

# OXYGEN DELIVERY BY MASK

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Link to the most current version →



## PURPOSE:

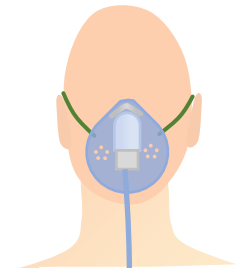
- Masks are often used to deliver supplemental O<sub>2</sub>, typically at higher flow rates & greater FiO<sub>2</sub> than by nasal cannula.
- The choice of mask often depends on how much supplemental O<sub>2</sub> is required. The goal is provide [the minimum necessary](#) achieve the goal.
  - In general, the [goal SpO<sub>2</sub>](#) should be ≥94% in most people, or 88-92% in people at risk for hypercarbic respiratory failure.
- The amount of oxygen delivered is approximate and can depend on many factors:
  - Patient's inspiratory effort (faster inspiratory flow will entrain more ambient air)
  - Face seal (looser seal will entrain more ambient air)
- Note that higher flow rates can rapidly deplete portable O<sub>2</sub> tanks.

See also [Nasal Oxygen Delivery OnePager](#)

## SIMPLE MASK (SM)

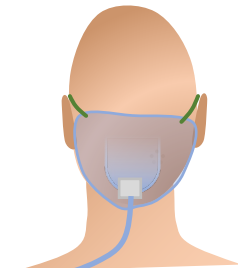
AKA HUDSON'S MASK

FLOW 6 – 10LPM  
FiO<sub>2</sub> 35-50%



## FACE TENT (FT)

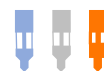
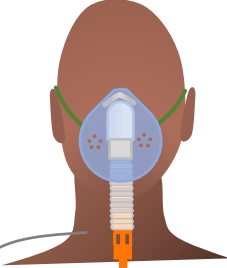
FLOW 10 – 15LPM  
FiO<sub>2</sub> 30 – 40%



Face Tents are loose fitting & may be useful in people who do not tolerate a tight-fitting mask (e.g. facial trauma, recent surgery, etc)

## VENTURI MASK (VM)

FLOW 2 – 15 LPM  
FiO<sub>2</sub> 24-60%



Blended gas mixture (e.g. 31% oxygen) mixture depends on flow rate & the size of the valve openings

A venturi mask uses a small valve to mix oxygen & ambient air to achieve a desired FiO<sub>2</sub>. The venturi valves are color coded; each is sized to provide a different FiO<sub>2</sub> for a specified flow rate:

Valve	Flow	FiO <sub>2</sub>
BLUE	2 lpm	24%
WHITE	4 lpm	28%
ORANGE	6 lpm	31%
YELLOW	8 lpm	35%
RED	10 lpm	40%
GREEN	15 lpm	60%

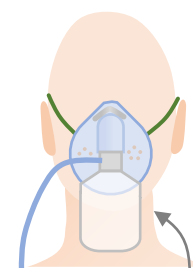


Ambient air (21% oxygen) is entrained through the valve openings by the Venturi effect

Oxygen Line (100% oxygen)

## PARTIAL REBREATHER (PR)

FLOW 10 – 15 LPM  
FiO<sub>2</sub> 60 – 80%

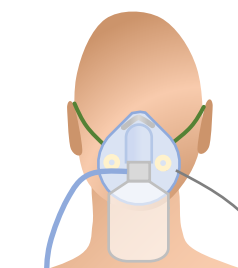


The addition of an inflatable reservoir increases delivered oxygen.

- In the NRB this reservoir is filled with 100% oxygen.
- In the PR this reservoir fills with a mixture of oxygen and exhaled air/CO<sub>2</sub>. This is why PR masks are seldom used.

## NON-REBREATHER (NRB)

FLOW 10 – 15 LPM  
FiO<sub>2</sub> ~80%



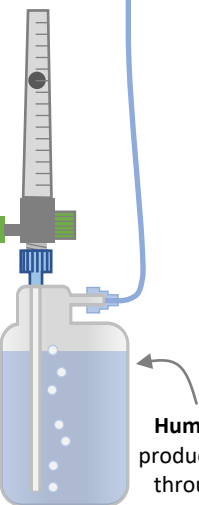
Non-rebreather masks have two one-way valves over the exhalation ports. These permitting exhalation but maintain a higher FiO<sub>2</sub>. Note: this can be dangerous if the O<sub>2</sub> supply is exhausted/interrupted!



Ambient air is blocked from entering the mask (keeps FiO<sub>2</sub> higher)



Carbon Dioxide Can be exhaled freely (avoids rebreathing CO<sub>2</sub>)



Humidified Oxygen is produced by bubbling O<sub>2</sub> through sterile water. Humidified O<sub>2</sub> **may** be [more comfortable for patients on higher flow rates](#) (>4 lpm)