

Oxygen therapy



Definition:



It is the administration of oxygen at a concentration of pressure greater than that found in the environmental atmosphere.

Indications:

- ✓ Acute respiratory failure.
- ✓ Cardiac failure.
- ✓ Acute myocardial infarction.
- ✓ Shock.
- ✓ Anemia .
- ✓ During anesthesia for surgery.



Purpose:



- To relieve hypoxemia results from respiratory or cardiac emergency.
- In respiratory emergency, oxygen administration helps the patient to reduce his ventilator effort.
- In cardiac emergency, helps to meet increase myocardial work load as the heart tries to compensate hypoxemia.

Types



1- High flow rate

- 13-15L/min.
- 60-80%.
- By tent, ambo.

2- Low flow rate

- 1-13L/min.
- 40-60%.
- By all methods.

Methods:

1. Simple face mask.
2. Nasal cannula.
3. Hood (head box) .
4. Oxygen tent.



Methods:

❖ Incubator.

❖ Ambu bag.

❖ Venturi mask (T. tube).



1- Simple face mask

Advantages:

- Available in wide variety of size.
- Suitable for all ages.
- Maximum flow rate 6-10L/m.
- Ability to provide predictable concentration of oxygen whether child breathes through nose or mouth.



1 - Simple face mask

Disadvantage:

- Child may not tolerate the mask.
- Not suitable for long term therapy.
- The O₂ concentration is depend on the security of
- Eating talking disrupts oxygen delivery.



2- Nasal Cannula

Advantages:

- Suitable for all ages.
- Prongs allow considerable mobility.
- Doesn't distort child visual field.
- Flow rate 1-6L/m.
- Provision of constant O₂ flow even while child eats or talks.



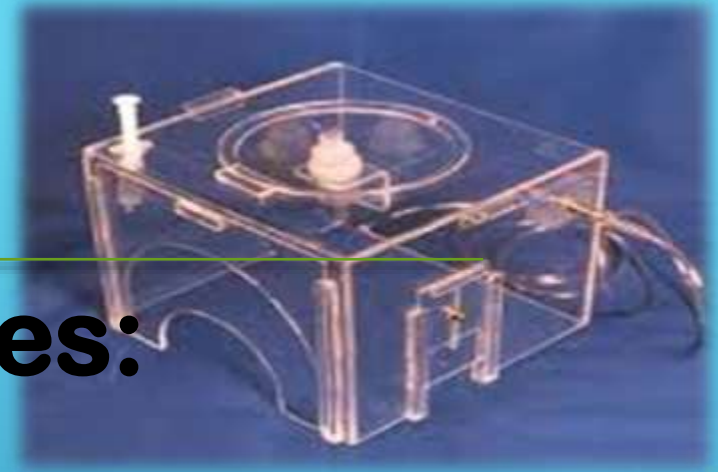
2- Nasal Cannula

Disadvantages:

- ❑ Young children often resist cannula.
- ❑ May irritate nasal mucosa.
- ❑ Restrain may be needed.
- ❑ Difficulty of controlling O₂ concentration if child breaths through mouth.



3- Head box (hood)



Advantages:

- * Available at any size.
- * Maximum flow rate (10L/m).
- * Facial movement isn't restricted.

Disadvantages:

- * Limit access to the head.
- * High humidity environment.
- * Need to remove box during feeding and
- * providing care to patient.



4- Mist tent



Advantages:

- Tent allows older children considerable mobility.
- Maximum flow rate (10L/m).



Disadvantages:

- Steady O₂ concentration difficult to maintain.
- Child feel isolated.
- Cool and wet tent environment.
- Poor access to patient.

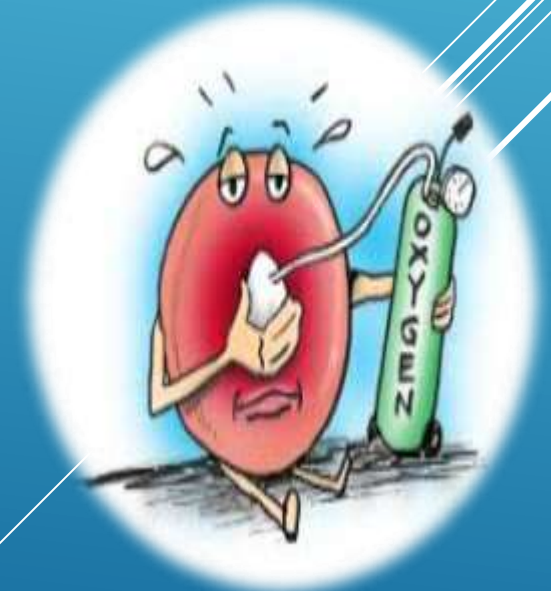
Complications:

- ❖ Eye: Retro lental fibroplasia.
- ❖ O₂ dependency.
- ❖ Oxygen toxicity.
- ❖ Absorption atelectasis.



Equipment:

- ▶ O₂ source (cylinder or central piping system).
- ▶ Delivery equipment.
- ▶ Oxygen flow meter.
- ▶ Oxygen tubing.
- ▶ Humidification attachment.
- ▶ No smoking sign.
- ▶ Disposable gloves.
- ▶ Water soluble lubricant (for catheter insertion).



Procedures of nasal cannula, mask or hood



Steps:

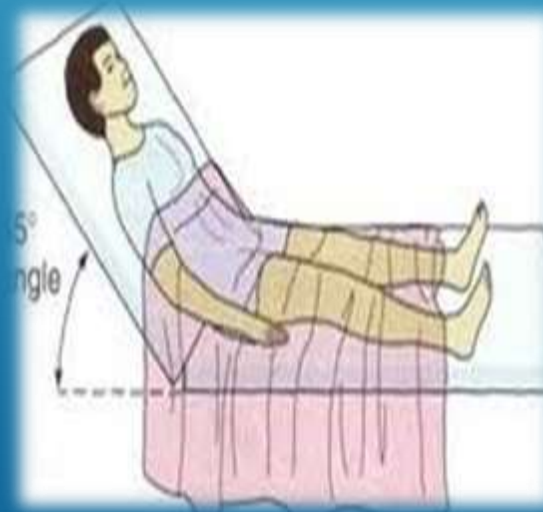
- Perform hand hygiene.
-
- Select proper size of cannula or mask.
- Remove all friction toys from the area and display no smoking signs.
- Connect the flow meter to either oxygen source wall unit or freestanding tank.
- Connect the humidifier to oxygen setup.



Steps:



- ✓ Following instruction for particular oxygen setup and fill reservoir with sterile water.
- ✓ Attach tubing to oxygen source.
- ✓ Connect the distal of oxygen tubing to delivery device (cannula, mask or hood).
- ✓ Turn on flow meter to the prescribed amount.
- ✓ Feel oxygen flowing through the system.
- ✓ Place child in supine semi fowler's position.





For nasal cannula:

- ✓ Place nasal prong inside external meatus of the nares.
- ✓ Instruct child to breathe through his or her nose.

For mask:

- ✓ Place the oxygen mask over the mouth and nose.
- ✓ Tighten the straps attached to the mask until you can easily fit one finger between the strap and the face of the child.



For oxygen hood:

- ✓ Connect the unit to oxygen source.
- ✓ Place the hood on the crib or bed so the child's head is inside the unit.
- ✓ The hood should not rest on child's neck and the child should be able to turn or her head side to side easily.
- ✓ Encourage family and other staff to limit amount of time the child is outside of hood.

Evaluation of response:

- ❖ O_2 saturation (SaO_2) with normal by pulse oximeter.
- ❖ Breathing pattern regular and normal rate.
- ❖ Pink color in nail beds, lips, conjunctiva of eyes.
- ❖ No confusion, disorientation, difficulty with cognition.



Thank you!

