

Fact Sheet

Supplemental Oxygen Use

Oxygen is necessary for humans to survive. The air is made up of approximately 21% oxygen. When a person inhales, their lungs transfer the oxygen in the air to their red blood cells to “feed” their organs and tissues oxygen. At the same time, carbon dioxide is exchanged from the red blood cells through the lungs to be exhaled out. This gas exchange is crucial for good health.

If a healthcare provider believes that not enough oxygen is being exchanged in the lungs, extra oxygen may be given through supplemental oxygen. This oxygen may be delivered on an as need basis, continuously, at night or under other special circumstances as prescribed by a healthcare professional. Supplemental oxygen can only be administered with a prescription and should only be given at the level prescribed. Increasing or decreasing the volume may cause harmful side effects. (FDA, 2021)

How is supplemental oxygen given?

- Most oxygen is provided through tubing from an oxygen delivery system to the person requiring supplemental oxygen.
- A nasal cannula is the most common way to administer oxygen.
- The nasal cannula is placed at the end of the oxygen tubing. It has two prongs that are placed at the entrance to the nose to deliver oxygen.
- Due to the need of a higher dose of oxygen, or for comfort measures, a mask that covers both the mouth and nose may be used to deliver oxygen.

There are three primary types of oxygen delivery:

- Concentrators:
 - Concentrators pull air from the area around it and filters out nitrogen and other gases to deliver only oxygen to the user.
 - Oxygen is delivered continuously at the rate programmed.
 - Concentrators can be stationary or portable.
 - The stationary concentrator is usually a larger device that needs to be plugged into an electrical outlet.

- A portable oxygen concentrator (POC) is smaller and easier to transport. The POC can be plugged into an electrical outlet or run on rechargeable batteries.

- Compressed oxygen:
 - This is the delivery system most often seen using green metal tanks.
 - The oxygen is compressed in the tanks to be delivered at a steady rate based on the gauge connected to the tank.
 - Tanks are refillable.
 - Size and portability of the tank may vary depending on the amount of oxygen prescribed.

- Liquid oxygen:
 - Oxygen becomes liquid when it is compressed and cooled.
 - Liquid oxygen is normally stored in a larger, stationary unit.
 - Portable devices are filled from the larger unit to be used by individuals.
 - Portable containers do not require electricity to function due to their high concentration of oxygen.
 - Liquid oxygen is very cold, so caution should be taken when filling portable devices from the stationary unit.

(American Lung Association, 2020)

How do I know the oxygen is working?

- Always ask a health care professional how they would like to monitor oxygen therapy. One suggestion may be the use of a pulse oximeter, also known as a pulse ox.
 - A pulse ox is normally placed on the tip of a finger. It is non evasive and does not hurt.
 - By using a beam of light, the pulse ox measures the amount of oxygen in the blood.
 - A digital number will appear in the pulse ox window to express the percentage of oxygen in the bloodstream.
 - A healthcare provider may request documentation of these readings.
 - While the pulse ox is a valuable tool to monitor oxygen levels, there is always a risk of inaccurate readings. Variations may be due to:
 - poor circulation
 - thickness of skin
 - nail polish

- artificial nails
- tobacco use
- skin temperature
- Tips that may ensure a more accurate reading:
 - keep hand as still as possible
 - make sure fingertip is clean from nail polish or soiling
 - keep hand below heart level
 - ensure hand is warm to the touch
 - try to relax
 - for best results, follow the manufacturer's guidelines for use.
- Ask the healthcare professional for any other signs or symptoms that oxygen therapy is not being successful and when a healthcare professional should be notified.
 - Some common signs of low oxygen levels may be:
 - Difficulty breathing or shortness of breath
 - Chest pain or discomfort
 - Fast heart rate
 - Bluish tint to extremities and areas such as the lips, nails and face
 - Restlessness, confusion

(FDA, 2021)

Will oxygen explode?

- Oxygen as a gas is generally very safe and will not explode.
- Flames need oxygen for combustion, oxygen – especially concentrated oxygen – will create an environment where a flame will become hotter and burn much faster.
- Use of oxygen must always be done with safety precautions in effect.

(Cincinnati Children's, 2017)

Safety Tips and Guidelines For Oxygen Use

- Have a backup oxygen supply available in case of power outages or malfunctioning equipment.
- Do not use petroleum-based products on the face of anyone that is using oxygen.
- Only administer amount of oxygen prescribed by healthcare professional.
- Do not use oxygen tubing longer than 50 feet. This decreases the concentration of the oxygen delivered.
- Stay a minimum of 6 feet from a heat source or open flame. Be aware of candles, stoves and portable heating devices.
- Post “No Smoking” and “Oxygen in Use” signs where appropriate. This includes vaping.
- Ensure fire alarms are in working order and a fire extinguisher is available.
- Keep area around oxygen supply well ventilated.
- Oxygen cylinders must be secured at all times.
- Keep oxygen supplies and containers dust free – follow manufacturer’s instructions for cleaning.
- Avoid using substances known to cause oxygen to become flammable. Some common cleaning products may include alcohol, grease, or oil. Other common household items that should be avoided are hair sprays and air fresheners.
- Check all electrical appliances to insure they are grounded and properly secured to the outlet.
- Avoid using game controllers or any other electronic handheld devices when using oxygen. This includes electrical appliances such as hair dryers and electric razors.
- Do not use extension cords on medical equipment.
- Check tubing daily for any damage
- Clean nasal cannulas and facemasks weekly using soapy water with a mild detergent, rinse and let air dry.
- Follow manufacturer’s guidelines for oxygen concentrator cleaning. In general, a damp cloth with mild soap can be used to clean dust and soiling from the outside of the unit
- Clean reusable filters on oxygen concentrator once a month using a mild soap, rinse and let air dry. Ensure filters are completely dry and intact before reusing. Concentrator should be turned off before removing filter. Do not use concentrator without filter.

(Summit Oxygen, Inc., n.d.) (Cincinnati Children’s, 2017)



References:

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