

OXYGEN THERAPY BASICS



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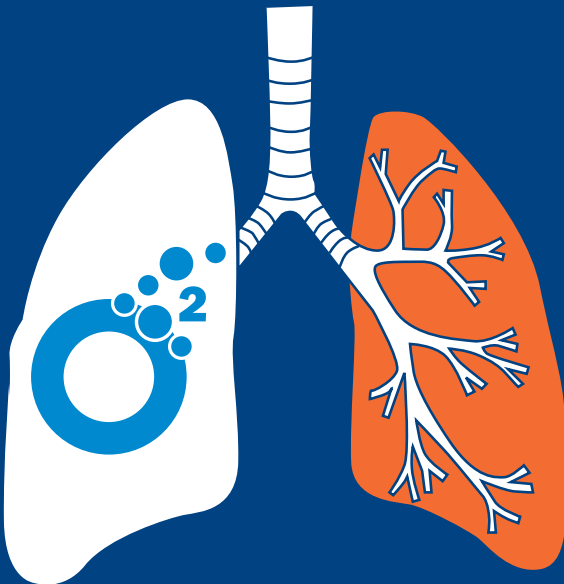
WHAT IS OXYGEN THERAPY?

Introduction

Oxygen is one of the most important things that fuel your body's cells. Every organ in your body needs oxygen to work properly.

Sometimes, people with chronic obstructive pulmonary disease (COPD) and other lung conditions have low levels of oxygen in their blood because of the damage to their lungs. That makes supplemental (extra) oxygen therapy an important part of managing their condition. Supplemental oxygen can help you breathe easier, enjoy your favorite activities, and be more active.

In this guide, we will talk more about oxygen therapy and how it can help you manage your symptoms.



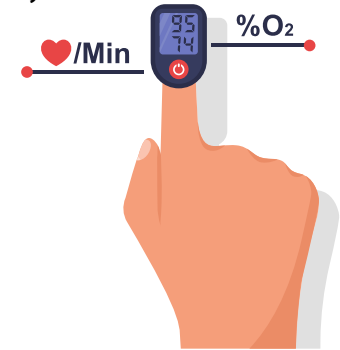
How Do I Know If I Need Oxygen Therapy?

There are a few tests available to help your health care professional (HCP) figure out if you need oxygen therapy. Be sure to talk to them if you have shortness of breath that does not get better with your current oxygen treatment plan.

There are two ways to measure the oxygen level in your blood:

- **Pulse Oximetry**

A pulse oximeter senses the oxygen levels in your blood through your skin. The result is called your "oxygen saturation." Normal readings are between 95-100%. Your HCP will take oxygen saturation readings while you are at rest and while you are moving. If your reading drops below 88%, you may qualify for oxygen therapy.



- **Arterial Blood Gas Test**

An arterial blood gas (ABG) test is the most accurate way to measure the oxygen level in your blood. This test is different from most blood tests. Instead of taking blood from a vein, it is taken from an artery. That is because arteries carry blood with oxygen to be used by the body. A small amount of blood is taken from an artery in your wrist and studied with a special machine, telling the exact amount of oxygen in your blood. Normal blood oxygen levels on ABG tests are between 80 and 100 mmHg. You may qualify for oxygen therapy if your level is below 55 mmHg.



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What Are the Goals of Oxygen Therapy?

The main goal of oxygen therapy is to keep your organs working as well as possible. Low oxygen levels can cause damage to your organs, leading to problems with your heart, brain, and muscles.

Oxygen therapy helps reduce that damage. This can lead to better sleep and more activity, as your organs and tissues can get the fuel they need. It can also lower the strain on your heart.

Does Oxygen Therapy Help with Shortness of Breath?

If low oxygen levels are causing you to be short of breath, oxygen therapy may help. However, many other things can make you short of breath. You cannot tell if you need extra oxygen just by how short of breath you feel. Some people feel short of breath with normal oxygen levels, while some have low oxygen levels but breathe normally.

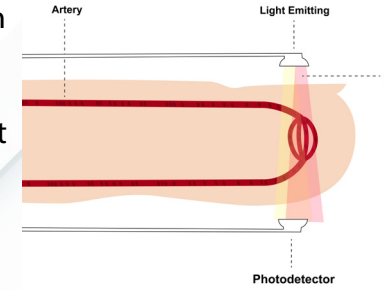
Will My Oxygen Needs Change Over Time?

Your oxygen therapy needs may go up or down depending on your health. If you have a COPD exacerbation (flare-up), you may need more oxygen for a while. If your COPD management plan is working well and you are exercising regularly, you may be able to use a lower oxygen setting or use it less often. You should always work with your HCP to learn when you should change your settings. Your HCP should also re-test your oxygen needs from time to time.

PULSE OXIMETRY

What Is A Pulse Oximeter?

A pulse oximeter is a tool typically worn on your finger. It uses a special light that shines through your skin to measure the amount of oxygen in your blood. Red blood cells that are carrying oxygen are a slightly brighter red than cells that are not. By measuring which shades of light are reflected by these cells, the pulse oximeter can figure out the overall amount of oxygen they carry. The COPD Foundation recommends all people using oxygen therapy own a good quality pulse oximeter.



Some smartphones, fitness trackers, and similar devices also measure oxygen saturation; but these readings may not be as accurate as those from a stand-alone pulse oximeter. Some lower-priced oximeters designed for home use may also be less accurate.

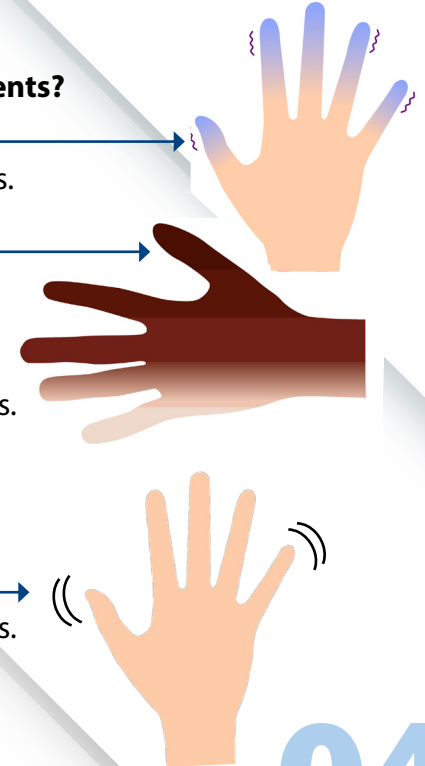
What affects pulse oximeter measurements?

• **Poor circulation** —————> May cause inaccurate or missing readings.

• **Skin pigmentation** —————> Darker skin tones may read falsely high.

• **Fingernail polish** —————> May cause inaccurate or missing readings.

• **Motion** —————> May cause inaccurate or missing readings.



What Other Factors Affect Oxygen Levels?

• Activity and Exercise

Exercise makes our bodies work harder and use more oxygen. It is hard for some people with COPD to get enough oxygen during exercise or activity. If this happens, oxygen therapy may be needed. You may only have to use oxygen therapy during activity. If your oxygen levels are low while you are at rest, you may have to use a higher setting during activity.

• COPD Exacerbations

Exacerbations (flare-ups) can affect your oxygen levels. During an exacerbation, you may need to start oxygen therapy. If you are already on oxygen, you may need a higher setting until you feel better.

Your oxygen needs should be rechecked by your HCP one to three months after your exacerbation and then regularly for up to a year. You may not need oxygen therapy once you completely recover.

• Altitude

Changes in altitude affect everyone's oxygen levels. People with COPD are especially sensitive to changes in altitude. At higher altitudes, you take in less oxygen per breath. This includes when you are on an airplane because they are only pressurized to the same level as 8,000-10,000 feet above sea level. At altitude, your lungs and heart must work harder. Changes in altitude can make you feel tired, dizzy, and breathless. Be sure to check with your HCP if you are planning a trip to a place at a high altitude.

• Sleep

Sleeping can affect your oxygen levels. It is normal for everyone's oxygen levels to drop a little while you sleep, but people with COPD may drop even more. Oxygen levels drop at night for many reasons. When you sleep, the muscles that control your breathing relax and are not as effective. Your breathing usually becomes slower and shallower, too.

Other things, including medications and other health conditions such as sleep apnea, can affect your oxygen levels at night. Keeping your oxygen levels up during sleep can help you feel more rested. It can also help you breathe easier during the day. Some people with COPD may need to use oxygen therapy only while sleeping.

If you have symptoms like morning headaches, mood swings, impotence, or frequent urination at night, check with your HCP. These could be symptoms of sleep problems that are common with COPD. If you have COPD and are already using a CPAP machine, your HCP may add oxygen to your CPAP setup.



YOUR OXYGEN PRESCRIPTION

Parts of Your Prescription

Oxygen is a medication. If you need oxygen therapy, you will need a prescription from your HCP. Your prescription should have certain information so that all the members of your health care team (including you and your caregivers) understand how to use oxygen therapy correctly. This information includes:

• Flow Rate and/or Target Saturation

The prescription should have one flow setting for when you are at rest, one for when you are active, and one for when you are sleeping. Your HCP may also instruct you to keep your saturation level at a certain percentage. This means you may have to turn your oxygen up and down depending on your activity.

• Duration

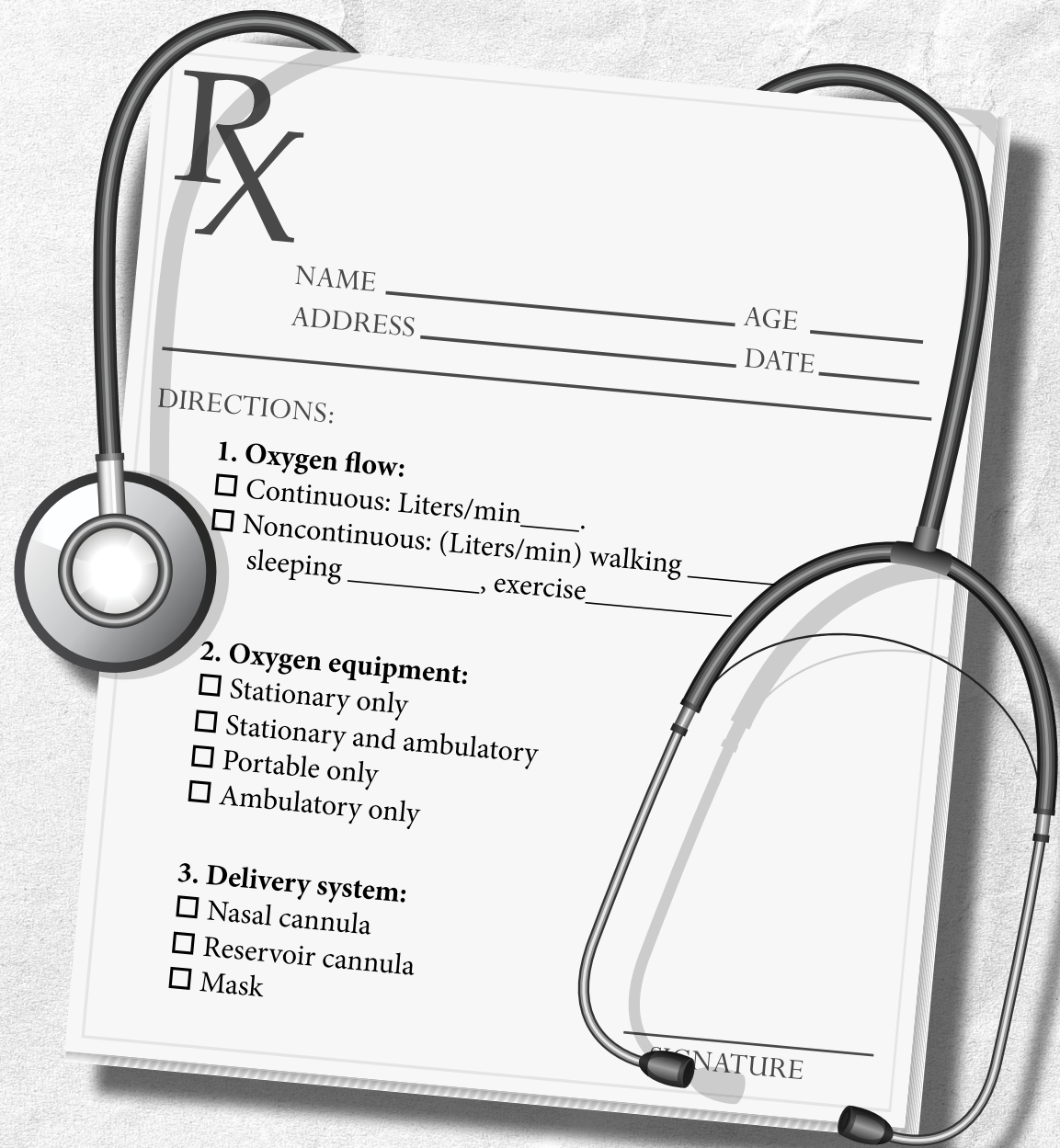
Some people only need oxygen at certain times, such as with activity or during sleep. Others may be prescribed oxygen therapy for a certain number of hours per day. You may also need to use oxygen therapy all the time, 24 hours a day.

• Delivery Device

There are a few different ways to deliver oxygen from your device to your body. Your HCP will note the best fit for you here. Your HCP may also write for other requirements, like using a portable oxygen concentrator instead of oxygen tanks.

Sticking With It

It is CRITICAL to use your oxygen as prescribed. Oxygen keeps your organs working properly. Not using your oxygen according to your health care provider's instructions may increase your risk of heart attack, stroke, and other serious problems. If you have any concerns about your oxygen prescription, talk to your HCP right away.



OXYGEN THERAPY EQUIPMENT

Oxygen Systems

Oxygen systems either store or produce oxygen for you to use.

- **Stationary Concentrator**

The air we breathe contains just 21% oxygen. A stationary oxygen concentrator is a machine that separates the oxygen from the air, concentrates it, and puts out almost 100% oxygen. These can provide you with oxygen therapy in your home. They can deliver oxygen in a constant flow. Stationary concentrators are usually too heavy to lift easily, but they have wheels so they can be moved to different rooms. Because they run on electricity, you should have a backup oxygen system in case you lose power.



- **Portable Concentrator**

Portable oxygen concentrators are very similar to stationary ones, but they are much smaller and can usually be carried in a backpack or bag. Because they are smaller, they cannot provide as much oxygen as a stationary concentrator. They sense when you breathe in and deliver a “pulse” of oxygen at that time. This is called “pulse delivery.”



It can take some time and practice to get used to pulse delivery. You must be sure to breathe in through your nose to trigger the pulse. Different portable concentrators can deliver different amounts of oxygen in each pulse. Not everyone can tolerate pulse delivery of oxygen. You will need to check with your HCP before you use a pulse delivery device.

A Note About Settings

It is VERY important to understand that the settings on a portable oxygen concentrator DO NOT MATCH continuous liter flow! Pulse dose setting numbers are relative, like the numbers on a TV or radio volume dial. They can also be different from one manufacturer to another. You may need to use a setting with a different number than you would use with a stationary concentrator. Be sure to discuss this with your HCP. If possible, have them use a pulse oximeter to measure your saturation level on different settings to make sure you can use pulse dose oxygen safely.

- **Oxygen Tanks**

Oxygen tanks (sometimes called oxygen cylinders) store oxygen at high pressure. The largest tanks can hold thousands of liters of oxygen. They can last several days without needing to be refilled. Oxygen tanks are made of metal and can be very heavy. Smaller tanks that are more portable are also available. These tanks hold a limited amount of oxygen, so they do not last as long.

Oxygen tanks use a regulator to release the oxygen at the correct flow. Some regulators can also use pulse delivery (like a portable concentrator) to help your oxygen supply last longer.



What is Liquid Oxygen?

Liquid oxygen systems used very high pressures and cold temperatures to store large amounts of oxygen. The advantages of these systems were that they did not need electricity and could last several hours between refills. However, they were expensive to service and many companies stopped supplying them. Liquid oxygen is no longer available in most of the United States.

OXYGEN SYSTEM COMPARISON

	Stationary Oxygen Concentrator	Portable Oxygen Concentrator	Oxygen Tanks
Delivery	Continuous	Pulse (some devices can also deliver continuously)	Continuous and Pulse
Liter Flow	1-15 LPM	1-2 LPM (only if on continuous mode)	1-15 LPM
Weight (pounds)	18-55	2-30	3-15 (for portable ones)
Power source	Wall outlet	Battery	N/A
Daytime or Nighttime Use	Both	Daytime	Both

OXYGEN DELIVERY EQUIPMENT

• Nasal Cannula

This is a small tube that goes under your nose. Small prongs deliver oxygen to your nostrils. The tubing connects to an oxygen source, such as a concentrator or oxygen tank.



• High Flow Nasal Cannula

These cannulas often look and work just like regular nasal cannulas but are designed to work with oxygen flows over six liters per minute. Some high flow systems supply much higher flow rates in order to provide a specific percentage of oxygen. These are also used with heaters and humidifiers. They tend to be thicker and are generally only used in the hospital.



• Oxygen Reservoir Cannula

This is a special kind of cannula. It has a chamber on the tubing that holds extra oxygen while you are breathing out. This allows more oxygen to be available for when you breathe in.



Maintenance and Replacement

Nasal cannulas should be replaced every two to four weeks. If you do not use your oxygen continuously, you may be able to use your cannula a little longer if you keep it clean. Usually, cannulas can be cleaned with warm soapy water. Follow the care and cleaning instructions given by your equipment company. Tubing, humidifier bottles, and adapters can last up to two months if kept clean.

If you get sick, replace your tubing right away so that you do not re-infect yourself.

• Extension Tubing

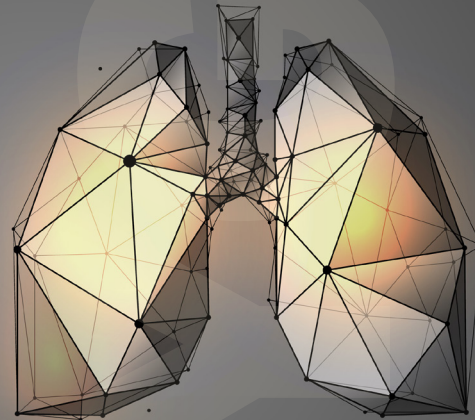
This extra tubing allows you to walk around your home freely. You can easily use up to 100 feet of extension tubing without losing the desired flow rate. Talk with your HCP before using longer lengths of tubing, as you may need a higher flow rate.

Extension tubing is also sometimes used to add oxygen to CPAP setups. You will need a special adapter for this.



• Humidifiers

The oxygen from a concentrator can sometimes dry out your nose. Some people use a small humidifier bottle that connects to the concentrator to provide extra moisture. This can provide extra comfort, especially in the winter.



HOW DO I GET OXYGEN THERAPY?

Will My Insurance Pay For Oxygen Therapy?

Oxygen is often covered by Medicare and other insurance plans. Your HCP will help you work with your insurance and get your oxygen equipment.

To qualify for payment under Medicare, your HCP must document your oxygen levels by pulse oximetry or blood gas test (see page 2). Your HCP must also document the following items in your medical record:

- Your diagnosis of COPD or another lung condition, or other cause of your low oxygen levels (such as heart failure)
- Your pulse oximetry measurement (at or below 88%) OR your arterial blood gas result (at or below 55 mmHg)
- You have tried other treatments that did not help
- Your condition is stable
- You saw your HCP face-to-face within 30 days of your pulse oximetry or ABG

The pulse oximetry must be done by your HCP's office or an independent testing company. It cannot be done by the company that supplies your oxygen equipment. If your low oxygen was diagnosed in the hospital, the test must have been within two days of discharge AND be the last test done before you went home. If your low oxygen was diagnosed in a health care provider's office, the test must have been done within 30 days of starting oxygen therapy.

Medicare has set these requirements for general cases, but your health care provider may prescribe oxygen outside of these guidelines based on your condition. Insurance companies other than Medicare may have different rules about qualifying for oxygen therapy.

LIVING WELL WITH OXYGEN

How Do I Find an Oxygen Supplier?

Your HCP will often have a list of companies in your area and can give you options to choose from. You do not have to use one they pick for you. You can also search for oxygen suppliers on the Medicare website at <https://www.medicare.gov/medical-equipment-suppliers/>.

When you get your oxygen equipment, be sure to have the technician or delivery person show you how to use it. You may want to ask questions like:

- "Will I be able to do my normal activities while using this equipment?"*
- "What should I do if I feel short of breath while using my oxygen?"*
- "Who should I call if my equipment isn't working?"*

Can I Buy Oxygen Equipment Online?

Some companies sell oxygen concentrators over the internet. This allows you to buy replacements or extra equipment directly from the company. You will still need to have a prescription to buy these medical devices.

Less reputable companies have also started selling oxygen equipment that is not cleared by the Food and Drug Administration (FDA). These machines are less dependable than ones that are approved by the FDA, and they produce oxygen that is less pure. This may put you at risk. The COPD Foundation does not recommend the purchase or use of oxygen concentrators that are not approved for use as medical devices for the treatment of COPD or any other lung condition.



Oxygen Safety

Oxygen is very safe when used correctly. However, there are some things you should be aware of to lower any risks to yourself or others in your home.

- **No Smoking!**

You should NEVER smoke while using oxygen therapy. You should also never allow anyone else to smoke around your oxygen equipment. Never use an oil- or petroleum-based product on your equipment or your body. Oxygen makes any fire burn hotter and faster, which means it can cause severe burns very quickly.

Your oxygen supplier should give you signs to hang in your home so that people know oxygen is in use and they should not smoke. If you have extra oxygen tanks, be sure to store them away from any areas with open flames. Make sure your smoke detectors are working and that you have at least one fire extinguisher in your home.

- **Be Careful When Cooking!**

You should be extra careful while cooking with your oxygen on. This is especially true for gas stoves, as they have an open flame. You may choose to run your cannula tubing down your back to keep it away from heat.

- **Stay Safe While Staying Active!**

You need to stay as active as possible even while using oxygen therapy. Be careful to not trip over your tubing as you move around. Be aware that most oxygen equipment is not waterproof. Be careful while swimming or doing other activities around water. It is safe to bathe and swim while using supplemental oxygen as long as only your cannula (not your equipment) is exposed to water.

Traveling With Oxygen

Traveling with oxygen takes some extra planning. You should let your oxygen supplier know ahead of time so that they can help you plan. Sometimes, your supplier can arrange for a concentrator to be delivered to your destination. If they provide this service, be sure to give plenty of advance notice.

If you go by car, make sure you take enough oxygen to last the whole trip. Your oxygen supplier can help you find a place to exchange empty tanks for full ones. Make sure you fasten down your tanks and do not leave them in a hot car. If you use a portable oxygen concentrator, be sure to bring extra batteries and an adapter to plug into your car. You may also want to take your stationary concentrator with you for use at night.

If you are flying, be sure to check with your airline for any special rules. Many airlines have different paperwork requirements before you fly. You must have an FAA-approved portable oxygen concentrator if you need to use oxygen on the airplane. A list can be found at https://www.faa.gov/about/initiatives/cabin_safety/portable_oxygen. Bring enough batteries for one and a half times your scheduled flight time in case your flight is delayed. You may have to use a different oxygen setting because of the lower pressure on airplanes. Discuss this with your HCP before you travel.

Trains and cruise ships may also have special rules or requirements. You should notify them a few weeks before you travel to make sure everything goes smoothly.

Planning for Emergencies

Everyone using oxygen therapy must be prepared for emergencies. When you start oxygen therapy, be sure to notify your local fire department, as well as your gas and electric companies. They may be able to mark your home as a “priority service listing.” If your home loses power, this may help to get your power back on sooner.

Always be sure to have extra power banks for cell phones. If you use a landline phone, your phone company may also be able to list you as a priority listing in case of phone outages. Keep important numbers, such as your HCP’s office and oxygen supplier, in an easy-to-find-place.

You should have a supply of oxygen tanks for use if the power is out for a while. Keep them stored securely in a safe place away from heat sources and open flames. You may also want to keep extra batteries or chargers for your portable oxygen concentrator. If your oxygen supply is in danger of running out, call emergency medical services or go to the nearest hospital (if it is safe to do so).



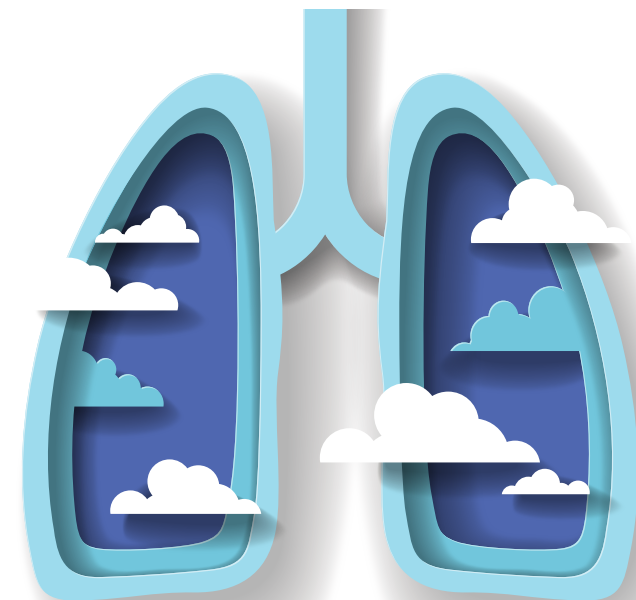
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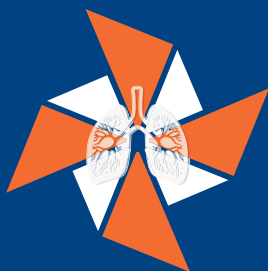
Who Do I Call For Problems With My Oxygen Service?

Your oxygen supplier should be your first stop. They should be able to work with you to resolve any issues. If they are unable or unwilling to work with you, you can call 1-800-MEDICARE (1-800-633-4227) and speak with a Medicare representative. The COPD Foundation can also help advocate on your behalf. Contact the Foundation at 1-866-316-COPD (1-866-316-2673) or info@copdfoundation.org.

How Do I Find Support Groups?

Your HCP may have a list of support groups in your area. There are many online resources available to help you get used to your new oxygen therapy. The COPD Foundation’s COPD360social is a free online community for people with COPD, their caregivers, and their family members. Join more than 53,000 voices and chat with experts, ask questions, and learn from others on the COPD journey. Join COPD360social at <https://copdf.co/360social>. The Foundation also hosts monthly support groups online. You can find a schedule of events at <https://www.copdfoundation.org>.





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