope is used to auscultation for heart sounds. Determine the heart's rate and rhythm first. Identify S1 (louder at the apex) and S2 (louder at the base) (heard louder at the base). The diaphragm of the stethoscope is used to identify high-pitched sounds, while the bell is used to identify low-pitched sounds. There are two normal heart sounds that should be elicited in auscultation: S1 (lub) and S2 (dub).

Auscultation of Carotid artery: A carotid bruit is a vascular sound caused by turbulent, non-laminar blood flow through a stenotic region that can be heard with a stethoscope over the carotid artery. A carotid bruit could indicate underlying artery occlusive disease, which could result in a stroke. Ask the patient temporarily to stop breathing. Look for a rushing or blowing sound a bruit. Heart sounds or murmurs coming from the chest should not be misinterpreted.

Auscultation of the heart: Listen over each of the four main heart valve areas: the aortic, pulmonary, tricuspid and mitral valve areas. They should also listen for any additional sounds such as clicks, and heart murmurs which are not normal.

Murmurs are produced by blood flow turbulence and are more prolonged than heart sounds; they may be systolic

Rubs are high-pitched, scratchy sounds often with 2 or 3 separate components, which may vary according to body position; during tachycardia, the sound may be almost continuous.

Location of heart auscultation points

Auscultation point	Location	Sound
Aortic	Right of sternal border in second intercostal space(base)	S2 (dub)
Pulmonic	Left of sternal border in second intercostal space(base)	S2 (dub)
Erb's point	Left of sternal border in third intercostal space	S1 and S2 (Line of separation between base and apex)
Tricuspid	Left of sternal border in fourth intercostal space(Apex)	S1 (lub)
Mitral	Midclavicular on left side of chest in fifth intercostal space(Apex)	S1 (lub)

C. Palpation



A



B

Palpation of carotid artery is performed by placing the fingers just medial to the trachea and below the angle of the jaw. The pulse should be regular in rhythm and have equal strength in the right and left carotid arteries. Don't palpate both carotid arteries at the same time or press too firmly. If you do, the patient may faint or become bradycardia.

Palpation of a sustained apical or ventricular impulse can provide information on heart size.

- The apex beat, also known as the point of maximal impulse (PMI), corresponds to the lower left heart border. It is the most inferior and lateral position that the cardiac impulse can be felt.
- Locate the PMI in the fifth intercostal space in the mid-clavicular line by counting down from the second intercostal space adjacent to the angle of Louis.

- Palpate with the first two fingers.
- If this cannot be palpated, ask the patient to lie on his/her left side.
- The apex beat will be displaced laterally if the heart is enlarged (cardiomegaly).
- Next, palpate for heaves and thrills (a thrill is a palpable murmur).
- Place the palm of the hand in each of the four heart zones in the pre-cordium and then on the upper left and right chest wall. A thrill feels like a vibration or buzzing underneath your hand.
- Place the hand at the left sternal edge. A parasternal heave is a sign of right ventricular enlargement and feels like a “lifting feeling” under the hand.
- Assess for jugular venous distention by palpating the liver while breathing deeply because this may cause **hepatojugular reflex** which is the distension of the neck veins caused by applying forceful pressure to the liver.
- Feel the peripheral pulses at the femoral, popliteal, anterior tibial, and dorsalis pedis locations.

D.Percussion:

Involves tapping on the surface of the body in order to determine the underlying structure. Because of its limited sensitivity, percussion of the heart borders is rarely used; it is replaced by x ray

II.Laboratory tests and Interpretations

Cardiovascular screenings can detect issues in major arteries before symptoms develop, lowering the risk of heart attack, stroke, aneurysm, heart disease, and other dangerous diseases. These laboratory tests are helpful in diagnosing, monitoring, and treating a variety of health conditions, including heart disease.

1. Lactate dehydrogenase (LDH), normal value: 45–90 u/L

the significance is that is damaged, an enzyme is released. Hemolytic conditions, hyperthyroidism, kidney illness, stomach cancer, and megaloblastic anemia can all cause an increase.

2. Creatine phosphokinase (CPK), Normal value: 55–170 u/L for men; 30–135 u/L for women

CPK is elevated in MI but not specific to myocardial damage. Also seen with skeletal muscle damage owing to excessive exercise or rhabdomyolysis.

3. Creatine kinase-myocardial band (CK-MB), normal value: 0–3 ng/mL

the significance is This cardiac is enzyme is most sensitive in detecting myocardial injury within the first 3 to 8 hours after onset of ischemia symptoms.

4. Troponin I (cTnI)

The normal value is < 0.35 ng/mL. This index is useful in the diagnosis of acute myocardial injury. After 4 hours, it is equally as sensitive as CK-MB for up to 48 hours. Troponin I remains elevated longer than CK-MB and is more cardiac specific.

5. Troponin T (cTnT), normal value: <0.2 mg/L

The sensitivity of cTnT for detecting acute MI is 100% from 10 hours to 7 days after onset. The sensitivity begins to decrease after 7 days.

6. Potassium (K⁺), normal value:

3.5–5 mEq/L. Above all, high K⁺ levels can lead to ventricular fibrillation. Wider P waves, peaked T waves, expanded QRS complex, depressed ST-segment, and heart block are further EKG alterations. Inverted T waves, U waves, and a depressed ST segment are all symptoms of low K⁺. Patients with low K⁺ levels are at risk of digitalis toxicity.

7. Sodium (Na⁺), Normal value:135–145 mEq.

Na⁺ is important for fluid balance particularly when dehydration may be an issue or in heart failure, where Na⁺ less than 130 indicates a poor prognosis.

8. Calcium (Ca⁺), normal value: 8.5–10.6 mg/dL

The hypercalcemic effects on the heart include shortening of the QT interval and atrioventricular block. The effect of hypocalcemia is prolongation of the ST-segment.

9. Glucose, normal value: 70–100 mg/dL

Changes in blood glucose can have indirect effects on the heart. Diabetes significantly increases the risk for MI and hyperlipidemia.

10. Creatinine, normal value: 0.6–1.2 mg/dL

Chronic renal illness can raise blood pressure, increasing the risk of cardiovascular and cerebrovascular disease over time. When prescribing certain drugs for hypertension and heart failure, such as ACE inhibitors and diuretics, the level of creatinine is also significant. If the creatinine level is higher than 1.5, a loop diuretic should be used instead of a thiazide diuretic.

11. Cholesterol, normal value: Total, < 200 mg/dl, LDL, < 130 mg/dL HDL, > 40 mg/dL

Increased total and LDL cholesterol, as well as lower HDL, raise the risk of coronary artery disease. Obesity, thyroid problems, or a high-fat diet may be the cause, which can be hereditary or acquired.

12. Triglycerides, normal value: < 150 mg/dL

Elevated levels increase the risk for heart disease.

13. Thyroid-stimulating hormone (TSH), normal value: 0.4–4.2 mIU/L

Hypothyroidism in the elderly may lead to the development of HF. In adults over the age of 50, hyperthyroidism can manifest as atrial fibrillation or other arrhythmias.

14. Hemoglobin (Hgb), normal value: 11.5–15 g/dL

Many types of cardiac disease can cause or be caused by anemia.

15. Hematocrit (Hct), normal value: 34%–44%

Anemia may be a cause or a result of many forms of heart disease.

16. Oxygen saturation, normal value: 95%–97%

Pulse oximetry can be used to assess clinical state in individuals with severe myocardial injury and HF.

Self-assessment 8.3

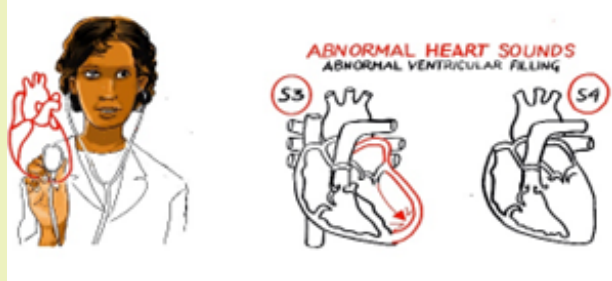
1. Explain element which is most useful during cardiovascular physical examination
2. Patient with cardiovascular problem may have hypoxia, what will you focus on the skin during inspection
3. Explain why it is important to know Hemoglobin to the patient who have cardiovascular problems
4. What do you understand with the term hepatojugular reflex

8.4. Interpretation of specific findings on cardiovascular system

Learning activity 8.4



A



B

C

The above images B and C show the abnormal hearts and a nurse who is interpreting heart sounds with stethoscope;

- 1) Recall the heart normal findings from auscultation
- 2) Recall the heart normal findings from inspection
- 3) List the cardiovascular abnormal findings from palpation

The image A is showing a nurse taking hematologic sample;

- 1) What is normal value of hemoglobin?
- 2) What is the condition which can cause a decreased level of hemoglobin?

8.4.1. The normal findings and abnormal findings from cardiovascular physical examination

Physical exam	Normal findings	Abnormal findings
INSPECTION	No scar on chest No deformity on neck and chest	Pallor or cyanosis Edema Visible heave visible neck veins(distended) Jugular venous distention Bounding pulse
AUSCULTATION	Sounds are lub-dub, lub-dub	Sounds are Murmurs Gallops or rubs (S 3 and S4) Friction rubs

PALPATION	Normal skin temperature and well perfused Normal pulsation Regular pulse	Increasing /decreasing or absent of pulse Palpable heaves Irregular pulse Extremities are warm and cold Thrills
PERCUSSION		Dullness on cardiac area

8.4.2. Normal heart sounds

Normal heart sounds are S1 and S2. Identify S1 as lub and S2 as dub. S1 is heard in the tricuspid area. S2 signals the end of systole and beginning of diastole as the aortic and pulmonic valves close.

S1 is generated by vibrations created by the closing of the mitral and tricuspid valves in the heart. When the two ventricles contract and pump out blood into the aorta and pulmonary artery, these valves close to prevent the blood flowing back into the atria.

The ventricles relax to receive blood from the atria after pumping blood, and the diastole phase begins. The second heart sound, S2, is produced when the aortic and pulmonic valves close and induce vibrations. The increase in volume of this sound could suggest a number of things.

8.4.3. Abnormal heart sounds

A heart murmur is an unusual sound heard between heartbeats.

A murmur is a blowing, whooshing, or rasping sound that occurs during your heartbeat.

S4 in late diastole, right before S1, sounds like “lub-lub dub.” It is usually abnormal.

The third heart sound is a low-pitched sound audible with the rapid rush of blood from the atrium into the ventricle as it starts relaxing. This may be a normal sound in some people but in people with heart conditions, S3 may indicate heart failure

A low intensity sound heard right before S1 in the cardiac **cycle is the fourth**. This sound is caused by the ventricle’s rapid slowing of blood flow as the atrial contracts, which could be a sign of heart disease.

8.4.4. Abnormal percussion sounds

Dullness: Indicates a solid structure on the heart with a fluid-filled area occur due to dilation of the heart chambers and to a lesser extent due to thickening (hypertrophy) of myocardial wall. Also, it can occur to patient with pericardial effusion.

8.4.5. Abnormal findings from inspection

Chest deformity (in case of marfan syndrome) With Marfan syndrome, the heart muscle may enlarge and weaken over time, causing cardiomyopathy, even if the heart valves are not leaking.

Jugular vein distension: due to the increased pressure of the superior vena cava causes the jugular vein to bulge, making it most visible on the right side of a person's neck.

Clubbing of Nails: This is due to chronic low blood-oxygen levels.

Edema: When the heart's diseased or overworked left ventricle (heart's lower chamber) isn't able to pump out enough of the blood it receives from the lung

Pallor: This is due to the decreased blood supply to the skin.

8.4.6. Abnormal findings from palpation

Bruits: While you are palpating each carotid artery medial to the sternomastoid muscle in the neck. Those bruit are (swooshing sounds similar to the sound of blood pressure) result from turbulent blood flow related to atherosclerosis.

A thrill: a vibratory sensation felt on the skin overlying an area of turbulence and indicates a loud heart murmur usually caused by an incompetent heart valve.

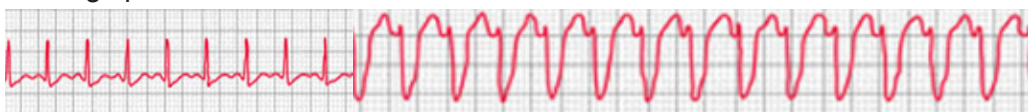
Irregular pulse: This can be due to current heart attack or scarring from a previous heart attack, blocked arteries in the heart (coronary artery disease), and Changes to the heart's structure, such as from cardiomyopathy, diabetes, high blood pressure.

Bounding pulse: The pulse will probably feel strong and powerful if you have a bounding pulse. You may feel the pulse in the arteries of the neck or throat. Sometimes it can be seen as it moves the skin in a more forceful way.

Warm or cold extremities: due to the plaque buildup, blood clots or narrowed blood vessels which lead to poor circulation. When obstacles or narrow paths slow down blood flow, it's difficult for the body to send blood to every part of your body in an efficient way.

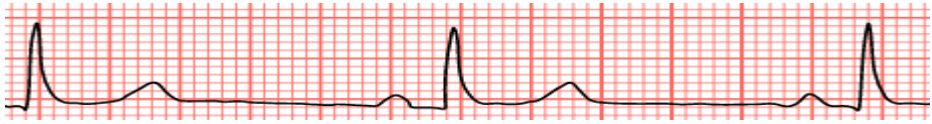
8.4.7. Abnormal cardiovascular pattern

Tachycardia: Excessive cardiac frequency, high to the normal, more than 100 beatings per minutes for adult



Tachyarrhythmia: when heart beat is fast and irregular.

Bradycardia: Low heartbeat rate, less than 60 beatings per minute for an adult person



Bradyarrhythmia: when heart beat is slow and irregular.

Dysrhythmia or arrhythmia: a pulse with an irregular rhythm

Bounding pulse or dense pulse: When the power of beating is exaggerated, that means strong contractions, blood volume increases strongly, strong beatings as "knock"

Falling, weak, depressed or thready pulse: When the pulse becomes difficult to feel, that it is hardly audible, that means that the power of the beating is lower than normal.

Self-assessment 8.4

1. Examination of a patient in spine position reveals distended jugular vein from the base of neck to the angle of jaw. This finding indicates:
 - a) Increased pulmonary pressure
 - b) Middle site heart failure
 - c) Increased central venous pressure
 - d) Decreased venous return
2. When you are auscultating the patient heart rate and rhythm you detect twice an irregular heart beat. You should :
 - a) Document this normal findings
 - b) Schedule the patient for another appointment
 - c) Assess the patient for sign and symptoms of lung diseases
 - d) Refer the client to a physician
3. The sound generated by the turbulent flow of blood within the heart is:
 - a) S1
 - b) Murmur
 - c) S2
 - d) Diastole

8.5. Identification of client's problems and nursing interventions based on client's problems

Learning activity 8.5

Analyze carefully the following images and respond to the questions below;



A



B

Question 1: Describe the image A about different observations hosted in it?

Question 2: Relate the observations of image A with cardiovascular problems identification?

Question 3: What are different nursing interventions are observed on image B and their relation with cardiovascular system ?

8.5.1 Cardiovascular client's problems

Cardiovascular diseases are conditions that affect the structures or functions of heart; cardiovascular diseases are the leading cause of death. It is important for a nurse to know about hearts' problems in order to prevent, assess or provide nursing interventions to patients who have different heart's problems.

Types of cardiovascular diseases can have various causes; it is better to know their difference;

a. Abnormal heart rhythms or arrhythmias

The heart is an amazing organ. It beats in a steady, even rhythm, about 60 to 100 times each minute. That's about 100,000 times each day. Sometimes your heart gets out of rhythm. Your doctor calls an irregular or abnormal heartbeat an arrhythmia. An arrhythmia (also called a dysrhythmia) can bring on an uneven heartbeat or a heartbeat that is either too slow or too fast.

b. Aorta disease and Marfan syndrome

The aorta is the large artery that leaves your heart and brings oxygen-rich blood to the rest of your body. The number of conditions can cause the aorta to widen or tear. This raises the chance of things like: Atherosclerosis (hardened arteries), High blood pressure and Connective tissue disorders.

c. Congenital heart disease

This is a problem in one or more parts of the heart or blood vessels. It happens before birth. Genes may play a role, or it can happen if a baby is exposed to viral infections, alcohol, or drugs before it's born.

d. Coronary artery disease (narrowing of the arteries)

It's when plaque builds up and hardens the arteries that give your heart vital oxygen and nutrients. That hardening is also called atherosclerosis.

e. Deep vein thrombosis and pulmonary embolism

Blood clots can form in your deep veins, usually in your legs. This is deep vein thrombosis (DVT). They can break loose and travel through your bloodstream to your lungs, where they can block blood flow. This condition is called pulmonary embolism. It's life threatening and needs immediate medical attention.

You might be at higher risk of DVT because of your genes or family history. Other things that can increase risk include sitting for a long time, like in a car or on a plane; long-term bed rest; pregnancy; and using birth control pills or hormone replacement.

f. Heart attack

A heart attack, also called a myocardial infarction, happens when a part of the heart muscle doesn't get enough blood.

g. Heart failure

It means your heart doesn't pump as strongly as it should. This will cause your body to hold in salt and water, which will give you swelling and shortness of breath.

h. Heart muscle disease (cardiomyopathy)

This is the term for diseases of the heart muscle. They're sometimes simply called enlarged heart. People with these conditions have hearts that are unusually big, thick, or stiff. Their hearts can't pump blood as well as they should. They can lead to heart failure and abnormal heart rhythms. Cardiomyopathy may sometimes run in families, but it can also be caused by high blood pressure, diabetes, obesity, metabolic diseases, or infections.

i. Heart valve disease

Your valves sit at the exit of each of your four heart chambers. They keep blood flowing through your heart. Sometimes, there are problems with these valves

j. Pericardial disease

This condition is rare and means the lining surrounding your heart is inflamed. An infection often causes this cardiac condition.

k. Rheumatic Heart Disease

This happens when rheumatic fever, an inflammatory disease that's most common in children, damages your heart valves. Rheumatic fever starts with untreated strep throat and can affect many parts of your child's body.

l. Stroke

Strokes happen when something slows or blocks blood flow to your brain. Your brain can't get the oxygen and nutrients it needs, and brain cells start to die. When blood can't get to the part of your brain that controls a certain function, your body doesn't work like it should. A stroke can happen because of a blocked artery or a leaking or burst blood vessel. It needs immediate treatment to limit brain damage and other complications.

m. Peripheral vascular disease

Your circulatory system is made up of the vessels that carry blood to every part of your body. Vascular disease includes any condition that affects your circulatory system. These include diseases of the arteries that go to your legs (peripheral vascular disease) and slow blood flow to your brain, causing strokes.

8.5.2. Nursing interventions for a client with cardiovascular problems

Nursing Interventions

- Monitor for symptoms of heart failure. *Observe for chest pain or discomfort.
- Place patient on cardiac monitor.
- Assess blood pressure carefully
- Administer nitroglycerin with Medical Doctor order.
- Place oxygen.
- Ensure that the IV is in place for emergency use.
- Notify physician.
- Monitor edema, intake, and output.
- Weigh patient daily.
- Auscultate lung and heart sounds. *Administer diuretic with order.
- Elevate head of bed for dyspnea
- Collaborative interventions.

Self-assessment 8.5

- 1) Cardiomyopathy is the term for diseases of the heart muscle;
 - A) How is the structure of heart muscle in this condition?
 - B) List at least causes of cardiomyopathy?
- 2) Explain how **does stroke happen** and what can a nurse observe on client in case of this condition?
- 3) List the nursing interventions toward a client with cardiovascular problems?

End unit 8 assessment

Multiple choices questions

Select the bests answer, only one option is accepted:

1. Rheumatic heart disease happens when rheumatic fever, an inflammatory disease that's most common in children, damages your:
 - a) Heart valves
 - b) Heart ventricles
 - c) Heart coronary arteries
 - d) Heart coronary veins
2. This condition is rare and means that the lining surrounding your heart is inflamed. An infection often causes this cardiac condition which is called:
 - a) Heart valves disease
 - b) Heart muscle disease
 - c) Pericardial disease
 - d) Myocardopathy
3. It is important to take a deep history for signs and symptoms of heart diseases but also to alert the patient to the need for lifestyle education. The elements of lifestyle education include the following except:
 - a) Diet,
 - b) Smoking,
 - c) Exercise habits,
 - d) Number of hospitalization

4. If there are deaths in the family related to cardiovascular, the history taking should determine the age and exact cause of death because:
 - a) Cardiovascular disease at a young age have low impact in family
 - b) Cardiovascular disease at a young age has a chance to be cured
 - c) Cardiovascular disease at a young age carries an increased risk in family
 - d) Cardiovascular disease in an elderly family member carries an increased risk in family
5. Which instrument is used to listen to the heart sounds of the human body?
 - a) Sphygmomanometer
 - b) Reflex hammer
 - c) Stethoscope
 - d) Heart scope
6. While palpating the apex, left sternal border, the base in an adult client, you detect a thrill. You should further assess the client for”
 - a) Pericarditis
 - b) Cardiac murmurs
 - c) Congestive heart
 - d) Left side heart failure
7. While assessing an older adult client, you detect a bruit over the carotid artery. You should explain to the client that a bruit is
 - a) A normal sound heard in adult’s patient
 - b) Wheezing sound
 - c) Heard when the artery is almost totally occluded
 - d) Associated with occlusive arterial disease
8. You are planning to auscultate a female patient for carotid arteries. You should plan to:
 - a) Ask the patient to hold the breath
 - b) Palpate the arteries before auscultation
 - c) Place the stethoscope over the artery
 - d) Ask the patient to breath as usual

9. The nurse is preparing to assess the patient with cardiovascular problem. Which phase is most used in physical assessment:
- Inspection
 - Palpation
 - Auscultation
 - Percussion
10. Bradycardia is a condition in which the pulse rate becomes greater than:
- 50 beats per minute
 - 60 beats per minute
 - 90 beats per minutes
 - None of the above

Matching questions:

- Relate the heart symptom with its meaning

Symptom	Meaning
1) Dyspnea	A) Difficult to breathe when flat.
2) Diaphoresis	B) A clinically apparent increase in the interstitial fluid volume.
3) Edema	C) Having the power to increase sweating
4) Orthopnea	D) Air hunger, difficulty breathing, breathlessness or a feeling of suffocation
5) syncope	E) Transient loss of consciousness in seconds or minute but is not coma

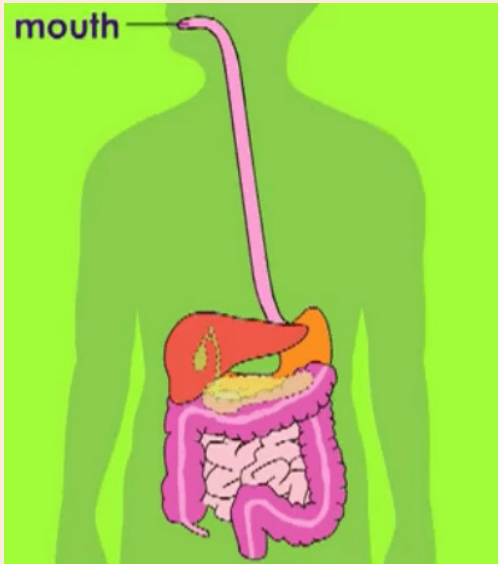
Short answer questions:

- List four symptoms of cardiovascular problems the client can present when is visiting clinic?
- Label the subjective sensation of conscious perception of heart beats?
- Recall the elements of family history a nurse should assess for cardiovascular problems?

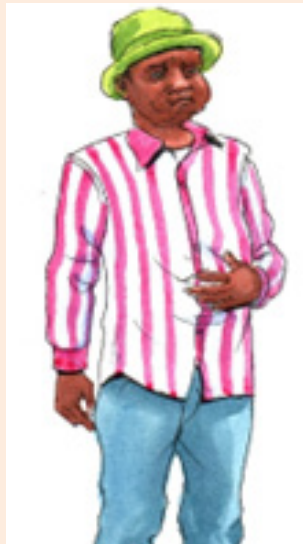
Key unit competence

Take appropriate action based on findings of nursing assessment of digestive system

Introductory activity 8



A



B

What do you think is illustrated on image a, b and c ?



C

The functions of the gastrointestinal (GI) tract and its accessory organs are essential for life. The process of digestion supplies nutrients to each and every cell in our body, therefore, if there is a disruption in any of these mechanisms, the whole body suffers.

9.1. Overview of the digestive system and terminologies used

Learning activity 9.1.

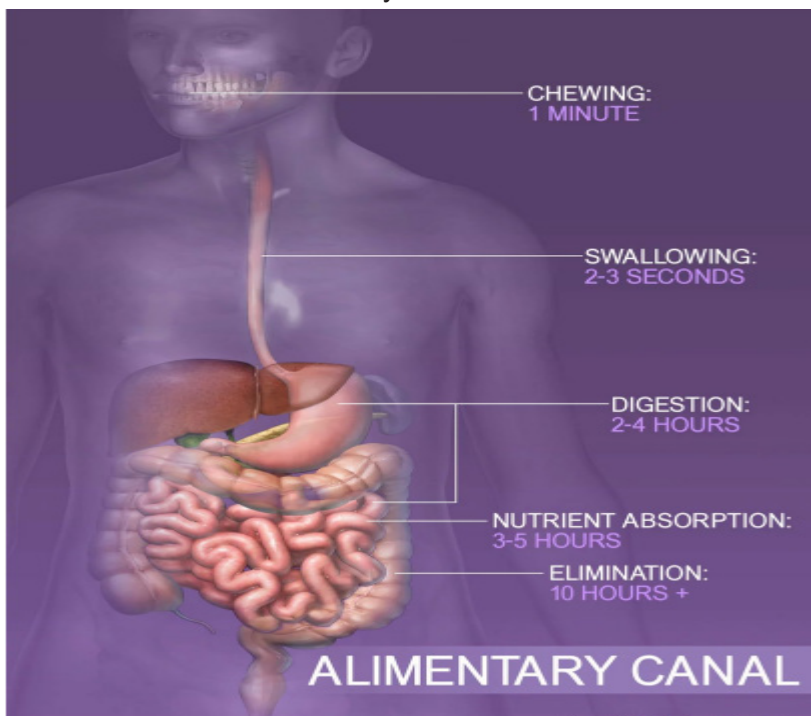
Mr. Z. underwent a surgical intervention called appendectomy.

1. Locate the appendix on the anatomic model
2. Explain the meaning of the word appendectomy.

9.1.1. Overview of digestive system

The Digestive Tract Also called the gastrointestinal (GI) tract or alimentary canal is a muscular tube which Extends from the mouth to the anus. It Passes through the pharynx, esophagus, stomach, and small and large intestines. It is composed of the upper GI tract (oral cavity, esophagus, and duodenum), lower GI tract (small intestine, cecum, colon, rectum, and anus), and associated glandular organs (gallbladder, pancreas, and liver). The digestive system is responsible for ingestion, mechanical processing, digestion, secretion, absorption, immunity and waste excretion.

The picture 9.1 illustrates the alimentary canal and the duration that each step take



9.1.2. Some of medical terminologies related to digestive system

A. PREFIXES

This section contains prefixes that are used for the medical terminology. Prefixes are used at the beginning of a word to modify or vary the meaning of the word.

SN	PREFIXES	DEFINITION
1	a-, an-	no, not, without, away
2	aut-	Self
3	brady-	Slow
4	dia-	apart, through
5	end-, endo-	within, inside
6	exo-	outside of, without
7	epi-	Above
8	hyper-	Excessive
9	hypo-	Insufficient
10	intra-	Middle
11	medio-	Within
12	normo-	Normal
13	dys-	Difficult, bad, impaired
14	peri-	Around
15	poly-	Many
16	retro-	behind, back, backward
17	tachy-	Fast

B. SUFFIXES

Suffixes are placed at the end of a word root or word part to modify or vary the meaning. Suffixes can indicate a condition, disease or a procedure.

SN	SUFFIXES	DEFINITION
1	-centesis	surgical puncture as to aspirate or remove fluid
2	-cision	process of cutting
3	-ectomy	excision (surgical removal or cutting out)
4	-gram	a drawing or a written record
5	-itis	Inflammation
6	-opsy	to view
7	-otomy	cutting into
8	-ostomy	formation of an opening
9	-plasty	surgical repair

10	-pathy	disease
11	-sclerosis	hardening
12	-scope	instrument for viewing
13	-scopy	visual examination with a lighted instrument
14	-stenosis	narrowing
15	-therapy	treatment
16	-thoracic	chest
17	-phagia	to eat or swallow
18	-megaly	enlargement
19	-emesis	action or process of vomiting

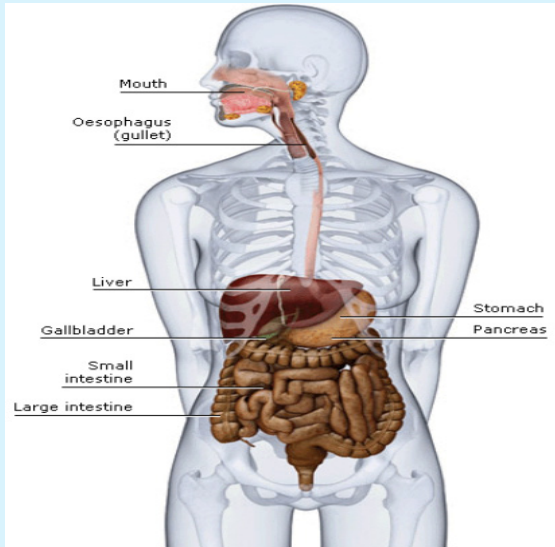
C. WORD ROOT AND COMBINING VOWEL FOR THE GASTROINTESTINAL SYSTEM

This is a list of some word roots with their combining vowel used for the gastrointestinal system.

SN	SUFFIXES	DEFINITION
1	An(o)	pertaining to the anus
2	Appendic(o)	referring to the appendix
3	Cec(o)	Pertaining to the cecum
4	Chol(e)	Bile
5	Cholangi(o)	bile duct
6	Cholecyst(o)	Gallbladder
7	Choledoch(o)	common bile ducts
8	Colon(o)	pertaining to the colon
9	Diverticul(o)	Diverticulum
10	Duoden(o)	Duodenum
11	Enter(o)	Intestine
12	Esophag(o)	Esophagus
13	Gastro(o)	Stomach
14	Hepat(o)	liver
15	Ile(o)	ileum
16	Jejun(o)	jejunum
17	Pancreat(o)	pancreas
18	Rect(o)	rectum
19	Sigmoid(o)	sigmoid colon
20	Hemat(o)	blood

Self-assessment 9.1

1. Show the main three components of the digestive system on the following image



2. Relate the terminologies with their meaning

TERMINOLOGY	DEFINITION
1. Appendicitis	a. Difficulty in swallowing
2. Colostomy	b. Vomiting of blood
3. Dysphagia	c. Inflammation of the appendix
4. Hepatomegaly	d. Surgery to create an opening from the large intestine to the surface of the abdomen
5. Hematemesis	e. Enlarged liver

9.2. History taking on digestive system

Learning activity 9.2.

Observe carefully the image below and respond to the following question



A



B

1. Predict what is happening in Image A
2. Outline the commonly reported symptoms of the gastrointestinal tract

The patient history is key to evaluating gastrointestinal (GI) tract disorders and should include the problem onset, the setting in which it developed, and its presentation. Patient warning signs and alarm symptoms should be identified quickly and when referral is needed for further evaluation and intervention, it should be obtained in a prompt manner.

The gastrointestinal tract starts from the mouth to the anus and any part of it can be affected by a pathology. The purpose of history taking is to obtain a clear and detailed picture of the patient's complaints. Therefore, it is used to narrow the focus of the diagnostic and therapeutic plan for the patient.

9.2.1. History of presenting complaint

The Healthcare provider who is going to take the patient history will wash the hands, introduce him/her(self) to the client, have the client's names and date of birth, have the consent and ensures that the client is in a comfortable seating.

Every sick person presents at the consultation room for a certain reason; that reason for looking care is the presenting complaint (s).

In order to elicit the client's presenting complaint, it is recommended to allow the client time to answer, try not to interrupt or direct the conversation, and help the client expand on their PC (Presenting complaint).

There are a many GI (Gastro intestinal) symptoms and some can be specific to the upper GI tract, some to the lower GI tract and others can be specific to the hepatobiliary system.

a. Common symptoms of the gastro intestinal tract

A variety of symptoms can arise from Gastro intestinal tract (GIT) dysfunction.

SN	SYMPTOMS	EXPLANATIONS
1	<i>Nausea</i>	Spontaneous sensation of the need to vomit, it is not necessarily accompanied by vomiting
2	<i>Vomiting</i>	or emesis is clinically defined as the oral eviction of gastrointestinal contents, due to contractions of the gut and the thoraco-abdominal muscles. This is somehow different from regurgitation which is defined as egression of gastric contents to the mouth effortlessly.
3	<i>Hematemesis:</i>	Vomiting blood, which may be obviously red or have an appearance similar to coffee grounds.
4	<i>Heartburn</i>	Despite its name, heartburn does not affect the heart, it is a burning sensation in the chest, behind the breastbone. It occurs when stomach acid travels back up in the esophagus.
5	<i>Dysphagia</i>	Difficulty swallowing
6	<i>Odynophagia</i>	Painful sensation in the oesophageal region that occurs in relation to swallowing
7	<i>Diarrhea</i>	Diarrhea is loose, watery stools (bowel movements). You have diarrhea if you have loose stools three or more times in one day.
8	<i>Constipation</i>	Constipation means that a person has three or fewer bowel movements in a week. The stool can be hard and dry. Sometimes it is painful to pass.
9	<i>Dyspepsia</i>	Mild discomfort in the upper belly or abdomen. You may also feel nauseated, or even throw up.
10	<i>Abdominal pain</i>	Pain in the abdomen
11	<i>Hematochezia</i>	The passage of fresh blood per anus, usually in or with stools.
12	<i>Melena</i>	The passage of black, tarry stools
13	<i>Hematochezia</i>	The passage of fresh blood per anus, usually in or with stools
14	<i>Altered bowel habit</i>	Bowel habits are the time, size, amount, consistency and frequency of bowel movements throughout the day.

15	<i>Jaundice</i>	Also known as icterus, is a yellowish pigmentation of the skin, mucous membranes and whites of the eyes due to high bilirubin levels.
16	<i>Weight loss</i>	A measurable decline in body weight (BW) either intentionally or from malnutrition or illness.

In addition to collecting information on current complaints, a thorough patient history should gather information concerning medical history, social and family history, and current medications. The healthcare professional should ask guided questions focused on determining the symptom's onset, location, severity, and duration, setting in which symptoms developed, aggravating and alleviating factors, and associated symptoms of the complaint.

The symptom **onset** often provides important information that helps formulate a differential diagnosis. For example, biliary colic or pain, such as that encountered with symptomatic gallstone disease, typically evolves over minutes and is present for hours, but pain caused by pancreatitis evolves over hours and lasts for days.

Also, the **setting** is always relevant as it provides clues to the possible origin of the disorder. For example, in the patient with complaints of reflux or ulcer disease, obtaining information as to whether the pain is alleviated or worsened by food or diminished when administered acid-suppressive therapy can help guide diagnostic and therapeutic interventions. For instance, ingesting a meal often relieves the pain of duodenal ulcer, but worsens pain due to a gastric ulcer.

During History taking, the healthcare professional should ask questions that address potential etiologic possibilities, including motility disorders, structural diseases, malignancies, infections, psychosocial factors, dietary factors, and travel-associated diseases.

Furthermore, a good cardiopulmonary history is also extremely relevant and should be performed during the overall history. Questions concerning medical and family history detailing illnesses, surgical interventions, injuries, foreign travel, living conditions, and habits are valuable.

Always end by discussing the patient's **ideas, concerns & expectations(ICE)**. The following questions may be asked:

1. *Do you have an idea about what could be going on?*
2. *Is there anything that is worrying/concerning you at the moment?*
3. *Is there anything you were hoping for from this consultation?*
4. *Do you have any further questions today?*

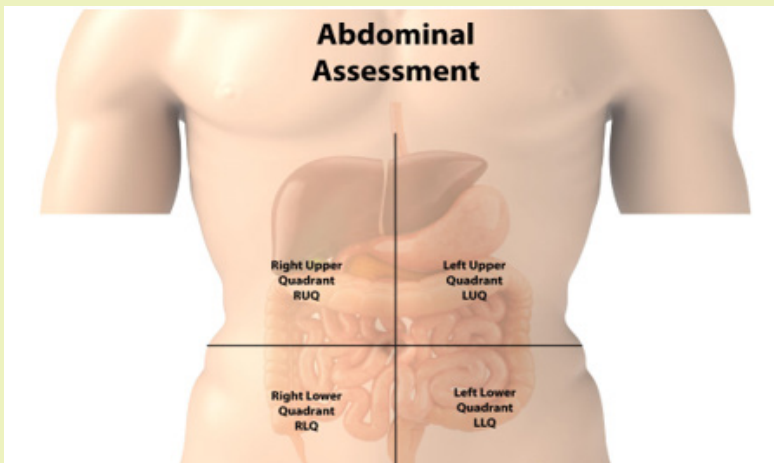
Self-assessment 9.1

Watch a video of history taking and do a role play in pairs of history taking on digestive system

9.3. Physical examination of digestive system

Learning activity 9.3.

The image illustrates the four quadrants of the abdomen that guide during physical assessment



1. List the materials that might be needed for abdominal physical assessment
2. Indicate the techniques which can be used for abdominal physical assessment.

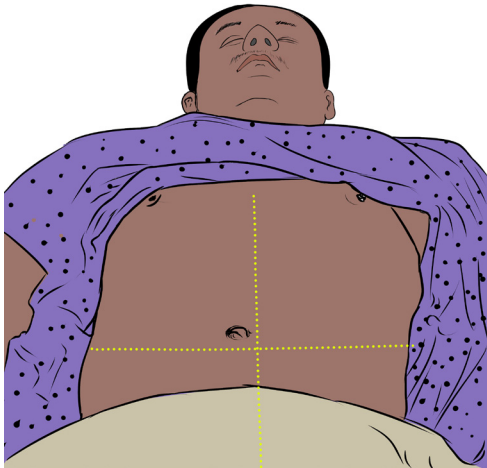
A comprehensive evaluation of the patient should be performed with notable attention to physical appearances and vital signs as they may suggest signs of systemic conditions eliciting gastro intestinal (GI) symptoms.

Communication during physical examination must be respectful and performed in a culturally-sensitive manner. Privacy should be ensured, and the healthcare professional needs to be aware that postures, body language, and tone of voice are transmitting a message.

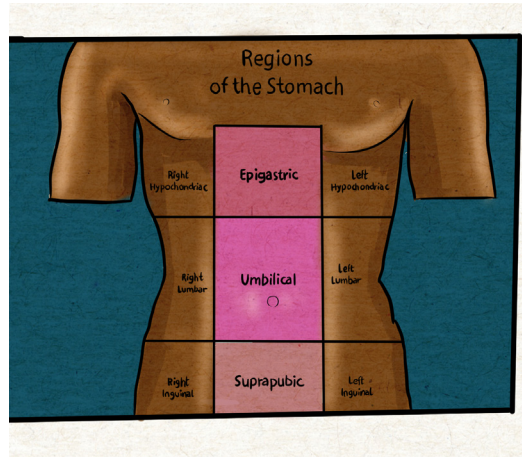
When performing a focused assessment, you will use at least one or all of the following four basic techniques during your physical exam: *inspection*, *auscultation*, *percussion*, and *palpation*. These techniques should be used in an organized manner from least disturbing or invasive to most invasive to the patient.

Inspection is first, as it is non-invasive. Auscultation is performed following inspection; the abdomen should be auscultated before percussion or palpation to prevent production of false bowel sounds. For accurate assessment of the abdomen, patient relaxation is essential. The patient should be comfortable and should have an empty bladder. The environment should include a comfortable temperature, with good light.

9.3.1. Inspection of the abdomen



i



ii

For the purpose of assessment, the abdomen can be divided into four quadrants (see image i above) or nine quadrants for descriptive purposes (see image ii above).

Inspection of the abdomen may reveal scars, hernias, masses, ascites or peristalsis.

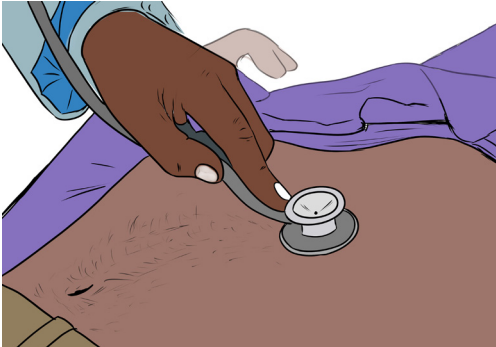
The **four quadrants** include the **right upper quadrant, left upper quadrant, right lower quadrant, and left lower quadrant**.

When assessing the abdomen, it is important to make the patient as comfortable as possible. Following are the steps for inspection of the digestive system:

1. Position the patient in a lying (supine) position with their head and knees supported by a pillow. Alternative positions are lying with knees bent or a side-lying position. Always make sure the client is in as comfortable position as possible
2. Be sure and remove the clothing or lift the gown.
3. Check the skin for any rashes, scars, lesions, masses or bulges, surgical incision....
4. Inspect the contour of the abdomen, is the abdomen flat, rounded, scaphoid, or protuberant?

5. Inspect the abdomen for symmetry. The abdomen should be symmetrical bilaterally. Inspect the umbilicus.
6. Check for any types of equipment such as G-tube, drains,

9.3.2. Auscultation of the abdomen



Auscultation of the abdomen should always be done after inspection and before percussion and palpation as they can alter the bowel sounds.

Auscultation should begin in the right lower quadrant. If bowel sounds are not heard, in order to determine if bowel sounds are truly absent, listen for a total of five minutes. It is suggested that you

listen to bowel sounds for a full minute before determining if they are normal, hypoactive, or hyperactive. An example of a video demonstrating abdominal auscultation can be viewed at: <http://www.youtube.com/watch?v=oCsNpzEQ4OA>

Following are the steps for auscultation of the digestive system:

1. Use the diaphragm of the stethoscope and apply light pressure.
2. Auscultate the abdomen in all four quadrants.
3. Listen for bowel sounds, noting the characteristic and frequency.
4. Listen for bruits or any vascular sounds.

9.3.3. Percussion of the abdomen



Percussion of the abdomen is used to assess for the amount of gas in the abdomen. Also, it can be used to identify organs, masses or to elicit tenderness and sounds that give clues to underlying problems.

Percussion can help estimate the size of the liver or spleen. Percussion of the abdomen allows for detection of tympany, measurement of visceral

size, and detection of ascites. It is may be difficult to percuss the liver as most of it is covered by the ribcage. Dullness is heard when percussing the liver through intercostal space. The spleen's percussion is easier when it enlarges. It usually extends forward, downward and to the sides. The abdomen is percussed in all four quadrants to assess areas of tympany and dullness.

Tympany is usually heard over a gas-filled area while dullness is heard over solid masses or organs.

Following are the steps for auscultation of the digestive system:

1. Press the distal part of the middle finger of your non-dominant hand firmly on the body part.
2. Keep the rest of your hand off the body surface.
3. Flex the wrist, but not the forearm, of your dominant hand.
4. Using the middle finger of your dominant hand, tap quickly and directly over the point where your other middle finger contacts the patient's skin, keeping the fingers perpendicular.
5. Listen to the sounds produced. When examining the abdomen, percuss for general tympany, liver span, and splenic dullness. Tympany should be the predominant sound when percussing the abdomen while Dullness is usually heard over solid organs or masses such as the liver, spleen, or a full bladder.

An example of a video demonstrating abdominal percussion can be viewed at: <http://www.youtube.com/watch?v=5ERuM1JDYAA>

Percussion is contraindicated in patients with suspected aortic aneurysm, appendicitis, or those who have received abdominal organ transplants

9.3.4. Palpation of the abdomen

Palpation is another commonly used physical exam technique that requires the examiner to touch the client with his/her hand(s). Palpation may allow to identify tenderness, rigidity, masses, and hernias. The client will be always asked if they have any areas of pain before beginning palpation. The painful areas are palpated last.

Palpation allows you to assess for texture, tenderness, temperature, moisture, pulsations, masses, and internal organs. Normally, there should be no tenderness on either light or deep palpation of the abdomen.

Following are the steps for auscultation of the digestive system:

a. To lightly palpate the abdom



Light palpation

1. With the fingers together, place the hand flat on the abdomen.
2. Lightly palpate the abdomen using a dipping motion.
3. Raise the hand off the skin while moving from one place to another.

2. Palpate all four quadrants.
3. Check for tenderness.
4. Palpate for any superficial organs or masses.
5. Notice if the patient is guarding while palpating.

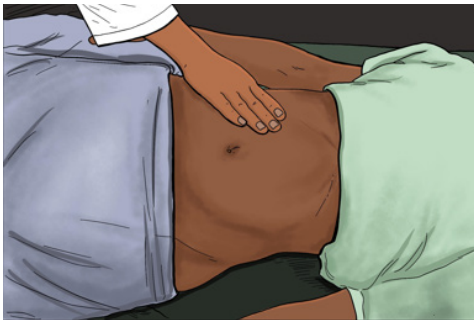
b. To deeply palpate the abdomen:



Deep palpation

1. Use the palmer side of the hand.
2. Palpate all four quadrants.
3. Assess for masses noting the location, size, and shape.
4. Check for tenderness.

c. To palpate the liver:



Liver palpation

1. Stand on the right side of the client.
2. Place your left hand behind the client around the 11th or 12th rib.
3. Have the patient relax their back onto your hand?
4. Press your left hand forward as the client relaxes into it. This pushes the liver forward and makes it easier to palpate with your right hand.
5. Place your right hand on the right side of the client's abdomen.
6. Place your fingertips at the lower border of the costal margin.
7. Press gently inward and upward on the abdomen.
8. Ask the patient to take a deep breath so you can feel the borders of the liver as it moves under your fingers.
9. Ask the patient if they have any tenderness.

While assessing the abdomen, remember that palpation and percussion are contraindicated in patients that are suspected for having a diagnosis of an abdominal aortic aneurysm, appendicitis and other conditions. Always check for contraindications before beginning an abdominal assessment.

Self-assessment 9.3.

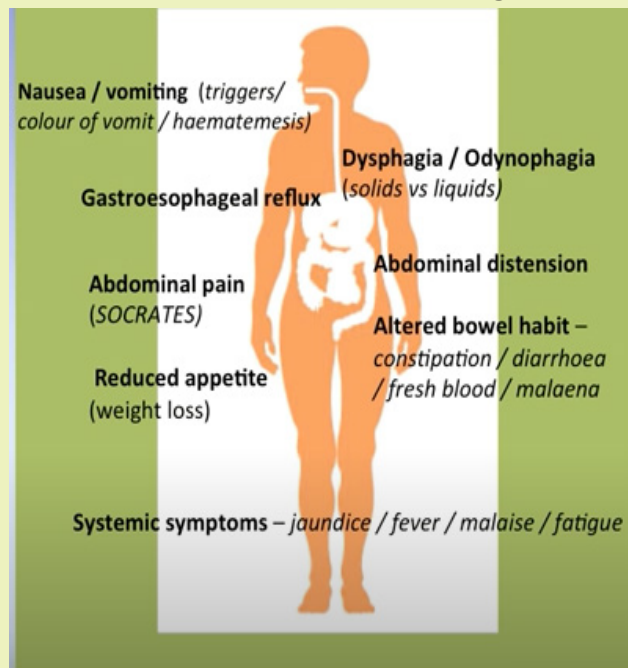
Answer whether the statement is **true** or **false**

1. During physical examination communication have be respectful and the procedure is performed in a culturally-sensitive manner.
2. For the purpose of assessment, the abdomen is divided into four quadrants.
3. Palpation is always done before auscultation for physical assessment of the digestive system
4. The client is asked if he/she has any areas of pain before beginning palpation and the painful areas are palpated first to identify any emergency situation.
5. Tympany sound is heard when percussing the liver.
6. Dullness is usually predominant while percussing the abdomen.

9.4. Interpretation of specific findings on digestive system

Learning activity 9.4.

The image shows some of the problems occurring to the digestive system



1. Describe the symptoms that you think may occur to a client presenting with digestive system disease conditions

9.4.1. Interpretation of some findings from physical assessment

A. Some definitions

- Ascites is an abnormal accumulation of serous fluid in the abdominal cavity containing large amounts of protein and electrolytes.
- Bulge is a protruding part; an outward curve or swelling.
- Cirrhosis is a chronic disease of the liver characterized by the replacement of normal tissue with fibrous tissue and the loss of functional liver cells.
- Hernia is the protrusion of an organ or other bodily structure through the wall that normally contains it.
- Food intolerance is inability to completely digest a type of food, usually due to an enzyme deficiency
- Referred pain is a pain sensation experienced in one part of the body that is different to the actual area of pathology.
- Visceral pain is a pain related to the internal organs.
- Esophageal varices are abnormally dilated or swollen vessels in the esophagus, which can lead to bleeding.

B. Abdominal shape

- A **flat abdomen** is commonly seen in a person of normal weight. There is a straight line from the costal margin to the symphysis pubis.
- A **rounded abdomen** has a convex shape. This usually indicates additional fat around the abdominal area however a rounded abdomen is normal in pregnant women and toddlers.
- A **scaphoid abdomen** has a concave shape. From the side, the abdomen looks sunken. This shape is usually seen in patients who are extremely thin.
- A **protuberant abdomen** is seen in people who are obese or have ascites. The abdomen is extremely rounded. This shape is seen in women who are pregnant but is also seen in men with ascites.

C. On inspection

- If a **protrusion** is noticed around the umbilicus or any incisions, a hernia may be present.
- **Peristalsis** is not normally visible but, can be visible with an intestinal obstruction.
- **Pulsations** can sometimes be visualized with an abdominal aneurysm.
- **Jaundice** is the yellow color of skin and mucous membranes due to accumulation of bile pigments in blood and their deposition in body tissues.
- **Cholestasis** refers to a decreased rate of bile flow.

Depending on the clinical situation, jaundice and cholestasis may coexist or each may exist without the other. Although many sources confidently say that jaundice can be recognized when the serum bilirubin rises to 2 to 2.5 mg/dl, experienced clinicians often cannot see a yellow skin coloration until the serum bilirubin is at least 7 to 8 mg/dl.

C. On auscultation

The table describes how different bowel sounds are produced and what they may indicate.

Bowel sound	How it is produced	Possible cause
Normal bowel sounds	Intestines transporting fluid and digested food through intestinal lumen at normal rate. Sounds are approximately every 5 to 15 seconds	<ul style="list-style-type: none"> • Normally functioning intestine
Hypoactive bowel sounds	Intestines transporting fluid and digested food through intestinal lumen at a decreased rate probably due to inactivity of smooth muscle in the bowel. Sounds are approximately every 20 to 30 seconds, but can be longer	<ul style="list-style-type: none"> • Paralytic ileus • Peritonitis • Decreased bowel mobility • Late intestinal obstruction
Hyperactive bowel sounds	Intestines transporting fluid and digested food through intestinal lumen at an increased rate probably due to rapid passage of air and fluid through intestines. Sounds can be as frequent as every second	<ul style="list-style-type: none"> • Diarrhea • Early intestinal obstruction • Gastroenteritis • Anxiety
High-pitched rushing or tinkling sounds (Borborygmi)	Hyperperistalsis from intestinal straining to push fluid and/or air pass through them	<ul style="list-style-type: none"> • Intestinal obstruction • Dilated bowel loops • Fecal impaction • Gastroenteritis
Absent bowel sounds	Absence of intestinal motility	<ul style="list-style-type: none"> • Peritonitis • Late obstruction(Ileus) • Perforation • Trauma

Abdominal bruits	Whooshing sound over an artery from increased turbulence of blood flow in that artery	<ul style="list-style-type: none"> • Aneurysm • Thin, emaciated patient • Renal artery stenosis
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D. Pain scale

The pain is rated on a scale of 10 in order to have an idea of its intensity and plan the intervention accordingly. The following faces indicate the level at which a patient is suffering and the score related to it.



9.4.2. Interpretation of some findings from laboratory findings

There are many common laboratory exams that help in the assessment of client's gastrointestinal system and accessory organs. Lab values should be looked at collectively in the context of a complete abdominal history and examination. The following table illustrates examples of lab values and the possible related gastrointestinal disturbances.

Lab exam	Normal value	Alteration	Potential gastrointestinal cause of abnormal value
Lipase	7-6u/l	↑	Pancreatitis
Amylase	30-170u/l	↑	Pancreatitis
Calcium	8.5-10.3mg/dl	↓	Pancreatitis, malnutrition
Platelets	130-400*103/mm ³	↓	Liver dysfunction, cirrhosis, hepatitis, GI bleed
AST	<42u/l	↑	Liver dysfunction, cirrhosis, hepatitis
ALT	<48u/l	↑	Liver dysfunction, cirrhosis, hepatitis
Fibrinogen	200-400mg/dl	↓	Liver dysfunction, cirrhosis, hepatitis
Prothrombin Time(PT)	10.0-12.5 sec	↑	Liver dysfunction, cirrhosis, hepatitis
Albumin	3.5-5.0g/dl	↓	Liver dysfunction, cirrhosis, hepatitis, malnutrition

Bilirubin	≤1.3 mg/dl	↑	Liver dysfunction, cirrhosis, hepatitis, cholecystitis
Ammonia	0.17-0.80mcg/ml	↑	Liver failure
Hemoglobin	12.0-17.2g/dl	↓	GI bleed, hemorrhagic pancreatitis
Hematocrit	35-50%	↓	GI bleed, hemorrhagic pancreatitis
Electrolytes	variable	↑	Hemoconcentration in early GI bleed or hemorrhagic pancreatitis
WBC	3.8-10.8*10 ³ /mm ³	↑	Infection of stress response of pancreatitis, GI bleed

N.B: Normal lab value reference ranges may differ from institutions. Always check with the facility's protocol.

Self-assessment 9.4.

CHIEF COMPLAINT: My eyes are yellow for two days.

HISTORY OF PRESENT ILLNESS: Mrs. S is a 36 year old unemployed woman who presents with yellow discoloration of her eyes which she noticed two days ago while washing her face. At first she thought the color was due to the lighting in her bathroom, but this morning, when going outside, she noticed that her hands “looked yellow.”

Mrs. Salco further admits to feeling “sick and tired” for the past 2 -3 weeks. She has lost her appetite and feels weak. During this time, she has been frequently nauseated and ate very little food. Last night she developed a fever and “shook all over with a chill.” This morning she awoke after a restless night with pain and a sensation of fullness in the right upper abdomen. She also vomited twice. The emesis was non -bloody. She has not had diarrhea. She has no back or shoulder pain. She thinks she lost 7kg during the last 3 months. She has no joint pain or skin rash.

Mrs. Salco is a chronic alcoholic who has been hospitalized on several occasions for alcohol related problems, including a psychiatric admission at Ndera Neuro – psychiatric hospital. Although she was considered as a gifted, young accountant with a bright future. Since graduation from business and Management school she has had many alcohol related work problems and lost her position at a prestigious company three weeks ago. Since that time she has consumed approximately 3 bottles of Red Waragi (alcohol spirits) every day.

The relationship with her husband is not good these days and she is taking Paracetamol regularly to calm her headache. She smokes one pack of cigarettes per day. She is having an affair with a man who uses IV drugs and has history of hepatitis.

PHYSICAL EXAMINATION:

- The patient is alert but haggard looking. She is skinny and shows prominent cheek bones. Her clothing is disheveled and her hair is uncombed. She appears much older than her stated age. Bilateral, deep conjunctival icterus
- Vital signs: Blood pressure in right arm 104/60 mmHg, Heart Rate 110/minute and regular, Respiratory Rate 18/minute, Temperature 38.90 C.

ABDOMEN: The abdomen is round and slightly tympanitic. The liver is palpable beneath the costal margin (9 cm.) and tender. The liver span is 20 cm. There is no rebound tenderness, shifting dullness or splenomegaly. Normal bowel sounds.

SKIN: Icteric

LABORATORY DATA:

Aspartate aminotransferase (AST) 150 U/L

Alanine aminotransferase (ALT) 60 U/L

Total Bilirubin 22 mg/dL

During hospitalization WBC rose to 42,000/mm³; total bilirubin rose to 32 mg/dL

1. Cite the main clinical reason for consultation of Mrs S.
2. Elicit other significant clinical problems that Mrs S. has.
3. Recommend the possible differential diagnoses for Mrs S.

9.5. Identification of client problems

Learning activity 9.5.

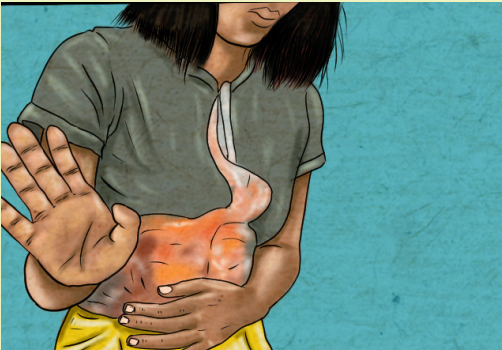
Observe the pictures carefully and answer the asked questions



A



B



C

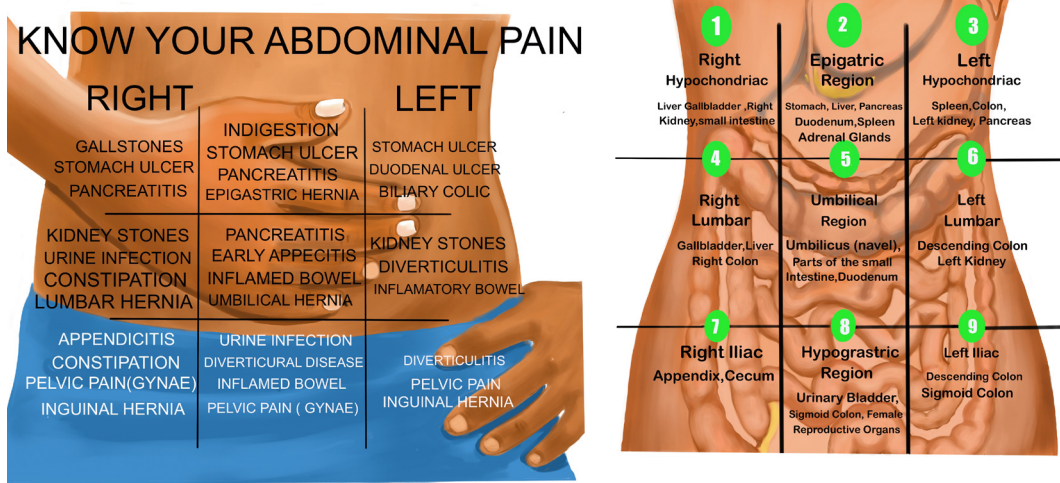


D

1. Describe what Picture A, B, C and D are showing?
2. What does picture A and B have in common?

9.5.1. Abdominal pain

Pain can be subjective or objective. The patient will point to the location of the pain, the nature of the pain and any aggravating or relieving factors, how often the pain felt and how long it lasts and if there is radiation elsewhere (SOCRATES Site, Onset, Character, Radiation, Associated symptoms, Time, Exacerbating/relieving, Severity). Abdominal pain related to gynecological matters have to be differentiated from the one originating from the digestive system.:



9.5.2. Appetite and eating disorders

Appetite and eating can be influenced by many factors that may indicate gastrointestinal disease or that can be attributed to socioeconomic considerations such as food availability, family norms, peers, and cultural practices.

- A loss of taste sensation can contribute to loss of appetite and potentially result in poor nutrition, especially in older individuals. Attempts at voluntary control can be a factors, such as dieting or eating disorders. Appetite disorders may result in weight loss which can also be associated with illness, while weight gain may be attributed to fluid retention or a mass.
- On the other hand, dysphagia which is difficulty swallowing may occur. Some people may be completely unable to swallow or may have trouble swallowing liquids, foods, or saliva. Eating becomes a challenge, making it difficult to take in enough calories and fluids to nourish the body. The patient will be asked if they have any difficulty swallowing and when the difficulty first occurred. People with diseases of the nervous system, such as cerebral palsy or Parkinson's disease, often have swallowing problems. Additionally, stroke or head injury may affect the coordination of the swallowing muscles or limit sensation in the mouth and throat.

- Moreover, nausea and vomiting may indicate food poisoning. Questions about types of food eaten in the past 24 hours should be asked to rule out potential poisoning. If vomiting is present, you will want to ask about the amount, frequency, color, and odor of the vomitus.
- Hematemesis, or blood in the vomitus, is a common symptom of gastric or duodenal ulcers and may also indicate esophageal varices. Coffee ground emesis indicates an “old” gastrointestinal bleed. The old, partially digested blood appears to look like coffee grounds.
- Changes in Bowel Habits is a common manifestation of gastrointestinal disease. The frequency, color, and consistency of bowel movements, use of laxatives.

9.5.3. Ascites

Usually seen in patients with cirrhosis of the liver. The patient will have a protuberant abdomen. It is caused by increased hydrostatic pressure in patients with cirrhosis of the liver. Percussion is normally used for the assessment of ascites, however, there are other methods. An abdomen with ascites will have both tympanic and dull sounds.

You will hear tympany at the top of the abdomen around the epigastric area and dullness will be heard lower around the umbilicus or any dependent areas of the abdomen.

9.5.4. Nursing diagnoses

According to different domains of diagnosis by NANDA, examples of nursing diagnosis can be set down; Imbalanced nutrition, Impaired swallowing, Obesity, Overweight, Abnormal distention, Pain, Diarrhea, Constipation, Bowel incontinence, Excess fluid volume, Fluid volume deficit, Fatigue, Risk for infection, Lack of knowledge, Anxiety, and Disturbed body image.

Note that alterations in gastrointestinal assessment findings could indicate potential problems and being knowledgeable about the focused, gastrointestinal assessment will allow the healthcare provider to intervene quickly and appropriately for gastrointestinal disorders

Self-assessment 9.5.

1. Client X is admitted at the Hospital for an intensive pain of 7/10 located in her hypogastric region. In your judgement, mention 2 health problems that might be the underlying causes of this pain.

9.6. Nursing intervention based on patient's problem

Learning activity 9.6.

Mr. Z. is a 26 years old male suffering from peptic ulcer problem which is worsening as the crises have increased considerably this last year.

1. Do you think you can help Mr. Z as an Associate Nurse?

Within the framework of his or her role, the nurse performs acts or provides care aimed at identifying risks, ensuring comfort and safety of the person and his or her environment, and informing the person and his or her family.

Basically for digestive system problems, the interventions will base on care and procedures to ensure the hygiene of the person and his/her environment, Supervision of hygiene and dietary balance, Supervision of food intake and Monitoring of intestinal elimination.

9.6.1. Samples of digestive system problems and their Management

PROBLEM	NURSING MANAGEMENT
NAUSEA	<p>Perform complete assessment of nausea, including frequency, duration, severity, and precipitating factors, to identify etiologies and plan appropriate interventions.</p> <p>Reduce or eliminate personal factors that precipitate or increase the nausea (anxiety, fear, fatigue, and lack of knowledge) to avoid precipitating factors of nausea/vomiting.</p> <p>Use frequent oral hygiene, unless it stimulates nausea, to promote comfort.</p> <p>Ensure that effective antiemetic drugs are given when possible to prevent nausea and vomiting.</p>

	<p>Teach the use of nonpharmacologic techniques (e.g., relaxation, guided imagery, music therapy, distraction, acupressure) to manage nausea and vomiting.</p> <p>Inform other health care professionals and family members of any nonpharmacological strategies being used by the nauseated person to promote consistency of care</p> <p>Monitor effects of nausea management throughout to evaluate effectiveness of interventions.</p> <p><i>Medications:</i> Antiemetics, digitalis, opioids, ferrous sulfate, aspirin, aminophylline, alcohol, antibiotics, ...</p>
DEFICIENT FLUID VOLUME	<ul style="list-style-type: none"> • Assess the patient's buccal membranes, sclera, and skin for indications of altered fluid and electrolyte balance (e.g., dryness, cyanosis) <i>to plan appropriate interventions.</i> <p>Keep an accurate record of intake and output daily <i>to monitor trends and to accurately monitor fluid balance.</i></p> <p>Weigh patient daily <i>to monitor trends.</i></p> <p>Promote oral intake (e.g., provide oral fluids that are the patient's preference, place in easy reach, provide a straw, and provide fresh water), as appropriate, <i>to maintain fluid and electrolyte balance.</i></p> <p>Maintain IV solution containing electrolyte(s) at constant flow rate, as appropriate, <i>to replace deficient fluid and electrolytes</i></p> <p>Consult physician if signs and symptoms of fluid and/or electrolyte imbalance persist or worsen <i>in order to revise treatment plan.</i></p>
PAIN	<p>Perform a comprehensive assessment of pain to include location, characteristics, onset/duration, frequency, quality, intensity or severity of pain, and precipitating factors <i>to determine appropriate intervention.</i></p> <p>Provide the person optimal pain relief with prescribed analgesics <i>to provide comfort.</i></p> <p>Select and implement a variety of measures (e.g., pharmacologic, non-pharmacologic, interpersonal) <i>to facilitate pain relief.</i></p> <p>Teach the use of non-pharmacologic techniques (e.g., relaxation, guided imagery, music therapy, distraction, acupressure, massage) before, after, and, if possible, during painful activities; before pain occurs or increases; and along with other pain relief measures <i>because relaxation results in decreased acid production and reduction in pain.</i></p> <p>Institute and modify pain control measures on the basis of the patient's response <i>so that management can be individualized.</i></p> <p><i>Medications: Painkillers</i></p>

INEFFECTIVE SELF-HEALTH MANAGEMENT

Review the patient's knowledge about condition *to determine if ineffective management is a knowledge problem.*

Explain the pathophysiology of the disease and how it relates to anatomy and physiology *to foster understanding.*

Discuss therapy/treatment options.

Describe rationale behind management/therapy/treatment recommendations *to foster understanding of the therapy.*

Discuss lifestyle changes that may be required *to prevent future complications and/or control the disease process.*

Explore with patient what she or he has already done to manage the symptoms *to confirm the patient has the ability to manage the disease.*

Instruct patient on which signs and symptoms to report to health care provider *to ensure early initiation of treatment.*

Decision-Making Support

Determine whether there are differences between the patient's view of own condition and the view of health care providers *to be able to establish common ground for disease management.*

- Help patient identify the advantages and disadvantages of each alternative *to promote decision making.*

In conclusion, for the digestive system intervention, Implement the appropriate care for each type of transit disorder, Manage the pain as prescribed, Educate the patient on foods and preventive dietary measures, Monitor vital parameters and Reassure the patient

Self-assessment 9.6.

Mr. Z. is a 26 years old male suffering from peptic ulcer problem which is worsening as the crises have increased considerably this last year. When the nurse asked him about willingness to modify lifestyle he was doubting and delayed to reply to the Nurse. What would be the nursing interventions to Mr. Z?

End unit 9 assessment

1. Appendicitis means
2. Hepatitis means
3. Dysphagia means
4. Melena means
5. Outline 10 commonly presenting complaints of the gastro intestinal system at the hospital
6. Explain how, the setting is relevant and can provide clues to the possible origin of a disorder
7. In conclusion of a history taking session, we should always end by ICE. Write ICE in full.
8. What can occur as a result of the aging process?
 - A. Dysphagia
 - B. Blood in the stools
 - C. Increase in food intolerance
9. Alcohol can cause liver cirrhosis and _____.
10. Age affect digestion by:
 - a. Slowing swallowing
 - b. Overgrowth of bacteria which reduces the amount of nutrients the intestines absorb
 - c. Reducing stomach secretions
 - d. All of the above
11. Most of the digestive process take place in:
 - a. Small intestine
 - b. Large intestine
 - c. Stomach
 - d. All of the above
12. The liver helps digestion by:
 - a. Making important enzymes
 - b. Neutralizing stomach acid
 - c. Producing bile
 - d. Regulating insulin

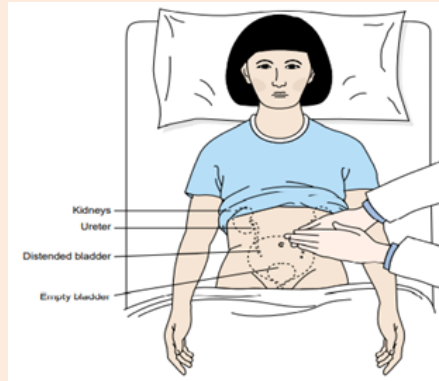
Key Unit Competence:

Take appropriate action based on findings of nursing assessment of genito-urinary system.

Introductory activity 9.0



A



B



C



D

Observe the images above and answer the following questions:

- What do images above means to you?
- Guess the lesson we are going to study.
- List the anatomical parts illustrated on image B and D

Genito-urinary system combines both reproductive and urinary system. The reproductive system serves to ensure the survival of species. To do so, it produces ovum and sperm cells, transport and sustain these cells, nurture the growing offspring and produce hormones. Gonads are the primary organs of the reproductive system; it consists of ovaries and testes in female and male respectively. These organs are responsible for producing the ovum and sperm cells and hormones. These hormones function in the maturation of the reproductive system, the development of sexual characteristics, and regulation of the normal physiology of the reproductive system. The remaining organs, ducts, and glands in the reproductive system are considered secondary, or accessory, reproductive organs. These structures transport and sustain the gametes and nurture the developing offspring.

The urinary system has its upper part composed of two kidneys and two ureters while its lower part consists of a urinary bladder and a urethra. The kidneys serve as principal organs of the urinary system. The main functions of the kidneys are to (1) regulate the volume and composition of the blood and (2) excrete waste products from the body in the form of urine. The kidneys also function to control blood pressure, produce erythropoietin, activate vitamin D, and regulate acid-base balance. Urine is formed in the kidneys, drains through the ureters to be stored in the bladder, and then passes from the body through the urethra.

10.1. History taking of genitourinary system

Learning activity 10.1



A



B

Observe the image above and respond to the following question

- What does the image A illustrate?
- What can be the reason behind the posture on image B

10.1.1. History taking of the genitourinary system

After greeting, introduction and listening the chief complaint of the patient, the examiner will decide to ask specific questions to know the health status of genitourinary system. The patient may report frequency, urgency, nocturia, dysuria, hesitancy, straining, urine color change, penis pain, lesion and discharge, scrotal pain and swelling, reduced sexual activity and sexual desire, contraception measures and past genitourinary history. Menstrual history, obstetric history, menopause, lower abdominal pain, vaginal discharge, and painful sexual intercourse are usually female specific.

Here are questions to be used for appropriate history taking of the genitourinary system:

1. Are you urinating more often than usual? Frequency said when an adult patient reports to urinate more than 5-6 times per a day. Polyuria is the excessive quantity of the urine, oliguria is a diminished quantity of the urine < 400ml/24 hours, whereas anuria is the absence of urine or quantity < 100ml/24 hours. Urgency is when a patient can't wait to urinate. Awakening desire to urinate during the night is known as nocturia. The examiner will go in deep and ask how many times per a night and if it is a recent change. Frequency, urgency and nocturia mostly happen in urinary tract conditions
2. Do you feel pain or burning sensation during urination? Dysuria is common in acute cystitis, prostatitis and urethritis.
3. Do you have difficult starting urine stream? Or do you need to strain to start or maintain urine stream? Hesitancy and straining respectively indicate that the patient has outlet obstruction due to benign prostatic hyperplasia.
4. What is the color, smell and consistency of the urine? The intensive yellow to dark color of the urine indicates dehydration, cloudy in urinary tract infection. Hematuria: presence of blood in the urine is a danger sign that warrants further investigations. Some color changes are temporary or harmless. However, for blood in urine or for a color change lasting longer than a day, seek health care. Hematuria may signal glomerulonephritis, cancers of prostate or bladder.
5. Do you have difficulty controlling urine? Urge incontinence is when the detrusor muscle of the bladder is overactive and cause involuntary urine loss. Stress incontinence is when physical effort, sneezing or coughing causes involuntary urine falls due to weakness in pelvic floor.
6. Any problem with the penis? These problem can be pain, lesion or discharge. Urethral discharge is more frequent in urinary tract infection and sexually transmitted infections.

7. Do you have any problem on the scrotum or testicles? Problems can be lumps or swelling. A list of complains may be reported by the clients such as spermatocele, hydrocele, varicocele and rarely testicular cancer.
8. Are you in relationship that involves sexual intercourse? This question is relevant when assessing genitourinary system and should be gender neutral to avoid embracing people with different sexual orientation. Ensure that the patient accept individual's sexual activity and believe that it is important.

Self-assessment 10.1

1. M.R. is a 19-year-old male student who 2 days noted acute onset of painful urination, frequency, and urgency. Noted some thick penile discharge. He is worried because of unprotected sexual intercourse he had last week with one of his girlfriend.
 - a. Ask this patient 5 additional questions to ruler out complete subjective information?
 - b. What medical condition will you think first to fit the patient's complaints?
2. I.C. urinates 4 or 5 times/day, clear, straw-colored. No nocturia, dysuria, or hesitancy. No pain, lesions, or discharge from penis. Does not do testicular self-examination. No history of genitourinary disease. Sexually active in a monogamous relationship. Sexual life satisfactory to self and partner. Uses birth control via barrier method (partner uses diaphragm). No known STI contact. Objective no lesions, inflammation, or discharge from penis. Testes descended, symmetric, no masses. No inguinal hernia.
3. What is your conclusion as an associate nurse after getting the above information from your patient.

10.2. Physical assessment of genitourinary system

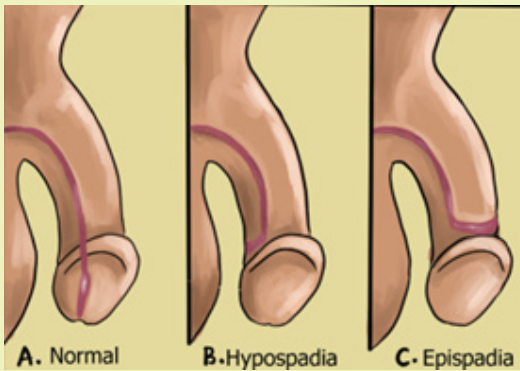
Learning activity 9.2



A



B



A. Normal

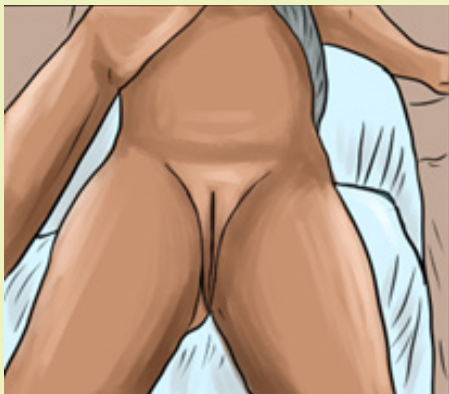
B. Hypospadias

C. Epispadias

C



D



E



F

Observe the image above and respond to the following questions

- a. What does this image A represent?
- b. What is being done by gloved hands on image B
- c. In your own word, comment on abnormalities seen on image C, D, E, F
- d. Enumerate the organs seen on image A and B.

The assessment of urinary system will start with inspection then percussion and palpation of the abdomen. The abdomen must be soft, flat, concave and symmetric. Observe the color of the costo-vertebral angle and hypogastric region where the kidneys and urinary bladder are located respectively.

The examiner will make sure that the room is prepared with availability of necessary materials such as gynecological table, sheets, pillow, gloves, and sample collection items as needed. The temperature of the room should be warm and privacy is mandatory to stop any movement in and out of the room during examination. Clean your hands and don examination gloves. Women may feel apprehensive about having their genitalia examined, especially if the nurse is male. If necessary, arrange for a female assistant. Before bringing the woman to the examination room, ask her to empty her bladder. She should be instructed to undress completely and put on a gown. Most of the time, the woman will be in the lithotomy position and asked to remove clothes. The lithotomy position may make her feel embarrassed and vulnerable. If she seems uncomfortable or embarrassed, you may ask her if she would like her head elevated so she can see you better. Position her with her buttocks at the edge of the examination table. Ask her to place her arms at her sides or across her chest but not over her head (this tightens the abdominal muscles). Position the sheet completely over the patient's lower abdomen and upper legs, exposing only the vulva for your examination. Push the sheet down so you can see the woman's face as you proceed. As you start the examination, reassure her that you will tell her everything that you are going to do before you actually do it. Help the woman relax and assure her that, if she becomes too uncomfortable, you will stop what you are doing and reassess what is happening. Please, every step here must be objective and matter of facts; don't be tentative with your touch; once you make physical contact, maintain it for assessment purpose. Be sure to talk to the woman throughout the examination to tell her what you are doing, what you are seeing or feeling, and how long it will be until you are finished.

The assessment of GU in both male and female starts by external genitalia. Pubic area is inspected for normal characteristic and distribution hair per age category. The skin should be intact, inguinal regions with no erythema fissure or enlarged lymph nodes. For female, each type of labia is symmetric and equal size to its homologous. The clitoris is located above urinary meatus measures about 1 to

1.5cm. The vaginal opening should not show swelling, redness or any protrusion. Inspect the urethra through its meatus for patency and position. Inspect the perineum, skin must be intact with no lesion or tears. Note that female who had episiotomy manifests healed scars. The available findings will direct the examiner to the advanced assessment cervix and vaginal wall by using the speculum.

Physical assessment of the penis need both inspection and palpation of the its surface to look at and feel its consistence. It has a visible vein on the dorsal part identified when inspecting the posterior part. Penis has no edema, discharge, pain, lesions or nodules. For uncircumcised male the foreskin covers the gland, it is easily retracted by the patient, some smegma are present. For circumcised male, the gland is visible, lighter than the shaft and free of smegma.

The external urinary meatus is located centrally on the glands on the tip of the penis. The external urethral meatus has no discharge, stenosis, or warts. The glands can be opened by pressing it between thumb and forefinger. The patient can be instructed to do this. Then request him to milk the penis from the base toward the glands or head. Note color, consistency, or odor of any discharge. The glands is smooth and pink with no discharge. Inspect and palpate the scrotum on both its sides. It is divided into two sacs. The scrotum is hanged asymmetrically, with the left side lower than the right. The anterior and posterior skin appears darker with a rugous or wrinkled surface. Palpate each testicle separately. Note the smooth, rubbery consistency of each testicle; no nodules should be felt. Irregularities in texture or size may indicate an infection, tumor, or cyst. Palpate the epididymis on the posterolateral surface of each testicle. It feels smooth and non tender.

In this unit, we are going to learn GU findings that need clinical attention. Starting on the pubic area, there may be no hair, presence of patchy growth, skin inflammation, lesions, dermatitis, or infestations. Candidiasis (infection due to candida albicans) causes crusty, multiple, red, round erosions and pustules. Whereas, Tinea curis, a fungal infection with large red, scaly, and extremely itchy patches. Bulges or masses in inguinal areas for male suggest a hernia. Hernias occur when a loop of intestine prolapses through the inguinal wall or canal or abdominal musculature. The patient will report pain on exertion or lifting. On examination, pain increases when position increases intra-abdominal pressure. Testicular irregularities in texture or size may indicate an infection, tumor, or cyst. The foreskin or prepuce can develop either phimosis or paraphimosis. Phimosis is when the foreskin can't be retracted from the tip of the penis. Paraphimosis is when the foreskin is retracted but can't move back up to the tip of the penis. Both phimosis and paraphimosis affect blood flow in the penis and cause inflammation. Management of these conditions involves non-steroid anti inflammatory to control pain and inflammation and allow chance circumcision. Urinary meatus can be allocated upper or lower than the normal location, these conditions are epispadias and hypospadias respectively. Contact

dermatitis is common in childhood and manifests red, itchy rash caused by direct contact with a substance or an allergic reaction to it. The rash isn't contagious or life-threatening, but it can be very uncomfortable. Various substances can cause such reactions, including soaps, cosmetics, fragrances, jewelry and plants. The management of contact dermatitis involves identification and avoidance of the cause, apply skin soothing product or anti histaminic medications.

Self-assessment 10.2

1. Mr. N.S. is entering consultation room in a bent over position, anxious and guarding genital area. Physical examination revealed redness that urethral meatus has mild edema with purulent urethral discharge. No pain on palpation of genitalia. Testes symmetric with no masses.
 - a. What will you record from the above physical assessment?
 - b. What will be your nursing intervention to this patient?
2. D.C. 27-year-old married woman with Parity 1. Presents at clinic with urinary burning, vaginal itching, and whitish curdy discharge since 4 days ago. After physical examination, vaginal sample showed spores of *Candida Albicans*.
 - a. Which medical condition would you pose for this woman?
3. B.L., 17-year-old female high school student, comes to clinic for oral contraceptives. She had menarche at 12 years, cycle every 30 days, duration 4 days, mild cramps relieved by Ibuprofen. LMP 7 days ago. No dysuria, vaginal discharge, vaginal itching. Relationship involving vaginal intercourse with one boyfriend for since 6 months. She thinks that her boyfriend is involved in other heterosexual contacts. For birth control boyfriend uses condoms sometimes. Wants to start birth control pills. Never had pelvic examination. Never had teaching about breast self-examination or STIs except AIDS. Smokes cigarettes, PPD; started age 11 years. Has not had HPV vaccines.
 - a. Depending on the information and suggestions of this girl, what is the best family planning method would you advise her?
 - b. After physical assessment, what is your clinical decision or diagnosis?
 - c. Which interventions do you think to be important in this case?

10.3. Interpretation of specific findings on Urogenital system.

Learning activity 10.3

1. After history taking and physical examination, the nurse decides to take urine sample. The patient reported dysuria and genital itching. The urine looks bloody and has a very bad odor.
 - a. Is it normal to have blood in the urine?
 - b. What does dysuria means?

Following the history taking and physical examination of GU, we are going to attach the meaning on some special findings. **Urinary frequency** (increased number of urination) can originate from urinary tract infection, bladder calculi and urethra stricture. In older male, urinary frequency is the sign of benign prostatic hyperplasia or prostate cancer which compress the bladder. **Urgency** known as strong need to urinate is an indicator to urinary tract infection, chronic prostatitis, urethritis, obstruction of lower urinary tract leading to residual urine and overflow, anxiety, use of diuretics, benign prostatic hyperplasia, urethral stricture, and diabetic neuropathy. **Hesitancy** is the delayed or difficult starting urination. The main causes are benign prostatic hyperplasia, compression of urethra, outlet obstruction, and neurogenic bladder. **Enuresis** is the involuntary urination when someone is sleeping sleep. Enuresis is said when bladder control can't achieved by 5 years of age due to delayed functional maturation of the central nervous system. Other causes of enuresis are obstructive disease of lower urinary tract, genetic factors, failure to concentrate urine, urinary tract infection and psychological stress.

Nocturia or excessive urination during the night indicates renal or lower urinary tract. It can also indicate metabolic disorders as well as side effects of diuretic medications. **Urinary incontinence** as the inability to voluntarily control urine is linked to stress incontinence, tumor, bladder cancer, calculi and neurological conditions such as spinal cord injury and Guillain-Barré syndrome. **Normal urine output** in a healthy individual must be between 0.5-1.5 mL/kg/hour, and patients should generally be urinating at least every 6 hours. On the other side **oliguria** is defined as the production of inadequate volumes of urine (<500 ml/day in adults, <0.5 mL/kg/hour in children, and <1.0 mL/kg/hour in infants. Oliguria is caused by acute or chronic kidney failure and inadequate fluid intake. **Polyuria** is the increased volume of urine. The main causes of are diabetes mellitus, diabetes insipidus, use of diuretics, excess fluid intake. Anuria is the absence of urine or urine output of less than 100ml per 24 hours. **Anuria** is due to acute or chronic kidney failure and complete obstruction. **Hematuria** is the presence of red blood cells in the urine. The causes of hematuria are cancer of genitourinary tract, acute glomerulonephritis,

renal stones, renal tuberculosis, trauma and extreme exercise. **Proteinuria** is the presence of proteins in the urine. Proteinuria may be the sign of acute and chronic renal disease, nephrotic syndrome, vigorous exercise, severe heart failure and diabetic nephropathy. Kidney enlargement is palpable in the costo-vertebral angle in case of cyst, hydronephrosis or tumor.

Syphilitic chancre is an initial sign of the infestation of *Treponema Pallidum*. The chancre appears as a red, painless, eroding lesion with a raised border. It is located inside the vagina in female or to the other parts of external genitalia in both sexes. Vaginitis is the inflammation of the vagina resulting from overgrowth of infectious microorganisms. **Vaginitis** is categorized under bacterial vaginosis, *Candida albicans* infection, trichomoniasis, and mucopurulent cervicitis depending on the infecting agent. Bacterial vaginosis is identified as a thin grayish white discharge. Vaginal candidiasis appears as a thick, white, curdlike discharge and appears in patches on the cervix and vaginal walls. Another form is mucopurulent cervicitis originating from gonorrhoea or Chlamydia. They both produce a purulent yellow discharge from the cervix. Trichomoniasis may generate a malodorous yellow or green, foamy or watery, foul-smelling discharge. It can also create red papules on the cervix and vaginal walls, giving the tissue a strawberry appearance.

Genital warts, a sexually transmitted disease caused by human papilloma virus. They produce painless warts on the penis, vulva, vagina, cervix, or anus. Warts start as tiny red or pink swellings that grow. They become multiple swellings with a cauliflower appearance.

Genital herpes is due to herpes simplex virus type 2. It produces multiple, superficial vesicles, lesions, or crusts inside the vagina, on the external genitalia in both sexes, on the buttocks and, sometimes, on the thighs. Symptoms of genital warts are dysuria, regional lymph node inflammation, pain, edema, and sometimes with fever.

Vaginal prolapse occurs when the anterior vaginal wall and bladder prolapse into the vagina. The uterus may prolapse into the vagina and can even be seen outside the body.

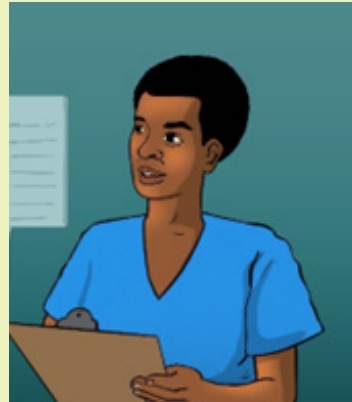
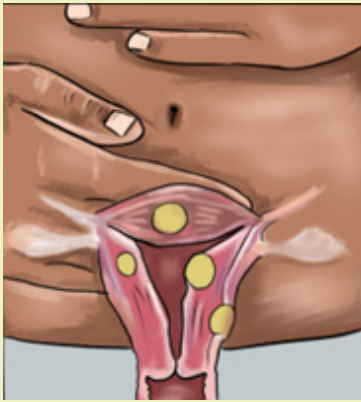
The testicular tumor is identified as a painless lump in the testicles which causes weight in the scrotum. Prostate gland enlargement is identified using digital rectal examination. It can be categorized as benign prostatic hyperplasia (BPH) or acute prostatitis. The BPH usually starts after age 50 with signs and symptoms of nocturia, urinary hesitancy, frequency and recurring urinary tract infections. In the acute prostatitis, the prostate gland is firm, warm, and extremely tender and swollen with fever as the condition originates from infection.

Self-assessment 10.3

1. How can you differentiate vulvovaginal candidiasis to contact dermatitis by using inspection?
2. What is the causative agent of genital warts?
3. State the characteristics of paraphimosis
4. Differentiate inguinal hernia to testicular torsion

10.4. Identification of client problems

Learning activity 10.4



- a. Mention possible patient problems being identified by the nurse after the assessment of the patient's abdomen.
- b. Which anatomical organs of the internal female reproductive here mentioned?

The problems of genitourinary system can be allocated under structural, functional, infectious and tumor based origin. One of the common infection of GU is candidiasis identified as vulvovaginal edema, erythema, and excoriation; thick white secretions.

The microscopy will show pseudohyphae, occasional budding yeast. Bacterial vaginosis is another infection with whitish to grayish creamy secretions that coat the vaginal walls with a strong fishy odor and vaginal itching or burning.

Laboratory investigation will show clue cells on microscopy and possibly WBCs are present. Gonorrhoea, one of the STIs, clinically present yellow purulent discharge from the cervix; tenderness or pain with the pelvic examination. Diagnostic test using Gram stain shows intracellular diplococci.

Syphilis, an infection resulting from *Treponema Pallidum* inoculation which penetrates intact skin or mucous membrane during sexual contact. In its early stage it demonstrates a chancre: a painless ulceration at the point of entry which can be on the penis or vulva.

Pediculosis pubis presents with mild to severe itching, especially in the mons pubis and perineum. The external genitalia are excoriated. Tiny spots of blood and lice may be seen on the underwear. Eggs normally adhere to the pubic hair and can appear as small dark spot. The risk factors for pediculosis pubic are direct contact with the infected person especially during sexual contact, sharing personal items such as bed linen and living in institutionalized condition.

Uterine prolapsed is when the uterus fall into the vagina due to gradual weakening of uterine ligaments. It may be a consequence of multiple vaginal births or an enlarging uterus. The patient presents with low pressure, fecal impaction, and vaginal and uterine irritation.

Ectopic Pregnancy happens when a fertilized ovum implants outside uterine endometrium mostly in the fallopian tubes and cervix. Risk factors include previous ectopic pregnancy, past pelvic infection, endometriosis, or tube abnormalities. The patient presents with symptoms of a normal pregnancy initially. As the ectopic pregnancy grows larger, there is internal hemorrhage and subsequent lower quadrant pain.

Testicular torsion is another male related condition manifested as a sudden twisting of the spermatic cord, usually on the left side, is rare after 20 years. It results from poor attachment of the testis on the scrotal wall. Signs and symptoms involve impaired blood supply which leads to ischemia and venous engorgement. Because the testis can become gangrenous within a few hours, this is a surgical emergency.

Hydrocele is the collection of serous fluid develops in the tunica vaginalis surrounding the testis. The patient presents with unilateral and intermittent edema of the scrotum but no pain.

Self-assessment 10.4

1. Why is testicular torsion considered as a surgical emergency?
2. A patient is presenting lice like insects in his pubic area and perineum. They cause itching at a level of skin laceration.
 - a. What is the medical diagnosis for this patient?
 - b. What are the preventive measures for this condition?

10.5. Nursing intervention based on patient's problem.

Learning activity 10.5



A



B



C



D

- Describe the above images
- What are the indications of urinary catheterization?

Nurse's activities in relations to genitourinary system are individualized and depend on patient's problem. After the assessment, a nurse will make priority actions which can extend from education, advocacy or provision of nursing intervention. The education can be safe sex practices to prevent STIs and adequate water intake to keep urinary track flushed to prevent UTIs and renal stones. Female are advised to clean anus after defecation from front to back to avoid contamination of feces in the genitals which can originate from unnecessary contamination which results in infections.

Depending on data collected from the patient, some may be alarming and require immediate interventions such as paraphimosis and testicular torsion. The nurse

will immediately inform the physician for advanced assessment and preparation for emergency surgery. Other nursing intervention can be urine or secretion specimen collection, measuring urine output, provide bedpan, urinary catheter insertion and removal as needed. The nurse also will administer prescribed orders to treat GU conditions.

Self-assessment 10.5

1. Which health education topics will you initiate after consulting a 18 year boy used to have unprotected sex with girls of his age?
2. List the intervention a nurse can provide to manage the GU problems.
3. Why is it important to drink enough water on the GU health status?

End unit 10 assessment

1. List 5 nursing interventions specific to the GU
2. Write and describe abnormalities in urination
3. List 10 clinical conditions common on GU system.
4. Match the following terms to their description

Term	Description	Match
Hydrocele	Fertilized egg implanted outside the uterus	
Epispadias	Painless swelling of the scrotum due to fluid collection.	
Phimosis	Protrusion of uterus in the vaginal wall	
Ectopic pregnancy	Yellow purulent discharge from the cervix with the presence of intracellular diplococci on Gram stain.	
Gonorrhoea	A congenital displacement of the urethral meatus to the superior surface of the penis.	
Uterine prolapse	Inability of the foreskin to be retracted back from the tip of the penis	

Key Unit Competence

Relate society, family, and special group to health and illness

Introductory activity 10



A



B

1. What does the image A display?
2. Describe the interconnectedness showed in image B in terms of society and health.

11.1. Definition of society and Family

Learning activity 11.1

Referring to the image aside define the following terms

- a) Society
- b) Family



a. Society

A **society** is a group of individuals involved in persistent social interaction, or a large social group sharing the same spatial or social territory, typically subject to the same political authority and dominant cultural expectations. Societies are characterized by patterns of relationships (social relations) between individuals who share a distinctive culture and institutions; a given society may be described as the sum total of such relationships among its constituent members. In the social sciences, a larger society often exhibits stratification or dominance patterns in subgroups.

Societies construct patterns of behavior by deeming certain actions or concepts as acceptable or unacceptable. These patterns of behavior within a given society are known as societal norms. Societies, and their norms, undergo gradual and perpetual changes.

- Society can enable its members to benefit in ways that would otherwise be difficult on an individual basis; both individual and social (common) benefits can thus be distinguished, or in many cases found to overlap.
- A society can also consist of like-minded people governed by their own norms and values within a dominant, larger society. This is sometimes referred to as a subculture, a term used extensively within criminology, and also applied to distinctive subsections of a larger society.

b. Family

The family is an intimate domestic group made up of people related to one another by bonds of blood, sexual mating or legal ties. It is the smallest and most basic social unit, which is also the most important primary group found in any society.

It is the simplest and most elementary group found in a society. It is a social group consisting of a father, mother and one or more children. It is the most immediate group a child is exposed to. In fact, it is the most enduring group, which has tremendous influence on the life of an individual, from birth until death. It also accounts for the most enduring social relationship found in society. Every family provides an individual with a name, and hence, it is a source of nomenclature. Each member of family shares duties and responsibilities.

The family is the central and important social institution for health development in which individuals are born and receive resources for their growth and development. It has the primary influence on the health and development of children. The family influences healthy behaviors, and provides care and facilitates recovery from the illnesses.

The family is commonly linked to positive health outcomes. Two parent biological families are particularly shown to be more protective for mental health of children and adolescents.

Marriage has a protective role on health since married individuals report healthier lifestyle, less risky behaviour, early screening and testing for disease, more health checkups and timely treatment-seeking. But the benefits of marriage for health are strongly dependent on the quality of the marital relationship and conjugal harmony

Intra-family dynamics and relationship has a key role in health outcomes of the family. Supportive family/kinship relationships have reportedly decreased the likelihood of the onset of chronic diseases and mental illness and delayed mortality.

Families provide the support and conditions needed for healthy living, prevention of disease and opportunities for early diagnosis and treatment to avert or delay complications. Interventions for health to be effective, must necessarily take into account the social determinants of health.

Self-assessment 11.1

Select the best response

1. Social dispute contributes to good health
 - a) True
 - b) False
2. A society consist of
 - a) People
 - b) Institution
 - c) A and b
 - d) None of the above
3. The definition of family
 - a) Is consistent across communities
 - b) Is defined by our government to include all current family structures
 - c) Can include only biological family members
 - d) Varies from community to community and from state to state
4. A homeless woman is more likely than other women to have all of the following characteristics except:
 - a) To have less than a high school education
 - b) To have grown up in foster care
 - c) To be employed
 - d) To have had an abortion by age 16

11.2. Family Structure

Learning activity 11.2

Relating to family structure, describe the image aside



The following types of families exist today, with some families naturally falling into multiple categories.

a. Nuclear Family

The **nuclear family** is the traditional type of family structure. This family type consists of two parents and children. Children in nuclear families receive strength and stability from the two-parent structure and generally have more opportunities due to the financial ease of two adults.

b. Single Parent Family

The single parent family consists of one parent raising one or more children on his own. This family may include a single mother with her children, a single dad with his kids, or a single person with their kids.

c. Extended Family

The extended family structure consists of two or more adults who are related, either by blood or marriage, living in the same home. This family includes many relatives living together and working toward common goals, such as raising the children and keeping up with the household duties. Many extended families include cousins, aunts or uncles and grandparents living together.

d. Childless Family

While most people think of family as including children, there are couples who either cannot or choose not to have children. The childless family is sometimes the “forgotten family,” as it does not meet the traditional standards set by society.

e. Stepfamily

For the divorced individuals, many choose to get remarried. This creates the step

or blended family which involves two separate families merging into one new unit. It consists of a new husband, wife, or spouse and their children from previous marriages or relationships. Stepfamilies are about as common as the nuclear family, although they tend to have unique challenges, such as adjustment periods and discipline issues. Stepfamilies need to learn to work together and also work with their exes to ensure these family units run smoothly.

f. Grandparent Family

Many grandparents nowadays are raising their grandchildren for a variety of reasons. One in fourteen children is raised by their grandparents, and the parents are not present in the child's life. This could be due to parents' death, addiction, abandonment or being unfit parents. Many grandparents need to go back to work or find additional sources of income to help raise their grandchildren.

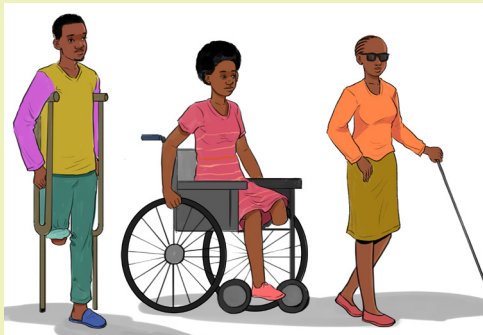
Self-assessment 11.2

Compare and contrast stepfamily from nuclear family

11.3. Special groups in the society

Learning activity 11.3

What does the following images indicate?



Though the concepts of society and family were well described, it is very important to pay attention on the health of special peoples within the society which include:

a. Sex workers

Sex workers are a diverse group of people. They are men, women, and transgender people. Some are parents, members of religious groups, and members of the society. Some sex workers enjoy their work and see it as a way to express their sexuality. Others like the income and flexibility. Yet, whoever sex workers are and whatever

they do, they deserve the same protections as everyone else. This includes the right to health care, and to safety. Stigma against sex workers leads to extreme barriers to health care. A UNFPA report found that nearly 1 in 4 sex workers have been denied health care because of their occupation. And, not surprisingly, more than 60% of sex workers fear and distrust health care workers.

Different report highlight that sex workers are more likely to be HIV+ than the general population because they are less able to access health care service. Many sex workers face rejection from the family and that lead to lot of psychological problem among them. Sex workers have reported facing daily harassments and stigma and many have even attempted suicide as a consequence to such maltreatment from the society. It is therefore very important for health care workers to understand the complexity and health challenges of sex workers and consider them in the planning of preventive and curative interventions to them.

b. Prisoners

A prisoner is a person legally committed to prison as a punishment for a crime or while awaiting trial. Hundreds of men and women are imprisoned in different prison around the world. Most of these prisoners are from poor and vulnerable communities. Prisons are not healthy places. Communicable diseases are frequently transmitted among prisoners, and the rates of HIV, hepatitis and tuberculosis are much higher among them than in the general population.

There is also a high prevalence of mental health problems, including substance abuse disorders, and a higher prevalence of non-communicable diseases. Unhealthy conditions such as overcrowding and poor hygiene are common in many prisons. Prison health is part of public health and prisons are part of our society. One third of prisoners leave prison every year and the interaction between prisons and society is huge. Health care workers must contribute to initiative designed to ensure that prisons are not becoming breeding places for communicable and non-communicable diseases, and must also seek to use the experience of imprisonment for the benefit of prisoners and society.

c. Disabled persons

Disability refers to the interaction between individuals with a health condition. Over 1 billion people are estimated to experience disability. This corresponds to about 15% of the world's population. disabled persons are then part of the society. The number of people experiencing disability will continue to increase due to a rise in chronic health conditions and population ageing. WHO report that people with disability face barriers, stigmatization and discrimination when accessing health and health-related services and strategies.

There are attitude, physical, financial and communication related barriers to healthcare among disabled persons which include:

Attitudinal barriers

- People with disability commonly report experiences of prejudice, stigma and discrimination by health service providers and other staff at health facilities.
- Many service providers have limited knowledge and understanding of the rights of people with disability and their health needs and have inadequate training and professional development about disability.
- Many health services do not have policies in place to accommodate the needs of people with disability. Such policies could include allowing longer and flexible appointment times, providing outreach services and reducing costs for people with disability.
- Women with disability face particular barriers to sexual and reproductive health services and information. Health workers often make the inaccurate assumption that women with disability are asexual or are unfit to be mothers.
- People with disability are rarely asked for their opinion or involved in decision-making about the provision of health services to people with disability.

Physical barriers

- Health services and activities are often located far away from where most people live or in an area not serviced by accessible transport options.
- Stairs at the entrance to buildings or services and activities located on floors which do not have elevator access are inaccessible.
- Inaccessible toilets, passages, doorways and rooms that do not accommodate wheelchair users, or are difficult to navigate for people with mobility impairments, are common.
- Fixed-height furniture, including examination beds and chairs, can be difficult for people with disability to use.
- Health facilities and other venues for activities are often poorly lit, do not have clear signage, or are laid out in a confusing way that makes it hard for people to find their way around.

Communication barriers

- A key barrier to health services for people who have a hearing impairment is the limited availability of written material or sign language interpreters at health services.
- Health information or prescriptions may not be provided in accessible formats, including Braille or large print, which presents a barrier for people with vision impairment.
- Health information may be presented in complicated ways or use a lot of jargon. Making health information available in easy to follow formats including plain language and pictures or other visual cues can make it easier for people with cognitive impairments to follow.

Financial barriers

- Over half of all people with disability in low-income countries cannot afford proper health care.
- Many people with disability also report being unable to afford the costs associated with travelling to a health service and paying for medicine, let alone the cost of paying to see a health service provider.

Disability inclusion in health care is critical to achieving universal health coverage without financial hardship, because persons with disabilities are: Three times more likely to be denied health care, four times more likely to be treated badly in the health care system and 50% more likely to suffer catastrophic health expenditure.

d. Elders persons

People worldwide are living longer. Today most people can expect to live into their sixties and beyond. Every country in the world is experiencing growth in both the size and the proportion of older persons in the population. ageing is associated to lot of conditions. Common conditions in older age include hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression and dementia. As people age, they are more likely to experience several conditions at the same time.

Older age is also characterized by the emergence of several complex health states commonly called geriatric syndromes. They are often the consequence of multiple underlying factors and include frailty, urinary incontinence, falls, delirium and pressure ulcers.

A longer life brings with it opportunities, not only for older people and their families, but also for societies as a whole. Additional years provide the chance to pursue new activities such as further education, a new career or a long-neglected passion. Older people also contribute in many ways to their families and communities. Yet the extent of these opportunities and contributions depends heavily on one factor: health. Maintaining healthy behaviours throughout life, particularly eating a balanced diet, engaging in regular physical activity and refraining from tobacco use, all contribute to reducing the risk of non-communicable diseases, improving physical and mental capacity and delaying care dependency. All countries face major challenges to ensure that their health and social systems are ready to make the most of this demographic shift. Therefore, health care workers must also be ready to contribute in preserving health of this special group.

f. Homosexual person

Homosexual persons are also part of special people within the society. in health care, the relationship between users and health services is considered essential to strengthen the quality of care. However, the Lesbian, Gay, Bisexual, and Transgender population suffer from prejudice and discrimination in access and use

of these services. A sympathetic study reveal that the homosexual population have difficulties of access to health services as a result of heteronormative attitudes imposed by health professionals. The discriminatory attendance implies in human rights violations in access to health services. though there is what done, a lot must still be achieved to ensure access to health services for sexual minorities, through the adoption of holistic and welcoming attitudes.

Self-assessment 11.3

1. Is being lesbian, gay, or bisexual a mental disorder?
2. Mention 3 most common medical conditions elders people tend to experience.

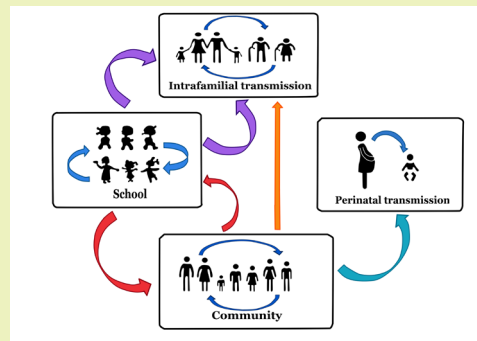
11.4. Social distribution of diseases

Learning activity 11.4

Describe image A and B below in terms of social distribution of diseases



A



B

Epidemiology is the discipline that studies the distribution and cause of disease. **Social epidemiology** is a branch of epidemiology that studies the distribution and determinants of health and disease in populations. Social epidemiology focuses particularly on the effects of socio-structural factors on states of health.

In the society people interact each other and this allow easy transmission of diseases especially communicable diseases. The distribution of the disease may either start in utero, get developed in families and then in general community. Due to

interconnectedness of societies and regular travel of people in the society disease vector may propagate in the whole country or even worldwide causing disease as for the recent case of Covid-19 pandemic.

Parents can transmit some diseases to their children during pregnancy, birth or during breastfeeding. At home where family members share beddings, bathrooms etc; there is high risk of sharing some communicable diseases especially when the hygiene is poor. In the community children, pregnant women and elderly people are more at risk of getting ill because of their low immunity. In Rwanda, Children are mostly contaminated by communicable diseases like worms (eg. ascariasis), amoebiasis, malaria, diarrhea, pneumonia among others and also children are exposed to malnutrition conditions like anemia, kwashiorkor and marasmus. Pregnant women are most likely to have anemia, malaria and other pregnant related diseases. Elderly people are mostly exposed to non-communicable diseases like hypertension, diabetes, stroke among others. Diseases are different from towns comparing to rural areas.

Self-assessment 11.4

Select the best response

1. A disease vector is a
 - a. organism that transmits a disease
 - b. symptom of a disease
 - c. environmental condition associated with a disease
2. An epidemic that becomes unusually widespread and even global in its reach is referred to as a
 - a. Pandemic
 - b. Hyperendemic
 - c. Covid-19
3. Social epidemiologists are interested in learning about
 - a. Social distribution of disease in population
 - b. the frequency and geographic distribution of diseases
 - c. the causal relationships between diseases
 - d. All the above

11.5. Implication of society in healthcare

Learning activity 11.5



A



B

Observe A and B and describe impact of displayed activities on health.

The central purpose of governments is the promotion of health and social development for their people. However, we ought to take into account that the health of every human being largely depends, besides their genetic endowment and personal behaviors, on social determinants that are only very partially within their control. Lifestyle plays a major role in the development of most illness globally.

Six of the 10 leading factors contributing to the global burden of disease are lifestyle related: unsafe sex, high blood pressure, tobacco use, alcohol use, high cholesterol and obesity. Lifestyle-related illnesses also contribute to the rising costs of healthcare. Given the well-documented relationship between lifestyle, disease burden and healthcare costs, it makes economic and medical sense to hold individuals morally responsible for their health-related choices. Although individuals should play an important role in maintaining their own health, they should not be held entirely responsible for it. Assuming that responsibility for health rests either with individuals or with society, it follows that society should also help to promote health and prevent disease.

Undoubtedly, ensuring access to healthcare is an important social responsibility, but societies can also participate in promotion of health, such as through sanitation, pollution control, food and drug safety, sport activities, health education, disease surveillance, urban planning and occupational health as well as in health research.

Self-assessment 11.5

1. Mention at least 4 lifestyle related behaviors which contribute to global burden of disease globally
2. Mention 2 health promotion activities that your society regularly be involved in.

11.6. Approach to Family Health Nursing

Learning activity 11.6

1. Describe image aside
2. Relate to the image aside and define the term Family nursing.



Family health: A condition including the promotion and maintenance of physical, mental, spiritual, and social health for the family unit and for individual family members.

In health care, there are many different approaches throughout the field of nursing. When considering the field of family nursing, there are four different approaches to caring for patients. The approaches that will be discussed include family as a context, family as a client, family as a system, and family as a component to society. The approach that nurses use is determined by many factors including the health care setting, family circumstances and nurse resources.

a. Family as a context of care

Family as a context is an approach that focuses on care of an individual client in which the family is the context. Although the nurse focuses the nursing process on the individual's health status, the nurse also assesses the extent to which the family provides the individual's basic needs. These needs vary, depending on the individual's development level and situation. Because families provide more than just material essentials, their ability to help the client meet psychological needs must also be considered. Family members may need direct interventions themselves.

b. Family as a client

In this approach, the family nursing care centers on the assessment of all family members. The family nurse is interested in the way all family members are individually affected by the health event of one family member. The family is the foreground and individuals are in the background. In this approach, the family is seen as the sum of individual's family members. The nurse focus is concentrated on each and every individual as they affect the whole family. From this perspective, a nurse might ask a family member who has just become ill. Example, "tell me about what has been going on with your own health and how you perceive each family member responding to your mother's recent diagnosis of liver cancer".

c. Family as a system

In this approach the family is viewed as an international system in which the whole is more than the sum of its parts. This approach focuses on the individual and family members become the target for nursing interventions. Eg: the direct interaction between the parent and the child. The system approach to the family always implies that when something happens to one affected. It is important to understand that although theoretical and practical distinctions can be made between the family as context and the family as client, they are not necessarily mutually exclusive, and both are often used simultaneously, such as with the perspective of the family as system.

d. Family as a component of society

In this approach, the family is seen as one of many institutions in society, along with health, educational, religious, or economic institution. The family is a basic or primary unit of society, as are all the other units and they are all a part of the larger system of society. The family as a whole interacts with other institutions to receive exchange or give communications and services. Community health nursing has drawn many of its clients from this perspective as it focuses on the interface between families and communities. Family health nursing practice like any nursing practice begins with the nursing process. By using this process, the nurse practicing with family perspectives is potentially able to effectively intervene at any of the levels. After an assessment of the individuals, family unit, and supra system, the nurse is ready to begin to identify areas of concern or need.

Self-assessment 11.6

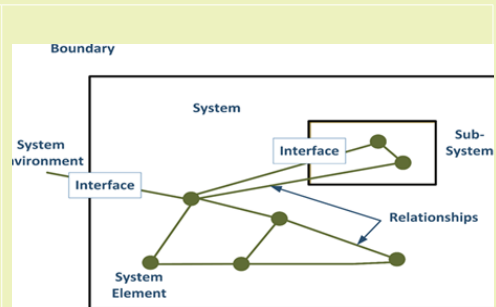
Match approach to family nursing in column A with specific examples provided in column B

	Approach to family nursing		Examples
1	System approach to family nursing	A	Tell me about what has been going on with your own health and how you perceive each family member responding to your mother's recent diagnoses of liver cancer?
2	Context approach to family nursing	B	What has changed between you and your spouse since your child's head injury?
3	Client approach to family nursing	C	How has your diagnosis of heart failure affected your family?
4	Family as a component of society approach		

11.7. Theories related to family health nursing

Learning activity 11.7

Describe the figure aside by showing how these areas are connected to the family as well as to the society.



a. Functional theory

Also called structural theory. Functional was written in 1898 by an English Philosopher and biologist Herbert Spencer (1820-1903). This theory sees society as a structure with interrelated parts designed to meet the biological and social needs of the individuals in that society. Spencer saw similarities between society and the human body; he argued that just as the various organs of the body work together to keep the body functioning that how the various parts of society work together to keep society functioning. The parts of society that Spencer referred to were the **social institutions**, or patterns of beliefs and behaviors focused on meeting social needs, such as government, education, family, healthcare, religion, and the economy.

According to this theory, the society is held together by shared values, languages, and symbols. He believed that to study society, a sociologist must look beyond individuals to social facts such as laws, morals, values, religious beliefs, customs, fashion, and rituals, which all serve to govern social life.

b. Family interaction theory

Family interaction theory (FIT) stems from symbolic interactions that are applied to the family. This approach focuses on the way by which family members relate to one another. The family is viewed as a set of interacting personalities. The family dynamics and the relationships of the child to the family significantly affects the emotional development. According to FIT, the parent-child relationship is perceived to influence the important aspects of the child's personality. The child's attachment to the family of origin and social institutions such their experiences in school are believed to be central to the child and also parenteral satisfaction and low parent-child conflict are also perceived to influence the well-being of the child. The parent-child interactions can significantly impact the development of the child's emotional competence, which specifically includes self-esteem.

c. General system theory

General system theory was written by Von Bertalanffy in 1950's. Von Bertalanffy introduced General systems theory as a universal theory applicable to many fields of study which provides a way of examining interrelationship and deriving principles.

The author started by defining a system as a set consisting of integrated, interesting parts or components that function as a whole. Each part is necessary to make a complete and meaningful whole.

General system theory describes how to break the whole apart and then learn how the parts work together.

- Emphasizes the relationships between parts.
- Describes how parts function and behave.

Principles of General system theory and its application in Nursing

- 1. The principle of wholeness:** It is the core of General system theory; this principle provides the guidance or methodology to us in order that we can study all kinds of objects effectively.
- 2. The principle of optimization:** The principle of optimization of a system is to achieve an optimal state in certain condition and to perform its best function by organization and coordination. With the principle of optimization
- 3. The principle of modeling.** Modeling is to design a model similar to a real system first, then to describe and understand the characterization and level of real system by studying the model.

d. Developmental theories

Child development theories focus on explaining how children change and grow over the course of childhood. Such theories center on various aspects of development including social, emotional, and cognitive growth. The study of human development is a rich and varied subject. We all have personal experience with development, but it is sometimes difficult to understand how and why people grow, learn, and act as they do.

Some of the development theories are: Freud's Psychosexual Developmental Theory, Erikson's Psychosocial Developmental Theory, Behavioral Child Development Theories, Piaget's Cognitive Developmental Theory, Bowlby's Attachment Theory, Bandura's Social Learning Theory, Vygotsky's Sociocultural Theory.

Example, **Attachment theory** written by John Bowlby who believed that early relationships with caregivers play a major role in child development and continue to influence social relationships throughout life. Bowlby's attachment theory suggested that children are born with an innate need to form attachments. Such attachments aid in survival by ensuring that the child receives care and protection. Not only that, but these attachments are characterized by clear behavioral and motivational patterns.

In this theory, both children and caregivers engage in behaviors designed to ensure proximity. Children strive to stay close and connected to their caregivers who in turn provide a safe haven and a secure base for exploration. Children who receive consistent support and care are more likely to develop a secure attachment style, while those who receive less reliable care may develop an ambivalent, avoidant, or disorganized style.

Self-assessment 11.7

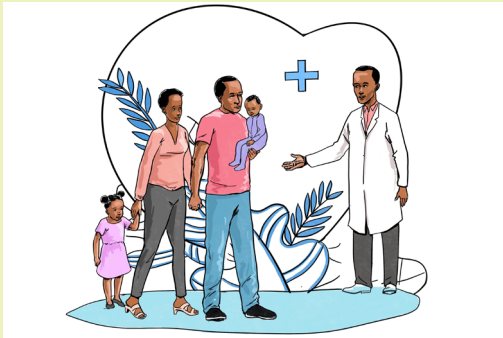
Select the best response

1. Functional theory
 - a. Form a whole which is more than the sum of its parts
 - b. The family is viewed as a set of interacting personalities
 - c. The society is held together by shared values, languages, and symbols
 - d. All of them
 - e. None of them
2. The family dynamics and the relationships of the child to the family significantly affects the emotional development. Which theory is this?
 - a. Attachment theory
 - b. Family interaction theory
 - c. General system theory
 - d. None of them
3. General system theory describes how to break the whole apart and then learn how the parts work together. Which theory is this?
 - a. Functional theory
 - b. Family interaction theory
 - c. General system theory
 - d. All of them
4. Focus on explaining how children change and grow over the course of childhood
 - a. Family interaction theory
 - b. Development theory
 - c. Attachment theory
 - d. None of them
5. John Bowlby is the author of which theory?

11.8. Role of family in health promotion and diseases prevention

Learning activity 11.9

Describe image A and B in relation to the role of family in health promotion and disease prevention.



A



B

The family is the central and important social institution for health development in which individuals are born and receive resources for their growth and development. It has the primary influence on the health and development of children. The family influences healthy behaviors, and provides care and facilitates recovery from the illnesses. The family is a source of nurture and emotional support as well.

Families provide the support and conditions needed for healthy living, prevention of disease and opportunities for early diagnosis and treatment to avert or delay complications. Social support for family's needs to be responsive to the dynamics of today's family structure and the composition, condition, and challenges faced by families. Family as the foundation for health development of individuals; changing family structure, demography, roles, and responsibilities poses challenges in nurturing healthy behaviors. Intersectoral interventions to empower families are crucial to build adequate support systems for healthy family development; to strive towards social inclusiveness increasing family access to public services; to enable institutions to assess family at-risk before crisis; and, to design family centred support systems. Active participation of families is crucial for family empowerment.

Empowering women to promote family health and well-being to gain control of their own lives, income and fertility contributes directly to their family health and health development.

In Rwanda, health promotion activities families get involved in regularly include:

ensuring the immunization of their children, designing kitchen garden to fight against malnutrition, participating in umuganda, ensuring hygiene at home and in the community, avoidance of water and air pollution etc.

To conclude; Important areas where families impact health includes healthy behaviour, self-care, care during pregnancy and childbirth, child and adolescent health, care of the aged, nursing and nurturing the sick, individuals with special needs (including those with stigmatizing health conditions) and disaster preparedness.

Self-assessment 11.8

What is the major role of the family in disease prevention?

End unit assessment 11

Respond to all questions from both sections

SECTION A: Select the best response

1. A homeless woman is more likely than other women to have all of the following characteristics *except*:
 - a) To have less than a high school education
 - b) To have grown up in foster care
 - c) To be employed
 - d) To have had an abortion by age 16
2. What is the definition for the nuclear family?
 - a) Individual living together
 - b) Two adults with their own biological children
 - c) Single person
 - d) All of the above
3. Maliko mom has just remarried and is expecting baby. Name the type of his family
 - a) Blended family
 - b) Extended family
 - c) Lone family
 - d) Residential care family

4. Which is a developmental task for the family with teenagers?
 - a) Releasing young adults into the world
 - b) Adjusting to retirement
 - c) Helping children cope with independence
 - d) Promoting education
5. Which family function is providing a home (shelter), clothing and food to the best of your ability?
 - a) Basic needs
 - b) Spiritual
 - c) Recreation
 - d) Adaption
6. There certain things in our society that have been happening before civilization and still happening, such as prostitution, which people refer to as sex worker?
 - a) someone that exchange sex for money
 - b) someone that engage sex for pleasure
 - c) someone hire for sexual activities
 - d) all of the above
7. Equity and inclusion for children with disabilities means equal...
 - a) Opportunities
 - b) Treatment
 - c) Rights
 - d) All of the Above
8. What does the disabled person require from the society?
 - a) Peer support
 - b) Housing
 - c) Transport
 - d) All the above

9. Most of the health problems in rural areas of Rwanda are due to:

- a) Parasitic worms and microorganisms
- b) Psychological tension resulting from work
- c) Air pollution
- d) HIV

10. In Rwanda children are most likely to suffer from

- a) Hypertension
- b) Diabetes
- c) Kwashiorkor
- d) HIV

SECTION B: Open ended questions

- 11. Differentiate system approach to family nursing and family as a component of society approach to family nursing are.
- 12. Mention at least 3 reasons why sex workers are more likely to get HIV+ and other STI than the general population.

Key Unit Competence

Provide an appropriate counseling for individual, groups, and family

Introductory activity 12



A



B



C

1. What do you see on pictures above?
2. What are differences between pictures A, B and picture C?
3. On your point of view, how do you interpret the picture C?

12.1. Definition and Communication process

Learning activity 12.1

Observe the picture aside and answer following questions:

1. What do you see on pictures above?
2. What are doing persons on the picture?
3. On your point of view, what could be the topic of conversation?



12.1.1. Definition of communication

Communication can broadly be defined as **exchange of ideas, messages and information between two or more persons, through a medium, in a manner that the sender and the receiver understand the message in the common sense**, that is, they develop common understanding of the message.

Berelson and Steiner define communication as the transmission of information, ideas, and emotions, skills through the use of symbols, words, pictures, figures, and graph

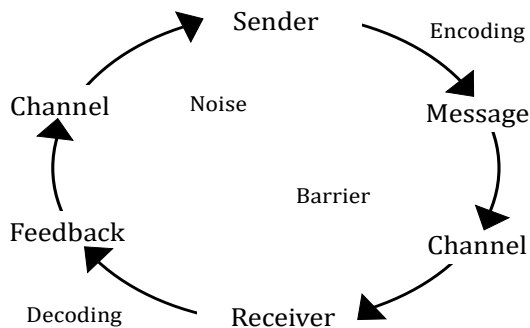
12.1.2. Communication process

The communication process has several components that enable the transmission of a message. Here are the various parts

- a. **Sender:** This is the person that is delivering a message to a recipient.
- b. **Message:** This refers to the information that the sender is relaying to the receiver.
- c. **Channel of communication:** This is the transmission or method of delivering the message.
- d. **Decoding:** This is the interpretation of the message. Decoding is performed by the receiver.
- e. **Receiver:** The receiver is the person who is getting or receiving the message.
- f. **Feedback:** In some instances, the receiver might have feedback or a response for the sender. This starts an interaction.



The Communication Process: DIAGRAM



Counselling

How does the communication process work?

In order to successfully communicate, it's important to understand how the process works.

Here are the seven steps in the communication process:

1. The sender develops an idea to be sent.
2. The sender encodes the message.
3. The sender selects the channel of communication that will be used.
4. The message travels over the channel of communication.
5. The message is received by the receiver.
6. The receiver decodes the message.
7. The receiver provides feedback, if applicable.

Self-assessment 12.1

1. Explain what communication meant?
2. What is the importance of communication?
3. Give seven steps in the communication process.

12.2. Types and techniques of communication

Learning activity 12.2



A



B



C



D

Observe the pictures above and answer following questions:

1. How can you interpret pictures A, B, C and D?
2. On your point of view, what is a difference between picture C and D

Type: a type means people, places or things that share traits which allow them to belong to the same group

Technique: a way of carrying out a particular task, especially the execution or performance of an artistic work or a scientific procedure

12.2.1. Types of Communications:

12.2.1.1. Verbal Communication

The most common form of communication is the spoken word. It can be used to convey information, ask questions or request a response from others. Verbal

communication includes all forms of speech, such as talking, shouting, whispering, and singing, chanting, and reading aloud.

12.2.1. 2. Non-verbal Communication

There are many other ways that people communicate with each other without using words. Non-verbal communication includes nodding, shaking hands, pointing, eye contact, smiling, frowning, touching, leaning forward, standing up straight, sitting down, crossing arms, etc. These gestures help us understand what another person means when they speak.

We also use non-verbal cues to express ourselves to others. For example, if someone smiles at me while I'm speaking to him, he might be expressing interest in what I have to say. Or if he leans back in his chair, it tells me that he doesn't want to hear what I am saying.

12.2.1.3. Written Communication

The written word has been an important means of communication since ancient times. Written communication includes letters, e-mails, faxes, memos, reports, and other written messages. Written messages include text on paper and computer screens. Writing allows us to store large amounts of information quickly and easily.

12.2.1.4. Visual Communication

Another way that we communicate with each other is through pictures or images. Visual communication includes photographs, paintings, diagrams, charts, maps, graphs, drawings, sketches, animations, and videos.

12.2.2. Techniques of communication

Communicating effectively will benefit you in every aspect of your life. Good communication skills impact your relationship with every person you interact with.

Following 5 techniques are used in communication

- Pay attention: Give the speaker your undivided attention.
- Show that you're listening: It is important that you are 'seen' to be
- Give feedback: Our life experiences and beliefs can distort
- Keep an open mind: a willingness to listen to or accept different ideas or opinions.
- Respond appropriately: Active listening encourages respect

Self-assessment 12.2

1. Differentiate type and technique of communication
2. Explain different types of communication
3. Give five techniques used in communication

12.3. Factors and characteristics of communication

Learning activity 12.3



A



B



C

After observing the pictures above, answer the following questions

- 1) What do you see on picture A?
- 2) What does every one from picture A means to you ?
- 3) Is the person sitting in picture B safe ? if no what do you think could be the cause?

12.3.1. Factors, Barriers and Benefits of effective communication

a. Factors that enhance effective communication

- Active listening
- Simplicity
- Straight forwardness
- Feedback
- Speaking clearly/articulation
- Knowledge of the receiver / audience
- Speed and sequence of speech
- Relationship between the sender and the receiver
- Command of subject (mastery of subjects matter)
- Commanding attention

b. Barriers to effective communication

- Poor listening habits
- Inadequate knowledge of the subject
- Biases and stereotypes
- Lack of interest on the subject
- Personal opinions
- Interruptions
- Religious and cultural difference
- Language barrier
- Poor timing
- Guilt
- Status

c. Benefits of effective communication

- Right information is shared
- Minimizes conflicts
- Resources such as time and money are saved
- Helps in establishing rapport
- Intended results are achieved
- Sender is able to provide intended feedback
- Enhances harmonious co-existence and conflicts are resolved amicably

12.3.2. Collaborative professional communication

Learning activity 12.3.2

Observe the illustration aside and answer the following questions :

1. In which domain can you classify the people on the picture ?
2. Are they from the same area of work ?
3. In which department would you classify each of them ?
4. Advise them in one sentence what they can do to achieve their goals .



Collaboration

Collaboration is defined as a joint effort of multiple individuals or work groups to accomplish a task or project

Collaborative Practice in health

The collaborative practice in health care can be defined as the provision of services based on comprehensiveness, developed by health professionals from different areas. It aims to achieve the highest quality of care in the service network, involving patients, families, caregivers, and communities. Such practice can be included in clinical and non-clinical work, such as diagnosis, treatment, surveillance or communication in health, administration, and sanitary engineering. Inter-professional collaboration, on the other hand, is characterized by the sharing of health information, that is, communication between professionals in order to favor the care of the singularities for those who are inserted in a service in search for health care

Types of collaboration

- **creative** – where two or more people create something to achieve a specific goal,
- **connective** – bringing together information from disparate sources, and
- **compounding** – where a team builds on previous achievements to reach further.

Six Elements of Successful Collaboration

- **Motivation.** After the thrilling netball final at the recent Commonwealth Games, the captain of the losing Australian team questioned whether the lower-ranked English were hungrier for the win. They chased down every ball relentlessly, making every goal matter. Their effort paid off. Motivating a team to be first to market, or to create the best possible customer experience, is a key element.
- **Communication.** It is important to recognise the difference between communication – a one-way process where a single person is responsible – and collaboration – where a group takes responsibility and agrees on how to achieve the same thing. I like to say that you can communicate without collaboration, but you can't collaborate without communication. From setting out specific objectives and roles, to keeping a team informed of progress and challenges, strong communication is vital to team achievement.
- **Diversity.** Just as a soccer team would fail if it consisted of eleven centre-forwards, a business team will flounder if it consists of identical personality types or roles. A variety of personalities and demographics brings a far broader range of perspectives.

- **Sharing.** Making sure that everyone is recognised, and that findings are shared across the team, leads to stronger bonding and deeper understanding. Other shared information, such as calendars and scheduling, can also lead to team efficiency. Apps like Calendar.help, based on Cortana Analytics, can recognise the nature of an appointment by language from the initiating email, check everyone's availability, and suggest suitable times. When a team member no longer spends time chasing dates, they can devote more attention to the core objectives of a project.
- **Support.** When everybody supports each other, without finger-pointing, the team dynamic is infinitely more powerful. Those able to express ideas in a supportive environment are more likely to make breakthroughs, whereas teams with a blame culture repress innovation. Mistakes can be some of the most powerful learning opportunities in a supportive group.
- **Problem-Solving.** Any collaboration is about solving problems, so a group that can't solve problems can't work. This often links back to team diversity – including some problem-solving personalities in the group is essential. This can mean looking beyond the obvious – sometimes it may be an engineer who solves a marketing problem, and a customer service clerk who identifies the flaw in a new app design. Diversity and problem-solving often go hand-in-hand.

12.3.3. Characteristics of good communicator

Excellent communication skills can benefit most professionals. Being an effective communicator can improve your work relationships, productivity and mutual understanding. If you would like to strengthen your communication skills, it may be helpful to consider the common characteristics of great communicators. In this article, we list good communication traits to adopt and explain how these characteristics improve communication.

- a. Good listener:** Communication usually requires two or more parties to be active in the conversation. Listening to others can help build relationships and ensure understanding. Actively listening when others are speaking or otherwise communicating with you can show that you respect them and allow you to learn more about the speaker or the subject of the conversation.
- b. Concise:** Being direct and clear with your communication can ensure that you properly convey your intentions. For example, if you're explaining a process to a new employee, offering clear, straightforward steps can help them learn quickly. It's also important to consider your team member's and client's time when conversing with them. If they appear busy, being concise shows you respect their schedule.
- c. Empathetic:** Empathizing with others can help you build trust and relationships in the workplace. Try to be understanding when a coworker or employee is having trouble and express your sympathy.

- d. Confident:** Being confident in your communication can grow your credibility as a professional. It also can help you properly communicate your needs. Consider expanding your vocabulary and pausing whenever you are unsure of what to say. This can help you remember your thoughts and speak clearly.
- e. Friendly:** Speaking and writing in a friendly tone can encourage others to communicate with you more often. Consider greeting people when you speak to them both in verbal conversation and in messages such as emails. Use the person's name if you know it, and be positive and friendly when interacting with others in person or on the phone.
- f. Observant:** Observing nonverbal communication, such as body language, is a very important aspect of communication. Recognizing your coworkers' and customers' body language can give you insight into how they are feeling. It can also help you determine how they feel about your own demeanor. For example, if you're having a casual conversation with someone who seems relaxed, your demeanor is probably also relaxed. Being purposeful in your own body language can help others understand your needs and intentions as well.
- g. Appreciative:** Letting others know when you are thankful for their actions can help motivate your team and improve their skills. Providing verbal positive reinforcement also can help ensure that the person you are praising or thanking continues their good practices.
- h. Polite:** Being polite in your written, verbal and nonverbal communication can ensure that your intentions are clear. Consider kindly greeting others when starting conversations, actively listen and use good manners when interacting with others.
- i. Organized:** Try to organize your speaking points, emails and other forms of communication so others understand your intended purpose of the interaction.
- j. Sincere:** Being genuine when you communicate with others can build a sense of trust and respect. Speaking with sincerity involves sharing your feelings and opinions, which can encourage clear and meaningful interactions with others.
- k. Good judgment:** Being able to decide the appropriate method and time to communicate with others can ensure peaceful and effective interactions..
- l. Respectful:** Showing respect during your communications involves being polite and attentive. In order to convey your respect for someone you are speaking with, allow them to finish speaking before replying.
- m. Consistent:** Consistent communicators interact with others on a regular basis. Establishing a predictable and reliable channel of communication can help keep others well informed and maintain work relationships. Consider creating a time frame and method in which you respond to others or are available for conversation.

- n. Retentive: Being retentive means you can remember details of previous conversations and interactions with others very well.
- o. Inquisitive: Asking detailed and thoughtful questions can lead you to learn new things and help clarify instructions. Skilled communicators often ask questions to strengthen their understanding of other's expectations, intentions and feelings.
- p. Honest: Great communicators are often dedicated to being honest. This practice can earn you a positive reputation and ensure that all workplace communication is accurate.
- l. Reliable: Being a reliable communicator means that your coworkers and employees can trust you to start a conversation when needed and respond effectively to others. Try to craft timely responses when others contact you. Consider reaching out to others quickly when you need help or clarification.
- s. Proactive: Skill communicator address conflicts in a timely manner and starts a conversation when needed.
- t. Reflective: Self-reflection is an important aspect of communication. It allows you to think thoroughly before speaking, which ensures that you are clearly and intentionally communicating. Being reflective can also encourage you to consider how your words and body language might make others feel

Self-assessment 12.3

1. Enumerate five factors that can enhance effective
2. Give seven barriers of effective communication.
3. What are 5 benefits of effective communication?
4. Give six elements of successful collaboration.
5. Define Collaborative professional communication
6. What are 5 characteristics of good communicator?

12.4. Principles and guidance of counselling

Learning activity 12.4



A



B

Picture A: Mr x and health care provider in medical specialized conversation

Mr. x consulted hospital seeking for health care for alleviates distress related to the death of his wife. Arriving at the hospital the customer care agent orients him to one health care provider who uses a broad range of culturally –sensitive practices to help people improve their well-being, prevent and alleviate distress and maladjustment, resolve crises and increase their ability to function better in their lives.

Picture B: Miss M and health care provider

Miss M was reading newspapers and found out an announcement about job application of becoming a head of internal medicine in a hospital. Miss M passed an exam and was selected for a job position. Now she is having a conversation with the head of hospital.

Based on the scenario above, answer the following questions:

- 1) What is the relationship between Mr. X and health care provider?
- 2) Why Mr. X has been specifically oriented to that health care provider?
- 3) Can this medical process happen out of health care facility?
- 4) Based on the picture B and its interpretation what is the conversation about?
- 5) Is it really necessary to have this type of conversation on picture B? If yes why?

12.4.1. Definition of words:

a. Counseling

Counseling is the psychotherapeutic relationship in which an individual receives direct help from an adviser or finds an opportunity to release negative feelings and thus clear the way for positive growth in personality.”

b. Guidance

Guidance is a piece of active advice offered to individuals from a superior in the respective field or a professional. It is the procedure of guiding, managing or leading a person for a particular course of action.

12.4.2. Counseling process:

Counselors and clients attempt to define, address, and resolve problems of the client in face-to-face interview

Critical Differences between Guidance and Counseling

Guidance	Counseling
Some senior person's advice or relevant information to resolve a conflict and overcome the difficulties is popular as guidance.	Counseling professional advice given by a psychologist to an individual to help him find the possible solution to personal or psychological problems.
The nature of Guidance is preventive	The nature of counseling tends to be healing, therapeutic, or helpful.
The guidance offers support to the person while choosing the best alternative	Counseling helps them to change their perspective, to get the solution by themselves.
Guidance is an inclusive process	counseling always focuses on the in-depth and inward analysis of the problematic situation till the client comprehends and overcomes it completely
Guidance is usually taken on education and career-related issues.	Counseling took when the problematic situation is linked with personal and socio-psychological issues.
An expert in a particular field can give guidance	Counseling can only provide by counselors who own a high level of skill and have undergone specialized training.
Guidance can give to a specific person or group of individuals simultaneously	counseling will always be a one-to-one session

Role of a counselor

Counseling psychologists help people with physical, emotional and mental health issues improve their sense by helping them see their situation and feelings from a different viewpoint. A helping approach that highlights the emotional and intellectual experience of a client is one of the ways that counseling works with clients from childhood through to old age.

4 types of counseling

- Individual counseling. Individual counseling is a way to help people work through difficulties in their lives.

- Couples counseling.
- Group counseling.
- Family counseling

Principles of Counseling:

a. Principle of acceptance

Accept the patient with his physical, psychological, social, economic and cultural conditions.

b. Principle of communication

Communication should be verbal as well as non-verbal and should be skillful.

Principle of empathy Instead of showing sympathy put yourself in patient's shoes and then give reflections accordingly (Empathy is ability to identify with a person.)

c. Principle of non-judge

Mental attitude-do not criticize or comments negatively regarding patient's complaints.

d. Principle of confidentiality

Always keep the patient's name, and the problems strictly secret and assure the patient about the same.

e. Principle of individuality

Treat each and every patient as unique and respect his problem as well.

f. Principles of non-emotional involvement

Not getting emotionally involved with the patient and avoid getting carried away with his feelings.

Self-assessment 12.4

1. Differentiate Counseling and guidance
2. State 5 types of counseling
3. Explain at least 4 principles of counselling

12.5. Counseling skills and qualities of good counselor

Learning activity 12.5



A



B

Observe the pictures above and answer to the following questions:

1. What do you see on both picture A and picture B?
2. Why one of each picture is writing?
3. If they are in a health care facility, they are in which unit?
4. Discuss the behaviors of the people on the pictures above?

Qualities of a Good Counselor

There are six personal characteristics that are critical for good counselors and should be improved upon continually.

These include having good interpersonal skills and being trustworthy, flexible, hopeful/optimistic, culturally sensitive, and self-aware.

a. Interpersonal skills

Counselors must be able to express themselves clearly and effectively. It is important not only to be able to educate clients about therapeutic topics, but also to gauge the client's understanding at any given time.

Being able to sense what clients are thinking and feeling and relate to them by showing warmth, acceptance, and empathy are cornerstones of effective therapy. You can learn about and improve interpersonal skills and empathy by downloading our **Emotional Intelligence Exercises**.

b. Trust

According to Hill and Knox (2001), most people determine whether they can trust someone within 50 milliseconds of meeting them. Counselors must be able to communicate verbally and nonverbally that they are trustworthy.

Clients need to feel comfortable sharing private, confidential information and parts of themselves that are often entirely unknown by others. Having faith in the quality of the relationship and the confidentiality of what is disclosed leads to a deeper connection with the therapist.

c. Flexibility

A good counselor will create a meaningful treatment plan that is individualized for each client. This means the counselor shouldn't follow a rigid schedule of treatment or have a "one size fits all" approach.

Prochaska and Norcross (2001) found that some treatments are better than others for specific types of disorders. Matching the treatment to the client's stage of readiness is the most effective way to implement therapeutic techniques. Additionally, counselors need to be able to adapt and change course if treatment is not working for the client.

d. Hope and optimism

Hope is a wonderful motivator. Effective counselors can find a balance between realism and hope.

A good counselor will set realistic goals that engage the client and inspire a more optimistic outlook.

As attainable goals are reached, clients will develop a sense of resilience and confidence that can help in all areas of life. These traits are why positive psychology is such an effective method of improving emotional health.

e. Multicultural sensitivity

The American Psychological Association recommends that therapists adapt treatment to a client's cultural values and show respect for differences, beliefs, and attitudes.

When working with clients, it is important to be educated and sensitive to issues of race, gender, ethnicity, sexual orientation, religion, and cultural background.

f. Self-awareness

An effective counselor can separate personal issues from those of the client. Countertransference is a phenomenon described by Freud where issues expressed by a client lead to an emotional reaction of the therapist

g. Counseling skills

Counseling skills are soft (interpersonal) and hard (technical) attributes that a counselor puts to use in order to best help their clients work through personal issues and overcome obstacles that are currently preventing them from living a full and happy life.

h. Examples of counseling skills

There are a variety of skills that are beneficial to a counselor's understanding of their client, and to the client's overall comfort and willingness to be vulnerable about their personal hardships. Here is a list of useful skills that counselors should have:

i. Active listening

Active listening is an important skill for a counselor to have. It can be defined as the use of eye contact, facial expressions and gestures to imply that you are engaged and focused on the information the other person is saying. It can help a client feel like they've been heard and validated in the information they chose to share.

j. Questioning

There are two types of questioning styles that a counselor should be able to utilize—open questioning and closed questioning. Being skilled in questioning techniques can help a counselor to better interpret what a client is saying and it can help them think more deeply into their personal situation as well.

Open questioning includes all questioning that is directed toward gathering more detailed and complex information. Closed questioning is directed toward more short-ended questions with specific answers.

k. Note-taking

Counselors should be skilled in organized note-taking techniques in order to record important points that were discussed during the session and information the client provided. This can be used for further analysis later on.

l. Interpretation

Counselors should be able to interpret vague information that a client shares and place it within the context of what they are going through. Phrases like "I'm just so tired," or "I'm on edge all the time," constitute further information, and it is up to the counselor to interpret this information.

m. Nonverbal communication competency

Similar to information interpretation, counselors should be able to identify current attitudes or feelings based upon the body language that a client uses during the session.

n. Self-awareness

Counselors need to be aware of how their body language, gestures and tone of voice can affect their client and their willingness to talk about the situation. Having good self-awareness can keep a counselor from accidentally exhibiting signs of boredom, frustration or judgment.

o. Trustworthiness

An important skill for a counselor is to be able to build and maintain trust with their clients. This can affect a client's willingness to share information.

p. Empathy

A counselor needs to be able to see a client's situation from their perspective in order to best help them overcome their obstacles.

r. Emotional compartmentalization

Another skill that can be specific to counselors is the ability to emotionally compartmentalize themselves from their clients and maintain professional boundaries in order to continue healthy client relationships.

s. Information recall

Counselors should be able to remember information that was shared with them earlier in the session or from a previous session in order to help guide their questioning toward a particular client.

t. Confidentiality

Confidentiality can be seen as a valued skill for a counselor to have as they must respect their clients and the information, they share with them.

u. Record keeping

Counselors should be able to keep detailed records of their clients, relevant paperwork and session notes to make sure everything stays up-to-date.

Description of counseling process

The process begins with exploring the challenges a client faces. Helping clients with physical, emotional, and mental health issues, the counselor helps them resolve crises, reduce feelings of distress, and improve their sense of wellbeing. Treatment can change how a client thinks, feels, and behaves in an upsetting situation.

Positive psychology includes strengths, values, and self-compassion, and these science-based exercises will give you the tools to enhance the wellbeing of your clients, students, or employees. We informally give advice to family, friends, and colleagues.

A professional counselor is a highly trained individual who is able to use a different range of counseling approaches.

Self-assessment 12.5

1. State different qualities of a good counselor?
2. Enumerate different counseling skills?
3. Describe the process of counseling?

12.6. Counseling process and barriers to effective counselling

Learning activity 12.6



Based on the picture beside:

- 1) Are the two people in good mood?
- 2) Can they communicate well?
- 3) If they cannot communicate well, what is the main reason?
- 4) What does the man need?
- 5) Which factor can help the two people to effective counseling?

5 stages of the counseling process

- Relationship building is stage one of the process.
- Stage two is problem assessment.
- Goal setting is the third stage.
- Stage four includes counseling intervention.
- Stage five includes evaluation, firing or referral.
- The client has some key steps.

Therapeutic communication skills during client-nurse relationship

Roger's theory and practice supported the patient's ability to foster self-knowledge and control his impulses by empowering him to actively contribute to his own healing.

Therapeutic Communication Skills are:

- Empathy
- Authenticity
- Unconditional Positive Regard

- Accepting others for who they are is the basis of therapeutic communication and the foundation on which humanistic psychology lies.

a. Empathy

Sensing a client's emotions and reacting to them as if they were your own describes empathy within therapy. This concept of compassion reflects your profound understanding of the client's emotions and circumstances that exceeds any calculated analysis of the client by the therapist. In his article on client-centered therapy, Rogers emphasizes the characteristics of successful therapeutic communication by saying: "If the counselor can create a relationship permeated by warmth, understanding, safety from any type of attack, no matter how trivial, and basic acceptance of the person as he is, then the client will drop his natural defensiveness and use the situation.

Sensing a client's emotions and reacting to them as if they were your own describes empathy within therapy. Feeling emotion with a patient can generate a compassionate and therapeutic environment in which the patient can feel secure and recognize that you're listening to him rather than evaluating him.

b. Authenticity

Exhibiting genuine thoughts and emotions in the therapeutic approach and gaining insight into your patient requires you to also be in touch with your own feelings. Rogers called for the clinician to be "a real human being with real thoughts, real feelings, and real problems." In order for an effective therapeutic client-centered relationship to form, you must be sensitive and honest in your communication.

Exhibiting genuine thoughts and emotions in the therapeutic approach and gaining insight into your patient requires you to also be in touch with your own feelings.

Therapists must also possess an intuitive sense of self because it cultivates trust and confirms that you aren't projecting yourself as a superior force over your patient.

c. Unconditional Positive Regard

Displaying unconditional positive regard means that you show your patient that no matter what he does, your respect for him remains the same. Yet, you continue to reveal the desire for him to move towards healing. Rogers emphasized the importance for the therapist to remove any concern for diagnostic tendencies and be available to provide the patient with acceptance and consideration of the emotions he's exploring in the present.

English psychotherapist Greg Mulhauser of Mulhauser Consulting, Ltd., explains that unconditional positive regard implies that you accept your client categorically and without prejudice. This notion of therapy assures the client that he may examine and express any of his thoughts or feelings without the threat of being criticized or disregarded.

Displaying unconditional positive regard means that you show your patient that no matter what he does, your respect for him remains the same.

This notion of therapy assures the client that he may examine and express any of his thoughts or feelings without the threat of being criticized or disregarded.

Barriers to effective counseling

a. Counseling is too expensive.

Anyone who is considering counseling is making a choice about how to manage the difficult circumstances in their life. By the time this choice is being made there's a good chance they've already tried any number of other alternatives that aren't working.

b. Counseling is too embarrassing.

It can be very difficult to find someone to trust. Almost everybody in your life has a set of expectations for you, and your relationship with them usually depends on how well you meet those expectations.

I've been to counseling and it didn't work.

Counseling, like any other relationship, requires clear expectations, healthy boundaries, and honesty. It is important that both the counselor and client are able to admit when their personalities or perspectives don't match. In some cases a smooth ending to a counseling relationship, for whatever reason, may not be possible.

I'm not the one who needs counseling.

All of us know somebody who needs therapy. After reading that you're probably thinking about them right now. To be honest, if you start asking around you'll probably find a few people who think that about you.

I don't have time for counseling.

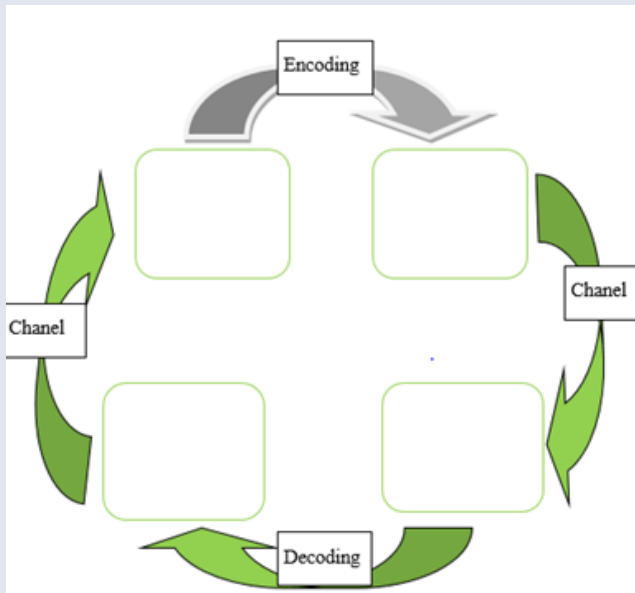
Anxiety is all around us. Technology has made everything easier to do, so instead of relaxing we end up trying to do more than ever. The need to achieve can quickly use up our time, our energy, and our attention.

Self-assessment 12.6

1. What is counseling process?
2. What are the 5 types of counseling?
3. Critically Differentiate Guidance and Counseling?

End unit 12 assessment

1. Referring on the communication process diagram, complete the chart below



2. Define the following words :
 - a. Communication
 - b. Collaboration
 - c. Counselling
 - d. Guidance
 - e. Empathy
3. What is the difference between verbal and non-verbal communication?
4. What are the Benefits of effective communication
5. Explain the role of a counsellor during a psychotherapy session
6. Give 5 stages of the counseling process?
7. Enumerate barriers of counseling?

Introductory activity 13



A



B



C



D

Observe the above images and attempt the following questions:

- a. What do you think Image A represent?
- b. What do you think picture B is trying to describe?
- c. What do you think image C?
- d. What do you think is happening in image D?

13.1. Introduction to gender and gender-based violence related concepts

Learning activity 13.1



A



B



C



D

Carefully observe the above images and attempt the following questions:

- What does image A try to explain?
- What do you think of image B?
- What do you think of image C is about?
- What do you think is happening in image D?

13.1.1. Gender and sex

Gender refers to what it means to be a male or a female in a given society and culture. Thus, gender is social construct that determines the roles, behaviour, activities and attributes that a particular society at a given time considers appropriate

for men and women, girls and boys. It is shaped by the sociocultural environment and experience in addition to biology and vary widely within and between cultures and often evolve over time.

Gender is not synonymous to sex; which refers to biological classification of people as male or female based on physical and physiological features including chromosomes, gene expression, hormone level and function, and reproductive and sexual anatomy. The term “**intersex**” is used as an umbrella term for individuals born with natural variations in biological or physiological characteristics (including sexual anatomy, reproductive organs and or chromosomal patterns that do not fit traditional definitions of male or female. Infants are generally assigned the sex of male or female at birth based on the appearance of their external genitalia.

13.1.2. Sexual orientation and gender identity

There is tremendous variability in the ways that individuals express their gender and in the ways, they express their sexual orientation. Accordingly, various concepts exist to accommodate these variations and healthcare providers should be conversant with them to appropriately use them when working with diverse clients.

Sexual orientation is a function of sexual attraction, identity, and behavior. **Sexual attraction** is about the type of person an individual desire sexually, romantically, emotionally, and in other sexual ways; **heterosexual individuals** are attracted to people of the opposite sex, **homosexual individuals** are attracted to people of the same sex, and **bisexual individuals** are attracted to both people of the opposite sex and the same sex. Sexual identity is about how people present their sexuality to others, with some people very private about their sexual identity and others very open. **Sexual behavior** is about the sexual actions in which a person engages. Some people choose to be celibate.

Besides sexual orientation exists **gender identity**, which is an individual’s sense of maleness or femaleness and **gender expression** which is how an individual expresses their own gender to the world, i.e., through names, clothes, how they walk, speak, communicate, their roles in society and general behaviour. These may sometimes not match societally accepted norms for their biological sex at birth. A **cisgender** person has a gender identity that aligns with the sex assigned to that person at birth. A **transgender** person has a gender identity that does not match the sex assigned at birth.

13.1.3. Gender equality and equity

Gender being an array of socially constructed characteristics and roles, makes it hierarchical and is surrounded with inequalities and inequities. **Gender inequality** refers to unequal treatment or perceptions of individuals based on their gender. It emerges when one of the two sexes is considered more valuable, capable,

powerful, and has more access to information, resources and opportunities than the other and is an important factor for gender-based violence. Opposed to this, is **gender equality** that refers to a state where there is no discrimination on the basis of a person's sex in the allocation of resources and in the access to various services in a society. With gender equality, individual's rights, responsibilities and opportunities are not determined by the sex they are assigned at birth nor gender identity or sexual orientation.

To achieve gender equality, some strategies and processes "equity" come in. **Gender equity** therefore refers to fairness and justice in the distribution of resources, opportunities, and benefits to women/girls in relation to men/boys. It implies objectivity of treatment for all genders with regards to their respective needs and strives to bring all the genders to an equal playing field. It recognizes that certain groups face disadvantages because of historical and structural reasons therefore contextual measures required to ensure that their disadvantaging situations are not perpetuated.

13.1.4. Gender-based violence

Gender-based violence (GBV) refers to any act of violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to someone on the basis of their gender or sex. Although, this definition is applicable to both men and women, the phenomenon of GBV mostly affects women. It roots deeply in discriminatory cultural beliefs and attitudes that perpetuate inequality and powerlessness, in particular of women and girls.

Self-assessment 13.1

1. What is the difference between gender and sex?
2. What does intersex mean to you?
3. Define the following concepts:
 - a. Gender-based violence
 - b. Sexual behaviour
 - c. Gender identity

13.2. Role of gender in health promotion and diseases prevention

Learning activity 13.2



A



B

Carefully observe the above images and attempt the following questions:

- What do you think image A is attempting to explain?
- What do you think image A is attempting to explain?
- Through the lens gender and health, attempt to establish a relationship between image A and B

It is usually wise to spend little on health promotion and disease prevention interventions than to spend relatively large amounts of money for recovery from serious health problems. **Disease prevention** involves determining preventive health interventions that are effective in various population group as well as how well successful interventions can be scaled up for widespread implementation. **Health promotion**, on the other hand, encourages individuals and communities to improve their health through healthy public policies, supportive environments, skilled personnel, strong communities, and increased access to preventive health services.

Biological differences between male and female along with socially constructed masculine and feminine the roles and responsibilities affect both health promotion and disease prevention strategies. Cognizant of this, any of these interventions should cater for these differences to yield good results. For instance, these differences affect the way different individual or groups of individuals take risk beside risks they are exposed to; their attempts to improve their health, and how the health system responds to their needs. Furthermore, gender-based principles as well as discriminatory societal and cultural norms and prejudices, may translate into activities that harm one's health and well-being.

13.2.1. Gender and health promotion

Gender influences on health include access to health-promoting resources, commonplace exposure to health-damaging and health-promoting factors, and varied expectations of behavior such as consuming alcohol, taking risks, and using healthcare. For instance men have more harmful smoking practices, unhealthier dietary patterns, heavier alcoholic drinking habits and higher rates of injuries and interpersonal violence than women. With traditional masculinities and femininities expectations women are less likely to engage into physical activities than men. Additionally, traditional masculinities frequently function as a barrier to men seeking health treatment, engaging in preventive behaviors, and managing self-care, whereas women's health is frequently relegated to sexual, reproductive, and maternal health.

Effective health promotion program should be holistic and use gender analysis and gender integration for healthy public policies can be developed for concrete and effective individual and community actions relevant to promoting health and wellness. Effective health promotion policies and programmes are those centred on joint commitment and that use a multi-sectorial approach and which are based on evidence gathered with gender dimensions in mind.

13.2.2. Gender and diseases prevention

Gender norms, roles and relations influence the development and course of risk factors of various diseases and impact the way men and women use services and respond to healthcare services therefore affect various level of disease prevention. For instance, traditional masculinities will often act as a barrier to men seeking health care including those required for primary (e.g., vaccination), secondary (e.g. checking blood pressure routinely to detect the onset of hypertension) and tertiary (e.g. Physical therapy to people who have been injured in a vehicle collision in order to prevent long term disability) disease prevention. Furthermore, they may also adopt risky behaviours heavy smoking, drug use, etc. which is associated disastrous health affects couple with poor self-care management.

On the other hand, women play a vital role in health promotion as in most culture and societies they are regarded to master the art of taking care of others. For instance their involvement into children vaccination program cannot be overlooked beside the role they play in nutrition of their family members. Additionally, health education messages quite often target women as viewed as care guarantor of every individual in the household. Nevertheless, following prevailing gender inequalities that affect mostly women, implementation prevention strategies might face short comings, thus not as effective. These inequalities also expose women to GBV with associated health outcomes hence specific prevention strategies.

As for health promotion, disease prevention plans should address differences between women and men, boys and girls in an equitable manner in order to be effective.

Self-assessment 13.2

1. Contrast health promotion and disease prevention
2. What should be done gender-wise, for an effective health promotion program?

13.3. Types of gender based violence

Learning activity 13.3



A



B



C



D

Carefully observe the above images and attempt the following questions:

- a. What is common across the above images?
- b. Describe what you see in each picture and attempt categorizing GBV

GBV is a complex phenomenon that affects both males and females differently, women and girls being the most affected. Categorizing its different types varies; and it can be categorized as Sexual violence i.e. rape, forced prostitution, incest, sexual abuse, etc.; Physical violence i.e. trafficking, slavery, war, displacement etc.; Emotional & psychological violence (abuse, humiliation, confinement, etc.); Harmful traditional practices such as female genital mutilation, early marriage, honour killing, etc.; and Socio-economic violence such as discrimination, social exclusion, ostracism based on sexual orientation, etc.

a. Physical violence:

Physical violence is an act attempting to cause, or resulting in pain and or physical injury through coercion. Physical violence in intimate relationships, often referred to us as domestic violence, continues to be a widespread phenomenon in every country. Acts of physical violence include beating, burning, kicking, punching, biting, maiming or killing, or the use of objects or weapons.

Some classifications also include human trafficking and slavery in the category of physical violence because initial coercion is often experienced, and the people involved often end up becoming victims of further violence as a result of their enslavement. Physical violence in the private sphere also affects young people. As mentioned above, witnessing the abuse of one parent by another leads to serious psychological harm in children. Often, children and young people who are present during an act of a parent abuse like spouse abuse may also be injured, sometimes by accident and sometimes because they try to intervene.

b. Verbal violence and hate speech

Verbal violence can include issues that are specific to a person, such as putdowns (in private or in front of others), ridiculing, the use of swear-words that are especially uncomfortable for the other, saying bad things about the other's loved ones, threatening with other forms of violence, either against the victim or against somebody dear to them. At other times, the verbal abuse may be relevant to the background of the victim, such as their religion, culture, language, (perceived) sexual orientation or traditions. Depending on the most emotionally sensitive areas of the victim, abusers often consciously target these issues in a way that is painful, humiliating and threatening to the victim.

Most of the verbal violence that women experience because of being women is sexualized, and counts as sexual violence. Verbal gender-based violence in the public sphere is also largely related to gender roles and it may include comments and jokes about women or may present women as sex objects (e.g. jokes about sexual availability, prostitution, rape). A great deal of bullying is related to the perceived sexuality of young people (especially boys).

The regular negative use of words such as “queer” or “fag” is often traumatizing for

those perceived as gays and lesbians. This is very likely one of the reasons why many gays and lesbians only “come out” after secondary school.

Verbal violence may be classified as hate speech and can take many forms i.e. words, videos, memes, or pictures that are posted on social networks, or it may carry a violent message threatening a person or a group of people because of certain characteristics.

Many cultures have sayings or expressions to the effect that words are harmless, and there is a long tradition that teaches people to ignore verbal attacks. However, when these attacks become regular and systematic and purposefully target someone’s sensitive spots, the object of the attacks is right to consider themselves victims of verbal abuse. Gender-based hate speech mainly targets women (in this case, it is often called “sexist hate speech”).

Gender-based hate speech can take many different forms i.e. jokes, spreading rumors, either using internet using online messaging, threats, slander, and incitement of violence or hate. It aims at humiliating, dehumanizing and making a person or group of people scared. As with any type of violence, gender-based hate speech is usually very destructive for the person targeted. People who experience hate speech often feel helpless, and do not know what to do.

c. Emotional & psychological violence:

All forms of violence have a psychological aspect, since the main aim of being violent or abusive is to hurt the integrity and dignity of another person. Apart from this, there are certain forms of violence which take place using methods which cannot be placed in other categories, and which therefore can be said to achieve psychological violence in a “pure” form. This includes isolation or confinement, withholding information, disinformation, and threatening behavior. In the private sphere, psychological violence includes threatening conduct which lacks physical violence or verbal elements, for example, actions that refer to former acts of violence, or purposeful ignorance and neglect of another person.

d. Sexual violence:

Includes actual, attempted or threatened (vaginal, anal or oral) rape, including marital rape; sexual abuse and exploitation; forced prostitution; transactional or survival sex; and sexual harassment, intimidation and humiliation. Furthermore, sexual violence comprises engaging in non-consensual vaginal, anal or oral penetration with another person, by the use of any body part or object; engaging in other non-consensual acts of a sexual nature with a person; or causing someone else to engage in non-consensual acts of a sexual nature with a third person. Marital rape and attempted rape constitute sexual violence.

Examples of forced sexual activities include being forced to watch somebody masturbate, forcing somebody to masturbate in front of others, forced unsafe sex,

sexual harassment, and abuse related to reproduction (e.g. forced pregnancy, forced abortion, forced sterilization, female genital mutilation).

Certain forms of sexual violence are related to a victim's personal limits, and are more typical of the private sphere. The perpetrator deliberately violates these limits: examples include date rape, forcing certain types of sexual activities. One common example of such violence in the public sphere includes the isolation of young women or men who do not act according to traditional gender roles. Isolation in the public sphere is most often used by peer groups, but responsible adults such as teachers and sports coaches can also be perpetrators. Most typically, isolation means exclusion from certain group activities. It can also include intimidation, in a similar fashion to psychological abuse in the private sphere withdrawal of sexual attention as a form of punishment, or forcing other(s) to watch (and sometimes to imitate) pornography.

e. Socio-economic violence

Socio-economic deprivation can make a victim more vulnerable to other forms of violence and can even be the reason why other forms of violence are inflicted. Typical forms of socio-economic violence include taking away the earnings of the victim, not allowing them to have a separate income (giving them "housewife" status, or making them work in a family business without a salary), or making the victim unfit for work through targeted physical abuse.

Socio-economic violence in the public sphere is both a cause and an effect of dominant gender power relations in societies. It may include denial of access to education or (equally) paid work (mainly to women), denial of access to services, exclusion from certain jobs, denial of pleasure and the enjoyment of civil, cultural, social and political rights. Some public forms of socio economic gender-based violence contribute to women becoming economically dependent on their partner (lower wages, very low or no child-care benefits, or benefits being tied to the income tax of the wage-earning male partner). Such a relation of dependency then offers someone with a tendency to be abusive in their relationships the chance to act without fear of losing their partner.

f. Domestic violence or violence in intimate relationships

Domestic violence includes acts of physical, sexual, psychological or economic violence that occur within the family or domestic unit or between former or current spouses or partners, whether or not the perpetrator shares or has shared the same residence with the victim. Domestic violence, or intimate partnership violence, is the most common type of GBV. It also requires special attention, because it is a relational type of violence, and the dynamics are therefore very different from violent incidents that occur among strangers.

The fact that domestic violence was long considered to be a private, domestic

issue has significantly hampered recognition of the phenomenon as a human rights violation. The invisibility of the phenomenon was reinforced by an understanding of international human rights law as applicable only to relations between individual and the state (or states). However, it is now recognized that state responsibility under international law can arise not only from state action, but also from state inaction, where a state fails to protect citizens against violence or abuse (the “due diligence” principle).

Although the vast majority of domestic violence is perpetrated against women by men, it actually occurs in same sex relationships just as frequently as in heterosexual relationships, and there are cases of women abusing their male partners. Domestic violence such as rape, battering, sexual or psychological abuse leads to severe physical and mental suffering, injuries, and often death.

g. Harmful traditional practices and sexual harassment

Include female genital mutilation/cutting (FGM/C); forced marriage; child marriage; honour or dowry killings or maiming; infanticide, sex-selective abortion practices; sex-selective neglect and abuse; and denial of education and economic opportunities for women and girls.

Sexual harassment defined as any form of unwanted verbal, non-verbal or physical conduct of a sexual nature with the purpose or effect of violating the dignity of a person, in particular when creating an intimidating, hostile, degrading, humiliating or offensive environment. Verbal examples of sexual harassment may include making sexual comments about a person’s body, making sexual comments or innuendos, asking about sexual fantasies, preferences, or history, asking personal questions about someone’s social or sex life, making sexual comments about a person’s clothing, anatomy, or looks, repeatedly trying to date a person who is not interested, telling lies or spreading rumors about a person’s sex life or sexual preferences.

Examples of non-verbal harassment include looking a person up and down “elevator eyes”, following or stalking someone, using sexually suggestive visuals, making sexual gestures with the hands or through body movements, using facial expressions such as winking, throwing kisses, or licking lips.

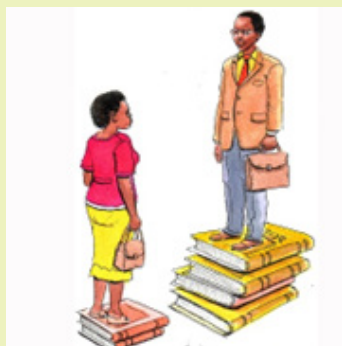
Self-assessment 13.3

1. Explain the different types of gender-based violence?
2. Which of the following types of violence can be defined as a form of psychological violence? (Choose all that apply):
 - a. Making threats
 - b. Teasing
 - c. Intimidation

- d. Insulting someone and Bullying
- e. Humiliation and Ignoring
- f. All of the above

12.4. Common causes of Gender Based Violence

Learning activity 12.4



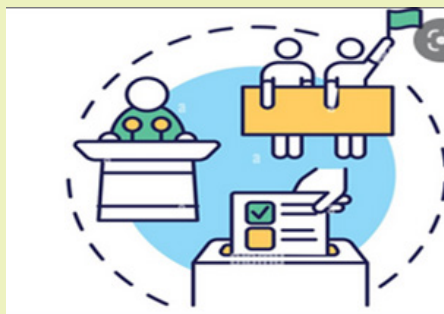
A



B



C



D

Carefully observe the above images and attempt the following questions:

- a. According to your understanding, what each of the above image represents?
- b. Referring to what you see on the above images, what do you think are causes of the GBV?

The root cause of GBV is the imbalance of power in relationships between men and women.

GBV is deeply rooted in discriminatory cultural beliefs and attitudes that perpetuate

inequality and powerlessness, in particular of women and girls. Various other factors, such as poverty, lack of education and livelihood opportunities, and impunity for crime and abuse, also tend to contribute to and reinforce a culture of violence and discrimination based on gender.

However, a variety of factors on the individual level, the family level, and at the level of community and society, often combine to raise the likelihood of violence occurring. There is no single factor that can explain gender-based violence in our societies, but rather a myriad of factors contributes to it, and the interplay of these factors lies at the root of the problem. Cultural, legal, economic and political factors are the main 4 categories of GBV underlying factors.

a. Cultural factors

These include gender stereotypes and prejudice, normative expectations of femininity and masculinity, the socialization of gender, an understanding of the family sphere as private and under male authority, and a general acceptance of violence as part of the public sphere (e.g. street sexual harassment of women), and or as an acceptable means to solve conflict and assert oneself.

Religious and historical traditions have sanctioned the physical punishment of women under the notion of entitlement and ownership of women. The concept of ownership, in turn, legitimizes control over women's sexuality, which, according to many legal codes, has been deemed essential to ensure patrilineal inheritance.

Sexuality is also tied to the concept of so-called "family honour" in many societies. With this regards, traditional norms in these societies allow the killing of women suspected of defiling the "honour" of the family by indulging in forbidden sex or marrying and divorcing without the consent of the family. The same norms around sexuality can help to account for the mass rape of women.

b. Legal factors

Being a victim of GVB is perceived in many societies as shameful and weak, with many women still being considered guilty of attracting violence against themselves through their behaviour. This partly accounts for enduring low levels of reporting and investigation. Until recently, the law in some countries still differentiated between the public and private spaces, which left women particularly vulnerable to domestic violence.

There are times even though most forms GVB are criminalized, the practices of law enforcement may in many cases favor the perpetrators, which help to account for low levels of trust in public authorities and for the fact that most of these crimes go unreported. In many societies, the decriminalization of homosexuality is still relatively new. While some countries have made progress by allowing equal marriage, this has often resulted in a backlash, such as strengthening opinions that the traditional family is a union between a man and a woman, or where governments have passed

laws prohibiting “gay propaganda.”

c. Economic factors

Scarcity of resources generally makes women more vulnerable to violence and sometimes men as well. It creates patterns of violence and poverty that become self-perpetuating, making it extremely difficult for the victims to extricate themselves. When men face unemployment and hardship, they may react violently to assert their masculinity.

d. Political factors

The under-representation of women in power and politics means that they have fewer opportunities to shape the discussion and to affect changes in policy, or to adopt measures to combat GBV and support equality. The topic of gender-based violence is in some cases is deemed not to be important, with domestic violence being given insufficient resources and attention. Though, women have raised questions and increased public awareness around traditional gender norms, highlighting aspects of inequality and its relationship to GBV, this status quo has not changed much due to lack of enough political influence.

e. Harmful Gender Norms

Gender stereotypes are often used to justify violence against women. Cultural norms often dictate that men are aggressive, controlling, and dominant, while women are docile, subservient, and rely on men as providers. These norms can foster a culture of abuse outright, such as early and forced marriage or female genital mutilation, the latter spurred by outdated and harmful notions of female sexuality and virginity.

Self-assessment 13.4

1. What are the deepest root causes of gender-based violence?
 - a. Poverty
 - b. Abuse of power, inequality between men and women and disrespect for human rights
 - c. Lack of education
 - d. Abuse of power and poverty
 - e. War
2. What impacts do conflict and natural disaster have on GBV? (Choose all that apply):
 - a. Women and girls have to travel further to get necessary resources and are therefore exposed to violence
 - b. Militarization leads to more violence

- c. There are more opportunities for sexual exploitation
- d. Social and support structures breakdown which makes everyone more vulnerable

13.5. The primary victims and survivors of Gender Based Violence

Learning activity 13.5



A



B

Carefully observe the above images and attempt the following questions:

- a. Describe what you see in picture A
- b. Describe if any, relationship between picture A and picture B and differentiate primary victim from other ones

Both the terms of survivor and victim are used for a person who experienced GBV and often used interchangeably. The term “**victim**” is often used in the legal and medical sectors, recognizing that many forms of GBV are crimes. The term “**survivor**” is generally preferred in the psychological and social support sectors because it implies resiliency.

Gender-based violence is a widespread problem that affects males and females. It disproportionately affects women and girls as a result of power imbalances stemming from gendered power structural perceptions of masculinity and femininity that create a rank order of gender. In case of domestic violence, children can be affected by violence committed against their mothers, and they themselves can be abused by the perpetrator, which can often be their fathers or stepfathers.

Persons who have been separated from their family or community, and or lack access to shelter, education and livelihood opportunities, are among those most

at risk of GBV. This includes Children, especially unaccompanied minors, fostered children, female and child heads-of-households, boys and girls in foster families or other care arrangements, persons with mental and or physical disabilities, persons in detention, house girls, single mothers, economically disempowered people, junior staff, students, less privileged community members particularly those of minority groups, asylum seekers, refugees and internally displaced people and girls and boys born to rape victims/survivors. Women are the primary victim of GBV because they are usually second class, culturally considered inferior.

Self-assessment 13.5

1. True or false? GBV affect only women and girls as culturally considered inferior
2. Children X and Y assist a domestic GVB. What kind of victim are they?
3. Contrast the terms of victim and survivor with regard to GBV.

13.6. The main GBV perpetrators

Learning activity 13.6



A



B



C



D

Carefully observe the above images and attempt the following questions:

- What is common to all the images above?
- Describe what you see in each picture and attempt to establish the relationship between the individuals observed

A **perpetrator** is an individual, group, or institution that inflicts, supports, or condones act of GBV or other types of abuse against a person or group of persons. Generally, perpetrators include those individuals with real or perceived power, persons in decision making positions or persons in authority. Anyone can be a GVB perpetrator though primary GBV perpetrators are men and boys who often use violence to assert or maintain their privileges, power and control over others.

GBV is usually perpetrated by persons who hold a position of power or control others, whether in the private or public sphere. In most cases, those responsible are known to the victim/survivor, such as intimate partners, family members, friends, domestic staff and influential community members who are in positions of authority (teachers, community or religious leaders, politicians). Others in positions of authority, such as police or prison officials, and members of armed forces and groups, are frequently responsible for such acts, in particular in times of armed conflict. In some cases, this has also included humanitarian workers and peacekeepers. Furthermore, by depicting women and girls negatively in their products, musicians, storytellers, and other artists unconsciously promote GBV along with the role of mass media in diffusing these.

- Intimate partners (husbands, wives, boyfriends, and girlfriends) may perpetrate various murder, physical assault, marital rape, date rape, battery, sexual violence, neglect, vandalism of property, confiscation of property, forced sodomy, among, etc.
- Family member and friends; a category of perpetrators that is usually not

reported, may perpetrate incest, battery, trafficking, exposure to pornography, neglect, denial of education, female genital mutilation, etc.

- **Influential community members:** This category of GBV perpetrator includes people who enjoy positions of authority that they can easily abuse such as teachers, community leaders, politicians, religious leaders and business owners. Examples of GBV perpetrated include sexual exploitation, sexual harassment, forced prostitution, battery, and trafficking. Because of fear of retaliation, loss of privileges, or pressure to protect the perpetrator's honour; survivors may find it difficult to report them.
- **Security forces (soldiers, police officers, guards):** This category holds the authority to give and deny rights and privileges which they can eventually abuse to perpetrate sexual extortion, arbitrary arrest, extrajudicial killing, violating people who report to them, and concealing evidence.
- **Institutions may perpetrate GBV by omission or commission.** Institutions, for example, might provide discriminatory social services that preserve and expand gender inequalities, such as withholding information, delaying or rejecting medical treatment, paying uneven wages for the same labor, and obstructing justice. They may also fail to prevent or respond to GBV, and may even institutionalize cultures that favor GBV.
- **Humanitarian assistance workers:** they hold positions of great authority and command access to vast resources, including money, influence, food, and basic services; unfortunately, some use this power to commit GBV, especially sexual exploitation and abuse.

Self-assessment 13.6

1. Explain the role of mass media in promoting acts of GBV
2. True or false?
 - Religious leaders are respected man of God therefore clean from perpetrating GBV
 - Perpetrators are always unknown to their victims
 - From fear of repercussion, survivor of GBV perpetrated by community leaders are less likely to be reported
3. Which category of GBV perpetrators is associated with female genital mutilation?

13.7. Interventions for GBV

Learning activity 13.7



A



B



C

Carefully observe the above images and attempt the following questions:

- According to your understanding, describe what you see in image A, B, C
- Establish if any relationship across images A, B and C
- With reference to the observed images, explain what can be the interventions for GBV

Combating gender-based violence requires an understanding of its causes and contributing factors, which often also serve as barriers to effective prevention and response.

There is a growing awareness and evidence that men and boys, in partnership with women and girls, can play a significant role. Engaging men and boys as part of the solution, instead of approaching them as perpetrators, is most effective.

a. The responsibility of the country

The country has primary responsibility for preventing and responding to gender-based violence. This includes taking all necessary legislative, administrative, judicial and other measures to prevent, investigate and punish acts of gender-based violence, whether in the home, the workplace, the community, while in custody, or in situations of armed conflict, and provide adequate care, treatment and support to victims/survivors.

To that effect country should, for ensure the following:

- Criminalize all acts of gender-based violence and ensure that national law, policies and practices adequately respect and protect human rights without discrimination of any kind, including on grounds of gender.
- Investigate allegations of GBV thoroughly and effectively, prosecute and punish those responsible, and provide adequate protection, care, treatment and support to victims/survivors, including access to legal counseling, health care, psycho-social support, rehabilitation and compensation for the harm suffered.
- Take measures to eliminate all beliefs and practices that discriminate against women or sanction violence and abuse, including any cultural, social, religious, economic and legal practices.
- Take action to empower women and strengthen their personal, legal, social and economic independence

b. The role of human rights and humanitarian actors

While primary responsibility lies with the national authorities, human rights and humanitarian actors also play an important role in preventing and responding to GVB. In addition to ensuring an effective GBV response from the beginning of an emergency, this entails ensuring that gender concerns are adequately integrated into and mainstreamed at all levels of the humanitarian response. Human rights and humanitarian actors, as well as peace-keepers, must not under any circumstances, encourage or engage in any form of sexual exploitation or abuse.

c. Role of community

This is through community groups (especially existing women's groups); trusted individuals (people who have been champions to speak out about positive male norms, and the unacceptability of GBV); religious leaders and community leaders. These groups may involve relevant community members and deploy resources depending to the context. Using male engagement approaches is also one of important aspects community intervention focus on. Additionally, engage key individuals and organizations who are already working in the community.

d. The health institutions

They should think of ways to include the tracking of GBV-related incidents or related norms within their programs and consider including activities that have the potential to prevent GBV. Partnering with organizations that have GBV expertise to provide GBV-related trainings to various groups they work with e.g. producer groups, mother's groups, etc. and allocate resources to GBV-specific inquiries and trainings.

Working with local organizations that have expertise in facilitating single-sex safe spaces for critical reflection on men's/women's own experiences of gender norms and expectations, followed by opportunities for mixed sex dialogue and reflection.

They can also engage men and boys in addressing harmful culture norms and promoting gender equality, accessing health services and policy/program development. Fully participation and involvement of men and boys in increasing public awareness of the value of all children and strengthen self-image, self-esteem for all children. This can also be a great opportunity to improving the welfare of all children, especially in regard to health, nutrition, and education including gender education at family level. By doing so, health institution may help eliminating all root causes of son preference, which result in female infanticide and prenatal sex selection.

Self-assessment 13.7

1. Outline at least 3 measures to be taken by our country as a primary responsibility for preventing and responding to gender-based violence?
2. The strategies to engage men and boys in addressing harmful culture norms and promoting Gender equality include: (Select all that apply)
 - a. Involving men and boys in policy/program development
 - b. Mainstreaming men engage philosophy into existing programs
 - c. Fully participation and involvement of men and boys in increasing public awareness of the value of all children
 - d. No educational the welfare of all children

13.8. National guidelines for GBV prevention

Learning activity 13.8



A



B

Carefully observe the above images and attempt the following questions:

- What do you see in the above images?
- Attempt to relate image A and image B

13.8.1. Introduction

Considering that GBV affects disproportionately women and causes harm not only to the individuals experiencing violence, but also to their families, communities, and the socio-economic wellbeing of the national as a whole, the government of Rwanda has taken significant steps in addressing including the enactment of laws and policies against GBV. With zero tolerance to any form of GBV, GBV is criminalized in Rwanda since 2008 and is currently under Law No 68/2018 of 30/08/2018, which defines four types of GBV: bodily (**physical**), **economic**, **sexual** and **psychological**.

Current national policy against GBV, introduced in 2011 and seeks to progressively eliminate GBV through the development of a preventive, protective, supportive and transformative environment. This policy acknowledges GBV as a cross-cutting issue, thus a multi-sectoral approach is required to tackle it with the Ministry of Gender and Family Promotion (MIGEPROF) holding primary responsibility for policy implementation, dissemination, and coordination.

To address GBV, a strong partnership combining different ministries and other government as well as private institutions, academic institutions, civil society organisations, among others was established with each one having a key role to play. For example the ministry of health is responsible of ensuring that the appropriate

policies and programmes are in place so that victims of GBV are able to access appropriate services, ensuring an integrated human rights-based approach into reproductive health services and scaling up ISANGE one stop centers; MIGEPROF in collaboration with the Ministry of Local Government are responsible for facilitating and coordinating gender mainstreaming initiatives at the district and sector levels; etc.

Strategic areas addressed under this policy include: prevention strategies (i.e. foster a prevention focused environment where GBV is not tolerated in society and reduce vulnerability of most at risk groups to GBV); response strategies (i.e. provide comprehensive services to victims of GBV and improve accountability and eliminate impunity for GBV); and building coordination, monitoring systems and expand the evidence available on GBV (i.e. build coordination and monitoring systems and expand evidence available on GBV in Rwanda).

13.8.2. Implementation

Areas various actors intervene in include but not limited to:

- a. Assessment, analysis and strategic planning related to the GBV** – they participate in identification of champions to catalyze processes of GBV prevention, mitigation and effective immediate response across all clusters and or sectors of humanitarian action. Make available any existing data on affected populations, any risks of exposure to GBV for inclusion in response strategies and to inform initial assessments.
- b. Resources mobilization** – they work with donors and express the importance of providing resources for life-saving GBV interventions and for targeted prevention and mitigation interventions programmes.
- c. Coordination with others humanitarian sectors** – to promote the guidelines and related tools in inter-sectoral emergency preparedness meetings to ensure all decision makers are aware of and have access to GBV prevention guidance relevant to their clusters/sectors and geographic areas.
- d. Monitoring and evaluation** – identify at least one relevant indicator from each area that require regular monitoring reports on actions and results taken to prevent and mitigate GBV. They may include GBV as a standing agenda item in government reporting meetings and integrate indicators from the guidelines in assessments and evaluations while engaging the community and partner organizations.
- e. Involve relevant community members** - this enables the community to learn about how the program will operate and offer information on how the program may positively and/or negatively impact community norms and existing gender roles and inequalities in preventing GBV. Engage all members of affected communities; this includes the leadership and meaningful participation of women and girls alongside men and boys in all awareness.

- f. Education, teaching and learning level** – Some of the contemporary issues that should be taught in the social studies programmes include law-related education, family life education and peace education. This can enable the existing social studies curriculum to equip students to have awareness of and development of attitudes and values for combating gender-based violence. Law-related education should aim at developing an understanding of the basic legal concepts such as justice, authority, freedom, privacy, equality, honesty and fairness.
- g. Involvement of different sectors:** Utilizing a multi-sectoral approach to combating GBV is beneficial for establishing a comprehensive strategy i.e. community anti-GBV committees, school-based anti-GBV clubs, community policing, etc. However, many entities have reported a need for greater effectiveness of local mechanisms that address GBV such as *“Umugoroba w’Ababyeyi”* and *“Inshuti z’Umuryango”*, largely due to a need for capacity building and adequate resources to implement their actions.
- h. Communications and Information Sharing** – they may appoint focal points within relevant government bodies to drive and monitor awareness of how the guidelines can be used to strengthen GBV prevention, mitigation and response throughout humanitarian action.

Self-assessment 13.8

1. Describe the national guiding elements for gender based violence prevention?
2. Explain why it is important to involve relevant community members as a guideline to prevent GBV?
3. List the 3 elements of the implementation guideline action for GBV prevention

13.9. Professional behavior in managing GBV cases

Learning activity 13.9



A



B



C

Carefully observe the above images and attempt the following questions:

- a. Describe what you see in image A, B and C
- b. With reference to the above images, what do you think GBV interventions include?

The health professional must always keep in mind that the safety and security of the affected person is of primary importance. Four guiding principal for managing the GBV cases include but not limited to (1) Right to dignity and self-determination, (2) Right to confidentiality, (3) Non-discrimination, and (4) Right to safety.

The wishes, rights and dignity of GBV survivors must be respected at all times. All information of the affected person and her/his family must be kept confidential and will only be shared with those who need to know, with the explicit consent of the survivor. Those with whom the information might be shared include Police, Medical hospital staff, Officers of agencies with a protection mandate (e.g. UNHCR or UNICEF) or otherwise involved in addressing needs of victims, among others. Along with support and management of the cases, first line support requires that health professionals are patient, do not pressure women to talk about their experiences, and ensure that women are given information and access to resources.

Goals and guidelines elements for managing GBV cases with providing-centered care Establish a relationship with the survivor, Promote the survivor's emotional and physical safety, Build trust, Helps the survivor restore some control over her life. Be non-judgmental, supportive, and validating, provide practical care and support that responds to her concerns, but does not intrude.

During history taking and examination: Informed consent is one of the most important elements to obtain from a patient before beginning the examination and documentation. Health professionals first need to obtain informed consent from the patient on all aspects of the consultation. This means explaining all aspects of the consultation to the patient, so that she understands all her options and is able to make informed decisions about further management.

Ask about her history of violence, listen carefully, but do not pressure her to talk (care should be taken when discussing sensitive topics while interpreters are involved). Help her access information about resources, including legal and other services that she might think helpful. Assist her to increase safety for herself and her children, where needed. Ensure the consultation is conducted in private and informing the limits of confidentiality.

In cases of sexual violence, the following information should be added: the time since assault and type of assault, the risk of pregnancy, the risk of HIV and other sexually transmitted infections, the woman's/girl mental health status.

when interviewing the patient about GBV, health professionals should: ask her to tell in her own words what happened, avoid unnecessary interruptions and ask questions for clarification only after she has completed her account, be thorough, bearing in mind that some patients may intentionally avoid particularly embarrassing details of the assault, such as details of oral sexual contact or anal penetration, use open-ended questions and avoid questions starting with “why”, which tends to imply blame. Address patient questions and concerns in a non-judgmental, empathic manner, for instance, through using a very calm tone of voice, maintaining eye contact as culturally appropriate and avoiding expressing shock or disbelief. After taking the history, health professionals should only conduct a complete physical examination (head-to-toe; for sexual violence also including the patient’s genitalia) if appropriate.

When undertaking medical examination and providing medical or nursing care: Following disclosure of GBV, health professionals should undertake a medical examination, if appropriate, and provide medical or nursing care. Throughout the entire process of medical examination and care, health providers need to take into account that survivors of sexual violence are often in a heightened state of awareness and very emotional after an assault. Throughout the physical examination inform the patient what you plan to do next and ask permission. Always let her know when and where touching will occur; show and explain the instruments and collection materials.

Documenting GBV cases: Health providers have a professional obligation to record the details of any consultation. It is not only a professional obligation to record details, but is also important for medical records, since medical records can be used in court as evidence. Documenting the health consequences may help the court with its decision-making as well as provide information about past and present violence. Recording injuries, documentation of violence protect the identity and safety of a survivor. Do not write down, take pictures or verbally share any personal/identifying information about a survivor or their experience, including with your supervisor. Put phones and computers away to avoid concern that a survivor’s voice is being recorded.

The Do's, Don'ts of professional management of GBV cases

Look	
Do's	Don'ts
<ul style="list-style-type: none">• DO allow the survivor to approach you. Listen to their needs• DO ask how you can support with any basic urgent needs first. Some survivors may need immediate medical care or clothing• DO ask the survivor if s/he feels comfortable talking to you in your current location. If a survivor is accompanied by someone, do not assume it is safe to talk to the survivor about their experience in front of that person.• DO provide practical support like offering water, a private place to sit, a tissue etc.• DO, to the best of your ability, ask the survivor to choose someone s/he feels comfortable with to translate for and/or support them if needed.	<ul style="list-style-type: none">• DO NOT ignore someone who approaches you and shares that s/he has experienced something bad, something uncomfortable, something wrong and/or violence• DO NOT force help on people by being intrusive or pushy• DO NOT overreact. Stay calm.• DO NOT pressure the survivor into sharing more information beyond what s/he feels comfortable sharing. The details of what happened and by whom are not important or relevant to your role in listening and providing information on available services• DO NOT ask if someone has experienced GBV, has been raped, has been hit etc.

Listen

Do's

- DO treat any information shared with confidentiality. If you need to seek advice and guidance on how to best support a survivor, ask for the survivor's permission to talk to a specialist or colleague. Do so without revealing the personal identifiers of the survivor
- DO manage any expectations on the limits of your confidentiality, if applicable in your context
- DO manage expectations on your role
- DO listen more than you speak
- DO say some statements of comfort and support; reinforce that what happened to them was not their fault

Don'ts

- DO NOT write anything down, take photos of the survivor, record the conversation on your phone or other device, or inform others including the media
- DO NOT ask questions about what happened. Instead, listen and ask what you can do to support
- DO NOT make comparisons between the person's experience and something that happened to another person. Do not communicate that the situation is "not a big deal" or unimportant. What matters is how the survivor feels about their experience.
- DO NOT doubt or contradict what someone tells you. Remember your role is to listen without judgment and to provide information on available services

Don't assume that confidentiality is a given; take steps to ensure confidentiality. Don't let staff give out personal phone numbers or become a case manager. Don't examine a person without her consent may result in criminal prosecution of health care professionals.

Self-assessment 13.9

1. What is the goal of survivor centered case management? (Choose one answer):
 - a. Establish a relationship with the survivor
 - b. Promote the survivor's emotional and physical safety
 - c. Build trust
 - d. Helps the survivor restore some control over her life

2. What are the 4 guiding principles of GBV case management? (choose 4 answers)
- a. Right to be happy
 - b. Right to dignity and self-determination
 - c. Mandatory reporting
 - d. Right to confidentiality
 - e. Non-discrimination
 - f. Legal information
 - g. Right to safety
3. What is the Non-discrimination mean?

13.10. The consequences of GBV

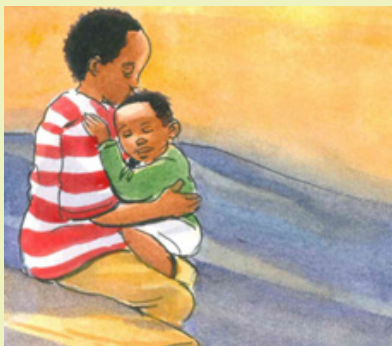
Learning activity 13.10



A



B



C



D

Carefully observe the above images and describe and give sense what you see.

GBV has significant and far-reaching consequences that affect not only GBV survivors but also their families, communities, and society. For instance at societal level, GBV can lead to social stigma, rejection, break-up of families, homelessness, dispossession, and destitution. GBV survivors are at high risk of severe and long-lasting health problems and even loss of life. There are different categorizations of GBV repercussions, with each variety of GBV having its own, even though there are some overlaps.

a. Physical consequences – Physically, victims may suffer various injuries, including bleeding, wounds, burns, fractures, permanent disfigurement, physical disability, stunted physical growth (for children), fistula or even death.

b. Sexual and reproductive health consequences – GBV has grave sexual and reproductive health consequences. It can deter survivors from seeking reproductive health and family planning services. There is a strong link between GBV and HIV among persons living with HIV/AIDS. Consequences of GBV under this category including:

- Unplanned pregnancies and children
- Induced, unsanitary, and dangerous abortions
- Sexually transmitted infections, including HIV
- Barrenness due to disease and injury
- Sexual dysfunction
- Injury to reproductive organs, leading to lifelong malfunctions
- Early pregnancy
- Destabilization of the menstrual cycle
- Deformed genitalia and related health complications
- Loss of sexual desire and painful sexual intercourse
- Infertility

c. Emotional/psychological consequences – these include but not limited to anxiety, depression, anger or hostility, low self-esteem, suicide (attempts and actual suicide), self-harm, post-traumatic stress disorder (PTSD), fear, shame, Obsessive-compulsive disorder, dissociation and loss of memory, inability to trust others, especially in cases of intimate partner violence, sleep disturbance, emotional detachment, etc.

d. Social and cultural consequences – they include among others:

- Alienation and rejection
- Loss of respect and dignity among peers, family, and community

- Aggressive behaviours that may be accompanied by retaliatory attitudes
 - Break of social networks of support
 - Rejection, stigmatization, and neglect of children resulting from rape or incest
 - Early marriage in a bid to reclaim family's honour with associated loss of children's right to education as a result of early marriage
 - Stigma and discrimination for life
 - Repeat violation due to perceived vulnerability
 - Breakdown in heterosexual relationships, including marriage
 - Identity crisis for children born out of sexual violation
 - Exclusion of victims from important communal events such as burial rites
 - Poor performance and increased dropping out of school
 - Slow rate of development due to withdrawal syndrome and limited interaction with peers
- e. Economic consequences** – GBV costs survivors, their families, and society at large both directly (such as treatment, visits to the hospital doctor and other health services) and indirectly such as lost productivity, absenteeism, reduced employability (as a result of reduced education/incapacity to focus at work), disability, decreased quality of life and premature death. Other economic repercussions include among others; reduced investments as savings are diverted to medical treatment, costs incurred by the criminal justice system in apprehending and prosecuting offenders and costs associated with case management, counseling and psycho-social support, etc.

Self-assessment 13.10

1. List at least 4 sexual and health reproductive consequences of GBV
2. Contrast direct and indirect economic consequences of GVB
3. True or false? GBV consequences are always in line with the type or form of GBV

End unit 13 assessment

1. Contrast gender and sex
2. How gender identity differ from gender orientation
3. Explain how legal factor influence GBV
4. Among other consequences of GBV, there are economic repercussions. Explain how these affect the survivors and their families and the society at large.
5. True or false?
 - a. Domestic violence is common occurrence and might be the most under reported form of GBV
 - b. In general, gender differences are permanent and universal
 - c. Gender refers to the natural differences that separate men and women
 - d. GBV survivors are at high risk of severe and long-lasting health problems and even loss of life
 - e. Men access healthcare services more frequently than do women and respond positively to received services
 - f. Health promotion and disease prevention messages target frequently women
6. The following are social and cultural repercussions of GBV except:
 - a. Rejection, stigmatization, and neglect of children resulting from rape or incest
 - b. Post-Traumatic Stress Disorder (PTSD)
 - c. Breakdown in heterosexual relationships, including marriage
 - d. Aggressive behaviours that may be accompanied by retaliatory attitudes
7. Give 3 examples of GBV forms that are likely to be perpetrated by Influential community members
8. Why is human trafficking classified as physical GBV?
9. What is the country responsibility in GBV prevention?
10. List four professional guiding principles for GBV case management

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