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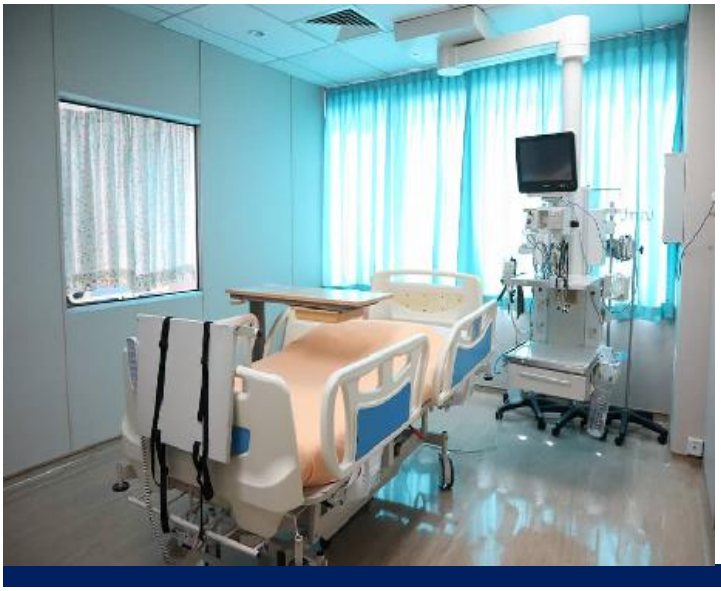
HEALTHCARE & RESEARCH PVT. LTD.



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Annual Documents adequacy & Change Requirements Review

Sr. No	SOP /Doc No	Documents Name	Issue. No	Rev. No	Review Date	Change	Rev No	Revision Date	Reason for Change	Am
1	SDH/CCU/00	Content	1	1	20-Nov-22	No Any Change Review Completed	1	20-Nov-23	No Any Change Review Completed	
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68	SDH/CCU/67	Registers and formats	1	1	20-Nov-22		1	20-Nov-23		
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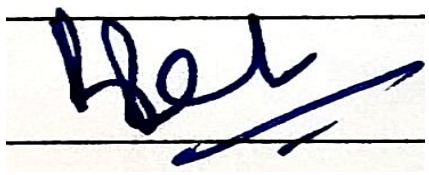
		01 Nov 2021	**20 November 2023**		**20 November 2024**		1			

Reviewed & Prepared By		**Recommended By**	**Approved By**
Dr.Bhagyshree Raut	Mrs.Shraddha suryavanshi	Dr.H.Kalgaonkar	Dr.S.S.Deepak
Intensives ICU HOD	Quality Co-ordinator	Chief Medical Administartor	Chairman & Managing Director

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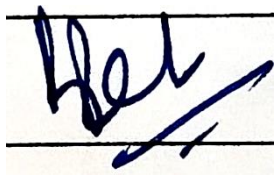
Reviewed & Prepared By		**Recommended By**	**Approved By**
Dr.Bhagyshree Raut	Mrs.Shraddha suryavanshi	Dr.H.Kalgaonkar	Dr.S.S.Deepak
Intensives ICU HOD	Quality Co-ordinator	Chief Medical Administartor	Chairman & Managing Director

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		Issue No	01
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	Amendment Sheet		

Sr.No	Page No	Clause No	Date of Amendment	Amendment Made	Reasons	Signature of Approval Authority
01.						

Recommended By	Signature	Approved By	Signature
Dr. HrishikeshKalgaonkar		Dr. S. S. Deepak	
Chief Medical Administrator		Chairman & Managing Director	

	SAIDEEP HOSPITAL CARDIAC CARE UNIT MANUAL	Doc No	SDH/CCU/00
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3.	Administrative Management
	Admission & Discharge Criteria For Coronary Care Unit
	Managing The Patient During The Non- Availability of Beds
	Procedure For Transfer (In And Out) or Referral of Patients
4.	Safety And Supporting Patient Position Change
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	2. Feeding The Helpless Patients
	3. Insertion of Nasogastric Tube
	4. Nasogastric Tube Feeding/ Gastric Gavage
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6.	Elimination
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	3. Urinary Catheterization
	4. Performing Catheter Care
	5. Bladder Irrigation
	6. Assisting The Use Of Bed Pan
	7. Administration Of Enema

Recommended By	Signature	Approved By	Signature
Dr. Hrishikesh Kalgaonkar Chief Medical Administrator		Dr. S.S. Deepak Chairman & Managing Director	

	8. Bowel Wash
	9. Colostomy Care
7.	Oxygenation
	1. Administration of O_2 Through Mask
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	3. Assessment of SpO_2 By Using Pulse Oxi-meter
8.	Performing Chest Physiotherapy
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12.	Drugs Used In Cardiac ICU
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14.	Wound Care
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30	Permanent Pacemaker Implantation
31	Temporary Pacemaker Implantation
32	Transesophageal Echocardiography
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34	Removal Of Femoral Catheter
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		Issue No	01
	CARDIAC CARE UNIT MANUAL	Rev No.	01
		Date	1 Nov 21
		Pages	1
	Document Title : Organizational Structure		

Recommended By	Signature	Approved By	Signature
Dr. Hrishikesh Kalgaonkar		Dr. S.S. Deepak	
Chief Medical Administrator		Chairman & Managing Director	

1.1. NURSING SUPERINTENDENT

- Overall In-charge of nursing staff.
- Responsible to organize the training programmes as per the need assessment.
- Instruct and advice the supervisors / in-charges on professional matters.

1.2. ICCU SUPERVISOR /IN-CHARGE

1. Management of Patient Care:

- Receiving the patient.
- Assessment of nursing needs and plans.
- Transferring the patients according to the department,
- Maintenance of a safe environment for the patient and personnel.
- Management of emergencies.
- Assign duties.
- Delegate responsibility.
- To follow all standard infection control practices in the department (Refer with the Infection Control Manual)
- Supervise nursing and non nursing functions of the personnel.
- Supervise the safety and comfort of the patients.
- Maintenance of supplies and equipments.
- Information processing
- Check the cleanliness of the unit.
- Supervise housekeeping, attenders and security functioning.
- To take consent and to ensure that for high risk consents are taken by the doctor
- Write the evaluation reports about the personnel working with him/her and send it to the concerned authorities.

2. Teaching Functions:

- Organize orientation programs for new staff.
- Organize formal and informal ward teaching
- Give incidental teaching and education to patients, relatives, nursing students and staffs.
- Conduct in-service education for the personnel working with him/her.

3. Self Development.

- Doing self learning for leadership and team work for setting high standards of patient care.
- Utilizes all learning opportunities that are found around him/her.
- Attend educational meeting at least once in a year.

1.3. STAFF NURSE:

- Receive the patient immediately.
- Connect to cardiac monitor and O_2 if needed
- To take consent and to ensure that for high risk consent s are taken by the doctor
- Check the vital signs and inform the concerned doctor.
- Carry out doctor's orders as prescribed.
- Render direct nursing care to sick patients.
- To follow all standard infection control practices in the department(Refer with the Infection Control Manual)
- Educate the patients/bystanders according to the need.
- Maintain treatment report.
- Hand over the patients to the ward sister.
- Administer all the drugs according to orders of the doctors.
- Ensure sending of laboratory specimens for investigations.
- Take proper care of patient's personal belongings.
- Render pre and post operative care.
- Take rounds with doctors and report patient's condition.

1.4. NURSING ASSISTANTS:

- To assist the nursing staff to carry out the nursing care.
- Help in checking vital signs if asked for.
- Help the nursing staff in carrying out difficult procedures.
- Help the staff nurse and attenders for transferring the patient.
- To follow all standard infection control practices in the department(Refer with the Infection Control Manual)
- Maintain inventory of item in relation to their work area.
- To help nursing staff and attender to send samples for investigations and to collect report.
- To maintain total cleanliness of unit.
- To do any other responsibility assigned by supervisors from time to time

1.5. ATTENDERS:

- ✓ To transfer the patient to and from ICU upon getting orders.
- ✓ To give specimens for investigation and collect lab report.
- ✓ To follow all standard infection control practices in the department
- ✓ To collect all procedure reports.
- ✓ To maintain inventory of items in relation to their work area.
- ✓ To do any other responsibility assigned by the supervisor from time to time.
- ✓ To maintain total cleanliness of unit.

1.6. SWEEPERS:

- To maintain the cleanliness of the unit.
- To clean the floor as soon as a patient is shifted out of the department.
- To follow all standard infection control practices in the department.
- To help the Attenders to shift the patient from the departments.
- To follow the waste disposal protocols strictly.

1.7. SECURITY STAFF:

- Shall inform the staff regarding the entry of the patient.
- They shall be overall responsible for security aspects.
- Shall keep the valuables of the unknown patients, in their custody and hand over them to the Security Supervisors/General Manager who further hand over these to relatives after obtaining a receipt.
- Assist in local shifting of the patient as per the need and urgency

Admission Criteria in CCU

The patients are cared in different patient care units after initial emergency treatment at the Emergency Care Unit as the condition warrants. Many instances the patient may need the admission and care in the specific Intensive Care Units. The decision to admit in specific units shall be done as per the directions of the treating consultants.

Following shall be guidelines for the admission in to the CCUs:

ADMISSION CRITERIA FOR CARDIAC INTENSIVE CARE UNITS:

- Chest pain radiating through left shoulder & neck is suggestive of Myocardial Ischemia.
- Acute breathlessness suggestive of heart failure.
- Syncope within 24 hours presumably of cardiac cause
- Palpitation suggestive of cardiac arrhythmias.
- Severe Bradycardia (HR less than 50/min)
- Severe Tachycardia (HR more than 140/min)
- Severe Hypotension (Systolic B.P less than 90 mm of Hg)
- Severe Hypertension (Systolic B.P more than 180 mm of Hg)
- High Diastolic B.P (Diastolic .B.P. More than 120 mm of Hg)
- Acute Pulmonary Edema.
- Congestive Heart Failure

ECG findings of

- ST Elevation suggestive of myocardial ischemia or infarction
- ST Depression suggestive of Myocardial ischemia or infarction
- T wave inversions with past history of Myocardial Infarction.
- New Onset of LBBB(Left Bundle Branch Block)
- AV(Atrio ventricular) block Gr II and Gr III
- Sinus Bradycardia less than 50 / min
- Ventricular tachycardia
- Supra ventricular tachycardia
- Atrial Flutter
- Atrial Fibrillation with fast ventricular rate.

Diagnosis of

- Acute Myocardial Infarction
- Unstable Angina
- Acute Pulmonary Edema
- Hypertensive Crisis
- Cardiogenic Shock
- Ventricular Tachycardia
- Supra Ventricular Tachycardia.
- Abnormal Heart Rhythms
- Acute Pulmonary Embolism
- Cardiac Tamponade

Discharge Criteria

Significant improvement in above mentioned physiological criteria / conditions and based on consultant / intensivists assessment of the patient condition

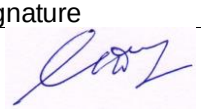
In cases of situations of non-availability of beds in CCU the following order of priority would be implemented for alternative accommodation of patients based on their condition;

- Admission to MICU
- Admissions to HDU

Incase the above alternatives are not available; the following units may be considered for temporary accommodation of patients with adequate nursing and medical care supports.

- CTVS ICU
- Cath Lab Pre and Post Procedure Unit
- Pre and Post Surgery Care Unit

In situations where above mentioned measures cannot be implemented or sufficient patients would be transferred to nearby hospitals in coordination with their respective cardiac care team.

Recommended By	Signature	Approved By	Signature
Dr. Hrishikesh Kalgaonkar		Dr. S.S. Deepak	
Chief Medical Administrator		Chairman & Managing Director	

1. DISCHARGE PROCEDURE:

- Written order from consultant to be obtained
- Inform the patient and relatives about discharge, prognosis and condition of the patient.
- Estimate bill to be informed for arranging the settlement.
- Return extra medications if any before billing to the pharmacy.
- Inform other department regarding any clearance of procedure charges e.g., physiotherapy, laboratory, x-ray, CT, etc.
- Discharge summary to be prepared by the doctor one day prior to discharge.
- Discharge summary to be collected from summary pooling
- Discharge summary is given to all patients leaving the hospital including Discharge against medical advice.
- Explain the details about the usage of medication; follow up, nutrition, exercises, etc.
- Explain the next visit and how to book early in order to prevent waiting in the O.P
- Remove all invasive lines and clean the areas with ether. Cardiac monitoring to be discontinued and electrodes to be removed from the patient's body.
- Help the patient to change the hospital clothing if any, wear their own dresses
- Bill number to be entered in the admission register after the bill is paid
- Return all valuable belongings if kept in safe custody.
- Feedback form to be collected from the patient & relatives after duly filling it.
- Wish him/her a speedy recovery and send him/her with attender and relatives.
- Arrange transportation up to entrance of our hospital by attender using wheel chair or trolley.

1.1. Discharge Against Medical Advice (DAMA):

1. If an adult patient has decisional capacity and the patient fully understands the consequences of leaving the facility against medical advice, the patient must be permitted to leave.

2. The attending health care provider will discuss in detail the consequences of leaving the hospital against medical advice, the possible complications and the risk that may affect the patient and others.
3. If the patient refuses to sign the form, customer relations executive/Counselor shall be called for counseling before the patient leaves the hospital.
4. Where there is a question regarding the patient's mental capacity, the attending health care provider should request a consultation from the senior medical officer to determine whether the patient lacks decisional capacity to refuse treatment and to leave against medical advice.
5. If the patient lacks decisional capacity, the patient may not be discharged against medical advice.
6. The patient's Next-of-kin may not refuse medically necessary treatment and may not request the patient's discharge against medical advice.
7. The parent or legal guardian of a minor patient may not refuse medically necessary treatment or request the minor's discharge against medical advice.
8. If a parent or legal guardian requests the discharge of a minor and refuses to consent for medically necessary treatment, the treatment shall be done if concurring opinion is obtained from the medical superintendent and another senior attending physician.

1.2. Left Against Medical Advice (LAMA):

1. Incase if a patient who has been advised by the consulting doctor for admission `or to undergo further treatment or procedures and if the patient is not willing to get admitted in spite of doctors advice, then the doctor has to explain the patient/ relative about the condition of the patient. For example; if a patient in a critical condition, and not willing to undergo treatment/ procedure/ admission then the doctor has to explain to the patient/ relative about the risk involved.

2. The attending health care provider will discuss in detail the consequences of leaving the hospital against medical advice without necessary treatment/ procedure/ admission, the possible complications and the risk associated may affect the patient and others.

3. Reasons for LAMA: The enquiry shall be made by the staff regarding the reasons and shall mention the reason through incident report.

- Dissatisfaction on the treatment received.
- Dissatisfaction over the facility provided.
- Personal preferences for the treatment and prefer treatment elsewhere
- Financial limitations
- Other reasons

4. In instances where the patient or the bystanders are reluctant to sign the forms, the Nursing staff/Doctor shall document this information in the patient's record.

1.1. PATIENT POSITIONING CHANGE

Purpose:

- To promote comfort to the patient
- To prevent complications caused by immobility
- To stimulate circulation
- To promote normal physiological function

A. FOWLERS POSITION

Purpose:

- To relieve or minimize dyspnea
- To relieve tension or abdominal sutures
- Inform patient of the position, he will be in and provide needed explanation
- Elevate head of the bed

  Fowlers - $45^o – 90^o$

  Semi Fowlers - $15^o – 45^o$

  High Fowlers - 90^o

- Rest head against mattress and small pillow
- use pillow to support arms
- Place a small pillow at lower back
- Place a small pillow under thigh and ankle
- Place a foot board at bottom of patient's feet.

Problems to be prevented in Fowler's position:

1. Posterior flexion of lumbar curvature
2. Hyper extension of neck
3. Oedema of hands and arms
4. Possible dislocation of shoulder
5. Flexion contracture of the wrist
6. Hyper extension of the knees
7. External rotation of hips
8. Pressure on heels
9. Plantae flexion of feet / foot drop

B. ORTHOPNEIC POSITION

High Fowlers position with over bed table placed in the front of the patient. Patient to rest both hands on over bed table / on pillow placed on it and lean forward.

Indications:

1. Patient with severe dyspnea
2. Cardiac patient
3. Position for thoracentesis
4. Patient with chest drainage tubes.

C. SUPINE POSITION / DORSAL RECUMBENT / BACK LYING

- After giving explanation, place patient on back with head of the bed flat.
- Place small rolled towel under lumbar area of the back.

- Place pillow under head, neck and upper shoulders.
- Place trochantec rolls / sand bags parallel to lateral surface of thighs and small pillow under thighs.
- Place small pillow to elevate heels and foot board under bottom of feet.
- Place pillow under pronated arm maintaining upper arm parallel to body
- If patient is paralyzed place hand rolls in hand.

Problems to be prevented in Dorsal recumbent position:

1. Hyper Extension of neck
2. Posterior flexion of lumbar curvature
3. External rotation of legs
4. Hyper extension of knees
5. Plantar flexion
6. Pressure on heels

D. PRONE POSITION

Indications:

1. For patients with pressure sores, burns, injuries and operation on the back.
2. For patients after 24 hours of amputation of lower limbs.
3. Position for renal biopsy.

- After providing explanation about the procedure, roll patient over with arm positioned close to the body with elbows straight and hands under hips. Position the patient on abdomen in centre of bed with bed flat.
- Tune patient's head to one side and support with a small pillow.

- Place small pillow under abdomen below the diaphragm.
- Support arm in flexed position at level of shoulder.
- Support lower legs with pillows to elevate toes.

Problems to be prevented in Prone position:

1. Flexion / hyper extension of neck
2. Hyper extension of lumbar curvature
3. Pressure on breasts, heels and genitals
4. Foot drop

E. LATERAL / SIDE LYING POSITION:

Indications:

- Patients who require periodic position changes

Eg:- bed-ridden patients

- In immediate Post-Operative patients to prevent the risk of aspiration (Except in spinal and epidural anesthesia)
- Provide explanation and prepare patient
- Lower head of bed as low as patient can tolerate
- Position patient to side of bed
- Turn patient to one side (In helpless patient, flex patient's knee that will be away from mattress, place hand on that side to patient's hip and the other hand at shoulder then roll patient to side)
- Place pillow under patients head and neck
- Bring shoulder blade forward

- Position both arms in flexed position. Upper most arms is supported by pillow on level with shoulder.
- Place tuck-back pillow under back
- Place pillow under semi flexed upper leg level at hip, from groin to foot.
- Place sand bag parallel to patient's plantar surface of dependant foot.

Problems to be prevented:

1. Lateral flexion and fatigue of sternocleidomastoid muscle
2. Internal rotation and adduction of shoulder and limited chest expansion
3. Internal rotation and adduction femur and twisting of spine.

F. SIM'S POSITION / SEMI PRONE POSITION

Indications:

1. Vaginal and rectal examination
2. Administration of enema and suppository
3. Position for sigmoidoscopy and proctoscopy

- Provide explanation and prepare patient
- Place head of bed flat
- Place patient in supine position
- Tune patient in to lateral position lying partially on abdomen.
- Place pillow under flexed upper arm supporting arm level with shoulder
- Place pillow under flexed upper leg, supporting leg level with hip
- Place sand bags parallel to plantar surface of dependent foot

Problems to be prevented:

- Lateral flexion of neck
- Internal rotation of shoulder
- Internal rotation and adduction of hip and leg
- Foot drop

G. LITHOTOMY POSITION:

Indications:

1. For vaginal delivery and vaginal examination
2. For rectal surgeries, Eg; Hemorrhoidectomy
3. For vaginal hysterectomy

- Place the patient in supine position
- Place pillow under head and neck
- Place both legs flexed at hip and knee at 90^{o} with legs supported on stirrups.

H. TRENDELENBURG POSITION:

Entire frame of bed tilted with head of the bed down.

Indications:

1. Postural drainage
2. Management of hypotension and shock
3. Patient's with D.V.T

- Explain procedure to patient
- Place patient in supine position

- Lower head end of the bed using bed key. If bed is not adjustable type, use bed block at foot end and tilt entire frame of bed down

1.1. SERVING NORMAL DIET:

Definition:

Meeting the nutritional needs of a patient by serving normal diet

Purpose:

To maintain adequate nutrition of the individual

To promote optimal nutrition

Procedure:

- Wash hands and help the patient to wash hands and face.
- Remove any unpleasant visual stimuli such as commodes, bed pans and urinal from the unit.
- Raise the head end of bed or have the patient sit in a chair.
- Check to be sure that the food corresponds to what the patient has ordered.
- Place a napkin or protective cover over the patient.
- Arrange food in a tray and place on the over bed table.
- Do not hurry the patient through the meal, and use the time to converse with patient, do not discuss stressful events.
- when finished remove the tray encourage the patent to remain in sitting position for at least 15 minutes
- Help the patient to clean up.
- Wash hands.

- Record procedure with time, type of food taken I/O etc.

Recommended By	Signature	Approved By	Signature
Dr. Hrishikesh Kalgaonkar		Dr. S.S. Deepak	
Chief Medical Administrator		Chairman & Managing Director	

1.1. INSERTION OF NASOGASTRIC TUBE

Definition:

Introducing a nasogastric tube through the nose into the stomach

Objectives:

- To feed the patient with fluids when oral intake is not possible.
- To dilute and remove consumed position
- To obtain specimen for Laboratory studies.
- To give gastric gavage
- To administer medications.
- To prevent stress on operated site by decompressing the stomach of secretions and gas
- To relieve vomiting and distention.

Equipment:

1. Kidney trays(2)
2. Mackintosh and towel
3. Cotton tipped applicator
4. Saline
5. Levin's tube or Ryle's tube size
6. Water soluble lubricant such as glycerin or Liquid paraffin
7. Adhesive plaster and scissors
8. Gauze pieces

9. Clean Syringe 10 – 20ml
10. Measuring Cup
11. Bowel with water
12. Suction apparatus
13. Tongue blade
14. Glass of water
15. Penlight

Procedure:

- Check for doctor's order to insert nasogastric tube.
- Explain procedure to patient and reassure throughout
- Collect equipment
- Place the patient in semi fowler's position
- Measure the distance of the tube from the tip of the patient's ear lobe to the nose, and to the tip of xiphoid process.
- Lubricate the measured length of tube (if permitted by hospital policy. In some hospitals, the tube is placed in the bowl of water before insertion, shaken pf excess water and then inserted)
- Insert the tube gently, encouraging the patient to swallow as tube is being inserted.
- Make sure that the tube is in the stomach using the following methods:

i. Immerse the distal end of tube into the bowl of water and check for air bubbles(mandatory, if the patient is deeply comatosed)

ii. Attach the syringe to feed end of nasogastric tube; place diaphragm of stethoscope over left hypochondrium. Inject 10ml of air and auscultate abdomen for gushing sound.

iii. Attach syringe to free end of NG tube and aspirate small amount of gastric contents.

- Once the location of NG tube is ensured, close other end of the tube with spigot; secure the tube on nose using adhesive in 'T' or 'Butterfly' fixtures.
- Position the patient comfortably

a. Replace equipment, wash hands.

b. Document the time and purpose of NG tube insertion.

1.1. NASOGASTRIC TUBE FEEDING/ GASTRIC GAVAGE:

Definition:

Feeding given through tube which is inserted through the patient's nose into stomach, when the patient is unable to take food orally

Objectives:

- To provide adequate nutrition
- To give large amount of fluids for therapeutic purposes
- To assess tolerance of feeds in postoperative patients who have had major surgery and have NG tube in situ

Indications:

- Head and neck injury
- Coma obstruction of eosophagus or oropharynx
- Severe anorexia nervosa
- Recurrent episodes of aspiration
- Increased metabolic need, burns, cancer etc.
- Poor oral

Equipments:

A tray containing:

1. 20 cc syringe
2. Stethoscope
3. Bowl with water
4. Kidney Tray

5. Measured amount of feeds
6. Water
7. Towel
8. Adhesive and scissors

Procedure:

1) Check for the doctor's order-type, amount of feed and any dietary restriction
2) Wash hands
3) Explain procedure to patient. Prepare feed and measure amount
4) Evaluate condition of the patient
5) Position patient in semi- fowler's position.

I. Syringe Method:

1) Place towel around the neck and in such a way that the patient's clothing and bed linen are protected
2) Make sure that the tube is in stomach before giving feeds by aspirating a small amount of gastric content
3) Close tube with spigot
4) Rinse syringe used to aspirate in the bowl of water
5) Pinch/loop the tube to prevent air entry. Remove spigot. Connect the barrel of syringe to the tube
6) Keep syringe about 12 inches above the patient's head.
7) Start feed with a small measured amount of water and then allows feed to slowly and steadily through the tube in such a way that air does not enter tube.
8) Do not force fluid: a low it to flow by gravity
9) At the end of feed, flush the tube by pouring a small measured amount of water.

10) Remove the syringe and replace spigot.

II. <u>Siphon Method:</u>

1) Place towel around the neck and in such a way that the patient's clothing and bed linen are protected
2) Make sure that the tube is in stomach before giving feeds by aspirating a small amount of gastric content.
3) Immerse the tip of tube immediately in prepared fed by avoiding air entry into the tube.
4) Raise fluid container about 12 inches above the patient's head and observe the flow of fluid
5) Once the feed is over, flush the tube with a small quantity of water.
6) Pinch tube and close with spigot
7) Remove container
8) Replace articles
9) Record the time, type and amount of feed including water used for starting and ending feed and any medication (If given).

NB.

1) If 10 ml or more than 10ml of the gastric contents has been withdrawn, return the aspirate to the stomach as repeated depletion of this amount may cause hyponatremia and/ or hypochloremia.
2) Do not give ice cold fluids
3) Warm fluids are to be given warm
4) Keep observing the patient during feeding
5) Change the adhesive periodically
6) Maintain strict I/ O chart
7) Make a fluid plan- from 6 am to 11 pm every 2 hours with variety of fluids.
8) Medication to be given in the middle of a feed

9) Plan in such a way that medication and feeds can be given at the same time, but do not mix feed and medicines together.
10) For adult patient, do not give more than 200-250ml at a time
11) If the patient has to continue to have NG tube feeding after discharge, it must be ensured that a close relative is trained.

1.1. FEEDING THROUGH GASTROTOMY TUBE / JEJUNOSTOMY TUBE

Definition:

Administration of food in fluid form through a gastrotomy or Jejunostomy tube which is placed through a surgical opening into the stomach or jejunum

Purpose:

To maintain nutritional status of a patient whose upper G.I tract is bypassed.

Procedure:

- Identify patient
- Arrange al articles at bed side
- Ascultate for bowel sounds before feeding
- Verify physician order
- Asses gastrostomy site for skin break down irritation on drainage
- Wash hands
- Prepare bag and tubing for feed

a) Connect tubing and bag

b) Fill bag and tubing with feed

- Explain procedure to patient
- Place the patent in fowlers position or elevate head end 30°
- Check placement of gastric tube by aspirate content.

- Initiate feeding

a. <u>Bolus or intermittent feeding</u>

- Pinch proximal end of gastrostomy tube
- Attach syringe to end of tube and elevate to 18 inches above the patients abdomen.
- Fill syringe with feed and allow it to empty gradually and refill it until prescribed amount has been delivered to the patient.

b. <u>Continuous drip method</u>

- Hand gavage bag to IV pole
- Connect end of bag to the proximal end of gastrostomy tube.
- Connect infusion plumb and set rate.
- When tube feeding are not being administered, clamp the proximal end of the tube.
- Administer water via feeding tube, with or between fed
- Rinse bag and tubing with warm water after all bolus feedings are given
- Change gastrostomy exit site dressing as needed
- Dispose off supplies and wash hands.
- Evaluate patient tolerance of tube feeding, and record I/O.
- Observe stoma site for skin integrity
- Record amount and type of feeding, patency of tube and any untoward effects.

1.1. ASSISTING WITH URINAL:

- Asses patients normal urinary elimination habits and knowledge
- Palpate for distended bladder
- Wash hands and wear gloves
- Provide privacy
- Assist the patient to supine position.
- If the patient can stand himself, the patient should hold the urinal and to position penis in the urinal till he complete his voiding.
- Once patient has finished voiding, remove the urinal
- Empty the urinal in to toilet and flush it down.
- Clean the urinal with water. If the patient is infected clean it with 1% sodium hypochlorite solution and return it to patient for further use
- Instruct the patient to wash his hands.
- Remove gloves and wash hands
- Record and report patients ability to use urinal
- Record I/O and record the procedure.

1.1. APPLYING CONDOM CATHETER:

Applying condom catheter to penis for drainage of urine without inserting a catheter into urethra to drain urine in case of an incontinent patient

- Ensure the physician's written order
- Explain procedure to patient
- Collect article.

a. Rubber condom catheter

b. Adhesive tape

c. Urine bag with tubing

d. Towel and wash clothes.

e. Disposable Gloves.

- Wash hand
- Provide privacy
- Assist patient to supine position only genitalia should be exposed.
- Assess condition of penis for skin irritation, excoriation, swelling on discoloration.
- Apply disposable gloves provide perineal care and dry.
- Prepare urinary collection bag and tubing, secure collection bag to the bed frame.
- With non-dominant hand, grasp penis and with dominant hand, roll condom sheath on penis.
- Allow 2.5 to 5cm of space between tip of penis and end of condom catheter

- Wraps the adhesive strip around the outside of the condom in a spiral direction.
- Connect drainage tubing to end of condom catheter and be sure that condom is not twisted.
- Place the patient according to his comfortable position.
- Remove gloves, wash hands.
- Return in 30 – 60 minutes to observe urinary drainage
- Record and report the procedure.

1.1. URINARY CATHETERIZATION:

Definition:

Introducing catheter in to the urinary bladder through urethra using aseptic technique for the purpose of emptying the bladder

Types:

- Intermittent catheterization
- Indwelling catheterization

Purpose:

- To collect urine specimen for diagnostic purposes.
- To determine whether the failure to void is due to retention or suppression
- To measure the amount of residual urine when bladder is incompletely emptied.
- To empty the bladder prior to surgery involving rectum, vagina and pelvic organs thereby preventing injury to the distended bladder.
- To prevent urine from passing over a wound e.g., after repair of the perineum.
- To provide for intermittent or continuous bladder drainage and irrigation.
- To manage incontinency when all other measures to prevent skin breakdown have failed.

Articles:

A sterile tray containing:

- A big steel tray.
- Kidney tray
- A small bowl
- Cotton balls
- Guaze pieces
- Gauze pad
- Artery forceps
- Thumb forceps
- Slit towel/hole towel

A clean tray containing:

- Mackintosh with towel
- Betadine solution
- Xylocaine jelly 2%
- Kidney tray
- Torch if required
- Clean linen as needed
- Syringe 5cc/10cc
- Sterile gloves
- Urobag with tubing
- Foley's catheter with appropriate size
- Paper plaster

Procedure:

- Explain the procedure to the patient.
- Explain the sequence of the procedure and how she can help in the procedure.
- Adjust the position of the bed to the comfortable working of the nurse.
- Move the patient to the edge of the bed near to the nurse
- Place the patient in the dorsal recumbent position
- Cover the patient with a sheet or bath blanket and fanfold the top linen to the foot end of the bed.
- Place the mackintosh and towel under the patient to protect the bed.
- Arrange the articles conveniently at the bedside.
- Focus the light source correctly
- Provide privacy(close curtains around the bed and close the door to the room if possible)
- Scrub hands as for a surgical procedure.
- Lift the draping sheet back towards the abdomen with the elbow to expose only the perineum by the assisting person.
- Open the sterile tray with aseptic techniques. Put on gloves.
- Pour anti septic solution in a bowl
- Take antiseptic solution (betadine). Wipe the perineal area from top to bottom (from perineum to anus) with single stroke.

- If female separate labia using non- dominant hand. Using dominant hand to handle forceps clean periurethral mucosa with cleansing solution. Cleanse anterior to posterior, inner to outer, one swipe per swab discard the swab away from the sterile field.
- Place a hole towel in position.
- Place the sterile kidney tray on the sterile towel in front of the patient. Lubricate the catheter and insert it in to the urethra 2 to 2 ½ inches or until urine flows.
- Ask the patient to take deep breath and relax.
- Keep the open end in kidney tray placed between the patient leg
- Introduce distilled water to inflate the balloon.
- Pull the catheter out to ascertain stability
- Connect the catheter to urobag and keep it below the level of bladder.
- Secure the catheter on thigh with adhesive tape
- Place the patient in supine position
- Replace the articles, wash hands, and record the procedure with date, time and the reason for catheterization.
- Document the color, amount and any abnormality of urine.

Male Catheterization:

- Clean glans penis around urinary meatus with antiseptic solution
- Lubricate catheter
- Keep foreskin retracted
- Maintain sterility of nurse's dominant hand
- Grasp the shaft of the penis with left hand, holding it almost erect
- Maintain grasp on penis till the procedure is completed.
- Using sterile gloves or forceps, insert the catheter in to urethra, advance the catheter 6 – 10 inch or until urine flows
- If resistance is felt at external sphincter, slightly increase traction on penis and apply steady, gentle pressure on the catheter.
- Ask the patient to strain gently(as if passing urine) to help in relaxing sphincter
- When the urine begin to flow advance the catheter another 2.5 cm
- Repositioning foreskin.
- Place the patient in supine position
- Replace the articles, wash hands, and record the procedure with date, time and the reason for catheterization.
- Document the color, amount and any abnormality of urine

1.1. PERFORMING CATHETER CARE:

PURPOSE:

To promote patient comfort

To reduce chances of developing UTI

Prepare necessary equipments and supplies :

1**). A sterile tray containing**

a. Artery forceps

b. Thumb forceps

c. Cotton balls / swabs

d. Bowels for antiseptic lotion and sterile water

2). **A clean tray containing**

a. Clean wash cloth or towel (2)

b. Warm water and soap

c. Antiseptic lotion.

d. Normal saline

e. Mackintosh/ towel

f. Antibiotic Ointment

g. Clean gloves

h. Sterile gloves

i. Drapes

j. Kidney tray

k. Adhesive tape and scissors.

- Explain procedure to the patient
- Provide privacy
- Wash hands
- Position patient

Female: - Dorsal recumbent position with legs flexed

Male: - supine position

- Place mackintosh and draw sheet/water proof pad under the patient
- Expose only the perineal area.
- Wear clean gloves
- Remove anchor tapes to free catheter tubing
- Expose urethral meatus (with non – dominant hand)

Female: Gently retract labia to fully expose urethral meatus and catheter insertion site.

Male: Retract foreskin if patient is not circumcised and hold penis at shaft just below glans

- Clean the perineal area.

Female:

a. Wear clean gloves and use clean cloth, soap and water and clean towards anus.

b. Cleanse catheter first and then meatus, labia minora and majora

c. Be sure to cleanse each side and dry area well

Male:

a. Cleanse catheter first and then clean from urethral meatus till glans penis in circular position.

- Remove clean gloves and wash hands
- wear sterile gloves

Female:

- Retract labia and wipe using sterile cotton swabs dipped in anti septic solution from center to periphery in straight stroke from front to back using one cotton ball for each stroke.

Male:

- retract foreskin and wipe using swabs from center to periphery in circular strokes
- Apply antiseptic ointment (if prescribed) at meatus, and anchor catheter
- Place the patient in his/her comfortable position.
- Remove gloves, dispose of contaminated supplies and wash hands.
- Record procedure

1.1. **BLADDER IRRIGATION:**

- Flushing out / washing out the urinary bladder with specific solution.
- To flush clots and debris out of the catheter and bladder.
- To instill medication to bladder lining.
- To restore patency of the catheter.
- Check physicians order.
- **Prepare the patient**

a. Explain procedure and purpose.
b. Provide privacy.
c. Empty urine bag.

- **Prepare Equipment**
- **Articles**
  - Disposable gloves
  - Mackintosh
  - Sterile drainage tubing and bag in place
  - Sterile antiseptic swab
  - Irrigation solution (Eg: Cold Saline with Betadine solution/0.9% normal saline)
  - Infusion Tubing
  - I.V pole
  - K- Basin.

a. Wash hands

b. Connect the irrigation infusion tubing to the irrigating solution and flush the tubing with solution.

c. Connect the irrigation tubing to the input port of the 3- way catheter. Connect the drainage bag and tubing to the urinary drainage port if not present in place.

d. Irrigate bladder

A. <u>Intermittent Irrigation:</u>

- Instill the prescribed amount of irrigant using a syringe in to the bladder through the urinary catheter.
- If specific amount is not ordered, fill up to 150ml of irrigantin to the bladder.
- Retain the fluid for 3-5 minutes.
- Aspirate the instilled irrigant and discard in the kidney tray.
- Open the drainage tube and monitor the drainage as it flows in to the drainage bag.

B. <u>Continuous Irrigation:</u>

- A continuous infusion of a sterile solution in to the bladder usually by using a three ways, irrigation closed system with a triple lumen catheter. One lumen is used to drain urine, another is used to inflate the catheter balloon and the final lumen carries the irrigating solution. Continuous bladder irrigation is primarily used following genitor urinary surgery (TURP- Transurethral Resection of Prostrate) to keep the bladder clear and free of blood clots/ sediments.
- Adjust the clamp on the irrigation tubing to allow the prescribed rate of irrigant to flow in to the catheter and bladder.
- Monitor to color, clarity, debris, and volume on it flows back in to the drainage bag.
- Tape the catheter securely to the thigh.
- Asses the patient's condition.
- Discard the used articles.

- Wash hands.
- Record procedure.

1.1. ASSISTING THE USE OF BED PAN:

Offering a bedpan to meet the elimination need of a bed ridden patient

To facilitate bowel and bladder elimination

To collect specimen

To give perineal wash

To perform bowel and bladder training

- Assess the patient's condition
- Explain the procedure to patient
- Arrange articles

Bedpan with lid

Mackintosh

Water

Tissue paper

Soap

Towel

K- Basin

- Wear gloves /keep mackintosh towel/ water proof drape under the patient.
- Encourage patient to assume normal position for defecation if possible
- Elevate the head end of bed if patient is alert, unless contraindicated.
- provide privacy

- Place dry bedpan under the patient buttocks by turn the patient to one side and place the bedpan firmly close to buttocks, roll the patient on to the bedpan.
- Keep the patient covered well to avoid embarrassment
- Ensure that bed pan is in proper position and the patient buttocks are resting on the rounded shelf of the regular bedpan**.**
- Give enough time to pass motion/ Urine.
- Clean the patient or assist to clean.
- Remove the pan by lifting the patient carefully
- Avoid the bedpan from under the patient dragging
- Cover the pan immediately
- Dry mackintosh if wet
- Clean the articles and replace

Record the frequency of movement (bowel) and any abnormalities observed.

1.1. ADMINISTRATION OF ENEMA:

Introduction of fluid / solution in to the large intestine for removing feces and cleansing the bowel

- To relieve constipation or fecal impact and gaseous distention
- To prevent involuntary defecation during surgery
- To promote visualization of the intestinal tract during radiographic or instrumental examination
- To reduce fever or cerebral oedema
- Before delivery, surgery and specific procedures
- To induce rectal anesthesia

Solutions Used :

- Hypertonic - solution phosphate, fleet enema
- Hypotonic - Tap water
- Isotonic- Physiological saline (one teaspoon of table salt in 500ml of tap water)
- Other - 3 - 5ml of concentrated soap solution in 1000ml of water.

Equipment:

- Enema can with tubing
- Clamp
- Rectal tube
- Vaseline / Lignocaine Jelly
- Rag piece
- K-basin (2)

- Soap and water
- Jug with water
- Solution ordered
- Mackintosh
- Bed pan
- IV stand
- Asses the following details
- Doctors order for type of enema
- General condition of patient
- Diagnosis
- Ability and limitation concerning the patients movements
- Explain the procedure to the patient
- Provide privacy
- Place the patient in left lateral position
- Buttocks to be positioned closed to the edge of bed
- Roll draw sheet to the opposite side
- Keep both the K- basins on mackintosh
- Attach tubing to enema can and clamp tube, prepare solution add one teaspoon of soap jelly to one pint of water. Prepare 500 – 1000ml solution for an adult.
- Check temperature of the water attach rectal tube to tubing and clamp tube.

- Pour solution into the can.
- Suspend the can with solution on IV stand and adjust height to 18 inches from the bed.
- Lubricate 3 - 4 inches of rectal tube with anesthetic jelly.
- Use gauze pieces to separate the patient's buttocks and visualize the anus clearly.
- Insert the rectal tube gently to a distance of 3 - 4 inches in an adult.
- Do not force the tube deeper. Encourage the patient to take a deep breath while inserting the tube open screw clamp.
- Hold rectal tube in place and allow the fluid to flow.
- Periodically note the level of fluid in the can and make sure there is free flow.
- Encourage the patient to take deep breath during administration of fluid.
- Stop procedure temporarily if patient has an urge to defecate, develops abdominal cramps or if the solution level rises in enema can.
- Administer 500 – 1000 ml of solution for adults and 250ml for children.
- Clamp tubing and use rag pieces to remove rectal tube.
- Instruct the patient to hold solution for 10-15 minutes
- Detach the rectal tube and place in the K-basin
- Be the patient in supine position and assist to toilet or provide a bedpan.
- Assist the patient to wash perineal area if patient is unable to do so.
- Keep the patient dry and comfortable.
- Clean and replace equipments.

- Record the time, type of solutions, quantity used and the effect of enema.

1.1. BOWEL WASH

Washing out of colon using large quantities of solution

- Get written order
- Explain procedure to patient
- Wash hands and wear gloves.
- Prepare solution at the required temperature
- Attach the tubing and the rectal tube with the funnel
- Lubricate the tip of rectal tube about 4 inches.
- Fill the funnel with the solution and expel air from the tubing. Pinch the tube or close it with a clamp.
- Maintain left lateral position and bring the patient close to the edge of bed. Separate the patient buttocks to visualize the anus clearly and insert the tip of tube about 4 inches the patient exhales deep breath.
- Lower the funnel and allow the fluid to run in, continue to pour more fluid in to the funnel before the funnel is empty.
- When 200 – 300ml of fluid has gone inside pinch the tube, before the funnel is completely empty and inverts it into the bucket.
- When the return flow ceases, turn the funnel upright and pour more solution. Then raise the funnel and repeat the procedure.
- Stop if patient develops any discomfort or continue until all the fluid ordered has been given or return flow is clear.
- Discard the used articles (Except Reusable)

- Assist patient to the toilet / bedpan
- Perineal care if needed
- Disinfect the funnel, tubing, catheter etc.
- Remove gloves and wash hands.
- Record the types of procedure and result with date and time.

1.2. COLOSTOMY CARE:

Definition:

Maintenance of hygiene by regular emptying of colostomy bag and cleaning colostomy site

Purpose:

- To prevent leakage
- To prevent excoriation of skin , stoma
- To observe stoma and surrounding skin
- To teach patient and relatives about care of colostomy and collection bag.

Articles:

- Rubber Sheet
- Long Sheet
- Towel, clean gloves, cotton swabs and gauze pieces.
- Wash Cloth, water in basin, soap in dish
- Disposable colostomy bag with clamp
- Stoma measuring guide
- Zinc oxide ointment, skin barrier, bed pan.

1.1. COLOSTOMY CARE PROCEDURE

- Explain procedures
- Assemble the necessary equipments near by
- Wash hands and wear gloves.
- Provide privacy and assist patient to comfortable position (fowlers, semi fowlers, standing or sitting position)
- Empty the partially filled appliance in to the bed pan if it is a drainable pouch.
- Remove the appliance slowly beginning at the top while keeping the abdominal skin taut.
- If any resistance is felt use warm water or adhesive solvents to facilitate removal.
- Use tissue paper to remove any excess stool from the stoma. Cover stoma with a gauze pad.
- Gently wash and pat dry the peri-stomal skin. Mild soap and cleansing agent may be used (according to the agency policy).
- Apply paste type skin barrier (zinc oxide) if required and allow the paste to dry for 1-2 minutes.
- Apply skin barrier and appliance together.

a. Select size of stoma opening by using the measurement guide

b. Trace same size circle on the back at the centre of the skin barrier.

c. Use scissors to cut an opening ¼ or $^{1}/_{8}$ inches large than stoma.

d. Remove the backing to expose sticky side

e. Remove gauze and covering stoma

f. Place barrier and pouch over the stoma and gently press on to the skin. Hold the pouch in place for 5 minutes.

- Close the pouch
- Dispose off used equipment, and wash hands.
- Document procedures, with condition.

1.1. ADMINISTRATION OF O_2 THROUGH MASK:

- Determine the need for O_2 therapy
- Check physicians order for rate, device to be used and concentration
- Assess risk factors for O_2 administration
- Explain procedure to patient
- Post "No Smoking" signals on patients door
- Set O_2 equipment and humidifier.
- Check the O_2 cylinder and confirm the oxygen level
- Ensure the regulated O_2 Pressure is $4kg/cm^2$

a. Fill humidifier up to the mark using distilled water

b. Attach flow meter to the O_2 source

c. Attach humidifier to base of flow meter

d. Regulate flow meter to prescribed level, after attaching tubing and face mask to humidifier.

- Guide mask to patients face and apply it. Fit the metal pieces of mask to conform to shape of nose.
- Secure elastic band around patients head.

Inspect patient and equipment for flow rate, clinical condition, level of water in humidifier etc.

- Wash hands
- Document relevant data in patient record.

1.1. STEAM INHALATION:

Inhalation of warm, moist air into the mucous membrane and respiratory tract

Effects:

1. Relieves inflammation and congestion of the mucous membrane of the upper respiratory tract.
2. Relieves irritation (throat tickle) by moistening air
3. Loosens secretions and stimulates expectoration.
4. Relieves spasmolic breathing.
5. Relaxes muscles and thus relives coughing.
6. Prevents excessive dryness of the mucous membrane

Procedure:

- Take water at the medium level of the steam inhaler and allow boiling water until it is steaming and this place it on a table. Sit down and lean over the pot, close the eyes, drape a towel over the head and inhale the steam in to the nose, sinuses and lungs.
- Continue the treatment for 15-20 minutes. Observe the patient during procedure.
- Give chest and back physiotherapy and encourage patient to bring out sputum by coughing. Instruct the patient to remain in the bed for 1-2 hours.
- Clean and Replace articles.
- Record procedure.

SUMMARY	
DISTRIBUTION	

1.1. ASSESSMENT OF SpO_2 BY USING PULSE OXIMETER

- Explain procedure to patient
- Select an appropriate site for application of the sensor

a. Use the patient index, middle or ring finger

b. Check the proximal pulse and capillary refill of the pulse close to the site.

c. If circulation at site is inadequate, the earlobe may be considered

- Use toe only if lower extremity circulation is not compromised.
- Use the proper equipment, according to the size of site and age of patient
- If fingers selected, remove nail polish and nails.
- Apply the probe securely to the skin; make sure that light emitting sensor and the light receiving sensor are aligned opposite to each other.
- Connect the sensor probe to the pulse oximeter and check operation of the equipment.
- Set the alarms on the pulse oximeter, set alarm limits (high & low)
- Check O_2 saturation at regular intervals as ordered.
- Remove sensor on a regular basis and check for skin irritation or signs of pressure.
- Record the saturation level.

As appropriate finger sensors are not available for children and neonate, so adhesive sensors can be used.

SUMMARY	
DISTRIBUTION	

1.1. PERFORMING CHEST PHYSIOTHERAPY

PROCEDURE:

- Identify patient and check instruction of physiotherapy
- Explain procedure to patient
- Wash hands and dry.
- Identify the lobe with reduced air entry by Auscultation.
- Instruct patient to perform diaphragmatic breathing.
- Position Patient
- Cover area with towel.

Percussion:

Clap with cupped hands over the chest wall for 1 – 2 minutes in each lung area. Precuss from

a. Lower ribs to shoulder on the back

b. Lower ribs to top of chest in front

Avoid clapping over spine, liver, kidney, spleen, breast, clavicle or sternum

Vibration:

- Remove towel and place hand, pan down on chest area to be drained with one hand over the other and fingers together or place hands side by side.
- Instruct patient to inhale deeply and exhale slowly through pursed lips and perform abdominal breathing.
- Tense all the muscles of hand and arm and vibrate the hand especially heels with moderate pressure during end phase of exhalation
- Stop vibration and relieve pressure on inspiration.
- Vibrate for 5 exhalations over each lung area which is affected. After 3 - 4 vibrations, encourage patient to cough / huff and expectorate sputum in to sputum mug.
- Allow patient to rest for several minutes
- Auscultate with stethoscope for change in breath sounds.
- Repeat percussion and vibration cycles according to patient's tolerance and clinical condition usually for 10 – 15 minutes.
- Wherever possible try to do clapping on posterior and lateral walls of thorax (especially if the patient is at risk for Bronchospasm or increase in Intra cranial Pressure)
- Wash hands assist patient to comfortable position
- Assist with oral hygiene.
- Record procedure

SUMMARY	
DISTRIBUTION	

1. PERFORMING POSTURAL DRAINAGE

Postural drainage is the drainage of secretions by gravity from various lung segments by the application of specific positions. Secretions in the major airways such as the trachea and the main bronchi are usually coughed out or can be effectively removed by suctioning. However the air passages in the peripheral lung segment require postural assistance to drain their secretions into this main airway.

The lung segments involved and the airway draining it, determine the positions selected for the postural drainage. The segment of the lung which is uppermost is the section that will drain the retained secretions in particular positions. Assessment of the areas involved is determined by auscultation, percussion and by x-rays. Abnormal breath sounds such as rales can be heard on auscultation. Based on these examinations, the client is placed in a particular position that will allow drainage of segmental bronchi by gravity.

Indications for Postural Drainage:

- Pre-operative clients with excessive secretions by any cause such as chronic bronchitis, smoking etc.
- Post operative clients with excessive secretions.
- Bronchial or lobar pneumonia.
- Lung abscess.
- Any disease process in which abnormal sputum is produced and the client is prone to recurrent infection.
- When the client is unable to initiate a voluntary cough or an effort to expel the sputum e.g., infancy, unconsciousness, or debilitation.

- When musculo-skeletal abnormalities interfere with the effective expulsive cough mechanism e.g., quadriplegia

Supportive Techniques to Postural Drainage:

1. Medications:

Prior to postural drainage, broncho-dialator medicines may be administered to encourage drainage and expulsion of secretions.

2. **Hot Steam Inhalations**:

Steam when inhaled, provides warmth and moisture to the mucus membranes which facilitates the expectoration of secretions. The warmth increases the blood supply and hydration of the respiratory membranes. It also relaxes the smooth muscles of the respiratory passages. The moisture liquefies the secretions and helps its expulsion from the air passages.

3. Cupping Percussion:

Percussion is a technique of forcefully striking the chest wall over the involved area with the cupped hands. The percussion loosens the secretions in the affected area of the lung. The percussion must be performed directly over the affected area with both hands in a rhythmical pattern. A hollow, deep sound is produced when this is done correctly. The hands must not slap the chest wall. Areas to avoid in percussion are, over the spinal column, the breasts, the kidneys and areas of increased pain. Percussion is done for one or two minutes and is usually confined to the most congested areas.

Positions used for postural drainage:

1. Drainage of the anterior upper lobe:

Sitting in an upright position in a chair provides drainage of the uppermost lung segments. To drain the anterior upper segments, the client needs to bend his body backward at about an angle of 30^0. This position can be achieved by placing the client to sit on a chair with an inclined back support or by placing the client in a semifowler's position.

2. Drainage of the posterior upper lobe:

To drain the posterior upper segments the client needs to bend forward about 30^0 angles. This position can be achieved by providing a cardiac table with pillows on it in front of the client to lean over it or by making the client sit on a chair which is kept on the table and make him lean over the table.

3. **Drainage of the lateral upper segments:**

The client needs to bend sideways about 45^0 first to one side then to the other. Leaning on an arm rest of a chair support this position.

4.Drainage of the right middle lobe:

To drain the middle lung segment, the client is positioned flat on the bed on his left side with a pillow under his chest. The right shoulder and the body are swung forward.

5.Drainage of the left middle lung segment:

The left lung has no middle lobe. To drain the left middle lung segments, the client is positioned flat on his right side, with a pillow under his chest.

6.Drainage of an anterior basilar segments:

Drainage of the lower lobes can be accomplished by positioning the client's bed in Trendelenberg position or by elevating the client's hips with the yse of several pillows. The hips must be positioned higher than the shoulders. The client lies on his back and the shoulders should rest flatly against the mattress.

7.Drainage of the posterior basilar segments:

To drain the posterior basilar segments, the side lying position is used as described in drainage of the middle lung segments. The hips should be elevated higher than the shoulders.

8.Drainage of the lateral basilar segments:

To drain the lateral basilar segments, the side lying position is used as described in drainage of the middle lung segments. The hips should be elevated higher than the shoulders.

9.No specific instructions:

When no specific instructions are received, the client is placed in such a position that gravity is used to help in the drainage from the bronchi. This is accomplished by placing the client with the head lower that the chest and the chest are lower than the body. One way of assuming this position is by asking the client to lie in a prone position across the bed with the waist at the edge of the bed. The upper part of the body is supported by the arms, which rest on a chair or a low stool at the side of the bed. A receptacle for the collection of sputum is placed on the stool in front of the client.

GENERAL INSTRUCTIONS

i. The nurse who assists the client for postural drainage should obtain specific instructions from the physician or the physiotherapist, so that she/he can position the client properly.

ii. The postural drainage is contra-indicated in clients.

a. When cyanosis and exhaustion are increased by its use.

b. Clients with increased intracranial pressure and head injuries.

c. Clients with unstable vital signs.

d. Clients who cannot maintain a particular position even with assistance.

iii. Since postural drainage may stimulate gagging and vomiting, it is best carried out before meals. If the client is to have postural drainage once a day, it should be done in the morning when he awakes. At this time, secretions which have been accumulated during the night can be removed. If postural drainage is ordered several times a day, plan it before meals. If the client has taken meals, wait for two hours to give the postural drainage.

iv. The length of time of the treatment is also important. Some clients can tolerate long treatments less frequently. Others require shorter treatment more frequently. The nurse, therefore, should evaluate the client's tolerance by observing the stability of the vital signs, the color, breathing patterns and the signs of fatigue.

v. The positions used for the postural drainage is also important. Some clients may become dyspnoetc with the trendelenberg position but may tolerate a moderate tilt with pillows.

vi. Periodically the clients are encouraged to cough up any paper hankies and paper bags or sputum cups are provided at the bedside for their disposal.

vii. After the postural drainage, the nurse should provide the client with a mouth wash for cleansing and comfort.

viii. The supporting measures such as steam inhalations, cupping, etc., may be used, before the client is placed for the postural drainage. These measures help the client to loosen the secretions.

Record the procedure with date and time on the nurse's record. Record the amount of sputum drained from the client and the response of the client to the therapy

SUMMARY	
DISTRIBUTION	

1. NEBULIZATION

DEFINITION:

Nebulizer: A nebulizer is an electrically powered machine that turns liquid medication into a mist so that it can be breathed directly into the lungs through a face mask or mouthpiece.

Nebulization: Nebulization is defined as a technique of administering medication in the form of mist (0.5 micron) into the respiratory tract.

PURPOSE

- To provide standard nursing care for babies who receive nebulization
- To enable growth of neonatal team both personally & professionally.
- To liquefy secretions of upper &lower respiratory tract
- To expectorate the sputum.
- To relieve tracheal Edema post extubation

EQUIPMENTS

1. Nebulizer kit with mask or mouth piece.
2. Nebulizer machine oxygen or air supply.
3. Prescribed medication.
4. Normal Saline
5. Disposable syringe 2cc.
6. Container with disinfectant &tissue towels.

PROCEDURE:

- Identify patient , check physician order
- Explain procedure to patients
- Monitor heart rate before and after treatment for patient using bronchodilators drugs.
- Place the patient in semi fowlers position/sitting
- Add prescribed amount of medication & saline (usually 2 cc) to the nebulizer
- Connect the tubing to the compressor; a fine mist/fumes from the device should be visible.
- Place mask on patient face to cover patient's mouth and nose and instruct him to inhale deeply and slowly through mouth, hold breath and then exhale several times.
- Observe expansion of chest to ascertain that patient is taking deep breath
- Instruct the patient to breath slowly and deeply until all the medication is nebulized
- On completion of the treatment encourage the patient to cough after several deep breaths.
- Observe patient for any reactions to the treatment.
- Record medication used and description of secretion.
- Replace the articles.
- The tubing and mask is used individually.

SUMMARY	
DISTRIBUTION	

1.1. I.V CANNULATION:

DEFINITION: The process of puncturing a vein, with a needle (cannula) using aseptic technique to administer fluids, medications, to draw blood specimen, to administer, nutrition, blood and blood products.

ARTICLES:

- IV cannula of appropriate size
- Spirit cotton
- Dry cotton
- Kidney tray
- Dynoplaster/ tegaderm
- Splint
- Sterile water
- Sample collection bottle
- Betadine
- Tincher
- Tourniquet
- Gloves
- Syringe **2 micro/ 5 micro**

PROCEDURE:

- Identify client
- Explain procedure
- Wash hands
- Select site
- Dilate vein

a. Place extremity in a dependant position (lower than heart)

b. Apply a tourniquet firmly about 15-20cm above the site, it must be tight enough to obstruct venous flow but not tight enough to obstruct arterial supply.

c. If the vein is not sufficiently dilated.

- Massage / stroke the vein distal to the site.
- Opening and closing the fist
- Using gravity (holding arm down).
- Lightly tap the vein
- Wear clean gloves
- Clean site with antiseptic swab in circular motion for several inches
- Permit solution to dry
- Insert the cannula by holding needle at 15-30° angle with level up, insert the catheter through the skin and into vein in one thrust. A sudden lack of resistance is felt as needle the vein
- Once the blood is seen in the lumen, reduce the angle of catheter till it is almost parallel to the skin and advance the needle and catheter approximately 0.5 to 2cm.

- Remove the needle slowly while inserting the cannula inside the vein. When fully inside, loosen tourniquet.
- Tape the catheter using I.V dressing.
- Label the site with date and time.
- Remove gloves and wash hands.
- Discard all soiled equipment appropriately
- Document all relevant data and report any observation.

SUMMARY	
DISTRIBUTION	

1.1. ADMINISTRATING IV INFUSION:

2. Administer according to the physician's order.

3. Calculation: Drops/ Minute= Total amount to be infused x drop factor/Time in minutes

4. Identify the patient, check for any contraindications

5. Prepare patient by explaining procedures

6. Wash hands and wear gloves

a. Check infusion container for sediments, turbidity, change in colour and expiry date

b. Remove tubing from the packet and straighten it out

c. Slide the roller clamp along tubing to just below the drip chamber close the clamp.

d. Leave the ends of needle covered with plastic cap until infusion is started.

Spike the solution container:

a. Remove protective cover from entry point of the IV bag / bottle.

b. Add any medications if required using syringe and needle.

c. Remove cap from the insertion spike

d. Spike the solution container.

7. Label the solution with date, time, flow rate (Total volume to be infused in milliliters x drop per milliliter (depends upon the bore of the needle) / total minutes per day)and if any medication is added.

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications

8. Hang solution bottle/bag on the IV pole. The IV pole should be adjusted so that solution bag is 18-24 inches above from patient head.

9. Partially fill the drip chamber by squeezing it till half full

10. Prime tube.

a. Release the clamp, and let solution run through the tubing till all air bubbles are removed. Tap tubing if necessary with finger to remove air bubble. Sticking on sides of tubing.

b. Connect I.V tubing to IV cannula and set required drip rate.

c. If an infusion pump is used, set it according to the rate prescribed.

21. Label IV tubing with date and time of attachment.

22. Discard all disposable item

23. Wash hands.

24. Document procedure, type of solution, medication added, flow rate(Total volume to be infused in milliliters x drop per milliliter(depends upon the bore of the needle) / total minutes per day), and patient response.

25. Assess frequently for swelling, pain, blanching coolness of surrounding skin, leaking or bleeding from site etc.

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications

Name of drug	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
1. ANTIARRHYTHMIC DRUGS				
*Amiodaron (Trade Name) (Contone)	**MODE OF ACTION:** *Increases the refractory period of the heart.	Intialdose IVamiodarone 150mg over 10 to 15 mts..	*Cardiovascular: Hypotension, A.V blocks,	*Observe base line data (apical& radial pulse, B.P.,

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	*Decreases the heart rate. *Increases the cardiac output. *Lowers the peripheral & coronary vascular resistence. **INDICATIONS:** *Resistant supraventricular tachycardia. *Ventricular arrhythmias. *After DC shock to maintain sinus rhythm. **CONTRAINDICATIONS:** *Bradycardia, A.V block, Hypotension.	followed by infusion 1mg/mt over 6hrs., 0.5mg/ mt over 18 hrs.(as per doctors order)	bradycardia. *G.I. Anorexia, nausea, abdominal pain. Miscellaneous Tremor, peripheral neuropathy, hallucinations, visual disturbances, corneal microdepostis.	ECG) before administration *Record body weight daily. *Check the apical pulse & radial pulse for full one minute before administering each dose. *Withhold the drug if the pulse is below 60/ minute. *Check the blood pressure on the same arm & on the same position. *Maintain intake/ output

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				record. *Watch for signs of hypokalaemia. Monitor serum potassium levels. If low, potassium is administered orally or intravenously. Low serum potassium enhances ectopic pacemaker activity. *When elective cardioversion is scheduled, the drug is stopped one or two days

Name of drug	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
*Digoxin (Trade Name)	**MODE OF ACTION:** *Increases the force of myocardial contraction (positive inotropic). *Lengthens the refractory period of atria & ventricles. *Depresses the S.A. mode and prolongs conduction through A.V. node. **INDIACTIONS:** *Congestive cardiac failure. *Paroxysmal &nonparoxysmal supraventricular tachycardias.		*Cardiovascular: Sinus bradycardia, S.A block, A.V. block, paroxysmal atrial tachycardia, PVCs, Ventricular tachycardias and ventricular fibrillation. *G.I : Anorexia, nausea, vomiting, epigastric pain, diarrhea, excessive salivation. *CNS: Drowsiness, fatigue, headache, confusion,	*Obtain base line data(apical& radial pulse, B.P., ECG) before administration . *Record body weight daily. *Check the apical pulse & radial pulse for full one minute before administering each dose. *Withhold the drug if the pulse is below 60/ minute. *Check the blood pressure on before the procedure.

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
			disorientation, delirium. Visual effect Blurred vision, double vision, flashes and flickering lights, haloes, white or coloured dots, disturbances of coloured vision.	the same arm & on the same position. *Maintain intake/ output record. *Watch for signs of hypokalaemia. Monitor serum potassium levels. If low, potassium is administered orally or intravenously. Low serum potassium enhances ectopic pacemaker activity. *When elective

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				cardioversion is scheduled, the drug is stopped one or two days before the procedure.
***Lidocaine Hydrochloride (Xylocard)**	**MODE OF ACTION:** *Reduces myocardial excitability *Suppresses the myocardial automaticity. *Increases the refractory period. *Maintain normal sinus rhythm. **INDICATIONS:** *Ventricular tachycardia. *Premature ventricular	Initial dose 50 to 100 mg bolusmay need infusion depends on doctors order.	*Cardiovasular Lengthening of P-R interval and widening of QRS complex , Bradycardia, Cardiac arrest, Hypotension & collapse *Hypersensitivity Anaphylactic	*Before administration , obtain baseline data (B.P, pulse, respiration, temp & E.C.G) for future reference. *Continuous ECG

Name of drug (Trade Name)	Mode of action, indications & CONTRAINDICATIONS	Dosage & Route of administration	Side effects & Toxic effects	Nursing administration implications
	contractions. *Heart blocks of varying degrees *Known hypersensitivity to local anesthetics.		reactions, Urticaria. *CNS Drowsiness, dizziness, tinnitus, visual disorders, twitching, tremors, convulsions, disorientation, agitation etc. Respiratory depression & resp. arrest. *Others: Infections & venous thrombosis, at the site of injection.	monitoring during . *Test dose to detect hypersensitivity to the drug. *Oral administration along with food to prevent G.I upset. *Periodic blood count & renal function tests in case of prolonged therapy. *Stop the drug when signs of cardio toxicity occur such as prolonged P-R

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				interval, widening of QRS complex, frequent PVCs & ventricular tachycardia. *Watch for hypotensive effect of the drug; frequent observation of blood pressure. *Be prepared to resuscitate the patient if needed. *Slow down the rate of administration if the patient shows sign of disorientation & agitation. *Stop the drug

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				infusion if the patient develops varying degrees of atrioventricular heart blocks.
***Diltiazemhydrochloride**	**MODE OFACTION:** *Inhibits calcium from entering myocardial and vascular smooth-muscle cells, thereby depressing myocardial and smooth-muscle contraction and decreasing impulse formation and conduction velocity. As a result, systolic and diastolic pressures decrease. **INDICATIONS:** Angina pectoris and vasospastic (Prinzmetal's) angina; hypertension; supraventricular tachyarrhythmias; atrial flutter	When giving I.V., dilute in dextrose 5% in water or normal saline solution. • Give I.V. bolus dose over 2 minutes; a second bolus may be given after 15 minutes. •Administer continuous I.V infusion at a rate of 5 to 15	*CNS: headache, abnormal dreams, anxiety, confusion, dizziness, drowsiness, nervousness, psychiatric disturbances, asthenia, paresthesia, syncope, tremor *CV: peripheral edema, bradycardia, chest pain,	*Check blood pressure and ECG before starting therapy, and monitor closely during dosage adjustment period. *Withhold dose if systolic pressure is below 90 mm Hg. *Monitor for

Name of drug (Trade Name)	or fibrillation **CONTRAINDICATIONS** • Hypersensitivity to drug • Atrial flutter or fibrillation associated with shortened refractory period (Wolff-Parkinson-White syndrome, with I.V. use) • Recent myocardial infarction or pulmonary congestion • Cardiogenic shock, concurrent I.V. beta-blocker therapy, ventricular tachycardia, neonates (with I.V. use, because of benzyl alcohol in syringe formulation) • Sick sinus syndrome, second- or third-degree atrioventricular block (except in patients with ventricular pacemakers) • Hypotension (systolic pressure below 90 mm Hg)	mg/hour. When giving by continuous *I.V. infusion, make sure emergency equipment is available and that patient has continuous *ECG monitoring with frequent blood pressure monitoring. • Don't crush tablets or sustained-release capsules; they must be swallowed whole. • Withhold dose if systolic blood pressure falls below 90 mm	hypotension, palpitations, tachycardia, arrhythmias, heart failure *EENT: blurred vision, tinnitus, epistaxis *GI: nausea, vomiting, diarrhea, constipation, dyspepsia, dry mouth *GU: urinary frequency, dysuria, nocturia, polyuria, gynecomastia, sexual dysfunction *Hematologic: anemia, leukopenia, thrombocytopeni	signs and symptoms of heart failure and worsening arrhythmias. * Supervise patient during ambulation.

Name of drug (Trade Name)	Mode of action, indications & contra indications	Hg, diastolic pressure is below 60 mm Hg, or apical pulse is slower than 60 beats/ minute.	a *Metabolic: hyperglycemia *Musculoskeletal: joint stiffness, muscle cramps *Respiratory: cough, dyspnea *Skin: rash, dermatitis, flushing, diaphoresis, photosensitivity, pruritus, urticaria, erythema multiforme *Other: unpleasant taste, gingival hyperplasia, weight gain, decreased appetite, Stevens-Johnson syndrome	Nursing implications

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
*Midaz 2. SEDATIVES	**MODE OFACTION:** Suppress CNS stimulation at limbic and subcortical levels by enhancing the effects of gamma-aminobutyric acid, an inhibitory neurotransmitter. **INDICATIONS** *To induce general anesthesia *Continuous infusion to initiate sedation *Preoperative sedation, anxiolysis, and amnesia *Anxiolysis and amnesia before diagnostic, therapeutic, and endoscopic procedures or anesthesia induction **CONTRAINDICATIONS** *Hypersensitivity to drug, its components, or other benzodiazepines *Acute closed-angle glaucoma *Allergy to cherries (syrup	*0.3 to 0.35 mg/kg I.V. over 20 to 30 seconds *When rapid sedation is required, give loading dose of 0.01 to 0.05 mg/kg I.V. slowly; repeat dose q 10 to 15 minutes until adequate sedation occurs. To maintain sedation, infuse at initial rate of 0.02 to 0.10 mg/kg/hour	*Use cautiously in: *pulmonary disease, heart failure, renal impairment, severe hepatic impairment *obese pediatric patients *elderly or debilitated patients *pregnant or breastfeeding patients *children and neonates.	***Nursing considerations*** ***Assessment*** ***History:** Hypersensitivity to benzodiazepines; psychoses, acute narrow-angle glaucoma, shock, coma, acute alcoholic intoxication with depression of vital signs; elderly or debilitated patients; impaired liver or kidney function; pregnancy, lactation * **Physical:** Body weight; skin—color, lesions;

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				preparation) orientation, affect, reflexes, sensory nerve function, ophthalmologic examination; P, BP; respiratory rate, adventitious sounds; bowel sounds, normal output, liver evaluation; normal output; liver and kidney function tests, CBC **Teaching points** *This drug will help you to relax and will make you go to sleep; this drug is a potent amnesiac and you will not remember

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				what has happened to you *Avoid taking alcohol or sleep-inducing or OTC drugs before receiving this drug. If you feel that you need one of these preparations, consult your health care provider. *You may experience these side effects: Drowsiness, dizziness (these may become less pronounced after a few days; avoid driving a car or engaging in other dangerous activities if

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				these occur); GI upset; dreams; difficulty concentrating, fatigue, nervousness, crying (it may help to know that these are effects of the drug; consult your health care provider if these become bothersome). *Report severe dizziness, weakness, drowsiness that persists, rash or skin lesions, visual or hearing disturbances, difficulty voiding.
***Pavlon**	**MODE OF ACTION:** It is a non- depolarization neuromuscular blocking agent	I.V.: 2-4mg	Side effects are rare, but with neuromuscular	Same for all sedatives

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	of short to medium duration, which acts by competing for cholinergic receptors at the motor end- plate, with acetylchlorine.		blockers, histamine release can cause • Bronchospasm	
	Duration of action is about 20-30 minutes. **INDICATIONS:** Intravenous: Adjunct to general anesthesia, to facilitate endotracheal intubation & to provide skeletal muscle relaxation during surgery or mechanical ventilation.		• Dysrhythmias • Hyper- or Hypotension	
***Phenergan**	**MODE OF ACTION:** It is a phenothiazine derivate with H1- receptor antagonistic action & with little dopaminergic action. Action starts in 20 minutes. It lasts for 4 – 6 hours **INDICATIONS:** Allergic conditions like acute or chronic urticaria& other	Capsule: 25 mg at bed time / 6.25-12.5mg thrice a day.	Drowsiness, sedation, dryness of mouth, urinary retention, constipation, glaucoma, blood dyscrasias, photosensitivity reations.	Same for all sedatives

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	dermatoses, allergic rhinitis, pruritis, angioedema, allergic conjunctivitis. Pre- operative or obstretic sedation, for prevention & control of nausea & vomiting associated with anaesthesia& surgery. **CONTRA INDICATIONS:** Hypersentivity, GI & Urinary obstruction.			
***Morphin**	**MODE OF ACTION:** Binds to opiate receptors in the central nervous system (CNS). Through this mechanism, the perception and response to painful stimuli is altered and a generalized CNS depression will also be produced. **INDICATIONS:** *Severe pain (pain in sickle cell crisis, pain associated with surgery preoperatively and postoperatively, pain associated with trauma, cancer, renal colic,	Oral: 10 – 50mg 2-4 times a day. Inje ction:10mg	Confusion, Sedation, Floating feeling, Hallucinations, Headache, Unusual dreams, Blurry vision, Bradycardia, Constipation, Nausea and vomiting, Flushing, Itching, Physical dependence, Psychological	Same for all sedatives

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	ureterolithiasis) *Pulmonary edema *Pain associated with myocardial infarction (MI) *Adjunct to general anesthesia **CONTRAINDICATION** *Hypersensitivity *Concurrent administration of MAOIs		dependence	
***Fentanyl**	**MODE OF ACTION:** *Synthetic opioid related to the phenlpiperidines. It is a μ-receptor agonist & is about 100 times more potent than morphine as a analgesic. It exerts its principle pharmacological effects on the CNS. After I.V. fentanyl the patient remains drowsy but conscious & his cooperation can be commanded. Respiratory depression is marked but predictable. Peak analgesia with I.V occurs at 5 minutes.	I.M.: 50-100mcg, 30-60 minutes before surgery. I.V.: 2-4mcg/ kg at induction of anaesthesia. Adjunct to regional anaesthesia: 50-100mcg/kg I.M. or slow I.V. over 1-2 minutes.	Nausea, vomiting, itching, dizziness, mental clouding, dysphoria & hypertension. GI symptoms like abdominal pains due to spam in high doses, respiratory depression, neuroexcitation& seizures.	Same for all sedatives

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	Elimination t ½ is 3-4 hours **INDICATIONS:** Used as a parental narcotic analgesic supplement in general or regional anaesthesia, perioperatively to inhibit painful stimuli. It is also used as transdermal patches or epidural injection for severe chronic pain reflief as in cancer. In labor for epidural analgesia. **CONTRA INDICATIONS:** Known hypersensitivity to fentanyl. Patients with severe compromised respiratory function.			
	3. INTOTROPE			
***Adrenalin**	MODE OF ACTION: *This is a potent synthetic catecholamine & produces an effect similar to that resulting from stimulation of sympathetic nerve fibres; It comprises:	During cardiac arrest , may inject iv adrenaline 1mg Infusion 5mg	*Cardiovascular Tachycardia with palpitation, angina pain. *CNS Restlessness,	*Obtain baseline data on vital signs. *Monitor the heart continuously on cardiac

Name of drug (Trade Name)	Mode of action, Indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	*Positive Inotropic action. *Positive chronotropic action. *Positive dromotropic action. *Causes vasodilation in skeletal muscles. *Relaxes the smooth muscles of bronchi, trachea and GI tract. INDICATIONS: *Adams- stokes syndrome ventricular arrhythmias. *Adjunct in the management of shock. Management of	into 50cc NACL via syringe pump depends on doctors order	anxiety, insomnia, tremor, convulsions, vertigo, dizziness, headache, flushing *G.I. Nausea, vomiting, anorexia Others Polyuria, dysuria, retention of urine.	monitor. *Monitor the urinary output hourly. *Stop the infusion if the patient develops angina pain, tachycardia or ventricular arrhythmias.
***Nor Adrenalin**	**MODE OF ACTION:** *This is a naturally occurring catecholamine and a precursor of norepinephrine. *Increases- strength of myocardial contraction. *Increases the cardiac output without increasing myocardial	*I.VI . Initially 2to 5 mcg/ kg/ minute are usually administered. This may be increased gradually to 20 to 50 mcg/ kg/	*Cardiovascular : Tachycardia, ectopic beats, palpitation, angina pain, pallor, hypertension *CNS	*Obtain baseline data on vital **signs.** *CVP monitoring may be necessary. *If hypovoleaemi

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	oxygen consumption. *Dilates the renal blood vessels & increases the urinary output. *Increases the systolic blood pressure. **INDICATIONS:** *Management of cardiogenic, traumatic & septic shock. **CONTRAINDICATION:** *Tachycardia, ventricular arrhythmia.	minute according to the patient to drug administration. Infusion 4mg into 50ccnacl and infuse as per doctors order	Nervousness, vertigo, tremor, insomnia, restlessness Others Nausea, vomiting, dysuria, glycosuria, tissue destruction if extravasation occurs.	a is present fluid volume deficit should be corrected before dopamine is administered. *I.V. infusions are administered via microdrip sets. Drug should be well diluted. 200 mg/ 5ml diluted in 500 ml. *Use large veins to prevent extravasation of drug.
***Dopamine Hypo chloride**	**MODE OF ACTION:** *This is a naturally occurring catecholamine and a precursor	*I.V. Initially 2 to 5 mcg/ kg/ minute are	*Cardiovascular : Tachycardia, ectopic beats,	*Obtain baseline data on vital signs.

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
(Dopamine)	of norepinephrine. *Increases the strength of myocardial contraction. *Increases the cardiac output without increasing myocardial oxygen consumption. *Dilates the renal blood vessels & increases the urinary output. *Increases the systolic blood pressure. **INDICATIONS:** *Management of cardiogenic, traumatic & septic shock. **CONTRAINDICATION:** *Tachycardia, ventricular arrhythmia.	usually administered. This may be increased gradually to 20 to 50 mcg/ kg/ minute according to the patient to drug administration. Dilution for continuous infusion 200mg in to 50cc NACL	palpitation, angina pain, pallor, hypertension *CNS Nervousness, vertigo, tremor, insomnia, restlessness Others Nausea, vomiting, dysuria, glycosuria, tissue destruction if extravasation occurs.	*CVP monitoring may be necessary. *If hypovoleaemia is present fluid volume deficit should be corrected before dopamine is administered. *I.V. infusions are administered via microdrip sets. Drug should be well diluted. 200 mg/ 5ml diluted in 500 ml. *Use large veins to

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
*Dobutamine				*Obtain baseline data on vital signs. *CVP monitoring may be necessary. *If hypovoleaemia is present fluid volume deficit should be corrected before dopamine is administered. *I.V. infusions are administered via microdrip sets. Drug should be well prevent extravasation of drug.

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				diluted. 200 mg/ 5ml diluted in 500 ml. *Use large veins to prevent extravasation of drug.
4. THROMBOLYTICS				
***Streptokinase**	**MODE OF ACTION:** Act by breaking down the fibrin frame work of fresh work of fresh blood clots. **INDIACTIONS:** Acute MI with coronary occlusion not more than 4 hours old. Deep venous thrombosis not more than 12 hours old. Pulmonary embolism. Occlusion of central retinal artery or vein.	*I.V. Dose is individualized. S.K. is continued till fibrinogen degradation products (FDP) level is achieved above 40 units. Usual dose is 7.5 to 15 lakh IU over 30 to 60 minutes followed by	*Systemic Haemorrhage is the chief complication; common sites are G.I tract, urinary tract etc. *Hypersensitivity to the drug characterized by chills, fever, asthma, urticaria, rhinitis, lacrimation,	*Proper selection of the patient is necessary for the desired effect of the drug: *Age less than 60 years. *History of chest pain less than 4 hours old. *Chest pain

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	Embolism of peripheral arteries.	heparin & oral anticoagulants.	anaphylactic reactions marked with a drop in blood pressure. *Local Irritation, mild pain, haematoma formation & the site of injection, skin necrosis. *Hypersensitivity to the drug will be marked with SK.	not responding to I.V or S/I nitroglycerine. *S- T elevation with or without Q wave formation. *No history of streptokinase therapy during the previous 6 months. *No history of CVA or Peptic ulcer. *No head injury or surgery done in the previous one month. *Blood

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				pressure not more than 200/100 or less than 90/70 mm/Hg. *Obtain the following laboratory values: SGOT, CPK-MB, thrombin time. *Partial thromboplastin time. *Serum fibrinogen level. Hb, PCV, Blood group. Platelet count, BT, CT. Serum

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				potassium. *Administer corticosteroids prophylactically 10 minutes before the administration of SK. If allergic reaction occurs, discontinue the drip temporarily & administer corticosteroids together &with antithistamines. *Once the symptoms subside, therapy with

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing Implications
				SK can be continued. *I.V. lidocaine may be started to help in the coronary vasodilation. *Patient should be constantly monitored on a cardiac monitor & watched for the occurrence of V. PVCs, V. Tach&frillations. *Defibrillator should be kept ready for immediately resuscitation

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				of patient. *Every course of SK therapy should be followed by heparin & oral anticoagulant therapy to safeguard the patient against rethrombosis. *SK should be stored in a refrigerator. After dissolving in normal saline it can be stored upto 24 hours without losing its potency. When dissolving the

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
Heparin Therapy	**MODE OF ACTION:** *Inactivates thrombin and prevents conversion of fibrinogen to fibrin; thus it inhibits coagulation of blood. *Inhibits reaction that lead to clotting of blood; thus clotting time is prolonged. *Prevents the extension of thrombi in the blood vessels and thus prevents the occlusion of blood vessels. **INDICATIONS:** *Treatment of thrombophletis involving deep veins and pulmonary embolism. *Prevention of embolic episodes, e.g. atrial fibrillation with embolization. Disseminated	I.V./S.C. Dosage is individualized; it depends upon the mode of administration, laboratory values of partial thromboplastin time(PPT) and / or clotting time. Dilution for infusion 25000 in to 50cc NACL	*Systemic Haemorrhage is the chief complication; common sites are G.I. tract, urinary tract etc. *Hypersensitivity to the drug characterized by chills, fever, asthma, urticaria, rhinitis, lacrimation, anaphylactic reaction marked with a drop in blood pressure. Local	*Obtain vital signs, laboratory values of clotting time & values of clotting time before initiating the therapy. *Ongoing assessment include vital signs, signs of haemorrhage, haematoma formation, hypersensitivity. *Keep ready

drug, care should be taken to avoid froth in the solution.

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
	intravascular coagulation. *Adjunct in the treatment of coronary occlusion and MI with thrombolytic agents. *Prevention of clotting in cases of arterial and heart surgery. **CONTRA INDICATIONS:** Patient with haemorrhagic disorders, peptic ulcer, open wounds, recent surgery, pregnancy, liver, biliary tract & kidney diseases, I.U.D. insertion.		Irritation, mild pain, haematoma formation & the site of injection, skin necrosis	antidote for heparin(protamine sulphate 1%) *Heparin is administered either intravenously or subcutaneously. *Avoid I.M. injections. *When given simultaneously, the site is rotated. *Heparin is diluted with normal saline solutions for IV infusions. For continous infusions, flow rate may be

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				regulated by using a microdrip set. *Antiplatelet drugs (e.g. aspirin) should be given cautiously to prevent bleeding. *When heparin is to be followed by oral therapy, oral anticoagulant should be started at least 48 hours before stopping the heparin injections. *Oral anticoagulant

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	Nursing implications
				will take several days to reach its peak effectiveness. *Patient teaching is very important when the patient is on anticoagulant therapy. *They should take the drug regularly & they should be told to report nasal bleeding, skin discolourations, black stools, blood in the urine, excessive menstrual

Name of drug (Trade Name)	Mode of action, indications & contra indications	Dosage & Route of administration	Side effects & Toxic effects	bleeding, haematemesis etc. Nursing implications

SUMMARY	
DISTRIBUTION	

13.1. **ADMINISTRATION OF BLOOD/ BLOOD PRODUCTS:**

- Check for the physician's orders, verbal orders to be discouraged.
- In case of verbal orders get the orders written before transfusion.
- Provide the requisite information to the blood bank in the printed request form.
- Check availability of the blood / blood products with the blood bank.
- Sent the request through the patients relatives (to discuss the need for replacement).
- Explain the procedure to the patient and get the informed consent
- We can give multiple transfusions in the same sitting with one consent**,** if the transfusions are given over two days or hours apart, then a separate consent is required.
- Obtain the blood from the blood bank.
- Inform the doctor before initiation of the blood transfusion
- Check the blood bag for any clots (if so, don't transfuse)
- Verify the patients name/Age/IP No./Blood Group and type with case sheet and blood bag.
- 2 nurses/a physician should independently verify all identifying information on the report of the cross match, unit label and the patient's identification.
- Encourage the patient to empty the bowel and bladder, get a urine sample (for baseline study, in case of a reaction. label as 'urine sample before transfusion').

- Blood should be allowed to keep at the room temperature for 30-45minutes before it is administering to the patient.
- Once the blood bag is exposed to the atmosphere (the unit is opened), it should be discarded.
- Never store blood bag in ward refrigeration.
- Inspect the blood product (Two staff members must involve, do cross check).

- Identification number
- Blood group and type
- Expiry date
- Compatibility
- Patient's name
- Abnormal clots, excess air
- Signature of the technician

- Warm the blood if required with towels
- No attempt is made to heat the blood
- Check baseline vital signs before transfusion
- Take urine sample before the transfusion
- Wash and dry hands.

- Wear disposable gloves
- Insert IV cannula in a large peripheral vein (18 Gauge) as per IV protocols

- Start the blood transfusion.

- Adjust the rate of flow 5 to 10ml/minutes during the first 30minutes of the transfusion to detect any complications. The subsequent flow rate depends upon the condition of the patient and the need for rapid infusion.
- Check vital signs every 10 minutes for first 30 minutes (Never leave the patient alone).
- Assess the patient every 30 minutes, check vitals and record
- Watch for any reaction; if so stop the transfusion immediately.
- Otherwise complete transfusion.
- Discard the blood bag and transfusion set as per the protocol.
- Record the blood transfusion with following details

- Remove label from the bag and stick it in to the case record
- Volume transfused
- Time of administration from …… To …….

Precaution:

- Never administer the medications through the same line.
- Start a new IV line (other than used for medication).
- Always use a new blood transfusion set for each transfusion. Never reuse the blood set.
- Take 3 ½ to 4 hours for each transfusion, unless it is an emergency
- Cover the bag with a towels when it hangs on the IV pole
- Gently rotate the blood bag to prevent clumping
- Never give cold blood**,** never heat the blood directly.

12.3. MONITORING FOR TRANSFUSION REACTION

Sl.No	Reaction	Signs & Symptoms	Nursing Management
1.	Allergic reactions	Laryngeal edema, itching, Rashes, fever, chills and nausea.	• Stop transfusion immediately and keep vein patient with normal saline • Notify physician immediately • Administer antihistamine IV and corticosteroids as necessary
2.	**Febrile reaction** Fever developing during transfusion	• Fever and chills • Head ache • Malaise • Nausea • Diarrhoea	• Stop transfusion immediately and keep vein open with Normal saline. • Notify physician • Treat symptoms
3.	**Heamolytic Transfusion reaction** Incompatibility of blood product	• Immediate onset(5-15minutes) • Facial flushing • Fever chills • Headache • Lowback pain • Shock	• Stop infusion immediately and keep vein open with Normal saline • Notify physician immediately • Obtain blood sample from site • Obtain first voided urine

		• Chest pain • haemoglobulinuria	• Treat shock if present • Send remaining blood in bag, tubing and filter to lab. • Draw blood sample for serologic testing and sent urine specimen to lab • Large quantities of fluid are given to promote diuresis and to counteract shock.
4.	**Circulatory Overload**	• Dyspnoea • tachycardia • Dry cough • Pulmonary edema	• Slow /stop infusion • Monitor vital signs • Notify physician • Maintain I/O chart • Oxygen inhalation to relieve dyspnoea. • Start diuretics • Examine the patient neck veins for fullness • Check the patient pulse every 15 minutes for tachycardia(heart is overworking as a pump)
5.	**Bacterial Reaction**	• Fever • Hypertension • dry, flushed skin • abdominal pain	• Stop transfusion immediately • Obtain culture and return blood bag to lab • Monitor vital signs

			• Notify physician • Administer antibiotics immediately.

If reaction Occurs:

- Immediately stop transfusion.
- Notify the physician
- Maintain the IV line patient with normal saline. Do not use any solution containing dextrose.
- Obtain vital signs, including O_2 saturation.
- Monitor patients vital signs at least every 15 minutes
- Read the blood bag to ensure that correct unit was given to the correct patient.
- Administer medications as prescribed
- If patient develops dyspnoea, administer oxygen immediately
- If any shock occurs
- Place the patient in Trendelenburg position
- If patient become unresponsive Start CPR
- Obtain two blood samples from the other arm.
- Return the blood bag with transfusion set along with the post transfusion blood sample and urine sample of patient (before & after).
- If reaction occurs fill the blood transfusion reaction form and return to the blood bank immediately.

13.4. Quantity of Blood Products In one unit:

S. No	Types of blood Products	Amount
1	Fresh Blood	350 – 450 ml
2	Plasma	170 – 210 ml
3	Packed cell	300-350 ml
4	Cryoprecipitate	20-30 ml
5	Platelets	30 – 60 ml

SUMMARY	
DISTRIBUTION	

14. WOUND CARE

14.1. WOUND DRESSING:

Nurse's responsibility in the wound dressing:

- Check the diagnosis and the general condition of the patient.
- Check the purpose for which the dressing is to be done.
- Check the condition of the wound- the type of the wound, the type of suturing applied, the type of dressings to be applied etc.
- Check the physician's orders for the type of dressing to be applied and the specific instructions, if any, regarding the cleaning solutions, removal of sutures, drains and the application of medications etc.
- Check the patient's name, bed number and other identifications.
- Check the nurse's record to find out the general condition of the wound.
- Check the consciousness of the patient and the ability to follow instructions.
- Check the articles available in the unit.

Articles:

Sterile Tray Containing:

1. Artery forceps -1

2. Dissecting forceps-2
3. Scissors-1
4. Small bowl-1
5. Cotton balls, gauze pieces, cotton pads etc.
6. Vaseline gauze in sterile containers
7. Ribbon gauze in sterile containers
8. Swab sticks in a sterile container
9. Slit or dressing towel.

Unsterile tray containing:

- Cleaning Solutions as necessary
- Gloves, mask and gown
- Ointment and powders as ordered.
- Bandages, binders, pins, adhesive plaster and scissors
- Plastic bag or appropriate waste container for soiled dressing.
- Mackintosh and towel.
- Kidney tray

Preparation of the patient and the environment:

- Identify the patient and explain the procedure to win the confidence and co-operation. Explain the sequence of the procedure and tell the patient how he can co-operate in the procedure.
- Provide privacy with curtains and drapes.

- Apply restraints, in case of children
- As far as possible, avoid meal timings; the dressings may be done either one hour before the meal or after meal.
- Offer bedpan or urinal prior to the dressing.
- Give some analgesics if the patient is in pain e.g; before dressing an extensive burned wound.
- See that cleaning of the room is done at least one hour before the expected time of the dressing.
- Shave the area if necessary to remove the hairs. Removal of the adhesive is more painful if the hair is present.'
- Place the patient in a comfortable and relaxed position depending on the area to be dressed.
- Give proper support to the body parts, if the patient has to raise and hold it in a position for a considerable time or call assistance of the ward in-charge.
- See that the patient's room is in order with no unnecessary articles. Clear the bedside table or the cover bed table, So that there is sufficient space to set up a sterile field and to arrange needed supplies and equipments.
- Close the door and windows. Put off fan.
- Adjust the height of the bed for the comfortable working of the doctor or nurse so that they have neither too stoop nor over reach to do the dressing. Bring the patient to the edge of the bed.
- Call for assistance if necessary e.g.; to do the unsterile procedures, to transfer sterile suppliers etc.
- Protect the bed with a mackintosh and towel.
- Expose the part as necessary.
- Untie the bandage or adhesive and remove them. Make sure that the dressing is not removed from its place until the nurse is ready to do the dressing(after washing his/her hands)

- Turn the head of the patient to one side, So that the patient may not see the wound and get worried about it.

Procedure:

- Tie the mask.
- Wash hands thoroughly.
- Put on gown, gloves etc. as necessary.
- Open the sterile tray spread the sterile towel around the wound.
- Pick up the dissecting forceps and remove the dressings and put in an appropriate waste container. Using saline solution to remove the dressing, if it is adhesive with wound.
- Discard the dissecting forceps in the kidney tray.
- Note the type and the amount of drainage present.
- Ask the assistant to pour small amount of cleansing solution in to the bowl.
- Clean the wound from the centre to periphery, discarding the used swabs after each stroke.
- After thorough cleaning of the wound, dry the wound with dry swabs using the same precautions. Discard the forceps in kidney tray.
- Apply medications if ordered.
- Apply the sterile dressings. Apply the gauze pieces first, and then the cotton pads. Reinforce the dressing on the dependent parts where the drainage may collect.
- Remove the gloves and discard it.
- Secure the dressing with bandage or adhesive tapes.

- Help the patient to dress up and to take a comfortable position in the bed. Change the garments if soiled with drainage.
- Replace the bed linen
- Remove the mackintosh and towel
- Take all articles to the utility room. Discard the soiled dressings in to an appropriate waste container. Re-set the tray and sends for autoclaving. Replace all other articles to their proper places. Send the soiled linen to the laundry bag for washing.
- Wash hands. Record the procedure on the nurse's record with date and time. Record the condition of the wound, the type and amount of drainage, condition of the sutures etc. on the nurse's record. Report to the surgeon any abnormalities found.
- Return to the bedside to assess the comfort of the patient. Special instructions in the care of the wound are to be communicated to the patient.
- Tidy up the bed and the patient unit.
- Check all wound dressings every shift

14.2. INSTRUCTIONS WHILE APPLYING DRESSING/BANDAGES/BINDERS

- Clean the area to be covered and dry it thoroughly before applying a bandage or binder, because prolonged heat and moisture on the skin may cause skin breakdown.
- Bandage the body part in the normal functioning position to prevent deformities and discomfort.
- Apply the bandage or binder with sufficient pressure to provide the amount of immobilization or support desired, to remain in place, and to secure a dressing when present. Do not apply pressure to such a degree that circulations to the body part involved are impeded.
- Maintain equal tension with all bandage turns; avoid unnecessary and uneven overlapping of turns.
- After application, assess circulation and comfort at regular intervals.

14.3. REMOVAL OF SUTURES:

The sutures may be removed by the surgeons or by the nurses according to the hospital customs. In all case the surgeon gives the written order for the removal of the sutures. The skin sutures are left in place for a varied length of time. The usual timings are:

Scalp and face	2 to 5 days
Abdominal wounds	7 to 10 days
Lower limbs	10 to 14 days

- Confirm the doctor's orders for the removal of the sutures.
- The suture removal is done in conjunction with a dressing change. Toothed forceps/artery forceps and suture removal scissors are used.
- The suture line is cleansed before and after suture removal
- When removing interrupted sutures, alternate ones are removed first. The remaining sutures may then be left in place.
- Suture material that is beneath the skin is considered free from bacteria, and those visible outside is contact with the resident bacteria of the skin. It is important that no part of the stitch which is above the skin level enter and contaminate the tissue under the skin.
- Suture material left beneath the skin acts as a foreign body and elicits the inflammatory response. When removing sutures care to be taken to remove them completely. Each suture will have one knot and four ends when removed completely. The number of sutures should be counted before and after removal.
- If wound dehiscence occurs during the removal of the sutures, inform surgeon immediately. In case of abdominal wounds re suturing is imperative to prevent evisceration. In other places re suturing is

not necessary, adhesive tapes should be applied to approximate the wound edges as closely as possible.

- After the removal of sutures, even the wound is dry a small dressing is applied for a day or two to prevent infections. The patient should be told about the care of wound. He is advised to take rest after removal of sutures from the abdomen. This will prevent dehiscence. If wound discharge occurs the patient should be instructed to contact surgeon. Presence of pain and swelling at the wound line or the signs of complications.
- Abdominal belts or many tailed bandages may be applied on the abdomen. After removal of sutures in obese to prevent wound dehiscence and eviscerations.

Sterile tray containing:

- Sponge holding forceps
- Small bowl
- Toothed dissecting forceps
- Suture removal scissors
- Gauze pieces, cotton balls and gauze pads.
- Hole towel

A clean tray containing:

- Betadine Solution
- Spirit
- Sterile gloves
- Dressing tapes
- Dressing trolley with plastic bag for discarding used dressing materials.
- Scissors
- Saline if needed
- Kidney tray

- Betadine ointment / Neosporin powder

Procedure for suture removal:

Procedure:

- Check the Doctor's order
- Explain the procedure to the patient
- Provide Privacy
- Position the patient comfortably, preventing undue tension on suture line
- Drape the patient and expose the site.
- Using technique of surgical dressing, remove previous dressing and discard in to the plastic bag
- Do surgical hand washing
- Clean incision with antiseptic cleansing solution.
- Keep a guaze piece adjacent to the incision site to place removed sutures.
- Grasp the knot of suture with thumb forceps using non-dominant hand.
- Elevate, so that the skin surface just below the knot is visible.
- Using suture removal scissors cut one end of the suture near the knot close to the skin.
- Avoid cutting the knot.
- Remove the suture in the direction of suture line
- Place removed sutures on the guaze pieces
- Remove each suture in smooth continuous motion.
- After removal, check the incision for any remaining hidden sutures.
- Clean the incision with antiseptic solution
- Apply sterile dressing if necessary
- Keep the patient in his comfortable position.
- Replace equipment
- Record the condition of the incision, procedure done and the patient's response

Recommended By	Signature	Approved By	Signature
Dr. Hrishikesh Kalgaonkar		Dr. S.S. Deepak	
Chief Medical Administrator		Chairman & Managing Director	

SUMMARY	
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14. CARDIO-PULMONARY RESUSCITATION

DEFINITION:

Using rescue breathing and chest compressions to help a person whose breathing and heartbeat have stopped

14.1. Causes of cardiac arrest:

- Anoxia
- Myocardial infarction
- Pulmonary embolism
- Extensive haemorrhage
- Electric shock
- Drowning
- Carbon monoxide poisoning
- Anaesthetic depressions
- Anaphylatic shock related from drug reactions
- Brain Injuries
- Electrolyte disorder
- Retention of Carbondioxie
- Hypotension

14.2. Signs and Symptoms of Cardiac arrest:

- Apnoea
- Absence of carotid and femoral pulse
- dilated pupil
- Cyanosis
- Unconsciousness

14.3. Sequence of Cardio pulmonary Resuscitation:

- **C-** Circulation - check pulse, (if no pulse) Start Compression
- **A-** Clear the airway
- **B-** Check breathing, (if no breathing)give 2 rescue breaths

14.3.1. CIRCULATION:

- Check the carotid pulse
- How to check the carotid?
- Feel the bony prominence of anterior neck
- Slide fingers to side
- Check min 5 sec Max 10 sec

PULSE PRESENT → **GO FOR A&B**

NO PULSE → **START COMPRESS**

➢ **hand position for chest compressions**

- Place heel of one hand on center of chest between the nipples

➢ **COMPRESSIONS:**

- Using both hands, give 30 chest compressions by counting 1, 2, 3 …
- Depth of compressions should be at least 2 inches
- For children: 1/3 to1/2 of chest depth and use 1 or 2 hands

14.3.2. BREATHING:

- 30 compressions & 2 ventilation
- Check pulse after 5 cycle
- Continue CPR until help arrives or victim recovers
- Assist breathing if pulse present

Circumstances on which CPR can be stopped:

- ❖ Victim revives
- ❖ Trained help arrives
- ❖ Unsafe scene
  - Fire
  - Building collapse
  - Violent mob

14.3.3. AIR WAY: After 30 compressions straighten the Airway

14.3.4. Chest Compression Techniques:

Steps	Action
1	Position yourself at the victim's side
2	Make sure the victim is lying face up on a firm, flat surface. If the victim is lying face down, carefully roll him face up. If you suspect the victim has a head or neck injury, try to keep the head, neck, and torso in a line when rolling the victim to a face up position.
3	Put the heel of one hand on the center of the victim's chest on the lower half of the

	breastbone
4	Put the heel of your other hand on top of the first hand
5	Straighten your arms and position your shoulders directly over your hands.
6	Push hard and fast: • Press down at least 5 cm (2 inches) with each compression (this requires hard work). For each compressions, make sure you push straight down on the victim's breastbone • Deliver compressions in a smooth fashion at a rate of at least 100/min
7	At the end of each compression, make sure you allow the chest to recoil (re-expand) completely. Chest recoil allows blood to flow into the heart and is necessary for chest compressions to create blood flow. Incomplete chest recoil is harmful because it reduces the blood flow created by chest compressions. Chest compressions and chest recoil/relaxation times should be approximately equal.
8	Minimize interruptions.

In case of all deaths CPR analysis form, post event analysis are done by multidisciplinary committee and based upon this analysis, we are making corrective and preventive actions

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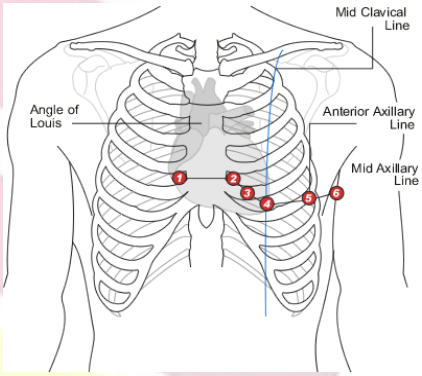
14. ECG



14.1. PRIMARY PHASE

- No special preparation is needed
- Explain ICU procedure to the patient
- Remove the ornaments ,provide gown or loose upper clothing
- Explain the patient that the test is painless and non invasive
- Keep relatives away from the patient. Touching can alter the result
- Shave any excess hair from the chest (if needed)
- Assess the vital signs for baseline data

14.2. PERFORMANCE PHASE

- Place the person in a supine position
- Clean the skin with spirit swab, where the leads are to be applied
- Position of leads
- **V1** = Rt sternal edge (4th intercostal space)
- **V2=** Lt sternal edge (4thintercoatal space)
- **V3=** Halfway between (V2 & V4)
- **V4 =** the patients apex beat, all subsequent leads

are in the same horizontal plane as V4

- **V5=** Anterior axillary line
- **V6=** mid axillary line.
- Apply leads using pre jelled disk or ECG paste
- Switch on the ECG machine
- ECG technician/nurse record the ECG

14.3. FINAL PHASE

- Switch off the machine
- Remove leads
- Clean ECG paste or gel from skin with tissue paper
- Physician interprets the ECG
- If the patient is anxious about the test, the results may be explained by the physician

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14. CARDIAC DYSRHYTHMIAS

14.1. SINUS BRADYCARDIA

- **Description:**

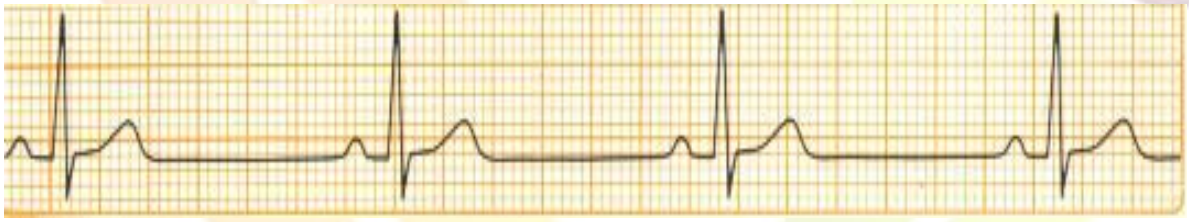
a) Atrial ventricular rhythms are regular

b) Artial & ventricular rates are less than 60 beats/ minute.

c) PR interval & QRS width are within limits.

d) Treatment may be necessary if the client is symptomatic (signs of decreased cardiac output)

e) Note that a low heart rate may be normal for some individuals



- **Interventions**:

a) Attempts to determine the cause of sinus bradycardia; if a medication is suspected of causing the bradycardia, withhold the medication & notify the physician.

b) Administer the oxygen as prescribed.

c) Administer atropine sulfate as prescribed to increase the heart rate to 60 beats/ minute.

d) Be prepared to apply a noninvasive (transcutaneous) pacemaker initially as prescribed if the atropine sulfate does not increase the heart rate sufficiently.

e) Avoid additional doses of atropine sulfate because this will induce tachycardia.

f) Monitor for hypotension & administer fluids intervenously as prescribed.

g) Depending on cause of the bradycardia, the client may need a permanent pacemaker.

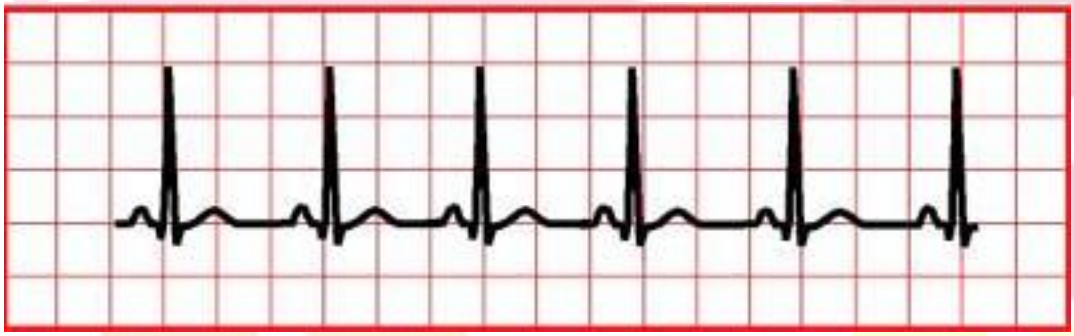
14.2. SINUS TACHYCARDIA

- **Description:**

a) Atrial & ventricular rates are 100 to 180 beats/ minute.

b) Atrial & ventricular rhythms are regular.

c) PR interval & QRS width are within normal limits



- **Interventions:**

a) Identify the cause of tachycardia.

b) Decrease the heart rate to normal by treating the underlying cause.

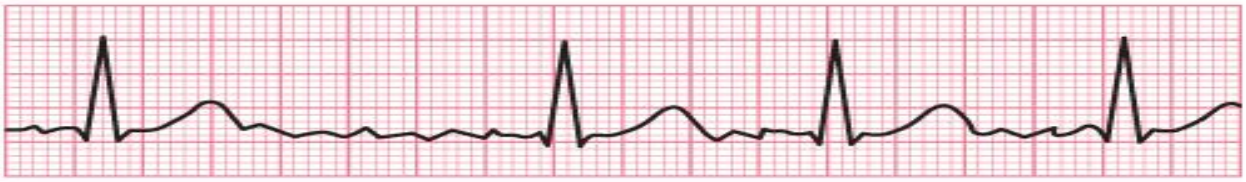
14.3. ARTIAL FIBRILLATION:

- **Description:**

a) Multiple rapid impulses from many foci depolarize in the atria in a totally disorganized manner at a rate of 350 to 600 times/ minute.

b) The atria quiver, which can lead to the formation of thrombi

c) No definitive P wave can be observed, only fibrillatory waves before each QRS.



- **Intervention:**

a) Administer oxygen.

b) Administer anticoagulants as prescribed because of the risk of emboli.

c) Administer cardiac medications as prescribed to control the ventricular rhythms & assist in the maintenance of cardiac output.

d) Prepare the client for cardio version as prescribed.

e) Instruct the client in the use of medications as prescribed to control the dysrhythmia.

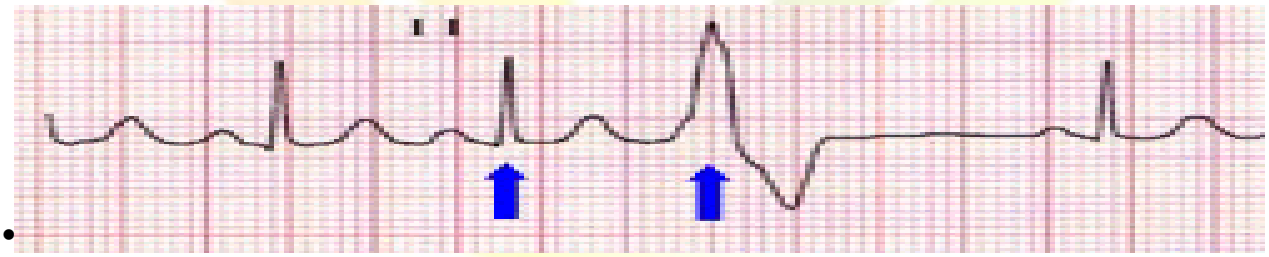
14.4. PREMATURE VENTRICULAR CONTRACTIONS:

- **Description:**

a) Early ventricular complexes result from increased irritability of the ventricles.

b) Premature ventricular contractions frequently occur in repetitive patterns such as bigeminy, trigeminy & quadrigeminy.

c) The QRS complexes may be unifocal or multifocal.

- 

a) Notify the physician if Premature ventricular contractions occur.

b) Identify the cause & treat based on the cause.

c) Evaluate oxygen saturation to assess for hypoxemia, which can cause Premature ventricular contractions

d) Administer oxygen as prescribed.

e) Evaluate electrolytes, particularly the potassium level, because hypokalemia can cause Premature ventricular contractions.

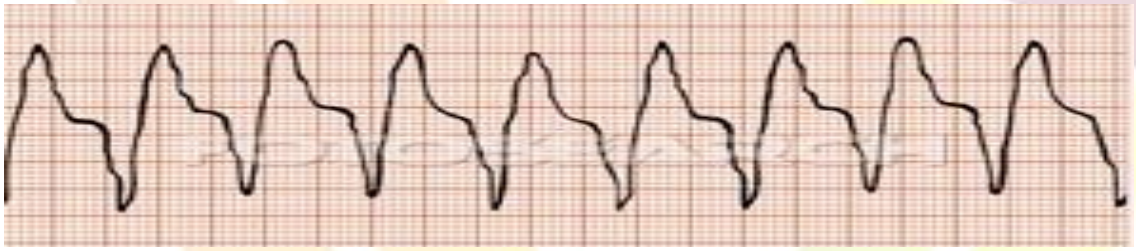
f) Lidocaine (xylocaine) may be prescribed.

14.5. VENTRICULAR TACHYCARDIA:

- **Description :**

a) Ventricular tachycardia occurs because of a repetitive firing of an irritable ventricular ectopic focus at a rate of 140 to 250 beats/ minute or more.

b) Ventricular tachycardia may present as paroxysm of three self limiting beats or more or may be a sustained rhythm.



- **Stable client with sustained Ventricular tachycardia(with pulse & no signs or symptoms of decreased cardiac output)**

a) Administer oxygen as prescribed.

b) Administer anti dysrhythmics as prescribed.

- **Unstable client with Ventricular tachycardia (with pulse & signs & symptoms of decreased cardiac output)**

a) Administer oxygen & antidysrhythmic therapy as prescribed

b) Prepare for synchronized cardioversion if client is unstable.

c) Attempt cough cardiopulmonary resuscitation by asking the client to cough hard every 1 to 3 seconds.

- **Pulse less client with ventricular tachycardia**: defibrillation & CPR.

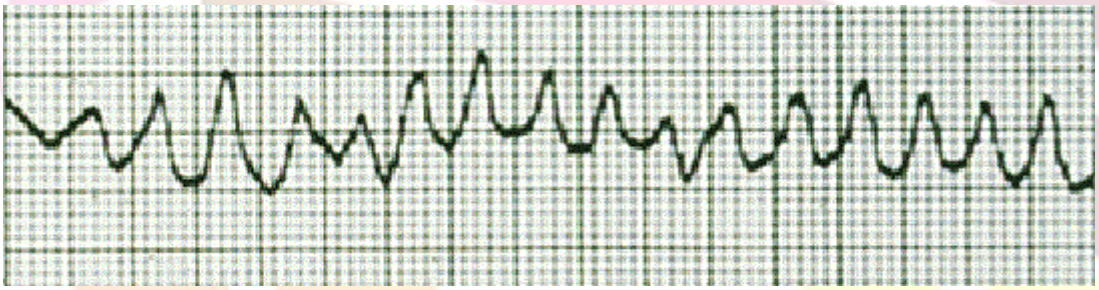
14.6. VENTRICULAR FIBRILLATION:

- **Description:**

a) Impulses from many irritable foci in the ventricles fire in a totally disorganized manner.

b) Ventricular Fibrillation is a chaotic rapid rhythm in which the ventricles quiver & there is no cardiac output.

c) Ventricular Fibrillation is fatal if not successfully terminated within 3 to 5 minutes.



d) Client lacks a pulse, BP, respiration & heart sounds.

- **Interventions:**

a) Defibrillate the client immediately, up to 3 times consequently at 200, 300 & 360 joules (J).

b) Initiate CPR.

c) Administer oxygen as prescribed

d) Administer antidysrhythmic therapy as prescribed.

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14. **DEFIBRILLATION**

14.1. DEFINITION:

Defibrillation involves delivering a high intensity electrical charge in order to depolarize the entire myocardium at one time. Defibrillation is usually carried out to treat patients with ventricular fibrillation and asystole.

14.2. PURPOSE:

1. To eradicate life threatening ventricular fibrillation or pulse less ventricular tachycardia.
2. To restore cardiac output lost due to dysrrthymias and reestablish tissue perfusion and oxygenation.

14.3. INDICATION:

❖ **Synchronized Cardio version**

- Supraventricular tachycardia
- Atrial fibrillation
- Atrial flutter
- Ventricular tachycardia
- Any patient with reentrant tachycardia with narrow or wide QRS complex (ventricular rate> 150) who is unstable (eg: chest pain, pulmonary edema, hypotension)

❖ **Defibrillation**

- Pulseless ventricular tachycardia(VT)
- Ventricular fibrillation(VF)

- Cardiac arrest due to or resulting in VF

14.4. EQUIPMENTS:

1. Defibrillator
2. Conductive medium- defibrillator pads
3. Cardiac monitor with recorder
4. Emergency cart and medication
5. Emergency pacing equipment

14.5. PROCEDURE:

1. Verify V- fib or V- tach by ECG and correlate with clinical state. Assess to determine absence of pulse. Call for help and perform CPR until defibrillator and crash cart arrives.
2. Preparation for defibrillation

a) Turn power "ON".
b) Select the Energy level(joules) as per the requirement of the patient
c) Select correct paddles- adult, pediatric or internal.
d) Prepare patient and/ or paddles with proper conductive agent.
e) Checks that defibrillator is in asynchronous mode. If other than 200 joules desired, press "ENERGY SELECT" and select desired amount.

3. Turn on ECG recorder for continuous printout.
4. Places one paddle at the heart's Apex just left of the nipple in midaxillary line. Place the other paddle just below the right clavicle to the right of the sternum, apply pressure to paddles.
5. Press Sycn button if it is a cardioversion
6. Press "CHARGE" on defibrillator front panel or on the Apex paddle. Wait until indicators stops flashing to indicate fully charged.
7. State "ALL CLEARED" and visually check that all personnel are clear of contact with bed, patient and equipment.

8. Check rhythm immediately before discharge.
9. Depress both buttons simultaneously and maintain pressure until electrical current delivered.
10. Assess conversion of dysrhythmia
11. If first defibrillation unsuccessful, immediately charge paddles to 300 joules and repeat steps 2 through 9.
12. If second defibrillation unsuccessful, immediately chare paddles to 360 joules and repeat steps 2 through 9
13. If third attempt is unsuccessful, continue CPR, initiate ACLS protocols, intubate and obtain IV access. Assess patient status and precipitating factors to prevent further decompensation of patient.
14. Clean defibrillator and paddles, discard supplies, and wash hands.
15. Documents procedure in patient record or cardiac arrest flow sheet.

14.6. POST- DEFIBRILLATION CARE:

EVALUATE:

1. Neurologic status. Reorient to person, place and time.
2. Respiratory status. Auscultate lung sounds, Monitor rate, depth and quality of breathing. Oxygen as ordered.
3. Cardiovascular status. Get 12- lead ECG and continue to monitor rhythm and blood pressure, pulse and respirations frequently until stable.
4. Initiate IV anti-dysrhthymic therapy.
5. Monitor for burns. Treat if indicated.
6. Documentation. Include neurologic, respiratory and cardiovascular assessment before and after defibrillation.
7. Patient/ family education. Assess understanding of past, current and future needs.

14.7. PRECAUTIONS:

1. Check all equipments for proper grounding to prevent current leakage.

2. Disconnect temporary pacemaker and other electrical equipment.
3. Do not defibrillate directly over an implanted pacemaker. Defibrillation may result in damage to equipment.
4. May be mistaken for artifact or leads may be off.
5. Assess situation. If a second person is getting the defibrillator, establish an airway and begin CPR.
6. Convert to pediatric size for children.
7. Enhances electrical conduction through subcutaneous tissue and assists in minimizing burns.
8. Limits to paddle area. Use 2 joules/ Kg for children, sync 0.5 joules/Kg
9. Will not fire if it is in synchronous mode due to absence of R wave.
10. Establishes a visual recording and a permanent record of current ECG status and response to intervention.
11. Maintain safety to caregivers, since electric current can be conducted from the patient to another individual if contact occurs.
12. ECG rhythm may change; ensure it is a rhythm that requires defibrillation.
13. Premature release may result in failure to discharge energy. May also be delivered by depressing discharge button on the defibrillator.
14. If rhythm has converted, must reassess.
15. Necessary to maintain the delivery of oxygenated blood to vital organs.
16. Conductive gel accumulated on defib paddles impedes surface contact and increases transthoracic resistance.
17. Completion of medical/ nursing records.

17.8. COMPLICATIONS

1. Dysrthymias Pulmonary edema
2. Cardiac arrest Pulmonary or systemic emboli
3. Respiratory arrest Equipment malfunction
4. Neurologic impairment Death

5. Altered skin integrity

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1. CARDIOVERSION:

DEFINITION:

Electric cardio version/ synchronized cardio version is a planned procedure in which an electric current is programmed to discharge synchronous with the QRS complex (peak of the wave, R)

18.1. Preparation of patient:

1. ECG reading are taken prior to the procedure to identify the type of arrhythmia present in the patient
2. Explain the procedure to the patient and his relatives & obtain a written consent.
3. Establish baseline vital signs by taking patient's blood pressure, temperature, pulse rate and Respiratory Rate. Record its inputs chart for the future reference.
4. Establish the IV line & keep it patient for emergency purpose.
5. Keep ready all articles necessary for the immediate resuscitation of the patient.
6. Disconnect any electrical equipment used for patient
7. Keep all personnel away from the patient to protect them from getting shock.
8. Press Sync button
9. The selected joule will be discharged as the peak of 'R' wave is recognized.
10. Check the rhythm immediately before/ after procedure.
11. Record the rhythm in the patient care sheet.
12. If rhythm has converted, must reassess.

Necessary to maintain the delivery of oxygenated blood to vital organs

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1. INTUBATION

Preparation of equipment:

S: Suction

O: Oxygen

A: Airway Supplies

P: Pharmacology

- Ambu bag with O2
- Head ring
- ECG monitor & pulse O2 meter
- Endotracheal tubes in different sizes & style
- Laryngoscope and blade with good light
- suction apparatus with catheter/Yaunker sucker
- Magil's forceps
- Jelly, gloves, plaster (adhesive tape) syringe and stethoscope
- Emergency drugs

19.1. LEVEL TO FIX ET TUBE:

3 times internal diameter of ET

19.2. MEDICATION:

- Inj. Atropine
- Inj. Midazolam
- Inj. Pavolone/ Inj. Vecuronium
- Inj. Fentanyl
- Inj. Adrenalin

19.3. INTUBATION PROCEDURE (Attempts should not exceed 30sec)

1. Pre oxygenate with 100% O_2 using E-C technique
2. A small pillow should be placed under the occiput
3. Administer intubation medication

- Atropin
- Midaz – 5mg sedative
- Pavolone – 2mg muscle relaxant

4. Open mouth with right thumb and index finger using scissoring tech
5. Hold laryngoscope blade in left hand
6. Insert blade into right side of the mouth, sweeping tongue to the left out of the line of vision.
7. Advance the blade to epiglottis and lift laryngoscope straight up, to visualize vocal cord.
8. While maintaining direct visualization, pass the ET- tube from the right corner of the mouth through the cords.
9. Verify the ET placement:

- Observe chest wall movements
- Auscultation in both axilla
- Watervapor seen in the ET-tube
- Improvement of O_2 saturation

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1. CARE OF PATIENT ON VENTILATOR

20.1. ASSESSMENT: The nurse should assess in each shift for

D: Displacement

O: Obstruction

P: Pneumothorax

E: Equipment failure

20.2. AIR WAY

- Elevation of head at 30^0
- Check whether the tube is in correct position by auscultation
- Observe changes in respiration rate & depth.
- Put an airway into the mouth
- Check the ventilator settings carefully before connecting to the patient
- Maintaining an inspired oxygen concentration
- Monitor SpO2
- Suctioning performed whenever necessary
- Use sterile technique for endotracheal suctioning

•Check the ventilator alarms and identify the causes

•Adequate supply of humidification by keeping HME filter.

20.3. CIRCULATORY CARE

•Check the vital signs every 4th hourly

•maintain IV line

•Check the CVP and arterial blood gas analysis

•Provide adequate fluid

•Check for perfusion by capillary refill.

•Check for fluid overload

20.4. HYGIENIC CARE

•Provide sponge bath

•Back care two times in a day to improve circulation

•Prevent bedsore and maintain circulation

•Change the position every two hourly

•Comfort devices includes pillows, head rings and air cushions

•Mouth care should be given every three times a day

•Linen should be changed daily or as per the situation.

20.5. EYE CARE

•Clean eyes from inner canthus to outer canthus

•Clean the eyes with saline by using sterile cotton swab

•Apply antibiotic ointment if any infection

•To prevent the dryness of cornea close the lid with plaster

20.6. ELIMINATORY CARE

•Catheter care should be given two times in a day

•Check for urine output

•Check for consistency of urine

•Keep the perineum clean and dry

20.7. PREVENTION OF COMPLICATION

•Give passive exercise to the patient to prevent foot drop, wrist drop and external rotation of thigh

•Prevent DVT

1.8. NUTRITIONAL NEED

•Provide Nasogastric feeds as per order

•Monitor & Record the intake and out put

•Check the nutritional status

•Hydrate the patient with IV fluids and tube feed according to the physician's order

1.9. WEANING FROM VENTILATOR

Weaning implies a gradual separation of the patient from ventilator

PROCEDURE

•Stop the muscle relaxing agent as ordered by the anesthetist

•Assess the level of consciousness and movement of limbs

- Check the trigger sensitivity of ventilator.
- If the patient started to struggling, change the mode to SIMV.
- Set the SIMV rate lower than CMV rate.
- If the patient is able to breath without ventilator support, connect to T-piece with oxygen.
- Check the saturation level of the patient and watch for complications like hyperventilation, tachycardia, saturation drop and tachypnoea.
- Gradually decrease the oxygen level
- If the saturation is maintained without oxygen, disconnect the T-piece
- Extubate the patient as per the order of the anaesthetist after proper suctioning.
- Prop up the patient's bed and make the patient to sit up after extubation.
- Keep O_2 mask on face with O_2.
- Keep intubation set and ventilator ready for intubation whenever necessary near to the patient's bed.
- Be with patient for at least 2 hours with close monitoring.

SUMMARY	
DISTRIBUTION	

1. EXTUBATION OF ENDOTRACHEAL TUBES

Procedure: To standardize the procedure for extubating patients with endotracheal tubes

Scope:

- To maintain artificial airways and removal of artificial airways upon physician prescription.
- Extubations will be done by a physician.
- A physician must be present or in the immediate area during the extubation procedure so that the physician can take the necessary action, if a complication arise that would warrant reintubation.

Equipment:

- Suction catheter of appropriate size
- Normal Saline
- Scissors
- 10cc syringes
- Appropriate oxygen delivery system
- Hand held nebulizer with epinephrine (if ordered)
- Ambubag with face mask

Procedure:

ORAL TUBES:

Step	Action
1	Verify physician's order and patient's ID. Wash hands.

2	Verify the presence of emergency resuscitation equipment at the bedside.
3	The procedure must be explained to the patient, in the degree of detail he can comprehend. It is desirable to have the patient's cooperation during and after the extubation. Position the patient as upright as possible.
4	Increased inspired Oxygen should be administered. This is done by increasing the FiO_2 to 100%
5	Secretions must be aspirated from the trachea, if indicated, the oropharynx (as per the sequence suggested by the professional standards of nursing care). Nasopharyngeal suctioning is not advocated unless indicated, due to the increased risk of nosebleed.
6	If ordered by physician, remove patient's nasogastric/ orogastric tube prior to extubation.
7	The lungs should be hyperinflated, so that the patient will be exhaling as the tube is withdrawn and adequate oxygenation and ventilation is maintained. Positive pressure is administered with a ambubag and mask. At the end of peak inspiration, the tube is removed rapidly but gently. This occurs immediately after cuff deflation.
8	Appropriate oxygen is immediately administered as per physician order.
9	The patient immediately evaluated for signs of obstruction, stridor, difficulty breathing and ability to speak. The patient should be encouraged to take deep breaths and to cough. Provide Adrenalin nebulization.
10	The patient must not be left unattended, while there is doubt of his ability to function without the artificial airway.

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Chief Medical Administrator		Chairman & Managing Director	

SUMMARY	
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1. ABG INTERPRETATION

A. Check the pH

B. Respiratory

- If pH is less than 7.36 and $PaCo_2$ is more than 44 mm of Hg it is respiratory acidosis
- If pH is higher than 7.45 & $PaCo_2$ is less than 36mm of Hg. It is respiratory alkalosis

C. Metabolic

- If pH is less than 7.35 & HCO_3 is less than 21 mEq/ L. It is metabolic acidosis
- If pH is more than 7.45 & HCO_3 is more than 28 mEq/ L it is metabolic acidosis.

CHARACTERISTICS OF ACID-BASE DISTURBANCES

Disorder	pH	Primary problem	Compensation
Metabolic acidosis	↓	↓ in HCO_3-	↓ in $PaCO_2$
Metabolic alkalosis	↑	↑ in HCO_3-	↑ in $PaCO_2$
Respiratory acidosis	↓	↑ in $PaCO_2$	↑ in [HCO_3-]
Respiratory alkalosis	↑	↓ in $PaCO_2$	↓ in [HCO_3-]

Note:

- Obtained heparinised sample of blood without air bubble from artery
- All the ABG reports must be interpreted along with clinical background of the patient, information

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given in this discussion and plotting the values in the charts given critical care sheet.

- Also estimate RBS, osmolality anion gap, urine ketones, serum lactate levels, RFT, Na^{+}. K^{+}, Cl^{-}, Ca^{++}, PO_4 and Mg^{++} levels, this will help in differentiation of caused of acid base disorders.
- Once correct interpretation is made, institute approximate treatment.

SUMMARY	
DISTRIBUTION	

1. MEASURING C.V.P

DEFINITION:

Central Venous Pressure (CVP) is the venous pressure as measured at the right atrium, done by means of a catheter introduced through the median cubital vein to the superior vena cava.

ARTICLES:

- ✓ Normal Saline 500 ml
- ✓ 3 way
- ✓ CVP scale – 2
- ✓ 100 cm extension
- ✓ IV stand

PROCEDURE:

- Inform patient regarding procedure
- Wash hands and apply gloves
- Position client in supine or flat position with no pillows under head mask the level of right atrium in the 4thintercostals space with an "X" mark using indelible ink pen.
- Fix manometer on an IV pole such that it is zeroed at the X-mark
- Connect IV fluid (usually normal saline) to a three way stop cock and flush the other two ports
- Apply sterile gloves and mask

- Connect CVP tubing monometer to the upper port of the stop cock
- Connect CVP tubing from the client to the second side port of the cock.
- Turn stopcock off to client and fill monometer with normal saline to the 20cm mark above the anticipated reading.
- Hold manometer at the phlebostatic axis and turn the stopcock off to the normal saline.
- Watch as the fluid falls in the manometer take the central venous pressure reading when the fluid stabilizes
- Turn the stop cock off to the manometer
- Reposition the patient.
- Keep the monometer in an upright position to prevent air bubbles from client and to prevent contamination of the manometer.
- Wash & dry hands.
- Document the reading obtained in the client's medical record.

SUMMARY	
DISTRIBUTION	

1. LUMBAR PUNCTURE

DEFINITION:

A lumbar puncture is the insertion of a needle into the lumbar region of the spine, in such a manner that the needle enters the lumbar arachnoid space of the spinal canal below the level of the spinal cord, so that cerebrospinal fluid (CSF) can be withdrawn or a substance can be therapeutically or diagnostically injected.

PURPOSE: The reason for doing LP may be diagnostic or therapeutic.

ARTICLES:

✓ **Sterile Tray:**

- Two small bowl cotton/ guaze
- Kidney tray
- Sponge holding forceps
- Artery Forceps
- Thumb forceps
- Specimen bottle
- Hole towel

✓ **Clean Tray:**

- LP Needle
- Betadine

- Spirit
- Sterile gloves 6.5/ 7
- Tincher
- Dynoplaster

DIAGNOSTIC:

- To measure the CSF pressure
- To obtain CSF for visualization and laboratory examination
- To inject air, oxygen or radio-opaque substances to visualize parts to nervous system
- For evaluation of spinal dynamics for signs of blockage of CSF flow due to tumor or other pathology of spinal cord.

THERAPEUTIC;

- To remove blood or pus from sub arachnoid space.
- To reduce intra cranial pressure
- To give spinal anesthesia for surgeries
- For intrathecal injection of antebacterial and other drugs.

PROCEDURE:

- Ask the patient empty bladder immediately before procedure.
- Briefly explain the procedure and purpose of the procedure and provide emotional support.
- Informed consent to be taken.
- Privacy during the procedure to be provided.
- The LP is usually done at patient's bedside or in an outpatient facility.
- An LP set is prepared.
- Patient assumes a lateral recumbent position along the edge of the bed arching the back, so that the knees are flexed on the chest, with the chin touching the knees. This position allows maximal

separation of the vertebrae thereby facilitating insertion of LP needle and reducing degree of trauma.

- Prepare the site aseptically, drape and locally anesthetized. Strict aseptic procedures to be followed.
- Place the needle between L3 and L4 orL4 and L5.
- After introduction, the stylet is removed and a manometer is affixed to measure and record the entrance pressure of CSF. Then the manometer is removed and samples of CSF are collected into sterile set tubes for visual and laboratory examination.
- When procedure is completed, LP needle is removed and a band aid is applied over the puncture site.

Post procedural care

- Patient should be kept in prone position 2-3 hours following the procedure.
- Foot end of the bed should be elevated.
- Frequently monitor neurological and vital signs.
- Patient may have headache due to irritation of brain/mind analgesics may be given according to doctor's order.

SUMMARY	
DISTRIBUTION	

HYPONATRAEMIA

- **Description:**

1. The serum sodium level lower than 135 mEq/L (Normal value is 135 – 145 mEq/L)
2. Sodium imbalance usually is associated with the fluid volume imbalance.

- **Causes:**

1. Increased sodium secretion

✓ Excessive diaphoresis
✓ Diuretics
✓ Vomiting
✓ Diarrhoea
✓ Wound drainage, especially gastrointestinal
✓ Renal disease
✓ Decreased secretion of aldosterone.

2. Inadequate sodium intake

✓ Nothing by mouth
✓ Low-salt diet

3. Dilution of serum sodium

✓ Excessive ingestion of hypotonic fuids or irrigation with hypotonic fluids
✓ Renal failure
✓ Fresh water drowning
✓ Syndrome of inappropriate antidiuretic hormone secretion

- ✓ Hyperglycemia
- ✓ Congestive heart failure.

- **Assessment:**

1. Cardiovascular:

- Symptoms vary with changes in vascular volume.
- Normvolemic: rapid pulse rate ; normal blood pressure
- Hypovolemic: thread, weak, rapid pulse rate, hypotension,; flat neck veins; normal or low central venous pressure.
- Hypervolemic: rapid, bounding pulse; blood pressure normal or elevated; normal or elevated central venous pressure.

2. Respiratory:

- Shallow, ineffective respiratory movement is a late manifestation related to skeletal muscle weakness.

3. Neuromuscular:

- Generalized skeletal muscle weakness that is worse in the extremities
- Diminished deep tendon reflexes.

4. Central Nervous System

- Headache
- Personality change
- Confusion
- Seizures
- Coma

5. Gastrointestinal

- Increased motility & hyperactive bowel sounds
- Nausea
- Abdominal cramping & diarrhea

6. Renal:

- Increased urinary output

7. Integumentary

- Dry mucous membranes.

- **Interventions:**

1. Monitor cardiovascular, respiratory, neuromuscular, renal, integumentary & gastrointestional status.
2. Prevent further fluid overload & restore normal fluid balance
3. Administer diuretics; osmotic diuretics typically are prescribed first to prevent serve electrolyte imbalance
4. Restrict fluid & sodium intake as prescribed.
5. Monitor intake & output; monitor weight
6. Monitor electrolyte values, & prepare to administer medication to treat an imbalance if present.

SUMMARY	
DISTRIBUTION	

HYPOKALAEMIA:

Hypokalemia is defined as decrease in the potassium level ie, less than 3.5mEq/l

Causes:

- Loop diuretics
- Vomiting and diarrhea'
- Diuresis including diuretic phase of ARF
- On IV Fluids without supplementation of potassium

Features:

ECG changes are T wave flattening, inversion ,

1. ST depression. Prominent U and P waves, low voltage QRS and Bradycardia.
2. Muscle weakness, absent deep tendon
3. Reflexes and diminished bowel sounds

Management:

Mild hypokalaemia: (serum K+ of 3.5 m eq/L)

- ✓ Advise potassium rich diet like fruits, Tender coconut water etc
- ✓ Oral KCL with water (potklor 2 tsp Q8h PO with 50ml of water)

Severe hypokalaemia:(serum K+< 2.5m eq/L)

- KCl 60 mEq to be given in 1litre of NS IV at a rate of 10mEq/Hour.

  (Up to 100- 200 mEq/day is needed)

- If there is severe ECG changes or neuromuscular abnormality like respiratory muscle weakness maximum of 40mEq of KCI per hour can be given as uniform speed infusion in 500ml NS.

- Avoid dextrose drip

SUMMARY	
DISTRIBUTION	

HYPOCALCAEMIA

- **Description:**
  - The serum calcium level lower than 8.6 mg/ dL
  - Normal level is 8.6 to 10 mg/ dL
- **Causes:**

1. Inhibition of calcium absorption from the gastrointestinal tract.

a) Inadequate oral intake of calcium

b) Lactose intolerance

c) Malabsorption syndromes such as celiac sprue or crohn's disease

d) Inadequate intake of vitamin D

e) End- stage renal disease.

2. Increased calcium excretion

a) Renal failure, polyuric phase

b) Diarrhea

c) Steatorrhoea

d) Wound drainage, especially gastrointestinal.

3. Conditions that decrease the ionized fraction of calcium

a) Hyperproteinemia

b) Alkalosis

c) Medications such as calcium chelatros or binders.

d) Acute pancreatitis,

e) Hyperphosphatemia

f) Immobility

g) Removal or destruction of the parathyroid glands

- **<u>Assessment</u>**

a) Cardiovascular: decreased heart rate

- Hypotension
- Diminished peripheral pulses

b) Respiratory:

- Not directly affected; however, respiratory failure or arrest can result from decreased respiratory movement because of muscle tetany or seizure

c) Neuro muscular:

- Irritable skeletal muscle; twitches, cramps, tetany, seizures
- Painful muscle spasm in the calf muscle or foot during periods of inactivity
- Paresthesias followed by numbness that may affect the lips, nose and ear in addition to limbs
- Positive trousseau's(is a carpal spasm induced by inflating a blood pressure cuff) and chvostek's(is the contraction of facial muscle in response to the light taping over the facial nerve in front of the ear)
- Hyperactive deep tendon reflexes
- Anxiety and irritability

d) Renal:

- Urinary output varies depending on the cause

e) Gastrointestinal:

- Increased gastric motility, hyperactive bowel sounds
- Cramping, diarrhoea

f). Laboratory findings:

- Serum calcium level less than 8.6mg/dl

- ECG changes: prolonged ST interval, prolonged QT interval
- **Intervention**:

1. Monitor cardiovascular, respiratory, neuromuscular, and gastrointestinal status; place the client on the cardiac monitor
2. Administer calcium suppliments orally or calcium IV
3. When administering calcium IV, warm the injection solution to body temperature before administration and administer slowly; monitor for ECG changes, observe for infiltration and hypercalcemia
4. Administer medication that increases calcium absorption
5. Aluminium hydroxide reduces serum phosphorous levels, causing the counter effect of increasing calcium level
6. Vitamin D aids in the absorption of Calcium from the intestinal tract
7. Provide a quiet environment to reduce environmental stimuli
8. Intiate seizure precautions
9. Move the client carefully and monitor for signs of pathological fracture
10. Keep 10% calcium gluconate available for treatment of acute Calcium deficit
11. Instruct the client to consume foods rich in calcium ie. Cheese, sardines, spinach, yoghurt, milk & soy milk

SUMMARY	
DISTRIBUTION	

HYPOMAGNESAEMIA:

- **Description:**

The serum Magnesium level lower than 1.6 mg/ dL

Normal value 1.6 to 2.6 mg/ dL

- **Causes :**
- Insufficient Magnesium intake

a. Malnutrition & starvation

b. Vomiting & diarrhoea

c. Malabsorption syndrome

d. Celiac disease

e. Crohn's disease

- Increased Magnesium secretion

a. Medications such as diuretics

b. Chronic alcoholism

- Intracellular movement of magnesium

a. Hyperglycemia

b. Insulin administration

c. Sepsis

- **Assessment:**

a. cardiovascular

- Tachycardia
- Hypertension

b. Respiratory:

- Shallow respirations

c. Neuromuscular:

- Twitches; paresthesias
- Positive Trousseau's & Chvostek's signs
- Hyperreflexia
- Tetany, seizures

d. Central nervous system

- Irritability
- Confusion

e. Laboratory Findings:

- Serum Magnesium level less than 1.6 mg/ dL
- Electrocardiographic changes: tall T waves, depressed ST segments

- **Interventions:**

1. Monitor cardiovascular, respiratory, gastrointestinal, neuromuscular, & central nervous system status; place the client on a cardiac monitor.
2. Because hypocalcemia frequently accompanies hypomagnesemia, interventions also aim to restore normal serum calcium levels.
3. Administer magnesium sulphate by the IV route in severe cases(IM injections will cause pain and tissue damage); monitor serum magnesium level frequently
4. Initiate seizure precaution
5. Monitor for diminished deep tendon reflexes, suggesting hypermagnesemia, during the administration of magnesium
6. Oral preparation of Magnesium may cause diarrhoea and increased Magnesium loss

Instruct the patient to increase the intake of food that contain Magnesium like: cauliflower, green leafy vegetable, milk potatoes, pork, beef, chicken, peanut butter.