**Oxygen Administration**

**OM Nursing Academy**

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**Introduction** :- Administration of the Oxygen to meet O<sub>2</sub> need of the Body.

**Indication** :-
- Dyspnea
- Respiratory Problem
- Myocardial Infarction
- Major Burn
- Shock
- Anemia

**Methods Of Oxygen Administration** :-

1. **Nasal Cannula (Nasal Prongs) :-**
   - Low flow rate से Oxygen देते हैं
   - Use mostly in **COPD Patients (for long term used)**
   - Flow Rate :- 1 - 6 Liter /minute
   - O<sub>2</sub> Concentration :- 24 - 44 %

![Nasal Cannula](image)
2. Nasal Catheter :-
   - Nasal Catheter is **most common method which used in Hospital.**
   - Change the Position after every 8 hours into opposite nostrils.
   - Flow Rate :- 1-6 Liter/minute
   - Concentration :- 24 -44 % ( Same as Nasal Cannula )

   ![Nasal Oxygen Catheter](image1)

   ![Nasal Catheter](image2)

   **Nasal Catheter**

3. Face Mask :-

   There are Four types
   
   A. Simple Face Mask
   B. Partial Face Mask
   C. Non - Rebreather Mask
   D. Venturi Mask

4. A. Simple Face Mask :-
   
   - **Short Term Use ( in Emergency )**
   - Flow Rate :- 5-8 Liter / minute
   - O₂ Concentration :- 40 - 60 %
   - Minimum flow rate is :- 5 Liter/minute

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B. Partial Rebreather Mask :-

- Mask with Reservoir Beg Which allow 1/3 of Exhale air to Breath.
- Flow Rate :- 6 - 15 Liter/minute
- O₂ Concentration :- 70 - 80 %
C. Non Rebreather Mask :-

- It is a Plastic Mask with Reservoir Beg.
- It Consist of One Way Valve Which Prevent Room Air & Exhale Air Enter into Beg.

- **Non Rebreather Mask is O₂ Method of **Highest Percentage O₂ Concentration Delivery System.

- Flow Rate :- 10 - 15 Liter/minute
- O₂ Concentration :- 95 - 100 %

**Non rebreather mask**

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**Q. Difference between Partial Rebreather and Non Rebreather Mask**

Partial Rebreather Mask में Mask के दोनों side में Air पास होने के लिए Exhalation Points पाए जाते हैं, जबकि Non Rebreather Mask में सिर्फ एक side ही Exhalation Point पाया जाता हैं जबकि दूसरी side एक Valve पाया जाता हैं जो कमरे की हवा को रोक कर, Patent द्वारा Exhale Air की Reservoir Beg में डाल देता हैं।

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D. Venturi Mask ( Venti Mask / Air Entrainment Mask ) :-

- **Most Accurate ( Fix ) O₂ Concentration Delivery System.**
- Flow Rate :- 2 - 15 Liter/minute
- O₂ Concentration :- 24 - 60 %
- **Use :- Acute Respiratory Distress**

- Based on Color coded Jet Adapter

<table>
<thead>
<tr>
<th>S.N</th>
<th>Colour Code</th>
<th>Flow Rate</th>
<th>O₂ Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blue</td>
<td>2 Liter/minute</td>
<td>24 %</td>
</tr>
<tr>
<td>2</td>
<td>White</td>
<td>4 Liter/minute</td>
<td>28 %</td>
</tr>
<tr>
<td>3</td>
<td>Orange</td>
<td>6 Liter/minute</td>
<td>31 %</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
<td>8 Liter/minute</td>
<td>35 %</td>
</tr>
<tr>
<td>5</td>
<td>Red</td>
<td>10 Liter/minute</td>
<td>40 %</td>
</tr>
<tr>
<td>6</td>
<td>Green</td>
<td>15 Liter/minute</td>
<td>60 %</td>
</tr>
</tbody>
</table>
4. Oxygen Tent :-
   - Pediatric Use
   - Flow Rate :- 10 -15 Liter/minute
   - O₂ Concentration :- 80 - 90 %

5. Face Tent :-
   - Use :- Facial Trauma
   - Flow Rate- 4 - 8 Liter/minute
   - O₂ Concentration :- 30 - 50 %

6. Oxygen Hood :-
   - A Plastic Dome that Inclose Infant Head
   - Flow Rate :- 10 - 15 Liter/minute

7. Trans Tracheal Catheter :-
   - A Catheter Directly Insert into Trachea through surgical create Track.
   - In Tracheostomy O₂ Can be Given by T - Collar ( T Piece ).
   - Flow Rate - 1/4 to 4 Liter/minute
   - O₂ Concentration :- 22 - 45 %
Oxygen Cylinder :-

- Pressure :- 2200 Lb/Inch$^2$ or 1000 Kg/Inch$^2$
- Pressure in Pipe Supply :- 50 - 60 Lbs/Inch$^2$
- Colour of Cylinder :- Top is White , Stem is Black

Humidifier (Wolf’s Bottle) :-

It Prevent mucous membrane from drying / Irritated and Loosen thick Mucous Secreation for easily Expectoration.

★ Note :- Oxygen gas Supports Combustion (Fire).

Complications of O$_2$ Therapy :-

- **Retrolental Fibroplasia** :- Premature Newborn में लागतात High Oxygen Concentration के कारण Newborn की eyes में Fibrous बनने लगता है जिससे Newborn में Blindness हो सकती है।

- **Paul Bert effect** :- O$_2$ Toxicity in Central Nervous system.

- **Lorrain smith effect** :- O$_2$ Toxicity in Pulmonary system.
★ Multiple Choice Questions ★

Q. 1 A Client requiring the highest possible Concentration of oxygen will need which of the following delivery system?
   A. Face Tent
   B. Venturi Mask
   C. Nasal Cannula
   D. Non Rebreather Mask

Q. 2 Oxygen saturation is measured by:
   A. Pulse Oximeter
   B. Ventilator
   C. Manometer
   D. Thermometer

Q. 3 The Oxygen delivery system that Delivers the Fix Concentration of Oxygen is:
   A. Partial Rebreather Mask
   B. Venturi Mask
   C. Non - Rebreather Mask
   D. Nasal Cannula

Q. 4 What is the Colour of the Oxygen cylinder in the Hospital?
   A. Blue and Grey
   B. Black and White Top
   C. White
   D. Black and Orange

Q. 5 Concentration of Oxygen in Expired Air is About:
   A. 5 %
   B. 21 %
   C. 35 %
   D. 16 %
**Answers :-**

1. D
2. A
3. B
4. B
5. D

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