UNIT-5

Disinfection And sterilization

Disinfection :→ It is the process of elimination of most pathogenic microorganism or inanimate objects. it can be physical and chemical methods.

Sterilization :→ it is defined as the process where all living organism, include bacterial spore are killed.

Decontamination :- It is the removal of contamination Pathogenic microorganism from the article by a process of sterilization or disinfection.

Bacteriostasis :→ is a contamination where the multiplication of bacteria is inhibited without killing them.

Bactericidal :→ Its stops the growth of bacteria but not kill the bacteria.

Methods of Sterilization

- Physical
  - Sunlight
  - heat
    - Dry Heat
      - Red heat
      - flaming
      - Incineration
      - Hot air Oven
      - Infra red.
    - Moist Heat
      - Below 100°c
      - At 100°c
      - Above 100°c.
  - Vibration
  - Radiation
    - Ionizing
    - Non-ionizing
      - Electromagnetic
      - particulate.
  - filteration
- Chemical
- physio chemical

filteration :-

- Earthenware
- Asbestos.
- Membrane

Chemical

Liquid

- Alcohols
- Aldehyde.
- Halogenics
- Heavy metal
- Surface active
- Dyes

Gaseous

- formaldehyde
- Ethylene oxide
- Plasma.

Physical Method of sterilization :→

- sunlight
- heat

Dry Heat :-

- Red Heat
- Flaming
- Incineration
- Hot air oven

Moist Heat :-

- Pasteurization
  63°C for 30 min.
  72°C for 15 sec.
- Boiling at 100°C
- Autoclaving.

Radiation

Ionizing rays :→ electromagnetic ray, electons beams, X-Ray.

Non-ionizing rays :→ ultra Sunlight.

Case of Respiratory System

Inhalation :→ It is defined as the taking air or other vapours into lungs through mouth or nose

Types of Inhalation

- Dry
- Moist inhalation

Dry inhalation :- The inhalation of fumes from volatile drugs is known as dry inhalation :- eg :- ether, chloroform, N_2O, menthol.

Moist inhalation :- The inhalation of plain steam. Moist steam inhalation is defined as utilization of moist heat to loosen lung congestion & and help to liquify secretions eg :- steam, tincture benzoin.

Purpose :-

(1) To relieve inflammation of mucus membrane in acute colds.

(2) To relieve irritation in bronchitis & whooping cough by moistening.

(3) To provide antiseptic action on the respiratory tract.

(4) To provide warmth & moist air

5) To soft secretion which are thick.

6) observe the patient closely throughout the procedure.

Preliminary Assessment :-

- check doctors ordees for any specific instruction.
- General Condition and diagnoses of patient.
- Self care abelity.
- Type, duration & medication of inhalation.
- Article available in unit.

Prepration of patient and Environment :-

) Explain procedure to the client.
) Allow the patient to empty the bladder.
) Provide fowlees position.
) close windeew door, fans, etc.
) provide sputum mug.
) Provide a face towel to semove sweat
) Arrang article at bed side.
) keeps client eyes closed incase volatiledrugare used.

Aftere Caree :-

Remove the inhaler from the patient

Use face towel to wipe off perspiration.

Remove the accessories

Replace the article after cleaning.

Wash hands.

Record the procedure.

Oxygenation

Terminology

Asphyxia :→ It is a state of suffocation.

Chest trauma :→ Injury to the chest.

Cyanosis :→ Blue discoloration of skin, lips etc.

Pneumothorax :→ Air inside the lungs

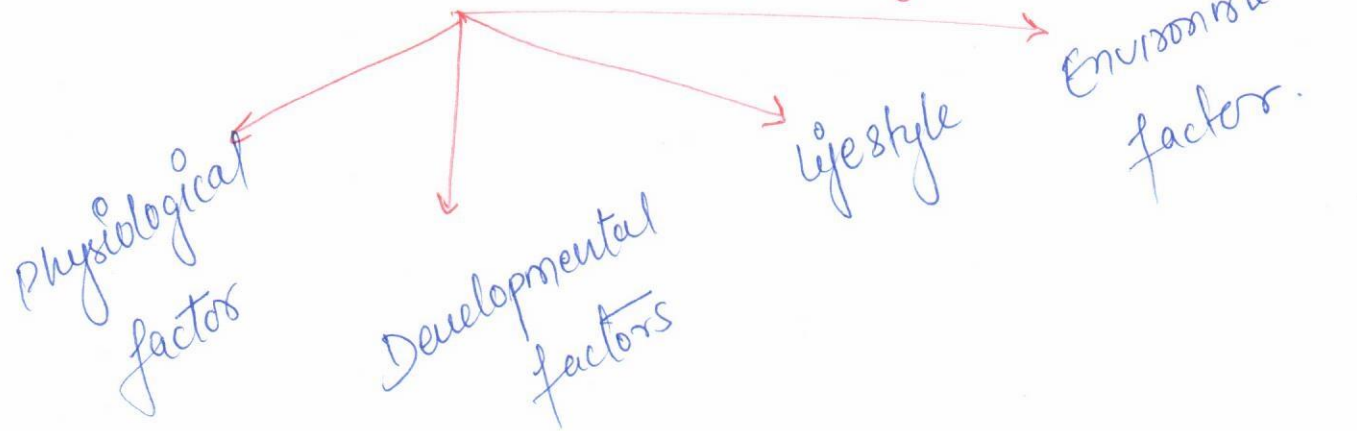
Definition :- Oxygenation is the process that include both the inspiratory and expiratory activities hence there occurs the exchange / transport of respiratory gases.

Definitions

Inspiration :- This is an active process through which oxygen is inspired and cause expansion of lungs.

Expiration :- This is a passive process through which CO_2 is expelled out from the lungs.

Factors affecting Oxygenation



Alteration in the Respiratory function

- Hyperventilation.
- Hypoventilation.
- Hypoxia.

Oxygen Administration :- Patient with respiratory dysfunction are treated with oxygen inhalation to relieve Anoxaemia or hypoxaemia. The normal amount of oxygen in blood is 80-100mm/hg.

Indications :-

- Cyanosic
- Breathlessness
- Anemia.
- Shock and circulatory failure.
- Critically ill
- Breathlessness.
- Asphyxia.

Methods of oxygen administration :-

- Oxygen by nasal catheter
- Oxygen by mask.
- Oxygent TENT
- BIPAP

Nursing Responsibility for Administration of oxygen :

- Check the name and bed number and other identification of the patient.
- check the diagnoses and the need for oxygen therapy.
- check the doctors order for the initiation of the therapy, the dosage etc.
- check the doctors order for specific precautio regarding the movement of positioning of the patient

- Assess the patient for any sign of cyanosis.
- Check the patient vital signs.
- Check for ABG.
- Note any sign of pul. dysfunction.
- Check the articles available in the unit.

Suctioning

When the client is unable to clear the respiratory tract secretion with coughing, the nurse must use suctioning to clear the airway.

Purpose :- To remove secretions that obstruct the airway.

- To facilitate Ventilation.
- To obtain secretion for diagnosis purpose.
- To prevent infection that may result from accumulated secretions.

- Explain the procedure to the client
- Prepare necessary equipment and supplies.
- Maintain the privacy of the patient
- Given semifowlers positions.
- Unconcious patient lying in sidelying position
- Select the suction pressure.

  110 - 150 mm of hg in adults.

  95 - 110 mm/hg of in children

  50 - 95 mm/hg in infants.
- Wash hands.
- Wear gloves
- for nasopharynx suctioning, gently insert the catheter into the nostrils. Guide the catheter medically along the floor of nasal cavity
- While withdrawn, cover the suction part with thumb, gently withdraw it by rotating.
- The procedure should not take more than 15 seconds inside lungs.

- Flush the catheter with sterile solution and apply suction.
- Wash hands after suctioning and discard the used catheter.
- Record the amount, consistency, colour, odour of secretion and clients response to procedure.

Pulse Oximetry

Pulse oximetry is a non-invasive procedure. Which we have measure arterial oxygen saturation (SaO_2). A sensor attach to the client finger or ear lobe.

Purpose:

- Monitor arterial oxygen saturation.
- Make early detection of hypoxemia.
- Assess tolerance to tapering of oxygen therapy.

Equipments :-

- Pulse Oximeter
- Sensor probe
- Acetone or nailpaint remover if needed.
- Continous printout option.

Procedure :- Select appropriate type of sensor to select appropriate sensor considering the client weight, level of activity.

Chest physiotherapy

Chest physiotherapy is used to mobilize the pulmonary secretion. chest physiotherapy include postural drainage, chest percussion and vibration followed by productive coughing.

It is recommended for the client who produce more than 30ml of sputum/day or have evidence of atelectasis by chest X-Ray.