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# **OXYGEN ADMINISTRATION**

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# OXYGEN THERAPY

- Is the administration of oxygen as a medical intervention, which can be for a variety of purpose in both acute and chronic patient care.
- **Oxygen Therapy is used when low blood level oxygen is present.**

# INDICATION

- COVID-19
- Cyanosis
- Anemia
- Shock and circulatory failure
- Hemorrhage and air hunger
- Critically ill patient
- Asphyxia
- Breathlessness



# METHODS

- **NASAL CANNULA**

Is a simple device that two cannula about 1.5 cm long protrude from the center of the disposable tube and are inserted into the nares.

**Flow Rate 4L/min**



# SIMPLE MASK

- Used to administer low to moderate concentrate of oxygen.
- Body of mask itself gathers oxygen between breathes
- Patient inhale air from mask and also room air through exhalation ports.
- Patient exhale directly through ports in the body of mask.

***Flow Rate 5 – 8 L/min***



# PARTIAL REBREATHE MASK

- Has a reservoir mask that must remain inflated during both inhalation and exhalation.
- Oxygen enter the mask through small bore tubing that connect at junction of the masks and bag.
- During inhalation air is drawn from mask, reservoir bag and from room through exhalation ports.
- On exhalation one third of air fills the bag the remaining air is exhaled through ports.
- ***Flow rate 8 – 12 L/min***



# NON REBREATHER MASK

Similar design as that of partial rebreather mask.

One way valve between mask and bag

One way valve at exhalation port

***Flow rate 10 – 15 L/min***





# VENTURI MASK

- Most reliable and accurate method of delivering oxygen through non invasive means
- Allow constant flow of room air blended with fixed flow of oxygen.
- Uses Bernoulli of air entrainment.
- For each liter of oxygen that passes through jet orifice a fixed amount of room air is entrained.
- Excess gas along with carbon dioxide leaves through the exhalation ports.
- ***Flow rate 4 – 8 L/min***



# VENTURI MASKS / VALVES

Color	Required flow rate*	FiO <sub>2</sub>
Blue	2–4L/minute	24%
White	4–6L/minute	28%
Yellow	8–10L/minute	35%
Red	10–12L/minute	40%
Green	12–15L/minute	60%

# OXYGEN TENT

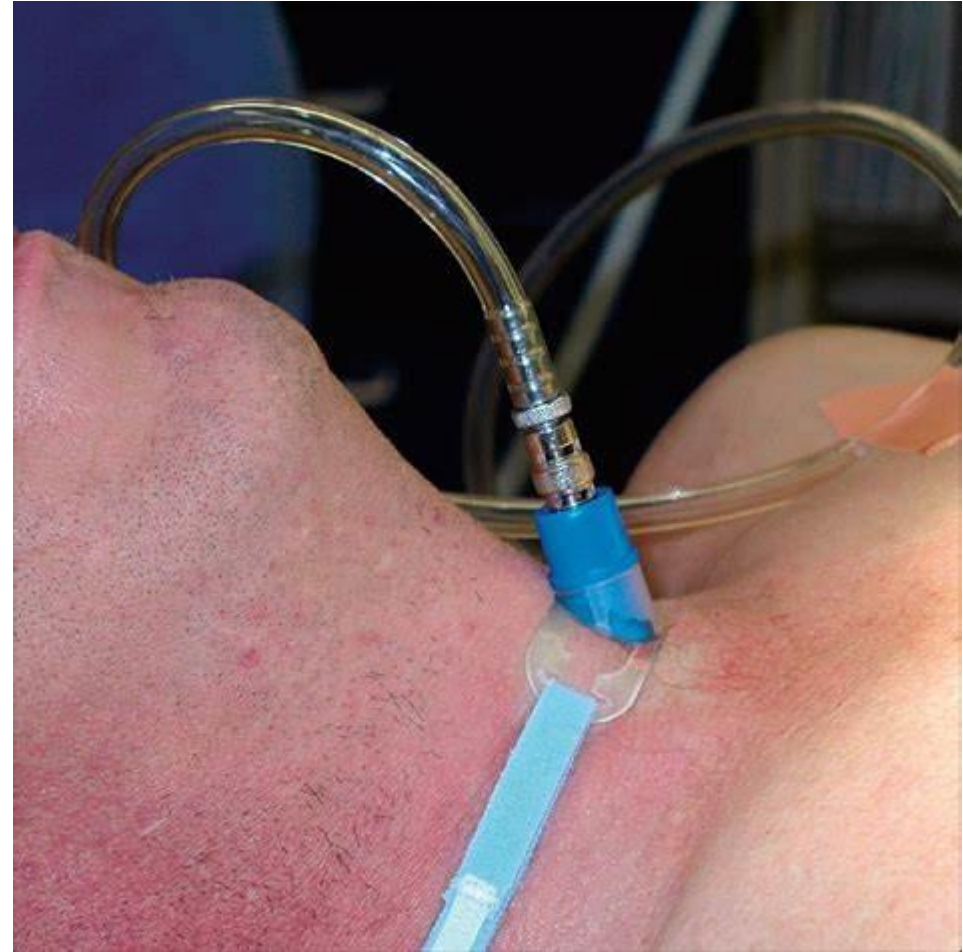
- Consists of a canopy placed over the head and shoulders or over the entire body of patient to provide oxygen at higher level than normal.

- ***Flow rate 8 – 20 L/min***



# TRANSTRACHEAL OXYGEN TUBE

- Required a minor surgery to insert a catheter through a small incision directly into the trachea.
- *No oxygen is lost in the method*



# OXYGEN THERAPY GUIDELINE

- **Target saturations: 94-98%**
- If  $\text{SpO}_2 < 85\%$ , use reservoir mask at 15L/minute  $\text{O}_2$  flow initially.
- If  $\text{SpO}_2 > 85\%$ , titrate oxygen flow via nasal cannula (2-6 L/minute  $\text{O}_2$ ) or simple face mask (5-10 L/minute  $\text{O}_2$ ) to achieve 94-98% saturation. If unable to achieve or maintain target range, switch to reservoir mask (15 L/minute  $\text{O}_2$ ) and seek senior advice.

# CRITICALLY ILL PATIENTS

- Use **reservoir masks at 15L/minute O<sub>2</sub>** flow initially in all patient groups pending arterial blood gas (ABG) analysis.
- Once stable, if there is a reliable oximetry reading then titrate oxygen to aim saturations at 94-98% (88-92% if ABG confirms hypercapnic respiratory failure).
- In carbon monoxide poisoning continue high flow oxygen at 15L/minute regardless.
- \*Examples of critical illness can include: **cardiac arrest or resuscitation, shock, sepsis, major trauma, drowning, anaphylaxis, major pulmonary hemorrhage, status epilepticus, major head injury, carbon monoxide poisoning.**

Thank  
you!

