Oxygen is...

Essential for life,

Valuable therapy for many patients,

And (surprisingly) dangerous.

You may not think of oxygen as dangerous. After all, it is all around us in the air we breathe. But the oxygen concentration in ordinary air is a mere 21%. Increase that concentration by only a little, and the risk of fire grows dramatically. In oxygen-enriched atmospheres (defined as greater than 23% oxygen), fires can be easily started and spread by means that would not happen in ordinary air. Many materials that do not burn in air will burn easily and vigorously in oxygen-enriched atmospheres. What's more, these fires burn hotter and faster than ordinary fires. The higher the level of oxygen, the worse the fire.

ACCE Healthcare Technology Foundation

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We reviewed many sources in preparing this pamphlet. Here are some we consider the most important:

- Oxygen Material Safety Data Sheet (MSDS), available from oxygen suppliers.
- Oxygen Supply User Instructions, available from oxygen device suppliers.
- CGA Pamphlet G-4 Oxygen. Compressed Gas Association.
- CGA Pamphlet P-2 Characteristics and Safe Handling of Medical Gases. Compressed Gas Association.
- CGA Pamphlet P-14 Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres. Compressed Gas Association.
- ECRI Institute experience
- Maryland State Guidelines: Management of the Needs of the Oxygen Dependent Student. Maryland State Department of Education, June 2002.
- NFPA 53 Recommended Practice on Materials, Equipment, and Systems Used in Oxygen-Enriched Atmospheres. National Fire Protection Association.
- US Food and Drug Administration's Manufacturer and User Facility Device Experience (MAUDE) database.

 Retail value = $1.00

Home Medical Devices

Fire Safety & Oxygen:

A Patient Guide

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What You Need To Know About Oxygen Therapy

Your doctor has prescribed supplemental oxygen therapy. The good news is that many people lead very active lives despite needing oxygen. But using oxygen can also put you at risk. So it is important that you know how to keep yourself and those around you safe.

How Does Oxygen Therapy Work?

Oxygen therapy is used to increase the supply of oxygen to the lungs, which in turn, makes more oxygen available to other body tissues. It can be delivered from high-pressure cylinders, cryogenic liquid containers, or oxygen concentrating devices (e.g., oxygen concentrators). The oxygen flows from the supply through a long, thin plastic tube that connects to a breathing device worn by the patient. Breathing devices include nasal cannulae, facemasks, and tracheostomy tubes.

What Are The Risks?

One of the greatest risks of using oxygen is the potential for fire. For example, smoking while breathing supplemental oxygen can cause the cigarette to burst into flame and ignite nearby clothing and furniture. (Smoking while oxygen is in use or nearby is the greatest cause of oxygen-user deaths.)

Oxygen use in a car (without good ventilation) can start a fire. Sparks or heat from a nearby smoker, a fire, or cooking can set fire to the oxygen-using patient's clothes. Similarly the flame from a match, candle, igniter, or furnace pilot light; the hot element in a space heater or hair dryer; the electric arc produced when plugging in a television; metal grinding sparks and many other ordinary things can cause a fire on or around a patient using oxygen or the oxygen supply. The oxygen supply device itself can also be hazardous and explode if improperly used, hit, dropped, or if it leaks.

How Can I Keep Myself Safe?

Fortunately, there are steps you can take to minimize the risk of fire:

- Read, understand, and follow the oxygen device instructions for use and safety
- Never smoke while using oxygen or near an oxygen supply
- Keep yourself and the oxygen supply at least five feet (1.5 meters) away from:
  - any fire, stove, oven, grill, or other heat source or open flame
  - electrical appliances that make sparks
  - elements that produced high heat, such as an electronic igniter, toaster, space heater, hair dryer or electric motor
- Do not use flammable aerosol sprays (e.g. spray paint, hair spray) near the oxygen supply because they may spontaneously burn
- Do not use cosmetic oils, waxes, or greases because they can easily burn in supplemental oxygen
- Avoid static electric spark conditions. For example, do not use synthetic blankets because sparks could occur near the site of oxygen use.
- Use a room humidifier to reduce the likelihood of static electric sparking
- Keep oxygen concentrators, containers, and cylinders upright and placed so they cannot be hit, tipped, or knocked over
- Never cover or place anything over an oxygen supply
- Keep a fire extinguisher in the area of oxygen use.

In Case Of Fire, What Should I Do?

Should there be a fire involving oxygen or an oxygen supply, act quickly:

- Shut off the oxygen supply or remove tubing from supply, if possible and if safe to do so
- Get away from the oxygen delivery device, oxygen supply, and the fire
- If the fire is on you, remove the oxygen delivery device, stop, drop, roll, and pat out any fire
- Activate the area fire alarm and/or notify 911
- Contain the fire by shutting room doors
- Extinguish the fire with water or a fire extinguisher, if possible and if safe to do