# LIST OF NURSING CARE PROTOCOLS TO CARE A PATIENT ON VENTILATOR

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1)  PROTOCOL FOR HANDING OVER AND TAKING OVER
     AT THE CHANGE OF SHIFT

i)  Hand washing and wearing of safety protective devices to be followed before entering
     ICU at the beginning of shift.

ii) Follow Assigned additional job responsibilities planned by sister in charge as per
     your cadre.

iii) Take the counts of instrument, packs and autoclave drums.

iv)  Check Crash cart and Ambu bags in each shift as per the schedule.

v)   Identify equipment for malfunction and separate it.

vi)  Check the total number of patients in ICU, expected transfer-out.

vii) Give and take a proper over at the time of change of shift regarding pending
     investigations and reports.

viii) Check for cleanliness of bedpans, urine pots, kidney trays, sputum mugs,

ix)  Check the Linen, laundry and, special indents

x)   Instruct the relatives that the diet orders are send only in the morning hours. Patients
     admitted after morning shift will get the prescribed diet on the next day meantime
     patient has to have home diet.

xi)  Take following over of assigned patients,
     a)  Patients Name, Bed No, Drs Unit, Diagnosis, Date of admission,
     b)  General Condition of the patient (check for status of skin/bowel/mouth
         care, urine output, suctioning, change of twill tape, nebulization respiratory
         rate, status of drainage tubes & catheters etc.)
     c)  Medication status, charting of drugs
d) Pending investigations and reports any procedures.

e) Information about patients general condition to the relatives

f) any references or calls to be send.

xii) If you are allotted more than one patient then give your attention first for the most seriously ill patient. Take help of other circulating staff.

xiii) Keep strict Monitoring chart of the patient according to ICU charting Cardiovascular status. Heart rate, Oxygen saturation, respiratory status. Respiratory rate, ABG, Pattern of breathing renal- hourly urine output, blood urea level, Sr. creatinine, metabolic (BSL), and other monitoring. Glasgow coma Scale. Maintain the ICU chart accurately.

xiv) Administer medications as prescribed, give medications according to emergency and avoid delay in administration of drugs like Atropine, Palm, vasoactive drugs, antiarhythmic, anticonvulsants, bronchodilators, and antibiotics.

xv) Follow and keep check on Infection control

xvi) Maintain cleanliness & hygiene of the patients unit, change the suction bottles filled in every shift.

xvii) Maintain infection control protocols for care of tubes & catheters, bed-side procedures and also cleaning of the unit after the patients are shifted out of ICU or dead
2) PROTOCOL FOR COMMUNICATION WITH PATIENT’S IN ICU.

Policy : -
   i) Maintain confidentiality.
   ii) No breaking of bad news without Doctors permission.

Purpose : -
   i) To meet physical, psychological, emotional and spiritual needs.
   ii) To develop therapeutic interaction thereby helping in providing comfort minimizing anxiety, handling grief clarifying feelings or work out of problems to gather information for purpose of assessment.
   iii) To promote socialization
   iv) To give health teaching and coordinating care with other members of the health care team
   v) To check patient’s level of consciousness.

Protocols : -
   i) Assess patient’s ability to communicate and patients preferred language.
   ii) Introduce yourself.
   iii) If the patient is conscious Enquire about pain, discomfort, and anxiety present, assure the patient to reduce anxiety.
   iv) If the patient is having ET tube and is unable to speak Keep a watch on nonverbal clues of distress.
   v) Explain patient about line of treatment and patient care.
vi) Arrange for visit of relatives if requested by patient and explain to him about the importance restriction of relatives.

vii) If the patient is unable to speak communicate with the help of a writing board and gestures.

viii) Do not ask irrelevant questions. Questioned asked should be asked that could be answered by simple yes or No.

ix) Use therapeutic communication techniques. Provide help and develop good IPR using non-verbal communication methods.

x) Always keep in mind that all sounds and verbal stimuli in an unconscious patients have a potential of being heard by the patient. Be aware of making negative and anxiety producing statements in the presence of the patient.
PROTOCOLS FOR COMMUNICATING WITH PATIENTS RELATIVES. \((9, 10, 11, 12, 13, 14, 17, 26)\)

i) Have a thorough study about patient’s condition and line of treatment by discussing with the previous nurse or looking after the patient and discussing with the ICU doctor.

ii) Check the previous record of communication with the patient’s relatives and the level of rapport.

iii) Before visitation or communication ensure that the patient is well looked after and aspect of hygiene and care at the bed side have been taken care of.

iv) Be at the bed side, during the visiting hours.

v) Introduce yourself and ask how the visitors are related to the patient.

vi) Ask if the relatives or patients next to keen have been spoken to by the ICU Doctor / intensivist and assess their level of understanding of the. Schedule an appointment if they request to speak ICU resident and the Unit In charge In an emergency or if requested see meet

vii) Do not give any information that you are not sure of especially with regard to patients condition and prognosis.

viii) Answer politely if asked questions about nursing care, line of treatment, feeding and I/V administration, Oxygen etc.
PROTOCOL FOR ASSISTING FOR ENDOTRACHEAL INTUBATION

Purpose:-

i) To establish and maintain a patent airway

ii) To facilitate oxygenation and ventilation and

iii) To reduce the risk of aspiration, and assist with clearance.

Policy: -

i) Assistance to be performed by a Registered Nurse as per the following protocol.

Equipment: -

i) Personal protective equipment.

ii) Endotracheal tube with intact cuff and 15-mm connector.
   Adult female – 7.5 to 8.0 mm tube, Adult male – 8.0 to 9.0 mm tube.

iii) Laryngoscope handles with fresh batteries.

iv) Laryngoscope blades (Straight or curved)

v) Spare bulb for laryngoscope blades.

vi) Flexible stylet.

vii) Self-inflating resuscitation bag with mask connected to 100% oxygen.

viii) Oxygen source and connecting tubes.

ix) Swivel adapter.

x) No sterile gloves.

xi) Luer-Lok 10 ml syringe for cuff inflation
xii) Water-soluble lubricant.

xiii) Rigid pharyngeal suction-tip (Yankauer) catheter

xiv) Suction apparatus (portable or wall)

xv) Suction Catheter.

xvi) Bite-block or oropharyngeal airway.

xvii) Endotracheal tube-securing apparatus or appropriate tape
   a) Adhesive tape (6 to 8 long.)
   b) Twill tape (cut into 30-in lengths.)

xviii) Stethoscope

xix) Anesthetic spray (nasal approach)

xx) Local anesthetic jelly (nasal approach)

xxi) Sedating or paralyzing medications.

xxii) Magill’s forceps (to remove foreign bodies obstructing the airway.)

xxiii) Ventilator.

**Procedure :-**

i) Wash hands, and don personal protective equipment.

ii) Insert oropharyngeal airway.

iii) Set up suction apparatus and connect rigid suction-up catheter to tubing.

iv) Assist in positioning the patient’s head by flexing the neck forward and extending the head (sniffing position). Placement of a small towel under the occiput will elevate it, allowing for proper neck flexion. **Do not flex or extend the neck of a patient with suspected spinal cord injury, the head must be maintained in a neutral position with in-line cervical spine immobilization.**
v) Check the mouth for dentures and loose tooth and remove if present. Suction the mouth as needed.

vi) Preoxygenate the patient using a self-inflating bag-valve-mask device attached to 100% oxygen for 3 to 5 minutes. Provide frequent and gentle breaths.

vii) Premedicate the patient as per the written orders.

viii) Apply cricoid pressure as requested. Gentle cricoid pressure may assist in visualization of vocal cord and decrease risk of gastric distention and subsequent pulmonary aspiration. Once cricoids pressure is begun, it must be continued until the tube is correctly placed.

ix) Keep manual resuscitation bag connected to 100% oxygen source and facemask ready for hyper oxygenation and manual ventilation. Intubation attempts should not take longer than 30 seconds. Patients will need to be hyper oxygenated and ventilated between intubation attempts and do suctioning in between if required.

x) Confirmation of correct tube position should be verified by a chest x-ray

xi) Note position of tube at teeth (use centimeter markings on tube.)

**Documentation:**

i) Inform the Patient and family about completion of procedure and present status of the patient Record Vital signs before, during and after intubation, including oxygen saturation.

ii) Write about the route of intubation – oral or nasal.

iii) Use of any sedation

iv) Size of endotracheal tube.

v) Depth of endotracheal tube insertion.

vi) Measurement of cuff pressure.
vii) Assessment of breath sounds.

viii) Confirmation tube placement including chest radiograph (how placement was confirmed.)

ix) Occurrence of complication at the time of intubation

tax) Nursing measures taken to prevent complications

xi) Amount of Secretion.

**Monitoring Patient and Care of patients with endotracheal tube** :-

i) Auscultate breath sounds on insertion of endotracheal tube to check respiratory rate, Rhythm, depth and equality of chest.expansion this will help the nurse to detect the movement or dislodgement of end tracheal tube.

ii) Maintain the tube in its position with the help of , twill tape or adhesive tape. This will prevents movement and dislodgment of tube. Monitor and record position of tube at teeth or nose with Centimeter markings on tube.

iii) This will help to identify if the tube has moved in and out of its place.

iv) Maintain tube cuff pressure at 20 to 25 mmHg this much pressure provides adequate. Inflation if the pressure decreases it causes risk of aspiration and if pressure increases it will cause tracheal damage.

v) Hyper oxygenate and do suctioning as needed. It clears the airway obstruction and prevents hypoxemia caused due to suctioning.

vi) Inspect nares or oral cavity once per shift while patient is intubated to detect breakdown and necrosis of skin.
vii) Move oral endotracheal tube to the opposite side of the mouth every 24 hours with care to maintain the position of the tube in the trachea; this prevents irritation to the oral mucosa and breakdown of skin at the angles of the mouth.

viii) Position the patient at 30° angle head elevation with neck extension.

ix) Change the position of the patient every 2 hourly and do suctioning before and after the change of position.

**Report for the following Conditions:**
These conditions should be reported if they persist despite nursing interventions.

i) Absent or unequal breath sound.

ii) Change in the ABG levels

iii) Unplanned extubation.

iv) Tube movement from original position.

v) Cuff pressure <20 to > 25 mmHg.

vi) Inability to pass a suction catheter.

vii) Redness, necrosis, skin breakdown.
PROTOCOL FOR MONITORING A PATIENT ON VENTILATOR

Policy :-
i) All ventilated patients should be monitored with the help of Intensivist/ICU Registrar

Purpose :-
i) To improve the respiratory condition in the patients with respiratory arrest.

ii) To reduce the work of breathing

Procedure :-
i) Monitor Temperature hourly / Pulse, saturation continuously / BP hourly / CVP monitoring four hourly / hourly urine output / ABG / CXR as per instruction / patient’s comfort on ventilator

ii) Monitor for alarms of ventilator (high pressure below 30cm H₂O)

iii) Monitor for increase in airway pressure for patients with volume control mode

iv) Monitor for low Minute Ventilation alarm for patients with pressure control mode it should be set at 10- 20% above & below the patients minute ventilation requirements

v) Monitor for apnea alarm

vi) Monitor for O₂ supply alarm

vii) Monitor for condensate in tubing, visible secretions in tubing / HME filter. If found change it and put date of change on it.

viii) Record cuff pressure daily
ix) Record the marking of ET fixation

x) Watch for Common problems and inform the ICU resident
   a) Agitated patient on ventilator
   b) Breathless patient on ventilator
   c) Oxygen saturation < 90%
   d) Systolic BP < 90mmHg or > 200mmHg.
   e) Pulse < 60/min or >110/min
   f) Urine output 30ml / hour or < 1 ml / kg / hr for three hours.

**Role of Nurse in Troubleshooting :-**

For agitated / breathless patients help the ICU registrar to,

i) Rule out Cardiac arrest by ABC

ii) Assist in Disconnecting ventilator and give breaths by AMBU bag
   a) If patient gets relief, and gets settled continue bag ventilation and check ventilator alarms, function and settings.
   b) If the patient does not settle then
      ▶ Do suctioning and Check for airway obstruction because of secretion / mucous plug / kinking or biting of the tube. Check the tube fixation and correct insertion of the tube mark.

      ▶ Arrange for portable X-ray If no relief to rule out collapse, Pneumothorax and endobronchial intubation

iii) Monitor Pulse / BP / Oxygen saturation to rule out hypoxia hypotension

iv) Watch for bladder distention.

v) Check ventilator settings for mode / RR / I : E Ratio/ trigger / PEEP. Rule

vi) Administer Sedatives and paralyzing agents as per advice if the patient fights with ventilator
**PROTOCOL FOR SUCTIONING.** (9, 13, 15, 17, 19, 20, 22)

**Purpose :-**

i) Excessive intratracheal secretions

ii) Diminished air flow.

iii) Sign and symptoms of airway obstruction.

iv) Congested lung sounds on auscultation.

**Policy :-**

a) Strict aseptic technique.

b) Hyperventilation with 100% oxygen with five to six time inflation before suctioning.

c) Should be performed before and after chest physiotherapy, change of position and as and when excessive secretions are seen.

**Equipments :-**

i) Suction machine or regulator and canister

ii) Bag valve mask device connected to 100% oxygen.

iii) Suction kit (with sterile gloves, catheter, and cup)

iv) Sterile saline (3to 10 ml) without preservative in the syringe.

v) Saline bottle

vi) Absorbent pads.

vii) Goggles (or Glasses) and mask in case of infected patient

viii) Gown (if necessary)

ix) Assistant.
Procedure :-
   i) Introduce self to patient and explain procedure.
   ii) Ensure privacy.
   iii) Wash hands.
   iv) Assemble equipment.
   v) Place patient in semi-or high Fowlers position if not contraindicated. This position allows patient to assist in coughing and expectorating mucus.
   vi) Turn on suction. Check suction pressure. Occlude the tubing. Check the suction pressure, it should not exceed 100 to 120 mm Hg.
   vii) Open sterile catheter kit package and remove cap. Fill cap with sterile saline. or
   viii) Prepare the saline for instillation by drawing up saline in a syringe.
   ix) Put on goggles, mask, and sterile gloves.
   x) Attach catheter to suction tubing, keeping dominant hand sterile.
   xi) Before suctioning, have assistant hyper inflate the patient’s lung five times (during inspiration) to provide extra oxygen. The oxygen concentration should be 100%. Turn flow meter up to 10 L. /min. Patients with COPD may need to be hyper inflated without increasing the FiO2.
   xii) Instill 3to 5ml of saline into the trachea (optional, check unit policy.)
   xiii) Ventilate patient again. The saline will promote coughing and liquefy secretions for easier removal.
   xiv) Leave vent open to air, lubricate catheter with saline and introduce catheter.
   xv) Inform patients that they may feel short of breath if conscious. Do not begin to suction until the catheter reaches the carina. Withdraw 1 cm before beginning to suction.
xvi) Occlude vent with thumb of opposite hand slowly withdrawing catheter while rotating it between the thumb and finger. This rotating motion prevents tissue trauma. Do not suction for more than 10 seconds. Completely withdraw catheter. Dispose of them with the other gloved hand.

xvii) Dispose the catheter after suction.

xviii) Perform oral suctioning.

xix) Use a separate catheter for oral suctioning.
PROTOCOL FOR ASSISTING FOR ABG (ARTERIAL BLOOD GAS) COLLECTION

Policy : -
  i) Assist as and when required

Purpose : -
  i) To monitor patients with metabolic, electrolytes and blood gas abnormalities

Articles required :-
  i) Pair of clean gloves.
  ii) cc sterile heparin zed syringe.
  iii) Alcohol rubs or spirit swab.
  iv) Dry cotton swab

Procedure :-
  i) ABG can be collected from femoral artery or radial artery or from the ABP (Arterial blood pressure ) lines .Radial artery method is preferred .femoral artery method is used if radial is feeble or there is injury or infection to hand or if we were not able to apply radial artery method.

  ii) Procedure for radial and femoral and radial ABG collection is same expect the location and the needle. Modified Allen’s test is performed by the doctor before radial artery method selected

  iii) Explain the procedure if patient is conscious.
iv)  
A)  **For radial artery blood collection**  
   i.   Watch for the radial artery location by the doctor, as he keeps the hand in supine position with wrist extended.  
   ii.  Give the ABG syringe. If ABG not available, then flush 2cc syringe having needle with heparin for radial artery use 24 gauge (1.5 inc) needle.  
   iii. With draw needle and give firm pressure with dry gauze the for 5 minutes at the punctured site. Pressure should be given for longer period if patient has coagulation disorder.  

B)  **For femoral artery blood collection**  
   i.   Femoral artery is palpated by keeping the leg extended and externally rotated at the hip joint and semi flexed at the knee joint.  
   ii.  Give the ABG syringe. If ABG not available, then flush 2cc syringe having needle with heparin and 21 gauge (1.5 inch) needle should be used.  
   iii. With draw needle and give firm pressure with dry gauze for 5 minutes at the punctured site. Pressure should be given for longer period if patient has coagulation disorder.  

v)  Put the cover over and air lock the needle immediately following universal precaution if ABG syringe is not used.  

vi) Remove air bubble if any from syringe by keeping it vertical and tapping it.  

vii) Label it.  

viii) Place the syringe in a container with ice if transportation time is longer.  

ix) If analysis is done in the area it should be done within ten minutes.  

x) Check for any blood loss at the site of puncture five minutes after ABG collection.
**Arterial line blood collection** :-

i) Take ABG syringe. If ABG not available, then flush 2cc syringe with heparin. Attach a 5ml syringe to the sampling bivalve connected to the distal port of the radial artery catheter.

ii) Turn the bivalve off to the flush solution.

iii) Aspirate 2ml into a 5ml syringe to clear the line of flush solution Close the bivalve remove the syringe and discard.

iv) Open the bivalve and aspirate gently the blood flows in the syringe on its own due to the arterial force.

v) Close the bivalve and remove the syringe. Hold the syringe upright, and expel any air bubbles in the syringe. Cap the syringe and roll it gently to mix the blood with heparin Sub merge in ice.

vi) Attach the 5ml syringe to the bivalve. Open the bivalve to the flush solution. Flush solution into syringe to clear the bivalve. Turn the bivalve to the sampling port, remove the syringe and cap the ort.

vii) Flush the line until all the traces of blood are removed.

viii) Check the bedside monitor for reappearance of wave forms.

ix) Place the syringe in a container with ice if transportation time is longer.

x) If analysis is done in the area it should be done within ten minutes.

**Common problems** :-

i) Sample error- collection of venous blood instead of arterial blood.

Precautions-

a) check for fresh red color and pulsatile flow of the blood while aspirating to ensure arterial sample.

b) If the dark color blood with non-pulsatile flow is aspirated then discard it and take fresh sample.

ii) Air bubbles from syringe by keeping it in vertical and taping it.
Interpretation of ABG Result

i) Examine Ph.
   a) Is it normal, acidotic, or alkolic? Ph below 7.35 represent acidosis
   b) Ph above 7.45 indicates alkalosis.
   c) A normal Ph with an abnormal HCO₃ (Bicarbonate) level and PaCO₂ (partial pressure of carbon dioxide) indicates a compensated acid base disorder.

ii) Examine PaCO₂ in relation to Ph. Is it normal, elevated, or decreased?
   a) Elevated PaCO₂ with decreased Ph indicates respiratory acidosis.
   b) Decreased PaCO₂ with an elevated Ph indicates respiratory alkalosis.
   c) Increased PaCO₂ with a Ph greater than 7.40 indicates compensation for metabolic alkalosis.
   d) Decreased PaCO₂ with a Ph less than 7.40 indicates compensation for metabolic acidosis.

iii) Examine HCO₃. Is it normal, elevated or decreased?
   a) Elevated HCO₃ with an elevated Ph indicates metabolic alkalosis.
   b) Decreased HCO₃ with a decreased Ph indicates metabolic acidosis.
   c) Increased HCO₃ with a Ph less than 7.40 indicates respiratory acidosis.
   d) Decreased HCO₃ with a Ph greater than 7.40 indicates respiratory alkalosis.

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<th>PaCO₂</th>
<th>HCO₃</th>
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<td>Respiratory acidosis</td>
<td>↓</td>
<td>↑</td>
<td>normal</td>
</tr>
<tr>
<td>Respiratory Alkalosis</td>
<td>↑</td>
<td>↓</td>
<td>normal</td>
</tr>
<tr>
<td>Metabolic Acidosis</td>
<td>↓</td>
<td>normal</td>
<td>↓</td>
</tr>
<tr>
<td>Metabolic Alkalosis</td>
<td>↑</td>
<td>normal</td>
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PROTOCOL FOR CHANGING
ENDOTRACHEAL TUBE TIE

**Purpose :-**

i) To protect patient’s oral skin

ii) To maintain hygiene

iii) To anchor the ETT and prevent dislodgement

**Policy :-**

i) Two Nurses are required for changing ET tube in the presence of intensivist.

ii) ET tube tie will be changed every 24 Hours or as often as need

**Equipment :-**

i) Mouth care set

ii) ET tie

iii) Clean gloves

iv) Scissors / blade

v) Airway

vi) Warm water, soap and sponge towel and face towel

vii) Intubation tray-standby for any accidental extubation

viii) Working suction unit

ix) Gauze pieces

**Procedure :-**

i) Wash hands and don personal protective equipment.

ii) Position patient appropriately Position the patient at 30° angle head elevation with neck extension.

iii) One nurse should stand at the head end and the other will stand facing patient
iv) Nurse facing patient will hold the tube and note markings at lip and teeth level.

v) Nurse standing at the head end will cut the tape with scissors just above the knot

vi) Loosen the ends and remove tape without pulling ET tube.

vii) If blade has to be used for cutting the wet tie, do very carefully

viii) Clean the face and area around the lips with soap and water and dry. If it is NTT ensure that the nostril is thoroughly cleaned.

ix) Perform oral suctioning and give oral hygiene. Replace airway.

x) If patient is with ETT for more than 48 hrs ensure that the tube is moved from one corner of mouth to the other to prevent pressure sore.

xi) Double the tape and make a slipknot. Slip it over the ET tube and pull both ends in opposite direction. Ensure it is sufficiently tight.

xii) Make a loop around airway and fix it well

xiii) Reconfirm tube placement and check for levels of tube.

xiv) Pull the tape ends in opposite direction and tie tape around neck. (Ensure cuff tubing is not tied with the tube.)

xv) Ensure the tie is one finger loose at the cheek.

**Documentation :-**

i) Record the Date and time of removal of endotracheal tube

ii) Record any unexpected outcome or complications at the time of extubation.

iii) Note down the condition of the mouth and lips.

iv) Record the vital signs, oxygen saturation and keep a close watch on any decrease in oxygen saturation.
**Purpose :-**

- i) To maintain healthy state of mouth, teeth, gums and lips.
- ii) To clean the teeth of plaque and bacteria.
- iii) To relieve halitosis.
- iv) To prevent gum inflammation and infection.

**Policy :-**

- i) Mouth care to be performed in each shift by the nurses'. Morning evening and night.

**Articles Required :-**

A tray containing --

- i) A small mackintosh with a pair of gloves.
- ii) A feeding cup/bowl with plain water
- iii) Chlorhexidine / Listerine or normal saline in a container.
- iv) A kidney tray.
- v) Paper Bag
- vi) Emollients like glycerin borax/Vaseline.
- vii) Cotton applicators.
- viii) A tray with plain forceps, artery forceps, tongue depressor, mouth gag, gauzes pieces and cotton.
- ix) Face towel,
- x) Suction and suction catheters

**Procedure :-**

- i) Wash hands with soap and water.
- ii) Prepare solution of chlorhexidine or Listerine in one bowl.
- iii) Turn patients head to one side.
iv) Place kidney tray close to the cheek.

v) Do not pour water into the patient’s mouth.

vi) Insert tongue depressor into patient’s mouth.

vii) Wrap gauze piece to the artery forceps.

viii) Moisten the gauze and dip it in a cleaning agent, squeeze the gauze and swab each tooth gently, take care to clean each side of the teeth.

ix) Clean the inner and chewing surface of the teeth, use mouth gag if required.

x) Clean the tongue using gauze-covered forceps.

xi) Wet the gauze only with small amount of solution.

xii) Apply glycerineborax or any emollient available on the lips and tongue to keep them moist.
PROTOCOL FOR BACK MASSAGE AND CARE OF PRESSURE POINTS (10, 11, 13, 14, 15),

**Purpose :** -
   i) To prevent bedsores in the patient.

**Policy :** -
   i) Cleaning with warm water and soap should be done once in every shift and 2 hourly back rub with change in position.

**Equipments :** -
   i) A tray containing
      a) Mackintosh
      b) Bowl with warm water.
      c) Sponge cloth.
      d) Soap
      e) Towel.
      f) Lotion cold cream / Eu-de-colone or moisturizing cream depending on availability and condition of skin

**Assess :** - Risk Factors Pressure Ulcers
   i) Advanced age
   ii) Anemia
   iii) Contractures
   iv) Diabetes mellitus
   v) Elevated body temperature
   vi) Immobility
vii) Impaired circulation

viii) Incontinence

ix) Low diastolic blood pressure (<60mm Hg)

x) Mental deterioration

xi) Neurologic disorders

xii) Obesity

xiii) Pain

xiv) Prolonged surgery

xv) Vascular disease
   a) Behaviors indicating potential need for back massage (i.e., complaint of stiffness, muscle tension in back or shoulders, or difficulty sleeping related anxiety).
   b) Whether the patient is willing to have a massage.
   c) Contraindications for back massage (e.g., impaired skin integrity (burns), back surgery, vertebral, or rib fracture).
   d) Ensure you have adequate time for the massage.

**Procedure :-**

i) Introduce yourself if the patient is conscious Explain what you are going to do, why it is necessary and how the patient can cooperate. Encourage patient to give you feedback on amount of pressure you are using during back rub.

ii) Perform hand hygiene.

iii) Provide privacy for patient

iv) Prepare the patient and move the patient to the nearside of the bed within your reach.
v) Adjust the bed to a comfortable working height to prevent back strain.

vi) Establish which position is suitable to the patient. The prone position is recommended for a back rub the side-lying position can be used if a patient cannot assume the prone position.

vii) Expose the back from the shoulders to the inferior sacral area. Cover the remainder of the body to prevent chilling and minimize exposure.

viii) Place the mackintosh at near the back

ix) Clean the back with soap and water.

x) Dry it with the towel.

xi) Massage the back. Pour a small amount of lotion on to palm of hands and hold for a minute so that the lotion becomes warm.

xii) Use the following steps for back massage

a) **Effleurage**: Move your hands up the center of the back and then over both scapulae. Massage in a circular motion over the scapulae, using flat palms of the hands.

b) **Petrissage**: Applying direct pressure to the soft tissue against the underlying bones with the help of balls of the fingers and thumb.

c) **Tapotment**: Flickering movements of the fingers in a circular manner.

d) **Kneading**: Rolling of the soft tissue muscles which is packed away from the body and rolled back.

e) **Hacking**: Gentle strokes with the edge of the palm over the muscles of the tissue.
f) Cupping: - Strokes with the cupped hands in the circular motion over the back.

g) Friction. - Strong and firm pressure applied with the help of thumb over the spinal Column from the sacrum till the cervical spine.

xiii) Using your palm, begin in the sacral area using smooth, circular strokes.

xiv) Move your hands up the center of the back and then over both scapulae. Massage in a circular motion over the scapulae.

xv) Move your hands down the sides of the back.

xvi) Massage the areas over the right and left iliac crests.

xvii) Apply firm, continuous pressure without breaking contact with the patient’s skin.

xviii) Repeat above for 3 to 5 minutes, obtaining more lotion as necessary.

xix) While massaging the back, assess for skin redness and areas of decreased circulation.

xx) Pat dry any excess lotion with a towel.

xxi) Document that a back rub was performed and the patient’s response.

xxii) Record any unusual findings
PROTOCOL FOR ENTERAL FEEDING (11, 13, 14, 15, 19, 22)

3)

**Assessment Factors** :-

i) Bowel Movement

ii) Bowel Sounds

iii) Abdominal Girth

iv) Nausea

v) Vomiting

**Ask for Nutritional History of the patient if conscious**

i) Weight change

ii) Appetite

iii) Satiety level

iv) Taste changes/aversions

v) Nausea/ Vomiting

vi) Bowel habits-diarrhea, constipation,

vii) Alcohol or drug use

viii) Chewing/swallowing ability

ix) Pain when eating

x) Long-term disease(s) affecting utilization of nutrients

xi) Surgical resection or disease of gastrointestinal tract

xii) Diet-history-usual meal pattern

xiii) Dietary restrictions
xiv) Use of vitamin/mineral or other nutritional supplements

xv) Food allergies/ intolerances

xvi) Medications

xvii) Level of activity/ exercise

xviii) Ability to secure and prepare food

**Evaluation of Ideal Body Weight :-**

i) A commonly used method for determining the ideal body weight in clinical settings is the
   a) Height in centimeters ---- 100 in males.
   b) Height in centimeters ----- 105 in females.

**Do the base line observations :-**

i) Check patients: - Hemoglobin, serum protein, serum albumin, blood sugar, LFT, serum electrolytes

ii) Monitor for change in weight.

**Purpose :-**

i) To Maintain the nutritional status of the patient.

**Policy :-**

i) Feeding to a patient on ventilator should be started only after 48 hours of ventilation.

**Equipments :-**

i) Mackintosh with towel

ii) Pint measuring container.

iii) Bowl with water at room temperature.
iv) Kidney tray.

v) Napkin or gauze pieces.

vi) 50 ml or larger piston syringe

vii) Stethoscope

viii) Nursing Interventions

a) Check for the presence of bowel Sounds with the help of stethoscope

b) Assist the patient to a Fowler’s position in bed or gives a slightly elevated right side-lying position as per the level of consciousness of the patient.

c) Place the mackintosh and towel below the chin and on the shoulder.

d) Attach the syringe, aspirates all contents, and measure the amount before administering the feeding.

e) Hold the syringe 8 inches above the bed

f) Introduce the feed into the syringe barrel, keep it full until total amount has been introduced.


g) Clear the tube after feeding by introducing a small amount of water.

h) Disconnect syringe barrel and clamp the tube to prevent leakage of fluid

i) Offer mouth wash after feed

j) Remove mackintosh and towel

k) Make the patient comfortable

l) Clean the article used.

m) Recording of time, date, amount of feed, in the intake output chart
**PROTOCOL FOR WEANING FROM VENTILATOR.**

**Purpose :-**

i) The need of an artificial airway is reversed or improved.

ii) The purposes of weaning patients from mechanical ventilation are liberation from ventilator support and removal of artificial airways.

**Policy :-**

i) Pre procedural teaching to a patient is a must.

ii) Weaning is performed by the ICU resident with the assistance of the staff nurse.

**Equipment :-**

i) If T-piece or tracheotomy collar setup is required, a flow meter with function heated aerosol humidifier for T-piece or tracheotomy collar trials is necessary. The setup should have an inline thermometer and a water trap.

ii) Pressure manometers.

iii) Weaning protocol or wean plan.

iv) Extubation equipment.

**Procedure :-**

i) Communicate with the patient throughout the weaning process.

ii) Wash hands and don gloves.

iii) Connect patient to nebulizer. Instruct patient to breathe to breathe normally, and monitor frequency, breathing pattern heart rate, cardiac rhythm, SaO₂, and general appearance of patient.

iv) After a predetermined time interval or with the emergence of signs of intolerance, place patient back on resting ventilator settings.

v) If patient successfully meets full trial criteria, notify physician, of patient response and consider extubation.
WEANING METHOD

i) Intermittent Mandatory Ventilation and Synchronized Intermittent Mandatory Ventilation Weaning Method
   a) Gradually and progressively decrease in IMV/synchronized mandatory ventilation (SIMV) breaths is done

   b) Assess the patient for signs and symptoms of fatigue, inadequate gas exchange and impaired breathing pattern with each decrement in IMV/SIMV support.

ii) Pressure Support Weaning Method
   a) Start at pressure support maximum (PSV max) and decrease level according to the protocol or as clinically indicated (i.e. no signs of intolerance.)

   b) Monitor patient responses to weaning. Return to full ventilatory support if signs of intolerance occurs and when intended duration of trial has been reached.

   c) When the clinical goal for PSV wean is accomplished (i.e., 12 hours at lowest level) extubation or an additional step is discussed with the team.

iii) ‘T’ – Piece Trial
   a) Explain the patient and reassure him. Keep him in propped up position

   b) Get T piece tube and O₂ tubing

   c) Do a thorough suction.

   d) Disconnect at ET connector end attach T piece

   e) Set flow rate to keep oxygen saturation > 90%

   f) Stop ventilator.

   g) Keep catheter mount wrapped in sterile GAUZE by patient’s side

   h) Collect ABG if doubtful.
**Documentation :-**

Explanation to Patient and family regarding weaning procedure and its advantages

i) Note the procedure used for weaning (e.g., T-piece, decreasing IMV/support, pressure end expiratory pressure, or CPAP.)

ii) Findings of parameters used to assess patient readiness to wean and weaning trial tolerance such as ABGs, oximetry readings, negative inspiratory pressure, positive expiratory pressure, Vital capacity, MV, dynamic characteristics, static compliance measurements, airway resistance measurement, breathing pattern, and accessory muscle use.

iii) Duration of trial and time when it started.

iv) Unexpected outcomes complications at the time of weaning.

v) Any use of drugs

vi) Nursing action taken

**Conditions to be reported :-**

These conditions should be reported if they persist despite nursing interventions.

i) Changes in weaning parameters

ii) Signs of weaning trial intolerance (tachypneas, dyspnea, abnormal movements of chest and abdominal.

iii) Patient becomes restless

iv) Mental status changes.

v) Significant decrease in Sao2 (Sao2 < 90% or 10% decrease)

vi) Changes in pulse rate or rhythm.

vii) Blood pressure increase or decrease.
PROTOCOL FOR ASSISTING IN EXTUBATION. (9, 10, 11, 12, 13, 14, 17)

**Purpose :-**

i) To remove the artificial airway to allow the patient to breathe independently.

**Policy :-**

i) Extubation must be performed only after successful weaning from mechanical ventilator support (generally after 24-hours.).

ii) When the patient with a tracheostomy tube is gradually weaned from tracheostomy tube.

**Equipment :-**

i) Suctioning Equipment.

ii) Sterile suction catheter or suction kit.

iii) Self-inflating resuscitation bag connected to 100% oxygen source.

iv) Scissors.

v) Endotracheal intubation supplies.

vi) Stethoscope.

vii) 10-mL syringe.

viii) Emergency cart.

ix) Rigid pharyngeal suction tip catheter.

x) Sterile gloves.

xi) Supplemental oxygen with aerosol.

xii) Sterile dressing for tracheal stoma.
Procedure :-
   i)  Wash hands and don personal protective equipment.
   ii) Hyper oxygenate and suction endotracheal tube and pharynx.
   iii) Remove secretions, including those above the cuff.
   iv) Remove tape to free the tube.
   v)  Instruct patient to deep breathe. While the tube is being removed, at the peak of inspiration, monitor and support the patient.
   vi) Encourage the patient to deep breath and cough.
   vii) Suction the pharynx.
   viii) Apply supplemental oxygen and aerosol, as appropriate.
   ix)  Place a dry, sterile, 4X4 dressing over stoma when tracheostomy tube removed.

Documentation :-
   i)  Explanation to Patient and family regarding extubation procedure and its advantages
   ii) Record Respiratory rate and vital signs assessment before and after the procedure.
   iii) Note Date and time when procedure is performed.
   iv)  Record Patient response.
   v)  Unexpected outcomes.
   vi)  Nursing interventions taken

Patient Monitoring and Care
   i)  Change in vital signs and oxygen immediately following extubation, within 1 hour this may indicate respirator compromise, necessitating reintubation.
   ii) Promote optimal oxygenation by providing supplemental oxygen as needed. because decreases incidence of oxygen desaturation immediately following extubation.
iii) Monitor for aspiration related to pooled secretion as Failure to suction or ineffective suctioning of the pharynx allows accumulated secretions to further advance into the trachea on cuff deflation.

iv) Encourage coughing and deep breathing because it prevents atelectasis and secretion accumulation.

v) Assess swallowing ability as presence of tube over extended periods may result in impaired swallow.

**Reportable Conditions :-**

i) These conditions should be reported if they persist despite nursing interventions.
   
a) Tachycardia.

b) Tachypnea.

c) Blood pressure > 100% baseline.

d) Spo2 (oxygen saturation) < 90%

e) Stridor

f) Breathing difficulty

g) Chest-abdominal asynchrony.

ii) Spo2 < 90%

iii) Patient unable to handle secretions.

iv) Inability to swallow
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APPENDIX NO. : B

TEACHING MODULE ON NURSING CARE OF PATIENT ON VENTILATOR

Title :
A Study to develop and assess the effectiveness of Standard Operating Protocols on knowledge and practices of nurses regarding care of patients on ventilator in an intensive care unit at selected government hospitals in the state of Maharashtra.

Group :
Staff Nurses working in intensive care unit.

Methods of teaching :
Lecture, demonstration and discussion.

A.V. Aids :
Power point, charts Flash cards Monitors, machines (Ventilator, suction machine, oxymeter, syringe pump) ABG reports etc.

Aim :
The nurse working in the intensive care unit will be able to care a patient on ventilator effectively with the help of Nursing Protocols.
Objectives:
The Group will be able
1) To maintain routine work in Intensive Care Unit
2) To communicate with the patients, relatives and health team Members in the I.C.U.
3) To assist in endotracheal intubation, Extubation and change of twill tape of the patient on ventilator.
4) To monitor patient on ventilator and weaning patient from ventilator.
5) To carry out endotracheal suctioning.
6) To meet hygienic needs of the patient by
   a) maintaining oral hygiene of the patient on ventilator
   b) Giving back massage and taking care of pressure points for the patient on ventilator.
7) To assist in ABG (arterial blood gas) collection.
8) To meet nutritional need of patient by giving enteral feeding to the patient.
WORK DURING THE CHANGE OF SHIFTS

**Specific Objectives**: The Group will be able to carry out the work in the ICU according to the Protocols during the change of shift.

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<th>Objectives</th>
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<th>Teaching-Learning activity.</th>
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<tr>
<td>Group carries the work in the ICU according to the Protocols.</td>
<td><strong>Protocols to be followed at the change of shifts</strong>&lt;br&gt;1. Hand washing and wearing of safety protective devices to be followed before entering ICU at the beginning of shift.&lt;br&gt;2. Follow Assigned additional job responsibilities planned by sister in charge as per your cadre&lt;br&gt;3. Take the counts of instrument, packs and autoclave drums.&lt;br&gt;4. Check Crash cart and Ambu bags in each shift as per the schedule.&lt;br&gt;5. Check the total number of patients in ICU, expected transfer-out.&lt;br&gt;6. Give and take a proper over at the time of change of shift regarding pending investigations and reports.&lt;br&gt;7. Check for cleanliness of bedpans, urine pots, kidney trays, sputum mugs.&lt;br&gt;8. Check the Linen, laundry and, special indents&lt;br&gt;9. Instruct the relatives that the diet orders are send only in the morning hours. Patients admitted after morning shift will get the prescribed diet on the next day meantime patient has to have home diet.&lt;br&gt;10. Take following over of assigned patients,&lt;br&gt;   • Patients Name, Bed No, Drs Unit, Diagnosis, Date of admission&lt;br&gt;   • General Condition of the patient (check for status of skin / bowel / mouth care, urine output, suctioning, change of twill tape, nebulization respiratory rate, status of drainage tubes &amp; catheters etc.)</td>
<td>Why do we need to check all the information regarding the patient and a proper over during the change of shift? Explains with the help of chart and registers in in ICU.</td>
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<td>Objectives</td>
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</table>
|            | • Medication status ,charting of drugs  
• Pending investigations and reports any procedures.  
• Information about patients general condition to the relatives  
• Any references or calls to be send. | |
| 11. | If you are allotted more than one patient then give your attention first for the most seriously ill patient. Take help of other circulating staff. | |
| 12. | Keep strict Monitoring chart of the patient according to ICU charting Cardiovascular status-Heart rate, Oxygen saturation, respiratory status - Respiratory rate, ABG, Pattern of breathing renal- hourly urine output, bloodurea level,.Sr. creatinine , metabolic (BSL), and other monitoring. Glassgow coma Scale Maintain the ICU chart accurately | |
| 13. | Administer medications as prescribed, give medications according to emergency and avoid delay in administration of drugs like Atropine, Palm, vasoactive drugs, antiarhythmics, anticonvulsants, bronchodilators and antibiotics. | |
| 14. | Follow and keep check on Infection control | |
| 15. | Maintain infection control protocols for care of tubes & catheters, bed-side procedures and also cleaning of the unit after the patients are shifted out of ICU or dead | |
COMMUNICATION WITH THE PATIENTS RELATIVES AND HEALTH TEAM

Specific Objectives:
The Group will be able to,

1) Define communication
2) Verbalize the importance of communication
3) Explain about the modes of communication
4) Understand the relation between communication and interpersonal relationship
5) Explain the different levels of communication.
6) Group is able to explain what intrapersonal relationship is.
7) Develop good interpersonal relationship
8) Follow the principles of interpersonal communication
9) Maintain a good relation with the health team members
10) Understand how to communicate in a small group
11) Understand the nurses role in Public communication.
12) Practice the elements of professional communication.
13) Practice the techniques of communication.
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<th>Objectives</th>
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<th>Teaching-Learning activity.</th>
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</table>
| 1.     | Group is able to define communication                                       | DEFINITION  
Communication is the transmission & receiving information, feeling & or attitudes with the overall purpose of having understood producing a response.  
Communication is the exchange of meanings between & among individuals through a shared system that have some meaning for both the sender & receiver of the message. | What do you mean by communication.                                |
| 2.     | Group is able to verbalize the importance of communication                  | **Importance of communication**  
1. Communication skill help generate trust between the nurse & client.  
2. Communication skill provides the nurse with professional satisfaction, job satisfaction.  
3. It is also a means for bringing about change, i.e. nurse listens, speaks & acts to negotiate change that promotes clients well being.  
4. It is foundation of the relationship between the nurse & other members of health team.  
5. It serves as a lubricant fostering the smooth operation of the management process.  
6. It provides basis for leadership action.  
7. It provides means of coordination | Why is it important for a nurse to have Knowledge about communication? |
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|        | Group is able to explain about the modes of communication | **Modes of communication**  
Two different modes  
I. Verbal (uses the spoken or written words).  
II. Non verbal (uses other forms such as gestures or facial expression & touch) | What do you mean by non verbal mode of communication? |
| 3     | Group understands the relation between communication and interpersonal relationship. | **Communication & Interpersonal Relationship**  
Communication is essential to the nurse-client relationship for the following reasons  
1) It is the vehicle for establishing a therapeutic relationship.  
2) It is a means by which an individual influences the behavior of another, which leads to the successful outcome of nursing intervention. | How does good interpersonal relationship help in nursing? |
| 4     | Group is able to explain the different levels of communication. | **Levels of communication**  
I. Intrapersonal communication  
II. Interpersonal communication  
III. Transpersonal communication  
IV. Small group communication  
V. Public communication | Why is it important for a nurse to have knowledge about levels of communication? |
| 5     | Group is able to explain what intrapersonal relationship is. | **Intrapersonal communication**  
☐ Intrapersonal are also called….  
☐ Nurses & clients can use intrapersonal communication to develop self-awareness,  
☐ Positive self-concept that will enhance appropriate self-expression. | Give an example of intrapersonal relationship. |
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| 6.      | Group tries to develop good interpersonal relationship | **Interpersonal communication**  
- One to one interaction between the nurse & another person that often occurs face to face.  
- Meaningful interpersonal communication results in exchange of  
  1) Ideas  
  2) Problem solving  
  3) Expression of feelings  
  4) Decision making  
  5) Goal accomplishment  
  6) Team building  
  7) Personal growth  | How does IPR help in giving comprehensive nursing care? |
| 7.      | Group follows the principles of interpersonal communication | **Principles of Interpersonal Relationship**  
1) Learn everyone’s name and never address anyone by any nick name.  
2) Respect everyone’s individuality. Each member of a team is as important as the other (Keep up the status of the every member).  
3) Do not impose anything on anybody.  
4) Keep emotions under control.  
5) Do not be afraid to admit ignorance.  
6) Do not give and take personal favour.  
7) The team leader should not make any excuse regarding his or her responsibility.  | What principles of communication you will follow while working in ICU? |
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<tr>
<td>8)</td>
<td>Develop habits of listening and focus attention on the problem.</td>
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<td>9)</td>
<td>Do not do or say anything that will disturb other’s faith.</td>
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<td>10)</td>
<td>Be impartial to others and practice justice.</td>
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<td>11)</td>
<td>The member of a team should be loyal, honest, dependable and willing to</td>
<td>carry out the directions of the team leader.</td>
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<td>12)</td>
<td>There should be “team spirit” or “we feeling” among the members. The</td>
<td>members should work for the interest of the group.</td>
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<td>13)</td>
<td>There should be mutual understanding between the members. They should be</td>
<td>willing to give and take suggestions.</td>
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<td>14)</td>
<td>There should be delegation of responsibility in a group and every member</td>
<td>should carry out his or her responsibility to the satisfaction of the group.</td>
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<td>15)</td>
<td>The relationship of the members of a group with the public should be</td>
<td>decent and considerate.</td>
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<td>16)</td>
<td>Teach the newcomer about the job. Make sure that all the assignments are</td>
<td>understood.</td>
<td></td>
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<td>17)</td>
<td>The newcomer of the group should “feel at home” when he joins the group.</td>
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<td>18)</td>
<td>Establish a good rapport among the members in order to achieve the aim.</td>
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<td>19)</td>
<td>Every member should be familiar with the organization plan and the policies</td>
<td>of the group.</td>
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<td>20)</td>
<td>Keep up to date with the information that are going around.</td>
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<td>21)</td>
<td>Avoid arguments in the group.</td>
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| 8.     | Group maintains a good relation with the health team members | **The Relationship of the Nurse with the Other Members of the Health Team.**  
**The nurse and the physician.** The nurse must be loyal, honest, dependable and willing to carry out the doctor’s orders in the matter of treatment and care of the client. There should be  
**To the head nurse/departmental sister.** The head nurse is incharge of particular ward or department. She is the team leader of that ward or department. The attitude of the nurse to her supervisor (head nurse) should be of respect, enthusiastic support and intelligent cooperation. The nurse, when she joins duty and when she takes leave, should report to the head nurse. Even for a short time she should not have the ward without her permission.  
**To her fellow nurses.** Any nurse, who is senior even by a day, must be treated with respect. The nurses are expected to be good team workers. The nurse is a member of a team whose function is the “care of the sick”.  
**To other hospital personnel.** Good relationship between the personnel of different departments must be maintained satisfactorily. She should understand that the nursing department is co-ordinate with other departments of the hospital for its smooth functioning. | What is the nurses’ role with other health team members in the ICU? |
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<td><strong>The nurse and the client.</strong> The client is the most important person in the hospital. The client in the hospital experiences new and unfamiliar surroundings. Due to hospitalization, the client faces many physical and psychological problems. It is up to the nurse to see that he feels homely. Treat him as an individual, understand him and help him to overcome his fears and anxiety. Help him to adjust to the routines of the new environment and help him to cooperate and to accept treatments necessary for the regaining of his health. She should be sympathetic and of understanding nature. She should create confidence in the client about the care taken by the health team. She should establish a good nurse-client relationship. Always speak of the client by his name and not by the bad number or disease. She should be pleasant, cheerful, and courteous but should not be too familiar. She should neither discuss on personal affairs nor about other clients or whisper anything in front of him. She should not have any discrimination between caste or creed, rich or poor. She should not accept any gift or personal favours from the patient.</td>
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| 9. Group understands how to communicate in a small group | **Small group communication.**
- Darley suggests that there are two main principles that are important to ensure effective communication & working relationships between people in any group.
- The first is to respect people as partners the second, listen actively to the other people in the group. | What will you keep in mind while you communicate with a small group? |
| 10. Group understands the nurses role in Public communication. | **Public communication.**
- Interaction with an audience.
- Public communication requires special adaptations in eye contact, gestures, voice inflection & media materials to communicate messages effectively.
- Effective public communication increases audience knowledge about health related topics, health issues, & other issues important in nursing profession. | How will good public communication help nursing profession? |
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<td>11.</td>
<td>Group practices the elements of professional communication.</td>
<td><strong>Elements of professional communication.</strong></td>
<td>What are the elements of professional communication?</td>
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<td></td>
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<td>1) Courtesy</td>
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<td>2) Use of names</td>
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<td>3) Privacy &amp; confidentiality</td>
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<td>4) Trustworthiness</td>
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<td>5) Autonomy &amp; responsibility</td>
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<td>6) Assertiveness</td>
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<td>12.</td>
<td>Group practices the techniques of communication.</td>
<td><strong>Therapeutic communication technique</strong></td>
<td>How does a therapeutic technique help in communication?</td>
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<td></td>
<td></td>
<td>1) Active listening.</td>
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<td>2) Sharing observation.</td>
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<td>3) Sharing empathy</td>
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<td>4) Sharing hope</td>
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<td>5) Sharing humor</td>
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<td>6) Sharing feeling</td>
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<td>7) Using touch</td>
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<td>8) Using silence</td>
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<td>9) Providing information</td>
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<td>10) Clarifying</td>
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<td>11) Focusing</td>
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<td>12) Paraphrasing</td>
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<td>13) Asking relevant questions</td>
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<td>14) Summarizing</td>
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<td>15) Self-disclosure.</td>
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<td>16) Confrontations</td>
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## Specific Objectives:

The Group will be able to,

1. Define the term endotracheal tube
2. Develop the concept of endotracheal suctioning
3. Identify the different parts of endotracheal
4. Identify the functions of different parts of endotracheal tube.
5. Identify the different types of endotracheal tube
6. Identify purpose of endotracheal intubation
7. Recognize advantages of routes of intubation
8. Develop skill in setting up the equipment for endotracheal intubation, changing the twill tape, extubation
9. Explain what consent has to be taken and how to prepare the relatives mind
10. Develop skill in assisting for endotracheal intubation
11. Develop skill in changing the twill tape
12. Identify the problems and learns reporting
13. Demonstrate the procedure of assisting in Extubation of endotracheal tube effectively
15. Monitor the patient after Extubation
16. Report the abnormal condition found in the patient after Extubation.
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</table>
| 1.      | Group defines the term endotracheal tube | **Concept of Endotracheal Tube:**  
**Meaning:**  
An endotracheal tube is a long slender hollow tube, which is inserted in the trachea just above the carina via nose or mouth to keep the airway open | What do you mean by endotracheal tube? |
| 2.      | Group develops the concept of endotracheal suctioning | **Endotracheal Intubations:**  
This term refers to placement of endotracheal tube into the trachea via nose or mouth. | What Do you mean by endotracheal intubation |
| 3.      | Group identifies the different parts of endotracheal | **Parts of endotracheal Tube:**  
- Adaptor  
- Cuff  
- Pilot balloon  
- Murphy’s Eye | What are the different parts of Endotracheal tube? |
| 4.      | Group identifies the functions of different parts of endotracheal tube. | **Functions of different parts:**  
**Adaptor:** This part is at proximal end of the tube & it connected to ventilator tubing or oxygen source.  
**Cuff:** This part is distal end of the tube. Cuff when inflated completely provides a sea between outer part of the tube & lining of trachea.  
**Pilot balloon one way valve:** The air is introduced via pilot balloon one-way valve & prevents back flow of air.  
**Pilot balloon:** The air travels through the pilot line to reach the cuff. | Writes names of different parts of endotracheal tube on a paper.  
Allows group to handle endotracheal tube.  
Inflates the cuff and shows it to group.  
Explains function of each part simultaneously while showing the parts. |
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<tr>
<td>5</td>
<td>Group identifies the different types of endotracheal tube</td>
<td><strong>Types of E.T. tubes:</strong>&lt;br&gt; E.T. tube made up of Polyvinyl chloride Rubber.&lt;br&gt;Size of E.T. tube:&lt;br&gt; It is available in different sizes from 2mm to 12mm. The size used for adults are 7mm-10mm.</td>
<td>What are the different parts of endotracheal?</td>
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<td>6</td>
<td>Group identifies purpose of endotracheal intubation</td>
<td><strong>Purposes of intubations:</strong>&lt;br&gt;• To relieve airway obstruction.&lt;br&gt;• To prevent aspiration&lt;br&gt;• To aid in suctioning of tracheal secretion&lt;br&gt;• To aid in artificial ventilation</td>
<td>What is the purpose of Endotracheal Intubation?&lt;br&gt;Reads the list of purpose and explains its rationale with help of power point.</td>
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<td>7</td>
<td>Group recognizes advantages of routes of intubation</td>
<td><strong>Routes intubation and advantages:</strong>&lt;br&gt;<strong>Oral route:</strong>&lt;br&gt;Easy for intubations&lt;br&gt;Used for airway management for short period of time.&lt;br&gt;<strong>Nasal route:</strong>&lt;br&gt;Usually used in case of facial trauma / surgery comfortable for patient.</td>
<td>What are the different routes of intubation?&lt;br&gt;Explains different routes of Endotracheal intubation with the help of diagram and explains its advantages along with it.</td>
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<td>8</td>
<td>Group develops skill in setting up the equipment for endotracheal intubation.</td>
<td><strong>EQUIPMENT</strong>&lt;br&gt;1) Personal protective equipment.&lt;br&gt;2) Endotracheal tube with intact cuff and 15-mm connector. Adult female – 7.5 to 8.0 mm tube, Adult male – 8.0 to 9.0 mm tube.&lt;br&gt;3) Laryngoscope handles with fresh batteries.&lt;br&gt;4) Laryngoscope blades (Straight or curved)&lt;br&gt;5) Spare bulb for laryngoscope blades.</td>
<td>Which are the numbers of endotracheal tubes used in adults&lt;br&gt;Why we need to keep suction ready before we begin with the procedure.</td>
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<td>6) Flexible stylet.</td>
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<td>7) Self-inflating resuscitation bag with mask connected to 100% oxygen.</td>
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<td>8) Oxygen source and connecting tubes.</td>
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<td>9) Adapter.</td>
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<td>10) No sterile gloves.</td>
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<td>11) Luer-Lok 10 ml syringe for cuff inflation</td>
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<td>12) Water-soluble lubricant.</td>
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<td>13) Rigid pharyngeal suction-tip (Yankauer) catheter</td>
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<td>14) Suction apparatus (portable or wall)</td>
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<td>15) Suction Catheter.</td>
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<td>16) Bite-block or oropharyngeal airway.</td>
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<td>17) Endotracheal tube-securing apparatus or appropriate tape</td>
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<td></td>
<td></td>
<td>i. Adhesive tape (6 to 8 long.)</td>
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<td>ii. Twill tape (cut into 30-in lengths.)</td>
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<td></td>
<td>18) Stethoscope</td>
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<td>19) Anesthetic spray (nasal approach)</td>
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<td>20) Local anesthetic jelly (nasal approach)</td>
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<td>21) Sedating or paralyzing medications.</td>
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<td>22) Magill’s forceps (to remove foreign bodies obstructing the airway.)</td>
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<td>23) Ventilator.</td>
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<td>24) Teaching-Learning activity.</td>
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| 9.     | Group explains what consent has to be taken and how to prepare the relatives mind | **Preparation of patient and relatives psychology.**  
Explanation to the patient if conscious and explanation to relatives and taking their written consent. We need to introduce a tube into the patient’s respiratory tract. This tube will help us to deliver desired amount of Oxygen to the patient. With the help of the machine oxygen will be as patient is not able to breath himself and if we do not do this he will develop complication. As soon as we find that patient can breathe on his own we may try to remove the tube. When the tube is in place patient will not be able to speak, we need to communicate with actions or with pen and paper. If he/she is conscious.  

**Written consent.**
I am aware that my patient (relation) condition is serious and he needs artificial breathing for which a tube is to be introduced onto the respiratory tract I have no doubts regarding the line of treatment and I permit to do the procedure. | Why we need to explain the procedure to the patient and the relatives. |
| 10.    | Group develops skill in assisting for endotracheal intubation | **PROCEDURE**  
1) Wash hands, and don personal protective equipment.  
2) Set up suction apparatus and connect rigid suction-up catheter to tubing  
3) Assist in positioning the patient’s head by flexing the neck forward and extending the head (sniffing position). Placement of a small towel under the occiput will elevate it, allowing for proper neck flexion. Do not flex or extend the neck of a patient with suspected spinal cord injury, the head must be maintained in a neutral position with in-line cervical spine immobilization.  
4) Check the mouth for dentures and loose tooth and remove if present. Suction the mouth as needed. | What is the nurses responsibility during the procedure. |
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<td>5)</td>
<td>Pre oxygenate the patient using a self-inflating bag-valve-mask device attached to 100% oxygen for 3 to 5 minutes. Provide frequent and gentle breaths.</td>
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<td>6)</td>
<td>Premedicate the patient as per the written orders.</td>
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<td>7)</td>
<td>Apply cricoid pressure as requested. Gentle cricoid pressure may assist in visualization of vocal cord and decrease risk of gastric distention and subsequent pulmonary aspiration. Once cricoids pressure is begun, it must be continued until the tube is correctly placed.</td>
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<td>8)</td>
<td>Keep manual resuscitation bag connected to 100% oxygen source and facemask ready for hyper oxygenation and manual ventilation. Intubation attempts should not take longer than 30 seconds. Patients will need to be hyper oxygenated and ventilated between Intubation attempts and do suctioning in between if required.</td>
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<td>9)</td>
<td>Confirmation of correct tube position should be verified by a chest x-ray</td>
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<td>10)</td>
<td>Note position of tube at teeth (use centimeter markings on tube.)</td>
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**Documentation**

- Inform the Patient and family about completion of procedure and present status of the patient
- Record Vital signs before, during and after intubation, including oxygen saturation.
- Write about the route of intubation – oral or nasal.
- Use of any sedation
- Size of endotracheal tube.
- Depth of endotracheal tube insertion.
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|        |            | • Measurement of cuff pressure.  
|        |            | • Assessment of breath sounds.  
|        |            | • Confirmation tube placement including chest radiograph (how placement was confirmed.)  
|        |            | • Occurrence of complication at the time of intubation.  
|        |            | • Nursing measures taken to prevent complications.  
|        |            | • Amount of Secretion.  
|        |            | • Patient’s response to procedure and tolerance.  

**CHANGING OF TWILL TAPE**

11. Group develops skill in changing the twill tape

**PROCEDURE**

1) Wash hands and don personal protective equipment.
2) Position patient appropriately Position the patient at $30^\circ$ angle head elevation with neck extension
3) One nurse should stand at the head end and the other will stand facing patient
4) Nurse facing patient will hold the tube and note markings at lip and teeth level.
5) Nurse standing at the head end will cut the tape with scissors just above the knot
6) Loosen the ends and remove tape without pulling ET tube.
7) If blade has to be used for cutting the wet tie, do very carefully

**Teaching-Learning activity.**

Why is it necessary to change the twill tape regularly.
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<td>8)</td>
<td>Clean the face and area around the lips with soap and water and dry. If it is NTT ensure that the nostril is thoroughly cleaned.</td>
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<td>9)</td>
<td>Perform oral suctioning and give oral hygiene. Replace airway.</td>
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<td>10)</td>
<td>If patient is with ETT for more than 48 hrs ensure that the tube is moved from one corner of mouth to the other to prevent pressure sore.</td>
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<td>11)</td>
<td>Double the tape and make a slipknot. Slip it over the ET tube and pull both ends in opposite direction. Ensure it is sufficiently tight.</td>
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<td>12)</td>
<td>Make a loop around airway and fix it well</td>
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<td>13)</td>
<td>Reconfirm tube placement and check for levels of tube.</td>
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<td>14)</td>
<td>Pull the tape ends in opposite direction and tie tape around neck. (Ensure cuff tubing is not tied with the tube.)</td>
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<td>15)</td>
<td>Ensure the tie is one finger loose at the cheek.</td>
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12 Group identifies the problems and report. **Observe and Report for the following Conditions:-**

These conditions should be reported if they persist despite nursing interventions.

- Absent or unequal breath sound.
- Change in the ABG levels
- Unplanned extubation.
- Tube movement from original position.
- Cuff pressure <20 to > 25 mmHg.
- Inability to pass a suction catheter.
- Redness, necrosis, skin breakdown.

While changing the twill tape what observations are to be made?
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<tr>
<td>13.</td>
<td>Group demonstrates the procedure of assisting in Extubation of endotracheal tube effectively</td>
<td><strong>PROCEDURE</strong>&lt;br&gt;1) Wash hands and don personal protective equipment.&lt;br&gt;2) Hyper oxygenate and suction endotracheal tube and pharynx.&lt;br&gt;3) Remove secretions, including those above the cuff.&lt;br&gt;4) Remove tape to free the tube.&lt;br&gt;5) Instruct patient to deep breathe. While the tube is being removed, at the peak of inspiration, monitor and support the patient.&lt;br&gt;6) Encourage the patient to deep breath and cough.&lt;br&gt;7) Suction the pharynx.&lt;br&gt;8) Apply supplemental oxygen and aerosol, as appropriate.&lt;br&gt;9) Place a dry, sterile, 4X4 dressing over stoma when tracheostomy tube removed.</td>
<td>What instructions you will give to the patient at the time of withdrawal of the tube?</td>
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<td>14.</td>
<td>Group is able to document the procedure of Extubation correctly.</td>
<td><strong>DOCUMENTATION</strong>&lt;br&gt;1) Explanation to Patient and family regarding extubation procedure and its advantages&lt;br&gt;2) Record Respiratory rate and vital signs assessment before and after the procedure.&lt;br&gt;3) Note Date and time when procedure is performed.&lt;br&gt;4) Record Patient response&lt;br&gt;5) Unexpected outcomes.&lt;br&gt;6) Nursing interventions taken.</td>
<td>What points you will document after extubation of endotracheal tube?</td>
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<td>15.</td>
<td>Group is able to monitor the patient after Extubation</td>
<td><strong>Patient Monitoring and Care</strong>&lt;br&gt;1) Change in vital signs and oxygen immediately following&lt;br&gt;   a. extubation, within 1 hour this may indicate respirator&lt;br&gt;   b. compromise, necessitating reintubation.&lt;br&gt;2) Promote optimal oxygenation by providing supplemental oxygen as needed because decreases incidence of oxygen desaturation immediately following extubation.&lt;br&gt;3) Monitor for aspiration related to pooled secretion as Failure to suction or ineffective suctioning of the pharynx allows accumulated secretions to further advance into the trachea on cuff deflation.&lt;br&gt;4) Encourage coughing and deep breathing because it prevents atelectasis and secretion accumulation.&lt;br&gt;5) Assess swallowing ability as presence of tube over extended periods may result in impaired swallowing.</td>
<td>How will you monitor the patient after Extubation?</td>
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<td>16.</td>
<td>Group is able to report the abnormal condition found in the patient after Extubation.</td>
<td><strong>Reportable Conditions</strong>&lt;br&gt;1) These conditions should be reported if they persist despite nursing interventions.&lt;br&gt;   a. Tachycardia.&lt;br&gt;   b. Tachypnea.&lt;br&gt;   c. Blood pressure &gt; 100% baseline.&lt;br&gt;   d. Spo2 (oxygen saturation) &lt; 90%&lt;br&gt;   e. Stridor&lt;br&gt;   f. Breathing difficulty&lt;br&gt;   g. Chest-abdominal asynchrony&lt;br&gt;2) Spo2&lt; 90%&lt;br&gt;3) Patient unable to handle secretions.&lt;br&gt;4) Inability to swallow.</td>
<td>Which are conditions when you need to report immediately?</td>
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MONITORING THE PATIENT ON VENTILATOR AND ASSISTING IN WEANING

Specific Objectives:-
The Group will be able to,

1) Develop concepts of ventilation
2) Identify goals of mechanical ventilation
3) Identify the indications of mechanical
4) Identify the different type’s mechanical ventilation.
5) Identify different modes of mechanical ventilation.
6) List the different parameters that need to be set on the ventilator while setting the ventilator.
7) Identify various alarms of mechanical ventilator and causes for it.
8) Demonstrate the skills in monitoring the patient on ventilator.
9) Identify the problems of the patient on ventilator.
10) Help the doctor to rule out the problem of trouble shooting.
11) Assemble the articles for weaning
12) Develops skills in assisting foe weaning the patient from ventilator
13) Understands the different methods of weaning.
14) Do the documentation correctly
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<tr>
<td>1.</td>
<td>Group develops concepts of ventilation</td>
<td><strong>Concept of Mechanical Ventilation:</strong>&lt;br&gt;Meaning: &lt;br&gt;Use of an artificial airway mechanical ventilator to create a flow of gas into and out of lungs in patients who are unable to ventilate their lungs adequately.&lt;br&gt;&lt;br&gt;When there is a imbalance between patient’s ventilatory demands and patients inherent</td>
<td>What do you mean by mechanical ventilation?&lt;br&gt;Explains with the help of diagram.</td>
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<td>2.</td>
<td>Group identifies goals of mechanical ventilation&lt;br&gt;Group identifies the indications of mechanical ventilation</td>
<td><strong>Goals of mechanical ventilation:</strong>&lt;br&gt;• To maintain alveolar ventilation.&lt;br&gt;• To deliver precise level of $O_2$&lt;br&gt;• To maintain adequate lung expansion&lt;br&gt;• To reduce the work of breathing.&lt;br&gt;&lt;br&gt;<strong>Indications of mechanical ventilation:</strong>&lt;br&gt;• Lungs or airway disorder or trauma. Eg: pneumonia, A.R.D.S. Rib fracture, asthma, and pulmonary edema.&lt;br&gt;• Circulatory disorders: MI, carcinogenic shock&lt;br&gt;• Acute exacerbation of C.O.P.D.</td>
<td>What are the indications of mechanical ventilation?&lt;br&gt;Explains indications of mechanical ventilation with the help of power point and explains with the help of example</td>
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### Objectives

**Content**

- Neuromuscular disorder and trauma: G.B. syndrome, myasthenia gravis, and head injury.
- Airway obstruction: facial trauma, aspiration.
- Prophylactic management after surgery.
- Respiratory acidosis.
- Poor oxygenation.

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| 3.      | Group identifies the different mechanical ventilation. | **Types of Mechanical Ventilation:**

**Negative pressure ventilation:**
Its normal physiological breathing produced by negative pressure outside the chest wall so that air is automatically inhaled opens his/ her airway.

**Positive pressure ventilation:**
This is based on a simple principal whereby $O_2$ enriched air is forced into the patient’s lungs and allowed to drain out passively.

IPPV :- Pressure cycled Ventilation
Volume cycled Ventilation
Flow cycled Ventilation
Time cycled Ventilation | What are the types of mechanical ventilation?
Explains the types of mechanical ventilation with the help of diagram. |
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<td>4.</td>
<td>Group identifies different modes of mechanical ventilation.</td>
<td><strong>Modes of Mechanical Ventilation:</strong>&lt;br&gt;&lt;br&gt;<strong>I. Controlled Ventilation:</strong>&lt;br&gt;a) <strong>Volume controlled Ventilation:</strong> This mode ensures that patient receive a preset volume of air.&lt;br&gt;&lt;br&gt;b) <strong>Volume controlled Ventilation + sigh:</strong> During this mode sigh is delivered after every 100th breath. At sigh double the tidal volume is delivered.&lt;br&gt;&lt;br&gt;<strong>Tidal Volume:</strong> It is the amount of air inhaled. If patient is on controlled ventilator and he tries to take extra breath then we say that patient is fighting the ventilator in that case.&lt;br&gt;&lt;br&gt;c) <strong>Pressure Controlled Ventilation:</strong> In this mode upper pressure limit is set. If airway pressure reaches the upper airway pressure limit inspiration or pause is immediately discontinued &amp; changed to expiration.&lt;br&gt;&lt;br&gt;<strong>II. Supported Ventilation:</strong>&lt;br&gt;In supported Ventilation Patient has some breathing activity and has 3 modes under it.&lt;br&gt;&lt;br&gt;a) Pressure supported: In this each breath is triggered by patient, who then receive pressure support is received during inspiration.&lt;br&gt;&lt;br&gt;• <strong>Advantages:</strong> It reduces work of breathing increase tidal volume Reduces respiratory rate. Improves gas exchange.</td>
<td>What are the modes of mechanical ventilation? Explains with the help of arrow and function of each mode with the help of power point.</td>
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<td>• <strong>Disadvantages</strong>: High pressure can cause barotraumas. Low pressure can cause fatigue of respiratory muscles.</td>
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<td>b) <strong>SIMV</strong>: <strong>Synchronized Intermittent Mandatory Ventilation</strong>. The patient breathes in between the breaths present no. of breaths are ventilator controlled, mandatory breaths.</td>
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<td>SIMV + PS: The difference between SIMV &amp; SIMV + PS is that in this mode the spontaneous triggered breaths are pressure supported.</td>
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<td>III.</td>
<td><strong>Spontaneous Ventilation</strong>:</td>
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<td>a)</td>
<td><strong>CPAP</strong>:</td>
<td>Continuous Positive Airway Pressure. The Patient breathes spontaneously through the ventilator at an elevated pressure. The positive is set with PEEP &amp; can be delivered in following ways:</td>
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<td>• With ventilator &amp; endotracheal tube</td>
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<td></td>
<td>• With ventilator &amp; mask</td>
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<td></td>
<td>• With CPAD machine &amp; mask.</td>
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<td>b)</td>
<td><strong>PEEP</strong>:</td>
<td>Positive End Expiratory Pressure: In this method, during expiration the airway pressure is allowed to reach atmospheric pressure. This helps in inflating alveoli so oxygenation is improved. It can be used with any mode Normal (Physiological PEEP)=3-5cm of H₂O Safe level of PEEP =0-10cm. Of H₂</td>
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| 5.     | Group lists the different parameters that need to be set on the ventilator while setting the ventilator.                      | **Setting the ventilator:**<br>Select mode<br>Calculate tidal volume: Wt Of the patients in Kg X 10.  
Calculate & set Minute Volume = Tidal volume x respiratory rate. 
Normally respiratory rate i. e. set = 10-16 breaths/min. 
Fio$_2$Fractional inspired oxygen concentration safe range = 40-60% 
PEEP = As per doctor’s orders. It has to be increased increment should be done 2 cm of H$_2$O | What parameters you need to set while setting the ventilator?<br>Explains by demonstrating the setting of a ventilator. |
| 6.     | Group identifies various alarms of mechanical ventilator and causes for it.                                                   | **Ventilator alarms:**<br>**a) Upper pressure alarm limit:**<br>Nurse should set high-pressure alarm at 40-50 cm Hg. If it beeps causes may be:  
Accumulation of mucus in airway  
• Bronchospasm  
• Biting of E.T. tube  
• Coughing of patient  
• Kinking of ventilator tubing’s.  
• Water in ventilatory tubing. | What can be the cause for beeping of upper pressure alarm?<br>Explains the causes with the help of PowerPoint.  
What are the other alarms that need to be set and what do they indicate?  
Explains the alarms to be set by showing them different Knobs and explains causes for each one. |
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| b)     | **Low pressure alarm:**  
(n) range to be set = 5-15mm Hg.  
If it beeps them causes are as follows:  
• Loose connection  
• Tubing disconnected  
• Leak in cuff | | |
| c)     | **Low alarm limit for expiratory minute volume:**  
Causes: Loose connection  
Tubing disconnected  
Leak in cuff. | | |
| d)     | **Low alarm limit for expiratory minute volume:**  
Apnea: Activated when time between two consecutive breaths is more than 15 sec. | | |
| e)     | **O₂ alarm:**  
It activates when FiO₂ exceeds / decreases than set FiO₂ levels. | | |
| 7.     | Group demonstrates the skills in monitoring the patient on ventilator. | **Nurses role In Monitoring the patient on ventilator.**  
1) Monitor Temperature hourly / Pulse, saturation continuously / BP hourly / CVP monitoring four hourly / hourly urine output / / ABG / CXR as per instruction / patient’s comfort on ventilator  
2) Monitor for alarms of ventilator (,high pressure below 30cm H₂O)  
3) Monitor for increase in airway pressure for patients with volume control mode | Enlist the points that you need to monitor when the patient is on ventilator.  
Explains with the help of ICU chart |
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|       | Group identifies the problems of the patient on ventilator. | 4) Monitor for low Minute Ventilation alarm for patients with pressure control mode it should be set at 10-20% above & below the patients minute ventilation requirements  
5) Monitor for apnea alarm  
6) Monitor for O₂ supply alarm  
7) Monitor for condensate in tubing, visible secretions in tubing / HME filter. If found change it and put date of change on it.  
8) Record cuff pressure daily  
9) Record the marking of ET fixation  
10) **Watch for Common problems and Inform the ICU resident**  
   - Agitated patient on ventilator  
   - Breathless patient on ventilator  
   - Oxygen saturation < 90%  
   - Systolic BP < 90mmHg or > 200mmHg.  
   - Pulse < 60/min or > 110/min  
   - Urine output 30ml/hour or < 1 ml/kg/hr for three hours. | What will you do at the time of trouble shooting.  
Explains with the help of discussion, power point and demonstration. |
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<td></td>
<td><strong>Role OF Nurse in Troubleshooting</strong> for agitated / breathless patients help the ICU registrar to,</td>
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<td>1.</td>
<td>Rule out Cardiac arrest by ABC</td>
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<td>2.</td>
<td>Assist in Disconnecting ventilator and give breaths by AMBU bag</td>
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<td>- If patient gets relief, and gets settled continue bag ventilation and check ventilator alarms, function and settings.</td>
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<td>- If the patient does not settle then</td>
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<td>i) Do suctioning and Check for airway obstruction because of secretion / mucous plug / kinking or biting of the tube. Check the tube fixation and correct insertion of the tube mark.</td>
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<td>ii) Arrange for portable X-ray If no relief to rule out collapse, Pneumothorax and endobronchial intubation</td>
<td></td>
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<td>3.</td>
<td>Monitor Pulse / BP / Oxygen saturation to rule out hypoxia, hypotension</td>
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<td>4.</td>
<td>Watch for bladder distention.</td>
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<td>5.</td>
<td>Check ventilator settings for mode / RR / I : E Ratio/ trigger/ PEEP.</td>
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<td>6.</td>
<td>Administer Sedatives and paralyzing agents as per advice if the patient fights with ventilation.</td>
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<p>| Teaching-Learning activity. |</p>
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<td></td>
<td><strong>Assisting in Weaning the patient from Ventilator</strong></td>
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**EQUIPMENT**

1) If T-piece or tracheotomy collar setup is required, a flow meter with function heated aerosol humidifier for T-piece or tracheotomy collar trials is necessary. The setup should have an inline thermometer and a water trap.

2) Pressure manometers.

3) Weaning protocol or wean plan.

4) Extubation equipment.

---

**PROCEDURE**

1) **Communicate** with the patient throughout the weaning process.

2) Wash hands and don gloves.

3) Connect patient to nebulizer. Instruct patient to breathe normally, and monitor frequency, breathing pattern, heart rate, cardiac rhythm, SaO₂, and general appearance of patient.

4) After a predetermined time interval or with the emergence of signs of intolerance, place patient back on resting ventilator settings.

5) If patient successfully meets full trial criteria, notify physician, of patient response and consider extubation.

---

8. Group is able to assemble the articles for weaning

What articles you will collect for weaning?

Explains the group by showing the articles.

9. Group develops skills in assisting for weaning the patient from ventilator

What instructions you will give to the patient whom you what to wean from the ventilator?

Explains with demonstration.
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<td>10.</td>
<td>Group understands the different modes of weaning.</td>
<td><strong>WEANING METHODS</strong></td>
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<td></td>
<td>1) <strong>Intermittent Mandatory Ventilation and synchronized Intermittent Mandatory Ventilation Weaning Method.</strong></td>
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<td>i) Gradually and progressively decrease IMV/synchronized mandatory ventilation (SIMV) breaths is done</td>
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<td>ii) Assess the patient for signs and symptoms of fatigue, inadequate gas exchange and impaired breathing pattern with each decrement in IMV/SIMV support.</td>
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<td>2) <strong>Pressure Support Weaning Method.</strong></td>
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<td>i) Start at pressure support maximum (PSV max) and decrease level according to the protocol or as clinically indicated (i.e., no signs of intolerance.)</td>
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<td>1. Monitor patient responses to weaning. Return to full ventilatory support if signs of intolerance occurs and when intended duration of trial has been reached.</td>
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<td>2. When the clinical goal for PSV wean is accomplished (i.e., 12 hours at lowest level) extubation or an additional step is discussed with the team.</td>
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<td>3) <strong>T</strong> –PIECE TRIAL</td>
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<td>1. Explain the patient and reassure him. Keep him in propped up position</td>
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<td></td>
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<td>2. Get T piece tube and O₂ tubing</td>
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<td>3. Do a thorough suction.</td>
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<td>Which are the different modes of weaning?</td>
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<td>Explains with the help of ventilator.</td>
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<td>4. Disconnect at ET connector end attach T piece</td>
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<td>5. Set flow rate to keep oxygen saturation &gt; 90%</td>
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<td>7. Keep catheter mount wrapped in sterile GAUZE by patient’s side</td>
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<td>8. Collect ABG if doubtful.</td>
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| 11.    | Group is able to do the documentation correctly | **DOCUMENTATION**  
1) Explanation to Patient and family regarding weaning procedure and its advantages | What points you will document after the procedure. 
Explains with the help of chart. |
|        |            | 2) Note the procedure used for weaning (e.g., T-piece, decreasing IMV/support, pressure end expiratory pressure, or CPAP.) | |
|        |            | 3) Findings of parameters used to assess patient readiness to wean and weaning trial tolerance such as ABGs, oximetry readings, negative inspiratory pressure, positive expiratory pressure, . Vital capacity, MV, dynamic characteristics, static compliance measurements, airway resistance measurement, breathing pattern, and accessory muscle use. | |
|        |            | 4) Duration of trial .and time when it started. | |
|        |            | 5) Unexpected outcomes complications at the time of weaning. | |
|        |            | 6) Any use of drugs | |
|        |            | 7) Nursing action taken | |
ENDOTRACHEAL SUCTIONING

Specific Objectives :-
The Group will be able to,

1) Define endotracheal suctioning
2) Identify the complications and en lists the potential problems of infection.
3) Perform the procedure of endotracheal suctioning effectively.
4) Assemble the articles required for suctioning
5) Explain the procedure to the patient
6) Give proper position to the patient during suctioning.
7) Follow instructions to be carried out before suctioning
8) Carry out E.T suctioning with disposable catheter.
9) Carry out oral cavity suctioning.
10) Appreciate the after care of articles and disposal method and realizes the importance of hand washing.
11) Follow nurses responsibilities in termination of E.T suctioning.
12) Ensure that the desired level of cuff pressure is maintained
13) Appreciate and maintains recording the procedure of E.T suctioning.
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| 1.      | group will be able to define endotracheal suctioning | **Endotracheal Suctioning:**  
**Definition:**  
to remove secretions from the tracheobronchial tree by vacuum by insertion of a sterile catheter into the airway.  
Suction catheters are inserted through the following routes:  
- Nasopharyngeal route  
- Oropharyngeal route  
- Endotracheal route | What do you mean by endotracheal suctioning?  
Explains with the help of diagram. |
| 2.      | Group will be able to enumerate the purposes of Endotracheal suctioning | **Purposes of Endotracheal suctioning:**  
- To maintain a patent airway by removal of retained secretions.  
- To prevent the effect of retained secretions such as infection and atelectasis.  
- To promote improved exchange of O₂ & CO₂  
- To stimulate or substitute for effective coughing when cough is impaired.  
- To obtain a tracheal aspirate specimen for laboratory analysis. | What are the purposes of E.T suctioning?  
Explains purposes of E.T suctioning with the help of flip chat. |
| 3.      | Group will be able to identify the complications and enlist the potential problems of infection. | **Complications and cautions:**  
**Potential problem of infection:** Suctioning is a practice intervention requiring careful attention to safety.  
Cautions:  
- Direct care towards maintaining sterility to prevent information  
- Always use sterile catheter ideally | Why hypoxia does occurs in the patient during suctioning?.  
Explains each complication and rational in detail. |
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<td>• Catheters are discarded catheter in any type of container.</td>
<td>Explains causes of hypoxemia and atelectasis with the help of chart i.e. in the tabular form.</td>
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<td>• Suction through E.T. first and then suction the oral cavity.</td>
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|        | **Hypoxemia:** | Causes: Vacuum removes O₂  
  Pre suctioning hypoxemia  
  Worsens the condition.  
  May be lethargic | |
|        | Indicators: | Tachycardia  
  Increased dyspnoea  
  Irregular heart rate  
  Cyanosis  
  Diaphoresis | |
<p>|        | Intervention: | Give Supplemental O₂ | |
|        | <strong>Alveolar Collapse &amp; Atelectasis:</strong> | Cause: Vacuum removes nitrogen, the filler that keeps alveoli open | How can atelectasis occur during E.T suctioning? |
|        | | Indicators: Increasing hypoxemia discomfort. | Explains the causes, indicators and interventions with the help of power point. |
|        | | Worsening appearance on chest x-ray. | |
|        | | Intervention: Deep breathing re-expands the alveoli. | |</p>
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<td><strong>Vagal Stimulation:</strong></td>
<td>Nerve supply to the trachea is by which nerve.</td>
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<td>Cause: Vagus is a major nerve supply to trachea catheter may irritate or stimulate it &amp; hypoxemia plus vagus stimulation causes cardiac arrest.</td>
<td>Explains the causes, indicators and interventions with the help of power point.</td>
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<td>Indicators: Bradycardia Ventricular arrhythmias Cardiac arrest.</td>
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<td>Intervention: suction when needed.</td>
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<td><strong>Mucosal Trauma:</strong></td>
<td>What precautions can be taken to avoid mucosal trauma?</td>
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<td>Cause: As vacuum is applied, mucosa is pulled into the holes of suction catheter and can cause bleeding, edema, erosion and increased potential for infection to occur.</td>
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<td>Indicators: Pain Discomfort Blood tined secretions Breathing difficulty.</td>
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<td>Interventions: Suction only when needed avoid jabbing motion of suction catheters</td>
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<td>Use oral, nasal airway. Apply suction while withdrawing catheter only.</td>
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<td><strong>Hypotension:</strong></td>
<td>Cause: Because of vagal stimulation, cardiac dysrhythmias take place, which are responsible for hypotension.</td>
<td>What is the cardiac output? How much is the normal cardiac output? Explains the causes, indicators and interventions with the help of power point.</td>
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<td>Indicators : Low blood pressure. Decreased cardiac output. Decreased blood flow to brain and heart.</td>
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<td>Intervention : Suction only when needed.</td>
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<td><strong>Paroxysmal Coughing:</strong></td>
<td>Cause: Stimulation of cardinal and tracheal cough reflexes by catheter may seriously interrupt ventilation &amp; cardiac output.</td>
<td>What do you mean by paroxysmal coughing? Explains the causes, indicators and interventions with the help of power point.</td>
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<td>Indicator : Inadequate ventilation Gasping Syncope Tacky cardiac.</td>
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<td>Intervention: Maintain O₂ Status. Limit time for catheter inserted. Monitor cardiac arrest before and after suctioning.</td>
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| 4.     | Group will be able to perform the procedure of endotracheal suctioning effectively. | **Procedure:**  
**Assessment to determine need to suction:**  
Visual: Change in respiratory pattern e.g.: Increase in respiratory rate, difficulty or labored breathing.  
Auditory: Most noise or gurgling sound during respiration  
Tactile: Vibrations of loose secretions felt through the chest wall. | What assessment you will do in the patient before suctioning?  
Explains with demonstration. |
Ventilator: Beeping of upper pressure alarm. | How to assess the respiratory status.  
Explains the causes, indicators and interventions with the help of power point. |
|        | **Respiratory Status Assessment:**  
Assess Heart rate, rhythm.  
Assess respiratory rate, pattern.  
Monitor SpO$_2$ ABG  
Assess level of consciousness of patient: oriented to T/P/P.  
Responds when called out by name.  
Responds touching.  
Assess the length of E.T. tube making at the corner of angle of mouth.  
Check for cyanosis tachycardia, cold extremities, and restlessness signs of hypoxemia.  
Auscultates chest : check for bilateral air entry : if unequal :  
Obstructed bronchus  
Increased secretions  
Displacement of E.T. tube | Explains with demonstration. |
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<td>5.</td>
<td>Group will be able to assemble the articles required for suctioning</td>
<td><strong>Related care for maintaining Patent Airway:</strong>&lt;br&gt;Maintains adequate hydration.&lt;br&gt;Humidification of inspired gases.&lt;br&gt;Frequent change of position chest physiotherapy.&lt;br&gt;Aerosol therapy</td>
<td>Which other measures help in maintaining patent airway?&lt;br&gt;Explains the related care recommended for maintaining patent airway of mechanically ventilated patient with the help of PowerPoint.</td>
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<td><strong>Equipment: For suctioning:</strong>&lt;br&gt;Sterile suction catheter : (Disposable)&lt;br&gt;Types : Rubber&lt;br&gt;  Disposable&lt;br&gt;  Pressure control suction catheters.</td>
<td>Size: Maximum size that can be used is $\frac{1}{2}$ of inner diameter of E.T. tube.&lt;br&gt;Sterile gloves&lt;br&gt;Sterile gauze piece&lt;br&gt;&lt;br&gt;Sterile solution : Normal Saline or Distilled water&lt;br&gt;Stethoscope&lt;br&gt;5cc syringe&lt;br&gt;For rinsing the catheters :&lt;br&gt;Sterile tray containing: 2 bottles with normal saline.&lt;br&gt;&lt;br&gt;1 bottle: Rinsing catheter after E.T. suctioning.&lt;br&gt;1 bottle: Rinsing catheter after oral suctioning.</td>
<td>Which are the different types of suction catheters available?&lt;br&gt;Shows different types of catheters available.&lt;br&gt;What is the size of catheter that can be used for E.T suctioning?</td>
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<td>6.</td>
<td>Group is able to explain the procedure to the patient</td>
<td><strong>Patient Preparation</strong>&lt;br&gt;<strong>Explanation to a Patient who is conscious</strong>&lt;br&gt;I am going to do suctioning for you.&lt;br&gt;I am going to insert a catheter into your E.T. tube.&lt;br&gt;You may feel irritation in your respiratory tract.&lt;br&gt;Don’t worry I will do it in few seconds.&lt;br&gt;After this procedure breathing will become easier.&lt;br&gt;Please co-operate with me.</td>
<td>Why do we need to explain the procedure to the patient? Demonstrates how to explain the procedure to the patient by explaining to a mechanically ventilated patient.</td>
</tr>
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<td>7.</td>
<td>Group gives proper position to the patient during suctioning.</td>
<td><strong>Positioning the patient:</strong>&lt;br&gt;• Give patient 30° head high position.&lt;br&gt;• Turn patient head to one side i.e. along the shoulder in order to suction Rt. Main bronchus.</td>
<td>Which position is more effective in suctioning?</td>
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<td>8.</td>
<td>Group is able to prepare self and equipment for the procedure.</td>
<td><strong>Preparation of Self:</strong>&lt;br&gt;• Washing hands with soap and water or with sterilium.&lt;br&gt;• Wears mask before suctioning.&lt;br&gt;• Checking the suction apparatus&lt;br&gt;• Turn on the suction machine.&lt;br&gt;• Place one finger over the tip of suction catheter.&lt;br&gt;• Ensure that amount of vacuum recorded on vacuum pressure gauge is 80-120 mm Hg</td>
<td>How much pressure should be created during suctioning? Shows the group on suction machine itself.</td>
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<td>Sr. No.</td>
<td>Objectives</td>
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| 9.     | Group follows instructions to be carried out before suctioning | **Hyper oxygenating the client:**  
  • Increases fio₂ to 100%  
  • Silence the fio₂ alarm on ventilator.  
  • Hyper oxygenates for 3 minutes before. E.T. Suctioning.  
  • Opens the sterile tray  
  • Opens sterile irrigation solution | What setting is required for hyperoxygenating the client?  
  Shows the settings on the ventilation |
| 10.    | Group carries out E.T suctioning with disposable catheter.   | **Execution of procedure with disposable catheter.**  
  Open sterile gloves and wear, places the sterile gauze piece under the patient’s chin. Pick up suction catheter with dominating hand. Attach suction catheter port to suction port with non-dominating hand.  
 Disconnected ventilator tubing is kept on sterile paper.  
  Kinks the catheter with non-dominating hand. Continues insertion of catheter till feels the resistance.  
  Release the kink & withdraw catheter in a circular motion between thumb fingers.  
  Removes catheter out of E.T. tube within 10-15 sec of insertion. | How do you perform E.T suctioning with disposable catheter?  
  Demonstrates E.T suctioning with disposable catheter? |
  Kink the catheter with non-dominating hand. Insert catheter in mouth by asking the patient to open his mouth or by inserting a catheter through an airway. Then remove catheter out by releasing a kink in circular rotating fashion.  
  Keep the catheter in another bowl containing.  
  Sterile solution for 1-2 sec. for rinsing the catheter. | How do you perform oral cavity suctioning?  
  Demonstrates the technique of oral cavity suctioning  
  Why do we need to flush the catheter? |
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<tr>
<td>12.</td>
<td>Group appreciates the after care of articles and disposal method and realizes the importance of hand washing.</td>
<td>Dispose following articles:</td>
<td>How do you dispose the catheter?</td>
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<td>• Then the catheter over fingers of dominating hand.</td>
<td>Demonstrates the technique of disposing the catheter.</td>
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<td>• Then remove glove in such a way that catheter gets covered with gloves &amp; discard in respective colour code bag.</td>
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<td></td>
<td></td>
<td>• Wash hands with soap &amp; water or with sterilium</td>
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<td>13.</td>
<td>Group is aware of the nurses responsibilities in termination of E.T suctioning.</td>
<td>After procedure care</td>
<td>For long the patient needs to be hyper oxygenated after suctioning.</td>
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<td></td>
<td></td>
<td>• Hyper oxygenate patient for 3min after suctioning.</td>
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<td></td>
<td>• Set FiO₂ back to previous settings.</td>
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<td>14.</td>
<td></td>
<td>Reassessment of respiratory status:</td>
<td>How do you re assess the patients respiratory status?</td>
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<td>Assesses :</td>
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<td></td>
<td>• Heart rate, B. P. Respiratory rate.</td>
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<td>• S_pO₂</td>
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<td>• Level of consciousness</td>
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<td>• Auscultates chest for adequate air entry.</td>
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<td>• Ensures placement of E.T.</td>
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<td>15.</td>
<td>Group ensures that the desired level of cuff pressure is maintained</td>
<td><strong>Maintenance of tracheal cuff pressure:</strong> During inspiration slowly inject air through pilot balloon of E.T. tube with 5 ml syringe.</td>
<td>How do you ensure that the desired level of cuff pressure is maintained? Demonstrates the technique.</td>
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</tbody>
</table>
|        |                                                                             | Auscultates neck area above cuff (for smooth hollow sound)  
|        |                                                                             | Inject air till no leak is heard during inspiration.  
|        |                                                                             | Monitor pressure with cuff pressure manometer.  
|        |                                                                             | Attach a monometer to pilot balloon port.  
|        |                                                                             | And ensure that pressure is maintained between 18-22 mm Hg.                                                                        |                                                                                               |
| 16.    | Group appreciates the importance of recording the procedure of E.T suctioning. | **Recording the procedure:**  
|        |                                                                             | Time of endotracheal suctioning.  
|        |                                                                             | Characteristics of secretions & approximate amount.  
|        |                                                                             | Patient’s response to procedure  
|        |                                                                             | General condition of patient  
|        |                                                                             | Signature of nurse  
|        |                                                                             |                                                                                                                                  | What documentation has to be done while recording the procedure.?  
|        |                                                                             | Investigator asks the group to record on paper and discuss                                                                         |                                                                                               |
|        | **Conclusion:**  
|        |                                                                             | I hope you have understood the concept of E.T. intubations, concept of Mechanical ventilation & technique of E.T. suctioning. In order to gain skill & confidence you need to practice correct technique. | Clarifies the doubts if any.                                                                 |
ASSISTING IN ARTERIAL BLOOD GAS COLLECTION

Specific Objectives -
The Group will be able to,

1) Explain what is meant by Arterial blood gas
2) Define the difference between acid and base
3) Explain the objectives of collecting ABG
4) Take precautions to prevent errors during collection of ABG.
5) Detect the time for collection of ABG.
6) Identify the complications of ABG puncture.
7) Explain the important key terms in blood gas analysis.
8) Explain what respiratory buffer response is.
9) Explain what renal response buffer is.
10) Identify respiratory acidosis.
11) Identify respiratory alkalosis.
12) Group identifies the case of metabolic acidosis.
13) Interpret the ABG report and identify metabolic alkalosis.
14) Understands the compensatory response to acid base disturbance.
15) Collect the articles ABG collection.
16) Develop skill in assisting for collection ABG through radial site, femoral site and arterial line effectively.
17) Identify the problems during collection of ABG.
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</table>
| 1.     | Group is able to explain Arterial blood gas                                | **Definition**
Arterial Blood drawn from artery- radial, brachial, femoral
It is an invasive procedure. Caution must be taken with patient on anticoagulants. Arterial blood gas analysis is an essential part of diagnosing and managing the patient’s oxygenation status, ventilation failure and acid base balance. | What does arterial blood gas helps for?
Explains with the help of power point.                                                                                                                                  |
| 2.     | Group is able to define the difference between acid and base                | **Acid/Base Balance**
- The pH is a measurement of the acidity or alkalinity of the blood.
- It is inversely proportional to the no. of (H+) in the blood.
- The normal pH range is 7.35-7.45.
- Changes in body system functions that occur in an acidic state decreases the force of cardiac contractions, decreases the vascular response to catecholamines, and a diminished response to the effects and actions of certain medications.
- An alkalotic state interferes with tissue oxygenation and normal neurological and muscular functioning.
- Significant changes in the blood pH above 7.8 or below 6.8 will interfere with cellular functioning, and if uncorrected, will lead to death.                                                                 | What changes can occur in the patient with changes in blood pH?                                                                                                           |
| 3.     | Group is able to explain the objectives of collecting ABG                 | **Objectives:-**
1. To determine acid base imbalances.
2. To estimate roughly electrolyte disturbance.
3. To determine state of oxygenation & carbon dioxide elimination.                                                                                                         | Why is it necessary to collect ABG?                                                                                                                                       |
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| 4.     | Group takes precautions to prevent errors during collection of ABG.          | **Arterial blood gas analysis**  
- A sample of blood is drawn in a heparinized syringe from percutaneous (radial, brachial, or femoral) artery.  
- Following errors might give erroneous blood gas report  
  a. Air bubble in the sample.  
  b. Excess of heparin in the syringe  
  c. Keeping the blood filled syringe at room temperature more than 20 mins.  

Before choosing the radial artery one must check the collateral flow on ulnar circulation by ALLEN TEST | What could cause errors in the ABG report?  
Explains with ABG repirts |
| 5.     | Group is able to detect the time for collection of ABG.                      | **INDICATIONS**  
I. To establish the diagnosis & severity of respiratory failure.  
II. Management of patients in intensive care units admitted for:-  
  • Cardiac failure  
  • Requirement of an artificial airway  
  • Cardiopulmonary surgery  
  • Renal failure  
  • Diabetic keto acidosis  
  • Septicemia  

III. To guide therapy in a patient in the ICU example:-  
  • Pharmacological treatment  
  • Alkali therapy  
  • Oxygen administration  
  • Mechanical ventilation | What are the indications where you need to collect ABG?  
Explains on power point. |
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<td>4</td>
<td>IV. To monitor arterial blood gas during</td>
<td>Complication of arterial blood gas puncture:-</td>
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<td>• Bleeding in to tissue.</td>
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<td>• Trauma to tissue.</td>
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<td>• Thrombosis.</td>
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<td>• Ischemia.</td>
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<td>• Infection.</td>
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<td>• Arterial spasm</td>
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<td>• Pain</td>
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<td>6.</td>
<td>Group is able to identify the complications of ABG puncture</td>
<td>Group is able to explain the important key terms in blood gas analysis</td>
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<td><strong>Key terms...</strong></td>
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<td><strong>H+ ions:</strong> present in extra cellular &amp; intracellular body fluids its concentration determines the acidity or alkalinity of a solution.</td>
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<td><strong>Acid</strong> :- a substance which tends to dissociate H+ ion (proton donor).</td>
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<td></td>
<td><strong>Base</strong> :- A substance which tends to bind H+ ion proton acceptor.</td>
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<td><strong>pH [H(^+)]</strong> :- chemical short hand for –ve logarithm of the H+ ion concentration. Normal value=7.35-7.45</td>
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<td><strong>SaO(_2)</strong> :- percentage of hemoglobin which is oxygenated (oxyhemoglobin) i.e. oxygen saturation.</td>
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<td>7.</td>
<td>Group is able to explain the important key terms in blood gas analysis</td>
<td>Group is able to explain the important key terms in blood gas analysis</td>
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<td><strong>PaCo(_2)</strong> :- partial pressure of carbon dioxide in arterial blood. Normal value=35-45 mm of Hg</td>
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What are complications of ABG puncture site? Explains with power point.

What is the normal Ph of blood?

Explains with the help of chart and black board.
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</table>
| 8.      | Group is able to explain what is respiratory buffer response | **The Respiratory buffer response**  
• The blood pH will change acc.to the level of H₂CO₃ present.  
• This triggers the lungs to either increase or decrease the rate and depth of ventilation  
• Activation of the lungs to compensate for an imbalance starts to occur within 1-3 minutes | How does bicarb help in respiration? |
| 9.      | Group is able to explain what is renal response buffer | **The Renal Buffer Response**  
• The kidneys excrete or retain bicarbonate (HCO₃⁻).  
• If blood pH decreases, the kidneys will compensate by retaining HCO₃  
• Renal system may take from hours to days to correct the imbalance. | How does kidneys compensate with change in Ph? |
| 10.     | Group is able to identify respiratory acidosis | **Respiratory Acidosis**  
• **Etiology:-**  
  1) CNS disorder.  
  2) Congestive heart failure  
  3) Pneumonia  
  4) Massive pulmonary embolism | What will be the value of pH and PCO₂ in respiratory acidosis?  
Explains with the help of chart ABG report |
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<td></td>
<td>• <strong>Laboratory findings:</strong></td>
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<td></td>
<td></td>
<td>1) Ph &lt; 7.35</td>
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<td>2) pco2 &gt; 45</td>
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<td>3) Hco3 – normal or slightly above</td>
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<td>4) Base excess – upper normal</td>
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<td>5) Elevated serum potassium (K+)</td>
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<td>• <strong>Clinical assessment:</strong></td>
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<td>1) Respiratory: dyspnoea, wheezing, cyanosis.</td>
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<td>2) CNS: Restless, lethargic, disorientation, coma.</td>
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<td>3) Cardiac: tachycardia, arrhythmias</td>
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<td>• <strong>Intervention:</strong></td>
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<td>1) Oxygen administration</td>
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<td>2) Increased minute volume</td>
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<td>3) Chest physiotherapy</td>
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<td>11. Group is able to identify respiratory alkalosis</td>
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<td></td>
<td><strong>Respiratory alkalosis</strong></td>
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<td></td>
<td></td>
<td>• <strong>Etiology:</strong></td>
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<td>1) Hyperventilation due to extreme anxiety &amp; hypoxemia.</td>
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<td>2) Hyper metabolic status &amp; high fever.</td>
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<td>3) Long term ventilatory support</td>
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<td>• <strong>Laboratory findings:</strong></td>
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<td>1) Ph &gt; 7.45</td>
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<td>2) Pco2 &lt; 35 mm Hg</td>
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<td>3) Hco3 normal</td>
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<td>4) Base excess normal +3 in acute &amp; in chronic case.</td>
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<td>5) Decreased serum calcium, &amp; serum potassium</td>
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<td>What could be the causes of respiratory alkalosis?</td>
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<td>Explains with the help of chart ABG report</td>
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| 12.    | Group identifies the case of metabolic acidosis | **Metabolic acidosis**  
* **Etiology:**-  
1) Over production of metabolically produced acid in condition such as  
   i. Dm  
   ii. Prolonged fasting  
   iii. Ketoacid accumulation  
   iv. Hyperthyroidism  
   v. Abnormal loss of alkali  
   vi. Severe tissue anoxia  
  
* **Clinical assessment:**-  
1) Headache  
2) Confusion  
3) Kussmaul’s respiration  
4) Weakness  
5) Nausea  
6) Stupor?  
7) Arrhythmia | What observations you will do in the patients of metabolic acidosis?  
Explains with the help of chart ABG report |
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<td></td>
<td>Group is able to interpret the ABG report and identify metabolic alkalosis.</td>
<td><strong>Laboratory findings:</strong>&lt;br&gt;1) Ph &lt; 7.35 2) Hco3 &lt; 22 m Eq/ lit 3) Pco2 &lt; 35 mmHg 4) Base excess – ve 5) Increased potassium 6) Decreased calcium in some case</td>
<td>What will be the line of treatment in the patient of respiratory alkalosis?</td>
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<td></td>
<td><strong>Intervention:</strong>&lt;br&gt;1) Restore proper blood volume / osmolality 2) Correct Hco3 deficit 3) Correct electrolyte imbalance</td>
<td><strong>Metabolic alkalosis</strong>&lt;br&gt;<strong>Etiology:</strong>&lt;br&gt;1) Acute loss of H+ due to  i. Vomiting  ii. Nasogastric suction  iii. Excessive ingestion of alkali</td>
<td>Explains with the help of chart ABG report</td>
</tr>
<tr>
<td></td>
<td><strong>Laboratory findings:</strong>&lt;br&gt;1) Ph &gt; 7.45 2) Hco3 &gt; 26 mm/lit 3) +ve base excess 4) K+ normal or low 5) Ca + low.</td>
<td><strong>Clinical assessment:</strong>&lt;br&gt;1) Irritability, disorientation.</td>
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<td></td>
<td>• <strong>Intervention:-</strong></td>
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<td></td>
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<td>1) Control vomiting</td>
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<td>2) Correct with R/L solution</td>
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<td>3) Correct extra cellular depletion</td>
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<td>4) Limit alkali intake.</td>
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<td>13.</td>
<td>Group understands the compensatory response to acid base disturbance</td>
<td><strong>Compensatory responses to primary acid base disturbances</strong></td>
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<td></td>
<td></td>
<td>Disorder</td>
<td>PH</td>
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<td>Respiratory acidosis</td>
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<td>Respiratory Alkalosis</td>
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<td>Metabolic Acidosis</td>
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<td>Metabolic Alkalosis</td>
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<td>What happens to the pH in the compensatory response.</td>
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<td>Explains with the help of chart ABG report</td>
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<td>14.</td>
<td>Group is able to collect the articles ABG collection</td>
<td><strong>Articles required:-</strong></td>
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<td>1) Pair of clean gloves.</td>
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<td>2) 2cc sterile heparin zed syringe.</td>
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<td>3) Alcohol rub or spirit swab.</td>
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<td>4) Dry cotton swab</td>
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<td>How will you take the heparanized syringe?</td>
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| 15.    | Group develops skill in assisting for collection ABG. | **Procedure:-**  
1) ABG can be collected from femoral artery or radial artery or from the ABP (Arterial blood pressure) lines. Radial artery method is preferred. Femoral artery method is used if radial is feeble or there is injury or infection to hand or if we were not able to apply radial artery method.  
2) Procedure for radial and femoral and radial ABG collection is same except the location and the needle. Modified Allen’s test is performed by the doctor before radial artery method selected  
3) Explain the procedure if patient is conscious.  
4) A) **For radial artery blood collection**  
   - Watch for the radial artery location by the doctor, as he keeps the hand in supine position with wrist extended.  
   - Give the ABG syringe. If ABG not available, then flush 2cc syringe having needle with heparin. For radial artery use 24 gauge (1.5inc) needle.  
   - With draw needle and give firm pressure with dry gauze the for 5 minutes at the punctured site. Pressure should be given for longer period if patient has coagulation disorder.  
   B) **For femoral artery blood collection**  
   - Femoral artery is palpated by keeping the leg extended and externally rotated at the hip joint and semi flexed at the knee joint.  
   - Give the ABG syringe. If ABG not available, then flush 2cc syringe having needle with heparin and 21 gauge (1.5 inch) needle should be used. |
| 16.    | Group assist for ABG collection through the femoral site effectively. | **What precautions you will take if the patient is on anti-coagulant drugs?**  
Demonstrates the procedure |

<p>| Teaching-Learning activity. |</p>
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<tr>
<td></td>
<td></td>
<td>• With draw needle and give firm pressure with dry gauze for 5 minutes at the punctured site. Pressure should be given for longer period if patient has coagulation disorder.</td>
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<td>5)</td>
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<td>5) Put the cover over and air lock the needle immediately following universal precaution if ABG syringe is not used.</td>
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<td>6)</td>
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<td>6) Remove air bubble if any from syringe by keeping it vertical and tapping it.</td>
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<td>7)</td>
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<td>7) Label it.</td>
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<td>8)</td>
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<td>8) Place the syringe in a container with ice if transportation time is longer.</td>
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<td>9)</td>
<td></td>
<td>9) If analysis is done in the area it should be done within ten minutes.</td>
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<td>10)</td>
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<td>10) Check for any blood loss at the site of puncture five minutes after ABG collection.</td>
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<td>17.</td>
<td>Group is able to collect the blood from the arterial line correctly.</td>
<td><strong>Arterial line blood collection</strong>&lt;br&gt;• Take ABG syringe. If ABG not available, then flush 2cc syringe with heparin.&lt;br&gt;• Attach a 5ml syringe to the sampling bivalve connected to the distal port of the radial artery catheter.&lt;br&gt;• Turn the bivalve off to the flush solution.&lt;br&gt;• Aspirate 2ml into a 5ml syringe to clear the line of flush solution Close the bivalve remove the syringe and discard.</td>
<td>What precautions you will take soon after you collect the blood from the arterial lie to prevent blockage? Demonstrates the procedure.</td>
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<td>• Open the bivalve and aspirate gently the blood flows in the syringe on its own due to the arterial force.</td>
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<td>• Close the bivalve and remove the syringe. Hold the syringe upright, and expel any air bubbles in the syringe. Cap the syringe and roll it gently to mix the blood with heparin. Submerge in ice.</td>
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<td>• Attach the 5ml syringe to the bivalve. Open the bivalve to the flush solution. Flush solution into syringe to clear the bivalve. Turn the bivalve to the sampling port, remove the syringe and cap the port.</td>
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<td>• Flush the line until all the traces of blood are removed.</td>
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<td>• Check the bedside monitor for reappearance of wave form.</td>
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<td>• Place the syringe in a container with ice if transportation time is longer.</td>
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<td></td>
<td></td>
<td>• If analysis is done in the area it should be done within ten minutes.</td>
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<tr>
<td>18.</td>
<td>Group is able to identify the problems during collection of ABG</td>
<td><strong>Common problems during collection</strong></td>
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<td></td>
<td></td>
<td>I) Sample error- collection of venous blood instead of arterial blood. <strong>Precautions</strong>-</td>
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<td>i) check for fresh red color and pulsatile flow of the blood while aspirating to ensure arterial sample.</td>
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<td>ii) If the dark color blood with non-pulsatile flow is aspirated then discard it and take fresh sample.</td>
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<td>II) Air bubbles from syringe by keeping it in vertical and taping it.</td>
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<td>What problems could occur while collecting ABG?</td>
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<td>Explains with PowerPoint</td>
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MEETING HYGENIC NEEDS OF THE PATIENT ON VENTILATOR

MOUTH CARE

Specific Objectives:-
The Group will be able to,

1) Define the concept of oral hygiene.
2) Understand the purpose of oral hygiene
3) Follow the principles of microbiology while performing the procedure.
4) Practice the principle of chemistry in use of dentrifice, emollients and cleansing agents during mouth wash
5) Explain the pharmacological action of cleansing agent’s emollients and dentrifice.
6) Follow the principles of physics while brushing the teeth.
7) Prepare the patient for the procedure.
8) Enlist the article required for mouth wash.
9) Use the dentrifices as per the availability.
10) Appreciate use of mouth wash solution during the procedure.
11) Use emollients after mouth wash.
12) Demonstrate the procedure of mouth wash.
13) Evaluate the procedure done by them.
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</table>
| 1.     | Group is able to define the concept of oral hygiene.                       | **DEFINITION**  
**Oral hygiene:** - Personal maintenance of hygiene & cleanliness of teeth & oral structures by tooth brushing, flossing & other procedures | What do you mean by oral hygiene? |
| 2.     | Group understands the purpose of oral hygiene.                             | **PURPOSE**  
- To keep mouth, teeth & gums clean, fresh & healthy  
- To prevent & treat infection of mouth & its neighboring structures  
- To prevent ill effects of systemic illness on mouth, teeth & gums  
- To eliminate bad breath | Why is maintaining oral hygiene important? |
| 3.     | Group follows the principles of microbiology while performing the procedure. | **PRINCIPLES OF MICROBIOLOGY**  
- Many bacteria found in healthy mouth  
- Bacterial flora is transient  
- Saliva is bactericidal & removal of bacteria is a mechanical process  
- Mouth washes not sufficiently strong nor are they held in mouth long enough to kill bacteria | What is the action of saliva in the oral cavity? |
| 4.     | Group practice the principle of chemistry in use of dentrifice, emollients and cleansing agents | **PRINCIPLES OF CHEMISTRY**  
- Saliva = 99.5% water and 0.5 % total solids  
- Chief constituents - water, inorganic salts, mucin, traces of protein & salivary amylase | How does dentifrice and cleansing agents helps in mouth wash? |
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| 1.     | during mouth wash | ▪ Saliva is slightly acidic in reaction - Ph = 6.35 to 6.85  
▪ Enamel of teeth = 95% to 97% inorganic or mineral matter & 3% - 5% organic matter  
▪ Constituents - calcium phosphate, calcium carbonate, traces of fluoride, calcium sulphate & magnesium carbonate  
▪ Dentrifice cleans mouth through mechanical action rather than by chemical action on bacteria  
▪ Dentrifice - soap or soap substitute & a polishing agent e.g. calcium carbonate | |
| 2.     | Group explains the pharmacological action of cleansing agents emollients and dentrifice. | **PRINCIPLES OF PHARMACOLOGY**  
▪ Sodium bicarbonate - good tooth powder  
▪ Crystals of NaCl have sharp edges & have an abrasive action  
▪ Salt solutions are good mouth washes  
▪ Glycerin flavored with lemon juices aids greatly in softening dry lips  
▪ Cold cream may be substituted | How does glycerin help? |
| 3.     | Group follows the principles of physics while brushing the teeth | **PRINCIPLE OF PHYSICS**  
▪ Soap - lowers surface tension  
▪ In brushing teeth, sufficient pressure to be exerted  
▪ Periodontal membrane acts as shock absorber  
▪ Friction of raw foods against the teeth & gums produces beneficial stimulation. | Why should we exert pressure on the teeth while cleaning |
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**PRINCIPLE OF BODY MECHANICS**
- Patient to be near working side of bed to prevent strain
- Nurse to stand erect & all articles close at hand to prevent reaching

**PRINCIPLES OF PSYCHOLOGY**
- Clean mouth makes a person feel clean & comfortable
- Unpleasant breath may cause to lose his self-respect
- Good oral care makes the patient being socially acceptable by others

**COMMON ORAL PROBLEMS**
- Dental Caries
- Gingivitis: inflammation of gums
- Glossitis: Inflammation of tongue
- Root abscess
- Stomatitis: Inflammation of mucous membrane

Pyorrhea: Pus in the cavity

**INFECTION OF NEIGHBORING STRUCTURES**
- Parotitis: Inflammation of salivary gland
- Sinusitis: Inflammation of sinuses
- Otitis media: Infection of ear canal
- Tonsillitis: Inflammation of tonsils
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<td>1.</td>
<td></td>
<td>OTHERS</td>
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<td></td>
<td></td>
<td>▪ Sordes: Foul brown crusts on teeth &amp; lips</td>
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<td></td>
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<td>▪ Calculus: Calcified deposits on teeth</td>
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<td></td>
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<td>▪ Tartar: Calcareous matter deposited on teeth</td>
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<td></td>
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<td>▪ Cheilosis: redness &amp; fissures at angles of mouth</td>
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<td></td>
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<td>▪ Halitosis: Bad breath</td>
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<td>▪ Bleeding gums</td>
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<td>▪ Plaque: gummy mass of microorganisms that grows on crowns &amp; spreads along roots of teeth</td>
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<td>4.</td>
<td>Group is able to prepare the patient for the procedure.</td>
<td>PREPARATION OF PATIENT</td>
<td>How will you prepare the patient for the procedure?</td>
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<td>▪ Check general condition of patient &amp; ability of patient for self-care</td>
<td>Demonstrates how to prepare the patient for the procedure.</td>
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<td>▪ Explain procedure to patient if patient is conscious</td>
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<td>▪ Provide privacy</td>
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<td>▪ Maintain a safe &amp; comfortable position</td>
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<td>▪ Bring patient near to edge of bed</td>
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<td>5.</td>
<td>Group enlists the article required for mouth wash</td>
<td>ARTICLES REQUIRED</td>
<td>List the articles required for mouth wash.</td>
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<tr>
<td></td>
<td></td>
<td>A tray containing---</td>
<td>Demonstrates by the collection of articles.</td>
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<td></td>
<td>1) A small mackintosh with a pair of gloves.</td>
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<td>2) A feeding cup/bowl with plain water Chlorhexidine / Listerine or normal saline in a container.</td>
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<td>3) A kidney tray.</td>
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<td>4) Paper Bag</td>
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<td>5) Emollients like glycerin borax/Vaseline.</td>
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<td>6) Cotton applicators.</td>
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<td>7) A tray with plain forceps, artery forceps, tongue depressor, mouth gag, gauzes pieces and cotton.</td>
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<td>8) Face towel.</td>
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<td>9) Suction and suction catheters</td>
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<td></td>
<td><strong>DENTRIFICES USED</strong></td>
<td>Why do you need to take dentrifice for mouth wash?</td>
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<td></td>
<td></td>
<td>• Tooth paste/Tooth powder (Commercial preparation)</td>
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<td></td>
<td></td>
<td>• Sodium bicarbonate paste</td>
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<td>• Equal parts of sodium chloride, calcium carbonate, sodium bicarbonate</td>
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<td>• Glycerin with lemon juice</td>
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<td><strong>MOUTH WASHES USED</strong></td>
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<td>• Potassium Permanganate – 1:5000 or 1 crystal to a glass of H₂O</td>
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<td>• Hydrogen peroxide – 1:4 fresh solution</td>
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<td>• Sodium chloride – 1 tsp. to pint of H₂O</td>
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<td>• Sodium bicarbonate – 1 tsp. to pint of H₂O</td>
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<td>• Lemon juice – 2 tsp. to cup of H₂O</td>
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<td>• Commercial preparation – dettolin, Listerine, oralidine, stoline, chlorhexidine etc.</td>
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<td><strong>EMOLIENTS USED</strong></td>
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<td></td>
<td></td>
<td>• Butter/ ghee</td>
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<td>• Vaseline</td>
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<td>• Glycerin</td>
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<td>• Boroglycerine</td>
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<td>6.</td>
<td>Group is able to evaluate the procedure done by them</td>
<td><strong>PROCEDURE</strong>&lt;br&gt;1) Wash hands with soap and water.&lt;br&gt;2) Prepare solution of chlorhexidine 1% or Listerine in one bowl.&lt;br&gt;3) Turn patients head to one side.&lt;br&gt;4) Place kidney tray close to the cheek.&lt;br&gt;5) Do not pour water into the patient’s mouth.&lt;br&gt;6) Insert tongue depressor into patient’s mouth.&lt;br&gt;7) Wrap gauze piece to the artery forceps.&lt;br&gt;8) Moisten the gauze and dip it in a cleaning agent, squeeze the gauze and swab each tooth gently, take care to clean each side of the teeth.&lt;br&gt;9) Clean the inner and chewing surface of the teeth, use mouth gag if required.&lt;br&gt;10) Clean the tongue using gauze-covered forceps.&lt;br&gt;11) Wet the quaze only with small amount of solution.&lt;br&gt;12) Apply glycereneborax or any emollient available on the lips and tongue to keep them moist.</td>
<td>Demonstrates the procedure of mouth wash.</td>
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**EVALUATION**<br>- Mucous membrane intact & moist<br>- Lips smooth & moist<br>- Tongue clean, pink & moist<br>- No swelling in gingiva<br>- No bleeding of gums

Explains how to evaluate the procedure by demonstrating the procedure and documentation.
BACK CARE

Specific Objectives: The Group will be able to,

1. Define back care
2. Explain purposes of back care.
3. Give instructions to the patient while performing back care.
4. Enlists the articles required for back care.
5. Assess and identify the risk factors of pressure ulcer.
6. Identify the stages of bed sore.
7. Demonstrate the procedure of back care and massage.
8. Document the procedure and findings correctly.
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| 1. | Group is able to define back care | **DEFINITION:-**  
Back care means cleaning and massaging an individual’s back as a therapeutic and comfort measure. | What do you mean by back massage? |
| 2. | Group explains the purposes of back care. | **PURPOSES:-**  
- To prevent bed sore.  
- To stimulate circulation.  
- To detect early signs of bed sore and to change position.  
- To keep skin clean and dry.  
- To refresh the patient and relieve fatigue. | What are the purposes of back care? |
| 3. | Group follows the instructions while performing back care. | **Instructions to be followed :-**  
- Explain the patient (if conscious) and the relatives about importance of back massage.  
- Back care should be followed by change of position  
- Observation of skin during back care should be done to promote early detection of pressure sores.  
- Comfort devices can be used after back care. | What points you will keep in mind while performing back care? |
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| 4.     | Group enlists the articles required for back care                           | **Equipments**  
1) A tray containing  
- Mackintosh  
- Bowl with warm water.  
- Sponge cloth.  
- Soap  
- Towel.  
- Lotion spirit, Eu-de-colone or moisturizing cream depending on availability and condition of skin | List the articles that you will take for back care. |
| 5.     | Group able to assess and identify the risk factors of pressure ulcer        | **Assess: Risk Factors Pressure Ulcers**  
**Nutrition: Usual food intake pattern**  

**Very poor:** never eats a complete meal; rarely eats more than \(\frac{1}{2}\) of any food offered; eats two servings or less of protein (meat or dairy products) per day; takes fluids poorly; does not take a liquid dietary supplement or is NPO and/or maintained on clear liquids or IVs for more than 5 day.

**Probably inadequate:** rarely eats a complete meal and generally eats only about \(\frac{1}{2}\) of any food offered; protein intake includes only three servings of meat or dairy products per day; occasionally will take a dietary supplement or receive optimum amount of liquid diet or tube feeding. | List the factors that leads to pressure ulcer formation. |
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<td>Adequate: eats over half of most meals; eats four servings of protein (meat or dairy products) per day, occasionally will refuse a meal, but will usually take a supplement when offered or is on a tube feeding or parenteral nutrition regiment that probably meets most of nutritional needs</td>
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<td>Excellent: eats most of every meal; never refuses a meal; eat four or more serving of protein (meat or dairy products); occasionally eats between meals; does not require supplementation</td>
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<td>Friction and Shear Problem: requires moderate to maximum assistance in moving; complete lifting without sliding against sheets is impossible; frequently slides down in bed or chair, requiring repositioning with maximum assistance; spasticity, contractures, or agitation lead to almost constant friction.</td>
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<td>Potential problem: moves feebly or requires minimum assistance; during a move skin probably slides to some extent against sheets, chair, restraints, or other devices; maintains relatively good position in chair or bed most of the time but occasionally slides down.</td>
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<td>No apparent problem: moves in bed and in chair independently and has sufficient muscle strength to lift up completely during moves; maintains good position in bed or chair.</td>
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<td>6.</td>
<td>Group can identify the stages of bed sore.</td>
<td><strong>Stages of bed sore</strong></td>
<td>How will you classify the stages of bed sore.</td>
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</table>
|        |                                                                             | **Stage I**  
A stage I pressure ulcer is an observable pressure-related change of intact skin whose indicators, as compared to an adjacent or opposite area on the body, may include changes in one or more of the following.  
- Skin temperature (warmth or coolness)  
- Tissue consistency (firm or boggy feel)  
- Sensation (pain, itching) The ulcer appears as a defined area of persistent redness in red, blue, or purple hues. | Explains with the help of Diagram chart and power point |
|        |                                                                             | **Stage II**  
Partial-thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion, blister, or shallow crater. |                             |
|        |                                                                             | **Stage III**  
Full-thickness skin loss involving damage to, or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia. The ulcer presents clinically as a deep crater with or without undermining of adjacent tissue. |                             |
|        |                                                                             | **Stage IV**  
Full-thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures (e.g. tendon, joint capsule). Undermining and sinus tracts may also be associated with stage IV pressure ulcers. |                             |
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<td>7.</td>
<td>Group demonstrates the procedure of back care and massage.</td>
<td><strong>PROCEDURE:-</strong>&lt;br&gt;1. Introduce yourself if the patient is conscious Explain what you are going to do, why it is Necessary and how the patient can cooperate. Encourage patient to give you feedback on amount of pressure you are using during back rub.&lt;br&gt;2. Perform hand hygiene.&lt;br&gt;3. Provide privacy for patient&lt;br&gt;4. Prepare the patient and move the patient to the nearside of the bed within your reach.&lt;br&gt;5. Adjust the bed to a comfortable working height to prevent back strain.&lt;br&gt;6. Establish which position is suitable to the patient. The prone position is recommended for a back rub. The side-lying position can be used if a patient cannot assume the prone position.&lt;br&gt;7. Expose the back from the shoulders to the inferior sacral area. Cover the remainder of the body to prevent chilling and minimize exposure.&lt;br&gt;8. Place the mackintosh at near the back&lt;br&gt;9. Clean the back with soap and water.&lt;br&gt;10. Dry it with the towel.&lt;br&gt;11. Massage the back. Pour a small amount of lotion on to palm of hands and hold for a minute so that the lotion becomes warm.&lt;br&gt;12. Use the following steps for back massage&lt;br&gt;  • Efflurage :- Moves hands up the center of the back and then over both scapulae Massage in a circular motion over the scapulae.&lt;br&gt;  • Petrissage striking the boney areas with the help of balls of the fingers.&lt;br&gt;  • Tapotment flickering movements of the fingers in a circular manner&lt;br&gt;  • Kneading rolling of the muscles with the fist like a dough.&lt;br&gt;  • Hacking gentle strokes with the edge of the palm over the muscular area.</td>
<td>Demonstrates the procedure and steps of back massage.</td>
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</table>
|        |            | • Cupping - strokes with the cupped hands in the circular motion over the back.  
• Friction - strong and firm strokes with the help of thumb over the spinal column from the sacrum till the cervical spine.  
13. Apply firm, continuous pressure without breaking contact with the patient’s skin.  
14. Repeat above for 3 to 5 minutes, obtaining more lotion as necessary.  
15. While massaging the back, assess for skin redness and areas of decreased circulation.  
16. Pat dry any excess lotion with a towel.  
17. Document that a back rub was performed and the patient’s response. Record any unusual finding | |
| 8.     | Group documents the procedure and findings correctly | **Document**  
Back rub performed and the patient’s response.  
Record any unusual findings like signs of bed sore, stage of bed sore and the condition of skin. | What recording you will do after back massage? |

**MEETING NUTRITIONAL NEEDS OF THE PATIENT ON VENTILATOR**

**Specific Objectives:** The Group will be able to  
1. Gain knowledge about function of assessment factors gastrointestinal function  
2. Ask nutritional history to the conscious patient  
3. Evaluate the ideal body weight and do base line observation
4. Define what is Enteral feeding

5. Assemble all the articles

6. Carry the procedure of Ryle’s Tube feeding as per the protocol.

7. Document the feed given and observes the patient after feed for complications.
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<tr>
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<th>Objectives</th>
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<th>Teaching-Learning activity.</th>
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|        | Group gain knowledge about function of assessment factors gastrointestinal function | Assessment Factors Gastrointestinal function  
Bowel Movement  
Bowel Sounds  
Abdominal Girth  
Nausea  
Vomiting |                                                                     |
|        | Group is able to asks nutritional history to the conscious patient | Ask for Nutritional History of the patient if conscious  
1. Weight change  
2. Appetite  
3. Satiety level  
4. Taste changes/aversions  
5. Nausea/ Vomiting  
6. Bowel habits-diarrhea, constipation,  
7. Alcohol or drug use  
8. Chewing/swallowing ability  
9. Pain when eating  
10. Long-term disease(s) affecting utilization of nutrients  
11. Surgical resection or disease of gastrointestinal tract  
12. Diet-history-usual meal pattern  
13. Dietary restrictions  
14. Use of vitamin/mineral or other nutritional supplements  
15. Food allergies/ intolerances  
16. Medications  
17. Level of activity/ exercise  
18. Ability to secure and prepare food |                                                                     |
|        | Group is able to evaluate the ideal body weight and do base line observation | Evaluation of Ideal Body Weight  
A commonly used method for determining the ideal body weight in clinical settings is the  
Height in centimeters ---- 100 in males. |                                                                     |
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<th>Group is able to define what is Enteral feeding</th>
<th>DEFINITION</th>
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<tr>
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<td>Feeding fluids or nutrients through a tube, that has passed into the esophagus and stomach through the nose, mouth is called Enteral feeding.</td>
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<th>Group is able assemble all the articles</th>
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<tr>
<td></td>
<td>1. Small – bore gastric tube</td>
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<td>2. Cup of water</td>
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<td>3. 30 ml or larger piston syringe</td>
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<td>4. Gauze pieces</td>
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<td>5. Water – soluble lubricant</td>
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<td>6. Towel</td>
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<td>7. Tape</td>
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<td>8. Emesis basin/ Kidney tray.</td>
</tr>
<tr>
<td></td>
<td>9. Pint measuring container from which to pour the feeding</td>
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<tr>
<td></td>
<td>10. Mackintosh with towel</td>
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</table>

List the articles that are required for Ryle’s Tube feeding.
<p>| | | |</p>
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<tr>
<td>11.</td>
<td>Bowl with water at room temperature.</td>
<td>Why we have to hold the syringe 8 inches above the bed? Demonstrates the procedure.</td>
</tr>
<tr>
<td>12.</td>
<td>Napkin or gauze pieces.</td>
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<td>13.</td>
<td>Stethoscope</td>
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<td>14.</td>
<td>Gloves</td>
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<td>15.</td>
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</table>

**Group carries the procedure of Ryle’s Tube feeding as per the protocol.**

**Procedure:**

1. Check For the presence of bowel sounds with the help of stethoscope
2. Assist the client to a Fowler’s position in bed or gives a slightly elevated right side-lying position as per the level of consciousness of the patient.
3. Attach the syringe, aspirates all contents, and measure the amount before administering the feeding.
4. Hold the syringe 8 inches above the bed
5. Introduce the feed into the syringe barrel, keeps it full until total amount has been introduced.
6. Clear the tube after feeding by introducing a small amount of water.
7. Disconnect syringe barrel and clamps the tube to prevent leakage of fluids
8. Disconnect syringe barrel and clamps the tube to prevent leakage of fluids
9. Remove mackintosh and towel
10. Make the patient comfortable
11. Do recording of time, date, amount of feed, in the intake output chart.
12. Clean the article used.

**Group is able to document the feed given and observes the patient after feed for complications.**

**Recording**
- Time
- Amount of feed given, whether the patient tolerated feed or no.

**Watch for complications like aspiration.**

**What complication can arise due to feeding?**
- Explains with the help of power point?
BIBLIOGRAPHY


## Appendix No. : C

### BLUE PRINT

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Total No. of questions: 29
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**APPENDIX NO. : D**

**STRUCTURED KNOWLEDGE QUESTIONNAIRE ON FOR NURSES ON CARE OF PATIENT ON VENTILATOR**

Section I: - Socio Demographic data of Nurses.

Section –II: - Questions on care of patient on ventilator

**Instruction for the use of the tool:**

There is one correct answer in each question. Each question contains one mark. You are requested to put a tick (✓) against the appropriate answer.

**SECTION : I**

**Socio Demographic data of Nurses**

| SAMPLE CODE | :- | ________________ |
| PLACE | :- | __________________ |
| AGE IN YEARS | :- | 21 - 25 Yrs. ✓ 26 - 30 Yrs. ☐ 31 - 35 Yrs. ☐ 36 Yrs. & Above ☐ |
| GENDER | :- | Male ☐ Female ☐ |
| EDUCATIONAL QUALIFICATION | :- | Diploma in Nursing ☐ Graduation in Nursing - BSc. Nursing ☐ PBSc. Nursing ☐ Any Other ☐ |
| ADDITIONAL COURSES | :- | Diploma in C.V.T.S Nursing ☐ I.C.U. Training if any Yes / No If yes, how many months / years ________ |
| YEARS OF EXPERIENCE IN I.C.U. | :- | 0 - 6 Months ☐ 6 Months - 1 Year ☐ 2 Years - 3 Years ☐ More than 3 years ☐ |
SECTION –II

Questions on care of patient on ventilator

A) Questions related to communication with patients and relatives

1) Non verbal communication includes.
   a) Facial expressions, Postures, Gestures, Touch
   b) Postures, Gestures
   c) Touch
   d) Vocabulary

2) One can use following techniques in therapeutic Communication
   a) Use of Silence, Accepting what patient says, Asking the patient to follow what is told?
   b) Use of Silence, Accepting what patient says, Encouraging description of perception.
   c) Only use of Silence,
   d) Encouraging description of perception.

3) Strategies to facilitate effective communication are.
   a) Active Listening, sharing observations, providing information using silence
   b) Using silence, sharing observations, showing approval or disapproval, providing information.
   c) Only sharing observations
   d) Only providing information

4) Before the communication with the patient the nurse should
   a) Find out the needs of the patient
   b) Patients level of consciousness
   c) Assess patient’s ability to communicate and his/her preferred language.
   d) Discuss the problem with the relatives
5) The nurse who uses appropriate therapeutic listening skills will not display which of the following behaviour.
   a) Absorb both the content and the feeling of the client is being conveying.
   b) Presume an understanding of the client’s needs
   c) Adopt an open professional posture
   d) React quickly to the message.

6) A newly appointed nurse is confused while preparing a tray for endotracheal intubation. The most appropriate communication strategy should include which of the following.
   a) No written direction for the procedure
   b) Speaking very loudly
   c) Flat expression
   d) Doing the work on your own to show how it is done.

B) Questions related to assisting for intubation and change in twill tape

7) Endotracheal intubation means.
   a) Passing of airway into the oral cavity.
   b) Passing of a tube into the trachea through the nose or mouth.
   c) Passing of the tube into the abdomen.
   d) Passing of tube into the abdomen through the nose or mouth.

8) Magill’s intubating forceps is required on the intubation trolley for.
   a) Fixing the endotracheal tube
   b) Cleaning the oral cavity before passing the endotracheal tube.
   c) Suctioning
   d) Guiding or directing the endotracheal tube into the trachea.

9) When will you insert oral airway in the patient’s mouth.
   a) During intubation
   b) Before intubation.
   c) After intubation.
   d) Not required.
10) Why is oral airway inserted in the mouth of the patient?
   a) To prevent aspiration.
   b) To avoid tongue fall.
   c) To prevent the biting on and occluding an endotracheal tube.
   d) All of the above.

11) Which size of the endotracheal tube is used for an adult patient?
   a) 5 m.m. – 7 m.m.
   b) 7 m.m. - 8.5 m.m.
   c) 8 m.m. - 9.5 m.m.
   d) More than 9.5 m.m.

12) Why is cricoid pressure applied during endotracheal intubation?
   a) Visualization of esophagus
   b) Visualization of Vocal cord.
   c) Visualization of Uvula.
   d) Visualization of Conditions of oral cavity

13) How much time you will preoxygenated the patient with 100% oxygen
   a) 10 -15 min.
   b) 3 - 5 min.
   c) 3 - 5 sec.
   d) 15 - 20 min.

14) Positioning the patients head by flexing the neck forward and extending the is
    called.
    a) Fowlers position.
    b) Side lying position
    c) Sniffing position.
    d) Supine position.

15) The normal cuff pressure should be.
    a) 20 - 25 mmHg.
    b) 20 - 25 mmH2O
c) 10 - 15 mmHg  
d) 10 - 15 mmHg

16) The twill tape should be changed  
a) 4 hourly.  
b) 6 hourly.  
c) 12 hourly.  
d) As and when required and every 24 hours

17) Change of twill tape is necessary to prevent.  
a) Injury to the tongue.  
b) Oral infection.  
c) Injury at the site of endotracheal tube.  
d) Self extubation of the endotracheal tube.

C) Questions related to extubation of the patient  
18) What will you check if the patient is on prolonged endotracheal intubation?  
a) Air leak  
b) Tube blockage  
c) Hemorrhage  
d) All of the above

19) What do you administer in the patient at the time of extubation?  
a) Bronchodilator  
b) Hyper oxygenation and suctioning  
c) Nebulization  
d) None of the above
20) What instructions you will give to the patient while removing endotracheal tube
   a) Patient should be instructed to take deep breath
   b) Hold the breath
   c) Cough out
   d) Exhale for longer period.

21) After extubation the nurse should monitor the patient for.
   a) Heart rate, Respiratory rate, O2 saturation, BP, urine output.
   b) Only Respiratory rate.
   c) O2 saturation by pulse oxymeter
   d) Peristalsis

22) If unplanned extubation occurs the nurse should,
   a) Stay with the patient, call for help and ventilate the patient manually.
   b) Stay with the patient and put the E.T. tube back in its place.
   c) Go and bring the emergency trolley.
   d) Do the phone call for the ICU resident.

23) The major complications of E.T. tube are.
   a) Blocking of the tube
   b) Unplanned extubation and aspiration.
   c) Pneumonia
   d) None of the above.

D) Questions related to monitoring the patient on ventilator
24) What do you mean by Mechanical Ventilation?
   a) Use of artificial airway to create flow of gas into the lungs.
   b) Use of Mechanical Ventilation to create flow of gas into the lungs.
   c) Use of artificial airway and Mechanical Ventilation to create flow of gas into the lungs.
   d) None of the above.
25) Following are the purposes of Mechanical Ventilation, tick which is not appropriate.
   a) To create alveolar ventilation.
   b) To deliver precise level of oxygen.
   c) To maintain adequate lung expansion.
   d) To increase the work of breathing.

26) Following are the indicators of Mechanical Ventilation except.
   a) Lung or airway disorders. (ARDS, COPD, Pneumonia, Pneumothorax).
   b) Circulatory disorder (MI, Cardiogenic shock)
   c) Prophylactic management after surgery.
   d) Neuromuscular disorders (GB Syndrome, CVA, and Myasthenia Gravis).
   e) Metabolic acidosis

27) What are the types of Mechanical Ventilation?
   a) Positive pressure and negative pressure ventilation
   b) Negative pressure.
   c) Positive pressure
   d) None of the above.

28) What happens in C.M.V. mode?
   a) Patient takes all the breaths on his own.
   b) Ventilator gives only intermittent breaths.
   c) It is mandatory for patients to initiate a breath so that ventilator can deliver a breath.
   d) Patients receive preset volume of air.

29) Which are the modes of supported ventilation?
   a) Pressure support, SIMV, SIMV + Pressure support
   b) Only SIMV
   c) Only SIMV + PS
   d) None of the above.
30) What happens in volume control + sigh?
   a) Every 50th breath patient receives extra volume.
   b) Every 25th breath patient receives extra volume.
   c) Every 75th breath patient receives extra volume.
   d) Every 100th breath patient receives double the tidal volume.

31) The humidifier located on the inspiratory side of the circuit is necessary to overcome following problems
   a) Gas entering the lungs to bypass the normal upper airway humidification process.
   b) Excessive intra pulmonary drying.
   c) Infection
   d) All of the above.

32) High Pressure alarms should be set
   a) < 35 cm H₂O
   b) < 20 cm H₂O
   c) > 40 cm H₂O
   d) > 35 cm H₂O

33) Normal urine output in an adult patient on ventilator should be
   a) 01 ml kg /hr
   b) 20 ml/kg/hour
   c) 30 ml/hour
   d) 1500 ml every shift

E) Questions related assisting for weaning off from ventilator.
34) What do you mean by Weaning?
   a) Stop the ventilator and shift the patient on ‘T’ piece.
   b) Patient no longer needs artificial breaths.
   c) The process of transitioning the ventilator-dependent patient to unassisted spontaneous breathing.
   d) None of the above.
35) Active weaning should occur
   a) When patient is stable and reason for mechanical ventilation is resolved or improving.
   b) During day time and not night time.
   c) If secretions are excessive.
   d) When patient is febrile, bacteremic or septic.

36) Application of PEEP helps in
   a) Prevent atelectasis
   b) Prevent atelectasis, Periodic opening and closing of alveoli, Minimizing FiO$_2$ requirement, and Increase peak pressures.
   c) Periodic opening and closing of alveoli, Prevent atelectasis minimizing FiO$_2$ requirement,
   d) Increase peak pressures.

37) Pressure control mode includes
   a) All the settings of volume control.
   b) All settings of volume control except PEEP
   c) All settings of volume control except tidal volume
   d) All the settings are different than Volume Control Mode.

38) PEEP helps in prevention of
   a) Volutrauma
   b) Atelectasis
   c) Ventilatory associated Pneumonia.
   d) Barotrauma.

F) Questions related to suctioning of endotracheal tube.

39) What are the types of endotracheal suctioning?
   a) Open and Closed
   b) Only Closed
   c) Only Open
   d) None of the above.
40) Why do we need to perform E.T. suctioning?
   a) To improve oxygenation & reduce work of breathing.
   b) To help in pulmonary aspiration of gastric fluids.
   c) To suppress cough reflex.
   d) To remove gastric contents.

41) Which parameters you will check before suctioning?
   a) SPO₂, Length of endotracheal tube and Auscultation of chest, Dilation of pupils, Heart rate, blood pressure, respiratory rate.
   b) Only Heart rate, blood pressure, respiratory rate.
   c) SPO₂, Length of endotracheal tube and Auscultation of chest, Heart rate, blood pressure, respiratory rate.
   d) Length of endotracheal tube and Auscultation of chest

42) How much vacuum is required for endotracheal tube suctioning?
   a) 60 – 80 mmHg.
   b) 80 – 120 mmHg.
   c) 100 – 140 mmHg.
   d) Not specific.

43) What is the maximum time limit in performing the endotracheal suctioning?
   a) 5 to 10 seconds.
   b) 10 – 15 seconds.
   c) 15 – 20 seconds.
   d) Less than 5 seconds.

44) Which are complications that can occur due to suctioning?
   a) Hypoxemia, Cardiac arrest, mucosal trauma, Aspiration.
   b) Alveolar collapse, atelectasis, Cardiac arrest. Mucosal trauma & hypoxemia.
   c) Aspiration, Heamatemesis, Hypoxemia, Cardiac arrest.
   d) Increase intracranial pressure, abdominal distension.
45) When and how is the suction applied to the catheter?
   a) When the catheter reaches the carina. Withdraw 1 cm before beginning to suction.
   b) Before we start the suction.
   c) As soon as the catheter is attached to the suction machine.
   d) When we withdraw the catheter.

46) What are the causes of cardiac arrest during suctioning?
   a) Hypoxemia.
   b) Vagus nerve stimulation.
   c) Hypotension.
   d) Mucosal irritation.

47) What are the nursing responsibilities in prevention of mucosal trauma?
   a) Suction only when needed.
   b) Avoid jabbing motion.
   c) Use oral or nasal airway.
   d) Apply suction while withdrawing the catheter.

G) Questions related to assisting for arterial blood gas collection and its interpretations

48) How much time you will apply pressure over the site after Arterial blood gas collection
   a) 5 minutes.
   b) One minute
   c) 10 minutes
   d) 3 minutes.

49) Normal pH of blood is.
   a) 7
   b) 7.35
   c) 6.45
   d) 8
50) Elevated PaCO$_2$ with decreased pH indicates.
   a) Respiratory acidosis.
   b) Respiratory alkalosis
   c) Metabolic alkalosis
   d) Metabolic acidosis.

51) Metabolic acidosis means
   a) elevated HCO$_3$ with elevated pH
   b) Decreased HCO$_3$ with decreased pH.
   c) Normal PaCO$_2$ with elevated pH
   d) elevated PaCO$_2$ with elevated pH

52) What is the purpose of Allen’s test/
   a) To locate the radial artery
   b) To assess the collateral circulation.
   c) To palpate the radial artery.
   d) To stabilize the radial artery.

53) What is the normal oxygen saturation in blood?
   a) 60-80%
   b) 80-90%
   c) 90-100%
   d) 95-115%

54) What is the normal PaO$_2$ levels?
   a) 60 – 80 mmHg.
   b) 85 – 100 mmHg
   c) 100 – 110 mmHg
   d) 120 – 140 mmHg

55) What does this ABG analysis indicate. (PaO$_2$ – 76 mmHg, pH - 7.31, PaCO$_2$ – 52 mmHg)
   a) Respiratory alkalosis
   b) Metabolic alkalosis
   c) Metabolic acidosis
   d) Respiratory acidosis
H) Questions related to oral hygiene of the patient on ventilator

56) Offensive order of breath is called as
   a) Chelosis
   b) Dental plaques
   c) Halitosis
   d) Hordes

57) The normal inhabitant in the mouth cavity that acts on the carbohydrate material is.
   a) Staphylococcus aureus
   b) Bacillus acidophilus
   c) Pneumococci.
   d) Streptococci.

58) The most common complication of neglected mouth in the patients on ventilator is
   a) Nephritis
   b) Adenitis
   c) Ventilator Associated Pneumonia
   d) Tonsillitis

59) Medication that can cause dryness of the mouth includes following
   a) Only Diuretics
   b) Laxatives and Antibiotics
   c) Diuretic, Laxatives and Tranquilizers.
   d) Antibiotics, Diuretic, Laxatives and Tranquilizers.

60) The side lying position is given to the unconscious patient while giving mouth wash because
   a) It is comfortable for the nurses.
   b) Fluid will readily run out of the mouth and prevent aspiration into the lungs.
   c) It is comfortable for the patient
   d) None of the above.
61) The most commonly used emollients for cracked and dry lips are
   a) KMnO4, Glycerin borax White Vaseline
   b) Glycerin borax
   c) White Vaseline
   d) Cold cream, Glycerin borax White Vaseline

I) Questions related to care of back and pressure points.

62) Back rub helps in the following
   a) It promotes relaxation, Relives muscular tension, Prevents of thrombus
   b) It promotes relaxation, Stimulates circulation, Prevents of thrombus
   c) It promotes relaxation Stimulates circulation. Relives muscular tension.
   d) None of the above.

63) Back rub promotes the following
   a) Lymphatic drainage by getting rid of the body metabolic waste,
      Provides gentle relaxation, Speeds healing
   b) Hydration of the skin Speeds healing, Provides gentle relaxation.
   c) Provides only gentle relaxation.
   d) Hydration of the skin

64) The basic steps in back massage includes
   a) Effleurage, Pretissage, Aspiration and drainage.
   b) Flicking, Kneading, Aspiration and drainage.
   c) Hacking & Tappotment, Aspiration and Stimulation.
   d) Effleurage, Pretissage, Flicking, Kneading, Hacking, Tappotment and Friction

65) Massage helps in which type of communication
   a) Verbal
   b) Non verbal
   c) Therapeutic
   d) None of the above.
66) How often you need to release the back pressure in the client on ventilator
   a) When ever needed
   b) Every two hourly
   c) Every four hourly
   d) Every six hourly.

67) Different type of mattresses used in prevention of bed sore are the following except.
   a) Air mattresses
   b) Water Mattresses
   c) Dunlop Mattresses
   d) Hard board

68) The major manifestation of impairment of skin integrity in patients lying down in the same position for longer period is
   a) Thrombophlebitis.
   b) Air embolism
   c) Decubitus ulcers
   d) Diabetic ulcer.

69) What will be the condition of the skin during the first stage of decubitus ulcers?
   a) Breakdown of skin
   b) Oozing with Erythema and edema
   c) Transient circulatory disturbances erythema or blanching with pressure that disappears when pressure is removed.
   d) All of the above.

70) Decubitus ulcer occurs when there is.
   a) Sufficient pressure on the skin to cause the blood vessels in an area to collapse.
   b) The flow of blood and fluid to the cells is impaired resulting in lack of oxygen and Nutrients to the cells.
   c) Both a & b.
   d) Release of pressure every six hourly.
   e) Pressure valve
J) Questions related to enteral feeding to a patient on ventilator

71) What is enteral feeding?
   a) Food that is fed through the mouth
   b) Food given to the patient who is unable to take orally with the help of the nasogastric tube.
   c) Both a & b
   d) None of the above

72) Nasogastric feeding is given to the clients who manifest following.
   a) Decreased level of consciousness
   b) Poor cough or gag reflexes
   c) Endotracheal intubation, Decreased level of consciousness and patient with poor cough or gag reflexes
   d) Endotracheal intubation, Conscious, well oriented patient, Conscious and well oriented patient

73) Patient is encouraged to drink or swallow at the time of tube insertion because.
   a) Swallowing moves epiglottis apart from the larynx
   b) Swallowing moves the epiglottis over the opening of the trachea.
   c) Swallowing moves the epiglottis over the opening to the larynx
   d) None of the above.

74) Failure to flush the tubing after both drug administration and feeding can cause.
   a) Abdominal distension.
   b) Leakage of tube.
   c) Blocking of tube.
   d) None of the above.

75) The feed given should be of body temperature or room temperature because,
   a) It prevents Constipation.
   b) It prevents Diarrhea and G.I. complications
   c) It prevents distension
   d) It prevents aspiration.
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## CHECK LIST FOR MAINTAINING ROUTINE WORK IN ICU

**OBJECTIVE:** To observe the nurses while maintaining routine work in Intensive Care unit

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<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Pre-test obs (Post-test P1,P2,P3 5 to 7 days)</th>
<th>Post-test P4 (3 obs Average)</th>
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<td>Checks the work assigned with shift-in-charge sister</td>
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<td>Checks for drums Instruments and packs.</td>
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<td>Checks the Crash cart, AMBU bags and poisonous drugs</td>
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<td>Checks the function of the Medical equipments</td>
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<td>Checks for indents, Laundry and pantry.</td>
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<td>Checks for cleanliness of Bedpans, urinals, kidney trays, sputum mugs</td>
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<td>Checks for Number of patients, expected transfer-out, any death in the previous shift.</td>
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<td>Checks for completion of record of transfer in, transfer out and death.</td>
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<td>Takes the over of the patients assigned</td>
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<td>Checks for the clinical status of the patients (Skin/bowel/mouth care/change of position / cardiac/renal/respiratory status/neurological status, tubes and catheters etc as</td>
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<tr>
<td>14</td>
<td>Finds about the information given to the relatives regarding the condition of the patient.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Ensures timely feeding to the patient.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Does regular suctioning and gives chest physiotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Checks for any references of the patient to other units.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Focuses attention first for the most seriously ill if more than one patient is assigned.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Keeps check on cleanliness and hygiene in bed-side cubicle, lockers and tables.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Follows infection control protocols for care of tubes &amp; catheters, bed-side procedures and also ensure implementation of infection control protocol when patients are shifted out.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participates in record keeping of the patients</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Score**: 20

*Observations
Total Score = 20 (Yes=Y=1, NO =N =0)*
OBSERVATIONAL CHECK-LIST FOR COMMUNICATION WITH PATIENTS

OBJECTIVE: - To observe the communication skills of nurse with the patients in 

Intensive care unit

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
<th>Pre-test obs</th>
<th>Post-test (P1,P2,P3) 5 to 7 days</th>
<th>Post-test -P4(3 obs Average) 29, 30, 31st day.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Score = 14 (Yes=Y=1, NO =N =0)</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

1. Communication with patient

2. Finds out patient's language and level of understanding.

3. Introduces herself if the patient is conscious.

4. Understands patient's preferred language and communicates in the understanding language.

5. Asks patients about pain discomfort, anxiety and hunger or any need to be fulfilled.

6. Observes patients' non-verbal clues of distress.

7. Answers the patients' questions and clarifies the doubts.

8. Explains patients about line of treatment and patient care.

9. Arranges for visit of relatives if requested by patient.
<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
<th>Total Score = 14 (Yes=Y=1, NO =N =0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-test obs</td>
<td>Post-test (P1,P2,P3) 5 to 7 days</td>
</tr>
<tr>
<td>9</td>
<td>Communicates with the help of a writing board and gestures to a patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>who is unable to talk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Answers questions asked by simple yes or No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Explains what is Yes and what is No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Provides reassurance and comfort.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Promotes a helping relationship with patients by uses of methods of non</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>verbal communication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Does not speak loudly near unconscious patients as she is aware that they</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>have a potential of being heard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Does not make any negative and anxiety producing statements in the</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>presence of the patient.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SCORE=14**
**OBSERVATIONAL CHECK-LIST FOR COMMUNICATION WITH RELATIVES**

**OBJECTIVE:** - To observe the communication skills of nurse with the patient’s relatives

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Score = 14 (Yes=Y=1, NO =N =0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Before, Teaching</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td><strong>Communication with patient’s relatives</strong></td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>Explains about the visiting hours, No of relatives permitted to meet.</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>Gives information about the waiting place for relatives, canteen and other facilities available</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>Collects all the information regarding health and treatment</td>
<td>Y</td>
</tr>
<tr>
<td>4</td>
<td>Does a thorough study about patient’s condition before speaking to a relative</td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>Finds about what information the relatives have received previously.</td>
<td>Y</td>
</tr>
<tr>
<td>6</td>
<td>Answers politely if asked questions about nursing care, feeding etc</td>
<td>Y</td>
</tr>
<tr>
<td>7</td>
<td>Looks after and aspect of hygiene and care at the bed side before visitation</td>
<td>Y</td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Score = 14 (Yes=Y=1, NO =N =0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCORE =14</td>
</tr>
<tr>
<td>8</td>
<td>Tries to be at the bed side, during the visiting hours.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Introduces her and ask how the visitors are related to the patient.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Assesses their level of understanding</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Asks the relatives or patients next to keen to speak to the ICU doctor/intensivist</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Schedules an appointment if they request to speak with the primary consultant or ICU consultant In an emergency or if requested see if a telephonic consultation can be arranged.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Does not give any information that she is not sure of especially with regard to patient’s condition and prognosis.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Gives time to time information about patient’s health.</td>
<td></td>
</tr>
</tbody>
</table>

140
## Observational Check-list for ET Suctioning

### Objective:
- To assess the performance of nurses in carrying out Endotracheal suctioning

### Observations

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations Total Score = 50 (Yes=Y=1, NO =N =0)</th>
<th>Pre-test obs.</th>
<th>Post-test P1,P2,P3 5 -7 day</th>
<th>Post-test -P4 3 obs Average) 29- 31st day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>1</td>
<td>Washes hands with soap and water.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Collects equipments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Stethoscope</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Syringe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Suction machine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Sterile solution :- normal saline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Sterile suction catheter disposable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Sterile glove:- pair</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Sterile gamgee pads</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Sterile bottle of is (flushing )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Does Respiratory Assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Records Heart rate. B.P.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Records respiratory rate &amp; pattern</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Checks spo2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Checks level of consciousness by calling out patient with name</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Ensures placement of Endotracheal tube by checking the markings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Auscultates both lungs for bilateral equal air entry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Feels the pilot balloon for adequate inflation of cuff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Notes the marking of endotracheal tube at the angle of mouth, where endotracheal tube is secured</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Pre-test obs.</td>
<td>Post-test P1,P2,P3 5-7 day</td>
<td>Post-test -P4 3 obs Average 29-31st day</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Pre preparation of self and patient</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Explains to the patient if conscious</td>
<td>Y Y Y Y Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Wears mask</td>
<td>N N N Y Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Checks the suction apparatus</td>
<td>N N N N Y N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Turns on the suction machine</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Places finger over the end of suction tubing to check the working.</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Observes the reading on vacuum pressure gauge</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>hyper oxygenates the patient</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Increases FiO&lt;sub&gt;2&lt;/sub&gt; to 100%</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Creates sterile field</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j</td>
<td>Opens sterile catheter pack</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>Attaches disposable suction catheter to suction tubing before wearing sterile gloves</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>Opens the sterile gloves and wears</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>Execution of procedure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Disconnects ventilator tubing places on sterile gauge piece</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Kinks the suction catheter and inserts in endotracheal tube</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Releases the kink and withdraws catheter in circular motion.</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Removes catheter out of endotracheal tube within 10-15sec.of insertion</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Connects patient back on ventilator</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Rinses the catheter with sterile solution</td>
<td>N N N N N N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
<td></td>
<td></td>
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<td>-------</td>
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<td>-------------</td>
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<tr>
<td></td>
<td></td>
<td>Total Score = 50 (Yes=Y=1, NO =N =0)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Pre-test obs.</td>
<td>Post-test P1,P2,P3 5-7 day</td>
<td>Post-test -P4 3 obs Average</td>
<td>5-7 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>g</td>
<td>Resets the F\textsubscript{2}O\textsubscript{2} on previous setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Execution of oral suctioning</td>
<td>a</td>
<td>Takes a separate suctioning catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>Takes separate sterile solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c</td>
<td>Does suctioning of the oral cavity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>d</td>
<td>Creates negative pressure only after the catheters is inserted in the mouth</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>e</td>
<td>Cleans the mouth with sterile gauge after suctioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>f</td>
<td>Flashes the catheter of oral suctioning with the sterile solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Termination of procedure</td>
<td>a</td>
<td>Switches off the suction machine and Disconnects the catheter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>Disposes suction catheter in respective color code bags.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c</td>
<td>Puts gloves in 1% Sodium Hypochloride solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Recording and reporting</td>
<td>a</td>
<td>Records Heart rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>Records respiratory rate and patterns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c</td>
<td>Records SpO\textsubscript{2}</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>d</td>
<td>Records characteristics of secretion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>e</td>
<td>Records patients responds to procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCORE = 50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**OBSERVATIONAL CHECK LIST FOR CHANGE OF ENDOTRACHEAL TUBE TIE**

**Objective:** - To assess the performance of nurses in changing of Endotracheal Tube Tie

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations Total Score = 20 (Yes=Y=1, NO =N =0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before. Teaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post test P1,P2,P3 5th -7th day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post test -P4(3 obs Average) 29th -31st day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 2 3 1 2 3</td>
</tr>
<tr>
<td>1</td>
<td>Collects all the required articles as per the list.</td>
<td>Y N Y N Y N Y N Y N Y N Y N</td>
</tr>
<tr>
<td>2</td>
<td>Washes hands and don personal protective equipment.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Position patient appropriately</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>One nurse stands at the head end and the other stands facing patient.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Nurse facing patient holds the tube and note markings at lip and teeth level</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Nurse at the head end cuts the tape with scissors just above the knot</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Loosen the ends and remove tape without pulling ET tube.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Uses blade very cautiously if required for cutting the wet tie.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Cleans the nostril thoroughly.</td>
<td></td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Performs oral suctioning</td>
<td>Y</td>
</tr>
<tr>
<td>11</td>
<td>Ensures that the tube for more than 48 hours is moved from one corner of mouth to the other</td>
<td>Y</td>
</tr>
<tr>
<td>12</td>
<td>Doubles the tape and makes a slipknot. Slip it over the ET tube and pull both ends in opposite direction.</td>
<td>Y</td>
</tr>
<tr>
<td>13</td>
<td>Gives oral hygiene. and Replaces airway.</td>
<td>Y</td>
</tr>
<tr>
<td>14</td>
<td>Ensures that the tube for more than 48 hours is moved from one corner of mouth to the other</td>
<td>Y</td>
</tr>
<tr>
<td>15</td>
<td>Doubles the tape and makes a slipknot. Slip it over the ET tube and pull both ends in opposite direction.</td>
<td>Y</td>
</tr>
<tr>
<td>16</td>
<td>Puts the tape ends in opposite direction and tie tape around neck.</td>
<td>Y</td>
</tr>
<tr>
<td>17</td>
<td>Ensures cuff tubing is not tied with the tube.</td>
<td>Y</td>
</tr>
<tr>
<td>18</td>
<td>Ensure the tie is one finger loose at the cheek.</td>
<td>Y</td>
</tr>
<tr>
<td>19</td>
<td>Date and time of procedure</td>
<td>Y</td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Score = 20 (Yes=Y=1, NO =N =0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before. Teaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post test P1, P2, P3 5th - 7th day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post test P4 (3 obs Average) 29th - 31st day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 2 3 1 2 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N</td>
</tr>
<tr>
<td>20</td>
<td>Any Injury at the corners of the mouth.</td>
<td>SCORE = 20</td>
</tr>
</tbody>
</table>
# APPENDIX NO. : F (6)

## OBSERVATIONAL CHECKLIST FOR ORAL HYGEINE

**Objective:** To observe the practices of nurses in maintaining oral hygiene of the patient on ventilator

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collects all the articles.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Washes hands with soap and water.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Turns patients head to one side.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Prepares antiseptic solution chlorhexedine 1%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Places mackintosh and towel below the neck at the side of face.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Places kidney tray close to the cheek.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Does not pour water into the patient’s mouth</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Inserts tongue depressor into patient’s mouth</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Wrap gauze piece to the artery forceps.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Moistens the gauze and dip it in a cleaning agent, squeezes the gauze</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Swabs each tooth gently, takes care to clean each side of the teeth.</td>
<td></td>
</tr>
</tbody>
</table>

Total Score = 22 (Yes=Y=1, NO =N =0)

<table>
<thead>
<tr>
<th>Before Teaching</th>
<th>Post test P1, P2, P3 5th -7th day</th>
<th>Post-test -P4(3 obs Average) 29th -31't day.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Before. Teaching</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Post -test -P4(3 obs <strong>Average</strong>)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>5th - 7th day</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Cleans the inner and chewing surface of the teeth uses mouth gag if required.</td>
<td>Y</td>
</tr>
<tr>
<td>13</td>
<td>Cleans the tongue using gauze-covered forceps.</td>
<td>Y</td>
</tr>
<tr>
<td>14</td>
<td>Takes care of the endotracheal tube and the airway</td>
<td>Y</td>
</tr>
<tr>
<td>15</td>
<td>Changes the twill tape if spoiled with secretions.</td>
<td>Y</td>
</tr>
<tr>
<td>16</td>
<td>Checks for any lesion due to endotracheal tube.</td>
<td>Y</td>
</tr>
<tr>
<td>17</td>
<td>Applies boro glycerin or emollient available on the lips and tongue.</td>
<td>Y</td>
</tr>
<tr>
<td>18</td>
<td><strong>Records findings</strong></td>
<td>Y</td>
</tr>
<tr>
<td>a</td>
<td>Mucous membrane intact &amp; moist or injured</td>
<td>Y</td>
</tr>
<tr>
<td>b</td>
<td>Lips smooth &amp; moist or cracked</td>
<td>Y</td>
</tr>
<tr>
<td>c</td>
<td>Tongue clean, pink &amp; moist or coated dry</td>
<td>Y</td>
</tr>
<tr>
<td>d</td>
<td>Swelling in gingiva</td>
<td>Y</td>
</tr>
<tr>
<td>e</td>
<td>Bleeding of gums</td>
<td>Y</td>
</tr>
</tbody>
</table>

**SCORE = 22**
## Observational Check List for Back Massage

**Objective:** To observe the practices of nurses in giving back massage and taking care of pressure points for the patient on ventilator.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
<th>Total Score = 22 (Yes=Y=1, NO=N=0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Before Teaching</strong></td>
<td><strong>Posttest</strong> P1, P2, P3 5th – 7th day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>Assembles equipments required.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>2</td>
<td>Performs hand washing</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>3</td>
<td>Introduces herself and verifies the patient’s identity. Explains what she is going to do in an conscious patient</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>4</td>
<td>Provides privacy</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>5</td>
<td>Prepares the patient. Assist the patient to move to the nearside of the bed within her reach. Adjusts the bed to a comfortable working height to prevent back strain.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>6</td>
<td>Establishes comfortable position the patient prefers.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>7</td>
<td>Exposes the back from the shoulders to the inferior sacral area. Covers the remainder of the body to prevent chilling and minimize exposure.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>8</td>
<td>Pours a small amount of lotion/spirit onto palm of hands and hold for a minute.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>9</td>
<td>Using palm, begin in the sacral area using smooth, circular strokes. Moves her hands up the center of the back and then over both scapulae.</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PosttestP1,P2,P3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5&lt;sup&gt;th&lt;/sup&gt; – 7&lt;sup&gt;th&lt;/sup&gt; day</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post test -P4(obs Average)</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; -31&lt;sup&gt;st&lt;/sup&gt; day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>10</td>
<td>Massage in a circular motion over the scapulae.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Effleurage: - Moves hands up the center of the back and then over both scapulae Massage in a circular motion over the scapulae.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Performs Pettrissage-striking the boney areas with the help of balls of the fingers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Performs Tappotment -flickering movements of the fingers in a circular manner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Performs Kneading-rolling of the muscles with the fist like dough.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Performs Hacking - gentle strokes with the edge of the palm over the muscular area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Performs Cupping - strokes with the cupped hands in the circular motion over the back.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Gives Friction- strong and firm strokes with the help of thumb over the spinal column from the sacrum till the cervical spine.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Apply firm, continuous pressure without breaking contact with the patient’s skin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Score = 22 (Yes=Y=1, NO=N=0)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Before. Teaching</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Posttest P1, P2, P3 5&lt;sup&gt;th&lt;/sup&gt; – 7&lt;sup&gt;th&lt;/sup&gt; day</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post test - P4 (obs Average) 29&lt;sup&gt;th&lt;/sup&gt; - 31&lt;sup&gt;st&lt;/sup&gt; day</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>1 2 3 1 2 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Y N Y N Y N Y N Y N Y N Y N Y N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Performs the same procedure with the talc powder.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>assess for skin redness and areas of decreased circulation, while massaging the back,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Repeats above procedure for 3 to 5 minutes,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Pats dry any excess lotion with a towel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Document that a back rub was performed and the patient’s response. Record any unusual findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>SCORE = 22</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OBSERVATIONAL CHECKLIST ON ENTERAL FEEDING

**Objective:** To observe the practices of nurses during enteral feeding for the patient on ventilator

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before, Teaching</td>
<td>Posttest P1, P2, P3 after 5 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
| 1      | **Assessment**  
<pre><code>    | Checks for the presence of bowel Sounds with the help of stethoscope | | | | | | | | | | | | | | | | | | | |
</code></pre>
<p>| 2      | <strong>Assembles equipment and supplies:</strong> | | | | | | | | | | | | | | | | | | | |
| a      | Mackintosh with towel | | | | | | | | | | | | | | | | | | | |
| b      | 50-mL syringe | | | | | | | | | | | | | | | | | | | |
| c      | Pint measuring container from which to pour the feeding | | | | | | | | | | | | | | | | | | | |
| d      | Bowl with water at room temperature. | | | | | | | | | | | | | | | | | | | |
| e      | Kidney tray. | | | | | | | | | | | | | | | | | | | |
| f      | Napkin or gauze pieces. | | | | | | | | | | | | | | | | | | | |
| 3      | <strong>Procedure</strong> | | | | | | | | | | | | | | | | | | | |
| a      | Assists the patient to a Fowler’s position in bed or gives a slightly elevated right side-lying position as per the level of consciousness of the | | | | | | | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
<th>Total Score = 18 (Yes=Y=1, NO=N=0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before. Teaching - Posttest P1, P2, P3 after 5 days - Post-test - P4(1, 2, 3 Average) after 1 month</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>1</td>
<td>patient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Attaches the syringe, aspirates all contents, and measure the amount before administering the feeding.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Holds the syringe 8 inches above the bed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Introduces the feed into the syringe barrel, keeps it full until total amount has been introduced.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Clears the tube after feeding by introducing a small amount of water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Disconnects syringe barrel and clamps the tube to prevent leakage of fluids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Offers mouth wash after feed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Removes mackintosh and towel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Makes the patient comfortable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Cleans the article used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Does recording of time, date, amount of feed, in the intake output chart.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

`SCORE = 18`
APPENDIX NO. :G (1)

INVENTORY CHECK LIST FOR ENDOTRACHEAL INTUBATION

**Objective:** To assess the reported practices of nurses for assisting in Endotracheal Intubation.

Instructions – put tick mark against the step performed by you.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Procedure</th>
<th>Pre test</th>
<th>Post test-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explained the procedure to the relatives?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Consent of relatives taken.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Assembled the following articles for extubation.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>a</td>
<td>Personal protective equipment.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>b</td>
<td>Endotracheal tube with intact cuff and 15-mm connector.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Adult female – 7.5 to 8.0 mm tube, Adult male – 8.0 to 9.0 mm tube. Write the no. you used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Laryngoscope handles with fresh batteries.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>d</td>
<td>Spare bulb for laryngoscope blades.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>e</td>
<td>Flexible stylet.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>f</td>
<td>Self-inflating resuscitation bag with mask connected to 100% oxygen.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>g</td>
<td>Oxygen source and connecting tubes ready with adapter.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>h</td>
<td>Gloves sterile/unsterile clean.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>i</td>
<td>Luer-Lok 10 ml syringe for cuff inflation</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>j</td>
<td>Water-soluble lubricant.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>k</td>
<td>Rigid pharyngeal suction-tip (Yankauer) catheter.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>l</td>
<td>Suction apparatus (portable or wall)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>m</td>
<td>Suction Catheter.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>n</td>
<td>Bite-block or oropharyngeal airway.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>o</td>
<td>Endotracheal tube-securing apparatus or appropriate tape.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>p</td>
<td>Adhesive tape (6 to 8 long.)</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Total Score = 44
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Procedure</th>
<th>Observations</th>
<th>Total Score= 44</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre test</td>
<td>Post test-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

q) Twill tape (cut into 30-in lengths.)

r) Stethoscope.

s) Anesthetic spray (nasal approach).

t) Local anesthetic jelly (nasal approach).

u) Sedating or paralyzing medications.

v) Magill’s forceps (to remove foreign bodies obstructing the airway).

w) Ventilator.

4) **Assisting in procedure.**

a) Washed hands, and don personal protective equipment.

b) Was the oropharyngeal airway checked?

c) Set up suction apparatus and connect catheter to tubing.

d) Assisted in positioning the patient’s head.

e) Checked the mouth for dentures, and removed if present.

f) Kept a self-inflating bag-valve-mask device ready for preoxygenation?

g) Was the patient Premedicated as indicated?

h) Applied cricoid pressure on requested

i) Prepared manual resuscitation bag connecting to 100% oxygen source and facemask.

j) assisted in confirming tube placement by bagging with100% oxygen?

k) Was the symmetric chest wall movements observed after bagging.

l) Checked oxygen saturation by noninvasive pulse oxymeter.

m) Helped in connecting endotracheal tube to oxygen source or mechanical ventilator.
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Procedure</th>
<th>Observations</th>
<th>Total Score= 44</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Inserted oro pharyngeal airway.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>Secured the endotracheal tube in its place.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>Was the disinfection and cleaning of the articles done after the procedure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>Recorded the procedure.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Tolerance of procedure by the patient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Informed the relatives about the patient’s condition after intubation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SCORE = 44**
**APPENDIX NO. : G (2)**

**INVENTORY CHECK LIST FOR MONITORING PATIENT ON VENTILATOR**

**OBJECTIVE:** To assess the reported practices of nurses regarding monitoring a patient on ventilator

Instructions – put tick mark against the step performed by you.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Procedure</th>
<th>Observations Total Score= 24</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>1</td>
<td>Checked and records on which mode of ventilation patient is placed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Procedure: - Are the following parameters checked one hourly.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pulse</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Oxygen saturation</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Blood pressure</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>CVP</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Urine output</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>ABG when started ventilator and as and when needed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Are the following alarms Monitored</strong></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>high pressure (below 30cm H₂O)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Airway pressure (airway pressure when pt. is on volume control mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Airway pressure (airway pressure when pt. is on volume control mode</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Low MV alarm (for patients with pressure control mode it should be set at</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-20% above &amp; below the patients minute ventilation requirements)</td>
<td></td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Procedure</td>
<td>Observations</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Score= 24</td>
</tr>
<tr>
<td>12</td>
<td>Apnea alarm</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>O₂ supply alarm</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Monitored for condensate in tubing, visible secretions in tubing / HME filter put date of change on it.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Did she record Cuff pressure</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Did she note the Mark of ET fixation</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Checks for Common problems</strong></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Reported when patient on ventilator was restless</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Checked why patient the patient is breathless</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Notifies when the Pulse &lt; 60 or Pulse &gt;110</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Notifies when systolic BP &lt;90 or &gt; 200mmHg</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Notifies when Oxygen saturation &lt; 90</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Informed Urine output &lt; 1 ml / kg / hr for three hours</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Checked for airway obstruction because of secretion.</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Watched for full bladder</td>
<td></td>
</tr>
</tbody>
</table>

**SCORE = 24**
APPENDIX NO. : G (3)

INVENTORY CHECK LIST FOR WEANING

OBJECTIVE: - To assess the reported practices of nurses regarding assisting in weaning the patient from ventilator

Instructions – Put tick mark against the step performed by you.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Procedure</th>
<th>Observations Total Score=30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Did you collect the following Equipment’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>If T-piece or tracheotomy collar setup is required, a flow meter with function</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>aerosol humidifier</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pressure manometers.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Extubation equipment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROCEDURE</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Communicates with the patient throughout the weaning process.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Washed hands and don gloves.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Connected patient to nebulizer.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Monitored frequency, breathing pattern heart rate, cardiac rhythm, SaO₂, and general appearance of patient, after weaning process started</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T’ –Piece trial</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Explained the patient and reassure him. Keeps him in propped up position</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Got T piece tube and o2 tubing</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Did a thorough suctioning</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Helped in Disconnecting the ET connector and attach</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>T piece  Set flow rate to keep SATs&gt; 90% Stop ventilator.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Kept catheter mount wrapped in sterile glove by patient’s side</td>
<td></td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Procedure</td>
<td>Observations</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pre-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>16</td>
<td>Helped in collecting ABG after one hour.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>DOCUMENTATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Explained to Patient and family regarding weaning procedure and its advantages</td>
<td>Yes</td>
</tr>
<tr>
<td>18</td>
<td>Noted the procedure used for weaning (e.g., T-piece, decreasing IMV/support, pressure end expiratory pressure, or CPAP.)</td>
<td>Yes</td>
</tr>
<tr>
<td>19</td>
<td>Wrote Findings of parameters used to assess patient readiness to wean and weaning trial tolerance such as ABGs, oximetry readings, negative inspiratory pressure, positive expiratory pressure, Vital capacity, MV, , airway resistance measurement, breathing pattern, and accessory muscle use.</td>
<td>Yes</td>
</tr>
<tr>
<td>20</td>
<td>Recorded Duration of trial and time when it started.</td>
<td>Yes</td>
</tr>
<tr>
<td>21</td>
<td>Noted Unexpected outcomes complications at the time of weaning</td>
<td>Yes</td>
</tr>
<tr>
<td>22</td>
<td>Recorded Any use of drugs</td>
<td>Yes</td>
</tr>
<tr>
<td>23</td>
<td>Wrote Nursing action taken at the time of emergency if occurred.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Conditions to be reported</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>reported Changes in weaning parameters</td>
<td>Yes</td>
</tr>
<tr>
<td>25</td>
<td>Signs of weaning trial intolerance (tachypneas, dyspnea, abnormal movements of chest and abdominal.</td>
<td>Yes</td>
</tr>
<tr>
<td>26</td>
<td>Patient becomes restless</td>
<td>Yes</td>
</tr>
<tr>
<td>27</td>
<td>Mental status changes (patient restless non co-operative)</td>
<td>Yes</td>
</tr>
<tr>
<td>28</td>
<td>Significant decrease in Sao2 ( &lt; 90% or 10% decrease)</td>
<td>Yes</td>
</tr>
<tr>
<td>29</td>
<td>Changed in pulse rate or rhythm</td>
<td>Yes</td>
</tr>
<tr>
<td>30</td>
<td>Blood pressure increase or decrease.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**SCORE = 30**
APPENDIX NO. : G (4)

INVENTORY CHECK LIST FOR EXTUBATION

Objective: - To assess the reported practices of nurses for assisting in Extubation

Instructions – Put tick mark against the step performed by you.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Procedure</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>1</td>
<td>explained the patient’s relative about extubation.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>The tray contained for</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Suctioned Equipment.</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Sterile suction catheter or suction kit.</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Self-inflating resuscitation bag connected to 100% oxygen source.</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Scissors.</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Endotracheal intubation supplies.</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Stethoscope.</td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>10-mL syringe.</td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Emergency cart.</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Rigid pharyngeal suction tip catheter.</td>
<td></td>
</tr>
<tr>
<td>j</td>
<td>Sterile gloves.</td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>Supplementation of oxygen with aerosol.</td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>Sterile dressing for tracheal stoma.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Procedure</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Washed hands and don personal protective equipment.</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Hyper oxygenated and suctioned endotracheal tube and pharynx.</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Removed secretions, including those above the cuff.</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Removed tape to free the tube.</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Instructed patient to deep breathe. Hold the breath While the tube is being removed, at the peak of inspiration.</td>
<td></td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Procedure</td>
<td>Observations</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pre-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>f</td>
<td>Monitored for the patient.</td>
<td>Yes</td>
</tr>
<tr>
<td>g</td>
<td>Encourages the patient to deep breath and cough.</td>
<td>Yes</td>
</tr>
<tr>
<td>h</td>
<td>Suctions the pharynx.</td>
<td>Yes</td>
</tr>
<tr>
<td>i</td>
<td>Educates Patient and family about expected complications and care.</td>
<td>Yes</td>
</tr>
<tr>
<td>j</td>
<td>Checks Respiratory rate and vital signs</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td><strong>After care of patient.</strong></td>
<td>Yes</td>
</tr>
<tr>
<td>a</td>
<td>Did you look for aspiration related to pooled secretion</td>
<td>Yes</td>
</tr>
<tr>
<td>b</td>
<td>Administered by mask as prescribed.</td>
<td>Yes</td>
</tr>
<tr>
<td>c</td>
<td>Encouraged coughing and deep breathing exercises?</td>
<td>Yes</td>
</tr>
<tr>
<td>d</td>
<td>checked the swallowing ability in the patient?</td>
<td>Yes</td>
</tr>
<tr>
<td>e</td>
<td>Ensured Spo2 (oxygen saturation) &gt; 90%</td>
<td>Yes</td>
</tr>
<tr>
<td>f</td>
<td>listened for Stridor.</td>
<td>Yes</td>
</tr>
<tr>
<td>g</td>
<td>checked patient for breathing difficulty?</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td><strong>Recording</strong></td>
<td>Yes</td>
</tr>
<tr>
<td>a</td>
<td>Patient response.</td>
<td>Yes</td>
</tr>
<tr>
<td>b</td>
<td>Unexpected outcomes.</td>
<td>Yes</td>
</tr>
<tr>
<td>c</td>
<td>Date and time of the procedure.</td>
<td>Yes</td>
</tr>
<tr>
<td>d</td>
<td>Monitors vital signs, respiratory status, and oxygenation immediately following Extubation, within1 hour.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**SCORE = 34**
**APPENDIX NO. : G (5)**

**INVENTORY CHECK LIST FOR ASSISTING IN ABG (Arterial Blood Gas) COLLECTION**

**OBJECTIVE:** - To assess the reported practices of nurses while assisting in ABG (Arterial blood gas) collection.

**Instructions** – Put tick mark against the step performed by you.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Procedure</th>
<th>Observations</th>
<th>Total score=22</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-test</td>
<td>Post-test-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>Collected all the article required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Selected needle of appropriate size radial artery 24 gauge (1.5) needle and In femoral artery 21 gauge(1.5 inch ) needle.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Washed hands and alcohol hand- rub.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Explained the procedure if patient is conscious.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Performed Allen’s test for radial artery puncture.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Assisted doctor in the procedure.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Gave proper position to the patient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Checked for any blood loss at the site of puncture five minutes after ABG collection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td><strong>Collection of ABG from Arterial line</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Attached a 5ml syringe to the sampling bivalve connected to the distal port of the radial artery catheter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Turns the bivalve off to the flush solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Aspirated 2ml into a 5ml syringe to clear the line of flush solution Close the bivalve remove the syringe and discard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Opened the bivalve and aspirate gently the blood flows in the syringe on its own due to the arterial force.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Closed the bivalve and remove the syringe. Hold the syringe upright, and expel any air bubbles in the syringe.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sr. No</td>
<td>Procedure</td>
<td>Observations</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total score=22</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pre-test</strong></td>
<td><strong>Post-test-1</strong></td>
<td>Yes</td>
</tr>
<tr>
<td>f</td>
<td>Attached the 5ml syringe to the bivalve. Open the bivalve to the flush solution. Flush solution into syringe to clear the bivalve. Turn the bivalve to the sampling port, remove the syringe and cap the port. Flushes the line until all the traces of blood are removed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Checked the bedside monitor for reappearance of wave forms.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Removed air bubble if any from syringe by keeping it vertical and tapping it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Caps the syringe and roll it gently to mix the blood with heparin Sub merges in ice.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Labeled the syringe.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Sends for analyzing immediately.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Analyzes blood within ten minutes of collection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Interpreted the result of ABG.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Informed ICU doctor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>SCORE =22</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
प्रति,

सम्मुख सर्वोच्च दज्जल्य,

अध्यक्षता,

संचालनालय, वैद्यकीय शिक्षण आणि संशोधन, मुंबई

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Tel.No. +91-22-22620361-65/22652257/59
Fax:+91-22-22620562/22652168
Website: http://www.dnerg.org

दिनांक:- 109/2011

पी.एच.डी. अभियंतारीकरण सर्वोच्च परवाणी निष्क्रियावाचकता....

श्रीमती संगीता निश्चित भुजेकर,

पाठ्यनिदेशक,

सम्मुख सर्वोच्च दज्जल्य, पुणे.

अध्यक्षता सम्मुख सर्वोच्च दज्जल्य, पुणे, यांचे पत्र के सस्त्र/ लेखक-मानिसा/8348/01.डिस/२०११.

उपरोक्त विषयातील संदर्भांनेपरतून श्रीमती संगीता सुनिल भुजेकर,

पाठ्यनिदेशक, सम्मुख सर्वोच्च दज्जल्य, पुणे यांचा ए.डी.डी. महिला

विद्यापीठाचा प्रमुख भी.एच.डी. अभ्यासक्रमासाठी प्रमाण प्रदेश निधिहृदयाळा असल्यास सदर

अभ्यासक्रम पूर्ण करण्यासाठी सर्वात सुरु अद्यावधी भारतीय भाषा पंजीकृत सार्वजनिक, पुणे

शास्त्रीय विद्या, वैद्यकीय शिक्षण व संशोधन, मुंबई

पम्झः- सार्वजनिक, वैद्यकीय शिक्षण व आध्यात्मिक विषयाचे विचार, संचालन, मुंबई

E=3 new HCL grand vp 98
INSTITUTIONAL ETHICS COMMITTEE

B. J. MEDICAL COLLEGE & SASSOON GENERAL HOSPITALS, PUNE 1

REPORT OF INSTITUTIONAL ETHICS COMMITTEE

Reference No.: BJMC/IEC/Pharmac/ ND –Dept.0912047-04
(Always quote this reference number & date in correspondence)

Date: 20.09.12

To,

Mrs. S. S. Bhujbal
Leelabai Thakarsey College of Nursing
SNDT Women's University
Chuchgate Mumbai

Sub: Regarding submission of research proposal of topic
entitled "A Study to develop and assess the effectiveness of Standard Operating Protocols on
knowledge and practices of nurses regarding care of patients on ventilator in an intensive care unit at
selected government hospitals in the state of Maharashtra”.

Ref.: ND – Dept.0912047-04

Dear Madam,

The above mentioned research proposal of dissertation topic was discussed in the Institutional
Ethics Committee meeting held on 13-09-2012 at our college.

Institutional Ethics Committee has unanimously approved your dissertation topic. This work will
be done under the guidance and supervision of your Ph.D guide Dr. H.B. Prasad

You are advised to follow ICMR, Schedule “Y”, ICH,GCP, CPCSEA and other
guidelines; as applicable and amended from time to time.

You are expected to report to the Ethics Committee the following:

• All deviations from, or changes to, the protocol to eliminate immediate hazards to the study subjects.
• New information that may affect adversely the safety of the subjects or the conduct of the study.
• Any changes in the study document.
• Progress of the study (six monthly)
• Also please provide a report to the Ethics Committee on the completion or discontinuation of the study.
• CTRI Registration is mandatory for clinical trials.
• Details of funds received, if any, has to be intimated to institutional ethics committee
within 3 days after receipt.

(Dr. D. D. Shetty)
Chairman
IEC BJMC & SGHs, Pune

(Dr. P. T. Pandit)
Member Secretary
IEC BJMC & SGHs, Pune
Title— A Study to develop and assess the effectiveness of Standard Operating Protocols on knowledge and practices of nurses regarding care of patients on ventilator in an intensive care unit at selected government hospitals in the state of Maharashtra.
बी.जे. वैद्यकित महाविद्यालय व सामून सर्वोच्चचार रुग्णालयाच्या इशिकल कमिटीकडून मान्यता प्राप्त झाली आहे. तरी मला डेटा कलेक्शन डिसेंबर २०१२ ते डिसेंबर २०१३ पर्यंत सरदर डेटा कलेक्शनसाठी स्वतंत्र रजा घेयून प्रत्येक विभागातील २ ते ३ आठवड्यांचा काळाकाळील लागणार आहे. तरी मला सदर अभ्यासक्रम पूर्ण करण्यासाठी व प्रत्येक विभागाची आयु.सी.यु. मध्ये डेटा कलेक्शन करण्यासाठी आपल्या पर्यावरणीय आवश्यकता आहे. तरी मला वरील पर्यावरणी देकून मला मदत करवावी, ही नप्र विनंती.

सोबत:
१. डेटा कलेक्शनसाठी विभागाच्या रुग्णालयाची यादी.
२. इशिकल कमिटी मान्यता पत्राची झोळ्के.
३. प्रोटोकॉल व्हॉलिडेशन पत्र.

आपली विरासत,

(सौं. संगिता सुनिल भुजवळ).
Title : A study to develop and assess the effectiveness of Standard Operating Protocols on knowledge and practices of nurses regarding care of patients on ventilator in an intensive care unit at selected government hospitals in the state of Maharashtra.
<table>
<thead>
<tr>
<th>अ. क्र.</th>
<th>ज्ञा कळालाचार करता कोटा करावासात आहे या कळालाच्या नाव</th>
<th>कोटा करावासात करावासाचा काळावर्धन</th>
</tr>
</thead>
<tbody>
<tr>
<td>१</td>
<td>शासकीय वैचिकीय महाविधालय व कळालाच,मिरज</td>
<td>दिव. २४.५.२०१३ ते १५.६.२०१३</td>
</tr>
<tr>
<td>२</td>
<td>चुंबायां, रजनीं, भाऊ महाराज कळालाच,लोम्बापूर</td>
<td>दिव. २१.४.२०१३ ते २६.५.२०१३</td>
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<tr>
<td>३</td>
<td>जो.तांकाराज चाकूरण शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर</td>
<td>दिव. २४.५.२०१३ ते २६.५.२०१३</td>
</tr>
<tr>
<td>४</td>
<td>शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर</td>
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</tr>
<tr>
<td>५</td>
<td>स्मारक, श्रीमण्डल तांडव, शासकीय शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर</td>
<td>दिव. २८.५.२०१३ ते २२.२.२०१३</td>
</tr>
<tr>
<td>६</td>
<td>नेपिपाला ब्यूटी शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर</td>
<td>दिव. २५.२.२०१३ ते ३१.२.२०१३</td>
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<tr>
<td>७</td>
<td>भांडालाच, हिंदी शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर</td>
<td>दिव. २५.५.२०१३ ते ३४.३.२०१३</td>
</tr>
<tr>
<td>८</td>
<td>शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर, ओरियंगाबाद</td>
<td>दिव. १५.४.२०१३ ते २०.४.२०१३</td>
</tr>
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<td>९</td>
<td>शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर, ओरियंगाबाद</td>
<td>दिव. २०.५.२०१३ ते ५५.६.२०१३</td>
</tr>
<tr>
<td>१०</td>
<td>इंदिरा गाँधी शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर, ओरियंगाबाद</td>
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<td>११</td>
<td>शासकीय वैचिकीय महाविधालय व सर्वेश्चार कळालाच,अमेरॉला</td>
<td>दिव. २४.६.२०१३ ते २५.६.२०१३</td>
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<td>१२</td>
<td>स्मारक, नाइएक शासकीय वैचिकीय महाविधालय व कळालाच,लोम्बापूर, ओरियंगाबाद</td>
<td>दिव. १५.५.२०१३ ते ६.६.२०१३</td>
</tr>
<tr>
<td>१३</td>
<td>जे.के.शासकीय वैचिकीय महाविधालय व कळालाच,मुंबई</td>
<td>दिव. ८.६.२०१३ ते १३.६.२०१३</td>
</tr>
<tr>
<td>१४</td>
<td>सेन्ट. जॉन्स शासकीय कळालाच,मुंबई</td>
<td>दिव. २६.७.२०१३ ते २०.७.२०१३</td>
</tr>
<tr>
<td>१५</td>
<td>गोस्तालदा लेजपाल शासकीय कळालाच,मुंबई</td>
<td>दिव. २२.७.२०१३ ते २७.७.२०१३</td>
</tr>
<tr>
<td>१६</td>
<td>संस्तुत सर्वेश्चार कळालाच,मुंबई</td>
<td>दिव. १६.९.२०१३ ते २६.९.२०१३</td>
</tr>
</tbody>
</table>

संदर्भ:
1) कोटा करावासाते विभागांमध्ये कळालाचाची माहिती
2) विभागांत विविध पर्यायांत कळालाचे संरक्षण
3) अवधारणा पव
ससून सर्वोपचार रुग्णालय, पुणे १।
श्रुवुषा विभागः

website: http://www.bjmcnpune.org/  email:nursingspasangenhospitalpune@gmail.com

जा.क.ससन/श्रुवुषा-सेवा/ /१२  

रोजीचा विनंती अजें

’विषय :- पी.एच.डी. रिसर्च स्टॅट्ससाठि आयशीयु डेटा कलेक्शनकरिता परबानणी साङ्गोष्ठीकरण बापात....
(श्रीमती संगिता सुनिल भूजवंत, पाध्यविद्याकृती)

संवर्धन :- १) संचालनालयाचे पत्र क.एन.ब्यूटीकृत/b्रीमती भूजवंत/पाठ/ 
पा.कृतकलेक्शन/३१/०७/१२ वि.प.१४.१२

२) श्रीमती, संगिता सुनिल भूजवंत मांचा दिनांक १/१५/२०१२ रोजीचा विनंती अजें

महोदय,

उपरोक्त संवर्धने किल्ले intro结合起来 आस्थापने वरील 
श्रीमती, संगिता सुनिल भूजवंत, पाठविद्याकृती, ससून सर्वोपचार रुग्णालय, पुणे 
यांना पी.एच.डी. अभ्याससाठी किल्ले संचालनालयाची परबानणी प्राप्त आलेली आहे. 
त्यांना सदर स्टाठी किल्ले संचालनालयाची परबानणी अभियंताच्या असलेल्या I.C.U. मंत्रील 
नरसेने Knowledge Asses करणे आहे व त्यांनी Develop केलेल्या Protocol यांचे Effect व 
आहे. सदर स्टाठी साठी ससून सर्वोपचार रुग्णालय, पुणे बैठकृतेल्या इवेंट लीकृतीकडून 
परबानणी मिळालेली आहे. व तसेच त्यांच्या Develop केलेल्या Protocol तंत्रज्ञाने Validate केले आहे. 
मां. संचालनालयाच्या आप्रवासनाची मागणी असून इवेंट लीकृतीकडून 
मान्य बिल्यासा मान्यतेच्या अवधी राहून सदर स्टाठी परवानगी विल्यास 
डेटा कलेक्शन बेचेचेच्या पूर्ण होणे शकते.

कृपया वेळती करावे.

सोबत जोडेल्या रुग्णालयांच्या नावापुढे वर्षाविलेला कलावधित डेटा 
कलेक्शन आपल्या परवानगीने करणे आहे. तरी आधुनिक आपल्या रुग्णालयसाठी 
वर्षाविलेल्या कलावधित त्यांचा परवानगीस्थळ पाठविने वेळही आहे.

अधिकृतता,

ससून सर्वोपचार रुग्णालय, पुणे

D:/OFFICE FILE/Mambal Letter.doc

- 52 -
Request for content and construct Validity of the tool

Mrs. Sangeeta S Bhujbal
Sister Tutor.
College of Nursing
B J Medical College & SGH
Pune-411001
Date- / /2012.

To,

Subject: - Request for opinion, suggestion and validation regarding construction and content validity for the research Tool

Respected Sir/Madam

I the undersigned Mrs. Sangeeta S Bhujbal Ph D Nursing scholar of L .T. College of Nursing, S N D T Women’s University, Mumbai is doing a research on, Title-- A Study to develop and assess the effectiveness of Standard Operating Protocols on knowledge and practices of nurses regarding care of patients on ventilator in an intensive care unit at selected government hospitals in the state of Maharashtra.

I kindly request you to check, and give me your expert suggestions regarding appropriateness, clarity stability and validation of the tool. I will be very much grateful to you.

Tool consists of

- **Structured Questionnaire.**
  - Section I) : - Demographic data
  - Section II :- Questions related to Assessment of knowledge of the nurses regarding care of patient on ventilator.

- **Observational Check List** to Observe the practices of nurses regarding care of patients ventilator.

- **Inventory checklist.**

Thanking you

Yours faithfully

(Mrs. Sangeeta S Bhujbal)
APPENDIX NO. : N

NAMES OF THE EXPERTS ON VALIDITY PANEL.

1) Mrs. Alka Kalambi,
   Ex. Principal,
   L.T. College of Nursing,
   S.N.D.T. Women’s University,
   Mumbai.

2) Dr. Mrs. Kelkar,
   H.O.D. Dept. of Anaesthesia,
   B.J.M.C. and Sassoon General Hospital,
   Pune.

3) Dr. Mr. Kadam,
   H.O.D. Dept. of Medicine,
   B.J.M.C. and Sassoon General Hospital,
   Pune.

4) Dr. Haridas B. Prasad,
   Associate Professor, Dept. Of Medicine,
   B.J.M.C and Sassoon General Hospital,
   Pune.

5) Dr. Shivkumar Iyer.
   Director,
   Intensive Care Unit,
   Sahayadri Hospital
   Pune.

6) Dr. Rajhans Prasad.
   Director,
   Intensive Care Unit,
   Dinanath Mangeshkar Hospital,
   Pune.

7) Dr. Dcosta.
   Intesivist,
   Intensive Care Unit,
   K.E.M. Hospital
   Pune.

8) Mrs. Clare,
   Saifi Hospital,
   Mumbai.
9) Dr. Mrs. Tapti Bhattacharjee, Principal, Bharati Vidyapeth College of Nursing, Pune.

10) Dr. Mrs. Sneha Pitre, Principal, Bharati Vidyapeth College of Nursing Pune.

11) Dr. Mrs. Rekha Ogale, Principal, Sinhagad College of Nursing Pune.

12) Dr. Mrs. Nancy Fernandes, Associate Professor, L.T. College of Nursing, S.N.D.T. Women’s University, Mumbai.

13) Dr. Mrs. Rani Shetty, Associate Professor, L.T. College of Nursing, S.N.D.T. Women’s University, Mumbai.

14) Dr. Mrs. Shubhada Ponkshe, Vice Principal, M.K.S.S. College of Nursing, Pune
APPENDIX NO. : O

Date 19/10/2012

To,
The Chairman,
Ethical Committee,
B.J.Govt. Medical College &
Sassoon General Hospital.
Pune-1
Dear Sir,

We the following expert members have gone through the ICU Protocols formulated by Mrs Sangeeta S Bhujbal for her Ph.D study in Nursing on the Title - A Study to develop and assess the effectiveness of Standard Operating Protocols on knowledge and practices of nurses regarding care of patients on ventilator in an intensive care unit at selected government hospitals in the state of Maharashtra.

The protocols formulated are valid and will improve the patient care in ICU. There will not be any risk to the patient by implementation of these protocols by her.

NAME

1) Dr Haridas B Prasad
Associate Professor and Guide
Dept of Medicine
B.J.Govt. Medical College &
Sassoon General Hospital.Pune.

2) Dr D B Kadam
Professor and Head
Dept of Medicine
B.J.Govt. Medical College &
Sassoon General Hospital.Pune.

3) Dr Mrs V Kelkar.
Professor and Head
Dept of Medicine
B.J.Govt. Medical College &
Sassoon General Hospital.Pune.

4) Dr Shivkumar Iyer.
Director Of ICU.
Shayadri Hospital.
Pune.
5) Dr. Prasad Rajhans
   Consultant Intensivist
   Deenanath Mangeshkar Hospital.
   Pune

6) Dr Mrs Tapti Bhattacharjee.
   Ph.D Nsg.
   Principal
   College of Nursing.
   Bharati Vidyapeth Pune.
CONSENT FORM

1) I, Mr./ Mrs. ______________________________ working at _________________________ hospital hereby give my informed consent to participate in the study of Mrs. Sangeeta Sunil Bhujbal, Ph.D. Nsg Scholar from S.N.D.T. Women’s University, Mumbai. Her topic is “To develop and assess the effectiveness of Standard Operating Protocols on knowledge and practices of nurses regarding care of patients on ventilator in an intensive care unit at selected government hospitals in the state of Maharashtra.”

2) I have read and I have been explained the general information and purpose of the present study.

3) I know that I can withdraw from the present project at any time.

4) I am also assured by the researcher that any data or analysis of this study will be purely used for scientific purpose and my name will be kept confidential.

Signature of Participant
APPENDIX NO. : Q

DIRECTORATE OF MEDICAL EDUCATION AND RESEARCH DATA COLLECTION

प्रिय एच डी अभ्यासक्रमांतर्गत डेटा कलेक्शन केंद्रात चेतावनी मिळवणे आवश्यक.

संबंध:- श्रीमती भुजबद्ध संगीता पाठवणी निदेशक सतसु.पुणे वांचा
दिव.०९/१२/२०१४ रोजीचा अर्ज.

प्रमाणित करण्यास येते की, श्रीमती संगीता भुजबद्ध, पाठवणीनिदेशक, सतसुं सर्वीपाचर रुग्णालय, पुणे यानी पी.एच.डी अभ्यासक्रमांतर्गत संचालनालयाच्या अधिनस्त १३ संस्थांमध्ये डेटा कलेक्शन उत्कृष्ट पद्धतीने केले असून संबंधित संस्थानी सदर बाब या प्रमाणित केलेली आहे.

डेटा कलेक्शन केंद्रात चेतावनी मिळवणे व्यक्ती मध्ये चेंड्याकरिता आवश्यक आहे. या कारणाने सदर प्रमाणपत्र देश्यात येत आहे.

अन्वितांक, शृङ्खला सेवा,
संचालनालय,
बैच्छीय शिक्षण व संस्थापन, मुंबई

प्रति, श्रीमती संगीता भुजबद्ध, पाठवणीनिदेशक, सतसुं सर्वीपाचर रुग्णालय, पुणे.
CERTIFICATE OF EDITING

This is to certify that Ph.D. thesis of Mrs. Sangeeta S. Bhujbal
Title:- “The study of development of standard operating protocols for nurses
with reference to patients on ventilator” is edited for English language by me.

Mrs. Madhuri Gokhale
M.A.(English) M.Ed.

[Signature]

Professor and Head
Dept. of Medicine
Dr. V. M. Govt. Medical College
& S.C.S.M. General Hospital
Solapur
Copy of Budget (expenditure)

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- Accommodation and Mess facility was available in many of the government hostels during data collection hence expenditure on these to items was less.
- No funds from any institution.
3) **CERTIFICATE OF VALIDATION OF CONCEPTUAL FRAMEWORK (R-3)**

**CERTIFICATE OF VALIDATION OF CONCEPTUAL FRAMEWORK.**

This is to certify that the conceptual frame work based on Imogene king’s goal attainment theory applied by Mrs Sangeeta S Bhujbal for her Ph.D. study in Nursing on the Title – “A Study of development of Standard Operating Protocols for nurses with reference to patients on ventilator” is validated by the following experts in Nursing.

1) Dr. Nancy Fernandes  
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Mumbai

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S.N.D.T. Women’s University,  
Mumbai.
4) **CERTIFICATE OF PUBLICATION**

APPENDIX NO. : R4

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**ASIAN JOURNAL OF MULTIDISCIPLINARY STUDIES**

'Iramkrishna', Anandnagar, Sun City Rd, Wadgaon Bk, Pune - 411 051 (India)

**CERTIFICATE**

This is to certify that our Editorial, Advisory and Review Board accepted research paper of Dr. / Shri. / Smt. SANGEETA SUNITI BHUSHAL, Lecturer, College of Nursing, B. J. Government Medical College of Nursing, Pune, (India).

The title of the paper is 'A study of the knowledge and practices of nurses regarding management of pain in patients undergoing cardio thoracic surgery in selected hospitals in Mumbai' which is original and innovative. It is done double blind peer reviewed. This article is published in Volume II, Issue 9, September, 2014.

Date: 1st September, 2014

Dr. Mohan L. Jamdade
Editor in Chief
Pre assessment of knowledge and practices of nurses on care of pt. on ventilator

**Perception:** - perceives the need for developing standard operating protocols (SOP) for nurses to care a patient on ventilator

**Judgement:** - Identified the gap between the knowledge & Practices nurses while working in ICU.

**Mutual Goal setting**
Improvement in knowledge & practices of the nurses regarding care of patient on ventilator

**Action**
1) Development of Protocols on care of patient on ventilator
2) Demonstration of skills and Teaching

**Reaction**
Change in the knowledge
Post test-by Knowledge questionnaire P1, P2 & Observation of practices P1, P2, P3, P4 checklists

**Goal Attainment**

**Socio demographic data**
Age Education Gender Experience

**Not included in the study**

**Feedback**
Improvement in knowledge & practices of the nurses regarding care of patient on ventilator

**Improvement in Patient care**

**FIG- 3.1 Conceptual framework - Effectiveness of standing operative protocols on knowledge and practices of nurses s regarding care of patient on ventilator based on Imogene Kings Goal Attainment Theory. (1981)**
1) **TITLE: HANDING OVER AND TAKING OVER IN ICU BY NURSES**

**PROTOCOL FOR HANDING OVER AND TAKING OVER AT THE CHANGE OF SHIFT**

1. Hand washing and wearing of safety protective devices to be followed before entering ICU at the beginning of shift.
2. Follow assigned additional job responsibilities planned by sister in charge as per your cadre.
3. Take the counts of instrument packs and autoclave drums.
4. Check Crash cart and Ambu bags in each shift as per the schedule.
5. Identify equipment for malfunction and separate it.
6. Check the total number of patients in ICU, expected transfer-out.
7. Give and take a proper over at the time of change of shift regarding pending investigations and reports.
8. Check for cleanliness of bedpans, urine pots, kidney trays, sputum mugs.
9. Check the lines, indwelling and special indents.
10. Instruct the relatives that the diet orders are send only in the evening hours.

Patients admitted after morning shift get the prescribed diet on the next day meanwhile patient must to have home diet.

If you are allotted more than one patient then give your attention first for the most severely ill patient. Take help of other nursing staff.

11. Take following over of assigned patients:
   - Patient's Name, Bed No, Div, Unit, Diagnosis, Date of admission,
   - General Condition of the patient (check for status of skin, mucous membranes color, pulse, respiration, head to toe, vital signs, level of consciousness)
   - Medication charts, charting of drugs
   - Pending investigations and reports any procedures
   - Information about patients' general condition to the relatives
   - Any references or calls to be sent.

- 14 Administer medications as prescribed, give medications according to emergency and avoid delay in administration of drugs like Atropine, Pethidine, vasopressor drugs, antiarrhythmics, anticoagulants, bronchodilators and antibiotics.

- 15. Follow and keep check on infection control.

2. Maintain infection control protocols for care of tubes & catheters. Bed-side procedures and also cleaning of the unit after the patients are shifted out of ICU or dead.

3. The staff nurse should report any changes in the patient’s condition directly to the physician. The charge nurse may be utilized to report the information, e.g. on nights. The nurse should ensure a physician is aware of all lab reports. The staff nurse should keep the charge nurse informed of changes in the patient’s condition. The charge nurse should be notified if the staff nurse has any questions regarding procedures. A plan of care will be in interaction.

- All Clinical Care patients should have mouth care every four hours with inspection of oral skin area. Teeth should be brushed every shift and as needed.

- Early morning time should be used for the collection of a 24-hour urine. All patients with a history of neurogenic bladder should be inspected every shift in place unless the doctor prefers that the patient be ambulated.

- All dressings unless otherwise indicated should be changed daily.

- Nursing care should be spaced out to allow periods of rest.

- All patients who have not had a bowel movement should be checked for impeding signs, and the flow sheet updated.

- Procedures should be explained to patients, person, place and time being repeatedly stated to the patient. Sensory stimulation, i.e., radials, tape recordings should be provided for patients as indicated during the day.

- Information and emotional support needs for the family and patient has to be provided by the nurse, physician, social work, pastoral care/palliative care, as required.
The environment has to be maintained in a mechanically safe condition through: dry floors, good repair of furniture, proper placement of machines and equipment, cleanliness, freedom from clutter, and good repair of equipment isolation technique has to be followed as per infection control manual.

- All medications have to be reviewed by the Critical Care physician (upon admission to Unit) and either reordered or stopped. Nursing staff has to be aware that this has been done prior to carrying out any medication treatment or investigative orders. Each treatment medication must be listed when reordered (e.g., “Renew all preoperative meds” is NOT acceptable.)

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- Respiratory orders may only be carried out when written by the patient’s physician. Ventilator changes have to be only done upon receipt of written order.

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- Nocardioms MAY NOT be kept at the bedside. If use is not immediate after withdrawal from the narcotic cabinet, waste as per narcotic protocol has to be be carried out.

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- The number of visitors has to be limited to 2 at a time; however, the nurse may use discretion based on patient condition and room activity.

- A visitor’s handout has to be given to one member of patients’ family. Indicate on Nursing Notes which member has received the booklet.

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COMMUNICATION

BY
MRS. SANGEETA S BHUJBAL

DEFINITION

- Communication is the transmission & receiving information, feeling & or attitudes with the overall purpose of having understood producing a response. (John M Brion)

- Communication is the exchange of meanings between & among individuals through a shared system that have some meaning for both the sender & receiver of the message. (Vesil 1995)

Importance of communication

1. Communication skills help generate trust between the nurse & client.
2. Communication skills provide the nurse with professional satisfaction.
3. It is also a means for bringing about change in relationships, which promotes clients well being.
4. Establishes the relationship of health care; within institutions.
5. Serves as a catalyst for the management process.
6. Provides basis for leadership roles.
7. It provides means of coordination.

“People are disturbed not by things, but by the views they take of them…”
- Epictetus, 1st Century AD

“For there is nothing either good or bad but thinking makes it so…”
- Shakespeare (Hamlet)
Modes of communication
- Two different modes
  I. Verbal (uses the spoken or written words).
  II. Nonverbal (uses other forms such as gestures or facial expression & touch).

Communication Components
- Communication is the exchange of common symbols:
  - Written
  - Spoken
  - Signing or body language

The Goals of Training Communications:
- To change behavior
- To get and give information
- To get service
- To measure understanding

Process of communication
Face to face communication involves,
1) SENDER
2) A MESSAGE
3) A RECEIVER
4) & A RESPONSE or FEEDBACK

Communication consists of a sender, a message, a receiver, and feedback.

Communication is the process of sending and receiving information among people...

All messages do not reach the receiver due to "distortion".

COMMUNICATION & INTERPERSONAL RELATIONSHIPS
- Communication is essential to the nurse-client relationship for the following reasons
  1) It is the vehicle for establishing a therapeutic relationship.
  2) It is a means by which an individual influences the behavior of another, which leads to the successful outcome of nursing intervention.
Levels of communication

I. Intrapersonal communication
II. Interpersonal communication
III. Transpersonal communication
IV. Small group communication
V. Public communication

Intrapersonal communication

- Intraperosnal are also called...
- Nurses & clients can use intrapersonal communication to develop self awareness.
- Positive self concept that will enhance appropriate self expression.

Interpersonal communication

- One to one interaction between the nurse & another person that often occurs face to face.
- Meaningful interpersonal communication results in exchange of...
  1. Ideas
  2. Problem solving
  3. Expression of feelings
  4. Decision making
  5. Goal accomplishment
  6. Team building
  7. Personal growth

Small group communication

- Darley suggests that there are two main principles that are important to ensure effective communication & working relationships between people in any group.
- The first is to respect people as partners the second, listen actively to the other people in the group.

Public communication

- Interaction with an audience.
- Public communication requires special adaptations in voice control, gestures, personal appearance, and materials to communicate messages effectively.
- Effective public communication increases audience knowledge about health issues, & often issues related to nursing profession.

Elements of professional communication

1. Courtesy
2. Use of names
3. Privacy & confidentiality
4. Trustworthiness
5. Autonomy & responsibility
6. Assertiveness

Professional Behaviors (1 of 2)

- First impressions are crucial.
- Be neat and clean.
- Practice good hygiene.
- Stay physically fit.
Professional Behaviors (2 of 2)
- Maintain an overall demeanor that is calm, capable, and trustworthy.
- Be confident, not arrogant.
- Be considerate; wipe your feet, etc.

Patience and flexibility are hallmarks of a good communicator.

Trust and Rapport (1 of 2)
- Use the patient’s name.
- Address the patient properly.
- Modulate your voice.
- Be professional but compassionate.

Trust and Rapport (2 of 2)
- Explain what you are doing and why.
- Keep a kind, calm expression.
- Use an appropriate style of communication.

What are the most common ways we communicate?
- Spoken Word
- Visual Images
- Written Word
- Body Language

Non verbal communication
1. Meta communication: It is a comment on the literal content of the relationship between the person involved.
   • It is the message that conveys the sender's attitude, feelings, & intentions towards the listener. It may be verbal or non-verbal.
2. Personal appearance.
3. Posture & gait
4. Facial expression
5. Gestures

Factors influencing communication
1. Values & perception
2. Personal space
3. Territoriality
4. Roles & relationship
5. Environmental
6. Congruence
7. Interpersonal attitude
   • Caring & warmth
   • Respect
   • Acceptance

Verbal communication techniques
1. Pace & Intonation
2. Simplicity
3. Clarity & Brevity
4. Timing & Relevance
5. Adaptability
6. Credibility
7. Humor

Free lecture your application that year two place of assistance was San Francisco.
What causes distortion or the barriers to understanding/listening?

- Perceptions
- Language
- Semantics
- Personal Interests
- Emotions
- Inflections
- Environment - noise
- Preconceived notions/ expectations
- Wordiness
- Attention span
- Physical hearing problem
- Speed of thought

Therapeutic communication technique

1. Active listening
2. Sharing observation
3. Sharing empathy
4. Sharing hope
5. Sharing humor
6. Sharing feeling
7. Using touch
8. Using silence
9. Providing information
10. Clarifying
11. Focusing
12. Paraphrasing
13. Asking relevant questions
14. Summarizing
15. Self disclosure
16. Confrontations

Non therapeutic communication

1. Asking personal questions
2. Giving personal opinions
3. Changing the subjects
4. Automatic responses
5. False reassurance
6. Sympathy
7. Asking for explanation
8. Approval or disapproval
9. Defensive responses
10. Passive or aggressive response
11. Arguing

All communication methods are important in training but our emphasis will be upon the spoken word... since

70% or all our communication efforts are: misunderstood, misinterpreted, rejected, disliked, distorted, or not heard (in the same language, same culture)!

Eye Contact

- Use eye contact as much as possible.
- Remember to remove sunglasses while working with patients.

How can we improve our listening skills?

- Eliminate distractions
- Concentrate
- Focus on the speaker
- Maintain an open mind
- Look for nonverbal cues
- Do not react to emotive words
- Ask questions
- Sit so you can see & hear
- Avoid prejudices
- Take notes
- Ask for clarification

Listening... the other side of communication

Messages must be received as well as sent. A good question to ask yourself is, are you really listening or simply waiting for your turn to talk? If you are thinking about your reply before the other person has finished, then you are not listening!
Use an appropriate compassionate touch to show your concern and support.

**Paraphrasing...try it out!**

Paraphrasing is simply restating what another person has said in your own words.

The best way to paraphrase is to listen carefully to what the other person is saying.

Paraphrase often so you develop the habit of doing so.

Practice some of the following techniques on your colleagues.

**Summarizing...try it out!**

Try out these summarizing phrases:

- If I understand you correctly, your main concern is...
- These seem to be the key ideas you have expressed...

Summarizing pulls important ideas, facts or data together to establish a basis for further discussion and/or review progress.

The person summarizing must listen carefully in order to organize the information systematically.

It is useful for emphasizing key points.

**Questioning...a critical facilitation skill**

There are two basic types of questions:

1. **Closed questions**
   - Generally result in short yes/no or other one word answers. They should be used only when you want precise, quick answers. Otherwise, they inhibit thought.

2. **Open-ended questions**
   - Invite an actual explanation for a response. Questions that begin with “how”, “what” and “why” are typical.

Practice your questioning skills...

Rephrase the following closed questions to make them open-ended:

1. Are you feeling tired now?
2. Isn't today a nice day?
3. Was the last activity useful?
4. Is there anything bothering you?
5. So everything is fine, then?

(Compare your answers with those in the notes below)

**Questioning Techniques (2 of 2)**

- Ask one question at a time, and listen to the complete response before asking the next.
- Use language the patient can understand.
- Do not allow interruptions.

**Interviewing**

- In order to contribute significantly to the health history the nurse must be aware of...
  i. Ethical consideration in data collection.
  ii. Basic guidelines, skills & techniques for conducting the interview.
  iii. The content of health history.
Basic guidelines for the interviewer

1. Reducing anxiety
2. Encouraging communication
3. Remaining flexible
4. Conveying empathy
5. Personal awareness
6. Non-verbal communication
7. Level of understanding
8. Cultural considerations
9. Summarizing the interview
10. Content of the interview

Content of the interview

1. Demographic data
2. Information
3. Chief complaint
4. History of present illness
5. Past medical history
6. Family history
7. Physical examination
8. Radio logic & laboratory information
9. Problem formulation (medical & nursing diagnosis)

Interviewing Errors

- Providing false assurances
- Giving advice
- Authority
- Using avoidance behavior
- Distancing
- Professional jargon
- Talking too much
- Interrupting
- Using “why” questions

Other helpful techniques to foster communication (both verbal and non-verbal):

- Nod Your Head
- Maintain eye contact
- Keep an open body position
- Make encouraging statements
- Repeat a sentence or part of one
- Repeat the last word or two of the prior speaker

Other questioning techniques include:

- Direct questions: asked of a particular individual — allows you to initiate control — good for re-directing discussion from excessive talkers.
- Return questions: puts the question back to the questioner or group — “What do you think about that?”
- General overview questions: used to initiate a discussion or set up a thoughtful exercise — “How would you respond to the situation?”
- Hypothetical questions: tests the respondent’s problem-solving ability by posing a hypothetical situation — “If you had an unlimited budget, what would you fund?”

Ask yourself...

- Which of the skills covered in this module was most useful as you think about conducting a training event?
- Which was the easiest to employ?
- Which was the most difficult for you?

Communication failures lead to...

- Mistakes
- Misunderstandings
- Poor coordination
- Drop in confidence and self-esteem
- Loss of team spirit
- Litigation
- and even physical violence......

What messages do we give out?

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Tip

- Be sensitive to the feelings of patients – they hang on every word

Tips for communication (during a crisis)

- Appropriate tone of voice
- Nominate the listener
- Be specific
- Close the loop

Tip (during a crisis)

- Apply the KISS principle: Keep It Short and Simple

Tip

- Be sensitive to the feelings of patients – they hang on every word
- Hearing is the last sense to be obtunded with anaesthesia

Tip

- Mutual respect - vulnerable
- Put yourself in the patient's position – literally

Patients with Special Needs

Sources of Difficult Interviews

- Patient's physical condition.
- Patient's fear of talking.
- Patient's intention to deceive.

Always treat elderly patients with the respect that they deserve.
Sensory Impairment

- Blindness:
  - Tell them everything you are going to do.
  - Use touch as a form of contact for reassurance.

- Hearing impairment:
  - Ask the patient what their preferred method of communication is.

Language and Cultural Considerations

- Understand that cultures vary and ethnocentrism hinders communication.
- There is additional fear when a patient cannot understand your language.
- Avoid cultural imposition.

EMPATHY VS SYMPATHY

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<td>ACCURATE PERCEPTION OF TRUE FEELINGS</td>
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Conclusion

- Improved communication will enhance our practice and improve patient safety – let’s work on it.
- Let’s use positive language – there is already enough pressure in our field.
3) **TITLE - ASSISTING IN ENDOTRACHEAL INTUBATION**

**Indications for endotracheal intubation**
1. For supporting ventilation in patients with some pathological conditions:
   - Upper airway obstruction
   - Respiratory failure
   - Lostconsciousness
Indication for endotracheal intubation (cont)

2) For supporting ventilation during general anesthesia
   - Typed surgery
   - Operative sternal retractor
   - Abdominal or thoracic surgery

Indication for endotracheal intubation (cont)

- Retroesophageal position
- Long esophageal gullet
- Patient has risk of pulmonary aspiration
- Difficult mask ventilation

Anatomy of Airway

Airway Assessment

1) Condition that associated with difficult intubation
   - Congenital anomalies: Pierre Robin syndrome, Down syndrome
   - Fractured airway: Retropharyngeal abscess, Epiglottitis
   - Tumor in cervical larynx

Airway Assessment

1) Condition that associated with difficult intubation (cont)
   - Multidirectional cervical or laryngeal trauma
   - Temporomandibular joint dysfunction
   - Burn or at near death

Airway Assessment

1) Condition that associated with difficult intubation (cont)
   - Multi-directional cervical or laryngeal trauma
   - Temporomandibular joint dysfunction
   - Burn or at near death

Airway Assessment

2) Intestinum gap: normal -> more than 3 mm

Airway Assessment

3) Mallampati classification: Class 4 -> maybe difficult intubation
1) Sized endotracheal tube: internal diameter (ID)
   - Male: ID80mm, Female: ID75mm
   - Newborn: 3 months: ID30mm
   - 3 months: ID35mm
   - 9-18 months: ID40mm
   - 2-6 yrs: ID=(Age/2)+3.5
   - >6 yrs: ID=(Age/2)+4.5

2) Material: Reinforced or PVC

3) Endotracheal tube cuff

4) Bud
5) Murphy's eye

6) Depth endotracheal tube: Midtracheal below cartilage:
   - Adult: Male=23cm, Female=21cm
   - Children
     - Cuff: Endotracheal tube = (Age/2)+12 (cm)
     - Nasal endotracheal tube = (Age/2)+15 (cm)

7) Tubemarkings:
   - Z:9
   - Disposable (One use)
   - Oral/ Nasal
   - Radioopaque marker

3.1 Stilet

3.2 Orotracheal or nasopharyngeal airway

3.3 Stationary
3.4 Slip joint
3.5 Face mask and self-inflating bag

3.6 Magill forcep

3.7 Syringe
3.8 Lubricating jelly
3.9 Heater for tracheal tube

4. Monitoring, cuffed endotracheal intubation
  4.1 Laryngoscope
  4.2 End-tidal CO₂
  4.3 Pulse oximeter

**Stiffening position**

- Flexion of lower cervical spine
- Extension of atlanto-occipital joint

**Steps of oesotracheal intubation**

1. Identification of the vocal cords
2. Insertion of the endotracheal tube
3. Verification of correct placement
4. Securement of the endotracheal tube

**Steps of oesotracheal intubation**

- Verapamil
**Advantage**
1) Comfortable for prolonged intubation postoperatively
2) Suitable for oral surgery: tonsillectomy, mandible surgery
3) For tracheal intubation
4) Cricothyroid feeding
5) Risk for kinking and difficult to accidental extubation

**Disadvantage**
1) Traumatized mucosa
2) Risk for sinusitis in prolonged intubation
3) Risk for bacteremia
4) Smaller diameter tracheal route -> difficult for suction

**Contraindication for nasal tracheal intubation**
1) Fractured base skull
2) Oxyzepathy
3) Nasal cavity obstruction
4) Retropharyngeal abscess

**Complications of endotracheal intubation**

**Complications of endotracheal intubation (Core)**
1) During intubation
   - Laryngeal edema
   - Arterial dislocation - hemorrhage
   - Increased intracranial pressure
   - Spinal cord trauma - cervical spine injury
   - Esophageal intubation

2) During maintained intubation
   - Aspiration from kinking, suction or overinflation cuff
   - Accidental extubation or esophageal intubation
   - Decomposition from breathing circuit
Complications of endotracheal intubation (Cont.)

2) During or related intubation
   - Pulmonary aspiration
   - Libor real ulcer increased with prolonged intubation
   - Sputum or otitis media with prolonged orotracheal intubation

3) During extubation
   - Laryngeal edema
   - Pulmonary aspiration
   - Edema upper airway

4) After extubation
   - Sore throat
   - Hoarseness
   - Tracheal stenosis (Prolonged intubation)
   - Laryngeal granuloma
### INDICATION

<table>
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<tr>
<th>BODY SYSTEM</th>
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### CONTD....

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<td>PULMONARY CIRCULATION</td>
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### CONTD.....

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</table>

### CONTD.....

2. **POSITIVE PRESSURE VENTILATOR**:
   - Inflates the lungs by exerting positive pressure on the airway and forcing the alveoli to expand during inspiration.
   - Types:
     - (A) PRESSURE CYCLED VENTILATOR
     - (B) TIME CYCLED VENTILATOR
     - (C) VOLUME CYCLED VENTILATOR

### CONTD....

(A) **PRESSURE CYCLED VENTILATOR**:
- Ends inspiration when a preset pressure has been reached.
- Most common type is IPPB machine.

### CONTD.....

(B) **TIME CYCLED VENTILATOR**:
- It controls inspiration after a preset time.
- Volume of air, the patient received is regulated by the length of inspiration and the flow rate of the air.
- Commonly used in new born and infants.

### CONTD...

(C) **VOLUME CYCLED VENTILATOR**:
- Most commonly used.
- The volume of air to be delivered with each inspiration is preset.
- Once this preset volume is delivered to the patient the ventilator cycles off and exhalation occurs.
MODES OF VENTILATION

AIM:
To facilitate weaning and minimize the physiological disadvantages of IPPV.

CONT'D....

(3) IMV MODE: - In this fixed rate of machine delivered, set tidal, volume breaths, patient can also breath spontaneously between machine delivered breaths if desired.

(4) SIMV MODE: - As in IMV, except that machine delivered breaths are initiated only after patient exhales, preventing "stacking" on spontaneous breaths.

CONT'D....

(3) AIRWAY PRESSURE RELEASE VENTILATION (APRV): - In this patient breaths spontaneously at high level of continuous positive airway pressure (CPAP), which is released intermittently to allow brief passive exhalation to lower lung volume.

CRITERIA FOR WEANING

(1) RESPIRATORY CRITERIA: -
- \( P_{a}O_2 \text{ > 60 mm Hg on } O_2 \text{ < 40, } P_{a}CO_2 \text{ < 5-8 } \text{cm H}_2\text{O.} \)
- \( P_{a}CO_2 \text{ normal or baseline.} \)
- Patient is able to initiate an inspiratory effort.

(2) CARDIOVASCULAR CRITERIA: -
- No evidence of myocardial ischemia
- Heart rate less than 140/min
- Blood pressure normal without vasoressors.

CONT'D....

(3) ADEQUATE MENTAL STATUS: -
- Patient is arousable.
- Glasgow coma score > 13.
- Absence of correctible co-morbid condition.
- Afebrile.
- No significant electrolyte abnormalities.
COMPLICATIONS OF VENTILATORY SUPPORT

PHYSIOLOGICAL COMPLICATIONS:
- Fluid overload with humified air and sodium chloride retention.
- Depressed cardiac function and hypotension.
- Stress ulcers.
- Paralytic ileus.
- Gastric distension.
- Starvation.
- Dysynchronous breathing pattern.

CONTD...

MECHANICAL:
- Hypoventilation with atelectasis.
- Hyperventilation with hypocapnia and respiratory alkalosis.
- Tension pneumothorax.
- Alarm turned off.
- Failure of alarms of ventilator.
- Inadequate humidification.
- Overheated inspired air, resulting in hyperthermia.

CONTD....

AIRWAY:
- Aspiration.
- Decreased clearance of secretion.
- Ventilator-acquired pneumonia.

ENDOTRACHEAL TUBE:
- Tube kinked or plugged.
- Rupture of tracheal sinus.
- Tracheal stenosis.
- Cuff failure.
- Laryngeal edema.

NURSING CARE

PATIENT ON VENTILATOR NEED INTENSIVE NURSING CARE.

GREATEST CONTRIBUTION OF NURSING:
1. To prevent complications.
2. To detect early and manage accordingly.
3. To decrease mortality.

OBJECTIVES

- To establish & maintain effective ventilation.
- To prevent associated complications.
- To ensure the position & patency of ET / tracheostomy tube.
- To clear & remove secretion.
- To maintain personal hygiene & psychological well being.
- To provide sedation as prescribed.

EQUIPMENTS

- High – low bed with alfamattress.
- Functioning ventilator kept ready to provide artificial ventilation.
- Complete suction apparatus set.
- Continuous monitoring apparatus.
- Resuscitation crash trolley with defibrillator.
- Oxygen administration set.
- Airway cart & stethoscope.

ASSESSMENT

1. Observation of ventilated patient:
   - Colour
   - Chest movement
   - Oxygen saturation
   - Bilateral symmetrical chest excursion
   - Equal breath sounds

FUNCTIONING OF VENTILATOR

1) Tubings – check tubings hrly.
2) Humidification – check the thermostatically-controlled humidifier, remove water frequently.
3) Settings – check & record hrly.
4) Ventilator sounds – characteristic sound during inspiration & expiration is made.
NURSING MANAGEMENT

1) SPECIFIC MANAGEMENT.
2) ROUTINE MANAGEMENT.

SPECIFIC NSG MANAGEMENT

- PT NEVER BE LEFT UNATTENDED.
- PT SHOULD BE ON CONTINUOUS MONITOR.
- RECORD VITALS HPRYL.
- FOLLOW ASEPTIC TECHNIQUE FOR STERILE PROCEDURES.
- ROTATE ET TUBE PLACEMENT DAILY TO PREVENT PRESSURE ULCER ON LIPS & TONGUE.

CONTD....

- SUCTION TECHNIQUE -
  - STRICT ASEPTIC TECHNIQUE.
  - SIZE OF CATHETER - ½ THE DIAMETER OF ET TUBE.
  - SUCTION CATHETER SHOULD BE TRANSPARENT.
  - VACUUM PRESSURE IS NOT MORE THAN 120 mmHg IN ADULT & 100 mmHg IN CHILDREN.

- CHANGE TUBING DAILY & USE CODEX SOLUTION IN SUCTION BOTTLE.
- USE SEPARATE SUCTION TUBE FOR ORAL & ET SUCTIONING.
- TREATMENT - AS PER INSTRUCTION / PROTOCOL.
- CHECK VENTILATOR ALARM'S FUNCTION IN EACH SHIFT.

CONTD....

- IF VENTILATOR FAULT PRESENT -
  - TAKE ON AMBU BAG.
  - DISCONNECT THE PATIENT FROM VENTILATOR.
  - PROCEED FOR DETECTION OF FAULT.
  - CHECK THE CLINICAL STATE OF PT.
  - SERIAL ABG ASSESSMENT IS MUST TO DETERMINE PROGRESS THERAPY.
  - REPORT UNTOWARD SYMPTOMS IMMEDIATELY.

- FOLLOW UNIVERSAL SAFETY PRECAUTIONS STRICTLY.
- CHECK URINE OUTPUT HPRYL.

CONTD....

- ROUTINE NSG MANAGEMENT

1) PSYCHOLOGICAL CARE
   - ENDEAVOR TO ALLAY PATIENT & RELATIVE ANXIETY.
   - MOTIVATE RELATIVE & PT TO PARTICIPATE IN DAILY CARE ACTIVITIES.
   - PROMOTE GOOD RELATION WITH PT & FAMILY.

- NUTRITIONAL CARE -
  - TO MEET METABOLIC NEED.
  - ENTERAL / NASOGASTRIC TUBE FEEDING IS IDEAL.
  - IF NOT TOLERATED, TPN SHOULD BE INITIATED AS PER ORDER.
  - TOTAL CALORIES REQUIRED PER DAY - 2000 TO 2500 CAL.
CONTD...

- PERSONAL HYGIENE:
  - SKIN CARE:
    - DAILY SPONGE BATH INCLUDING FOOT CARE.
    - BACK CARE & 2 HRLY POSITION CHANGING.
    - INSPECT PRONE AREAS DAILY FOR PRESSURE SORE.
  - HAIR CARE:
    - HAIR WASH ONCE A WEEK.
    - COMBING TWICE A DAY.

CONTD...

- BLADDER CARE:
  - CATHETERIZE PATIENT FOLLOWING ASEPTIC TECHNIQUE.
  - RECORD URINE OUTPUT STRICTLY.
- BOWEL CARE:
  - ENSURE BOWEL MOVEMENT ONCE IN 48 HRS.
  - CHECK FOR SKIN RASHES.

CONTD...

- MOUTH CARE:
  - 4 HRLY MOUTH WASH.
  - AVOID INFECTION & MOUTH ULCER.
  - PRESERVE INTEGRITY OF OROPHARYNGEAL MUCOSA.
- EYE CARE:
  - CLEAN ASEPTICALLY & Instill EYE DROPS EVERY 4 HRLY.
  - APPLY EYE PADS.

CONTD...

- CARE OF CENTRAL LINE & IV LINE:
  - CHANGE IV SET, IV INFUSION & DRESSING OF PUNCTURE SITE DAILY.
  - CHANGE IV LINE EVERY 48 HRS.
  - CHANGE EXT LINE & 3-WAY ADAPTER OF CENTRAL LINE DAILY.
- PHYSIOTHERAPY:
  - AS PER PRESCRIPTION.

CONTD...

- SAFETY:
  - PROVIDE RAILING BED WITH ALFA MATTRESS.
  - PERIODICAL INSPECTION OF OXYGEN FLOW IS MUST.
- RECORDING:
  - STRICT INTAKE - OUTPUT CHART RECORDING.
  - RECORD PATIENT'S CONDITION & EVENTS.

NSG CARE FOR WEANING PT

- INFORM THE PT & RELATIVES ABOUT THE PROGRESSIVE STEP.
- ENCOURAGE THEM TO COOPERATE.
- WITHHOLD ALL SEDATION & MUSCLE RELAXANT.
- OBSERVE FOR SIGNS OF RESPIRATORY DISTRESS & HYPOXIA.

CONTD...

- PROCEDURE:
  - GRADUAL STEPWISE REDUCTION IN VENTILATORY SUPPORT BY MEETING TARGET CRITERIA.
  - OR
  - WITHDRAWAL FROM VENTILATOR SUPPORT 2 HRLY ON "T" PIECE FOR SPONTANEOUS BREATHING TRIAL IS FOLLOWED.

THANKYOU
4) THE MOUTH CARE - UNCONSCIOUS

DEFINITION
Oral hygiene: -
Personal maintenance of hygiene &
cleanliness of teeth & oral structures
by tooth brushing, flossing & other
procedures

PURPOSE
- To keep mouth, teeth & gums clean,
fresh & healthy
- To prevent & treat infection of
mouth & its neighboring structures
- To prevent ill effects of systemic
illness on mouth, teeth & gums
- To eliminate bad breath

PRINCIPLES OF MICROBIOLOGY
- Many bacteria found in healthy mouth
- Bacterial flora is transient
- Saliva is bactericidal & removal of bacteria
  is a mechanical process
- Mouth washes not sufficiently strong nor
  are they held in mouth long enough to kill
  bacteria

PRINCIPLES OF CHEMISTRY
- Saliva = 99.5% water and 0.5 % total solids
- Chief constituents - water, inorganic salts,
mucin, traces of protein & salivary amylase
- Saliva is slightly acidic in reaction - Ph = 6.35
to 6.85
- Enamel of teeth = 95% to 97 % inorganic or
  mineral matter & 3% - 5% organic matter
- Constituents - calcium phosphate, calcium
  carbonate, traces of fluoride, calcium sulphate
  & magnesium carbonate

PRINCIPLES OF CHEMISTRY (CONT'D)
- Dentifrice cleans mouth through
  mechanical action rather than by
  chemical action on bacteria
- Dentifrice - soap or soap substitute &
a polishing agent e.g. calcium
  carbonate

PRINCIPLES OF PHARMACOLOGY
- Sodium bicarbonate - good tooth powder
- Crystals of NaCl have sharp edges & have an
  abrasive action
- Salt solutions are good mouth washes
- Glycerin flavored with lemon juices aids
  greatly in softening dry lips
- Gold cream may be substituted
**PRINCIPLE OF PHYSICS**
- Soap: lowers surface tension
- In brushing teeth, sufficient pressure to be exerted
- Periodontal membrane acts as shock absorber
- Friction of raw foods against the teeth & gums produces beneficial stimulation.

**PRINCIPLE OF BODY MECHANICS**
- Patient to be near working side of bed to prevent strain
- Nurse to stand erect & all articles close at hand to prevent reaching

**PRINCIPLES OF PSYCHOLOGY**
- Clean mouth makes a person feel clean & comfortable
- Unpleasant breath may cause to lose his self respect
- Good oral care makes the patient being socially acceptable by others

**COMMON ORAL PROBLEMS**
- Dental Caries
- Gingivitis: inflammation of gums
- Glossitis: Inflammation of tongue
- Pust abscess
- Stomatitis: Inflammation of mucous membrane
- Pyorrhea: Pus in the cavity

**INFECTION OF NEIGHBORING STRUCTURES**
- Parotitis: Inflammation of salivary gland
- Sinusitis: Inflammation of sinuses
- Otitis media: Infection of ear canal
- Tonsillitis: Inflammation of tonsils

**OTHERS**
- Sordes: Foul brown crusts on teeth & lips
- Calculus: Calcified deposits on teeth
- Tartar: Calcareous matter deposited on teeth
- Cheilositis: redness & fissures at angles of mouth
- Halitosis: Bad breath
- Bleeding gums
- Plaque: gummy mass of micro organisms that grows on crowns & spreads along roots of teeth

**PREPARATION OF PATIENT**
- Check general condition of patient & ability of patient for self care
- Explain procedure to patient
- Provide privacy
- Maintain a safe & comfortable position
- Bring patient near to edge of bed

**DENTRIFICES USED**
- Tooth paste: Tooth powder (Commercial preparation)
- Sodium bicarbonate paste
- Equal parts of sodium chloride, calcium carbonate, sodium bicarbonate
- Glycerin with lemon juice
MOUTH WASHES USED
- Potassium Permanganate – 1:5000 or 1 crystal to a glass of H₂O
- Hydrogen peroxide – 1:4 fresh solution
- Sodium chloride – 1 tsp to pint of H₂O
- Sodium bicarbonate – 1 tsp to pint of H₂O
- Lemon juice – 2 tsp to cup of H₂O
- Commercial preparation – dettolin, Listerine, oraline, oroline etc.

EMOLIENTS USED
- Butter/ ghee
- Vaseline
- Glycerin
- Boroglycerine

EVALUATION
- Mucous membrane intact & moist
- Lips smooth & moist
- Tongue clean, pink & moist
- No swelling in gingiva
- No bleeding of gums

Risk of Pressure Ulcer
- Impaired circulation
- Incontinence
- Low diastolic blood pressure (<60 mm Hg)
- Mental deterioration

Risk Factors Pressure Ulcers
- Advanced age
- Anemia
- Contractures
- Diabetes mellitus
- Elevated body temperature
- Immobility

Risk Factors Pressure Ulcer
- Neurologic disorders
- Obesity
- Pain
- Prolonged surgery
- Vascular disease

Behavioral indicating potential need for back massage (i.e., complaint of stiffness, muscle tensing in back or shoulders, or difficulty sleeping related anxiety).
- Whether the patient is willing to have a massage.
- Contraindications for back massage (e.g., impaired skin integrity (burns), back surgery, vertebro, or rib fracture).
- Ensure you have adequate time for the massage.

Steps for back massage
- Preparation: Move your hands up the center of the back and then over both scapulae. Massage in a circular motion over the scapulae, using flat palms of the hands.
- Pressure: Applying direct pressure to the soft tissue against the underlying bone with the help of balls of the fingers and thumb.
- Treatment: Flickering movements of the fingers in a circular manner.
- Knocking: Rolling of the soft tissue muscles which is packed away from the body and rolled back.
- Hacking: Gentle strokes with the edge of the palm over the muscles of the tissue.

- Pressure: Strong and firm pressure applied with the help of thumb over the spinal column from the sacrum till the cervical spine.

- Using your palm, begin in the sacral area using smooth, circular strokes.
- Move your hands up the center of the back and then over both scapulae. Massage in a circular motion over the scapulae.
- Move your hands down the sides of the back.

- Massage the areas over the right and left iliac crests.
- Apply firm, continuous pressure without breaking contact with the patient’s skin.
- Repeat above for 3 to 5 minutes, obtaining more lotion as necessary.

- While massaging the back, assess for skin redness and areas of decreased circulation.
- Pat dry any excess lotion with a towel.
- Document that a back rub was performed and the patient’s response.
- Record any unusual findings.
5) **ARTERIAL BLOOD GAS ANALYSIS**

**Arterial blood gas analysis**

- Objectives:-
  1. To determine acid base imbalances.
  2. To estimate roughly electrolyte disturbance.
  3. To determine state of oxygenation & carbon dioxide elimination.

**Indications**

1. To establish the diagnosis & severity of respiratory failure.
2. Management of patients in intensive care units admitted for:-
   1. Cardiac failure
   2. Requirements of an artificial airway
   3. Cardiopulmonary surgery
   4. Blood failure
   5. Diseases of arteries
   6. Septicaemia
3. To guide therapy in a patient in the ICU example:-
   1. Pharmacological treatment
   2. Dialysis therapy
   3. Oxygen administration
   4. Cardiopulmonary resuscitation
4. To monitor arterial blood gases during:-
   1. Cardiopulmonary surgery
   2. Cardiopulmonary exercise testing
   3. Sleep studies

**Complication of arterial blood gas puncture:-**

1. Bleeding in to tissue.
2. Trauma to tissue.
3. Thrombosis.
4. I. ischemia.
5. Infection.
6. Arterial spasm
7. Pain

**Key terms...**

1. **H+ ions**:- present in extra cellular & intracellular body fluids its concentration determines the acidity or alkalinity of a solution.
2. **Acid** :- a substance which tends to dissociate H+ ion (proton donor).
3. **Base** :- A substance which tends to bind H+ ion proton acceptor.

**Key terms...**

4. pH: chemical short hand for -ve logarithm of the H+ ion concentration.
5. **Acidosis**:- the pathological process that accumulates H+ or loses base & can cause acidemia.
7. Pa CO2:- partial pressure of carbon dioxide in arterial blood.
Key terms...
8. Sa O2 - percentage of hemoglobin which is oxygenated (oxyhemoglobin) i.e. oxygen saturation.
9. HCO3- - serum concentration of bicarbonate.
10. Base excess - quantity of acid or base necessary to titrate 1 liter of blood to pH 7.4 at 37°C with PaCO2 40 mm Hg.
11. Base deficit - -ve of base excess

Common acid base balance imbalance
- H+ ion balance is maintained in the body by buffers & buffer system.
- Buffers are types of shields with in the body fluid that act to protect the body against fluctuation of H+ ion concentration. bicarbonato & carbolic acid buffer system remains in 20:1 ratio.
- Respiratory control of H+ ion concentration
- Renal control of H+ ion concentration

Normal Blood Gas Parameters
1) PaO2 : 85-100 mm of Hg
2) PaCO2 : 35-45 mm of Hg
3) HCO3- : 22-26 mmol/l it of blood
4) pH : 7.35-7.45
5) Base excess : -3 to +3

Respiratory Acidosis
- Etiology:
  1) CNS disorder.
  2) Congestive heart failure
  3) Pneumonia
  4) Massive pulmonary embolism

Respiratory Acidosis
- Laboratory findings:
  1) Ph < 7.35
  2) pco2 > 45
  3) Hco3- normal or slightly above
  4) Base excess - upper normal
  5) Elevated serum potassium (K+)

Respiratory Acidosis
- Clinical assessment:
  1) Respiratory: dyspnoea, wheezing, cyanosis.
  2) CNS: Restless, lethargic, disorientation, coma.
  3) Cardiac: tachycardia, arrhythmias

Respiratory Acidosis
- Intervention:
  1) Oxygen administration
  2) Increased minute volume
  3) Chest Physiotherapy
Respiratory alkalosis

- **Etiology:**
  1. Hyperventilation due to extreme anxiety & hypoxemia.
  2. Hyper metabolic status & high fever.
  3. Long term ventilatory support

- **Laboratory findings:**
  1. Ph > 7.45
  2. PaCO2 <35 mm Hg
  3. HCO3 normal
  4. Base excess normal +3 in acute & in chronic case.
  5. Decreased serum calcium , & serum potassium

Respiratory alkalosis

- **Clinical assessment:**
  1. Increased respiratory rate.
  2. Increased heart rate
  3. Light headedness
  4. Palpitation
  5. Muscle cramp

- **Intervention:**
  1. Reassurance, sedatives, tranquilizer.
  2. Inhalation of own exhaled carbon dioxide.
  3. Check the ventilator & adjust for optimal ventilation.

Metabolic acidosis

- **Etiology:**
  1. Over production of metabolically produced acid in condition such as
     i. Dm
     ii. Prolonged fasting
     iii. Ketoad acid accumulation
     iv. Hyperthyroidism
     v. Abnormal loss of alkali
     vi. Severe tissue anoxia

- **Laboratory findings:**
  1. Ph < 7.35
  2. HCO3 < 22 meq/ lit
  3. PaO2 < 35mmHg
  4. Base excess – ve
  5. Increased potassium
  6. Decreased calcium in some case

Metabolic acidosis

- **Clinical assessment:**
  1. Headache
  2. Confusion
  3. Kussmaul respiration
  4. Weakness
  5. Nausea
  6. Stupor?
  7. arrhythmia

Metabolic acidosis

- **Intervention:**
  1. Restore proper blood volume / osmolality
  2. Correct HCO3 deficit
  3. Correct electrolyte imbalance
Metabolic alkalosis

**Etiology:**
1) Acute loss of H+ due to
   i. Vomiting
   ii. Nasogastric suction
   iii. Excessive ingestion of alkali

Metabolic alkalosis

**Laboratory findings:**
1) Ph >7.45
2) HCO3 > 26 mm/ lit
3) +ve base excess
4) K+ normal or low
5) Ca+ low.

Metabolic alkalosis

**Clinical assessment:**
1) Irritability, disorientation.

Metabolic alkalosis

**Intervention:**
1) Control vomiting
2) Correct with R/ L solution
3) Correct extra cellular depletion
4) Limit alkali intake.
### BIBLIOGRAPHY :-


