

## Sodium Electrolyte imbalance.

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Hyponatremia → Serum  $\text{Na}^+$  level  $< 135 \text{ mEq/litre}$

Hypernatremia → Serum  $\text{Na}^+$  level  $> 145 \text{ mEq/litre}$

### 2) Potassium:

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- \* Normal range for  $\text{K}^+$  (or) concentration is  $3.5 - 5 \text{ mEq/litre}$

- \* It regulates many metabolic activities

- \* Necessary for glycogen deposits in the liver and skeletal muscles

- \* Transmission and conduction of nerve impulse normal cardiac rhythm and skeletal and smooth muscle contraction

### Potassium electrolyte imbalance:

Hypokalemia -  $\text{K}^+$  serum level  $< 3.5 \text{ mEq/litre}$

Hyperkalemia -  $\text{K}^+$  serum level  $> 5.0 \text{ mEq/litre}$

### 3) Calcium:

- \* Normal Serum ionised concentration is  $8.5 - 10.5 \text{ mg/dL}$  ~~mEq/litre~~

- \* Necessary for bone and teeth formation

- \* Blood clotting, hormone secretion, cell membrane integrity and cardiac conduction.

- \* Transmission of nerve impulse and muscle contraction

### Imbalances of calcium:

Hypocalcemia - Serum  $\text{Ca}^{++}$  level  $< 8.5 \text{ mg/dL}$

Hypercalcemia - Serum  $\text{Ca}^{++}$  level  $> 10.5 \text{ mg/dL}$

### 4) Magnesium:

- \* Normal range  $1.5 - 2.5 \text{ mEq/l}$

- \* Essential for enzyme activities, neurochemical activities and cardiac and skeletal muscle excitability imbalances.

### Imbalances of Magnesium:

Hypomagnesemia - Serum magnesium level  $< 1.5 \text{ mEq/litre}$

Hypermagnesemia - Serum magnesium level  $> 2.5 \text{ mEq/litre}$

### For Anions:

#### 1) Chloride Regulation:

- \* Normal concentration range  $95 - 108 \text{ mEq/litre}$

- \* Regulation and maintain

### Imbalance of chloride:

Hypochloremia -  $< 95 \text{ mEq/litre}$

Hyperchloremia -  $> 108 \text{ mEq/litre}$



## 2) Bicarbonate : ( $\text{HCO}_3^-$ )

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- \* Normal arterial bicarbonate range 22 and 26 mEq/litre
- \* Normal venous bicarbonate is measured as  $\text{CO}_2$  content and normal value is 24-30 mEq/litre

\* help and renal system

## 3) phosphorus - phosphate:

- \* Normal serum level = 2.5 - 4.5 mg/dl
- \* Assist in regulation of acid base regulation
- \* To develop and maintain bone and teeth.

## Acid-Base Imbalances:

\* Arterial blood gas (ABG) analysis is the best way of evaluating acid base balance.

\* When we measure ABG levels we look at 6 components.

- \* pH,  $\text{PaO}_2$ ,  $\text{PaCO}_2$ ,  $\text{O}_2$  saturation, base excess and  $\text{HCO}_3^-$
- \* Deviation from a normal value will indicate that the client is experiencing an acid-base imbalance.

### i) pH:

- \* Measures  $\text{H}^+$  ion concentration in body fluids.
- \* Normal arterial blood pH value is 7.35 - 7.45 [acidic is less than 7.35) and alkalotic is more than 7.45]

### ii) $\text{PaO}_2$ ( $\text{PaO}_2$ )

- \* Normal range is 80 mm of Hg - 100 mm of Hg.
- \* It has no primary role in acid base regulation, if it is within normal limits.

\* < 60 mm of Hg leads to anaerobic metabolism.

### iii) $\text{PaCO}_2$ :

- \* Normal range 35-45 mm Hg
- \* < 35 mm of Hg indicates hyperventilation
- \* > 45 mm of Hg is called hypoventilation

### iv) $\text{O}_2$ saturation

- \* Saturation is the point at which haemoglobin is saturated by  $\text{O}_2$
- \* It can be affected by changes in temperature and pH and  $\text{PaCO}_2$
- \* Normal range is 95% - 100%.

### v) Base excess:

- \* Base excess is the amount of blood buffer (haemoglobin & bicarbonate) that exists
- \* A high value indicates alkalosis and low value indicates acidosis.



v) ~~Base~~ Bicarbonate:

mEq/l = milliequivalent per litre

\* Normal range is 22-26 mEq/litre

\* <22 mEq/litre indicates metabolic acidosis and >26 mEq/litre indicate metabolic alkalosis.

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## Factors affecting fluid and electrolyte balance:

### 1) Age:

At different ages, the body weight, body surface area, renal filtration capacity and metabolic rate ~~to~~ <sup>are</sup> different that influence the fluid intake.

### 2) Climate:

\* Climate changes affect the fluid intake and fluid loss.

\* High heat and low environmental humidity increases sweating and fluid loss.

\* Exercise, dry atmospheric conditions, heavy sweating imbalances the fluid and electrolyte balance.

### 3) Stress:

\* Stress leads to stimulation of pituitary gland and release ADH (Antidiuretic hormone) - leads to retain water &  $\text{Na}^+$  in the body and reduce urine output.

\* So the physiological stresses are important in body fluid balance.

### 4) Diet:

\* Adequate intake of fluid and nutrients are important for fluid and electrolyte balance.

\* Eg → starvation causes the body to metabolise its own tissue for energy and leads to decrease in available protein.

\* When fat stores are consumed, ketones, strong acids are produced and the proteins used up for the body energy.

\* The albumin cannot be synthesised and alters the ability to maintain intravascular osmotic pressure and fluid will shift from the intravascular to the interstitial spaces.

### 5) Illness:

\* Nausea, vomiting, diarrhoea, increased metabolism, wounds and burns affect the fluid and electrolyte balance. Knowledge about these conditions will help to anticipate the need of fluid replacement.



## 6) Medical treatment:

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\* Many medical treatment such as continuous gastric and intestinal suctioning, gavage and intestinal produces many of imbalances with persistent vomiting.

\* In this way the medical treatment can lead to fluid and electrolyte imbalance.

## 7) Medications

\* The excessive use of cathartic enemas, diuretic and steroids stimulates bowel evaluation of irritating the smooth muscles of intestine.

\* Thus can result in fluid volume deficit from excessive



- 4 kinds of imbalances: **Types of Acid-Base Imbalances**
- 1) Respiratory acidosis:  $\rightarrow$  more  $\text{CO}_2$  \* carbonic acid  $\rightarrow$   $\text{CO}_2$  accumulation in blood \*  $\downarrow$  pH
  - 2) Respiratory alkalosis
  - 3) Metabolic acidosis
  - 4) Metabolic alkalosis
- 2)  $\downarrow$   $\text{CO}_2$  &  $\uparrow$  in hydrogen ion concentration  
3)  $\downarrow$  hydrogen ion concentration (more acidic content in body)  
4)  $\uparrow$  bicarbonate and pH is seen in blood
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## 1) Respiratory Acidosis:

pg  $\rightarrow$  (29)

- \* Is marked by increased arterial carbon dioxide concentration ( $\text{PaCO}_2$ ), Excess carbonic acid ( $\text{H}_2\text{CO}_3$ ) and decreased hydrogen ion concentration (decreased pH)  $\uparrow$   $\text{CO}_2$ ,  $\uparrow$  carbonic acid  $\downarrow$   $\text{H}^+$  ion con
- \* with respiratory acidosis, the cerebrospinal fluid and brain cells becomes acidic causing neurological changes
- \* Hypoxemia  $\rightarrow$  Occurs because of respiratory depression, resulting in further neurological impairment.
- \* Electrolyte changes such as hyperkalemia and hypocalcemia may accompany the acidosis

## 2) Respiratory Alkalosis:

- \* Is marked by decreased  $\text{PaCO}_2$  and increased pH.
- \* like respiratory acidosis, respiratory alkalosis can begin outside the respiratory system (Eg anxiety with hyperventilation) (or) within the respiratory system (Eg initial phase of an asthma attack)

## 3) Metabolic acidosis:

- \* Metabolic acidosis results because of the high acid content of the blood which also causes a loss of sodium bicarbonate.
- \* To identify metabolic acidosis, an analysis of serum electrolyte to detect an anion gap may be helpful.
- \* Anion gap  $\rightarrow$  Reflects unmeasurable anions present in plasma and is calculated by subtracting the sum of chloride and bicarbonate from the amount of plasma sodium concentration.

## 4) Metabolic alkalosis:

- \* Metabolic alkalosis is marked by the heavy loss of acid from the body (or) by increased levels of bicarbonate.
- \* The most common cause is vomiting.



# Intravenous Cannula:

## Definition:

- \* A intravenous cannula is a flexible tube which when inserted into the body is used either to withdraw fluid (or) insert medication.
- \* Canulae normally come with a trocar (a sharp pointed needle) attached which allows puncture of the body to get into the intended space.

## Purpose:

- \* To administer intravenous injection
- \* To administer intravenous fluids.

## Points to remember while selecting the vein:

- 1) Make use of the most distal part of the vein.
- 2) Avoid puncturing the vein on joint.
  - \* It will hinder the normal movement of the joint.
- 3) Avoid puncturing the vein in close proximity to an infected wound.
- 4) Avoid puncturing the vein on extremity having shunt.
- 5) Try avoid puncturing the vein of lower extremities in adult because of the high risk of development of deep vein thrombosis.

## Sites for giving Intravenous Cannula:

### A) Inner sites

- Radial vein
- Cephalic vein (2)
- Median cubital vein
- Basilic vein (2)
- Median vein of forearm.

### B) Dorsal Surface of hand

- Cephalic vein
- Superficial dorsal vein
- Dorsal venous arch
- Basilic vein

### C) Dorsal Surface of foot:

- Great (Surface of foot) Saphenous vein
- Dorsal plexus
- Dorsal arch



# Colour codes of Intravenous Canula:

Gauge	Indication	colour
1) $g^{18}$	Blood Transfusion (big hole)	green
2) $g^{20}$	OB / labour	pink
3) $g^{22}$	Medication	blue
4) $g^{24}$	infant / child (1 month / 1 year before)	yellow
5) $g^{26}$	Neonate	

## Articles:

\* Tray containing

\* Sterile gloves

\* IV cannula

\* Tourniquet

\* Cotton swabs

\* Adhesive tape

\* Sterile syringe containing 2 ml of Normal saline

\* Scissors

\* Kidney tray

\* Providing Iodine solution

\* IV stand

\* IV

## Procedures:

\* To start an IV, first prepare all of your equipment.

\* This will include an IV bag, with connecting tubing, with all the air flushed out of the tubing.

\* place a tourniquet around the arm. This should be tight enough to block venous blood flow back to the heart, but not so tight that it obstructs the arterial flow.

\* wait long enough for the veins in the hands and arm to fill and become tight.

\* In a normal person, this may take 2-5 minutes.

\* In a dehydrated person (or) someone in shock, it may take longer.

\* Cleanse the skin of the injection site with alcohol (preferably)

\* If alcohol is not available, use any antiseptic (or) skin



- \* Use your left thumb to hold the vein in place while you insert the IV needle at a shallow angle (about 20 degree angle) through the skin and into the vein.
  - \* As you enter the vein, you will feel slight "pop" you will know you are in the vein when you see blood returning in the "flash back" chamber.
  - \* Keep the needle in place with one hand while you push the catheter (which surrounds the needle) further into the vein.
  - \* This will thread it upstream, securing it into the vein.
  - \* Once the catheter is completely inserted, hold it in place with one hand while you release the tourniquet and pull the needle straight out with the other hand.
  - \* Pressing down over the skin where the catheter tip is located will prevent blood from flowing back out of the IV catheter before you have a chance to connect the IV tubing.
  - \* Connect the IV tubing and run in the IV fluids briskly, at first. Then slow it down to a steady drip.
  - \* If the fluid does not flow freely at the beginning, check the IV tubing to see if there are any valves or other obstruction to flow.
  - \* If the tubing is wide open, but the IV is dripping only very slowly, you are probably not in the vein. Try again.
  - \* Observe the site for oedema, swelling, redness. After administering IV fluids, flush the IV line with NS and lock it with stopper.
- After care:
- \* Replace all the articles.
  - \* Dispose off the disposable articles as per hospital policy.
  - \* Wash hands.
  - \* Record in nurse note.



# Procedure of Administering IV Medication (IV = Intravenous)

## Article required:

- 1) Prescribed drug (Ampule or vial)
- 2) Disposable syringes with needle 10ml - 1, 5ml - 1
- 3) Spirit swabs in a covered container.
- 4) Kidney tray & paper bag
- 5) Ampule filter
- 6) Normal saline Ampule 5ml - 1
- 7) Treatment chart.

## Steps of procedure:

### \* Preliminary Assessment.

- \* Identify the patients
- \* Identify the patients name, bed number, age, sex, registration number and diagnosis of the patient.
- \* Check the physician prescription for the type of drug, dosage and the time of Administration.
- \* Check the treatment chart of the patient to find the time at which the last dosage dose of the drug was given.
- \* Explain the procedure to the patients while preparing medicine from Ampule
- \* Wash hands.



### Preparing medication from Ampule:

- \* Lightly tap on the top of the Ampule with finger until fluid moves down from the neck of the Ampule.
  - \* Rub the Ampule filter filter on the neck of the Ampule.
  - \* Place swab around the neck of the Ampule.
  - \* Snap the neck of the Ampule quickly and firmly.
  - \* Insert the needle attached to the syringe into the centre of the ampule opening.
  - \* Do not allow the needle tip (or) shaft to touch the rim of the ampule.
  - \* Fill normal saline into the syringes by gently pulling back (and tilting the ampule).
  - \* Put empty ampule in the kidney tray.
- Expel excess air bubbles, remove needle from the ampule, hold syringe with the tip of the barrel upwards, tap the side



of the syringe to raise the bubble towards the tip of the barrel.

\* Draw up slightly on the plunger and then Push the plunger upward to eject air.

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\* Attach the covered needle to the syringe and put it in the tray.

Preparing medication from vial



\* Remove the Cap Covering of the vial to expose Sterile rubber SA Seal, keeping the rubber seal sterile.

\* Hold the syringe and remove the needle cap. pull back the plunger to draw the amount of air, into the syringe equivalent to volume of medication to be aspirated from the vial.

\* Insert the tip of the needle with beveled tip entering through center of rubber seal apply pressure to tip of the needle during insertion.

\* Inject air into the vials air space. Invert vial while keeping firm hold on barrel and plunger.

\* Fill syringe with the required medication and put the empty vial in the kidney tray.

After care:

\* Discard the waste in the appropriate receptacle, wash and replace the articles used.

\* Wash hands thoroughly

\* Record drug, dose, route and time of the drug administered on the treatment chart.

### CHANGING INTRAVENOUS DRESSING:

Equipments:

- 1) Antiseptic solution (chlorhexidine, providine - iodine (or) 70% alcohol)
- 2) Alcohol swabs
- 3) Adhesive remover (if needed)
- 4) strips of non-allergic sterile for use underneath the dressing.
- 5) Disposable gloves → Arm board (or) housing device (if needed)
- 6) For Gauge dressing (sterile 2x2 gauze pad) (or) (sterile 4x4 gauze pad)



## 7) For transparent dressing (sterile, transparent dressing)

### Steps of procedure:

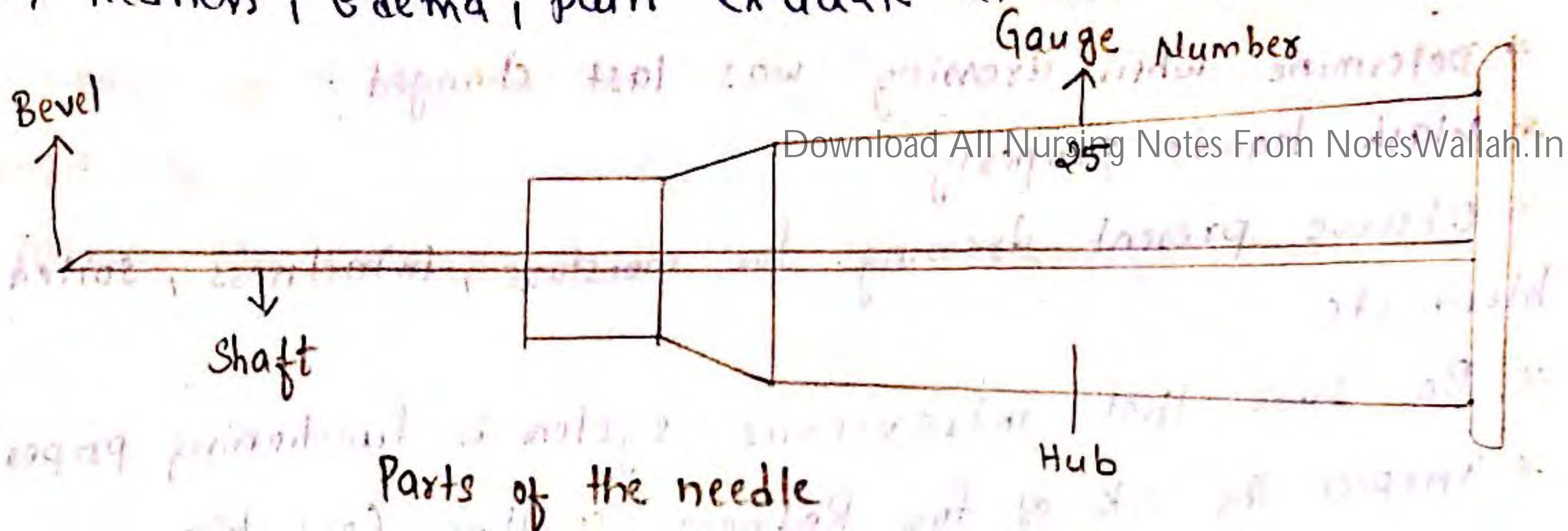
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- \* Determine when dressing was last changed
- \* Wash hands properly
- \* Observe present dressing for moisture, intactness, soiled with blood etc....
- \* Be sure that intravenous system is functioning properly
- \* Inspect the site of for Redness, swelling (or) blanching etc....
- \* Explain the procedure to the client as well as family members.
- \* Wash hand and apply disposable gloves
- \* Be securing the catheter carefully, remove the adhesive tape one layer at a time.
- \* If it is difficult, wet it with alcohol swab.
- \* Observe the insertion site for redness, swelling, exudate.
- \* If present then remove the catheter and insert a new intravenous catheter.
- \* If phlebitis is present, then apply cold compresses
- \* Cleanse the skin properly after removing the adhesive tape with the alcohol swab.
- \* Stabilize the catheter at all times with one finger over the catheter until
- \* stabilize the catheter at all times with one finger over the catheter until tape dressing is placed.
- \* Allow the swab solution to dry completely.
- \* Apply new transparent gauge dressing.
- \* Remove and discard gloves.
- \* Secure intravenous tubing with additional pieces of tape.
- \* Place insertion date and time of dressing change on dressing
- \* Discard used equipments
- \* Wash hands
- \* Observe patency and functioning of intravenous system
- \* Monitor vital signs of client
- i) infiltration of catheter
- ii) phlebitis
- iii) Intravenous catheters or needle removed accidentally.



(iv) Elevated temperature

v) Redness, Edema, pain, exudate at the insertion site



Regulating intravenous flow:

- \* After intravenous infusion is secured and the line is patent the nurse must regulate the rate of infusion according to physician's order.
- \* An infusion rate that is too slow can lead to further cardiovascular and circulatory collapse in a critically ill patient.
- \* An infusion that is too rapid can result in fluid volume excess.

Equipment:

- watch with second hand
- paper and pencil (or) calculator
- I/v electronic infusion pump
- volume control device
- Time indicator tape

Procedure:

- 1) check physician's order, solutions, additives, & time of infusion.
- 2) wash hand properly.
- 3) observe for patency of I/v line, needle (or) catheter.
- 4) Ask from the client how vein puncture site feels.
- 5) Have paper (or) pencil (or) calculator to calculate the flow rate (or) use

Calculator.

- 6) Know drop factor & in drops/ml of infusion set.
- 7) Calculate flow rate of prescribed infusion.
- 8) Keep in mind and follow six rights for correct solution & proper additives.

9) I/v fluids are usually ordered for 24 hours period indicating how long each litre of fluid should run.



- 10) place tape on I/v bottle next to volume marking
- 11) calculate drop rate

$$\text{Drop rate} = \frac{\text{gtt factor}}{60} \times \frac{\text{flow rate}}{1}$$

- 12) Adjust flow rate by roller clamp
- 13) Observe the client for over hydration / dehydration and carefully check the fluid electrolyte balance.
- 14) Assess the infusion site for infiltration, inflammation, clot in catheter, kink (or) knot in tubing.

#### Complications:

- Fluid volume excess.
- Fluid volume deficit
- Dyspnea, crackles in the lung
- Increased urine output

#### Recording and Reporting:

- \* Record name of solution, rates, drops minute, ml/hour in nurses record
- \* Document use of controlling device, & number of that device.
- \* Document any complication / unwanted outcome.



21/01/2017

# OXYGENATION

①

## Oxygenation:

It is the process that includes both inspiration and expiration & expiratory activities hence there occurs the exchange of respiratory gases.

## Definitions of related terms:

Inspiration → It is an active process through which oxygen is inspired & causes expansion of lungs.

Expiration → It is a passive process through which  $\text{CO}_2$  is expelled out of the lungs.

## Factors affecting Oxygenation:

\* There are mainly 4 factors causing alterations in oxygenation.

1) Physiological factor

2) Developmental factor

3) Lifestyle

4) Environmental factor.

### 1) Physiological factor:

\* Physiological factors that influence respiratory function include:

#### 1) Decreased $\text{O}_2$ carrying capacity:

Haemoglobin is mainly responsible for carrying  $\text{O}_2$  to tissues. When the person is suffering from anaemia, i.e., having low haemoglobin level then the  $\text{O}_2$  carrying capacity gets decreased.

#### 2) Decreased inspired $\text{O}_2$ concentration:

\* Where there is an obstruction in the upper or lower <sup>respiratory</sup> ~~trinary~~ tract leads to decrease in the amount of  $\text{O}_2$ .

#### 3) Hypovolaemia:

In case of severe vomiting (profuse sweating in case of any disease condition) leads to extracellular fluid loss and results in decreased circulating blood volume. For this, the body tries to adapt by increasing heart rate in order to increase blood volume returned to the heart.

#### 4) Increased metabolic rate:

When one is performing any kind of exercise.

Eg → pregnancy women increase of wound healing process, fever etc...

They need a higher amount of  $\text{O}_2$  to meet the metabolism requirement of client.



# OXYGENATION

## KEY TERMS

- \* Anaemia → It is the deficiency of red cells in body
- \* Asphyxia → It is a state of suffocation.
- \* Chest trauma → Injury to the chest
- \* ~~C~~ cyanosis → It is the blue discoloration of skin especially lips, ear lobes etc. -
- \* Hypoxia → Inadequate O<sub>2</sub> in tissues.
- \* Inhalation → It is taking the air/vapours into lungs.
- \* pulse oxymetry → It is a non invasive method of estimating the arterial oxygen.
- \* postural drainage → It is the technique of draining secretions by gravity from various lung segments using various body positions.
- \* pneumothorax → It is a condition in which air remains inside pleura.
- \* Thoracotomy → opening made in thorax.



## 2) Developmental factor:

The developmental stage of the client & the normal ageing process can affect tissue oxygenation.

## 3) Life style:

Nutrition, exercise, cigarette, smoking substance, anxiety and stress affect the oxygenation.

## O<sub>2</sub> Administration:

Patient with respiratory dysfunction are treated with O<sub>2</sub> inhalation to relieve

anoxaemia (or) hypoxaemia:

(i.e., deficiency of O<sub>2</sub> in blood) & hypoxia (inadequate oxygenation of the cells and tissue)

### Indications:

#### i) Cyanosis:

i) Bluish colour of the skin, nail beds & mucous membranes resulting from decreased amount of O<sub>2</sub> in the Haemoglobin of blood.

ii) Breathlessness

iii) Anaemia

iv) Poisoning

v) shock & circulating failure

vi) Haemorrhage and air hunger

vii) Patient under anaesthesia

viii) Patient who are critically ill.

ix) Psychologically induced breathlessness.

x) Asphyxia

### Methods of Oxygen Administration

#### 1) O<sub>2</sub> by nasal Catheter:

\* The nasal catheter is inserted into the nostril reaching upto the nasopharynx & is held by adhesive tapes.

\* The catheter does not interfere with the patient's freedom to eat, to talk, & to move in and out of bed.

\* Flow of 1-4 liters of O<sub>2</sub> <sup>will</sup> be sufficient to maintain the concentration of 22-30% of O<sub>2</sub>.

#### 2) O<sub>2</sub> Cannula:

\* A nasal cannula is a simple comfortable device.

The two cannula about 1.5 cm long protrude from the centre of disposal tube & are inserted into the nostril O<sub>2</sub> is delivered via



the cannula with a flow rate of 4% / minute. (3)

O<sub>2</sub> mask

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- \* An oxygen mask is a device used to administer oxygen.
- \* It is shaped to fit snugly over the mouth and nose and is secured in place with a strap.

i) Simple face mask:

- \* Short term O<sub>2</sub> therapy flow of 8-12 liters of O<sub>2</sub> will be necessary to maintain the concentration of O<sub>2</sub> upto 25-60%.

ii) Plastic face mask with a reservoir bag :-

- \* Delivering higher concentration of oxygen flows of 9-10% of oxygen to maintain 80% - 90% of oxygen.
- \* <sup>frequent</sup> inspection of the reservoir bag is needed to make sure that bag is inflated, if it is deflated this can cause breathing in of exhaled CO<sub>2</sub>.

iii) Venturi mask:

- \* Can deliver precise, high flow adaptors can be applied to increase humidification.

Trans tracheal oxygen:

- \* This is a method of oxygen delivered for clients with chronic lung diseases in which a small intravenous size catheter is inserted directly into the trachea through a surgical opening in the lower neck.
- \* Oxygen is delivered directly into trachea.
- \* Flow rate usually less than 4% / minute is delivered.

Oxygen tent:

- \* consist of a canopy over the patient bed that may cover the patient fully or partially and it is connected to supply of oxygen.
- \* certain advantages and disadvantages for using a oxygen tent.
- 1) It provides an environment for patient with controlled O<sub>2</sub> concentration, temperature regulation and humidity control.
- 2) It allows freedom for free movement in bed.
- 3) create feeling of isolation.
- 4) It ~~regal~~ requires high volume of O<sub>2</sub> (10-12 liters / minute).
- 5) There is increased changes of fire.
- 6) It ~~regulates~~ requires much time and effort to clean and maintain a tent.



## Care of O<sub>2</sub> Cylinder:

(4)

- \* Always use cylinder of metal case to prevent danger of falling and breaking.
- \* O<sub>2</sub> cylinder should be placed at head end of the bed
- \* Any source of fire should be kept ~~at least~~ away from cylinder for fear of fire.
- \* O<sub>2</sub> cylinder should be placed at cool temperature.
- \* When cylinder is empty, always mark it "empty" and send for filling.
- \* Inspect the apparatus at <sup>frequent</sup> intervals and make sure for its good working condition.
- \* To test any leakage in the regulator, soap lather may be used.

## Hazards of O<sub>2</sub> Inhalation

- \* Infection
- \* Combustion (fire) → O<sub>2</sub> support combustion
- \* Drying of the mucus membrane of the respiratory tract → Initially include those of mild tracheo-bronchitis as a tracheal irritation and cough, dryness and irritation of the mucous membrane substance, pain, nausea and vomiting.
- \* O<sub>2</sub> toxicity
- \* Atelectasis
- \* O<sub>2</sub> induced Apnea
- \* Retrolental fibroplasia
- \* Asphyxia.

## Nurse's Responsibility for Administration of Oxygen:

- \* Check the name, bed number and other identification of the patient
- \* Check the diagnosis and the need of O<sub>2</sub> therapy
- \* Check the doctors orders for the initiation of the therapy, the dosage etc...
- \* Check the doctors order for specific precautions regarding the movement of <sup>positioning</sup> the patient
- \* Assess the patient for any sign of clinical analysis Eg → cyanosis
- \* Check the patient's vital signs
- \* Check the results of arterial blood gas analysis
- \* Note any signs of pulmonary dysfunction.
- \* Check the patient's mental state and the ability to follow instructions.



\* check the articles available in the unit.

(5)

\* check  $O_2$  cylinder for its accessories and their working conditions.

## PROCEDURE

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### Articles

\* Oxygen cylinder with stand

\* central supply  $O_2$  with a flow meter,

\* Humidifier / Connecting tubing.

Articles	Rationale
⇒ A tray containing	
a) Nasal Catheter / cannula / $O_2$ mask app / disposable type in a correct cylinder	a) To deliver $O_2$
b) water soluble lubricating jelly	b) To humidify $O_2$
c) Adhesive tape	c) To attach
d) A bowl of water	d) To check $O_2$ flow
e) Swab sticks and normal saline	e) For nostril cleaning
f) No smoking indication	f) To make fire precaution

### Steps of procedure:

Steps	Rationale
i) wash hands	i) Reduce infection and check growth of micro organisms.
ii) Attach cannula / catheter mask to $O_2$ tubing and humidified $O_2$ source adjusted to prescribe flow rate	ii) prevent drying of nasal and oral mucus membrane
iii) place tips of cannula into the patients nares. If mask apply snugly to face	iii) Divert flow of $O_2$ into the upper respiratory tract. prevents loss of $O_2$
iv) Check cannula / Equipment every 8 hours	iv) Ensure patency of cannula and $O_2$ flow
v) Keep the humidifications jar filled at all times	v) prevents inhalation of dehumidified $O_2$ .
vi) Observe the patients nares and superior surface of both ears and skin	vi) prevent drying of mucus membrane
	vii) $O_2$ therapy can dry nasal mucosa. Pressure on ear can cause skin irritation.



vii) check the O <sub>2</sub> flow rate and the physicians order every 8 hours	vii) Ensure delivery of the prescribed O <sub>2</sub> flow rate.
viii) wash hands before removing the O <sub>2</sub> mask or tube	ix) Reduce transmission of the micro-organisms.
ix) Inspect the patient for relief of symptoms associated with hypoxia	ix) Indicates that hypoxia is decreased (or) reduced
x) Record procedure in the nurse's record	x) Document ensures correct use of O <sub>2</sub> therapy & the patients response

After care of the patient and the Articles :

- \* stay with patient
- \* Keep the patient warm and comfortable
- \* Evaluate the patients progress by observing the vital signs / symptoms
- \* watch the patient for any deteriorating symptoms after the removal of O<sub>2</sub> inhalation
- \* Record date and time
- \* Requests for an arterial blood gas analysis
- \* Take all articles to utility room
- \* clean nasal catheter with cold water, then warm soapy water and finally with clean water. Boil, store and send them for sterilization

## INHALATION

- \* Inhalation is the act of taking in air, vapour or gas into the lungs.
- \* Drugs are inhaled either for a local effect (Eg → steam inhalation to relieve congestion in the respiratory tract) (or) for a general effect (Eg → inhalation of oxygen and anaesthetics).
- \* Inhalations are given either dry (or) moist

### DRY INHALATION:

- \* It is the inhalation of gases fumes from volatile drugs.

⇒ Examples of dry inhalation are :-

- 1) Inhalation of general anaesthetics :- Ether, chloroform, nitrous oxide etc.... are given by using a mask.



2) Oxygen and Carbon dioxide inhalations: These are administered by using a mask tent catheter.

3) Inhalations of volatile drugs: Menthol are emphyed into a gauze piece and is held under the nose of the patient and the patient inhales fumes.

### MOIST INHALATION:

\* Breathing warm and moist air produced by a vapourizer is called steam (or) moist inhalation.

#### Purpose:

- \* To relieve the inflammation and congestion of the mucous membrane of the respiratory tract.
- \* To soften thick mucus and help its expulsion from the respiratory tract thus to relieve cough in bronchitis, post-operative cases.
- \* To provide heat and moisture and to prevent the dryness of the mucous membrane of the lungs.
- \* To aid in the absorption of oxygen
- \* To relieve spastic conditions of the larynx and bronchi
- \* To provide antiseptic action on the respiratory tract.

#### Drugs Used:

- \* Tr. Benzoin 5ml per 500ml of boiling water
- \* Methyl salicylate → few drops of boiling water
- \* Menthol → few crystals drops of boiling water.

#### Methods:

##### 1) Jug Method:

- \* A jug is filled with boiling water and the inhalent.
- \* A cone is made with a cardboard paper and is fitted over the jug.
- \* Through a small hole made on the top of the cone, the patient breathes in the steam.

##### 2) Nelson's Inhaler

- \* Administration of steam inhalation using a Nelson's inhaler.

#### Articles required:

- \* Nelson's inhaler with a mouth piece tightly fit to the neck of the inhaler
- \* Bowl (or) basin large enough to hold the inhaler
- \* A towel and face towel
- \* Bath blanket (or) bath towel
- \* Tr. Benzoin and any other inhalent ordered



- \* Kettle with boiling water
- \* Gauze piece in a container
- \* Cotton swabs in a container
- \* Kidney tray and paper bag
- \* Sputum cup

### Preparation of the patient and the Environment:

- \* Explain the procedure to the client so that the client extends co-operation
- \* Keep the patient in Fowler's position with cardiac table in front
- \* Close the doors and windows, put off the fans
- \* Provide a face towel to the patient to wipe the sweat off face during the procedure.

### PROCEDURE:

- \* Warm the inhaler by pouring a little hot water into the jug and empty it
- \* Pour the required amount of inhalant into the inhaler and fill the jug  $\frac{2}{3}$  with hot water.
- \* The water remains just below the spout.
- \* Place the mouth piece and close the jug tightly. See that the mouth piece is in the opposite direction to the spout
- \* Cover the mouth piece with a gauze piece and plug the spout with the cotton ball.
- \* Cover the jug with a towel
- \* Place the inhaler in the basin and take it to bed side.
- \* Place the apparatus conveniently in front of the patient with the spout opposite to the patient.
- \* Remove the cotton plug and discard it into the paper bag.
- \* Instruct the patient to place the mouth piece and breathe in the vapour.
- \* After removing the lips from the mouth piece breathe out the air alternatively.
- \* He should breathe in the stream through the nostrils.
- \* Cover the patient's head and jug with a bath blanket or a bath towel.



### 3) Steam tent:

(9)

- \* When a high concentration of steam is required, a steam tent may be used.
- \* A ~~quick~~ <sup>quick</sup> and easy method is to place a S <sup>on either sides</sup> on the patient's bed and stretch blanket or sheet across them fixing them with safety pins and forming a canopy.
- \* Then, the steam can then be directed into the tent from the spout of a Kettle.
- \* The steam may be given for 20-30 minutes at a time and it may be repeated every 4 hours.

### 4) Electric steam inhaler:

- \* Small electric vaporizers can be used to give steam inhalations.
- \* It consists of a small jar with a heating element extending into the jar.
- \* The jar is filled with water. As the water boils, the medicated steam is directed through the spout which is inhaled by the patient.



# PULSE OXIMETRY

## Introduction:

- \* Pulse oximeter offers a non-invasive means of estimating the arterial oxygen saturation ( $saO_2$ )
- \* The pulse oximeter uses infrared light to determine the percentage of haemoglobin that has combined with oxygen.
- \* A sensor attached to the client's finger or earlobe allows assessment of heart rate and oxygen saturation either intermittently or continuously.
- \* Oximetry is convenient and painless alternative to needle sticks.
- \* It is simple for use and provides intermediate data.

## Purpose:

- 1) Monitor arterial oxygen saturation ( $saO_2$ ) non invasively.
- 2) Make an early detection of clinical hypoxemia
- 3) Assess tolerance to tapering of  $O_2$  therapy.

## Assessment:

- 1) Identify clients at risk for hypoxemia (i.e., respiratory and cardiac disease) who would benefit from pulse oximetry
- 2) Identify if client would benefit from continuous versus intermittent oximetry monitoring.
- 3) Assess client's baseline respiratory status including vital signs, skin and nail bed colour, breath sounds, shortness of breath, alteration in breathing pattern current  $O_2$  supplementation, presence of arrhythmias and tissue perfusion of extremities.
- 4) Previous laboratory Hb helps to identify anaemia in clients whose  $O_2$  content in the blood may be low although their  $saO_2$  is within normal level.
- 5) Observe client's height and size and note any allergies to adhesive
- 6) Choose appropriate sensor.

## Equipments:

- 1) pulse oximeter
- 2) Sensor probe
- 3) Acetone or nail paint remover if needed
- 4) Continuous printout option.

## Procedure:

- 1) select appropriate type of sensor to select appropriate sensor considering the client's weight, level of activity, allergies and the anticipated duration of monitoring
- 2) Explain purpose of procedure to client and family.



3) Instruct client to breathe normally.

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4) Select appropriate site to place sensor

5) Remove fingernail polish or acrylic nail from digit to be used.

6) Attach sensor probe and connect it to pulse oximeter. Make sure that photo-sensor are accurately aligned.

7) Watch for pulse sending bar on face of oximeter to fluctuate with each pulsation and reflect pulse strength.

8) If continuous pulse oximeter is desired, set alarm limits on monitor to reflect the high and low  $O_2$  saturation and pulse rate.

9) Read  $O_2$  saturation from monitor document as appropriate with all relevant information on client's chart. Report  $SpO_2$  less than 93% to physician.

#### Advantages:

1) Oximetry is a convenient and painless alternative to needle sticks.

2) It is simple to use

3) provides immediate data

Factors affecting accuracy of oximetry:

1) Inadequate peripheral blood flow for oximeter to detect pulse

2) conditions such as room lightening, client motion cigarette smoking or nail polish.

3) Carbon monoxide poisoning results in false high readings.

4) Edema at sensor site.

#### NOTE:

\*  $SpO_2$  greater than 95% is considered normal, values less than 93% usually induces need for  $O_2$  administration.

Avoid using lower extremities, receiving infusion, extremities for placing sensor probe.

If client has poor tissue perfusion due to peripheral vascular disease, or is receiving vasoconstriction medication, a nasal sensor or forehead sensor is considered.

Inspect the sensor site every 4 hourly for tissue irritation (or) preserve the sensor.



# BODY MECHANICS

①

## Definition of Body Mechanics:

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Body mechanics is the coordinated effort of the musculo-skeletal and nervous system to maintain balance, posture and body alignment during lifting, moving, positioning and performing activities of daily living.

Mobility: → It means effective standing, sitting, walking which involves body movement  
(or)

Mobility is a person's ability to move about freely owing to his/her voluntary motor and sensory control of all body regions.

Immobility: → Immobility occurs when the individual is confined to a position and is unable to move or change positions independently.

## Purposes of Body Mechanics:

\* Use of proper body mechanics in term of posture and alignment helps in —

- 1) Reducing risk of injury to the musculo-skeletal system.
- 2) Facilitating body movement without muscle strain and excessive use of muscle energy.
- 3) Maintaining adequate muscle tone; thus contributing to balance of the body.
- 4) Preventing fatigue and deformities Eg → Kyphosis, lordosis etc.

\* Kyphosis:

\* ~~Km~~ Kyphosis is a <sup>condition</sup> condition in which the spine in the upper back has an excessive curvature.

\* The upper back or thoracic region of the spine is supposed to have a slight natural curve.

\* Lordosis:

\* Lordosis is an increased inward curving of the lumbar spine (just above the buttocks)

5) promoting physiological functions of the body, as it aids in circulation and digestion

6) Reducing energy expenditure



## 7) Facilitating aesthetic well-being in terms of physical fitness and shape.

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### Principles of Body Mechanics:

- 1) The wider the base of support, the greater the stability of the nurse.
- 2) The lower the centre of gravity, the greater the stability of the nurse.
- 3) The equilibrium of an object is maintained as long as the line of gravity passes through its base of support.
- 4) The stronger the muscle group, the greater amount of work that can be safely done by it.
- 5) Facing the direction of movement prevents abnormal twisting of spine.
- 6) Dividing balanced activity between arms and legs reduces the risk of back injury while lifting or moving an object.
- 7) Reducing the force of work reduces the injury.
- 8) Maintaining good body mechanics reduces fatigue of the muscle groups.
- 9) Alternating periods of rest and activity help reduce fatigue.

### Preparation of patient and Unit

- \* Provide privacy to the patient
- \* Explain procedure to the patient and seek his/her participation
- \* Adjust the bed to the working height, lower side rails and lock wheels of the bed, wheel chair or stretchers etc...
- \* Fanfold the top linen up to the foot end of the bed or remove them leaving a sheet or bath blanket over the patient.
- \* Change wet or soiled linen
- \* Remove all comfort devices used for the patient
- \* Remove pillow and place it against the head end of the bed
- \* Clamp the catheter to prevent back flow of urine during transfer.
- \* Clamp nasogastric tube and other tubes, if any.
- \* Attach the I/V pole to the stretchers to hang the I/V bottle
- \* Position foot stool if needed



## \* Steps of Moving patient to one side of the bed

Steps	Rationale
1) Stand facing the patient at the side of the bed in which he is to be moved. Stand with a wide base of support with knees and hips flexed to bring your arms to the level of the bed.	1) Wide base provides a stable base. flexed knees, bring the nurses arms to the bed level and place them in a position to lift <del>he</del> with strong leg muscles.
2) place the arm of the patient on his/her chest	2) This will help prevent an injury and will not hinder movement
* place one arm under the shoulders and neck of the patient and the other under the patient's back	* Helps to move the patient's body in unison.
3) shift own body weight from your front foot to your back foot as you rock backward, bringing the patient towards you to the side of the bed.	3) Avoids strain on the patient's as well as the nurse's muscles.
4) Move the middle part of the patient in the same manner by placing one arm under his back and one arm under his thighs	4) Helps to move the patient's body in unison
5) Then move the feet and lower legs with the same motion	5) Avoids any musculo-skeletal injury to the patient & the nurse
* Steps of Moving a <sup>helpless</sup> Patient up in bed	

Steps	Rationale
1) Stand at the side of the patient's bed and face the foot end of the bed. Stand with a broad stance placing one foot behind the other	1) wide base provides a stable base
2) flex your knees to bring your arms at bed level. put your arms under the patient	2) Supports the body of the patient. * Helps in easy movement of the patient
3) place one arm under the patient's head and shoulders and one arm under his back	3) Support <del>s</del> the body of the patient Helps in easy movement of the patient
4) Move forward and shift your weight from forward foot to her backward foot with hips flexed.	4) Avoid strain on muscles of the nurse.



## Steps

- 5> Slide the patient diagonally across the bed towards the head and side of the bed.
- 6> Move the trunk and legs of the patient in the same manner
- 7> Go to the other side of the bed and repeat the above steps till the patient is positioned satisfactorily.

## Rationale

- 5> Bringing the patient close to the body prevents unnecessary strain on his and the nurse's muscles.
- 6> Helps to maintain a good anatomical position
- 7> To be systematic and methodical

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## \* Steps of turning a patient to one side of the bed.

### Steps

- 1> Move the patient to the same side of the bed, so as to bring him slightly off the centre of the mattress.
- 2> Keep the farthest arm along the side of the head and face, the near arm across the chest and the near leg flexed over the farthest leg.
- 3> place your arm under the shoulders and hips of the patient and roll him gently away. Make the patient comfortable by placing pillows as in a side lying position.

### Rationale

- 1> If the patient is not moved to the side of the bed he/she may fall to the ground when he/she is turned on his/her side.
- 2> Helps to prevent injury. Helps in easy turning of the patient
- 3> supports the body and turns the body as a whole.

## \* Steps of Transferring a helpless patient from bed to Stretcher

### Steps

- 1> position the stretcher at right angle to head or foot end of the bed.
- 2> call helpers to position them at the bedside along the same side of the bed.
- 3> Move the patient to the edge of the bed (as discussed)

### Rationale

- 1> Gives space for nurses to move shortens the distance to carry the patient.
- 2> If the patient is heavy, call for more helpers.
- 3> placing the patient to the edge of the bed prevents overreaching and sustains injury to the back.



## Steps

4) position yourself (three nurses) at the :

- 1) head, shoulders and chest
- 2) hips
- 3) thighs and ankles, level of the patient

Count 1, 2, 3, 4, 5

- 1) At count 1, the nurses slide their arms under the patient to support his body sections
- 2) At count 2, the nurses stand with back erect, holding the patient as near their body as possible.
- 3) At count 3, the nurses take one step backwards and pivot on their heels towards the stretcher.
- 4) At count 4, the nurses move to the side of the stretcher and stand with a wide base and flexed knees ready to lower the patient into the stretcher
- 5) At count 5, the nurses lower the patient to the stretcher in a back lying position.

## Rationale

4) facilitates moving of the body as a whole.

- 1) Helps to bring the patient's body weight within nurses' base of support.
- 2) A feeling of security to the patient.

## \* Steps of Assisting the patient to sit on the side of the Bed

### Steps

- 1) Assist the patient to move towards the edge of the bed on the right side.
- 2) The nurse stands at the side of the bed at the level of the patient waist
- 3) Help the patient to turn to the right side of the bed. The right hand is kept along the side of the head or face, the left hand is brought over the chest & the left leg flexed over the right.

### Rationale

- 1) The patient moves close enough to the edge of the bed to allow his knees to bend over the edge of the mattress when sitting.
- 2) To protect the patient from rolling out of bed and to assist him, when needed
- 3) A side lying position enables the patient to assume an upright position easily.



## Steps

## Rationale

- |   |  |
|---|--|
| <p>4) Ask the patient to slide his heels off the edge of the mattress, at the same time to raise his head and trunk by pushing the mattress with the fist of the left hand and grasping the edge of the mattress with the right hand. Then roll upwards on elbow till he reaches a sitting position.</p> <p>5) In sitting position, ask the patient to keep both arms extended backwards with palms supporting on the mattress. Tell the patient to place both feet flat on the floor.</p> <p>6) Watch for symptoms of orthostatic hypotension such as faintness, dizziness and sweating.</p> | <p>4) Use of stronger muscle groups helps in moving the patient easily and safely.</p> <p>5) Both arms help to maintain the balance of the body in a sitting position.</p> <p>6) When bedridden patients assume an upright position, they develop orthostatic hypotension.</p> |
|---|--|

**\* Steps of Assisting a patient from Bed to Wheel chair.**  
 Foot stool is used to help the patient on the floor before coming on to the wheel chair.

## Steps

## Rationale

- |  |   |
|--|---|
| <p>1) Place the chair/wheel chair at the right side of the bed, with the back towards the foot of the bed.</p> <p>2) These wheels should be locked or placed against the wall or another person.</p> <p>* Helps the patient to sit on the right side of the bed.</p> <p>3) Stand in front of the patient, facing him.</p> <p>4) Slide the patient's buttocks close to the edge of the bed by shifting his weight alternatively from right to left buttock till his feet are placed on the floor.</p> | <p>1) Helps to reduce energy expenditure.</p> <p>2) To prevent rolling of the wheel chair during transfer of the patient.</p> <p>3) To extend help to the patient, when needed.</p> <p>4) Rocking motion lifts weight on alternative buttocks and enhance forward movement.</p> |
|--|---|



## Steps

5> Instruct the patient to stand on command by simultaneously leaning forward, pushing with the foot placed at the back as he straightens his legs. Balance the patient on the arm chair/side rail (or) mattress

6> Instruct the patient to place his left arm on the far arm of the chair/wheel chair and pivot on the heel of his/her feet, bringing the buttocks towards the wheel chair

7> Instruct the patient to step back to the chair/wheel chair until he or she touches the seat and grasps the other arm of the chair with his/her right hand

8> Instruct the patient to lean forward and lower his/her buttocks slowly to the seat by bending knees and elbows

9> Check for any discomfort, correct posture of the patient

## Rationale

5> Do not risk the danger of the patient falling to the floor.

\* Observe for symptoms of orthostatic hypotension

6> Helps to reduce energy expenditure.

7> Facilitates sitting in the chair with ease.

8> Facilitates sitting in the chair with ease

9> Helps to check for orthostatic hypotension.

## After Care of the Patient

- \* Ensure correct body alignment and comfort of the patient
- \* Place pillow and other comfort devices as needed.
- \* Raise the side rails if necessary for the safety of the patient
- \* Check for any discomfort, pain, skin condition etc....
- \* Check vital signs of the patient after assuming the desired posture for assessing orthostatic hypotension.
- \* Remain with the patient during change of position to prevent his/her falling.
- \* Return to the supine position in case of any discomfort.
- \* Record the following aspects :-



i) Duration of the assumed position of the patient.

ii) Amount of assistance/instruction needed

iii) Vital signs of the patient - temperature, pulse, respiration, blood pressure.

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iv) Reaction of the patient to activity

v) Observations, if any.

vi) Recommendations for progressive activity and independence.

\* Ensure that the patient is comfortable and safe

## COMPLICATIONS OF IMPROPER BODY MECHANICS

\* If body mechanics principles are not observed, it may lead to various complications like:-

i) Musculo-skeletal injuries.

ii) complications of immobility, Eg → pressure sores, contractures & constipation

iii) Muscle fatigue

iv) Orthostatic hypotension

v) Hypostatic bronchopneumonia

vi) Decreased Basal Metabolic Rate.

## Walking By Means of Crutches:

\* Crutch gait is the gait of a person assumed on crutches by alternating his weight on one or both legs and crutches.

\* Five standard crutch gait are four point gait, three point gait, two point gait, swing to gait and swing through gait.

1) Four point gait:

\* Move the right crutch ahead a suitable distance

\* Move the left leg front foot forward, preferable to the level of left crutch

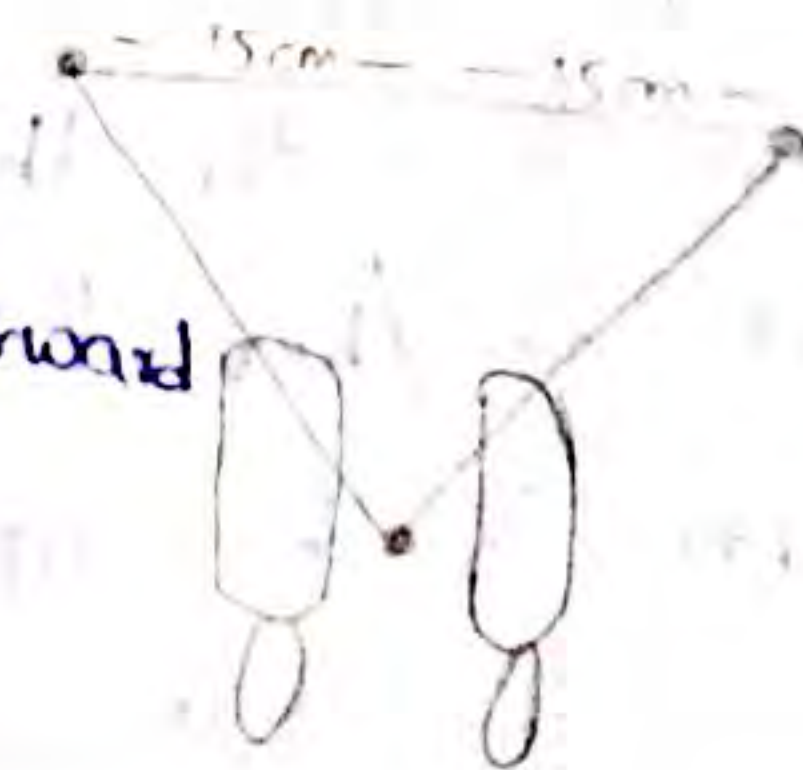
\* Move the right crutch forward

\* Move the left foot forward

2) Three point gait

\* Move both crutches & weaker leg forward

\* Move the strong leg forward





3) Two point gait:

- \* Move the left crutch and right foot forward together
- \* Move right crutch and left foot ahead together.

4) Swing to gait:

- \* Swing both crutches ahead together
- \* Lift his weight by arm and swing to the crutches.

5) Swing through gait:

- \* Move both crutches forward together
- \* Lift his weight by arms and swings through and beyond the crutches.



# Comfort Positions (Measures):

## Positions used for comfort:

Therapeutic positions are used to promote comfort of the client. Proper turning and positioning allows the health care provider to make clients as comfortable as possible, prevent contractures and pressure sores, and facilitate diagnostic tests or surgical intervention and make portions of the client's body available for treatment or procedures and allow client's greater access to their environment. While positioning a client, three factors must be remembered: pressure, friction and shear force.

Any part of the client that comes in contact with the surface in which the client is lying is a pressure site. To relieve pressure, turn the client to new position every 2 hours.

Always assess the blood flow to the skin and tissue areas under pressure. The sheets under the client must be smooth, while repositioning.

Shearing of skin occurs when skin is dragged across a hard surface. The deep layers of the skin are torn by the resistance of being dragged, which in turn may lead to skin breakdown and ulceration. To prevent this, try to lift the client while



changing the position.

Friction and excoriation can disturb the skin integrity, which in turn can cause infection.

Common positioning postures include the following:

- ✓ 1. Prone Face down
- ✓ 2. Supine Lying on back
3. High Fowler's Head of the bed elevated  $80^{\circ} - 90^{\circ}$ .
4. Semi Fowler's Head of the bed elevated  $30^{\circ} - 45^{\circ}$ .
- ✓ 5. Dorsal recumbent ✓ Supine with legs flexed in an elevated position.
6. Knee-chest Client rests on his knees and chest.
7. Trendelenburg Supine with head lower than feet.
- ✓ 8. Lateral Side-lying position.
- ✓ 9. Sim's lateral (semi prone left lateral position) Between prone and side-lying position.

Regardless of the specific position, general principles of body mechanics must be utilized in changing any position. The following points must be remembered:



- i) Maintain proper body alignment.
- ii) Support all body parts.
- iii) Avoid pressure especially over bony prominences by adequately padding these areas.
- iv) Use pillows, splints, foot boards and foam protectors which are helpful in maintaining the position.

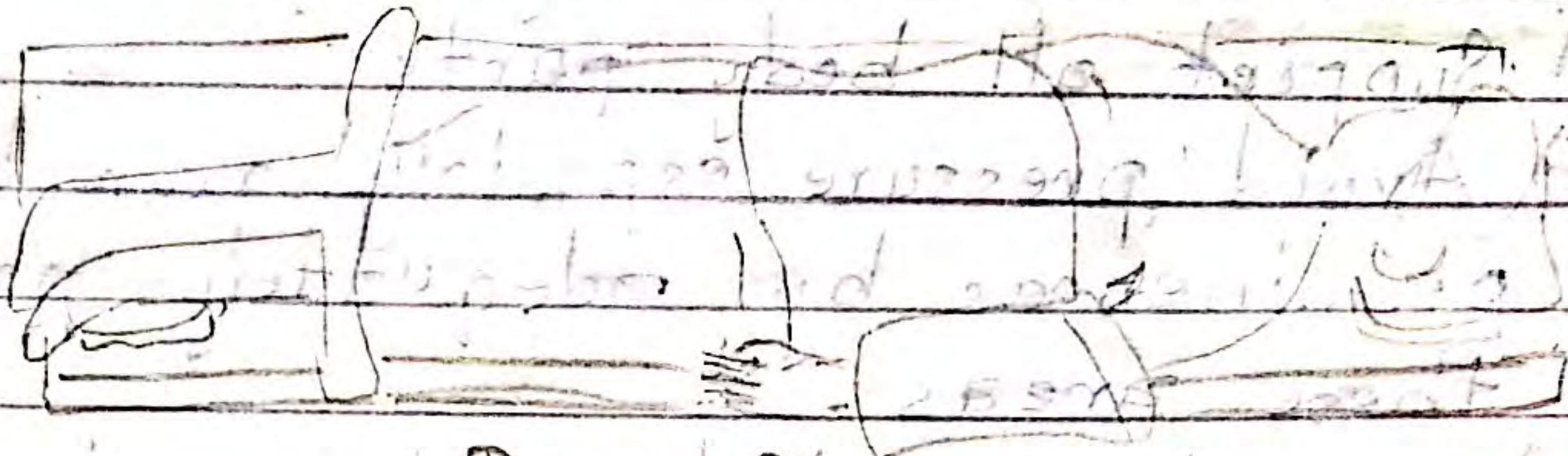
### Prone Position

The client lies flat on the abdomen with head turned to one side. The head rests on a pillow. One or both arms rest in a comfortable way either beyond the head or at the sides of the head.

#### Uses:

1. Assess the hip joint.
2. Assess the posterior thorax.
3. Position the client with injuries, burns and surgeries of the back.
4. Give comfort.
5. Relieve pressure from pressure sore prone areas by providing a change of position.
6. For clients after anaesthesia to prevent aspiration of saliva, mucus and blood.





### Prone Position

#### Contraindication:

1. Clients with respiratory or spinal problems.
2. Clients after abdominal surgery.

### Supine / Dorsal / Horizontal Recumbent Position

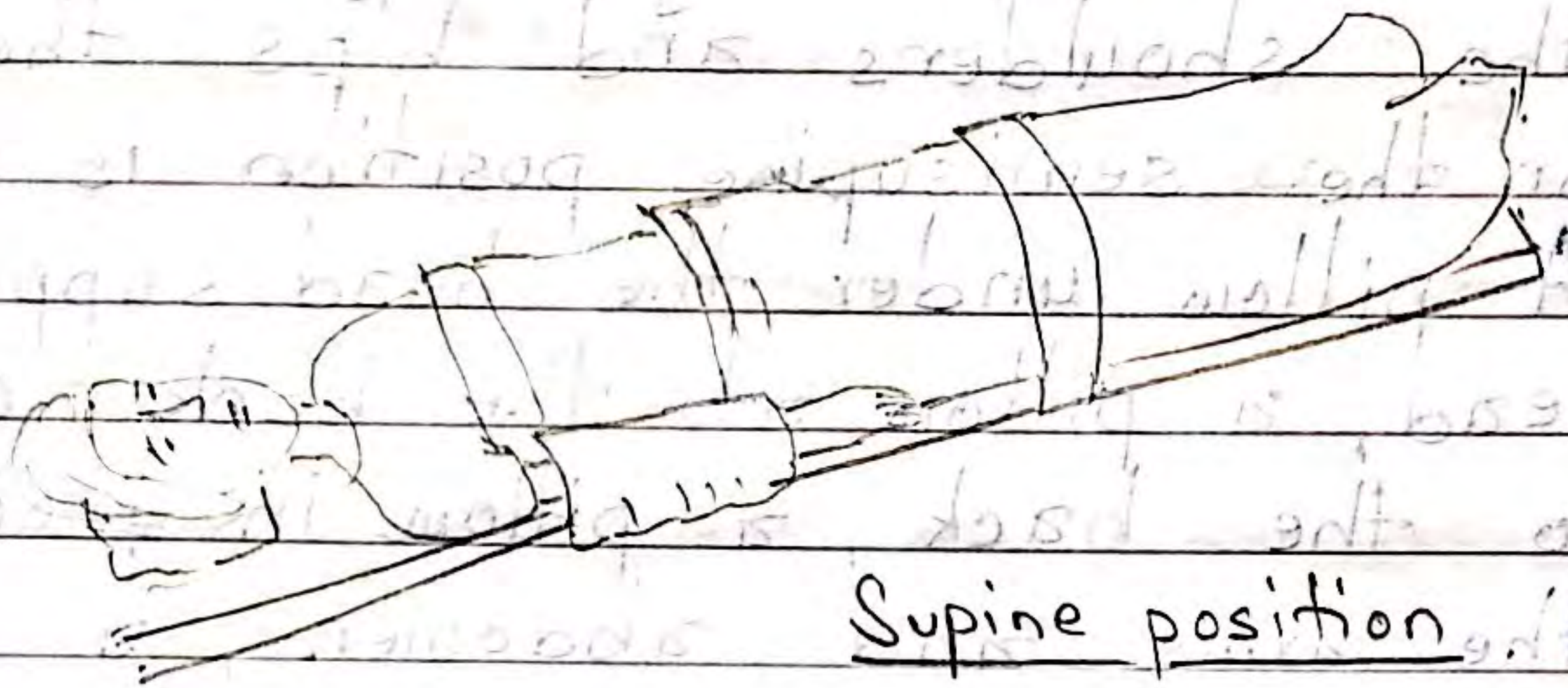
The client lies flat on back with legs extended and knees slightly flexed. Supine is horizontal position. Pillows may be used under the head, knees and calves to raise heels off the mattress; cotton rings at the elbow and heels, air cushion under the buttocks to take off the pressure and thereby prevent pressure sores. In bedridden clients, a foot rest is used to prevent the foot drop.

#### Uses:

1. For comfort of the client.
2. Assessment of vital signs.
3. Physical examination of head, neck, anterior thorax and lungs, heart, breasts, abdomen, extremities and for checking peripheral pulses.



4. After surgeries involving the anterior portions of the body.



Supine position

Dorsal Elevated or Semi-Recumbent Position.

Client lies in the bed with two or more pillows which may be arranged in armchair fashion to support the shoulders, arms and elbows. Additional comfort may be provided by means of pillow under the knees and foot support.

Uses:

1. Clients in convalescence period.
2. Clients with minor respiratory diseases.

Lateral or Side-Lying Position:

The client lies on the side with weight on his hips and shoulder. Pillows support and stabilize uppermost leg, arm, head and back. In this position the trunk is at right angle to the bed. To



increase the base of support and comfort, one or both legs are bent and both arms are extended in front of the body. Because the body weight is borne on the shoulders and hips, the semiprone or the semisupine position is preferred. A pillow under the head supports the head, a pillow at the back gives support to the back, a pillow in front supports the arms and abdomen, a pillow in between the knees takes the weight off the upper legs.

#### Uses:

To relieve pressure on bony prominences of the back and sacral region.

#### Contraindication:

Not to be used after hip replacement and other orthopedic surgery.

#### Left Lateral Position

In the lateral position, the client is placed on the left side, with one pillow under the head.

#### Uses:

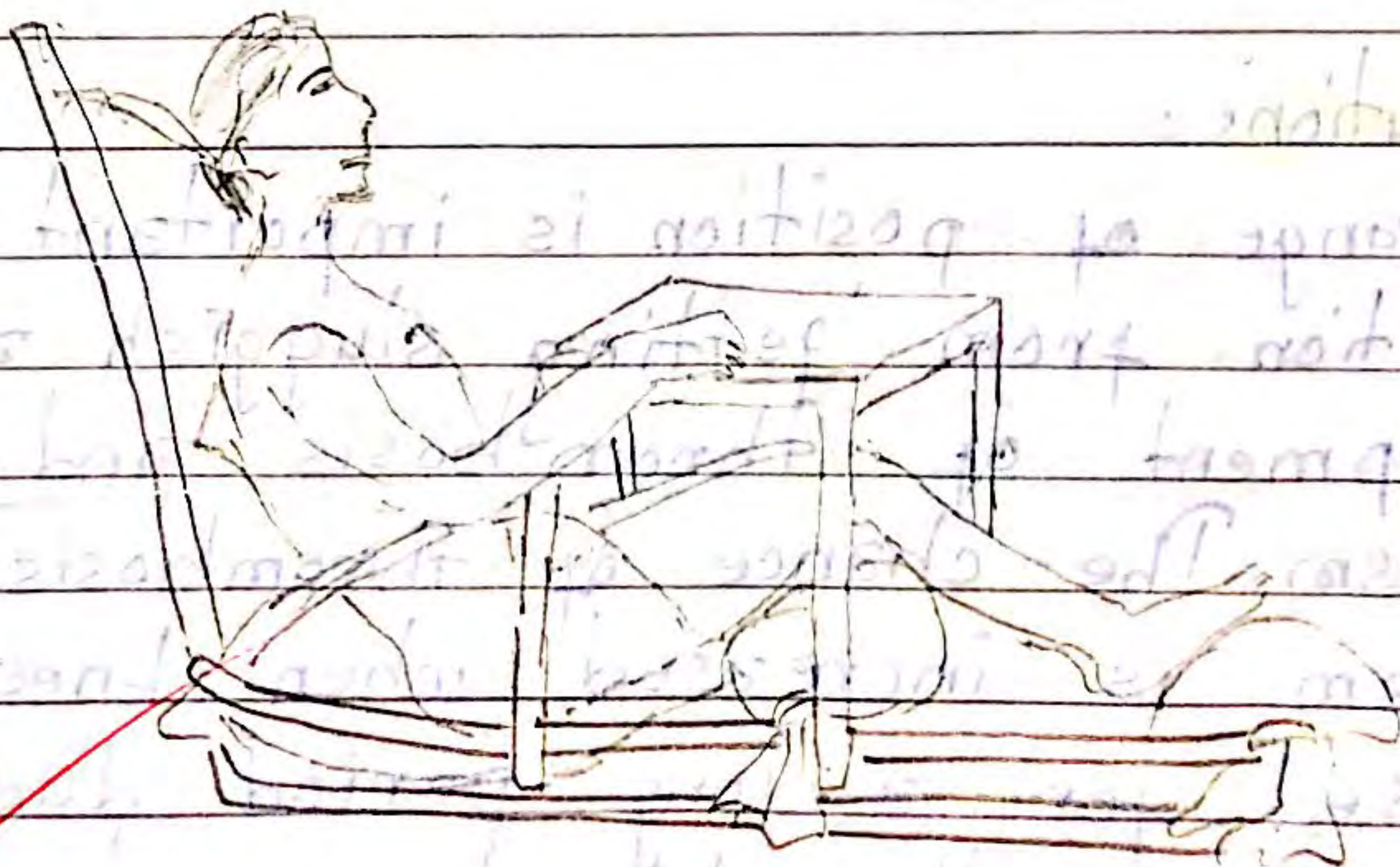
1. For giving enemas
2. For inserting suppositories



3. To take rectal temperature.
4. For doing rectal examination.

### Powler's Position.

This is a more erect position, in which an effort is made to maintain the position of the client in sitting position as nearly upright as possible. In this, the client's head is raised to  $80^{\circ}$ - $90^{\circ}$ . This position can be maintained by means of a back rest and additional pillows. The arms should be supported on pillows so that client sits with arms supported in an arm chair fashion. An air cushion under the buttocks prevents the pressure over the sacral areas. The knees may be raised over a knee pillow or a bolster to prevent the client from slipping.



Powler's Position.



## Uses:

This position improves cardiac output, promotes ventilation and eases eating, talking and watching TV.

1. To relieve breathing difficulty (dyspnoea).
2. To relieve tension on the abdominal sutures.
3. To help in the drainage of the abdominal cavity.
4. To relax the large muscles of the back and thighs.

This position gives the client a sense of well-being and makes it easier for self-care.

## Contraindication

1. Not to be used after brain or spine surgery.

## Precautions:

Change of position is important to prevent circulation from getting sluggish and development of thrombosis and pulmonary embolism. The chance of thrombosis and embolism is increased when knee pillows are used for a long period due to pressure on the blood vessels.



## Cardiac Position:

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The client is propped up in a sitting position by means of back rest and pillows. Place an overbed table in front with a pillow on it, on which the client can lean ~~for~~ forward and take rest. Client has an air cushion to sit and a small pillow under the knees.

### Uses:

1. This is the most comfortable position for clients with cardiac asthma.
2. This position is used for clients with cardiac diseases who cannot breathe easily in lying down position.

This position helps to make use of the extraordinary muscles of respiration. Change is essential to relieve fatigue and prevent embolism.

## Position Used For Physical Examinations.

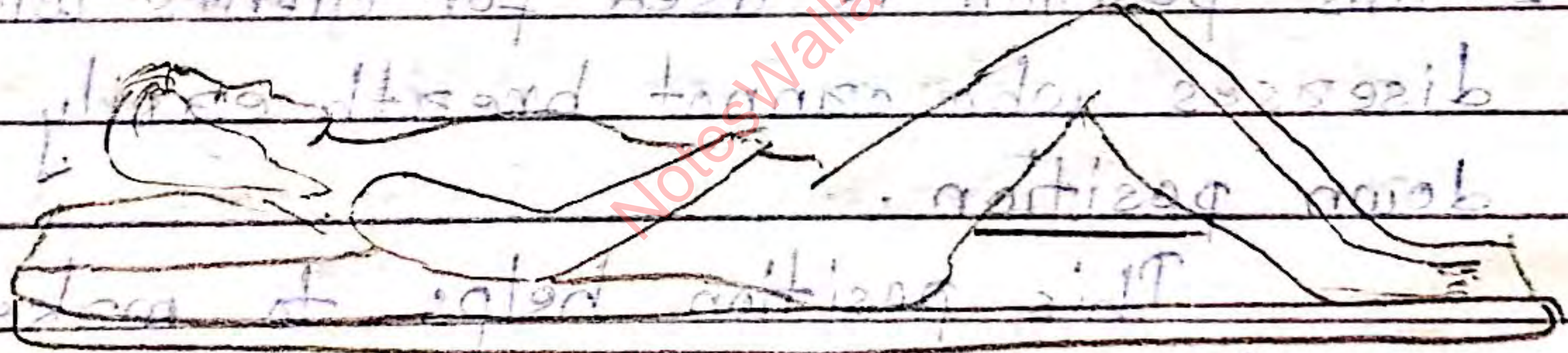
### Dorsal or horizontal recumbent

This position is same as that used for comfort. No comfort devices such as knee pillow, air cushion, cotton rings and foot rest are used. This position is used mostly for the head to foot examination.



## Dorsal recumbent position

The patient lies on her back with the legs separated and the knees flexed. The soles of the feet rest flat on the bed or table. The patient has one pillow under the head. This position is used for the vulval, vaginal and rectal examinations and for the operative procedures on the vulval area and for such procedures as catheterisation of the bladder.



## Dorsal Recumbent

## Erect position:

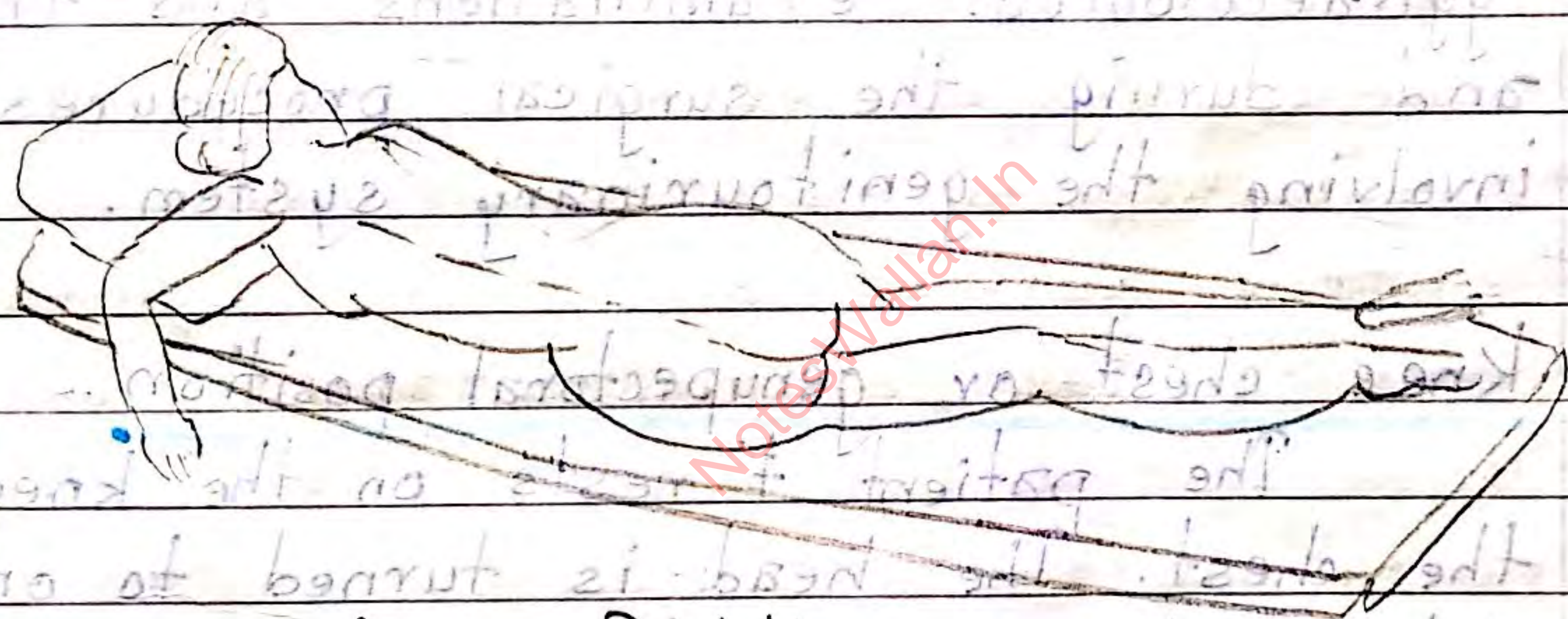
This is the normal standing position with both feet on the floor. In this position the patient is examined for the orthopaedic and neurological disorders.



## Sim's lateral or left lateral prone position.

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In this position the patient lies on his left side. One pillow is placed under the head with the left cheek resting on it. The left arm is drawn behind the back and the right arm may be in any position comfortable for the patient. The right thigh is flexed against the abdomen. This position is used for the vaginal and rectal examinations.

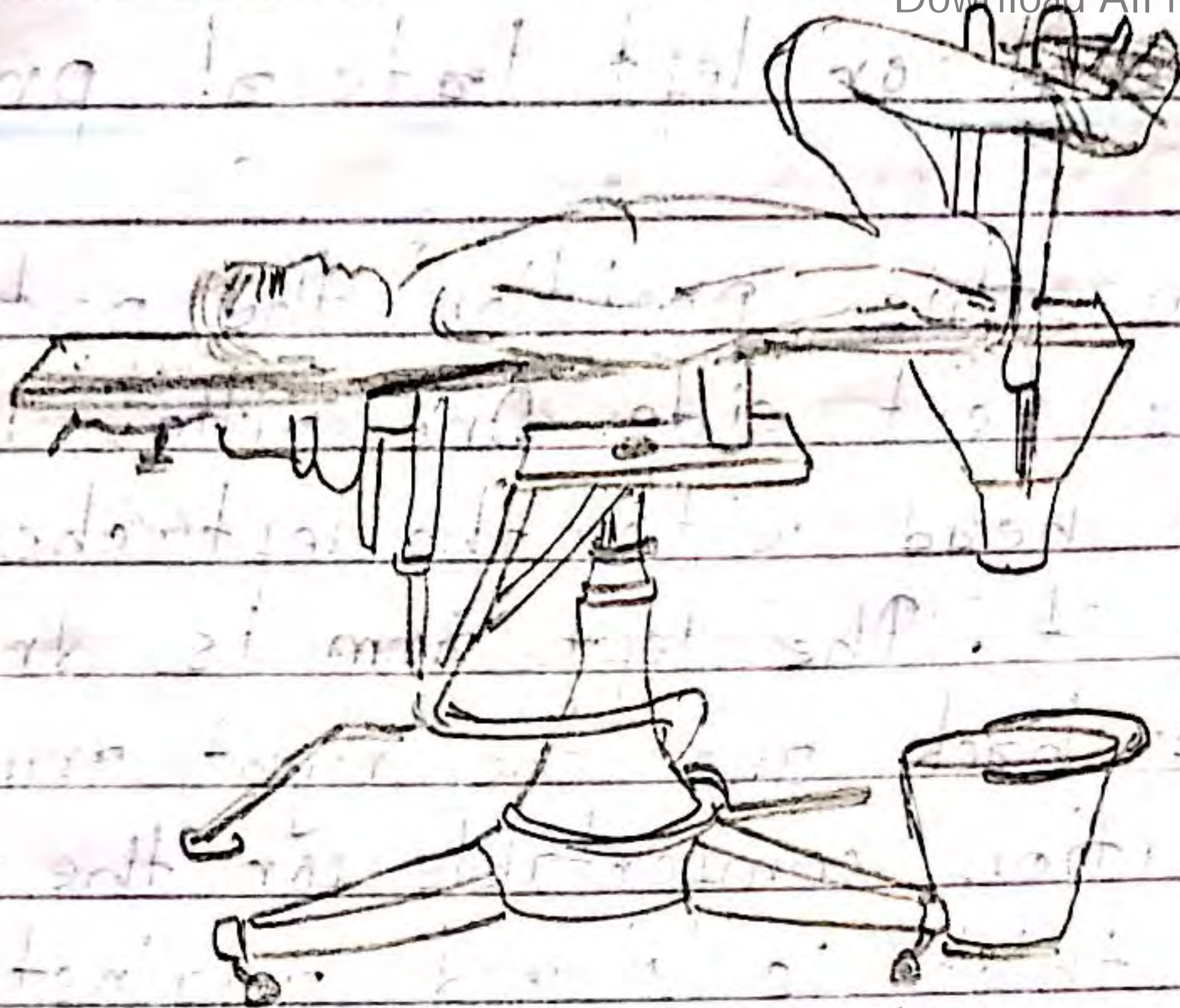


## Sim's Position

### Lithotomy position:

The patient lies on his back with one pillow under the head. The legs are well separated and the thighs are well flexed on the abdomen and the legs on the thighs. The patient's buttocks are brought to the extreme edge of the table and the legs are supported on the stirrups. If the calf muscles are pressed or if the position is prolonged there is a danger of embolism.





### Lithotomy Position

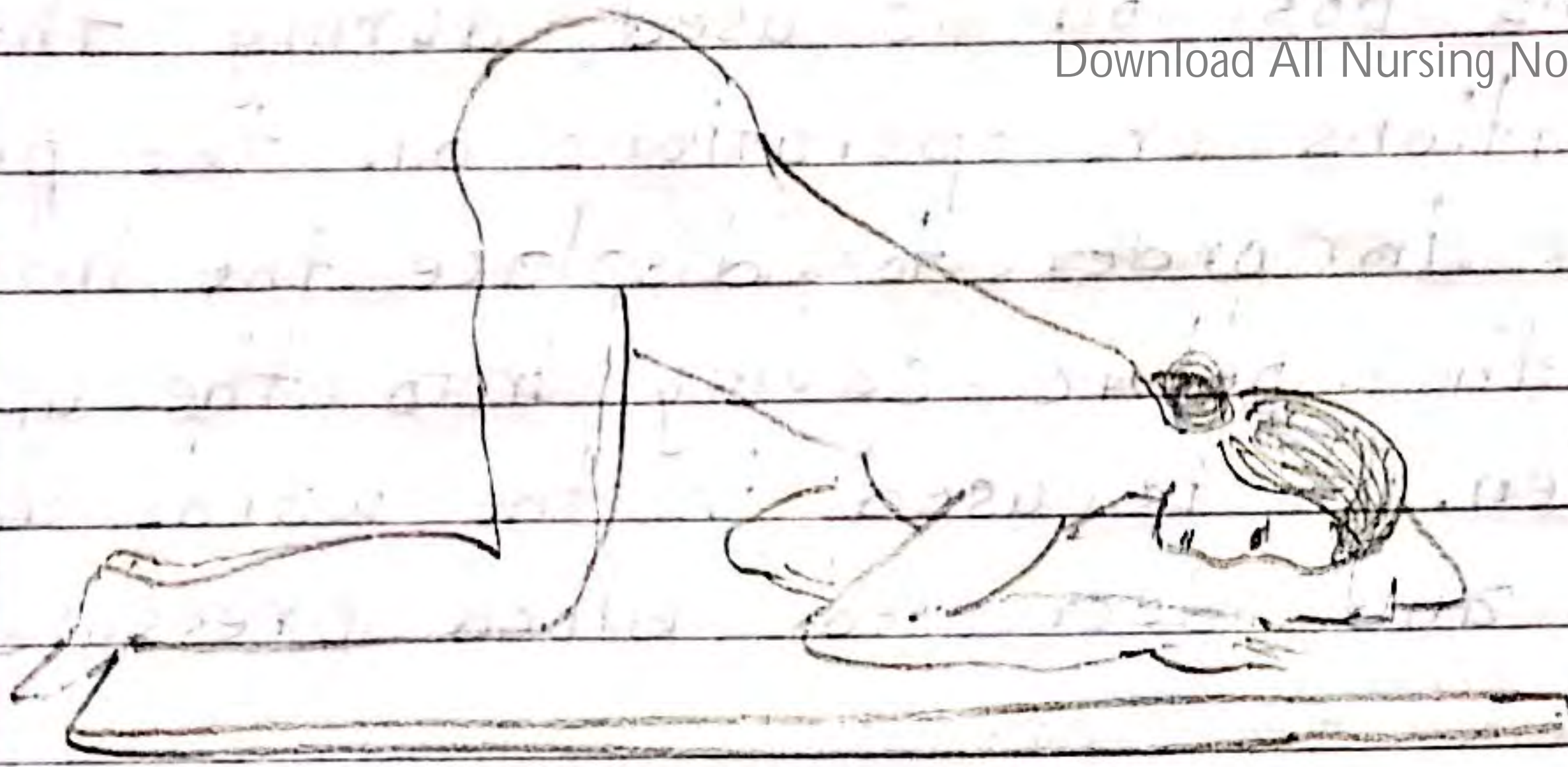
This position is used for the gynaecological examinations and treatments and during the surgical procedures involving the genitourinary system.

### Knee chest or genupectoral position.

The patient rests on the knees and the chest. The head is turned to one side with the cheek on a pillow. A small pillow may be placed under the chest.

The arms are above the head or they may be flexed at the elbows and rest along the sides of the head, so as to support the patient partially. The weight should rest on the chest and knees. The knees are flexed as in a kneeling position and the thighs are at right angles to the legs. This position is used for the examination of the rectum (Sigmoidoscopy) and vagina and as an exercise for post partum patients.



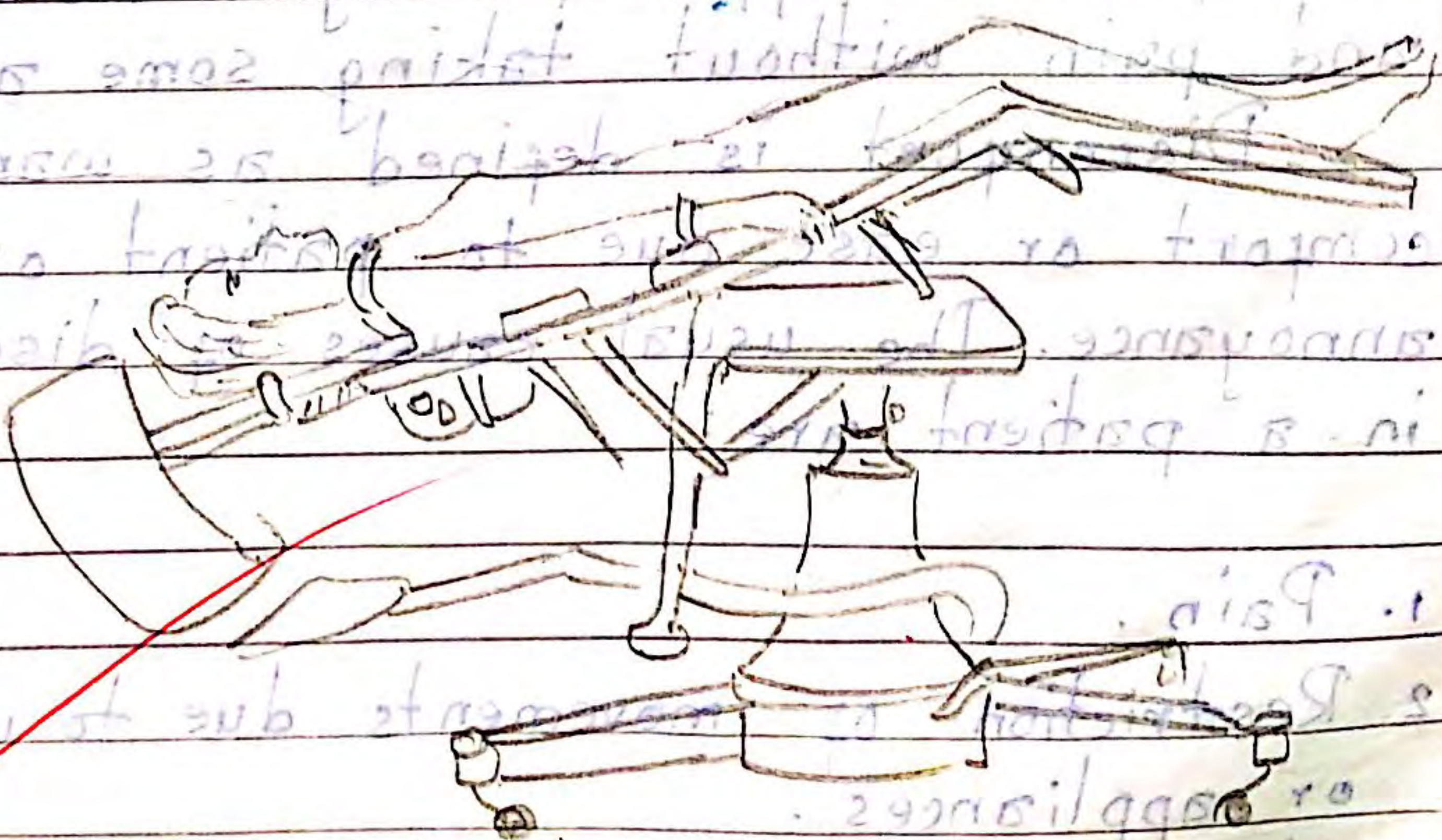


Knee - Chest Position.

### Trendelenburg position:

The patient lies on his back. The foot of the bed is elevated at a  $45^\circ$  angle.

In the operation theatre, the operation table can be adjusted to maintain this position. The patient's head is low. The body is on an inclined plane and the legs hang downward over the end of the table.



Trendelenburg Position



This position is used during the examinations or operations on the pelvic organs in order to displace the intestines from the pelvic cavity into the upper abdomen. It is used in the wards to treat shock and decreased blood pressure.

## DISCOMFORT:

Comfort is defined as the contented enjoyment in physical or mental well-being, freedom from want or anxiety; freedom from pain or trouble.

The alert nurse quickly senses when the patient is uncomfortable, sometimes before he is aware of it himself. The skilful nurse knows many simple ways of easing discomforts and does not think of a sedative first. She will never let her patient suffer prolonged discomfort and pain without taking some actions.

Discomfort is defined as want of comfort or ease due to patient or annoyance. The usual causes of discomfort in a patient are:

1. Pain.
2. Restriction of movements due to weakness or appliances.
3. Wrinkled, soiled and wet sheets.



4. Improper arrangement of pillows.
5. Delayed or inadequate attention to meet the personal need such as cleanliness, elimination, nourishment, etc.
6. Lack of exercise.
7. Temperature extremes.
8. Inadequate ventilation of lungs.
9. Dehydration.
10. Indigestion, irregular bowel movements.
11. Sameness of position or an uncomfortable position.
12. Too bright lights and glares.
13. Lack of sleep.
14. Noise from the service rooms, ~~kit~~ kitchen, telephone, loud talking in the corridors or whispered conversations within the room.
15. Fear and anxiety due to illness.
16. Insecurity feelings.
17. Interruption of ~~dit~~ daily routines.



Florence Nightingale:

Florence Nightingale was the first woman to have great influence over nursing in India and had a close knowledge of Indian condition, especially army. She was interested in the nursing service for the civilian population, through her first interest was the welfare of Indian army.

In 1865, Miss Florence Nightingale drew up some detailed "suggestions on a system of nursing in India". Graduates were sent out from the Nightingale school of Nursing at St. Thomas Hospital, England to start similar schools in India.

St. Stephens Hospital located in Delhi was the first one to begin training the Indian girls as nurses in 1867.



# Defination of Nursing:

ICN - "International council of Nursing". is defined as Nursing is the unique function of the nurse that is to assist the individual ~~sist~~ sick or well in the performance of those activities contributing to health or its recovery that he would perform unaided if he had the necessary strength, will or knowledge.

## Unit - I

### Introduction to Nursing:

Many people think of nurse only in connection with care given to the sick and injured because nurses are well or doctors have been chiefly concerned in the past with treatment and care only. In reality the present nurses and doctors are active in the prevention of disease and its cure. So, community health oriented programmes are preferred and offered while preparing medical and paramedical people. They serve as teachers helping to educate the public in regard to health measures. This care for the mind as well as the body and are deeply interested in the normal as well as in the abnormal or diseases human beings.



## Definition:

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① According to International Council for Nurses, Nursing is defined as the "Nursing is the unique function of the nurse that is to assist the individuals in performance of those activities contributing to health or its recovery that he would perform unaided if he had the necessary strength, will or knowledge."

② Nursing is an art, science and a professional by which <sup>we</sup> render service to keep a normal state of body and mind and when it cannot accomplish this, it helps him for the relief from

- \* physical pain.
- \* mental pain.
- \* spiritual discomfort.

## NURSING AS AN ART:

Nursing has long been recognised as an art. An art is a body of practical knowledge which tells how to work to produce certain result. An art does not involve any understanding of why things come out as they do. Florence Nightingale called Nursing as the finest of all arts. Nursing as an art has been practised since the world began.



## NURSING AS A SCIENCE :

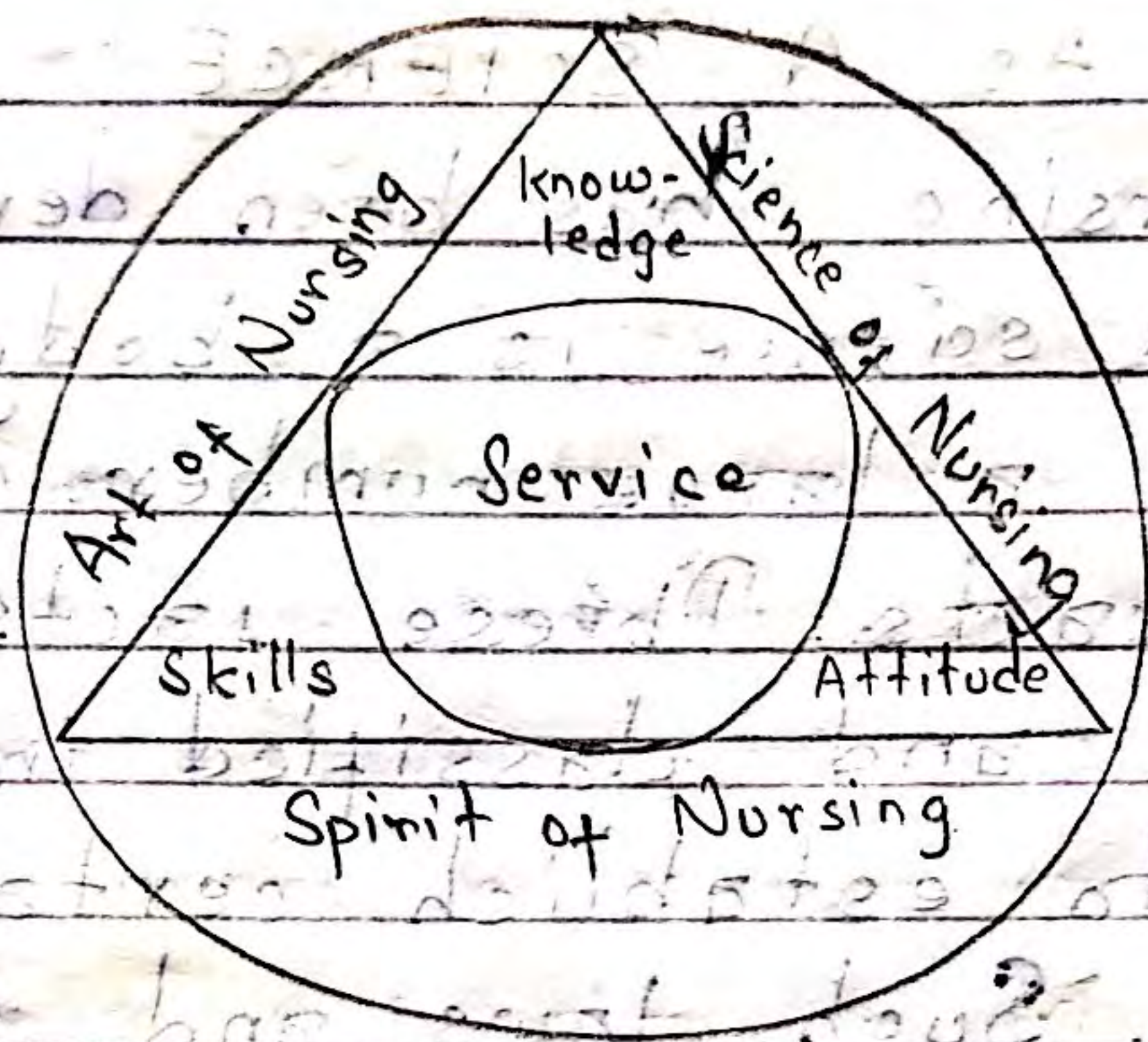
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Nursing has been derived as a science. A science is a body of knowledge based on a large number of carefully collected facts. These facts have been arranged and classified in such a way as to establish certain laws and principles. Such laws and principles explain the way of things by finding out and describing the forces that are at work to produce the fact which have been observed.

## # NURSING AS A PROFESSION :

A profession is an occupation with moral principles that are devoted to the human and social welfare. The service are based on specialised knowledge and skill developed in a scientific and learned manner professionally. Nursing is a service devoted to the promotion of human and social welfare. Nursing helps to attain this objectives by giving care to the sick and injured, promoting and restoring the health and preventing diseases. Professional nursing has a legal aspect. Legally nursing duties consists of meeting the physical, emotional, spiritual and social needs of human being under the supervision of licensed.





**MEANING:** The word "Nurse" comes from the latin word *nutritio* which means "that nourishes", fosters and protects, we find in the dictionary that nursing has a wide range of meaning, it means,

- to nourish.
- to protect.
- to avoid.
- to educate.
- to sustain.
- to give curative care and treatment to sick and infirm.



# Principle in Nursing

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School of Nursing covering the four area of sciences to prepare the nurse with knowledge and skill to do their course fulfilling the basic Nursing principle. Principles are:

1. Safety.
2. Therapeutic effectiveness.
3. Comfort.
4. Use of resources.
5. Good workmanship.
6. Individuality.

## 1. Safety:

It is the protection of hazards of patients and the members of the health team from the possible mechanical, chemical, thermal, bacteriological and psychological, injuries.

## 2. Therapeutic effectiveness:

It is the result of the work, that is, whether the purpose of the procedure is fully achieved or not. Eg: Bed Bath.

## 3. Comfort.

Every nursing procedure is aimed for the comfort of the patients. It should give care to the patient, relative and the



nurse on completion of the work.

#### 4. Use of Resources

The use of time, energy and material should be economic. A procedure should be cancelled due to the want of one or two item required, if they are not extremely essential. In such situational adjustment can be done by improving materials with the available resources.

#### 5. Good Workmanship

It is the skill in doing a procedure. There is great difference in doing things by a fresh hand and an experienced hand. Such skill or the art of doing. Procedures are developed only by doing the same repeatedly.

#### 6. Individuality

The likes and dislikes are different in different persons. So, when we are planning nursing care to a person, his needs are to be anticipated and problems are to be identified and feelings are to be considered.



## Ethics in Nursing:

The people expect a good ethical behaviour from every nurse which leads to a good relationship. The objective of good relationship is the welfare of the patient. Relationship of the nurse are reciprocal with the patient, the hospital and its workers and her workers. Here nursing school and the nursing profession and the community with its social and health agencies and responsibilities to others and towards herself.

### To The Patient:

The success of the nursing service given in its simplest form depends upon the personal-relationship between the nurse and the patient. The patient expects the nurse to have scientific knowledge and the ability to apply it in scientific knowledge and many techniques. He expects her help to conserve and restore his strength. He expects the nurse to keep him comfortable and save to relieve his pain and to carry out therapeutic measures with expert manual skill.



To The Physician:

The physician expects the nurse to carry out his orders for treatment to aid him in diagnostic procedure to observe to report and record accurately and to be loyal and co-operative.

To The Patient's Family:

The family of the patient expects the nurse to report the patient condition to relieve their worry and strain and to teach them simple nursing & preventive measures.

To The School of nursing of the Nursing Profession:

The nursing is a teacher of health. She gets many opportunities for teaching while she is at the bedside. The effectiveness of her teaching depends upon the nurse speaks in terms the patient understands when she advises health points and when she demonstrates certain procedures she can educate the patient and the relative the terms of hygienic hygienic sanitation and nutrition so that the regained health may be retained.



## To The Fellow Nurse:

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Any nurse who is junior to one should treat the senior with respect. Functioning of a ward is a team work & each member of the team is an important as the other nurse should co-operate & help each other when necessary.

## To The non-professional hospital workers:

A good relationship with the other workers of the wards & other departments of the hospital is essential for a better patient care. Though the department and persons are different in the hospital all are working for a common goal of the care of the patient. Nursing department is the co-ordinating link in the circle of patient care. So nurse should be co-operative with every workers, she must be decent and considerate. The professional nurse should establish desirable relationship with the patient relatives and co-workers but keep an official distance with every one.

## Nursing Administrator:

Nursing administrator is the nursing superintendent or Matron of the hospital. She has got the complete control & takes the responsibilities of nursing staff of the hospital. Although she may appear as so



strict and unapproachable. She is very much interested in the progress of every nurse. (She is very much interested in the progress of every nurse). She has got a very vast experience in all types of nursing problems. Their relationship to the nursing staff & especially to the nursing student is that of a mother to the ward for supervision we have to greet her and report any important event about the patient as well as other matters.

Senior Nurse Ward Sister:

She is responsible for the administration & supervision of the ward in which she is assigned. The junior nurse & students nurse of the ward are supervised by her when the staff & student are posted in on ward they should report to the head nurse about this arrival and departure for duty & off and during duty time all the staff & students should get the permission of the senior nurse. To leave the ward even for a short time.



## The Nurse and the Responsibility To Herself :

The nurse is a teacher of health to others & she should be example to others about her health and behaviour. She is responsible for maintaining her own health, for knowing the scientific back-ground of her work, for developing desirable skills and attitudes, for providing some measures of economic security, for furthering her education by reading - professional meetings and for enriching her own personal life.

## Nurse as a Teacher:

The nurse is a teacher of health. She gets many opportunities for teaching while she is at the bedside. The effectiveness of her teaching depends upon the relationship & confidence of her patients upon her. The nurse speaks in terms that the patient understands, when she interprets the physician's orders, when she advises health points & when she demonstrates certain procedures. She can educate the patient & the relatives the torus of hygiene, sanitation & nutrition so that the regained health may be retained.



# Nursing As a Profession:

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Nursing is an art and a Science. This means that a professional nurse, to deliver care artfully with compassion, caring and a respect for each client's dignity and personhood. As a science, nursing is based upon a body of knowledge that is always changing with new discoveries and innovations.

## The Qualities of a Nurse:

Some of the essential qualities of a nurse are:

- Love for the fellow men.
- Honesty and loyalty.
- Discipline and obedience.
- Alertness and intelligent observation.
- Technical competence.
- Dependability and adjustability.
- Ability to inspire confidence.
- Resourcefulness, economy of time, material and energy.
- Courtesy and dignity.
- Sympathy, empathy, tact and poise.
- Intelligence and common sense.
- Patience and sense of humour.
- Good physical and mental health.
- Generosity.
- Gentleness and quietness.



The literal meaning of the word-  
NURSE :

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N - Nobility, knowledge.  
U - Usefulness, understanding  
R - Righteousness, Responsibility  
S - Simplicity, Sympathy.  
E - Efficiency, Equanimity.

### Definitions :

1. The unique function of the nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to peaceful death) that he would perform unaided if he had the necessary strength, will or knowledge and to do this in such a way as to help him gain independence as rapidly as possible.

Virginia Henderson. Adopted by International Council of Nurses (ICN) in 1973

2. Nursing is the protection, promotion and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human responses and advocacy in the care of individuals, families, communities and populations.

American Nurses Association (ANA) - 2003



## The core of Nursing:

- 1). Promotion of health
- 2). Prevention of illness.
- 3). Restoration of health.
- 4). Alleviation of suffering.

## 3. International council of Nurses (2002).

Nursing is defined as a direct service goal directed and adaptable to the needs at the individual, family and community during health and illness.

## The essentials of Nursing:

- i) The science of nursing.
- ii) The art of nursing.
- iii) The spirit of nursing.

## The extent of Nursing (scope).

- i) The individual.
- ii) The family.
- iii) The society.

## Principles applied to the nursing procedure:

### Nursing Principles:

- i) Safety: It measures prevention of mechanical, thermal, chemical and bacteriological injuries to the



patient and the workers and protection from all nuisance.

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## ii) Therapeutic effectiveness:

It is to achieve the purpose for which a procedure is done.

## iii) Comfort:

Provide comfort to the patient.

## iv) Use of resources:

It implies the right use and the economy of time, energy and material.

## v) Good workmanship:

It is the art of doing.

## vi) Individuality:

It is to consider the needs and problems of a particular patient when a procedure is done.

## Scientific Principles:

It is the application of medical, biological, physical and social sciences.

## Profession:

A profession is defined as an occupation with ethical components that is devoted to the promotion of human and social welfare.



## Characteristics

1. A profession requires an extended education of its members, as well as a basic liberal foundation.
2. A profession has a well defined body of knowledge leading to defined skills, abilities and norms.
3. A profession provides a specific service.
4. Members of profession have autonomy in decision making and practice.
5. The profession has a code of ethics for practice.

## Concepts of Nursing:

The nursing profession is built upon four key concepts: - Person, environment, health and nursing. The four concepts are interrelated and each is built upon the foundation of the concept that precedes it.



# SCOPE OF NURSING

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There was a time when professional nurses had very little choice of service because nursing was centered in the hospital and beside nursing. Career opportunities are more varied now.

## Fields and Opportunities in Nursing

1. Hospital / Institutional Nurse - a nurse working in a institution with patients.  
Eg: rehabilitation.
2. Public Health Nurse / Community Health Nurse - usually deals with families and communities.  
Eg: Health Center.
3. Private Duty / Special Duty Nurse - privately hired.
4. Industrial / Occupational Nursing - a nurse working in factories, office, companies.
5. Nursing Education - nurses working in school of nursing, college of nursing.
6. Military Nurse - nurses working in a military base.



7. Clinic Nurse - nurses working in a private and public clinic.

8. Independent Nursing Practice - private practice, BP monitoring, home service.

### Scope of nursing in India:

The list of opportunities available are given under:

1. Staff Nurse provides direct patient care to one patient or a group of patients. Assists ward management and supervision. She is directly responsible to the ward supervisor.

2. Ward sister or Nursing Supervisor; She is responsible to the nursing superintendent for the nursing care management of a ward or unit. Takes full charge of the ward. Assigns work to nursing and non-nursing personnel working in the ward. Responsible for safety and comfort of the patients in the ward. Provides teaching sessions if it is a teaching hospital.

3. Assistant Nursing Superintendent: She is responsible to the nursing superintendent and deputy nursing superintendent for the nursing care and management of more



4. Deputy nursing superintendent: She is responsible to the nursing superintendent and assists in the nursing administration of the hospital.

5. Nursing superintendent: She is responsible to the medical superintendent for safe and efficient management of hospital nursing services.

6. Director of Nursing: She is responsible for both nursing services and nursing education within a teaching hospital.

7. Community Health Nurse services rendered mainly focusing Reproductive Child Health programme.

8. Teaching: The functions and responsibilities of the teacher in nursing are planning, teaching and supervising the learning experiences for the students. Positions in nursing education are,



- Clinical instructor
- tutor
- lecturer
- assistant professor
- associate professor
- Professor in nursing

9. Industrial nurse: They provide first aid, care during illness, health education about industrial hazards and prevention of accidents.

10. Military Nurse: Military nursing service became a part of the Indian Army by which means nurses became commissioned officers who are given rank from lieutenant to major general.

11. Nursing service in abroad: Attractive salaries and promising professional opportunities, which causes a major increase for nursing service in abroad.

12. Nursing service administrative positions:  
At the state level the Deputy Director of Nursing at the state health directorate.  
The highest administrative position on a national level is the Nursing Advisor to the Government of India.



# Nursing Ethical Principles:

Everyday nurses make ethical decisions in their nursing practice.

Ethical Principles are guidelines that can apply to situations to decide whether they are moral or immoral in nursing practice; it is not always practical to refer to the entire ethical theories for decision-making. Nurses often look toward narrower, more specific ethical principles to guide their judgement and decisions.



## Professional Values.

### Altruism:

Altruism is a concern for the welfare and well-being of others. In professional practice, altruism is reflected by the nurse's concern for the welfare of patients, other nurses, and other health-care providers.

Sample professional behaviours include the following.

- Demonstrates understanding of culture, beliefs, perspective of others.
- Advocates for patients, particularly the most vulnerable.
- Takes risks on behalf of patients & colleagues.
- Mentors other professionals.

### Autonomy:

Autonomy is the right to self-determination. Professional practice reflects autonomy when the nurse respects patient's right to make decisions about their health care. Sample professional behaviours include the following:

- Plans care in partnership with patients.
- Honours the right of patients & families to make decisions about healthcare.
- Provides information so that patient can make informed choices.



## Human dignity:

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It is respect for the inherent worth and uniqueness of individuals and populations. In professional practice, human dignity is reflected when the nurse value and respect all patients and colleagues. Sample professional behaviours include the following.

- provides culturally competent & sensitive care.
- protects the patient privacy.
- preserves the confidentiality of patients & healthcare providers.
- designs care with sensitivity to individual patient needs.

## Integrity:

It is acting in accordance with an appropriate code of ethics and accepted standards of practice. Integrity is reflected in professional practice when the nurse is honest and provides care based on the ethical framework that is accepted within the profession. Sample professional behaviours include the following.

- provides honest information to patients and the public.
- Documents care accurately and honestly.
- seeks to remedy errors made by self or others.
- Demonstrates accountability for own actions.



## Social justice:

Social justice is upholding moral, legal and humanistic principle. This value is reflected in professional behaviours in practice when the nurse works to assure equal treatment under the law and equal access to equality health care. Sample professional behaviours include the following:

- Supports fairness & non discrimination in the delivery of care.
- Promotes universal access to healthcare.
- Encourages registration & policy consistent with the advancement of nursing care & health care.



# Qualities of a Nurse

1. Communication skill
2. Emotional stability
3. Empathy
4. Flexibility
5. Attention to detail
6. Interpersonal skills
7. Physical Endurance
8. Problem solving skills
9. Quick response
10. Respectful

## 1. Communication skill:

Solid communication skills are a basic foundation for any career. But for nurses, it's one of the most important aspects of the job. A great nurse has excellent communication skills, especially when it comes to speaking and listening. They are able to follow directions without a problem and can easily communicate with patients and families.

## 2. Emotional stability:

Nursing is a stressful job where traumatic situations are common. The ability to accept suffering and death without letting it get personal is crucial. That's not to say that there aren't heartwarming moments in nursing. Helping a patient recover, reuniting families, or bonding with fellow nurses are special benefits of the job.



## 8. Empathy:

Great nurses have empathy for the pain and suffering of patients. They are able to feel compassion and provide comfort. Patients look to nurses as their advocates - the softer side of hospital bureaucracy. Being sympathetic to the patient's hospital experience can go a long way in terms of improving patient's care. Sometimes an empathetic nurse is all patients have to look forward to.

## 4. Flexibility:

Being flexible and rolling with the punches is a staple of any career, but it's especially important for nurses. A great nurse is flexible with regards to working hours and responsibilities. Nurses, like doctors, are often required to work long periods of overtime, late or overnight shifts and weekends.

## 5. Attention to detail:

Every step in the medical field is one that can have far-reaching consequences. A great nurse pays excellent attention to detail and is careful not to skip or make errors.

## 6. Interpersonal skills:

Nurses are the link between doctors and patients. A great nurse has excellent interpersonal skills and works well in a variety of situations with different people.



They work well with other nurses, doctors and other members, the staff.

### 7. Physical Endurance:

Frequent physical tasks, standing for long periods of time, lifting heavy objects (or people) and performing a number of ~~tax~~ taxing maneuvers on a daily basis are staples of nursing life. It's definitely not a desk job.

Always on the go, a great nurse maintains her energy throughout her shift, whether she's in a surgery or checking in on a patient, staying strong, eating right, and having a healthy lifestyle outside of nursing is important too.

### 8. Problem solving skills

A great nurse can think quickly and address problems as - or before - they arise.

With sick patients, trauma cases, and emergencies, nurses always need to be on hand to solve a tricky situation, whether it's handling the family, soothing a patient, dealing with a doctor, or managing the staff, having good problem solving skills is a top quality of a great nurse.



## 9. Quick response:

Nurses need to be ready to respond quickly in emergencies and other situations that arise. Quite often, health care work is simply the response to sudden incidences and nurses must always be prepared for the unexpected. Staying on their feet, keeping their head cool in a crisis are great qualities in a nurse.

## 10. Respect:

Respect goes a long way. Great nurse respect people and nurse rules. They remain impartial at all times and are mindful of confidentially requirements and different culture and traditions. Above all, they respect the wishes of the patient himself or herself.

Great nurse respect the hospital staff and each other understanding that the patient comes first and nurses who respect others are highly respected in return.



# ETHICS:

The term ethics refers to the study of philosophical ideals of right and wrong behavior. In professional practices such as nursing, a code of ethics provides guidelines for safe and compassionate care.

Every day nurses make ethical decision in their nursing practices.

Ethical principles are guidelines that can apply to situations to decide whether they are morals or immoral in nursing practice.

## Autonomy:

- The word autonomy is derived from the Latin word 'auto' meaning 'control'.
- Autonomy is the right of individuals to govern their actions according to their own reasons and purposes.
- Respect for autonomy requires that a person honor another's right to govern him/herself.
- Autonomy has certain limitations such as: when the rights of one individual interfere with the rights of another; and when there is a high probability that a person may injure himself or herself or others. Thus, individuals have the freedom to choose whether or not to seek and accept healthcare.
- Factors such as immaturity, physical or mental incapacity may decrease one's autonomy.



## Accountability:

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Accountability refers to the ability to answer for one's own actions. The nurse balances accountability to the client, the profession, the employer, and society.

## Responsibility:

The term responsibility refers to characteristics of reliability and dependability. The term implies an ability to distinguish between right and wrong. In professional nursing, responsibility includes a duty to perform actions well and thoughtfully.

## Informed consent:

Informed consent is the permission obtained from a patient to have a test or procedure performed after the patient has been fully informed about the test or procedure.

The consent may or may not be in writing, but a written consent provides better legal protection for health care providers.

Patients must give the consent voluntarily without persuasion. Moreover, they must be mentally competent (having mental and psychological capacity to make decision).



Vulnerable people those who cannot consent.  
such as :-

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- Children
- Vulnerable adults.
  - Patients who are unconscious, have serious or enduring mental health problems, some older people and some individuals with learning disabilities may lack competence, either temporarily or permanently.
  - In clinical situation, this means that a physician describes the procedure and/or surgery to the patient in terms understood by the patient. The description includes potential benefits of the patient as well as possible risks and should not imply any guarantee of results. Nurses frequently seek expressed consent from patients in a consent form. They are obligated to ensure that : The patient is given appropriate information able to understand the information, and voluntarily agrees to the test or procedures.

Veracity :

- Veracity concerns truth telling and incorporates the concept that individuals should always tell the truth. This principle also compels that the truth be completely told.

Levels of Veracity :

- Fully disclosing information,
- Withholding information,
- Giving false information.



- In health care, family members will often request health care providers not to tell their loved ones the truth about their diagnosis or prognosis. When the patient has a terminal diagnosis such as cancer, health care providers, may have difficulty sharing this information with patient that will result in unhappiness, anxiety, depression or fear.

### Confidentiality:

- Confidentiality means that information entrusted to professionals in the line of duty should not be revealed to others.
- Confidentiality of health information is considered as an integral component of the nurse patient relationship.
- In the course of caring for a patient, nurses get to know many things about that person. The patient must feel that he or she and the nurse are in a relationship of trust and confidence for such information to be shared.



## Beneficence and non-maleficence:

- Beneficence is drive from latin word "bene" means "good" and "ficence" means "to do/make"
- Beneficence then means "doing good" while non-maleficence refers to retraining from doing harm.
- Non-maleficence is the principle that obliges <sup>us</sup> not to inflict harm intentionally or unintentionally.

## Justice:

- Justice is the professional obligation to the fair, equitable, and appropriate treatment to all individuals
- It concerns the issue that all the individuals have the right to be treated equally and fairly regardless of their sex, race, social class or religion

Fidelity: Fidelity is the individual's obligation to keep the commitments he/she has made. It holds that a person should faithfully fulfill his/her duties and obligations.



## Respect for others:

- Respect for others means the respect for the human dignity. It acknowledges the right of individuals to make decisions and to live by these decisions.
- In the context of health care, respect for others basically means treating patients as people with rights.
- It means; further respecting the autonomy of individuals and protecting those at supper, loss of autonomy through illness, injury or mental disorder and working to restore autonomy to those who have lost it. It means recognizing that patients have basic human rights such as the right to know, the right to privacy and the right to receive care and treatment.



# Codes of professional conduct for Nurses:

## 1. Professional responsibility and accountability Nurse:

- Appreciates of self worth and nurtures it.
- Maintains standards of personal conduct reflecting credit upon the profession.
- Is accountable for maintaining practice standards set by Indian Nursing Council.
- Is compassionate.
- Is responsible for continuous improvement of current practices.
- Provides adequate information to individuals that allow them informed choices.
- Practices healthful behaviors.

## 2. Nursing Practice: Nurse:

- Provides care in accordance with set standards of practice.
- Respects individuals and families in the context of traditional and cultural practices promoting health practices and discouraging harmful practices.
- Treats all individuals and families with human dignity in providing physical, psychological, emotional, social and spiritual aspects of care.
- Promotes participation of individuals and significant others in the care.
- Ensures safe practice.
- Consults, co-ordinates, collaborates and follows up appropriately when individuals care needs exceed the nurse's competence.



### 3. Communication and interpersonal relationship.

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Nurse:

- establish and maintains effective interpersonal relationship with individuals, families and communities.
- Upholds & dignity of team members and maintains effective interpersonal relationship with them.
- Appreciates and nurtures professional role of team members.
- Co-operates with other health professionals to meet the needs of the individuals, families and communities.

### 4. Valuing human being.

Nurse:

- takes appropriate action to protect individuals from harmful unethical practice.
- consider relevant facts while taking conscience decisions in the best interest of individuals.
- encourage and supports individuals in their right to speak for themselves on issues affecting their health and welfare.
- respects and supports choices made by individuals.

### 5. Management

Nurse:

- Ensures appropriate allocation and utilization of available resources.
- Participates in supervision and education of students and other formal care providers.



- uses judgement in relation to individual competence while accepting and delegating responsibility.
- facilitates conducive work culture in order to achieve institutional objective.
- communicates effectively following appropriate channels of communication.
- participates in evaluation of nursing services.
- participates in policy decisions, following the principle of equity and accessibility of services.
- participates in performance appraisal.
- works with individuals of identify their needs and sensitizes policy makes and funding agencies for resources allocation.

## Professional advancement

Nurse:

- ensures the protection of the human rights while pursuing the advancement of knowledge.
- contributes to the development of nursing practice.
- participates in determining for upholding own knowledge and competencies.

Contributes to care professional knowledge by conducting and participating in research.



# PROVIDING SAFE ENVIRONMENT:

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## 1) Freedom from mechanical injury:

Mechanical injury may be caused by machines, by falls and by blows.

\* Falls: Although anyone can fall, infants and older adults are especially at risk for injury from falls. Falls are the most common incident reported in hospital and long-term care facilities.

Risk factors:

Many patients may have risk factors such as

- Poor vision
- Cognitive impairment
- Difficulty with walking/balance.
- Orthostatic hypotension
- Weakness / lizziness from disease / therapy
- From medication.

## Prevention:

Prevention depends on the risk factors following measures can be taken to prevent falls.

- Perform falls risk assessment for all resident pts, identify medications that increase the risk of falling.



- Place the call light within reach.

- Orient the person to surroundings.

- Place disoriented pts near to the nurses

station.

- Keep the bed in a bended position, except

when giving care, keep wheels locked.

- Lock the wheels of wheel chairs during transfer activities.

- Provide non-skid slippers.

- Keep heater, urinal, bed pan and tissues within easy reach of client.

- Provide adequate lighting.

- Use side rails on beds depending on cognitive and functional status.

- Keep the floor dry.

- Place hold bars and hand rails in bathroom.

- Provide a night light.

- Monitor the patient regularly.

- Educate the patient and family regarding fall prevention.

- For pts at risk for falls, place a warning sticker on door / on

\* Equipment related accidents:

Equipment related accidents usually occur when equipment malfunctions or is used improperly.

Eg. When infusion devices and infusion pumps are not working properly, O<sub>2</sub> cylinders are transported incorrectly, wheel chairs and beds are not locked during transfer activities.



## Prevention:

- Seek advice if you are unsure to operate the equipment.
- Make sure, medical equipment has been properly inspected.
- Be alert to signs that the equipment is not functioning properly.
- Follow agency policies regarding equipment brought from the pts. home.

## 2) Freedom from thermal injury:

Thermal injury is caused by fires and burns. The triple hazards of fire are burns, trauma and asphyxia. Burns may occur from application of heat.

Causes for Fire & Electrical hazards.

- Improperly grounded malfunctioning electrical equipment.

Explosion of gases

- Smoking in bed.

## Prevention:

- Prior to use evaluate the electrical equipment.

Education & training program about electrical safety has to be made mandatory for all employees.

- Label the suspected malfunctioning equipment & send it for inspection.
- Use 3 pronged electrical plugs whenever possible.



- Observe for breaks in electrical cords.
- Safe guard inflammable liquids & gases.
- Recharge fire extinguishers from time to time.

## Response to Fire.

Rescue the patient from immediate danger.  
move client in to corridor.  
close doors to affected area.

Activate the alarm activate nearest alarm.

Contain the fire close the doors & windows.  
turn off all O<sub>2</sub> valves  
after co-ordinating with the  
charge nurse.

Extinguish the fire use proper extinguisher.  
keep done

## 3) Freedom from chemical injury:

Chemical injuries involves the use of too strong chemicals & poisonous chemicals kept within the reach of the patient.

### Prevention:

- keep chemicals in separate cupboards under lock & key and by using them with care.



- 4) Freedom from radiation:  
occurs from over exposure to rays of x-rays, radium, infra-red & ultra-violet light rays.
- 5) Freedom from bacteriologic injury.  
Bacteriologic safety has to do with the elimination of disease bearing organisms & dirt that harbours them.
- 6) Freedom from allergens:  
Injury from allergens may result from insect ~~tit~~ bites, or from materials in the such as feathers, mattresses, food, ~~cons~~ conjunctives, lotion, powders, medicines, etc.

### Prevention:

- ~~Lower~~ th. Cover the mattresses & pillows
- Dusting without raising the dust.
- Test for allergies before an agent is applied on the body.



# Safety Devices Used in the Hospital:

## 1) Side rails:

Are used to promote a safe unit or as an aid to independence. Based on HCFA (Health Care Financing Administration) standards, side rails can be used as a restraint.

→ A full-length side rail is a restraint.

→ A half or quarter-length upper side rail can be an aid of independence.

→ Split rails are not considered restraints if a client requests them in order to feel more secure.

## 2) Ambularm and Bed alarm:

Ambularm is one device that is used as an alternative for restraints with clients who ~~climb~~ <sup>climb</sup> one ~~of~~ bed and are in danger of falling. The ambularm is worn on the leg & signals when the leg is in a dependent position, such as over the side rail or on the floor.

Another type of alarm is an integral bed alarm, which beeps if the patient feet is off the mattress for more than a few seconds.

## 3) Bed monitoring device

## 4) Non-skid slippers

## 5) Mechanical lift:

Mechanical lift is a device used to transfer pt. A mechanical lift is especially useful when providing care for obese and immobilised patients.



## 6) Transfer Belt:

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A transfer belt is a heavy belt several inches wide, applied around the pts. hips & lower abdomen to facilitate transfer or provide a secure mechanism to hold the patient when ambulating.

## 7) Transfer Board:

A transfer board is a wood or plastic device designed to assist with moving patients. Transfer board reduces risk of injury and promotes smooth transfer.

## 8) Trapeze Bar:

A trapeze bar is a triangular shaped bar that is attached to an overhead bed frame. The patient can use the base of the triangle as a grip to move up in bed, turn & pull up. Patients can use the trapeze to exercise the upper extremities.

## 9) Foot Board:

When the person is supine, the toes drop and the feet are in plantar flexion. The patient who is unable to move may have difficulty walking again if prolonged plantar flexion occurs (foot drop). A foot board is a device placed at the end of the bed to prevent plantar flexion. For foot board to be effective, the heels must be touching it. Each time you turn the pt, you may need to



reposition the foot board.

- 10) Airway
- Oropharyngeal airway.
  - Nasopharyngeal airway.

Oropharyngeal airway (O.P.A): are plastic covered devices used to hold tissues (such as tongue) away from the airway to keep it open. Used in a deeply unresponsive pt. who is unable to maintain his/her airway. In responsive pt. it can cause vomiting / aspiration.

Nasopharyngeal airway (N.P.A) or Nasal trumpet is a soft rubber / plastic holder hollow tube i.e., passed through the nose in to the post-pharynx.



# RESTRAINTS:

The HCFA defines a restraint as, "Any device that restrains a patient's voluntary movement or access to his body and that can't easily be removed by the patient".

— (HCFA, 2000)

The most obvious form of restraint is the use of physical force by another person.

Restraint may be:

- a mechanical device, material/equipment attached or adjacent to the pts. body.
- a chemical restraint (Medications such as sedatives & psychotropic agents).

Before going for restraints, nurses have to try less restrictive interventions.

Restraints should be medically ordered.

Restraints have traditionally been used as a safety measure to reduce the chance for patient and staff injury.

Traditionally, they are defined as:

Restraints are protective devices employed to prevent a patient from harming himself or others, to immobilize a part, to restrict the activity & to promote a feeling of security in a patient who needs control.



However, research indicates that restraints are themselves a safety hazard, increasing the risk of injury.

A restrained person has a natural tendency to struggle and try to remove the restraint, as a result can become entangled, suffer nerve damage, circulatory impairment and even suffocation.

### Types of Restraints.

Restraints are made up of linen, canvas, leather, plastic, metal or wood. The common types are:

#### 1) Anklets & wristlets:

These are used to restrict the activity of limbs in a patient who is potentially harmful to himself or others (Eg. Irrational pts.), to prevent the patient from removing any appliances used in the treatment (Eg. tubes) and to immobilize one or more limbs during a procedure (Eg: suturing a wound).

#### 2) Elbow & knee restraints:

The purpose of elbow & knee restraints is to prevent flexion of the elbow & knee joints. These types of restraints can be made by making pockets or slots on a piece of cloth into which tongue blades will fit into. These restraints are then wrapped around the elbow, a knee joint & tied at the ends.



### 3) Mitt Restraints

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These are commonly used for children or confused pts in order to prevent them using their fingers or hands for ~~me~~ removing tubes, dressing and other appliances used in treatment, preventing them injuring the tissues (skin) by scratching & removing other restraints applied on the body.

### 4) Body jackets

These are used for both children & adults. The jacket is usually put on with the ties at the back, the straps from the jacket are then tied to the bed frame under the mattress, thus preventing the patient from sitting on the bed.

Chest restraints are also used for a pt who is sitting on a chair/wheel chair to maintain his position & to prevent him from falling.

### 5) Mummy Restraints:

Mummy restraints are used to restrict the movement of the limbs in a small child during a procedure (Eg. eye irrigation). This can be done by warpping the body with a towel.



## 6) Safety belts:

Safety belts are made up of electrically non-conductive materials. These are frequently used on ~~stretchers~~ stretchers & operation tables in order to prevent the patient from falling. The belt goes around the patient waist is attached to longer belt which is then tied to the bed frame under the mattress.

7) Splints, plaster casts, sand bags, bandages, binders, slings, etc. are used to restrict the movements of different parts of body.

## 8) Side rails.

## 9) Seclusion/quiet rooms:

These rooms are specially designed to be hazard free & are commonly used for psychiatric patients. These rooms are usually located near the nurses duty room, so that the patient will be observed frequently. There should be no articles inside the room which can harm the patient or the pt. may use it to harm himself or others.



## Hazards:

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- 1) Tissue damage under the restraints due to constant friction.
- 2) Damage to other parts of the body.
- 3) Development of pressure sores if the pt. is kept restrained for longer period of time & does not frequent change of position and skin care.
- 4) Development of hypostatic pneumonia due to immobility.
- 5) Ischaemia/<sup>nerve</sup> ~~erve~~ damage (paralysis) due to constrictive restraints.
- 6) Foot drop & wrist drop.
- 7) Asphyxia & aspiration pneumonia, if the pt. is restrained in supine position & has an altered level of consciousness & vomits.
- 8) Development of other complications developed indirectly due to the application of restraint such as:
  - a. Inability of pt. to escape injury or death in a case of fire or such other emergencies.
  - b. Inability of the nursing staff to resuscitate a patient in time in case of a cardiac. It takes time to remove the appliances and rescue patient.
- 9) Emotionally pt. may suffer anger, fear, humiliation & diminished self esteem.



## General instruction:

- Inspect client for any injury, including all hazards of immobility.
- Observe IV catheters, urinary catheters, and drainage tubes to ensure that they are positioned correctly and that therapy remains uninterrupted.
- Frequently reassess client's need for continued use of restraint with the intent of discontinuing restraint at the earliest possible time.
- Provide appropriate sensory stimulation, and reorient client as needed.



# COMFORT.

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## Definition:

Comfort is a sense of physical or psychological ease. Persons who are lacking in comfort are uncomfortable or experiencing discomfort.

## Comfort devices

- 1) Back rest: It is a mechanical device & provides support for the pt. in the sitting position.
- 2) Knee rest: This gives relaxation & thus relieves pain on abdominal muscles & on tendons beneath the knee.
- 3) Foot rest: This is a device so placed that the feet rest firmly against it.
- 4) Bed cradle: The bed cradle support & take off the weight of the bed clothing.
- 5) Bed blocks: Made up of wood or metal are used to raise the foot end or head end of the bed.
- 6) Sand bags: Sand bags are used to immobilise a part as in fractures & relieve discomfort.



7) Air cushion: It is made up of rubber and it can be inflated with air used to take off the weight of the body and to relieve pressure on certain parts of the body.

8) Rubber & cotton rings: These are used to relieve pressure on certain parts of the body like elbow and heels.

9) Air & water mattresses: These are used for very thin and very obese patients and those who are prone to pressure sores.

Factors influencing comfort:

1) Sunlight

4) Humidity

2) Wind

5) Clothing

3) Temperature



# PHYSIOLOGICAL

## NEEDS

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### Sleep and Rest

Proper sleep and rest are as important to good health as good nutrition and adequate exercise.

Individuals need different amounts of sleep and rest. Without proper amounts of rest and sleep, the ability to concentrate, make judgements and participate in daily activities decreases and irritability increases.

When people are at rest they usually feel mentally relaxed, free from anxiety and physically calm.

Rest does not imply inactivity. When people are at rest, they are in a state of mental, physical and spiritual activity that leaves them feeling refreshed, rejuvenated and ready to resume the activities of the day.

People have their own habits for obtaining rest. Rest may be gained from reading a book, practicing a relaxation exercise, listening to music, etc.

Nurses frequently care for clients on bed rest in a variety of health care settings. This



treatment confines clients to bed to reduce physical and psychological demands on the body. However, these people do not necessarily feel rested. They still may have emotional over physical worries that prevent complete relaxation.  
Eg: Concern over physical limitations may come such clients to feel stressed and unable to relax.

Sleep: is a recurrent, altered state of consciousness that occurs for sustained periods, which people obtain proper sleep, they feel that their energy has been restored. Sleep provides time for repair and recovery of body systems for the next period of wakefulness.

The usual rest and sleep patterns of persons entering a hospital or other health care facility can easily be affected by illness or unfamiliar health care routines. The extent of change in usual sleep and rest patterns depends on the client's physiological and psychological status and the physical environment, such as background noise and the work pattern of care givers.

The nurse must always be aware of the clients need for rest. A lack of rest for long periods can cause illness or worsening of existing illness.



# Physiology of Sleep:

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Sleep is a cyclical physiological process that alternates with longer periods of wakefulness. The sleep-wake cycle influences and regulates physiological function and behavioural responses.

## \* Circadian Rhythms:

People experience cyclical rhythms as part of their everyday life. The most familiar rhythm is the 24-hour day-night cycle known as the diurnal or circadian rhythm. Circadian rhythms influence the pattern of major biological and behavioral functions. The fluctuation and predictability to body temperature, heart rate, blood pressure, hormone secretion, sensory activity and mood depends on the maintenance of the 24-hour circulation cycle.

Circadian rhythms, including daily sleep-wake cycles, are affected by,

→ High & Light & temperature

→ External factors such as social activities & work routines.



All persons have biological clocks that synchronize their sleep cycles.

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Some people can fall asleep at 8 P.M., whereas others go to bed at midnight or early in the morning. Different people also function best at different times of day.

Hospitals usually do not adapt care to an individual's sleep-wake cycle preferences. Typical routines cause interruption in sleep or prevent clients from falling asleep at their usual time. If a person's sleep-wake cycle is altered significantly, a poor quality of sleep can result.

Reversal in the sleep-wake cycle such as falling asleep during the day can indicate a serious illness. Disturbance in the sleep cycle can result in,

- Anxiety
- Restlessness
- Irritability and
- Impaired judgement.

The biological rhythm of sleep frequently becomes synchronized with other body functions changes in body temperature. Eg. with sleep patterns. Normally body temperature peaks in the afternoon, decreases gradually, and then drops sharply after a person falls asleep. When the



sleep - wake cycle becomes disrupted, other physiological functions may change as well. Eg. The person may experience a decreased appetite and lose weight. Failure to maintain the individual's usual sleep - wake cycle can adversely influence the client's overall health.

### Sleep regulation:

The mechanisms of sleep are complex and poorly understood. Sleep is controlled by centers in the lower part of the brain, which produce sleep by actively inhibiting the wakefulness.

→ A major factor in regulating sleep is the amount of light received through the eyes. The increasing light signals the hypothalamus to induce gradual awakening from sleep.

→ Another collection of nerve cell bodies in the brain stem, called the reticular formation, is responsible for maintaining wakefulness. The reticular formation is activated by stimuli from the cerebral cortex. Together, these reticular and cortical neurons are called the reticular activating system (R.A.S.). Neurotransmitters associated with excitatory and inhibitory sleep mechanisms include,



- catecholamines
- Acetylcholine
- Serotonin
- Histamine
- Prostaglandins
- L-tryptophan and adenosine → promote feeling of sleepiness.

An Electroencephalogram (EEG) is a machine that is used to record the electrical activity of the neurons in the brain.

Electrical impulses are transmitted from the brain to the machine through electrodes attached to the scalp. These impulses create wave pattern commonly known as brain waves. There are 4 different types of brain waves recorded.

- 1) Alpha waves — High frequency, medium amplitude and irregular waves.
- 2) Beta waves — High frequency, low amplitude and irregular waves.
- 3) Theta waves — High amplitude waves that are common in children but rare in adults.
- 4) Delta waves — Low frequency, high amplitude regular waves common in deep sleep.



The EEG of a waking person differs greatly from that of a sleeping person.

The greater the brain activity, the more rapid, the brain waves on the EEG. While the person is awake, brain waves are very rapid, irregular, low in amplitude, mostly alpha and beta waves.

When a person is relaxed, the EEG shows mostly alpha activity, during sleep, alpha waves disappear. They are replaced by slower higher amplitude delta waves.

### Stage of Sleep:

There are 2 distinct types of sleep:

1. NREM (Non-rapid eye movement): Sleep is produced by withdrawal of neurotransmitters from the reticular formation and inhibition of arousal mechanisms in the cerebral cortex.
  2. REM (Rapid eye movement): Sleep, the brain is highly active neither rapid, low amplitude waves similar to those that occur when a person is awake and alert. REM sleep is primarily initiated by the reticular formation.
- Five stages of sleep (4 NREM and 1 REM) have been identified based on brain activity and physiological characteristics.



## NREM Sleep Stages:

NREM is also called Slow-Wave Sleep (SWS) because it is characterised by the presence of delta waves. NREM is divided into 4 stages, each deeper than the one preceding it. The parasympathetic branch of the autonomic nervous system becomes progressively more dominant during each stage of NREM sleep so, the metabolic rate and all vital signs progressively decrease.

1. Stage I: is a light sleep from which the sleeper can easily be awakened. The person is relaxed, breathing is regular and sleep, the eyelids slowly open and close, and the eyes roll from side to side. The person feels groggy, the eyelids feel heavy and suddenly without notice the person falls asleep. It accounts for about 5% of our total sleep during the night. Brain activity consists of alpha waves, with occasional low frequency theta wave. Duration: 5-10 minutes.



Stage II: is also light sleep. Brain activity slows. The eyes are still, the body processes begin to slow down. Eg: temperature, pulse and B.P decreases. The sleeper is easily roused - Stage II, which usually lasts. In 10-15 minutes helps us to disconnect from outside world.

Stage III: is a deeper sleep. Slow wave activity begins to occur in this stage. The person is difficult to rouse slow eye movement stops, skeletal muscles are very relaxed, and snoring may occur. Duration, 5-15 minutes. A young adult spends about 8% of sleep time in stage III.

Stage IV: is the deepest sleep. In this stage, the delta waves are highest in amplitude, slowest in frequency and highly synchronized. The body, mind and muscles are relaxed. The heart rate is about 25% lower than when awake. It is difficult to awaken someone in stage IV sleep, and if she is awakened the person may appear confused and react slowly. Duration 20-50 minutes, accounts for 11% of sleep time in stage IV.



Stage V: sleep appears to be especially important for restorative process such as protein synthesis, cell division and tissue renewal. During the stage body releases human growth hormone, which is essential for repair and renewal of brain and other cells.

### REM Sleep (Stage V)

About 90 minutes after the onset of sleep and following the deep sleep of stage IV, the brain becomes highly active, and the brain waves resemble those of a person who is fully awake. This is REM sleep, characterised by rapid eye movements, which can often be detected even though the sleepers eyelids are closed. Metabolism temperature, pulse, heart rate and B.P ↑, but the muscle activity and deep tendon reflexes are depressed.

People are more difficult to rouse during REM sleep, however more spontaneous awakenings occur during this stage than any other, for this reason, REM sleep is also called Paradoxical Sleep, When sleepers are successfully awakened, they are usually alert and can react normally.

REM sleep is essential for mental and emotional restoration. Loss of REM sleep impairs memory and learning.



## Sleep Cycles:

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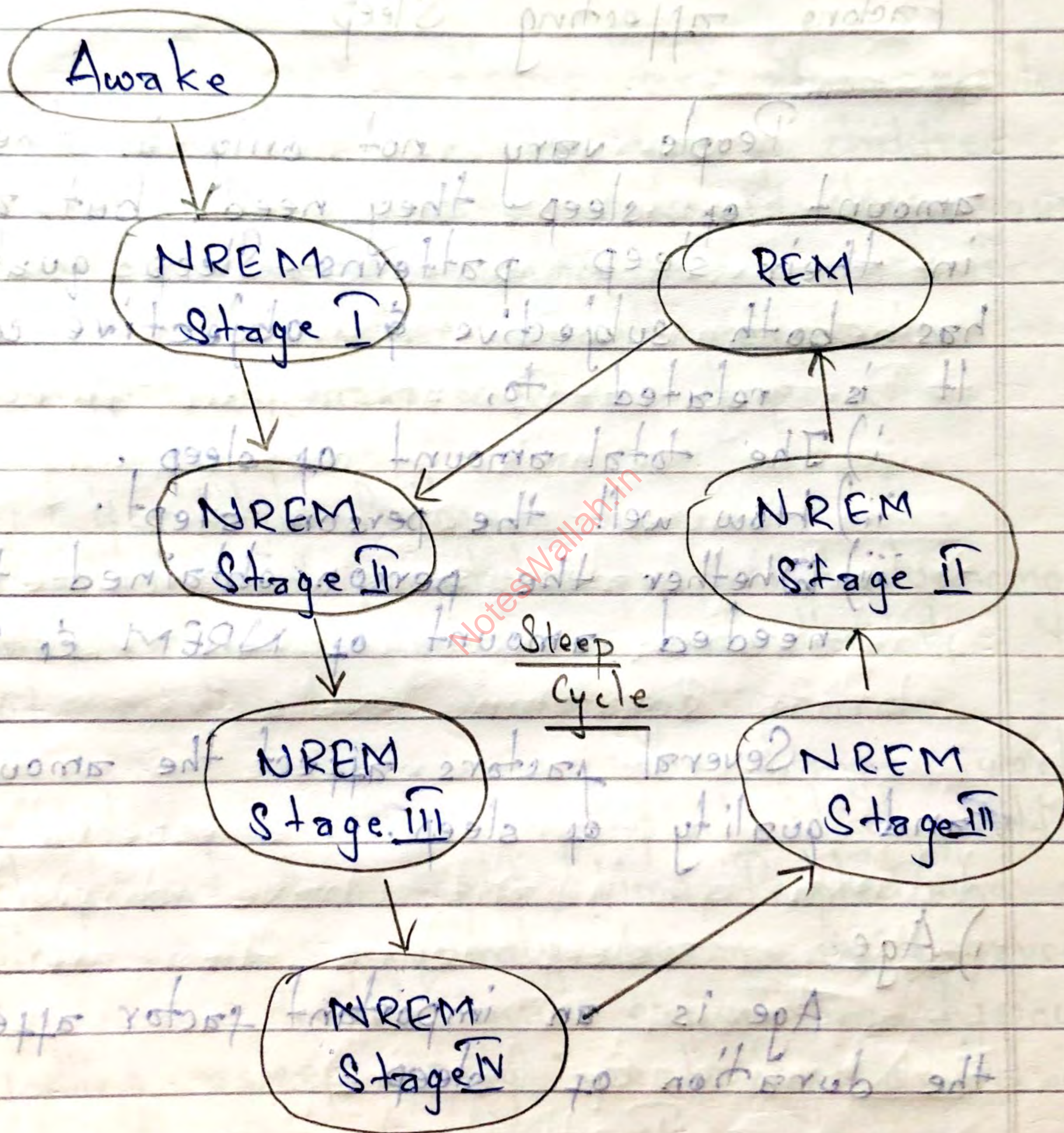
Sleep is cyclic. A sleeper progresses back and forth through lighter and deeper stages of a sleep about - 6 times during an 8-hour sleep.

After falling a sleep in stage I, a person progresses through successively deeper stages of NREM sleep to stage IV. Then the sequence reverses and the person progresses through successively lighter stages to stage I, however, the person enters the R.E.M stage. After REM sleep, the person cycles back through NREM stages I, II and IV and back again from IV to II to REM.

If awakened at any time, however, the sleeper starts the cycle again at stage I.

The NREM/REM sleep cycle repeats 4-6 times throughout the night, depending on the total amount of time spent sleeping. Each cycle lasts approximately 90-100 minutes. The 1<sup>st</sup> REM period may last only about 20 minutes, but with each cycle, the REM period lengthens. In the last cycle REM may last as long as 60 minutes.







# Factors affecting Sleep:

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People vary not only in the amount of sleep they need, but also in their sleep patterns. Sleep quality has both subjective & objective components. It is related to,

- i) The total amount of sleep.
- ii) How well the person slept.
- iii) Whether the person obtained the needed amount of NREM & REM.

Several factors affect the amount and quality of sleep.

## i) Age:

Age is an important factor affecting the duration of sleep.

Age group	Hours per day.
Newborns (Birth-4wks)	16-20
Infants (4wk - 1year)	14-16
Toddlers (1-3yrs)	12-14
Preschooler (3-6yrs)	11-13
Middle & late childhood (6-12 yrs)	10-11
Adolescents (12-18yrs)	8-9
Young adults (18-40yrs)	7-8
Middle age adults (40-65yrs)	7
Older adults (65yrs ↑)	5-7.



Sleep patterns are also affected by age. Eg: Newborns & young children experience prolonged R.E.M sleep. young adults spend about 25% of their sleep in REM. Older adults experience significantly less REM sleep.

## 2) Life Style factors:

Life style factors influencing sleep include work, exercise, nutrition & of medication & drugs.

A person who changes work shifts frequently may find it difficult to sleep at the right time. People who cross time zones frequently because of business travel may experience difficulty falling asleep, early awakening or day time sleeping.

## ★ Exercise:

Promotes sleep if it occurs at least 2 hours prior to bed time. Fatigue from normal physically active day promotes night's sleep. The more tired a person is, the shorter the 1<sup>st</sup> period of R.E.M sleep.



## ★ Foods:

can either promote or interfere with sleep.

→ A meal high in saturated fat near bed time may interfere with sleep.

→ Dietary L-tryptophan, an amino acid found in milk & cheese, may help to induce sleep.

→ Carbohydrates seem to promote relaxation through their effects on brain serotonin levels.

Many people especially children & infants have difficulty falling asleep when they are hungry.

## ★ Nicotine & Caffeine:

Both central nervous system stimulants interfere with sleep.

→ Smokers tend to have more difficulty falling asleep & move easily aroused than non-smokers.

→ People who stop smoking often experience temporary sleep disturbances during withdrawal period.

→ Caffeine blocks adenosine & thereby inhibits sleep.

Individuals vary greatly in their sensitivity to caffeine.



## ★ Alcohol consumption

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If heavy, may hasten the onset of sleep. It disrupts R.E.M and slow wave sleep and may cause spontaneous awakenings with difficulty returning to sleep. In addition, in some people heavy alcohol can prompt nightmares during R.E.M sleep. Alcohol is a diuretic it can interrupt sleep by inducing nocturia.

## ★ Medications:

It can also affect sleep.

- Hypnotics tend to ↑ the amount of sleep while ↓ quality.
- Ambien (Zolpidem tartrate) promotes normal R.E.M sleep & appears to influence sleep quality less than do other hypnotics.
- Amphetamines, tranquilizers and anti-depressants reduce the amount of R.E.M sleep.
- Barbiturates interfere with NREM sleep.
- Opioids suppress R.E.M sleep & can cause frequent awakening.
- Beta-blockers reported to cause insomnia and nightmares.



## \* Illness :

Illness increases the need for sleep and rest. At the same time, it is associated with mental & physical distress can cause sleep problems.

→ Disease symptoms such as fever, pain, nausea & respiratory conditions (eg. dyspnea) can also interfere with sleep.

→ Illness & hospitalization can cause anxiety. Anxiety increases gastric secretions, intestinal motility, heart rate & respirations. All of these factors contribute to restless night. Anxiety also stimulates the sympathetic nervous system, increasing the level of norepinephrine. This decreases stage IV & REM sleep & leads to more awakenings.

→ Depression may be associated either with almost constant sleeping or with insomnia.



# Symbols and Meanings:

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$>$  = Greater than

$<$  = Less than

$\uparrow$  = Increase

$\downarrow$  = Decrease

$\Delta$  = Change

$\sim$  = Approximately

$+$  = Positive

$-$  = Negative

M = Murmur

$2^\circ$  = Secondary to

$\checkmark$  = Check on

$\leq$  = Equal to or less than

$=$  = Equal to

$\geq$  = Equal to greater than

$\text{♀}$  = Female

$\text{♂}$  = Male

$^\circ$  = Degree

$\#$  = Number or bound

$\times$  = Times

@ = At

$\pm$  = Positive or Negative

$F_1$  = First fetal generation

$F_2$  = Second fetal generation

$PO_2$  = Partial pressure of oxygen

$PCO_2$  = Partial pressure of Carbondioxide

$:$  = Ratio

$\therefore$  = Therefore

$\%$  = Percentage



# Prefix and Meanings:-

an - absent, without

ab - away from

ad - towards to

alba - white

albu - both.

## Ambi:-

ante - before

anti - against

auto - self

bi - twice, two

bio - life

brachy - short

brady - slow

brevi - short, slow

chole - bile

chlore - green

circum - around

cirrha - yellow

contra - opposite

cyano - blue

electro - right

di - double

elaso - back

dys - difficult, painful

ecto - outside

endo - within

epi - on, over, upon

erythro - red

eheu - normal, good



gen - origin

hemi - half

hetero - other, different

holo - whole, all

homo - same

hydro - water

hyper - above, excessive

hypo - decreased

inter - between parts

intra - within a part

iso - same, equal

juxta - near

leuko - white

macro - large

Mal - bed

Medi - Middle

Micro - Small

Mono - One

Multi - Many

Neo - New

Nigro - black

Noct - right

normo - normal

nulli - none

olig - deficiency

ortho - straight, erect

oxy - sharp, acute

pan - all

par - beyond, apart

para - beside

path - disease



peri - around  
poly - many, multiple  
post - after  
pre - before  
pseudo - false  
pyo - pus  
pyro - fever, heat  
re - back  
retro - backward  
rube - red  
semi - half  
sclero - hard  
(o) - left  
sub - beneath  
supra - above  
tachy - fast  
tetra - four  
toxic - poisonous  
trans - across  
tri - thru  
xantho - yellow  
xero - dry.

## Suffixes and meanings

algia - pain  
atresia - abnormal closure  
cell - swelling protrusion  
centesis - puncture of actively  
cidle - killer  
cyst - bladder like sac  
dynia - pain  
ectasis - dilation  
ectomy - removal, excision/excessive  
ema - swelling distention  
emesis - vomiting  
emia - blood  
itis - inflammation  
kinesia - movement  
lexia - words  
lysis - setting free, dissolution  
ol - oil or alcohol  
ology - study of



oma - tumor  
ostomy - artificial opening  
otomy - cutting into  
penia - deficiency, lack of  
perry - fixation.  
phagia - swallowing  
philia - love of  
phobia - fear of  
phylaxis - protection  
plasty - repair of molding shaping  
ptosis - drooping  
rrhea - discharge, flow  
sect - cut  
septicemia - infection in the blood  
stasis - state of being outstands till  
tome - instrument for cutting  
tripsy - rubbing or crushing  
uria - urine  
vert - turn.



★ Environmental factors:

It can promote or inhibit sleep.

→ Noise can also inhibit sleep.

→ Any change in the usual environmental stimuli can affect sleep.

Eg. When people who are accustomed to sleeping in a dark room are hospitalized may have trouble falling ~~at~~ asleep because of light outside their window.

Equipment noise or the labored breathing or snoring of a roommate also can interfere with the patient's ability to sleep.



# Records

\* — \*

## Report

A report is one form of orientation because its purpose is to impart information about the existing situation therefore it is used to prepare the personnel for their day's work.

## Definition

The reports are the effective method of communication among the members of the health team. Reports are informations about a patient either written or oral. The reports should be truthful, accurate, appropriate, clean, confidence, brief, complete legible. - ~~report~~

## Objectives

1. Reports are essential tool of communication between the members of health team by giving good reports, the informations about the changes that are taking place with patients general health.
2. Good reports will indicate the efficiency of health team in carrying out their assignment.



3. Good reports will avoid duplication of work.
4. Report will tell why a particular procedure is done or not done.
5. Good report will help the relieving personnel to plan the future care of Patient without wasting time unnecessarily.
6. patient receive better care when the reports are thorough and give all pertinent data.
7. Good reports will tell us about the problems relating to supplies and equipment.

## Types Of Reports

1. Reports Among The Members Of The Nursing Team:
  - Nursing team give a detailed report to the team leader either at the ends of a days work or whenever he/she leaves the ward.
  - A Report is given at anytime when the responsibility of the patient care is turned over from one person to another.

eg: A day nurse report to the night relieving nurse.

2. Reports Between Head nurse And her Assistant:

→ The Assistant nurse is expected to take over the supervision of the patient care whenever the head nurse is absent.



- There can be a great deal of confusion if the head nurse passes important information which she has failed to tell the assistant on her taking leave from the ward.
- In order to avoid such confusion the head nurse keeps on giving information to the assistant nurse about their treatment expect admission, discharge, treatment and changes are the routine of the ward.

### 3. Reports Between the Head nurse and the Nursing Superintendent.

- The day evening and night report are sent to the nursing Superintendent at regular intervals.
- This will include the reports of all seriously ill patient. The newly admitted patient, patient undergone surgery any accident that have taken place the daily Consus.
- She also reports to the nursing Superintendent the problem that are met with the care of the patient.

### 4. Reports to the Physician

- The doctor is the leader of the health team.
- He has all the right to know about the patient.
- The nurse being with the patient all through out the day and night.
- It is their duty to report any visual changes taking place in the patients.



## 5 Reports on Mistakes, Accidents & Complaints

Writing a detailed report on mistakes or accidents that has taken place in the case of patients and with complaints made by the patients or visitors.

## 6. Evaluation Report: monthly evaluation reports of students are sent to the principal of the School of nursing by the head nurses.

### \* Types of Reporting

1. Change of Shift Report: on duty nurse summarize information about assigned client.

eg: nasogastric feed is withheld for a client as

Tracheostomy is planned.

\* To provide Continuity of Care among the Nurse:

- modifications in the plan of care.

- Client or families Fresh complaint

- Current changes in the clients health status. (physiological, psychological changes)

2 Transfer Reports: client transferred from recovery room to medicine ward.

- clients name, age, gender, Surgery

- Current health status



- current plan of care
- Any Special precautions Such as isolation.
- Need for any Special equipment : Tracheostomy set.

3. Incident Report : Incident report are used to document any unusual occurrence or accident in the delivery of client care Such as client falls, medication error, needle stick injury accident emission of ordered therapy. Record the date, time & place where the incidence occurred.

- Submit report as soon as possible
- Describe Specifically what happened in objective terms.

4. 24 hrs Report : This will give information about the clients in the ward. This will include the total number of clients, their names the diagnosis, Seriously ill clients, new admissions, those who had Surgery, those who are discharged.

b) Census Report : This is a report compiled daily for the number of clients. A certain hrs of the day is fixed for the report to be filled out - very often it is done at midnight and the ~~rooms~~ are covered by the night - Supervisors.

c) Birth & Death report : The nurse are responsible for Sending the birth & death reports to the governmental authorities for registration within the Specified time.

d) Accidental Report : Is a brief account of some incidence



Written record covering some observations about a person or about her work is called as Accidental record.

- It should contain the ~~close~~ time of observation, The name of the person who observed
- Accidental notes must include observations of both strong and weak points.

## Importance of Records & Reporting

1. Decision making - Based upon the previous data future planning even decisions can be made.
2. planning client care - records are very helpful for planning nursing care to patients.
3. Communication: Are very important for conveying the information to the employers as well as to the public
4. legal documents: helpful for the legal purpose especially in medical legal cases.
5. Education: medical students learn from the previous records of the patient.
6. Research: Records are the Secondary Source for data collection while conducting research. Investigators.
7. Auditing: Auditor reads records for doing the auditing.
8. Quality assurance monitoring.
9. Vital Statistics, especially for assessing mortality & morbidity rate.



10. Financial billing
11. Accountability & licensing

## Recording

Record is a clinical, scientific, administrative legal document relating to the nursing care given to individual, family or community.

### Methods of Recording

1. Narrative Charting :- This is a traditional method of recording nursing care. It is story format that describes the client's status, intervention treatment and client response to treatment.
2. Source Oriented Charting :- This is a descriptive recording done by each member of health care team on separate records.
3. Problem Oriented Charting :- Is method of documentation that places emphasis on client's problem. It has focus components.



Data Base : data base contains information regarding assessment, history, physical, examination

Problem list : (physiological, Social, Spiritual, cultural, environmental).

Initial plan : Based upon identified problem

Progress Note : Health team members will evaluate and record the progress of clients problem.

S - Subjective data

O - objective data

A - Assessment

P - Plan

I - Intervention

E - Evaluation

PTE Charting : Problem, intervention, evaluation

Focus Charting : As a method of identifying and organizing the narrative documentation of client concerns.



# Types of Record

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Ward record

Nurse's record

Student's record

Staff records

Academic and Administrative Records.

## 1. Ward Record

Patient clinical record

Instruction book

Admission record

Discharge record

Censuses record

Call book

Complaint book

Movement register

Visitors record

Indent book

Round registers

Attendance record

Cinema book

Drug maintenance registers



Treatment record

Stock and issue register

Death register

## 2. Medical / Nurses Record

→ Nurses assessment sheet

Change of Shift record

Nurse's report book

Standardized care plan

Treatment chart

Graphic chart

## 3. Students Record

Application form and other reports

Admission Register

Accumulative health record

Class attendance and leave record

Clinical and field experience, Student rotation

→ Internal assessment register - both theory & practical

→ mark list (state council / Board result)

→ Records of extra-curricular activities

→ <sup>Practical</sup> permanent record book



- permanent cumulative student record, Student details, examination and results, theory hours, Practical experiences, marks, mark class for each student
- Student evaluation - internal practical and Theory

#### 4. Staff Records

- Application Forms and other reports : Concerning Selection and admission Such as references medical reports, including mark lists, certificates, and results of written tests and interview at the
- copy of letter at appointment and any subsequent letter showing change in status.
- Job description / functions.
- Records of The Staff members : Educational qualification, previous experience, any short term educational courses attended, membership on professional Societies and activities, contribution of articles to journals, holding office in organisation, participation in Seminars, Conferences, etc... update every year, periodic evaluation or progress report, leave record, Health record.



## 5. Academic / Administrative Records

- philosophy and curriculum
- Courses Content and Course plan record for each Subject.
- Record of academic requirements.
- Rotation plans for each academic year.
- Record of committees
- Record of the Staffs
- Affiliation records
- Records of educational programmes organised for teaching faculty and Students.
- Annual reports
- written policies
- Statement of budget proposal and allotments.
- Copy of brochure
- inspection / accreditation record
- minutes of Committee meeting.
- Photograph / video / paper cutting of important events.
- Computerised records. (Floppie / CD)

6. Common records - Keeping Room: A variety of Forms are used to document, Clients health Status, problems, intervention, response to interventions, These are the forms.



\* **Nursing History** : Nursing history or nursing assessment form is completed when client is admitted to hospital. This form includes a complete assessment of client to identify relevant nursing diagnosis. Information recorded on this form provides a baseline data which can be compared with changes in client condition. Every hospital has different nursing history form depending upon standard of practice.

\* **Graphic sheet and flowsheets** : Flow sheets have vertical and horizontal columns for recording data, times to show assessment and interventions. This helps to identify change in client's condition. It is used to document vital signs, IV therapy, routine repetitive care such as meals, weight. It is very important to fill the flow-sheets otherwise blank spaces reflect no intervention carried out.

(\*) Flow sheets provide quickly, easy references in assessing client's health status. Very commonly these sheets are used in critical care units for all type of physiological data. Flow sheets are used as supplements to most documentations but not replace progress note.



\* Nurses Progress notes : It includes clients condition, problems, complaints, intervention response to interventions and achievement of goal and outcomes progress notes include following forms.

Nurses notes

Medication

Personal care Flow Sheets

Teaching records

Intake output form

Vital Signs Record

Diabetic Flow sheet

Neurologic assessment

Nurses progress notes can be completed in narrative form.

\* Standardized Case plan : Standardized case plan includes following column.

Diagnosis	Expected outcome	Planning	Implementation	Rationale	Evaluate
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