

Oxygen Therapy

Overview

If a client is unable to adequately oxygenate themselves, the caregivers need to be able to identify when this is happening and provide their client with supplemental oxygen to improve their health status.

Outline

1. Explain purpose of oxygen
2. Demonstrate use of oximeter and its purpose
3. Explain how oxygen is administered
4. Demonstrate oxygen tank set up/use of mask and nasal prongs
5. Discuss special considerations when administering oxygen

Objectives

1. Caregivers will be able to identify when a client will need oxygen.
2. Caregivers will demonstrate use of oximeter and explain readings.
3. Caregivers will demonstrate oxygen set up, use of mask/nasal prongs and care of equipment.
4. Caregivers will explain what and why special considerations need to be taken when using oxygen.

Oxygen

- Oxygen is colorless, odorless, tasteless and heavier than air.
- Air normally contains about 20% of oxygen.
- Oxygen has a drying effect.
- Oxygen itself does not burn but it supports combustion therefore certain precautions need to be observed.

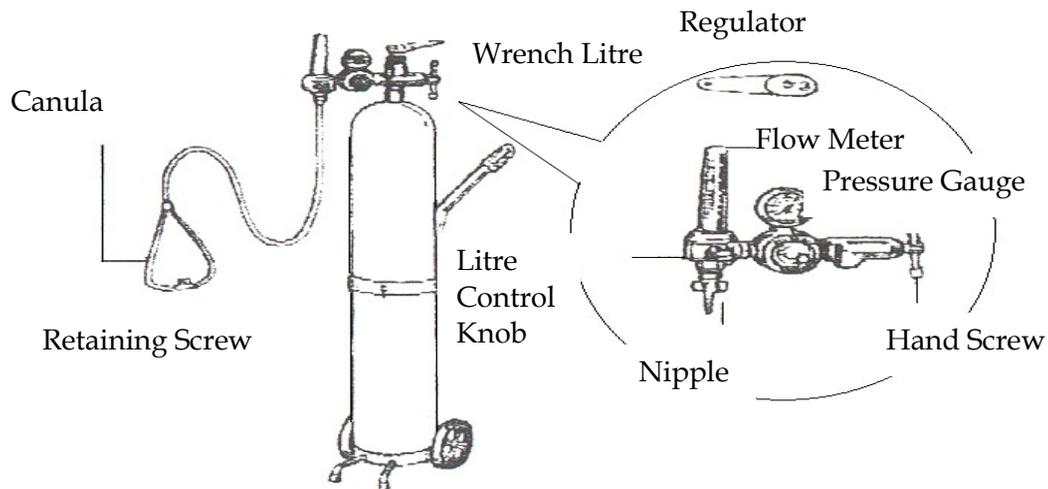
Safety Measures While Administering Oxygen:

1. No Smoking: an oxygen rich environment promotes combustion.
2. Do not use electric appliances i.e. heating pads when administering oxygen in case of electrical short.
3. Don't allow combustible materials, such as oil, grease or alcohol near cylinder gauges or fittings.
4. Clothing made from wool, silk or synthetic fibers could generate a spark that could ignite a fire.
5. If possible remove the oxygen tanks to the outdoors if there is a fire. If unable to remove inform the fire department there is oxygen in the home.

Oxygen Supply

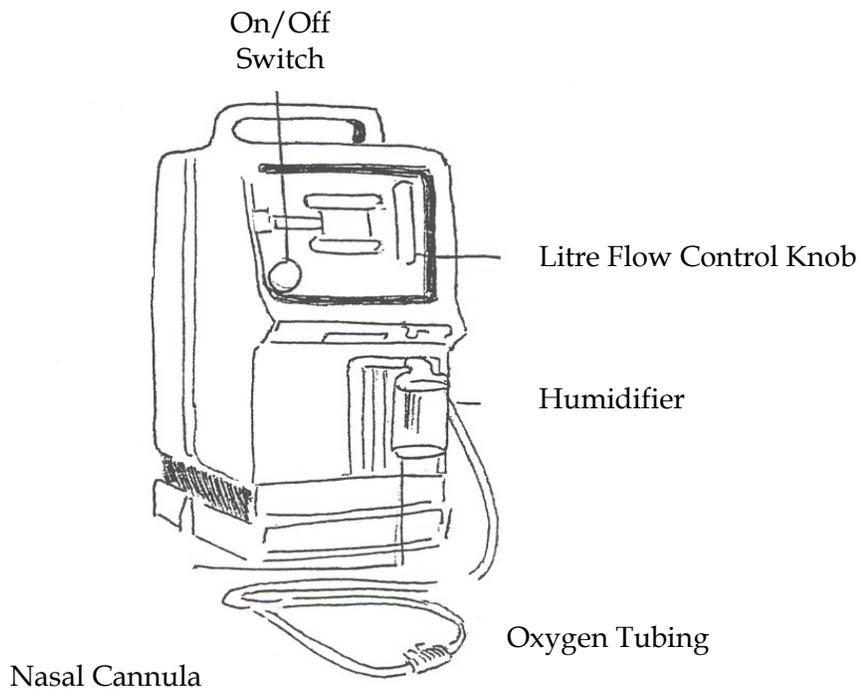
Oxygen can be supplied in a number of different ways:

As a gas



Supplied in large or small tanks depending on the client's needs. Oxygen supplied in a cylinder is under high pressure. A regulator must be used on the cylinder to administer the oxygen. The regulator has 2 gauges: one shows contents of the tank, other shows rate of flow. Review Oxygen Set Up & Operating Procedure.

Oxygen Concentrator



This is a large unit used within the home because it is not easily transportable! It draws in room air and gives out only the oxygen portion to the client. It is cost effective because you are not paying for oxygen refills however the unit is noisy and may disturb the client at night if left in the same room. Review Oxygen Concentrator Operating Procedure.

These units have to be checked annually by a medical gas company, i.e. Vital Aire, Medigas.

Why is Oxygen administered to clients?

To relieve:

Hypoxia - oxygen deficiency in the body

Anoxemia - deficiency of oxygen in the blood

Anoxia - insufficient oxygen in the body cells or tissues to carry on normal body functions.

How can you tell a client needs help to breathe & oxygen administration maybe required?

- Is his breathing noisy and laboured?
- Does his abdomen protrude with each breathe?
- Are his nostrils flared or dilated?
- Does he look anxious or have a fearful look?
- Does he clutch or grasp his clothes?
- Does he seem confused or unusually restless?
- Is his skin cool to touch?
- Is he cyanotic? Does his skin, fingernail beds, ear lobes or mouth mucosa look very pale or have a blue/gray tinge?
- Is his heart/pulse beating fast.
- Does he look or complain of feeling extremely tired?
- Does he have a decreased pulse oximeter reading i.e. below 85%?

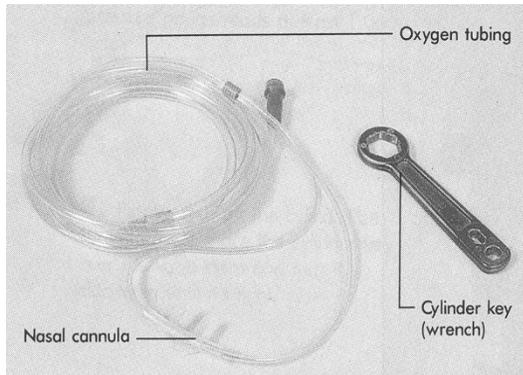
Remember:

- The physician is responsible for prescribing the type of therapy, its frequency, duration and flow rate - this is especially important when a client requires long term oxygen therapy.
- The care givers are responsible for monitoring the client's response to the therapy and inform a nurse consultant if therapy is not effective.
- Frequently assess and document the client's respiratory rate and effort, the nurse needs to be aware of the oxygen's effectiveness to determine if care needs to be reviewed.
- Monitor the client's oxygen levels to determine the effectiveness of the oxygen therapy.
- In some circumstances the care givers are able to follow standing orders to administer oxygen in emergency situations i.e. during or after a seizure.
- It is important that care givers are familiar with the various types of oxygen delivery systems.

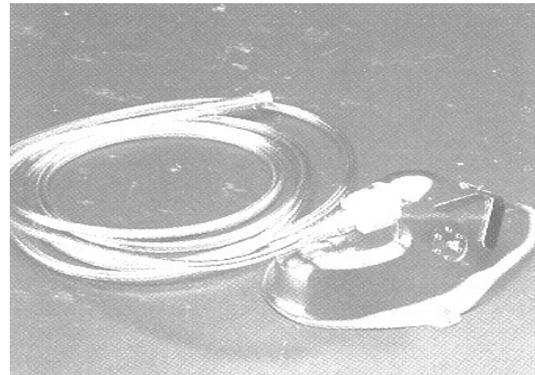
Oxygen Delivery Systems

Low flow Systems

A low flow system is one in which the gas flow is insufficient to meet all the requirements for inspiration; room air must also be inspired. The nose, nasopharynx and oropharynx act as an anatomical reservoir to perform such a task. Nasal cannula/prongs or a simple face mask deliver the oxygen to this reservoir where it is diluted with room air.



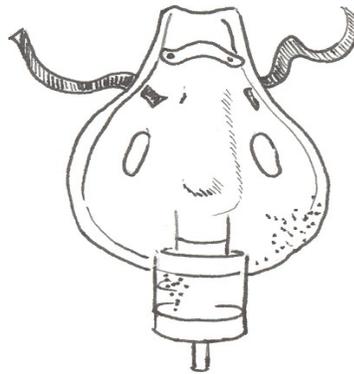
Nasal Cannula



Simple Face Mask

High flow Systems

High flow system includes Venturi masks and nebulizers using the Venturi device. Using this device the oxygen flows through a small orifice at a high speed. Just after the oxygen leaves the orifice, the low lateral pressure pulls room air. The high flow system delivers a consistent, precise oxygen concentration. In addition temperature and humidity are better controlled as the client only breathes the system's air.



Mask and Nebulizer

Administering Oxygen

Nasal Cannula

- Nasal cannulas are the most common devices for delivering oxygen.
- Use to deliver oxygen at 1-3 litres oxygen per minute.

Advantages:

- The cannula is less constricting than a face mask.
- Can be used well with low oxygen concentrations in hospital and at home.

Disadvantages:

- Oxygen concentration depends on the individual's respiratory pattern.
- The cannula may dry out the nasal membranes and cause nasal congestion.

DON'T

- Don't apply nasal cannula until you've assessed the client's nasal passages. Remove secretions as necessary.
- Don't let the plastic tubes cause ear soreness; place cotton or gauze behind the client's ears for padding.

DO

- Gather the necessary equipment and set up equipment as per specific directions for that unit.
- Set the flow at the prescribed rate and ensure the equipment is working



◀ Insert the cannula's two prongs into the client's nostrils, directing the prongs posteriorly.



◀ Place the cannula's tubing behind each ear. Then gently adjust the device's plastic slide, securing the tubing either under the client's chin or behind their head, depending on the brand.

Also refer to "Cleaning of Oxygen Equipment" Policy

Make sure the nasal cannula is comfortable for the client. If you adjust the tubing too loosely, the prongs may fall out of her nostrils. If you adjust it too tightly, the prongs could press against the inside of the nostrils, causing irritation and misdirected oxygen flow.

- Remove the cannula every 4 hours to assess the client's skin & eliminate dried secretions.
- If the client experiences a dry nose try using water based nasal lubricant (never use petroleum products), room humidifier, or use a humidifier on the oxygen.

Face Mask

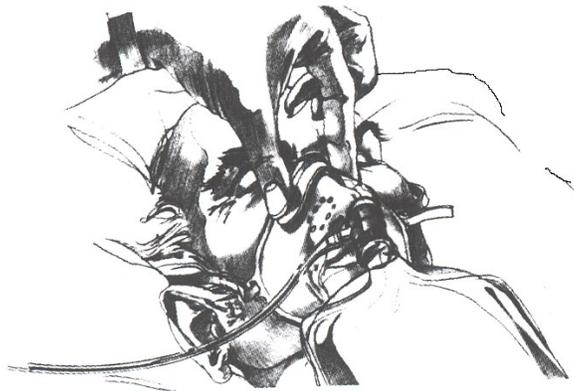
- Use to deliver oxygen at > 5 – 10 liters oxygen per minute.

DON'T

- Don't allow anyone to smoke in the area where oxygen is administered.
- Don't use a humidifier with a mask because droplets may obstruct the mask's oxygen inlet and alter entrainment.

DO

- If client is to receive humidified oxygen attach a humidifier to the flowmeter; for a venturi mask, use a nebulizer with wide bore tubing.
- Set up the equipment as per set up policy.
- Turn on the oxygen to the prescribed liter flow to ensure the oxygen is coming through the tubing.



- Place the mask over your client's nose and mouth (for clients with a tracheostomy tube ensure the mask covers the trach tube). Mold the metal strip to fit the bridge of his nose and adjust the restraining strap for a snug fit.



- To prevent ear soreness, mold cotton balls or gauze around the strap behind the client's ears.
- Monitor the oxygen tubing for kinks to ensure the flow is not impeded.
- Remove the mask every 2 to 4 hours, wipe away mist and assess the client's skin.

Also refer to "Cleaning of Oxygen Equipment" Policy

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<i>Liquid Oxygen Campanion</i>	Vitalaire	1999	
<i>Oxygen Concentrator</i>	Vitalaire	1999	