CLINICAL NURSING PROCEDURES

1st Year Student – 1st term
Part I- 1st edition
2025- 2024

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Body Mechanics

Body mechanics

It is the coordinated and safe use of the body parts (muscles, bones and the nervous system) to maintain balance and alignment during moving, transferring and positioning patients.

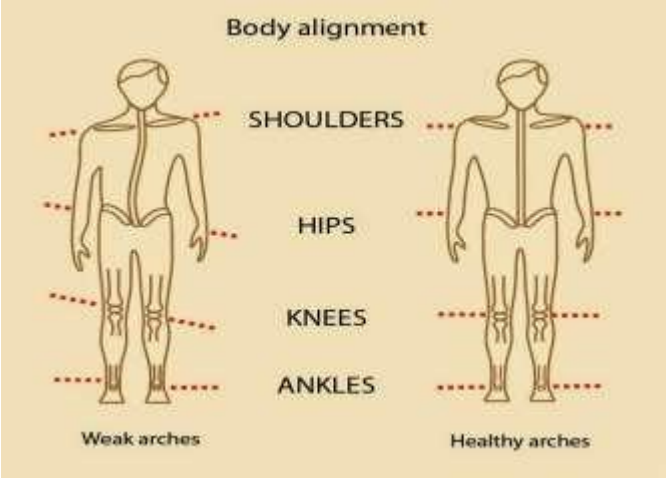
Importance of body mechanics

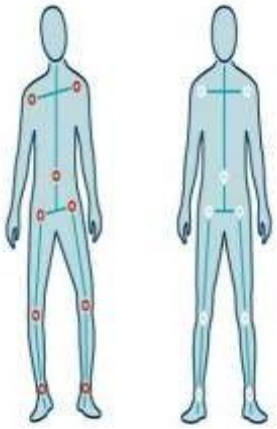
- Maintain good body alignment.
- Prevent muscle injuries.
- Conserve energy.
- Promote comfort.

Elements of body mechanics

1- Body alignment

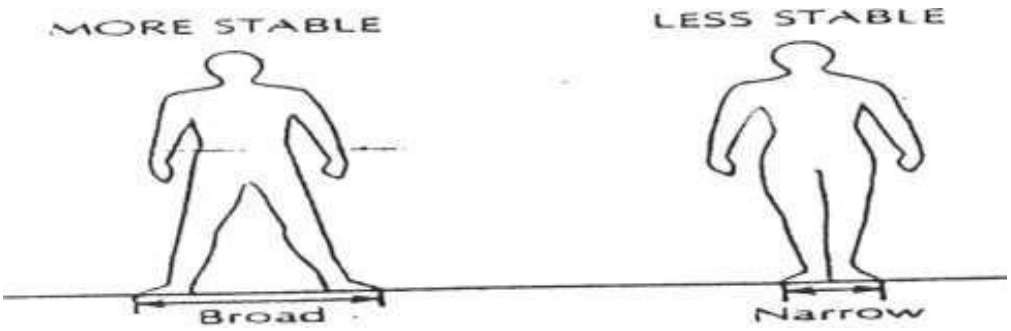
- It means the presence of proper relationships between the body parts
- It is achieved by placing one body part (shoulders, hips, knees and ankles) in line with another one.





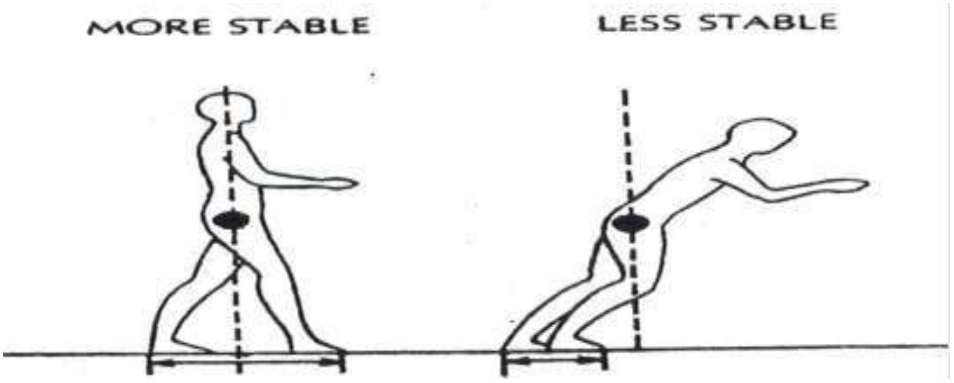
2- Base of Support

- It is the area that located in the **base** of an object
- It is achieved by placing feet a comfortable, shoulder width distance apart.
- A wide base of support is the foundation for stability.



3- Center of Gravity (COG)

- It is the center of the weight of an object or person.
- Or it is balance point of the body at which weight of person is evenly dispersed.



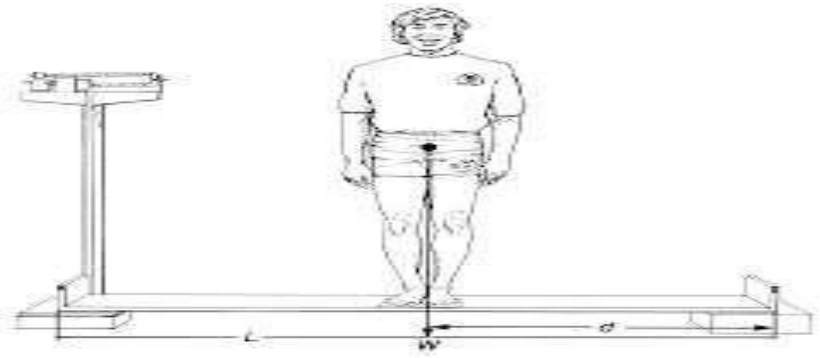
- Its location shifts whenever the person shifts position.



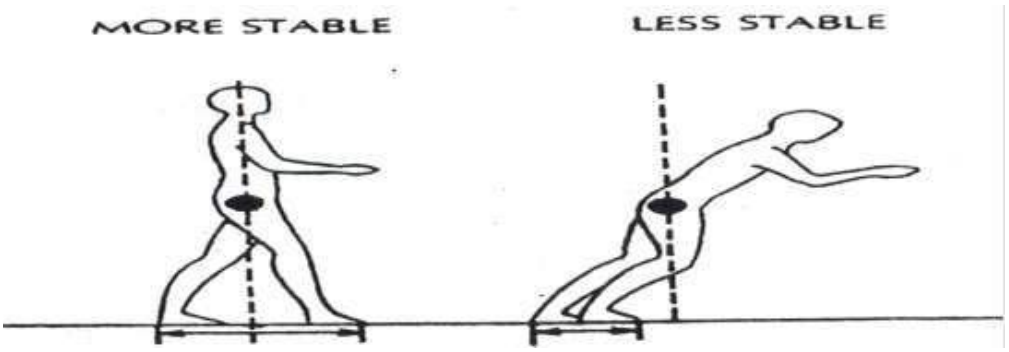
- The lower the (COG) is, the greater the stability. It can be achieved by
  - ✓ Bending the knees
  - ✓ Keeping the back straight

4- Line of Gravity

- It is an imaginary vertical line falls from the center of gravity through the wide base of support, with equal weight on each side.



- The closer the line of gravity to the base of support, the better balance and stability.
- If the line of gravity falls outside of the base of support, the body will lose balance.



Principles of Body Mechanics

1- Assess the environment

- Assess the weight of the object
  - ✓ To determine how to move it
  - ✓ To determine how to be lighter.
  - ✓ To determine if assistance from other persons or devices is required.
- Use signal ready to lift and move a load, count "one….two….three….lift".

2- Prepare my self

- The wider base of support, the greater the stability.
- The lower the center of gravity, the greater the stability.
- Work at the waist level.
- Avoid bending with your waist.
- Facing the direction of movement

3- In case of moving a load

- Avoid lifting
- Turning or rolling requires less work than lifting.
- Pushing the object is easier than pulling it
- Using the hand muscles rather than fingers muscles.



Examples of using body mechanics in activities of daily life:-

1- How to stand

- Stand erect
- The head high ,
- The chin pointed slightly downward
- Move the chest out
- Move the shoulder back.
- Tighten abdominal muscles.
- knees straight but relaxed
- The feet slightly apart
- The toes pointed straight ahead



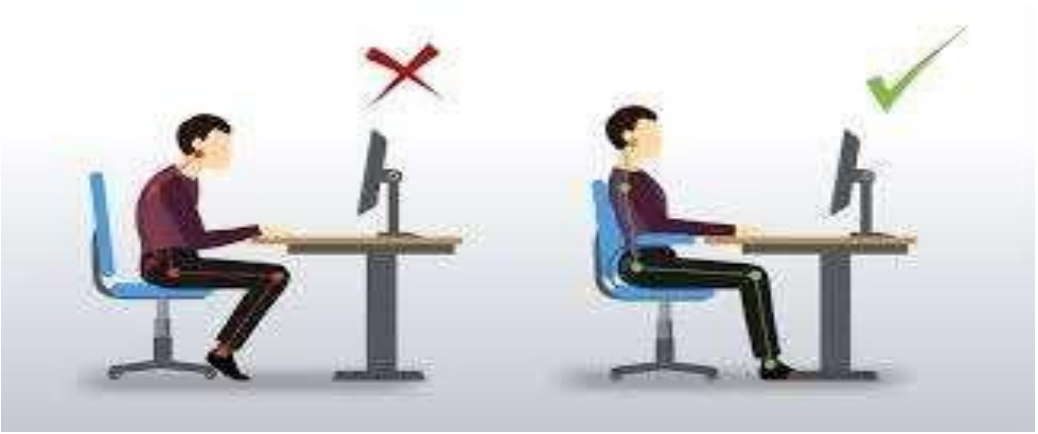
2- How to walk

- Stand with standing position
- Keep feet parallel and close together.
- Push forward with back foot, in, rhythmic stride **heel** first, then outside part of the **sole** and then **toes**.
- Swing arms.



3- How to sit

- The head high
- The shoulders back and relaxed
- The back straight and supported by the chair.
- Upper arms are supported by the chair seat.
- The thighs are horizontal and supported by the chair
- The knees far from the curve of the chair.
- The feet flat in the floor



4- How to reach an object

A- Lifting an object from a shelf below waist level

- Standing position.
- Put one foot slightly in front of the other
- Bend hips and knees
- Hold the object by putting your hands around it
- Lift the object using your arm and leg muscles.
- Hold the object close to your body at your waist level.
- When turning, rotate the whole body, not just the back.



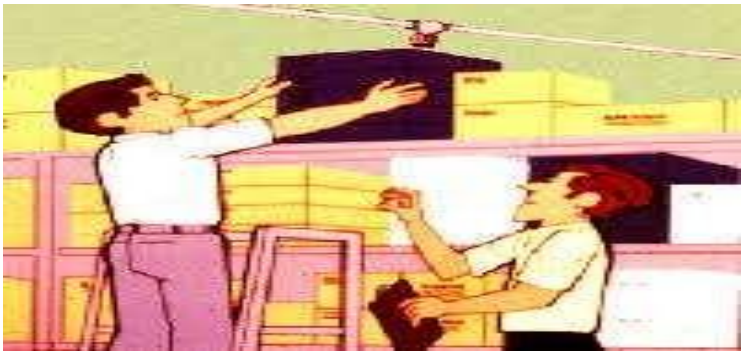


B- Lifting an object from a shelf above shoulder level

- Stand with standing position.
- Place one foot forward in the direction of object with feet separated on a footstool
- Holding the object by putting your hands around it.
- Holding it close to the body
- Step off the stool or ladder.







5- How to get up from bed

- Sleep on a firm mattress that supports all body parts equally.
- **When getting up**
  - ✓ push with both arms to assume a sitting position
  - ✓ swing legs off the edge of the bed



Hand hygiene or Hand washing

Definition

It is the action of cleaning and removing dirt and microorganisms from hands.

Purposes

- Remove the natural body oil and dirt from the skin.
- Reduce number of resident microbes, those normally found in creases of skin.
- Remove transient microbes, those normally picked up by the hands in the usual activities of daily living.
- Prevent the transmission of microorganisms from client to client / from nurse to family / from client to nurse.

Hygiene Techniques:

1- Routine hand Hygiene

a) Routine hand hygiene

- Remove transient microbes and reduce resident microbes
- soap and water
- The duration is **40-60** seconds**.**

b) Alcohol hand rubs

- Remove transient microbes
- Alcohol-based hand sanitizer contain at least 60% alcohol
- The duration is **20-30 seconds**

2- Aseptic hand hygiene

- Remove and kill transient microorganisms and reduce resident microbes
- Antimicrobial agents (e.g. chlorhexidine gluconate 2% soap).
- The duration is **one minute**

3- **Surgical hand scrubbing:**

- Kill of transient micro-organisms and reduce resident bacteria

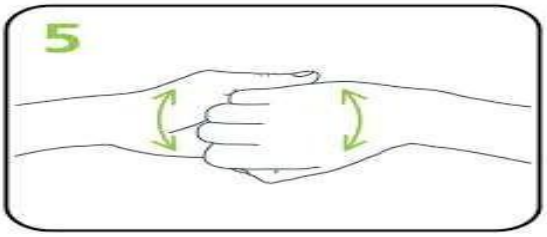
5 moments for hand washing

- Before touching a patient
- After touching a patient
- Before clean/aseptic procedures.
- After touching patient surroundings.
- After body fluid exposure/risk

The nursing action	Rational
Pre-procedure	
1- Assessment	
A- The nails • No long nails • No false nails • No nail polish 	• Nails should be short because most microbes on hands come from beneath the fingernails. • Using false nails and nail polish prevent the water to reach to nails and clean them properly.
B-The fingers • **Remove** jewelry and secure in a safe place 	Facilitates proper cleansing of microorganisms which may accumulate in settings of jewelry.
C- The palm • **Inspect** of hands for breaks or cuts in skin**.**	Open cuts or sore hands can harbor high concentration of microorganisms.

 • Open cuts should be covered with a water proof plaster**.**	
D- The wrist • Push the uniform sleeves above wrists. • Remove the wristwatch. 	To provide complete access to fingers, hand and wrists. 
2- Preparation	
a. Prepare the equipment • Sink • Towel • Soap	To safe the time and effort.
b. Prepare my self • Stand in front of the sink.	The sink is considered contaminated.
• Keep body Mechanics	To maintain good body alignment
• Do not allow your clothing to touch the sink during procedure.	• Clothing may carry organisms from place to place. • Wet clothes are considered good area for growth of bacteria.

Procedure	
1-Turn on water through:- • Turning faucet on • or pushing knee pedals • or pressing with foot	
2-Regulate the water • flow (moderate) • Temperature (warm).	Warm water is more comfortable, and helps to open pores, which helps with the removal of microorganisms, without removing skin oils.
3-Wet the hands thoroughly. • Keep hands lower than elbow • Allow water to flow toward fingertips. 	• Water should flow from the cleaner area toward the more contaminated area. • Hands are more contaminated than forearm.
4-Apply a small amount of liquid soap from dispenser and lather vigorously. 	• Soap cleans fat and oil. • Lather facilitates removal of microorganism. 
5- Rub hands together vigorously following **5 circular strokes** with friction:	- Friction caused by firm rubbing and circular motions helps to loosen dirt and organisms.

a-- Rub hands palm to palm.	
b- Right **palm** over left **dorsum with interlaced** fingers and vice versa.	
c- Palm to palm with fingers **interlaced**.	
d- Backs of fingers to opposing palms with fingers **interlocked**.	
e- Rotational rubbing of left **thumb** clasped in right palm and vice versa.	
f- Rotational rubbing, backwards and forwards with **clasped fingers of right** hand in left palm and vice versa.	
6-Rinse hands under running water.	-Running water rinses microorganisms and dirt into the sink.

	
Post-procedure	
1-Turn off water with • Foot controls. • Knee controls. • Hand faucet: - use clean dry paper towel and discard it.	- To protect the clean hands from contact with a solid surface.
2- Keep the both hands at or above the waist level 	To avoid the drop of water from the least clean (forearm) area .to the cleanest (fingertips)
4- Dry hand thoroughly from finger to wrist with paper towel and discard it immediately.	Drying from the cleanest (fingertips) to the least clean (forearm) area. 

Surgical hand scrubbing

Surgical hand scrubbing:-

It is a systematic washing of the finger nails, hands, forearms with using antibacterial cleansing agent in order to keep the hands and arms as free as possible from micro-organisms.

Equipment

1. Surgical scrub items (antimicrobial agent, two brushes, and nail pick).
2. Sterile towel.
3. Surgical shoe covers, cap, face mask, sterile gown, and proper-sized gloves.

How to perform hand scrubbing technique:-

Pre-Procedure	
1- Assessment	
The nails • No long nails • No false nails • No nail polish 	• Nails should be short because most microbes on hands come from beneath the fingernails. • Using false nails and nail polish prevent the water to reach to nails and clean them properly.
The fingers • **Remove** jewelry and secure in a safe place 	Facilitates proper cleansing of microorganisms which may accumulate in settings of jewelry.

The palm • **Inspect** of hands for breaks or cuts in skin**.**  • Open cuts should be covered with a water proof plaster**.**	Open cuts or sore hands can harbor high concentration of microorganisms. 
The wrist • Push the uniform sleeves above elbow. • Remove the wristwatch. 	To provide complete access to fingers, hand and wrists. 
2- Preparation	
Prepare the equipment	
Prepare my self • Stand in front of the sink.	The sink is considered contaminated.
• Keep body Mechanics	To maintain good body alignment
• Do not allow your clothing to touch the sink during procedure.	• Clothing may carry organisms from place to place. • Wet clothes are considered good area for growth of bacteria.

• **Apply** face mask, shoe covers and cap. 	Provides a respiratory barrier. Prevents introduction of contaminants into environment.
Turn on water through:- • Turning faucet on • or pushing knee pedals • or pressing with foot	Prevents hands and forearms from touching a soiled surface. 
2-Regulate the water • flow (moderate) • Temperature (warm).	Warm water is more comfortable, and helps to open pores, which helps with the removal of microorganisms, without removing skin oils
Procedure:-	
• **Wet** hands and forearms from elbows to fingertips. • Keeps hands above elbows and away from the body. 	Water should flow from the least contaminated (forearms) to the most contaminated (hands).

Apply a suitable amount of soap onto hands and forearms to 2 inches above elbows.  	• Reduces number of microorganisms on hands. • Avoid touching the inside of the sink. Avoid splash surgical attire.
Rinse hands and arms thoroughly • Allowing the water to run from the hands to the elbows. • Do not retrace or shake the hands and arms; • Let the water drip from the elbow.	
Use nail pick under running water, Clean under nails with pick and discard.	Removes dirt that harbors microorganisms. 
Technique of scrubbing	
1- **Apply** antiseptic agent as antimicrobial soap or betadine,	
• Scrub nails for 10 Strokes.	
2- **Rewet and Reapply** soap to scrub brush,	

<table>
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- Scrub **of hands** using a circular motion, keeping hands higher than elbows as following:

a. Palm of hand and anterior side of fingers

b. Scrub each of the four sides of thumb and each finger (palmar/ right lateral/left lateral/plantar) with 10 strokes (up and down).

c. Back of hand.

</td><td>Removes resident bacteria from the skin's surfaces; the circular motion mechanically removes microorganisms.
</td></tr>
<tr><td colspan="2">**3- Rewet and Reapply** soap to scrub brush,</td></tr>
<tr><td>The forearm is divided into 3 sections,

- Lower , middle, and upper areas
- Scrubs at least 10 strokes each
- Using a circular motion, from most distal to proximal.

</td><td></td></tr>
<tr><td>4- **Take** another scrub brush, wet and Apply antimicrobial soap. Repeats scrub on the other hand and arm.</td><td>Decreases transfer of microorganisms.</td></tr>
<tr><td>5- **Rinse** hands and arms, keeping fingertips higher than elbows.</td><td></td></tr>
<tr><td>6- **Keep** arms flexed, hands higher than Elbows</td><td>Prevents water from flowing from least to most contaminated area.</td></tr>
</table>

7- Grasps sterile towel and backs away from sterile field.	
• **Allow** the towel to fall open, make sure it does not touch your uniform. • **Dry** each hand and arm separately; uses one end of the towel to dry one hand and arm • Uses the opposite end to dry the other hand and arm.	Maintains the sterility of the towel. Prevents contamination by drying from cleanest to least clean area.
8- **Discard** the towel into a linen hamper.	Keeps the environment clean.
9- **Hold** your hands and forearms away from your body and higher than your elbows.	

Applying and Removing Sterile Gloves (Open Method)

Definition:-

The sterile gloving technique is used to protect patients in the hospital and clinical settings from the spread of diseases and germs, especially while performing delicate procedures that could introduce deadly bacteria into sterile organs or body cavities.

Purpose

1- To prevent transfer of microorganisms from hands to sterile objects (field) or open wounds.

2- To protect the hands when the nurses handle any body substances, for example, blood, urine, feces, and sputum.

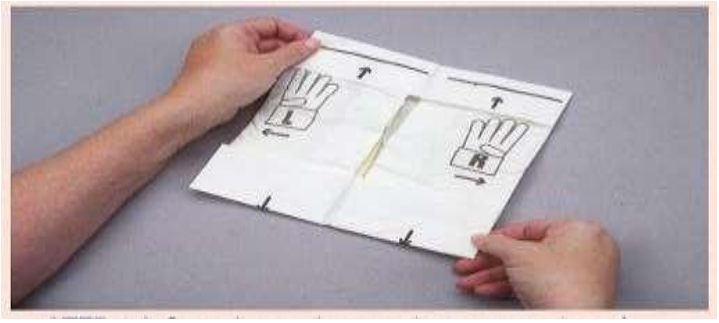
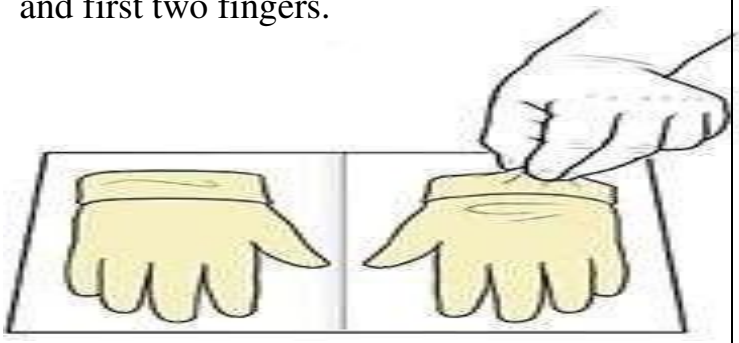
Equipment

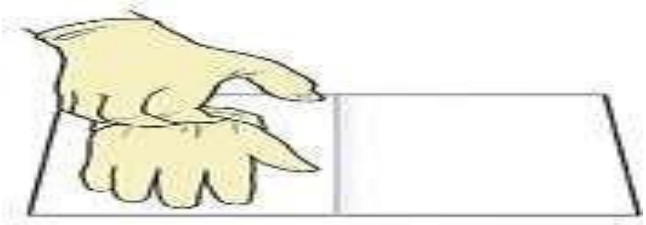
- Packaged sterile gloves in correct size.
- Flat working surface.

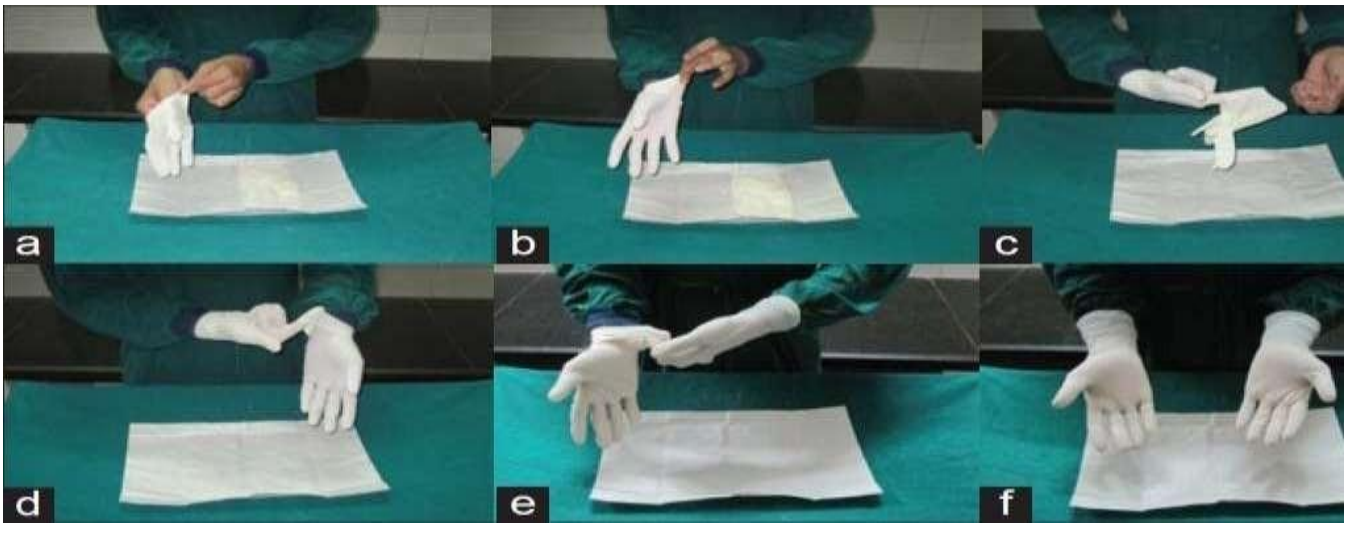
Donning Sterile Gloves

Nursing action		Rational
1	**Choose** proper size of sterile gloves package. 	- To allow comfort to provider care
2	**Ensure** that the sterile gloved package is • Dry • Intact. • The expiration date.	• Moisture contaminates a sterile package. • Expiration date indicates the period that the package remains sterile.

		
3	• **Nails** should be trimmed and cleaned • Remove jewelries. • Perform hand hygiene.	Hand hygiene prevent the spread of microorganisms
4	**Opens** the outer wrapper by peeling apart sides and places the glove package on a clean, dry surface or above your waist.  	-Moisture could contaminate the sterile gloves. Any sterile object held below the waist level is considered contaminated. Allows for ease of glove application.

5	**Carefully opens** the inner package to expose gloves. Take care not to touch the inner surface of the package or the gloves. 	- The inner surface of the package is considered sterile. - Unsterile hand touches only inside of glove. Outside remains sterile
6	**Identify** right and left glove. Each glove has approximately 5cm (2 inches) wide. Glove dominant hand first. 	-Proper identification of gloves prevents contamination by improper fit.
7	**Grasp** the folded cuff of the glove with thumb and first two fingers. 	- Glove is contaminated if it touches any unsterile objects
8	**Insert** your hand into glove and adjust fingers inside glove, Gently pull the glove over the dominant hand. Make sure that the thumb and fingers fit into the proper spaces of the glove.	Guiding the finger into proper places facilitates gloving and prevents tearing the glove. 

9	**With the gloved hand**, slip your fingers underneath the cuff of the other glove and keep thumb of dominant hand abducted back. 	• Sterile cuff protects fingers of gloved hand from being contaminated. • Contact is made with two sterile gloves
10	**Gently slip** the glove onto your non dominant hand, adjust fingers inside glove and make sure that the fingers slip and fit into proper spaces of the glove. 	- Promotes proper fit over the fingers.
11	**After** second glove is on, interlock fingers to fit the gloves onto each finger, touching only sterile areas. 	- To provide more comfortable and help provider make procedure



1	**Removing soiled gloves:-** **Grasp** outside of one cuff with other gloved hand; avoid touching wrist. 	
2	**Pull** the glove down to the fingers, turning it's inside out. **Hold** removed glove in gloved hand.  	
3	**Slide** fingers of ungloved hand under remaining glove at the wrist. Peel glove off over first glove. 	To prevent spread of microorganisms.
5	**Discard** soiled gloves in proper container and wash hands.  	reduces the risk for infection transmission and contamination of Other items.

Donning Sterile Gown and Gloves (Closed Method)

- **The process** of scrubbing, gowning, and gloving is one that all members of the surgical team must complete before each operation.
- Sterile technique is practiced in the operating room or delivery room during a surgical procedure in order to reduce the risk of infection in the client.

Purpose:-

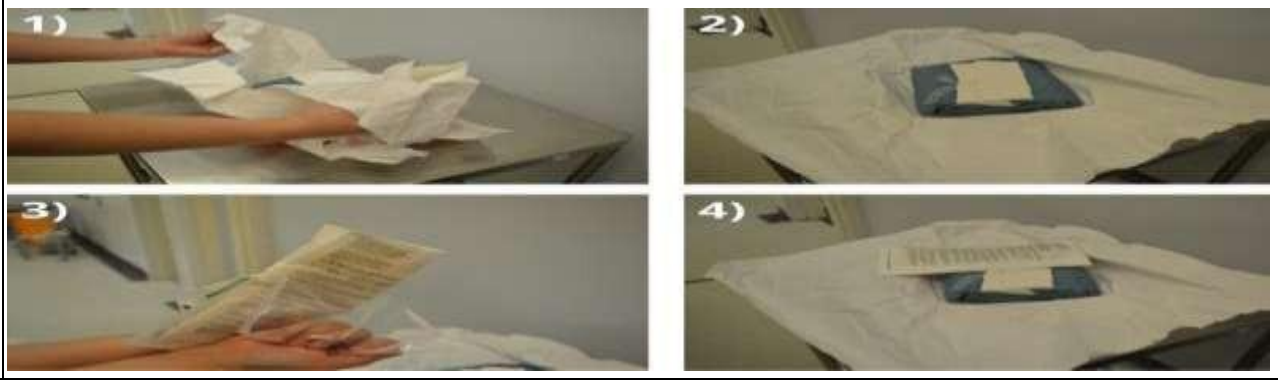
1- To enable the nurse to work close to a sterile field and handle sterile objects freely.

2- To protect clients from becoming contaminated with microorganisms on the nurse's hands, arms, and clothing.

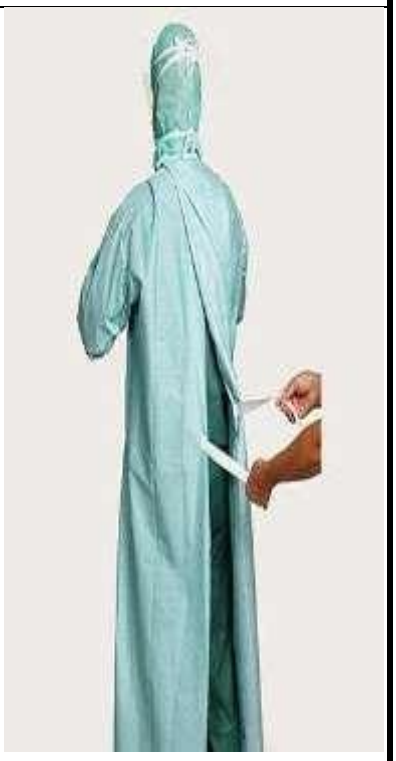
Equipment:-

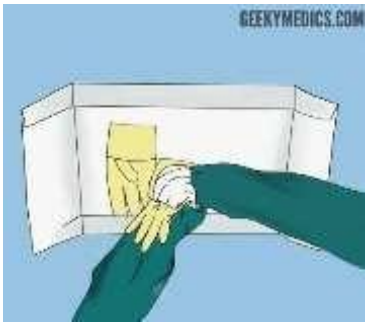
1- Package of proper sized sterile gloves.
2- Sterile pack containing sterile gown
3- Personal Protective Equipment (PPE); surgical cap, face mask, and shoe covers.
4- Equipment needed for surgical scrubbing
5- Protective eye wear.

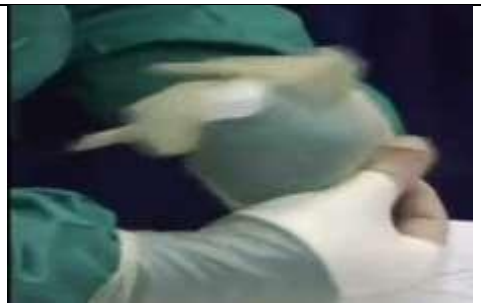
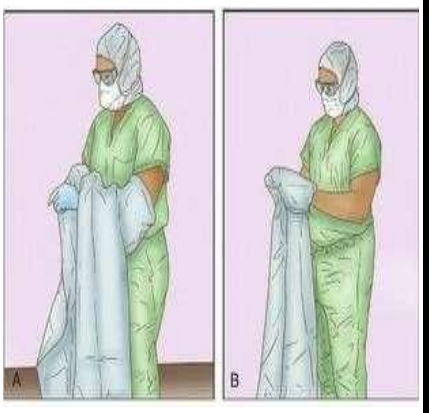
Donning Sterile Gown and Gloves (Closed Method)

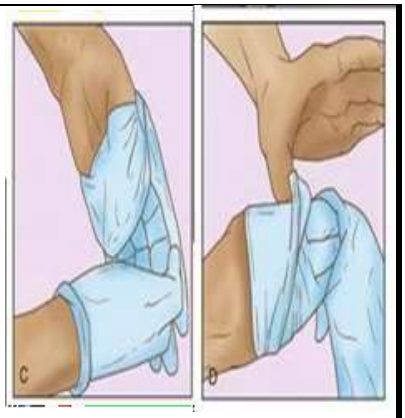
	Nursing Action	**Rational**
Gowning*:*		
	Pre procedure:-	
1	**Before entering** operating room, apply cap, face mask, shoe covers, and protective eye wear. 	- Prevents hair and air droplet nuclei from contaminating sterile areas. Eye wear protects from splashing
2	**Perform** surgical scrubbing and dry hands thoroughly. 	- Removes transient and resident bacteria from fingers, hands, and forearms.
3	**Ask** circulating nurse to assist by opening sterile pack containing sterile gown. 	

4	**Pick up** the gown, grasping the gown with both hands at the cooler (Neck line). 	- Your gown will be unsterile if its outer surface touches any unsterile objects.
5	Lift folded gown directly upward and step back away from table (the sterile field). 	- Provides wide margin of safety, avoid Contamination of gown.
6	Allow gown to unfold freely without touching anything, including your uniform. 	- Outside of gown remains sterile.

7	**Enter** both arms into armholes without extending hands through the cuffs, leaving sleeves covering hands.  	- The fingers remains in the cuff to protect the sterility of the gown and prepare for closed gloving.
8	**Ask** circulating nurse to bring gown over shoulders from inside without touching the outside of the gown and **tie** back of gown at neck and waist.	
		

	Donning Sterile Gloves, Closed Method:	
9	With hands covered by gown sleeves, open inner sterile glove package. 	With non - dominant hand inside gown cuff, pick up glove for the dominant hand by grasping folded cuff.
10	**With** the non-dominant hand inside gown cuff, lay the glove on the opposite gown cuff, glove fingers will point toward elbow, handling it through the sleeve.	
11	With the non-dominant hand grasps the upper side of the glove cuff and stretches it over the cuff of the gown. Carefully extend fingers into glove, being sure glove's cuff covers gown's cuff.	
12	Pulls sleeve of gown up to assist cuff over the wrist and moves fingers into the glove.	

13	**Glove the non-dominant hand** in the same manner.	
14	**With** the dominant hand, pulls the glove cuff over the gown cuff.	
	 	
15	**Adjusts** the fingers in both gloves.  	
16	**Remove and Dis pose of Used Gown and Gloves:**	
a	• ***<u>Firstly remove soiled gown</u>*** by asking circulating nurse to **unfastening** neck ties. • Grasping it away from neck and shoulders. • **Touching** only the inside of the gown, turning gown inside out, roll or fold into a bundle and discard.	

b	• ***<u>Remove soiled gloves</u>*** • Grasping cuff of one glove and pulling glove inside out over hand. • **Hold** removed glove in gloved hand. **Enter** fingers of ungloved hand under the remaining glove at the wrist. • Peel glove off over first glove. Discard glove in proper container.	

Packing

Definitions:

- **Sterilization** refers to the complete destruction of all microorganisms including spores.
- **Surgical asepsis, or sterile technique,** refers to those practices that keep an area or object free of all microorganisms.

Sterile packing:-

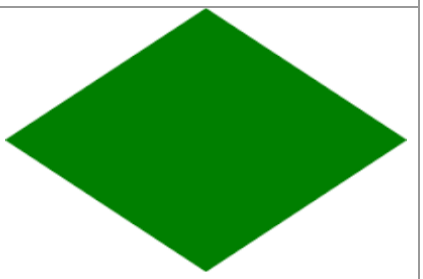
- Protect a product against contamination
- Sterile device are packaged in materials as foil pages that must have low permeability to water vapor and air to prevent the microorganism entering the package

Indications

- Used for invasive, procedures as urinary catheter or changing surgical dressings.
- Single use items that is used with human tissue and fluids
- Patients with a compromised immune system such as a burn, organ transplant or receiving chemotherapy or radiation therapy.

Preparation of package:-

- Large tray.
- Clean towel.
- Kidney basin/iodine bowel
- Gauze sponge (15-20).
- Gauze (3 open and 4 closed).
- Dressings (3 open and 4 closed).
- One scissors.
- One artery forceps.
- Adhesive tape.

Procedure	
1	Hand washing.
2	Prepare equipment.
3	Place the towel of package in the middle area of table in a diamond shape:- - Proximal flap. - Right flap. - Left flap. - Distal flap. 
4	Place the iodine bowl or kidney basin in the middle area of towel.
5	**Arrange supplies** in the iodine bowl according the following order:- - The gauze sponge. - Closed gauze. - Open gauze. - Closed dressing. - Open forceps and scissors in between dressings - Open dressings.
6	**Close the package as follows**:- - The proximal flap. - The right flap - The left flap - The distal flap.
7	Fix the package with Adhesive tape.
8	**Write on package** • Date • Time • Department • Content in details • Nurse signature

Opening a sterile package

Equipment:-

- A sterile package.
- Additional sterile supplies, such as containers or solution, as needed.
- Personal protective equipment (PPE)

Steps:-

1	**Prepare my self** • Hand hygiene • Put on PPE • Maintain body mechanics	-To prevent cross infection.
2	**Check** that the sterile package • Dry • Clean • Intact • Expire date	- Moisture is a good media for growth of microorganisms. - Expiration date indicates period that package remains sterile.
3	• Prepare a clean surface. • Work area at waist level or higher.	Work area is within sight. Bacteria tend to settle, so there is less contamination above the waist.
4	Place the package in the center of the tray	
5	Remove the adhesive tape.	
6	• Reaching around the package not over it. • Hold 1 inch from the border of distal flap on the outside of the	-Touching only the outside of the wrapper to maintain the sterility of content inside the wrapper. - Outer surface of the wrapper is considered unsterile. Outer 1 inch border of the wrapper is

	wrapper between thumb and index finger. 	considered contaminated.
7	Lift the distal flap up and toward the back away from the package.	- It is important to open distal flap first so that your unsterile arm doesn't reach across the sterile content.
8	• Start to open the sides of towel not touch inner surface. • Use the right hand for right flap and the left hand for left flap. • Start with left flap then right flap 	- Both hands are used to avoid reaching over the sterile content. 
9	Open the proximal flap; lift the flap up and toward you.	- Make sure that the flap doesn't touch uniform. -If the inner surface touches any

		unsterile article, it is contaminated.
	Position the wrapper so that when flat, edges are on the work surface, and do not hang down over sides of work surface. 	- Allow the wrapper to lie flat on the work surface.
	Cover the content with the far side (inner side touch inner side only). • Open the cover slowly with the left hand • Take artery forceps with right hand • Move iodine bowl with the artery forceps toward the left side • Put the dressing on the middle of the towel then organize the gauze sponge • Put artery forceps at any angle of the towel with the tip of the artery covered with the angle and the hand of artery outside the towel.	

Wound care

Definition

- **Wound**: disruption in the normal integrity and function of the skin and underlying tissues.
- **Wound care** refers to specific types of treatment for wound.

Purpose of wound care

1. Promote tissue repair and regeneration to restore skin integrity.
2. To relieve pressure on boney prominence (hand, arm, knee, heel, hip or buttocks) that rests on a bed, wheelchair, and another body part.
3. To prevent infections of wound

Wound Assessment

- Appearance (inspecting and palpating)
  - The edges
    - Clean.
    - May be reddened and swollen for about a week
    - Then closer to normal in appearance
  - The color of the wound
  - The color of surrounding area (may be bruised initially.)
- Drainage (amount, color, odor)
- Pain (by using pain scale0
- Presence of sutures or drains (intact and functioning)
- The evidence of infection as increase
  - Swelling
  - warmth
  - Redness

Applying Dry Sterile Dressing

Equipment

To remove old dressing

- Clean disposable gloves
- Plastic bag

To clean the wound

- Sterile gloves and PPE
- Package
- Sterile cleaning solution as ordered (normal saline or prepared wound cleanser)
- Sterile drape (may be optional)
- Waterproof pad and bath blanket
- Abdominal pad
- Adhesive tap

Nursing action	**Rational**
1. Review the medical order	Validates correct patient and correct procedure**.**
2. Prepare the equipment	To safe time
3. Prepare my self • Hand washing • Wear the gloves • Body mechanics	Prevent the spread of microorganisms.
4. Prepare the patient • Identify the patient • Introduce my self • Explain the procedure	• Ensures the right patient receives the intervention and helps prevent errors. • Relieves anxiety and facilitates cooperation.
5. Prepare environment • Close the door, window, curtain,	Ensures the patient's privacy.

6. Prepare the bed • Raise the bed • Lower the side rails • Close the brake	To prevent back and muscle strain.
Remove the old dressing	
7. Place plastic 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.
8. Assess the patient for • The need for analgesic medication before wound care dressing change. • The position of drains.	• Wound care and dressing changes may cause pain for some patients. • Checking ensures that a drain is not removed accidentally if one is present
9. • **Comfortable position** for easy access to the wound area. • Use the bath blanket to **cover** any exposed area other than the wound. • Place a **waterproof** pad under the wound site.	Patient positioning and use of a bath blanket provide for comfort and warmth. Waterproof pad protects underlying surfaces.
10. Loosen tape on the old dressings. If necessary, use an adhesive remover to help get the tape off.	Adhesive-tape remover helps reduce patient discomfort during dressing removal.

11. Carefully remove the soiled dressings. If the dressing sticks to skin, use small amounts of sterile saline to help loosen and remove it.	Cautious removal of the dressing is more comfortable for the patient and ensures that any drain present is not removed. Sterile saline moistens the dressing for easier removal and minimizes damage and pain.
12. Assess the dressing ➢ Amount of drainage ➢ Color of drainage ➢ Odor of drainage	The presence of drainage should be documented.
13. Discard of soiled dressings Remove gloves and dispose in the plastic bag.	Proper disposal of soiled dressings and used gloves prevents the spread of microorganisms
14. Assess the wound.	Wound healing or the presence of irritation or infection should be documented
Clean the wound	
15. Using sterile technique, • Sterile gloves • PPE • Open the package. • Open the sterile cleaning solution that might be ✓ poured directly over gauze ✓ or into a basin	Supplies are within easy reach and sterility is maintained.

16. Clean the wound. • From top to bottom • From center to outside. • From far side to near side **The gauze** • use new gauze for each wipe, • discard immediately **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 single gauze for each wipe ensures that the previously cleaned area is not contaminated again 
17. Dry in the same way of cleaning	Moisture provides a medium for growth of microorganisms.
18. Apply ointment as ordered	The growth of microorganisms may be inhibited and the healing process improved with the use of ordered ointments or other applications.
19. If a drain is in use at the wound location, clean around the drain.	Cleaning the insertion site helps prevent infection.
20. Apply • Layer of dry ***dressing*** over the wound by using forceps. • Apply ***abdominal pad*** over the gauze as necessary.	• Primary dressing serves as a wick for drainage. Use of forceps helps ensure that sterile technique is maintained. • The dressing acts as additional protection for the wound against microorganisms in the environment and increased absorption of drainage.

21.Remove and discard gloves.	To prevent the spread of microorganisms.
22.Apply tape and label it with date and time.	Tape or other securing products are easier to apply after gloves have been removed. Recording date and time provides Communication and demonstrates adherence to plan of care.
Post procedure	
23. Post care of patient • Cover the patient • Return to comfort position	
24. Post care of bed • Raise the side rails • Lower bed • Open the brakes	
25.Post care of environment Open the door, window and curtains	
26,Post care of equipment • Discard the equipment • Clean reused equipment	
27. Post care of myself • remove the gloves • Hand washing	

26. Document • Date, time of changing wound dressing, • Type of dressing and cleansing solution used, • Assessment of dressing • Assessment of wound • The evidence of complications.	

Applying Saline Moistened Dressing

Equipment

- **Equipment of dry dressing**
- Sterile thin-mesh gauze dressing for packing, if ordered
- sterile irrigation set including
    - Basin
    - Sterile container.
    - Irrigation syringe**.**
- Skin protectant

Nursing action	**Rational**
The same steps of dry dressing 1-14	
Clean the wound	
15. Using sterile technique, • Sterile gloves • PPE • Open the package. • Place the fine-mesh gauze into the basin and pour the ordered solution over the mesh to saturate it. • Open the sterile irrigating solution into the sterile container	Gauze touching the wound surface must be moistened to increase the absorptive ability and promote healing.
16. Position the sterile basin below the wound to collect the irrigation fluid.	Patient and bed linens are protected from contaminated fluid.

	
17. Fill the irrigation syringe with solution. Using your non-dominant hand, gently apply pressure to the basin against the skin below the wound to form a seal with the skin.	The solution will collect in the basin and prevent the irrigant from running down the skin. Patient and bed linens are protected from contaminated fluid.
• Keep the tip of the syringe at least 1inch above the upper tip of the wound. • Gently direct a stream of solution into the wound. • When using a catheter tip, insert it gently into the wound until it meets resistance. Gently flush all wound areas.	**15. Using sterile technique,** • Sterile gloves • PPE • Open the package. • Place the fine-mesh gauze into the basin and pour the ordered solution over the mesh to saturate it. • Open the sterile irrigating solution into the sterile container
19. Watch for the solution to flow smoothly and evenly. When the solution from the wound flows out clear, discontinue irrigation.	Irrigation removes exudate and debris.
20. Dry the surrounding skin with sterile gauze dressings.	Moisture provides a medium for growth of microorganism.
21. Apply a skin protectant to the surrounding skin, if needed	A skin protectant prevents skin irritation and breakdown.

• Squeeze excess fluid from the gauze dressing. • Unfold and fluff the dressing. 	The gauze provides a thin, moist layer to contact all the wound surfaces. 
23. Gently press to loosely pack the moistened gauze into the wound. If necessary, use the forceps or cotton tipped applicator to press the gauze into all wound surfaces.	The dressing provides a moist environment for all wound surfaces. Avoid over packing the gauze; loosely pack to prevent too much pressure in the wound bed, which could impede wound healing.
24. Apply • Several dry gauze pads over the wet gauze. • Layer of dry ***dressing*** over the wound by using forceps. • Apply ***abdominal pad*** over the gauze as necessary.	• Dry gauze absorbs excess moisture and drainage. 
27. Remove and discard gloves.	Tape are easier to apply after gloves have been removed.
28. Apply tape and label it with o date o Time.	Recording date and time provides Communication and demonstrates adherence to plan of care.

29. Post procedure ➢ Post care of patient ➢ Post care of bed ➢ Post care of environment ➢ Post care of equipment ➢ Post care of myself	
30. Document • Date, time of changing wound dressing • Type of dressing and cleansing solution used, • Assessment of dressing • Assessment of wound • The evidence of complications.	

Measuring radial pulse and respiration

Definitions

- **Pulse**: a wave of blood created by contraction of the left ventricle of the heart.
- **Pulse rate**: number of beats per minute.
- **Pulse deficit:** the difference between peripheral pulse and apical pulse.
- **Tachycardia:** pulse rate, above 100 beat per minute in adults.
- **Bradycardia:** pulse rate, below 60 beat per minute in adults.

Characteristics of pulse

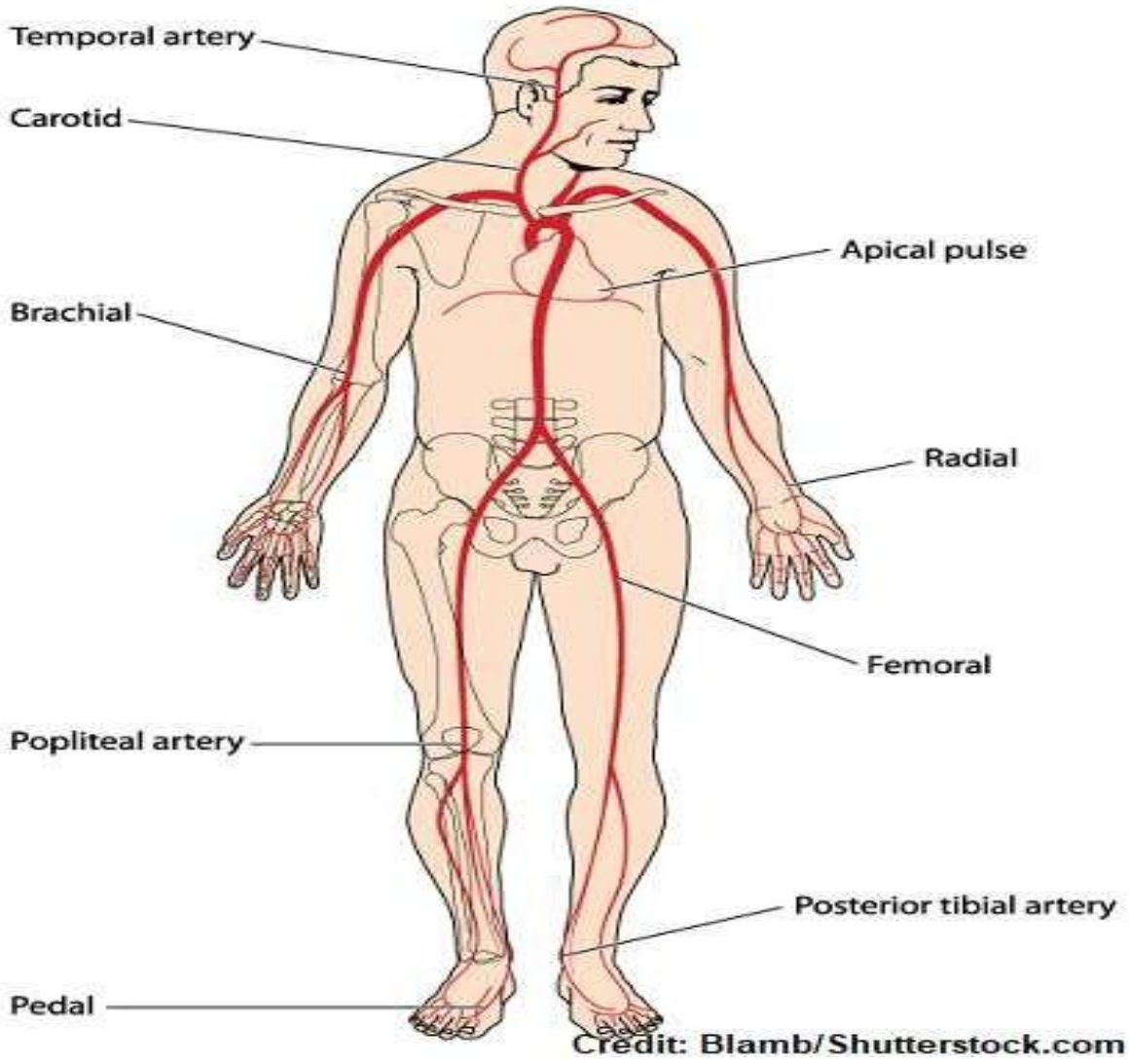
Pulse	Normal	Abnormal
Rate	60-100 b/m	Tachycardia or bradycardia
Rhythm	Regular	Irregular
Amplitude	+3	+4, +2, +1, 0
Equality	Equal	Not equal

Pulse Amplitude is graded as 0 to 4 :

Number	Definition	Description
0	Absent pulse	• Pulse cannot be felt, • Even with the application of extreme pressure.
1+	Thread pulse	• Pulse is very difficult to feel • Applying slight pressure causes pulse to disappear.
2+	Weak pulse	• Pulse is stronger than a thread pulse, • Applying light pressure causes pulse to disappear.
3+	Normal pulse	• Pulse is easily felt and requires • Moderate pressure to make it disappear.
4+	Bounding pulse	• Pulse is strong • Does not disappear with moderate pressure.

Pulse Sites:

- Temporal artery.
- Carotid artery.
- Brachial artery.
- Radial artery.
- Femoral artery.
- Popliteal artery.
- Posterior tibia artery.
- Dorsal pedis artery.



Respiration

- **Definition:** the exchange of oxygen (O2) and carbon dioxide (CO2) between cells of the body and the atmosphere.
- **Respiratory rate**: the number of breaths (inspiration and expiration are one cycle) per minute **(c/m)**.

Characteristics of respiration

Respiration	**Normal**	**Abnormal**
Respiratory rate	12-20 c/m	Tachypnea or bradypnea
Depth	Normal	Shallow /gasp
Rhythm	Regular	Irregular
Sound	Clear	Noisy or wheezy breathing

Purpose of procedure

1- To obtain base line data.

2- To detect changes in the patient's physical condition

3- To aid in diagnosis and treatment of patient.

Equipment

- Watch with a second hand.
- Graphic chart and patient's record.
- Gloves and PPE if needed.
- Pencil or pen, paper or flow sheet

Steps

Nursing action	Rationale
Assessment	
1- Check medical order or nursing care plan for frequency of pulse assessment, more frequent pulse measurement may be appropriate based on nursing judgment.	-Assessment and measurement of vital signs at appropriate intervals provide important data about the patient's health status.
Preparation	
2- Prepare yourself) • Hand washing. • Put on PPE, if needed • Body mechanics	-Hand hygiene and PPE prevent the spread of micro-organisms. PPE is required based on transmission precautions.
3 -Prepare equipment)	To save time and effort
4- Prepare patient)	
5- Prepare environment	
6- Prepare bed	
Procedure	
• Ask whether the patient has walked, climbed stairs, or otherwise exerted themselves in the last 20 minutes. • If the answer is yes, wait 20 minutes before taking the reading • If not, you can proceed.	This will help to prevent false readings.
8-Select the appropriate peripheral site based on assessment data.	Ensures safety and accuracy of measurement

9 -Move the patient's clothing to expose only the site chosen.	- Exposing only the site keeps the patient warm and maintain his or her dignity.
10- Using the **first and second fingertips**, press firmly but gently on the arteries until you feel a pulse	The sensitive fingertips can feel the pulsation of the artery. 
11- Using a watch with a second hand, count the number of pulsations felt for **1 minute**.	-Ensures the accuracy of measurement and assessment.
12- When counting, do not watch the clock continuously, but concentrate on the beats of the pulse.	When watch clock make interruption.
13- Note rate, the rhythm and amplitude of the pulse and symmetry with the other side.	-Provides additional assessment data regarding the patient' s cardiovascular status.
14- **While** your fingers are still in place for pulse measurement, after counting the pulse rate**, observe** the patient' s **respirations**.	The patient may alter the rate of respirations if he or she is aware they are being counted. 
15- Note the rise and fall of patient's chest.	-Complete cycle of an inspiration and an expiration composes one respiration.
16- Using a watch with a second hand	-Ensures accuracy of measurement and

count the number of respirations for **minute**.	assessment.
17- If respirations are abnormal in any way, count the respirations for at least 1 full minute**.**	-Increased time allows the detection of unequal timing between respirations.
18- Note rate, depth and rhythm of the respirations.	-The patient may alter the rate of respirations if he or she is aware they are being counted.
Post care	
• When measurement is completed, remove gloves, if worn. • Cover the patient and help him or her to a position of comfort.	Removing gloves properly reduces the risk for infection transmission and contamination of other items. Ensures patient comfort.
20- Post care of bed	
21-Post care of environment	
22-Post care of equipment	
23- **Post care of myself** • Remove additional PPE, if used. • Perform hand hygiene.	• Removing PPE properly reduces the risk for infection transmission and contamination of other items. • Hand hygiene prevents the spread of microorganisms.
24- Record the finding of measurement and report doctor for any abnormalities in pulse and respiration.	-Sufficient time is necessary to observe the rate, depth, and other characteristics.

The apical pulse

- An apical pulse is assessed when giving medications that alter heart rate and rhythm.
- In addition, if a peripheral pulse is difficult to assess accurately because it is irregular, feeble, or extremely rapid

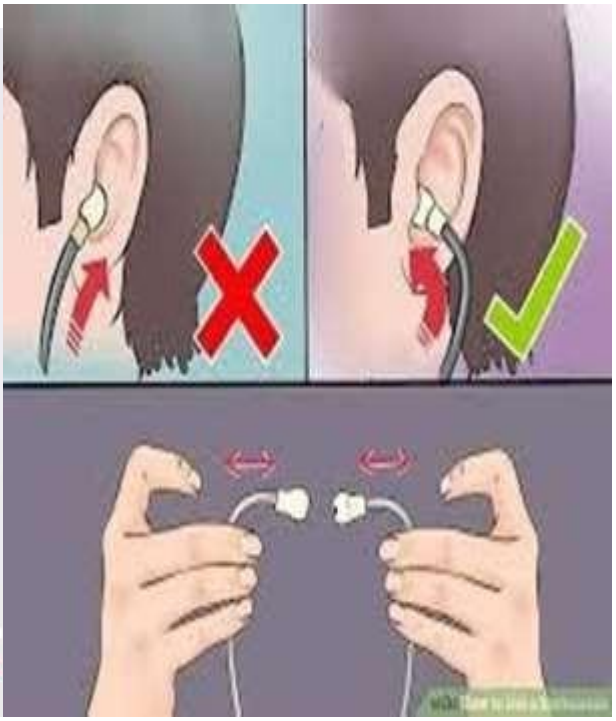
Purpose

- ✓ To assess heart rate when peripheral pulse is weak or irregular or both.
- ✓ To assess heart rate before administering medication such as digitalis.
- ✓ To identify pulse deficit.

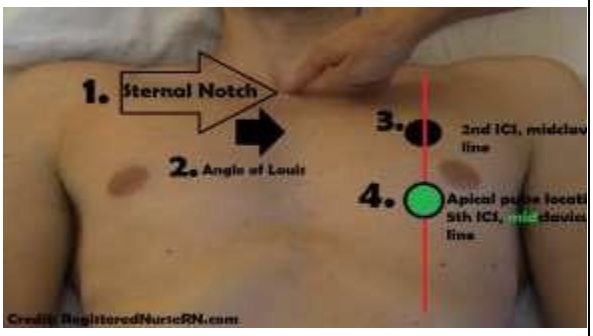
Equipment

- watch with second hand
- Stethoscope
- cotton with alcohol
- Pencil or pen, paper or flow sheet
- Nonsterile gloves, if appropriate; additional PPE, as indicated





Nursing action	Rationale
Assessment	
1-Check medical order or nursing care plan for frequency of pulse assessment. More frequent pulse measurement may be appropriate based on nursing judgment. Identify the need to obtain an apical pulse measurement.	Provides for patient safety and appropriate care.
2-Assess for factors that could affect apical pulse rate and rhythm such as - Age - Exercise - Fluid balance, and medications	Provides for patient safety and appropriate care.
3- Note baseline or previous apical pulse measurements.	
Preparation	
4- Prepare yourself	
5- Prepare equipment o Prepare the needed equipment. o Check the efficiency of the equipment o Take equipment to the bed side.	To save time and effort
6- **Prepare patient**	
7- Prepare environment	
8- Prepare bed	
Procedure	
• Use alcohol swab to clean the diaphragm of the stethoscope.	cleaning with alcohol prevents transmission of microorganisms

• Use another swab to clean the earpieces, if necessary.	
• Assist patient to comfortable position (**sitting or supine position**)	-This position facilitates identification of the site for stethoscope placement.
11- Move the patient's clothing to expose only the apical site.	-This ensures the patient's privacy.
12-Hold the stethoscope diaphragm against the palm of your hand for a few seconds	-Warming diaphragm promotes patient comfort.
• Palpate the space between **the fifth and sixth ribs (fifth intercostal space),** and move to **left med-clavicular line.** • Place the diaphragm over the apex of the heart. 	-Position the stethoscope over the apex of the heart, where the heart beat is best heard. 
14- Listen for heart sounds (lub-dub). Each (lub-dub) counts as **one beat.** 	-These sounds occur as the heart valves close.
15-Using a watch with a second hand, count the heartbeat for **1 minute.**	-Counting for a full minute increases the accuracy of assessment.

Post care	
• When measurement is completed, remove gloves, if worn. • Cover the patient and help him to apposition of comfort.	• Removing PPE properly reduces the risk for infection transmission and contamination of other items. • Ensures patient comfort
17-Post care of bed	
18- Post care of environment	
19- **Post care of equipment** • Clean the diaphragm and ear piece of the stethoscope with an alcohol swab.	-Cleaning with alcohol prevents transmission of microorganisms
20- **Post care of myself** Remove PPE, if used. Perform hand hygiene.	Removing PPE properly reduces the risk for infection transmission and contamination of other items.-Hand hygiene prevents the spread of microorganisms.
21- Record the finding and report doctor about abnormality if present.	-

Measuring body temperature

Definition

Is the difference between the amount of heat produced by the body and the amount of heat lost to the environment, measured in degrees.

Purpose

1- To obtain base line data.

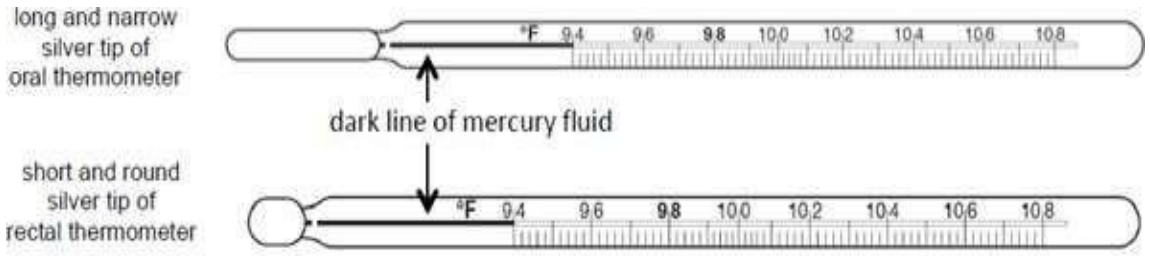
2- To detect changes in the patient's physical condition.

3- To aid in diagnosis and treatment.

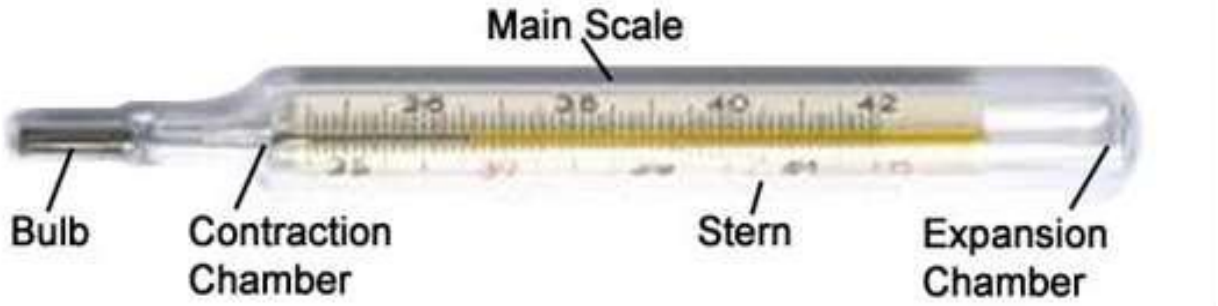
Types of thermometers

A. *Glass thermometer*

- Long- or slender-tip thermometers are used for oral and axillary temperatures.
- Thermometers with stubby and pear-shaped tips are used for rectal temperature.



Picture 7 Mercury glass thermometers



b- Digital thermometer: include

1. Electronic thermometer:





2. Temporal artery thermometer:



3. Tympanic membrane thermometer:



Sites of measuring body temperature:

1. Oral.
2. Axillary (armpit).
3. Rectal.
4. Tympanic membrane (aural).
5. Skin or temporal artery.

1. <u>Oral temperature:</u>



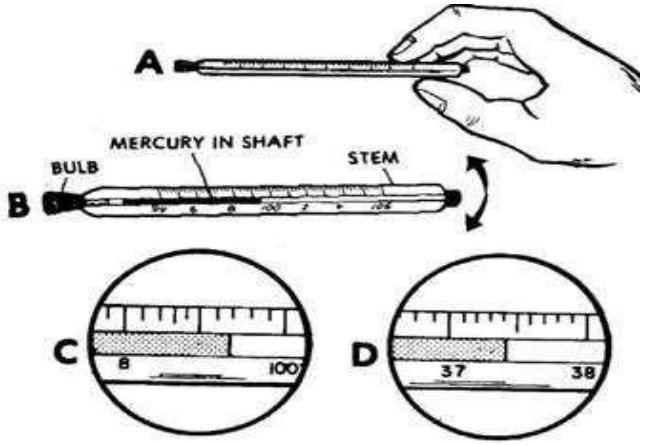
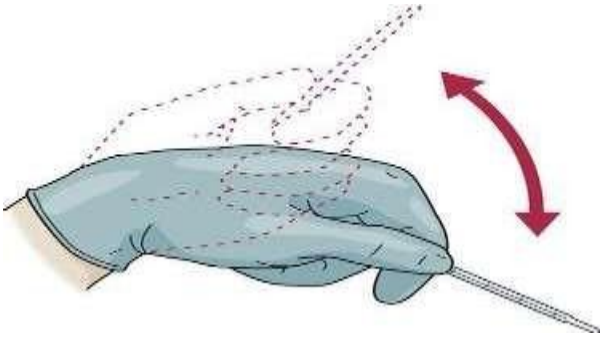
Contraindications of oral temperature:

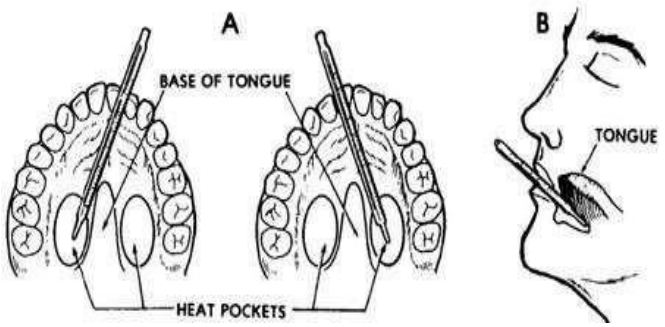
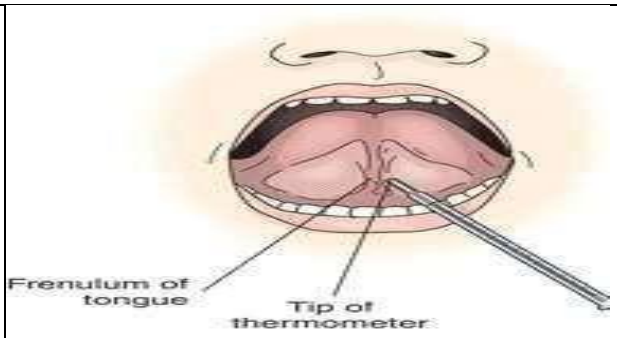
- Children (newborn, infants) under 6 years.
- Unconscious patients.
- Surgical operation in mouth or nose.
- Drinking of hot or cold fluids (take oral temperature after 15-30 minutes).
- The patient has nasogastric tube- persistent frequent coughing, Sneezing repeatedly.
- Oxygen is being administered continuously.
- In case of inability to close the mouth e.g. very weak patients
- Inflammation of mouth.
- Convulsive disorders.
- Patient breathing through the mouth.

Equipment

- Digital, or glass thermometer, appropriate for site to be used
- Disposable probe covers (for digital thermometer).
- Non sterile gloves, if appropriate
- Kidney basin
- Watch
- Soap and water.
- Alcohol swab.
- Cotton and paper tissue.
- Pencil or pen, paper (for documentation).

Nursing action	Rational
A-preparation **1. prepare my-self:**	
2. Prepare equipment - **cleaning of thermometer** Remove thermometer from storage container. ❖ Wash with soap & water from tip to bulb; using a twisting motion. ❖ Rinse under running water from bulb to tip. ❖ Dry thermometer from bulb to tip, and put it in kidney basin lined with paper tissue. ❖ Remove the gloves & Wash hands again then put a new disposable gloves. ❖ Take all equipment to the patient bedside.	- Facilitates organization. - Cleansing removes microorganisms which can infect oral mucosa. Cool water prevents expansion of the colored solution mercury. -Wipe from area of least contamination to most contaminated area
3. Prepare environment	
4. Prepare patient	
5. Prepare bed	
6. Disinfect thermometer with alcohol from bulb to tip & cover it with paper tissue.	- To prevent transmission of microorganisms

7. Read thermometer by locating colored solution or mercury level. It should read blow 35 ^{0}c. 	Thermometer must be below normal body temperature to ensure an accurate reading 
8. If thermometer is not below normal body temperature reading grasp thermometer with thumb and forefinger and shake vigorously by snapping the wrist in a downward motion to move mercury to a level below normal	Shaking briskly lowers level of mercury in column Because glass thermometers break easily make sure that nothing in the environment comes in contact with the thermometer when shaking it. 
B- During procedure. **9.** Ask patient if he drunk hot or cold liquids, or smoked, wait 15 – 30 minute	To ensure accurate measurement.
10. Place thermometer in client's mouth under the tongue and along the gum line to the posterior sublingual pocket Instruct client to hold lips closed.	Ensures contact with large blood vessels under the tongue. Prevents environmental air from coming in contact with the bulb.

	
11. Leave in place for 3 minutes. Leave an electronic thermometer in place until signal is heard.	- Thermometer must stay in place long enough to ensure an accurate reading. 
12. Remove thermometer and wipe with a tissue away from tip toward the bulb's end.	- Mucus on thermometer may interfere with ability of correct reading. Wipe from area of least contamination to most contaminated area.
13. Read at eye level and rotate slowly until mercury level is visualized.	Ensures an accurate reading
C- post procedure care	
14. Post care of patient • Inform client of temperature reading • Return patient to comfort position	
15.Post care of bed	
16. Post care of environment	
17. Post care of equipment • Clean glass thermometer with soapy water (the same technique applied before)	Cleansing removes secretions.

18.Post care of myself	
19. Report abnormal reading to the doctor & record reading (the same reading on thermometer) according to institution policy.	Accurate documentation by site allows for comparison of data.

2- Measuring Axillary temperature

Indications:

1- Oral inflammatory or surgery

2- Rectal surgery or inflammatory

Contraindications of Axillary temperature:

1- Skin disease.

2- Inflammation

3- Operations of axillary.

4- Burn in axillary (arm).

5- Injury or fracture of the chest or the arm

Equipment:

1- Glass or electronic thermometer.

2- Two pairs of non-sterile gloves.

3- Alcohol swab.

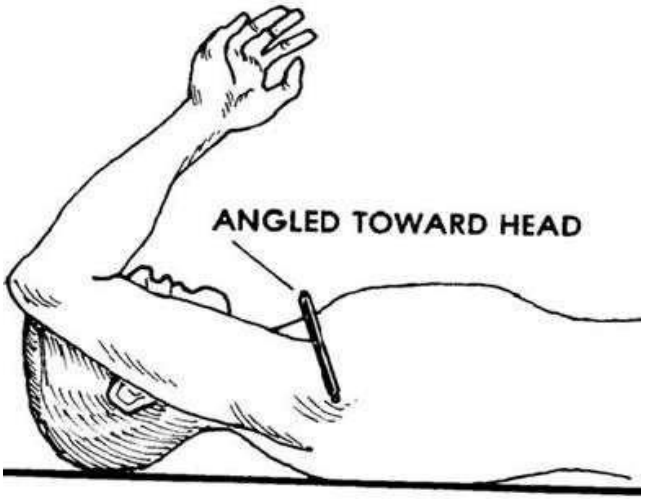
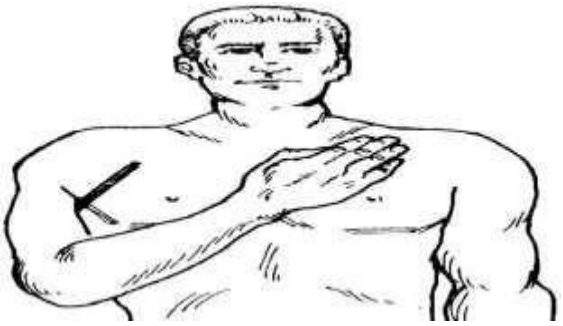
4- Cotton and paper tissue.

5- Soap and water.

6- Watch and Pencil or pen, paper

Steps

Nursing action	**Rational**
A-preparation 1-Repeat Actions from 1 to 8.	- See Rationales.

B- During procedure. 10-Remove client's arm and shoulder from one sleeve of gown Avoid exposing chest.	- Exposes axilla area only.
11-Make sure auxiliary skin is clean and dry.	Removes moisture and prevents a false low reading.
12-Place thermometer or probe into center of axils fold the client's upper arm straight down and place arm across the client's chest.  	- Close contact of the bulb of the thermometer with the superficial blood vessels in the axilla ensures a more accurate temperature registration. 
13-Leave glass thermometer in for 5 minutes, (Leave an electronic thermometer in place until signal is heard). • Remove and read temperature	- To ensure an accurate reading.
C- post procedure care	
• **Repeat Actions from 14 to18.**	
19- **Report** abnormal reading and record reading according to institution policy. • Add (0.50 c) on existing reading or write the reading and the site measured from	- Accurate documentation by site allows for comparison of data. Because of low vascularity in axillary area.

3- Measuring Rectal body temperature



A rectal temperature can be taken in either of these positions.

Indication:

1- In case of children below 6 years.

2- Confused or convulsive clients.

3- Oral or gums inflammatory**.**

Contraindication of rectal temperature:

1- Patient with surgical operation in rectum - perineal region.

2- Inflammations of rectum.

3- Diarrhea –disease of rectum.

4- In newborns and infants it may cause ulceration and rectal perfusion.

Equipment:

1- Rectal thermometer or glass thermometer.

2- Lubricate for rectal.

3- Two pairs of non-sterile gloves.

4- Paper Tissue and cotton.

5- Watch.

6- Soap and water.

7- Alcohol swab**.**

8- Rubber sheet.

Nursing action	Rational
A-preparation 1-Repeat Actions from 1 to 8.	- See Rationales.
B- During procedure. 9. Place client in the sim's positions with upper knee flexed Adjust rubber sheet under patient buttocks and expose only anal area and assess anal area first for any abnormality or secretion wipe it if present.  	- Proper positioning ensures visualization of anus flexing knee relaxes muscles for ease of insertion.
10. Lubricate bulb of rectal thermometer or probe digital thermometer.	- To facilitate insertion of thermometer through anus without causing injury.
11. With dominant hand grasp thermometer With other hand separate buttocks to expose anus.	- Relaxes anal sphincter Gentle insertion decreases discomfort to client and prevents trauma to mucous membranes.
12. Instruct the client to take a deep breath Insert the thermometer or probe gently into anus infant 1.2cm (0.5 inches) adult 3.2- 4 cm 1.5 inches If resistance is felt do not force insertion.	- Prevents trauma to mucosa and breakage of glass thermometer.
13. Hold in palace for 1 minute. Leave an electronic thermometer in place until signal is heard.	For accurate measurement.

C- post procedure care	
• **Repeat Actions from 14 to18.**	
19. **Report** abnormal reading and record reading according to institution policy • Decrease (0.50 c) on existing reading or write the reading and the site measured from.	• Accurate documentation by site allows for comparison of data. Because of high vascularity in rectum.

4- Measuring a Tympanic Membrane Temperature

- Press the buttonto turn on the thermometer.
- Slide disposable cover onto the tympanic probe.
- Insert the probe snugly into the external ear using gentle but firm pressure
- Angling the thermometer toward the patient's jaw line.
- Pull pinna up and back to straighten the ear canal in an adult.
- Activate the unit by pushing the trigger button.
- The reading is immediate (usually within 2 seconds).
- Note the reading.

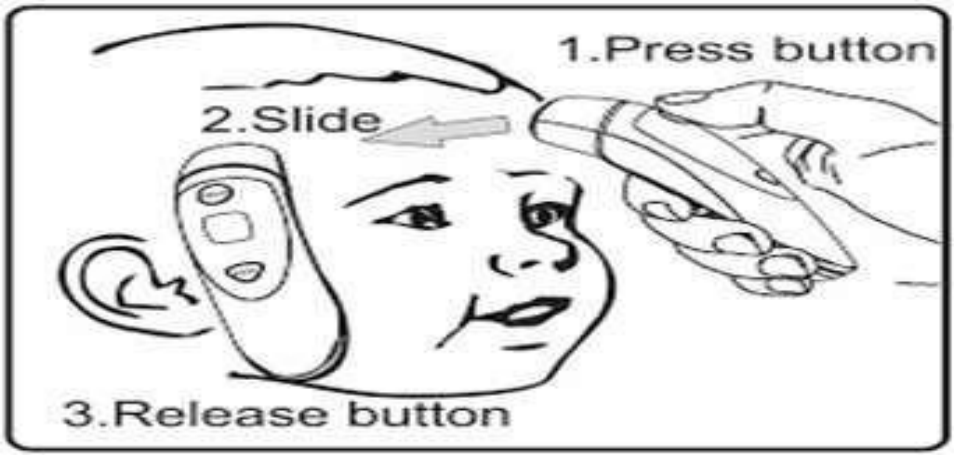




5- Assessing Temporal Artery Temperature

The temporal artery thermometer (TAT) is an infrared device designed for assessment of body temperature by scanning the temporal artery.

1- Apply a probe cover
2- Hold the thermometer like a remote control device, with your thumb on the red 'ON' button.
3- Place the probe flat on the center of the forehead, midway between the eyebrow and the hairline.
4- Keep the button depressed throughout the measurement.
5- Slowly slide the probe straight across the forehead, midline, to the hair line
6- Release the button and read the thermometer measurement





Blood Pressure

Definition of Blood Pressure-

Blood pressure refers to the force of the blood against arterial walls

Systolic pressure:

It is the highest point of pressure on arterial walls when the ventricles contract and push blood through the arteries. (**The first strong sound heard**).

Diastolic pressure:

The lowest pressure present on arterial walls (when the heart muscle is resting between beats and refilling with blood) (**the last sound disappeared**).

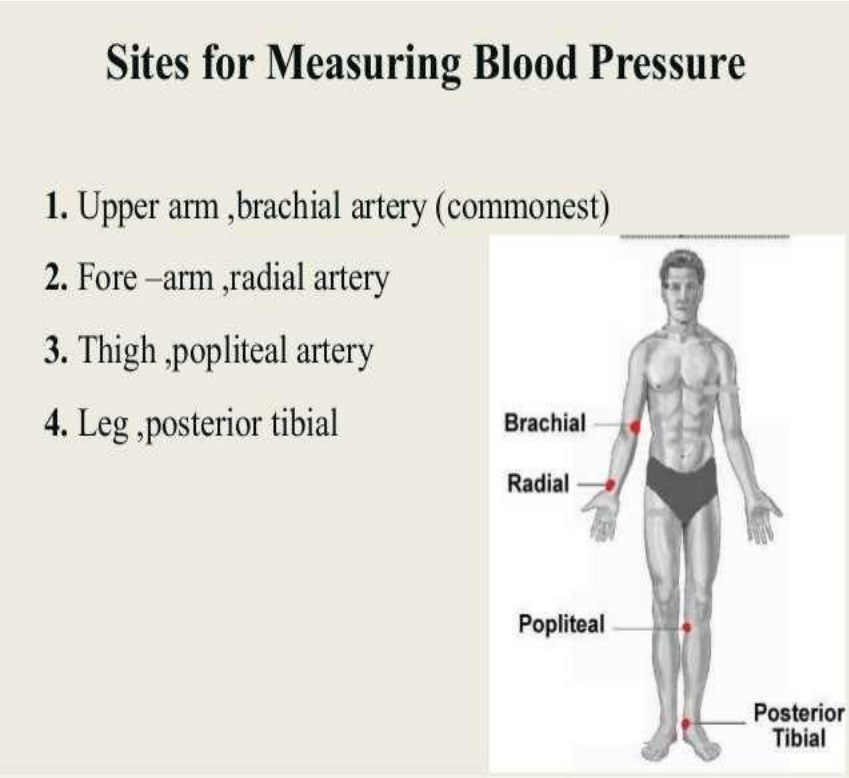
Purpose:

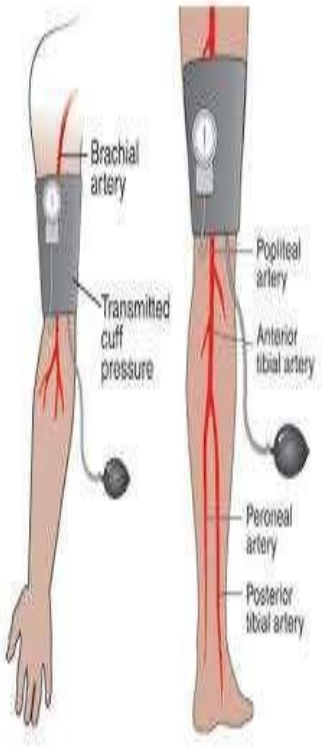
1- To obtain base line data.

2- To detect changes in the patient's physical condition

3- To aid in patient diagnosis and treatment.

Sites of measuring the BP:





Methods for measuring blood pressure:

(1)- Nan invasive methods

1- Manual method

- Mercury sphygmomanometer **(gold standard device to measure BP).**



- (Parometer) aneroid sphygmomanometer.

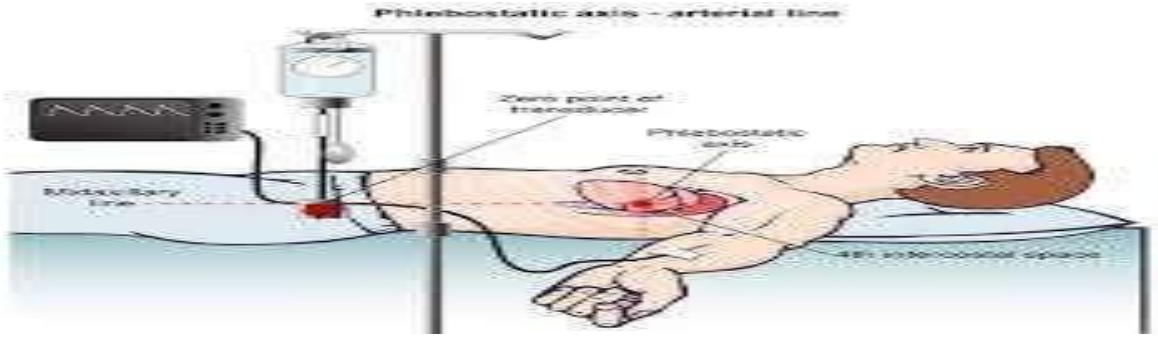


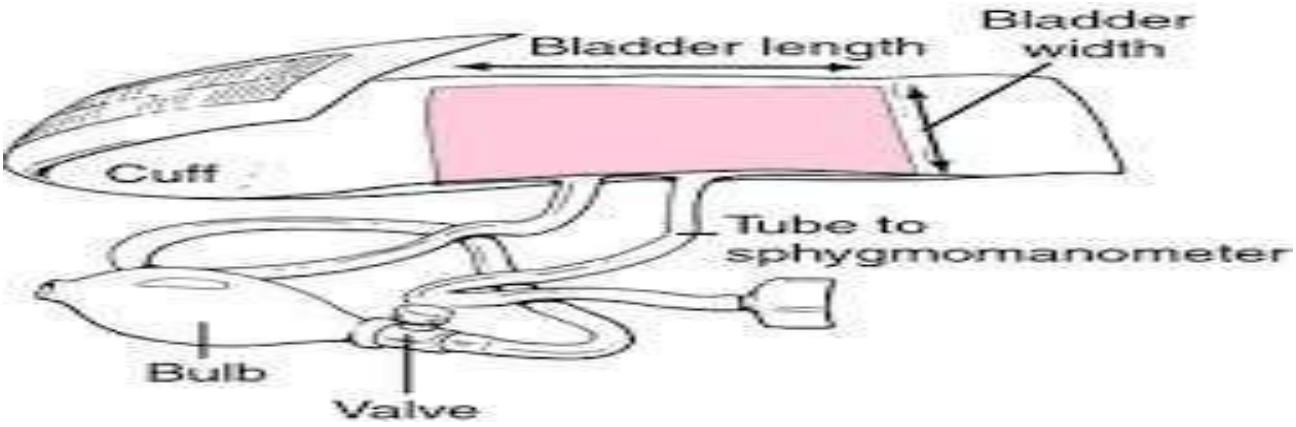
2 - Electronic (digital) device.





(2)- Invasive methods (intra-arterial blood pressure).



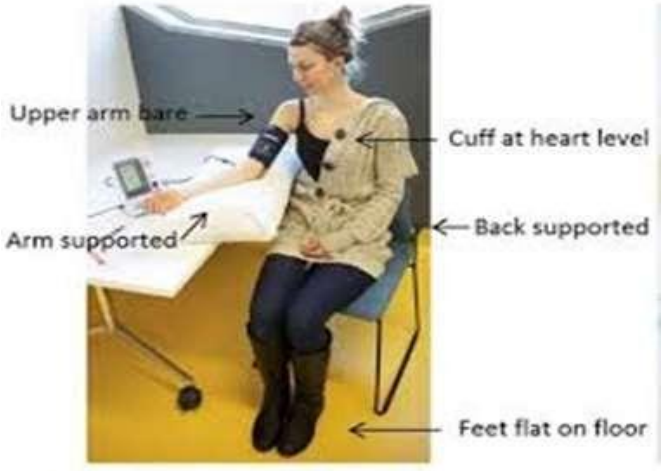


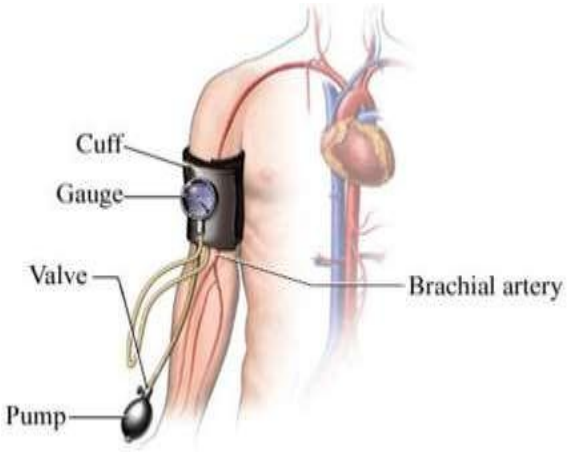
Equipment

- Stethoscope
- Sphygmomanometer (mercury or aneroid or electronic).
- Alcohol sponges.
- Blood pressure cuff of appropriate size.
- Pencil or pen - paper or flow sheet.
- PPE as indicated

PROCEDURE	**Rational**
1- Assessment:	
a) patient file: • Order of physician • Previous BP reading • Medication given to patient	Provides for patient safety.
b) patient: sites of measurement should away from ○ IV fluids ○ Fistula (iv shunt) ○ Breast or axillary surgery ○ Fracture.	If one of this condition presents don't use this affected limb to monitor blood pressure.

Assess the size of the limb so that the appropriate sized blood pressure cuff can be used.  	Cuff width should be ideally not more or less than 2/3 of upper arm if is too narrow or too wide it will affect the accuracy of result) place of cuff in med third of arm1to 2 inch above elbow
Assess for the factor that could affect blood pressure as age, exercise, position, Wt., fluid balance, smoking and medications.	factor that could affect blood pressure as age, exercise, position, Wt., fluid balance, smoking and medications
Assess the presences of pain	If the patient reports pain gives pain killers as ordered before assessing BP.
2- Preparation	
Prepare yourself	
Prepare equipment o Prepare the needed equipment. o Check the efficiency of the equipment o Take equipment to the bed side	- To save time and effort.
Prepare patient	
Prepare environment	- To ensure the patient privacy
Prepare bed	

Procedure	
3- Have the patient sit or lie down, ensure the patient's back is supported.	- Blood pressure is generally higher in the supine position than the sitting position.
• Position the patient's forearm at heart level, supported, with the palm facing up. • If the patient is sitting, instruct him or her to keep the feet on the floor with the legs uncrossed. • If the patient is supine, ensure the legs are not crossed. 	If the patient's arm is not supported at the heart level, a lower BP will be recorded when the arm is above heart level, and a higher BP will be recorded when the arm is below heart level. Leg crossing can falsely increase systolic and diastolic BP.
• Expose the patient's arm fully by removing any constricting clothing. • Do not place the BP cuff over clothing	- Placing the cuff over clothing may affect the BP measurement.

<table>
<tr><td>6-Apply the BP cuff.
Palpate the brachial artery for a pulse.
Apply the cuff above the artery by centering the arrows marked on the cuff over the artery so that the end of the cuff is 1 to 2 inches above the antecubital fossa to allow room for placement of the stethoscope
Wrap the fully deflated cuff around the patient’s upper arm (keep two finger space between the cuff and arm)
Wrap the cuff not too tight and not too loose for correct reading.</td><td>
</td></tr>
<tr><td>7- Position manometer vertically at eye level.</td><td>Looking up or down at the scale can result in incorrect readings.</td></tr>
<tr><td colspan="2">8- For a palpatory reading: (measure systolic blood pressure)</td></tr>
<tr><td>Estimate patient’s systolic blood pressure by palpation.
a. Locate brachial or radial pulse.
b. Palpate artery distal to cuff with fingertips of non-dominant hand while inflating cuff rapidly to pressure above point at which pulse disappears about 30 mmhg.</td><td></td></tr>
</table>

c. Slowly deflate cuff and observe the point when pulse reappears. **d.** Deflate cuff fully	
9- For an auscultatory reading: **A-** Clean and place the stethoscope earpieces in the ears and make sure sounds are clear, not muffled. **B-** Locate the brachial or radial artery as appropriate **C-** Place the diaphragm of the stethoscope over it below the bottom of the cuff. **D-** Close the valve, and inflate the cuff rapidly about 30 mmhg above the point at which the artery pulsation is obliterated. **E-** Slowly release the pressure bulb valve, allowing the manometer needle to fall slowly and continuously at a rate of 2 to 3 mm Hg per second. **F-** Observe the point on the manometer at which **the first strong sound is heard**, indicating the systolic BP. The sound will slowly increase in intensity. **G-** Continue to deflate the cuff gradually; observe the point on the manometer at	- Using the bell of the stethoscope may cause inaccurate reading - Closing the valve prevents air leak during inflation. Rapid cuff inflation ensures accurate measurement of systolic pressure. - Too rapid or slow a decline in the mercury level causes inaccurate readings. - This first sound is a snapping sound. This sound for at least two consecutive heartbeats reflects the systolic BP. 

which **all sounds disappear**, indicating the diastolic BP.	
10-Post procedure	
Remove the cuff from the patient's arm unless a repeat measurement is needed (wait 1 to 3 minutes after the first reading).	Continuous cuff inflation causes arterial occlusion, resulting in numbness and tingling of the arm
Post care of patient	
Post care of bed	
Post care of environment	
Post care of equipment • Clean the earpieces and the chest piece of the stethoscope with alcohol.	
Post care of myself	
Report abnormal values to practitioner and document procedure	To take appropriate action for legal documentation.

Drug administration

Definition of the drug:

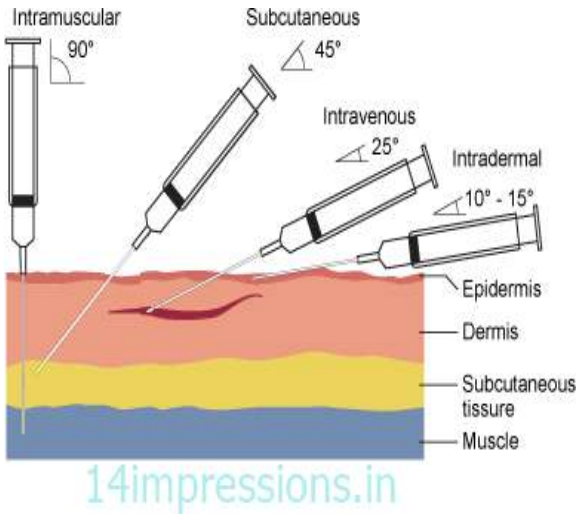
It is chemical /a natural substance that is used to diagnose, prevent or treat disease.

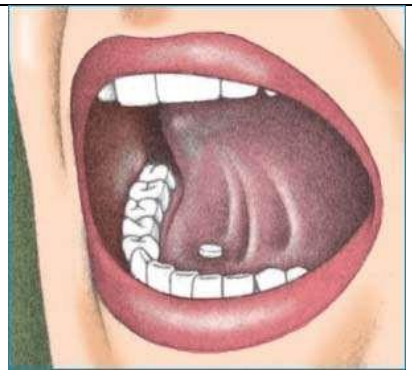
Purpose:

1. **Diagnostic purposes** as determine the cause of physical impairment e.g. barium for X- rays or drugs.
2. **Prophylaxis** as heparin to prevent thrombosis or antibiotic to prevent infection.
3. **Therapeutic purpose** as replacement of fluids or vitamins**.**

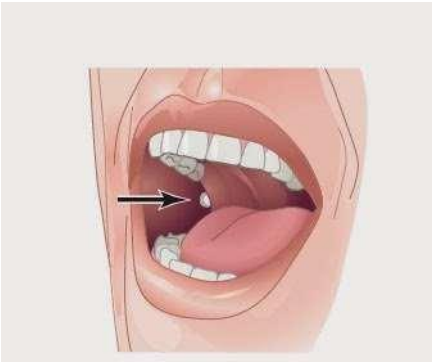
Routes of drug administration:

I- ***Systemic r***oute: drug reaches to the systemic circulation (Blood). It classified into

Systemic route	**Enteral route**	**Parenteral route**
Definition	The drug is placed in the gastrointestinal Tract and then it absorbs to the blood.	The drug does not pass through the gastrointestinal tract. It directly reaches to the blood.
Types	1- **Oral** (tablets, capsules, syrups).  2- **Sublingual** (the drug is placed under tongue).	**1- With Injection** as IM, IV, SC and ID.  14impressions.in



3- **Buccal** (the drug is kept between the gum and inner cheek until absorption occurs in the mouth).



4- Rectal (as suppositories, enema).

2- Without injections as (Inhalational and transdermal routes which act as a systemic and local routes for drug administration).

- **Inhalation route** (the drug is administered in gaseous form and absorbed through lung into the blood stream).Such as oxygen therapy, inhalers and gases used for general anesthesia.





-- **Transdermal route or (transdermal patch)**: is a medicated adhesive patch that is placed on the skin eg Nitroglycerine (antianginal).



II- **Local Route: -** the drug is applied on the skin and mucous membrane for the local action.

1- **Topical** (applied to the skin) as creams, lotions, ointment, gel and spray



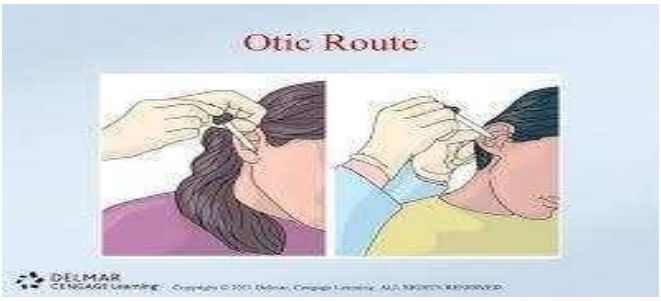


2- Instillation:

A) **Intra nasal** (Given into the nose by spray)



B) **Otic** (given by drops into the ear).



C) **Ophthalmic** (given by drops into the eye) or ointment



D) **Vaginal** (given by Suppository or Vaginal douche).





Administering oral medications

Instructions of oral medications

- Administer the medication at the correct time (30 minutes before and after).
- Give the client sufficient water or preferred juice to swallow the medication.
- Before using juice, check for any food and medication incompatibilities.
- Stay with the client until all medications have been swallowed.
- Avoid giving two medications at once, wait 10-15 minutes between each drug.

Preparation of tablets or capsules:

1- Place packaged unit-dose capsules or tablets directly into the medicine cup.

2- Do not remove the medication from the package until at the bedside.

3- If using a stock container, pour the required number into the bottle cap, and then transfer the medication to the disposable cup without touching the tablets.

4- Or Opening the tablet or capsule directly in the patient hands and avoid touching the medicine

Preparation of syrup medications:

1- Shake the bottle to ensure the medicine is well mixed (if needed).

2- Remove the cap and place it upside down on the countertop.

3- Hold the bottle so the label is next to your palm and pour the medication away from the label.

4- Place the medication cup on a flat surface at eye level and fill it to the desired level. (If using medicine spoon, oral syringe, dropper keep it also at eye level for accurate measurement of the dose).

5- Before capping the bottle, wipe the lip with a paper towel.

6- Do not return excess medication to the bottle.

Administering nasal drops



- Each patient should have his own nasal dropper.
- Ask the patient blowing to clear the nose.
- Ask the patient to hyperextend of his head.
- Avoid touch the external nares of the dropper.
- Ask the patient to maintain the head hyperextension for 1- 2 minutes.

Administering eye drops or ointment



- Clean the eye with warm water from inner to outer one time with clean sponge for each aye and repeat it if needed with the same technique.
- Ask the patient to hyperextend of his/her head and open eyes.
- Apply the medication (ointment) from inner to outer.
- Ask the patient to maintain the head hyperextension for 1- 2 minutes.

Administering ear drops

- Put the patient in lateral position.
- Pull pinna cartilage backwards and upwards for adult patient.
- Apply the medication.
- Ask the patient to maintain the head hyperextension for 1- 2 minutes.



Administering Intramuscular Injection (I.M)

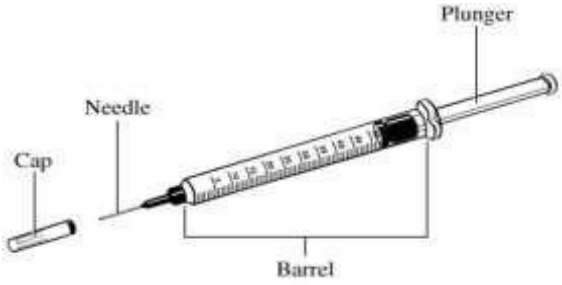
Equipment:

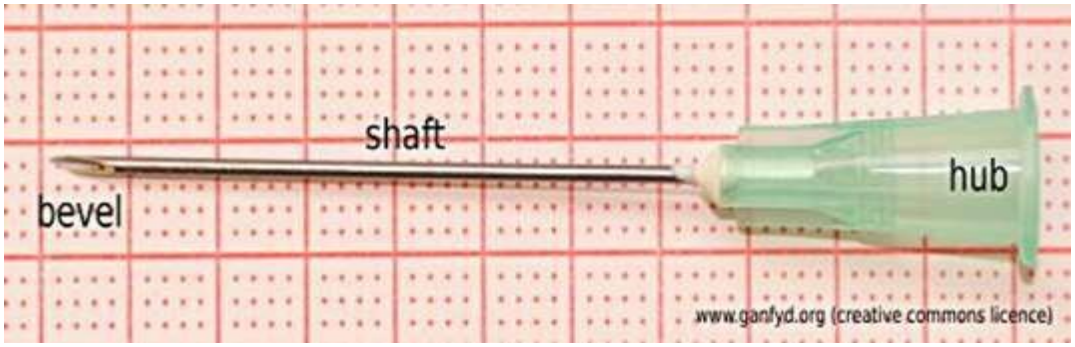


1. Clean gloves
2. Syringes (choose the suitable size)
3. Needles (needles vary in length and sizes)
4. Medication administration record (MAR) or computer printout
5. Ampoule or vial of medication
6. Small gauze square or plastic ampule opener.
7. Solvent (e.g. normal saline or sterile water) if needed.
8. Alcohol sponge
9. Dry sponge
10. Tray
11. Container for disposing of waste product (paper bag).
12. Puncture-proof container (safety box).

Parts of the syringe:







Sites of IM injection:-

A- Deltoid site

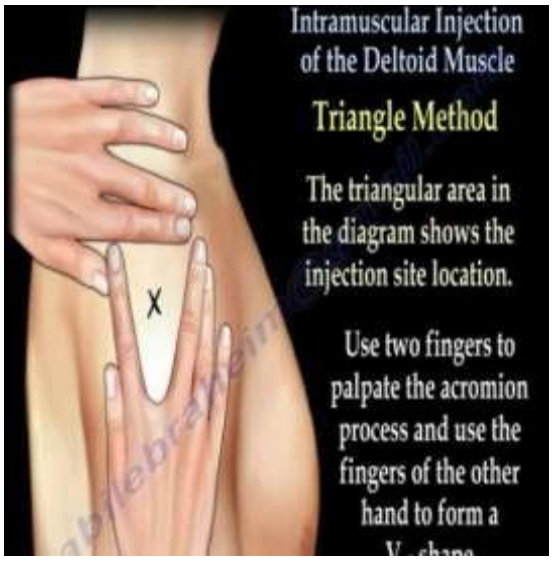
1- Anatomical landmark

- The injection site is 2 inches below the acromion process in the center of the muscle
- Or **square method** as the top border of the deltoid region is one or two finger width from the acromion process and the bottom line is at the insertion of deltoid muscle is approximately from the fold of the axilla. Give at the middle part of the muscle

2- Safety margin

- Deltoid muscle is small which leaves small margin for error.
- Accurate identification of safe zone due to close proximity ***deep brachial artery, Redial nerve, Axillary nerve.***
- Used only for small volumes of medication (0.5–1.0 mL).
- Squeeze the muscle during injection.
- Insert needle by 45 angle, and don't inject deeply.
- Must aspirate before injecting medication to ensure safe injection.







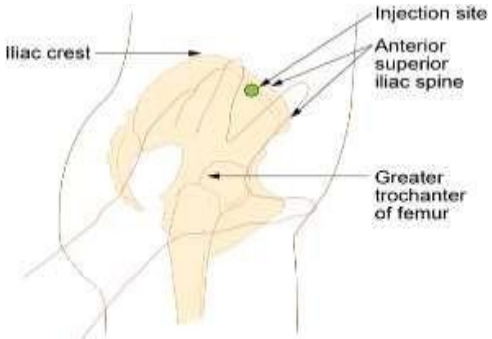
B-Vastus lateralis site

1. **Anatomical landmark**
   - Located on the anterior lateral aspect of thigh,
   - One hand breadth below the trochanter and above the knee.
   - Injection should be into the middle third of the muscle.
2. **Safety margin**
   - Well-developed muscle.
   - Preferred site for infants.



C-Ventro-gluteal site

1. **Anatomical landmark**
   - Locate muscle by placing heal of hand over the greater trochanter of the patient's hip with wrist perpendicular to femur.
   - Use right hand for the left hip and left hand for the right hip.
   - The index finger, middle finger, and the iliac crest form a "V"-shaped triangle.
   - Inject into the center of the triangle.
2. **Safety margin**
   - Situated away from all major nerves and blood vessels.
   - Can be given without aspiration before administration.
   - Safe for all patients and the preferred site for anyone older than 7 months old





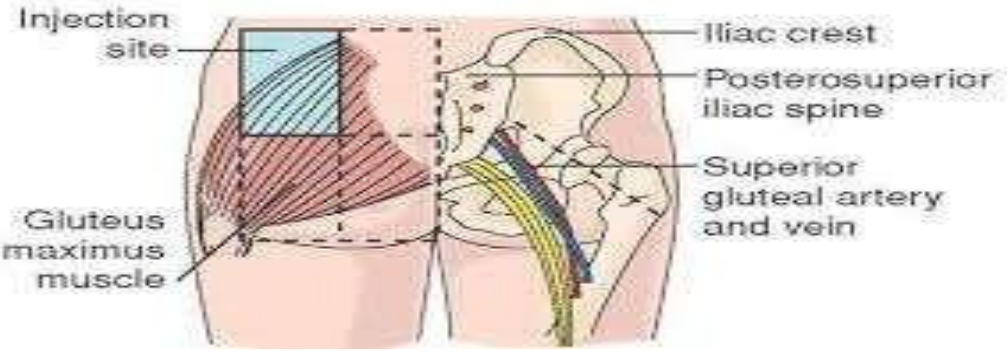
D-Dorso-gluteal site

1. Anatomical landmark

- Locate posterior superior iliac spine and the greater trochanter of the femur.
- Draw an imaginary line between the two landmarks
- Inject above and lateral to the line.
- Avoid the sciatic nerve that runs parallel and below the line.

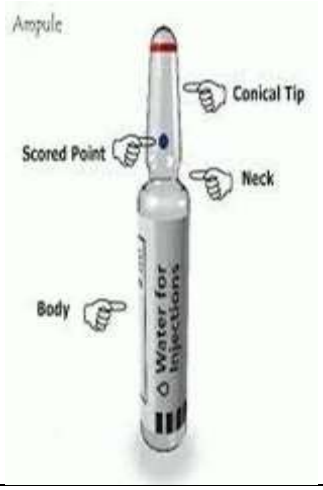
2. Safety margin

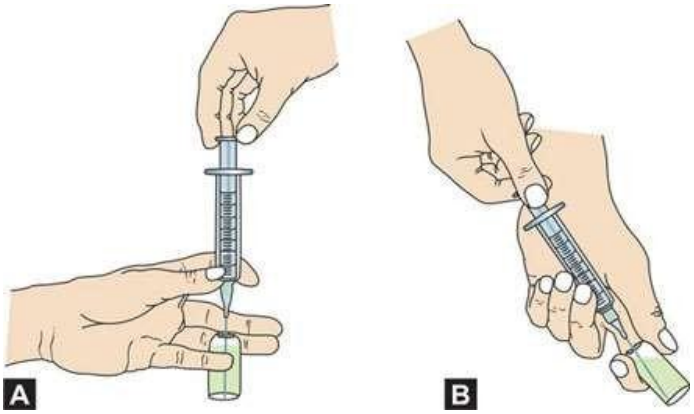
- Should be last choice because of risk for striking the sciatic nerve or major blood vessels.
- Avoid this site in small children until they are walking; adequate musculature may not have developed.



A-Prepare injection from ampoule

	Steps	Rationale
	A) Pre procedure Preparation:	
1	**Check the MAR.** Check the label on the ampule carefully against the MAR to make sure that the correct medication is being prepared. • Follow **the three checks**. Read the label on the medication 1. When it is taken from the medication cart, 2. Before withdrawing the medication, and 3. After withdrawing the medication.	
2	- Gather equipment. - Prepare medication in the medication area & for one patient at a time.	- To save time and effort. - To prevent error
	B) During procedure:	
1	Perform hand hygiene and wear the clean gloves.	-Hand hygiene deters the spread of microorganisms.
2	**Prepare the medication ampule for drug withdrawal** - Hold ampule upright and flick the upper stem of the ampule several times with a fingernail. 	- This will bring all medication down to the main portion of the ampule. - Gauze pad protects the fingers from the broken glass, and any glass fragments will spray away from the nurse. - This method ensures that all

	- Use an ampule opener or wrap a small gauze pad around the neck of the ampule. - Break off the top by bending it toward you to ensure the ampule is broken away from yourself and away from others. - Dispose of the top of the ampule in the sharps container.   -	glass fragments fall into the packet and reduces the risk of cuts. 
3	**Withdraw the medication.** - Place the ampule on a flat surface. - Attach the filter needle or straw to the syringe. - Remove the cap from the needle and insert the needle into the center of the ampule. Do not touch the rim of the ampule with the needle tip or shaft. 	- The filter needle/straw prevents glass particles from being withdrawn with the medication. - This will keep the needle sterile -The rim of the ampule is considered contaminated.

	Touch the plunger at knob only. - Withdraw the amount of drug required for the dosage - By holding the ampule slightly on its side, or invert the ampule.  	- Handling the plunger at the knob only will keep the shaft of the plunger sterile. 
	• Hold syringe straight up. • Gently tap the side of the syringe to bring any air to the top of the syringe • Gently push any air out of the syringe  	
	• Check the amount of medication in the syringe with the medication dose • Discard any excess medication.	
	• Discard the filter needle in a suitable container	-The filter needle used to draw up

	• Discard the ampule in a suitable container.	medication should not be used to administer the medication.
	• Attach non- filter needle to syringe. • Expel the air from the needle • Label the syringe (name of the drug, dose, solvent used, signature, date & time).	- To prevent any glass shards from entering the patient.
	C) After Withdraw medication: **D)** - Lock the medication cart before leaving it. - Remove the gloves and perform hand hygiene.	-Locking the cart or drawer safeguards the patient's medication supply. - To prevent spread microorganism
B-Prepare injection from solvent Medication in a Vial		
1	**A) The same pre procedure preparation (listed before).**	
	B) During procedure	
1	Perform hand hygiene and wear the clean gloves.	-deters the spread of microorganisms.
2	**Prepare the medication vial for drug withdrawal:** - Mix the solution, if necessary, by rotating the vial between the palms of the hands, not by shaking. - Remove the protective cap, - Or clean the rubber cap of a previously opened vial with an antiseptic wipe by rubbing in a	- Some vials contain aqueous suspensions, which settle when they stand. In some instances, shaking is contraindicated because it may cause the mixture to

	circular motion for 30 second.	foam. - The antiseptic cleans the cap and reduces the number of microorganisms.
3	**Withdraw the medication:** - Attach a filter needle, as agency practice dictates, to draw up premixed liquid medications from multi-dose vials - Ensure that the needle is firmly attached to the syringe. - Remove the cap from the needle, - Draw up into the syringe the amount of air equal to the volume of the medication to be withdrawn. - Carefully insert the needle into the upright vial through the center of the rubber cap, maintaining the sterility of the needle. - Inject the air into the vial, keeping the bevel of the needle above the surface of the medication.  	- Using the filter needle prevents any solid particles from being drawn up through the needle. - The air will allow the medication to be drawn out easily because negative pressure will not be created inside the vial. The bevel is kept above the medication to avoid creating bubbles in the medication. - Keeping the tip of the needle below the fluid level prevents air from being drawn into the syringe. 

	- Invert the vial, ensure the needle tip is below the fluid level, - Gradually withdraw the medication. - Hold the syringe and vial at eye level to determine that the correct dosage of drug is drawn into the syringe. - Eject air remaining at the top of the syringe into the vial. - When the correct volume of medication plus a little more (e.g., 0.25 mL) is obtained, withdraw the needle from the vial, - Replace the cap over the needle using **the scoop method**, thus maintaining its sterility. - Attach non- filter needle to syringe. - Eject air from the new needle and verify correct medication volume before injecting the client.	-
C-Reconstituting Powdered Medication in a Vial		
	A) The same pre procedure preparation (Listed before).	
	B) During procedure	
	Perform hand hygiene and wear the clean gloves.	- Deters the spread of microorganisms.
	Prepare the medication vial for drug withdrawal: - Remove the metal or plastic cap on the vial or Break off the top of the ampule.	-

	- Draw up the appropriate amount of diluent into the syringe. - Insert the needle in the center of the powdered medication vial - Inject the diluent into the powdered medication vial. - Remove the needle or blunt cannula from the vial and replace cap using the scoop method. - Gently agitate the vial to mix the powdered medication and the diluent completely. - Do not shake the vial. - Draw up the prescribed amount of medication while holding the syringe vertically and at eye level. - Expel air bubble by tap sides of syringe and Recap the needle (use one hand technique). Label the syringe.	
	After Withdraw medication - Change filter needle has been used to draw up the medication according hospital policy. - Recheck the label with the CMAR/MAR. - If a multi dose vial is being used; label the vial with the date and time opened &Store the vial. - Lock the medication cart & remove gloves and Perform hand hygiene.	-

Administering intramuscular Injection		
	A- Pre procedure preparation:	
	Prepare my self	
	Prepare medication as mentioned before	
	Prepare environment	
	Prepare bed	
	Prepare patient • Introduce yourself to the patient. • Identify your patient. • Explain procedure to the patient: • Discuss purpose of each medication, action, and possible adverse effects. • Allow patient to ask any questions. • Tell patient that injection will cause a slight burning or sting. • Ask patient if he or she has allergies.	- Patient has right to be informed, and patient's understanding of each medication improves adherence to drug therapy. Helps minimize patient's anxiety.
	B .During procedure : - Expose only the selected site, and keep sheet or gown draped over body parts not requiring exposure. - Select appropriate site. - Note integrity and size of muscle. - Palpate for tenderness or hardness. Avoid these	- Respects patient's dignity while exposing injection site

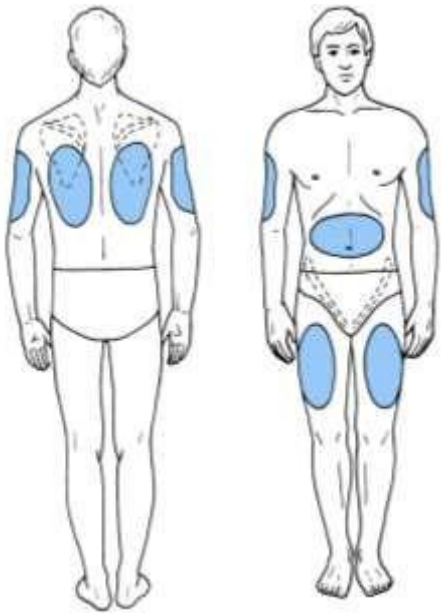
	areas. If patient receives frequent injections. - Help patient to comfortable position. - Position patient depending on chosen site (e.g., sit, lie flat, on side, or prone). - Identify the appropriate landmarks for the site chosen. - Cleanse site with antiseptic swab. Apply swab at center of site, and rotate outward in circular direction for about 5 cm (2 inches). - Hold syringe between thumb and forefinger of dominant hand; hold as dart, palm down. - Spread the skin at the site using your non-dominant hand in obese patient but in thin patient collect the skin. - Quickly insert the needle into the tissue at 90 degree angle with bevel up. - After needle pierces skin, still pulling on skin with non-dominant hand, - Grasp lower end of syringe barrel with fingers of non-dominant hand to stabilize it. - Move dominant hand to end of plunger. Avoid moving syringe. - Pull back on plunger 5 to 10 seconds. If no blood appears, inject medication slowly at a rate of 10	- Mechanical action of swab removes secretions containing microorganisms. - Quick, smooth injection requires proper manipulation of syringe parts. - This ensures medication does not leak back along the needle track and into the subcutaneous tissue. -A quick injection is less painful. Inserting the needle at a 90-degree angle facilitates entry into muscle tissue. -Moving the syringe could cause damage to the tissues. - Aspiration of blood into syringe indicates possible placement into a vein. Slow injection reduces pain and tissue trauma. - Slow withdrawal of the needle pulls the tissues and causes discomfort.

	sec/ mL. **Note:** *If blood appears in syringe, remove needle, dispose of medication and syringe properly, and prepare another dose of medication for injection.* - Once the medication has been instilled, wait 10 seconds before withdrawing the needle and release skin. - Withdraw the needle smoothly and steadily at the same angle at which it was inserted. - Apply gentle pressure at the site with a dry gauze. - Do not massage the site.	-Light pressure causes less trauma and irritation to the tissues. Massaging can force medication into subcutaneous tissues**.**
	C- post procedure : - Discard the needles in puncture- proof container - Assist the patient to a comfortable position - Remove gloves and wash hands. - Document the administration of the medication immediately after administration - Return to room in 15 to 30 minutes, and ask if patient feels any acute pain, burning, numbness, or tingling at injection site.	- Provides safe practice for handling of sharps - Provides comfort of the patient - Reduces transmission of infection - Documentation provides coordination of care - Continued discomfort may indicate injury to underlying bones or nerves.

Administering Subcutaneous Injection

- Subcutaneous tissue lies between the epidermis and the muscle.
- Subcutaneous route is used for slow, sustained absorption of medication.

Common sites used for SC route:



- Outer aspect of the upper arm.
- Abdomen (from below the costal margin to the iliac crests).
- Anterior aspects of the thigh.
- Upper back.
- Upper ventral or dorso-gluteal area.

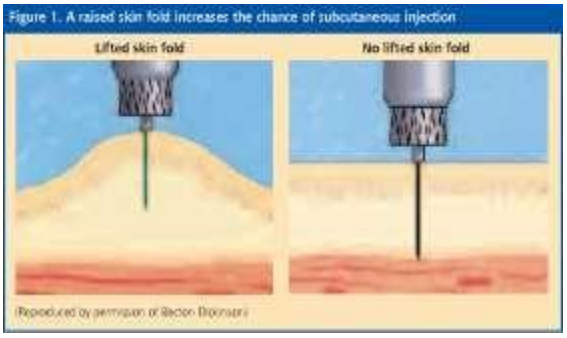
Indications of SC route:

- Used commonly for insulin injections
- Heparin, clexane, etc.

Equipment:

- Proper size of syringe as (1 to 3 mL syringe) or insulin syringe (1 mL)
- Small gauze pad (optional)
- Alcohol swab
- Medication vial or ampule
- Clean gloves
- Medication administration record (MAR) or computer printout
- Puncture-proof container

Steps	Rational
A. Pre procedure preparation: As mentioned before	
B .During procedure : - Expose only the selected site, and keep sheet or gown draped over body parts not requiring exposure. - Select appropriate injection site. - Inspect skin surface over sites for bruises, inflammation, or edema. - Do not use an area that is bruised or has signs associated with infection. - Palpate sites; avoid those with masses or tenderness. - Be sure that needle is correct size. - Help patient into comfortable position. Have him or her relax arm, leg, or abdomen, depending on site selection. - Cleanse site with antiseptic swab. Apply swab at center of site and rotate outward in circular direction for about 5 cm (2 inches). - Remove needle cap or protective sheath by pulling it straight off. - Hold syringe between thumb and	- Respects patient's dignity while exposing injection site. - Injection sites are free of abnormalities that interfere with drug absorption. Sites used repeatedly become hardened from lipo-hypertrophy (increased growth in fatty tissue). - You can mistakenly give subcutaneous injections into muscle, especially in the abdomen and thigh sites. Appropriate size of needle ensures that you inject medication into the subcutaneous tissue. - Relaxation of site minimizes discomfort. - Mechanical action of swab removes secretions containing microorganisms. - Preventing needle from touching sides of cap prevents contamination. - Quick, smooth injection requires proper manipulation of syringe parts. - Needle penetrates tight skin more easily

forefinger of dominant hand. - Pinch skin with non-dominant hand.  - Inject needle quickly and firmly at 45- to 90-degree angle. Release skin, if pinched. - After needle enters site, grasp lower end of syringe barrel with non-dominant hand to stabilize it. - Move dominant hand to end of plunger - Slowly inject medication over several seconds (without aspiration). Avoid moving syringe. - Withdraw needle quickly while placing antiseptic swab or gauze gently over site. - Apply gentle pressure to site. - Do not massage site. - (If heparin is given, hold alcohol swab or gauze to site for 30 to 60 seconds).	than loose skin. Pinching skin elevates subcutaneous tissue and desensitizes area. - Quick, firm insertion minimizes discomfort. Injecting medication into compressed tissue irritates nerve fibers. Correct angle prevents accidental injection into muscle. - Movement of syringe may displace needle and cause discomfort. Slow injection of medication minimizes discomfort. - Supporting tissues around injection site minimizes discomfort during needle withdrawal. - Aids absorption. Massage can damage underlying tissue. Time interval prevents bleeding at site.

C- post procedure : - Discard the needles in puncture- proof container. - Assist the patient to a comfortable position. - Remove gloves and wash hands. - Document the administration of the medication immediately after administration.	- Provides safe practice for handling of sharps - Provides comfort of the patient - Reduces transmission of infection - Documentation provides coordination of care

Administering Intradermal Injection

Definition: Intradermal injection is the administration of medication into the dermal layer of skin.

Purpose:

- To diagnose exposure to specific diseases like tuberculosis
- To test for allergens/ sensitivity
- To administer vaccination

Sites of ID injection



Intradermal Injection Sites

Equipment:

The same equipment mentioned before.

Steps	Rational
B. Pre procedure preparation: As mention before.	
B. During procedure :	
- Keep sheet or gown draped over body parts not requiring exposure. - Select appropriate site. - Note lesions or discolorations of skin. - If possible, select site three to four finger widths below antecubital space and one hand width above wrist. - If you cannot use forearm, inspect the upper back and upper chest. If necessary, use sites appropriate for subcutaneous injections. - Help patient to comfortable position. - Have patient extend elbow and support it and forearm on flat surface. - Clean site with an antiseptic swab. Apply swab at center of site and rotate outward in a circular direction for about 5 cm (2 inches). - Remove needle cap from needle by pulling it	- Respects patient's dignity while exposing injection site. - Intradermal injection site should be free of discoloration or hair so you can see results of skin test and interpret them correctly. - Stabilizes injection site for easiest accessibility. - Mechanical action of swab removes secretions containing microorganisms. - Prevents needle from touching sides of cap prevents contamination. - Smooth injection requires proper manipulation of syringe parts. With bevel up, you are less likely to deposit medication into tissues below dermis.

straight off. - Hold syringe between thumb and forefinger of dominant hand with bevel of needle pointing up. - With non-dominant hand, stretch skin over site with forefinger or thumb. - With needle almost against patient's skin, insert it slowly at 5- to 15-degree angle until resistance is felt. - Then advance needle through epidermis to approximately 3 mm below skin surface. - You will see bulge of needle tip through skin. - Inject medication slowly. Normally you feel resistance. If not, needle is too deep; remove and begin again. - While injecting medication, note that small bleb (approximately 6 mm) resembling mosquito bite appears on skin surface. - Remove needle at the same angle of insertion. - If blood is present, remove by dabbing with	- Needle pierces tight skin more easily. - Ensures that needle tip is in dermis.  Inaccurate results will be obtained if needle is not injected at correct angle and depth. - Slow injection minimizes discomfort at site. Dermal layer is tight and does not expand easily when you inject solution. - Bleb indicates you deposited medication in dermis. - Prevents tissue trauma Rubbing causes the drug to leak out.

a second alcohol swab. - Do not rub the area. - Draw a circle around the bleb.	
C- post procedure : - Place needle in sharps container. - Reposition patient. Instruct not to rub, cover or apply new products to area. - Remove gloves and wash your hand. - Document the administration of the medication immediately after administration. - Return to room in 15 to 30 minutes and observe skin for local redness and swelling. If an allergy test was performed, observe patient for signs of systemic reaction (i.e., respiratory distress, hypotension, diaphoresis, nausea, vomiting, and cyanosis).	- Aids in reassessment of site. Prevents inaccurate test results - Provides a visual assessment of local or systemic reaction.