

Oxygen Delivery Devices

Oxygen Therapy

Definition: Administration of oxygen at concentration greater than ambient air.

Main Goal: To treat and prevent hypoxemia.

Low Flow System

Nasal Cannula



- **Most used** oxygen delivery devices.
- **Add humidity** (bubble humidifier) over 4 L/min to minimize mucosal irritation.

 Pediatrics & Adults

Flow: 1 – 6 L/min

FiO₂: 24% – 44%

 Neonates

Flow: 0.25 – 2 L/min

Simple Face Mask



- Covers nose and mouth
- For moderate hypoxemia

Flow: 5 – 10 L/min

FiO₂: 40% – 60%

Partial Rebreather Mask



has a 1 flexible reservoir bag

Flow: 10 – 15 L/min

FiO₂: 40% – 70%

Non - Rebreather Mask



- More commonly used than a partial rebreathing mask.
- Use with burn cases.

Flow: 10 – 15 L/min

FiO₂: 60% – 80%

High Flow System

VENTURI MASK



- Delivers a fixed FiO₂ based on the adapter used.
- Ideal for patients who require precise oxygen concentration.

ADAPTER COLOR					
FiO ₂ (%)	24	28	31	35	40
Flow (L/min)	4–6	4–6	6–8	8–10	8–10

High-Flow Nasal Cannula (HFNC)

- Up to 60 L/min
- Heated & humidified
- Good tolerance
- Provides mild positive pressure (PEEP).

Flow: Up to 60 L/min

FiO₂: 21% – 100%

Face Tent / Aerosol

- High humidity.
- Facial trauma.

Flow: At least 10 L/min

FiO₂: 24% – 100%



- Low Flow → Variable FiO₂ (depends on patient's breathing pattern)
- High Flow → Fixed FiO₂ (better control)



Avoid excessive oxygen (hyperoxia)—high FiO₂ can cause oxygen toxicity, absorption atelectasis (nitrogen washout → alveolar collapse), and increase the risk of ROP and BPD in neonates.