1 What is your classification?

……

2 How will you manage the young infant ?

……

……

3. The mother is not willing for hospitalization. How will you manage in such a situation?

……

2: Seema

Seema is 4 months old and weighs 4.2 kg. Seema is having cough and cold for last three days. The baby's respiratory rate is 65 breaths per minute. She is awake, not lethargic, accepting breast feeds and has no chest in - drawing or convulsions.

1 What is your classification?

……

2 How will you manage the child?

……

……

Case 3: Ankita

Ankita is 2 years old and weighs 8.5 kgs. Her axillary temperature is 38.5° C. The mother says that she has cough for five days and difficulty in breathing for the last two days. Ankita is lethargic and not accepting feeds since last night. Her respiration rate is 70 breaths per minute. She has no stridor but has chest in - drawing. The healthworker records her SpO_2 of 88% using pulse oximeter.

1 What is your classification?

……

2 How will you manage the child?

Annexures

Annexure 1: Oxygen Delivery systems and protocol

Oxygen cylinder

1. *Ensure all the parts are available (oxygen cylinder, concentrator, hood, nasal prongs, mask, nasal catheter etc.)*
2. *Ensure oxygen cylinder is secured on flat surface on a trolley.*
3. *Attach the regulator*
4. *Attach flow meter to the regulator to set the flow rate. Ensure the flow meter is vertical*
5. *Attach humidification bottle to the flow meter. Fill clean water up to the mark level on the bottle*
6. *Attach oxygen tube to the humidifier*
7. *Using a spanner/Key opens the cylinder. Set the desired flow rate on the flow meter. Ensure that there is no leak*
8. *Connect oxygen tube to the nasal prongs/ oxygen hood/ face mask/ or catheter / to deliver oxygen to the patient*
9. *Place the nasal prongs just inside the nostril and clear the nose if blocked*
10. *Secure the nasal prongs by taping along the cheek*
11. ***Severely ill children with signs of obstructed breathing, central cyanosis, severe respiratory distress or signs of shock or who are unconscious should receive oxygen initially by nasal prongs at a standard flow rate (0.5 to 1 liter/min for neonates and 2-4 L/min for older children) or through an appropriately sized mask (>4 L /min) to reach a peripheral capillary oxygen saturation >=94 %.***
12. *Monitoring of progress: When the child is stable and improving take the child off oxygen for 15 min, if the Spo2 reading in room air remain >= 90 %, discontinue oxygen, but check again 30 min later and every 3 hrs thereafter on the first day off oxygen to ensure that the child remains stable.*
13. *Nasal prong*
    a. It is used for delivering oxygen to baby
    b. Has two port holes, O2 inlet and baby port
    c. Delivers FiO2-90% with ports closed, 60% with one port opened and 30% with both ports opened.
    d. Nasal prong is disposable.

Oxygen Concentrator

1. Plug in the power cable. A green light indicating “power on” comes on.
2. Switch on the concentrator. Once the concentrator is switched on, a red/ yellow light will come up
3. Check the distilled water level in the humidifying jar and ensure that it is filled up to the marking
4. Adjust the oxygen flow as per need. The red/yellow light will be on till the desired concentration of oxygen is achieved
5. Place the nasal prongs inside the baby’s nostrils and fixes it with a tape, ensuring that it fits snugly.

Key points to remember, Maintenance:

1 Coarse Filter- ensure it is dust free and is washed daily

2 Zeolite granules- change every 20,000 hrs. or as per manufacturer’s recommendation

3 Bacterial filter-- change every 1 year or as per manufacturer’s recommendation

Annexure 2: Metered dose inhaler (MDI)- steps to be followed

1. Remove the cap from the inhaler and shake the inhaler well
2 Ask the patient to take a few deep breaths and then breathe out gently
3 Ask the patient to immediately place the mouth piece inside the mouth with lips forming a seal
4 Instruct the patient to press the inhaler and at the same time begin a slow, deep breath and continue to breathe slowly and deeply over 3 - 5 seconds. Hold the breath for 10 seconds and then resume normal breathing
5 Advise to repeat the above steps when more than one puff is prescribed
6 Advise to wait 1 minute between actuations (puff); this may improve penetration of the second actuation into lung airways
7 Ask the patient to recap the MDI

Metered dose inhaler with spacer

Note: Inhalation by MDI spacer needs four puffs at 2-3 minutes interval to get an equivalent dose for a single salbutamol nebulization.

Steps to be followed

1 Remove the cap from the inhaler and shake the inhaler well
2 Attach the mask to the mouthpiece of the spacer
3 Insert the inhaler mouthpiece into the slot of the spacer (the inhaler should fit snugly and without difficulty)
4 Place the mask over the child's nose and mouth so that it makes a seal with the face
5 Press down on the inhaler canister to spray one puff of medicine into the spacer
6 Hold the mask in place and allow the child to breathe in and out slowly for five breaths
7 If child needs another dose, waits for 2-3 minutes, shake the inhaler and repeats steps 4 to 7

Nebulizer - Steps to be followed

- Wash hands thoroughly before using a nebulizer
- Makes sure the equipment is clean
- Measure the correct dose of medication to be administered and pour into the nebulizer chamber (cup) and add saline solution to make the volume to 3 ml. The dose of Salbutamol is 2.5 mg (i.e. 0.5 ml of the 5 mg/ml nebulizer solution). This can be given 1-4-hrly initially, reducing to 6-8 hrly once the child's condition improves. If necessary in severe cases, it can be given more frequently.
- If the medicine is in single-use vials, twist the top off the plastic vial and squeeze the contents into the nebulizer cup
- Connect the mouthpiece, or mask to the T-shaped elbow (face mask for smaller children and mouthpiece for older children)
- Connect the nebulizer tubing to the port on the compressor. Turn the

- Hold the nebulizer in upright position to avoid spillage, while using mask ensure that it is fitting well. In older children ask the patient to keep the mouthpiece inside the mouth and close lips around it
- Ask the patient to take slow deep breaths and if possible hold the breath for up to 10 seconds before exhaling. Occasionally, tap the side of the nebulizer to help the solution drop to where it can be misted.

Annexure3: Pulse Oximeter

Parts

- Display Panel
  - Numeric display
  - Graphic display
- Control buttons
  - Power/standby button
  - SpO2 alarm setting button
  - HR alarm setting button
  - Set button (alarm, volume, trend)
  - Alarm silence button
- An electric cable
- An extension cable for attachment of the patient sensor
- A patient sensor which is to be connected to the extension cable

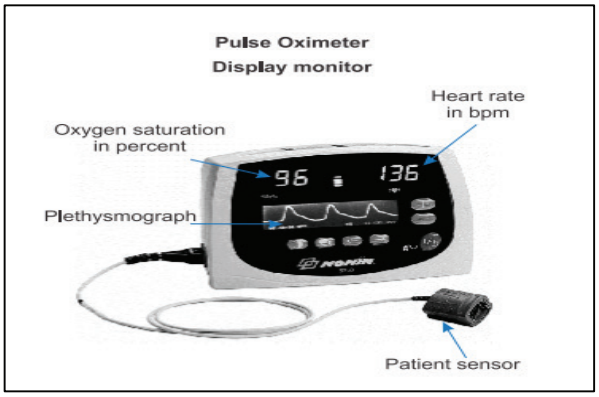
Working

- Connect to the mains.
- Switch on the machine
- Set the alarm limits for heart rate 80-140 BPM
- Set saturation alarm limits 90-97%
- Connect the patient sensor to the pattient by wrapping it around the baby's hand or foot.
- Pulse oximeter starts detecting signal from the patient and displays heart rate and saturation in a few seconds
- The values displayed may not be reliable in the presence of shock, cold peripheries, excessive movement, electrical interference and exposure of probe to bright ambient light.
- Values are reliable when the plethysmographic waveform or bar signals is good
- Values are reliable when the display is constant and not blinking or repeatedly changing

Cleaning and disinfection

- Clean display panel with moist soft cloth
- Clean body with soft cloth dampened with soap water followed by moist soft cloth
- Clean reusable sensors with spirit after each patient use

Recommendation: Pulse Oximetry is recommended to determine the presence of hypoxaemia in children. When child has only repiratory distress, oxygen supllementation is recommended at SpO2<90 %. Children presenting with other ETAT emergengy sign with or without respiratory distress should receive oxygen therapy if their SpO2 is< 94 %.



Trouble Shooting

Alarm/Display message	Possible cause	Corrective action
Check sensor	Motion, low perfusion, wrong position	Reposition, relocate
Check probe	Probe not detected	Connect prob Check probe connection
Pulse search	Pulse not detected Initialising Low perfusion/ movement/ edema	Change sens site
Interference detected	Erratic signal with electromagnetic waves in vicinity like TV, mobile phone	Remove interference
Low battery	Low internal battery	Connect to A power
Sensor failure	Broken cable, faulty photodiode, sensor damage	Replace sens
System failure	Internal component failed	Unit needs service/chang
Ambient light	Excessive light on sensor	Relocate, cov with opaque paper/cloth

Do and don’ts

- Inspect sensor site every 2 to 4 hours for any erythema
- Change sensor site every 4-6 hourly
- Do not apply sensor too tightly
- Do not apply probe to edematous or bruised

Side effects and dangers

- Failure of operation.
- Explosion hazards in presence of any flammable anesthetic mixture.
- Local reddening, blistering, skin discoloration, burn etc. because of the sensor placement.

Maintenance

- Cleaning the oximeter as necessary
- Recharging the battery as necessary
- Replacing the fuses in power module as necessary
- Comprehensive/ Annual maintenance contract
- Do not knot, pull or apply traction to sensor cable or extension cable.
- Handle carefully and gently.

ANNEXURE 4- CASE RECORDING FORMS

MANAGEMENT OF THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

Name: _____ Age: _____ Weight: _____ kg Temperature: _____ °C **Date:**

ASK: What are the child's problems? _____ Initial visit? ___ Follow-up Visit? ___

ASSESS (Circle all signs present) **CLASSIFY**

CHECK FOR GENERAL DANGER SIGNS NOT ABLE TO DRINK OR BREASTFEED LETHARGIC OR UNCONSCIOUS VOMITS EVERYTHING CONVULSIONS	General danger sign present? Yes___ No___ **Remember to use danger sign when selecting classifications**
DOES THE CHILD HAVE COUGH OR DIFFICULT BREATHING? Yes___ No___ • For how long ? _____ Days • Count the breaths in one minute _____ breaths per minute. Fast breathing? • Look for chest indrawing. • Look and listen for stridor.	

MANAGEMENT OF THE SICK YOUNG INFANT AGE UP TO 2 MONTHS

Name: ---------- Age: ---------- Temperature : ---------- °C **Date:**

ASK: What are the infant's problems? _____ Initial visit? ___ Follow-up Visit? _____

ASSESS (Circle all sgns present) **CLASSIFY**

CHECK FOR POSSIBLE BACTERIAL INFECTION/JAUNDICE • Is the infant having difficulty in feeding? • Has the infant had convulsions?	• Count the breaths in one minute____breaths per minute Repeat if elevated _____ Fast breathing? • Look for severe chest indrawing. • Look at the umbilicus. Is it red or draining pus? • Look for skin pustules. • Measure axillary temperature (if not possible, feel for fever or low body temperature): - 37.5°C or more (or feels hot)? - Less than 35.5°C ? • Look at young infant's movements. Movement only when Stimulated? Or no movement at all?