Oxygen Delivery Methods

Room air is around 21% oxygen. Oxygen is used to help during times of tissue hypoxia, and when the body requires more than the normal 21%. The patient’s oxygen needs will determine which delivery method should be used. Knowing if the patient has a condition that retains CO2 or has a respiratory disease will also influence which method is used. It is important to remember that “oxygen is a medication” and an order needs to be written by the health care provider, if it is going to be used.

PLAY PICMONIC

Nasal Cannula
Nasal Cannula
Nasal cannulas are the most widely used method of delivering oxygen. At 1L/min nasal cannulas deliver an FiO2 of 24%. Every 1L you can add 4%, all the way to 6L/min for an FiO2 of 44%. Oxygen should be humidified if you will be administering greater than 3L/min.

Simple Face Mask
Simple Face Mask
Simple face mask can deliver an FiO2 of 40% to 60% oxygen with a flow of 6 to 12L/min. It can be used in patients that are in mild respiratory distress. If a simple mask has a reservoir bag on it, it is called a partial rebreather mask. Partial rebreather masks deliver an FiO2 of 50% to 60%.

Non-Rebreather Mask
Non-Rebreather Mask
This mask has a valve on the exhalation port and between the reservoir bag and mask. The valves prevent room air from coming into the system. This method delivers an FiO2 up to 95% at 8-15L/min. Make sure that the reservoir remains at least ½ full on inspirations.

Venturi-Mask
Ventura with Venturi Mask
Venturi Mask allows providers to set a specific FiO2 to be delivered to the patient. Venturi masks have, what is called, an air entrainer that allows oxygen to be mixed with the room air. This can deliver a precise FiO2 to the patient ranging from 24% to 60%.

Safety Precautions

Oxygen In Use Sign
Oxygen In Use Sign
Make sure your agency has proper signs hanging, informing visitors of the risk of having an open flame. Instruct people not to smoke near areas where oxygen is in use.

No Electrical Sparks
No-sign at Electrical Sparks
Oxygen is a highly combustible gas that can cause an explosion in certain situations. Make sure that the bag valve mask is removed from the bedside before a shock is delivered during resuscitation efforts.

Six Feet Away from Open Flames
Six Foot Tape-measure From Flames
Educate patients not to smoke when using oxygen and to stay away from open flames. Oxygen is very combustible when introduced to an open flame.

Nursing Considerations

Dry Nasal and Upper Airway Mucosa

Dried out Nasal and Upper Airway Mucosa

Oxygen can dry out mucosal membranes. If patients will be on oxygen for an extended time or high concentrations will be given, a humidifier should be introduced into the system to help decrease airway irritation.

Skin Irritation

Skin Irritation

Skin breakdown can occur around the ears and in the nostril (nasal cannula use). It is important to assess for skin breakdown while performing a daily assessment. Gauze can be wrapped around the tube or strap to decrease pressure and irritation.

Home Education

Home-use Educator

Teach the patient to monitor their oxygen tank level at home and when to notify the agency for a refill. It is important to avoid an extra long oxygen tube, because this can be a tripping hazard for the patient and others. Also educate the patient on how to secure the oxygen cylinder and to always have it in an appropriate holder.