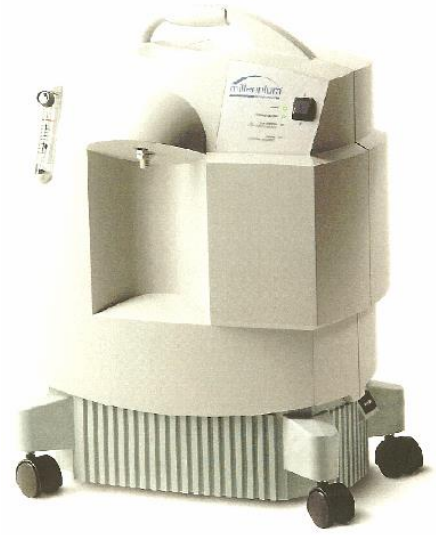
Home Oxygen Therapy

Patient Instruction Manual



COOPER Medical Supplies

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General Information about Oxygen

Thank You for choosing Cooper Medical to provide you with home oxygen equipment.

Oxygen in the air has approximately 21 percent oxygen. Your doctor has determined that you need a higher concentration than is in room air. The equipment that we are bringing for you to use will increase the amount of oxygen to approximately 95 percent. Usually oxygen passes through your lungs into your bloodstream easily. When there is a lung disease present, the oxygen does not pass through your lungs as easily. When you have a form of heart disease, your heart may not be able to pump blood as easily through your body. The supplemental oxygen that you are being provided should keep your body from working as hard. This may help you from getting out of breath or even from having to make a trip to the hospital.

Remember that oxygen is a drug that is prescribed by your doctor. DO NOT change the flow rate from what the doctor has prescribed. TOO MUCH OXYGEN CAN BE JUST AS HARMFUL AS TOO LITTLE.

Emergency/After Hours Call Procedure:

If you ever have any questions or needs please feel free to call us at 706-266-4086.

Your oxygen prescription states:

When you are resting _____ use at liters per minute,

When you are exercising _____ use at liters per minute,

When you are sleeping _____ use at liters per minute,

Use your oxygen for _____ hours per day.

Special Instructions:_____

_____

Your Oxygen Concentrator:

We are bringing you an oxygen concentrator, which is a machine that produces oxygen when it is plugged into an electrical outlet. Unlike tanks, you do not have to refill the concentrator. Also you will be provided with backup tanks to provide oxygen if you leave the house or if the power goes out or for any equipment malfunction.

Tips for Using Your Concentrator:

1. Keep the gray filter (not applicable for Respironics Everflo) at least 6 inches away from bedding or curtains so they do not block the air flow.
2. When you turn the machine on, there will be an alarm that sounds. This is normal when first turning the machine on. If the alarm sounds after the machine has been turned on for a long period of time you will need use your backup supply of oxygen. This alarm will sound if the machine has lost power (power outages, simply being unplugged, or a blown fuse) and if there is some type of equipment failure. To turn the alarm off simply flip the power button to the off position and you can use your back up tank.
3. Check the flow periodically. If the ball is not centered on the liter flow that your doctor has prescribed, simply turn the dial until it is in the correct position.
4. If there is a power failure or equipment failure, use your backup system and call us immediately. We will take the proper steps to ensure that you will have enough oxygen.

Taking Care of Your Concentrator:

1. Periodically, clean the outside of the concentrator with warm water and if necessary, a mild dishwashing liquid. Always unplug your concentrator before wiping down
2. Twice weekly, you will need to wash filter on your concentrator. This is the sponge-like filter located on the side or back of your machine. Take the filter off of the machine and rinse with warm water. Squeeze the excess water out of the filter and pat it dry with a clean towel or paper towel. Place the filter back in its place. Do not run the concentrator without this filter in place.
3. The oxygen supply tubing (long extension tubing) should be replaced every 90 days.
4. The nasal cannula (nose piece) should be replaced every 2 weeks.
5. If you are using a humidifier, refer to instruction sheet for care.

(Example of how you should put your nasal cannula on)

Safety Precautions for Oxygen

Oxygen does not explode, and it does not burn. But, an atmosphere that is enriched with oxygen will make a fire burn faster and hotter. To avoid the chance of fire or other possible hazards, follow these rules.

1. **DO NOT SMOKE** or permit open flames in the room where oxygen is being used or stored. **Keep all oxygen equipment at least 5 feet from any source of heat.**

2. Keep all electrical appliances such as electric shavers, electric blankets, heating pads, hair dryers at least 5 feet away from oxygen equipment.

3. Do not use petroleum products or lotions on your nose to keep it moisturized. If your nose gets dried out, you can use water based lubricant on it (such as K-Y Jelly) to moisturize it, or call us to suggest other options.

4. Do not use aerosol sprays in the vicinity of oxygen.

5. Do not oil or grease oxygen equipment.

6. Do not cover tubing with bedding or run under rugs, carpet or furniture.

7. Turn oxygen off when not in use.

8. Do not store oxygen in a confined area such as a closet or the trunk of your car.

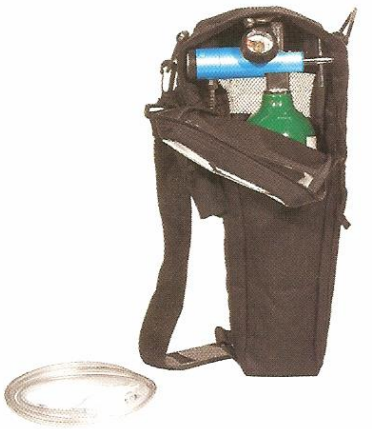
9. Do not plug into an extension cord.

10. Never change the flow rate from what the doctor has prescribed.

Using Your Cylinder (Back Up Tank):

(Continuous Flow Regulator)

(Conserving Device)



(Portable Oxygen Setup)

Types of Regulators

There are 2 types of regulators that will fit onto the top of your tank. One type simply called an **Oxygen Regulator** has a dial that will allow you to adjust the oxygen flow to match your prescription (example: 2 liters per minute) This type of regulator will provide a constant flow of oxygen to you. It is good for a backup tank or if you do not travel very much. The other type of regulator is called a **Conserving Device**. This type of regulator will provide oxygen only when you inhale. The flow will stop when you start to exhale. This saves the oxygen in the tanks and will make them last up to 5 times longer. Both of the types of regulators connect to your tank the same way.

Steps to Attach your Regulator to your Tank

1. **Attach your regulator to your tank. Pull the white tab off of the tank and discard. Line up the two pins sticking out of the regulator with the two holes on the top of the tank. Tighten the handle of the regulator.**
2. **Open the tank by turning the wrench counter clockwise (left). If you hear a hissing sound, stop and turn the tank off by turning the wrench the opposite direction. Check the regulator to make sure it is lined up correctly and that there is a washer directly above the two pins. Re-align the regulator and try to open again.**
3. **Adjust the flow know to your prescribed rate.**
4. **Attach your nasal cannula and put into nostrils as directed.**
5. **When not using your oxygen, turn off by turning the wrench clockwise (right) all the way. Do not turn your oxygen off by just turning the flow to off. ALWAYS use the wrench to turn the tank off.**

Tips for using your tanks:

1. Change your tank out when the gauge reaches the red area
2. Do not store in a closet or trunk of your car. If the valve is left on, there may be a leak building a high level of oxygen in that enclosed area.
3. Store tanks lying on there side.
4. Call us ahead of time to order refills for your tanks. We want you to be as active as possible.

Tank Durations

This paper will tell you the approximate durations of your tanks while using your conserving device. (Please note that all time durations are estimated on a 20 breath per minute rate. If you are breathing faster or slower, it can affect the time that your tank will last. Also, different conserving devices will last different lengths of time because of the volume of oxygen that they deliver on each pulse)
Also, you can tell how much oxygen is left in the tank by the pressure gauge on the regulator. If the tank is full, the gauge will read 2,000 to 2,200 psi. If the tank is half full, the gauge will be at 1,000 psi. When the gauge is on 500, ¼ of the oxygen is still in the tank. You still have time, but it is a good idea to start getting ready to change to the next tank.

Tank Size	Liter Flow (Duration in Hours)				
M-6, ML-6, B (165 Liters)	**1**	**2**	**3**	**4**	**5**
EPod	**8:27**	**4:20**	**2:51**	**2:08**	**1:53**
Chad Cypress	**8:30**	**4:18**	**2:48**	**2:06**	**1:42**
Medline Dual Lumen	**8:15**	**4:06**	**2:48**	**2:00**	**1:45**
PB Dual Lumen	**5:24**	**2:42**	**1:48**	**1:21**	**1:05**
EasyPulse	**9:48**	**6:18**	**4:42**	**3:48**	**3:06**
Continuous Flow	**2:42**	**1:21**	**0:54**	**0:40**	**0:32**
C, M-9	**1**	**2**	**3**	**4**	**5**
EPod	**12:52**	**6:26**	**4:16**	**2:24**	**2:32**
Chad Cypress	**12:48**	**6:24**	**4:18**	**3:12**	**2:36**
Medline Dual Lumen	**12:30**	**6:15**	**4:12**	**2:48**	**2:24**
PB Dual Lumen	**8:05**	**4:04**	**2:41**	**2:08**	**1:37**
Easy Pulse	**15:12**	**9:42**	**7:18**	**5:54**	**4:48**
Continuous Flow	**4:02**	**2:01**	**1:21**	**1:04**	**0:48**
D	**1**	**2**	**3**	**4**	**5**
EPod	**21:27**	**10:42**	**7:09**	**5:21**	**4:17**
Chad Cypress	**22:06**	**11:06**	**7:24**	**5:30**	**4:24**
Medline Dual Lumen	**21:15**	**10:37**	**7:11**	**5:18**	**4:27**
PB Dual Lumen	**13:28**	**6:43**	**4:29**	**3:20**	**2:42**
Easy Pulse	**25:18**	**16:06**	**12:12**	**9:48**	**8:06**
Continuous Flow	**6:44**	**3:22**	**2:15**	**1:41**	**1:21**
E	**1**	**2**	**3**	**4**	**5**
EPod	**34:20**	**17:10**	**11:26**	**8:34**	**6:51**
Chad Cypress	**35:24**	**17:42**	**11:48**	**8:54**	**7:06**
Medline Dual Lumen	**34:00**	**17:00**	**11:30**	**8:30**	**7:07**
PB Dual Lumen	**21:32**	**10:46**	**7:11**	**5:23**	**4:19**
Easy Pulse	**40:30**	**25:48**	**19:36**	**15:42**	**12:54**
Continuous Flow	**10:46**	**5:23**	**3:35**	**2:41**	**2:09**

(Technical Information about Conserving Devices: Not all are Created Equal)

Beneath the Bells and Whistles

Anyone who has spent any time as an oxygen provider is no doubt familiar with the concept of the oxygen-conserving device. Since its introduction in 1986, the conserver has gone from being a luxury item to a mainstay of long-term oxygen therapy. With its elevated status, however, has come an influx of new devices, each touting their own feature set and specific benefits. How does one evaluate the effectiveness of a conserving device then? Or, harder still, choose the proper one for a given patient?

Fortunately, beneath all the bells and whistles lay some specific principles that most, if not all, conserving device manufacturers base their designs. By the time you finish reading this article, you can face your equipment sales representative armed with the information you need to ask the proper questions and make an informed purchase decision.

Conserving Device Theory

First, conserving device operation is based on the knowledge that oxygen delivered while the patient is exhaling is wasted, therefore, a third or less of that oxygen is actually making it into the lungs. A further understanding of lung physiology tells us that, of the oxygen delivered during inspiration, only a small portion reaches the alveoli to participate in the gas exchange process. The rest is exhaled.

Working from this knowledge, the first conserving devices delivered high flows of oxygen for a very short time period (the pulse) at the earliest stages of inspiration, thereby eliminating the oxygen that would normally be exhaled. Because the actual volume of oxygen delivered is so much less than continuous flow, the conserver could give an increase in tank duration of three to seven times.

This principle highlights the main factors in both the clinical and conserving efficiency of a device including: pulse volume, sensitivity and response time. While it would seem that pulse volume would be the most important factor in the equation, it is actually the interrelation between sensitivity and response time that most directly affects a device's clinical efficacy and conservation ratio. A large pulse delivered late in the inspiratory cycle will be mostly wasted; a smaller pulse delivered at the initial stage of inspiration can deliver the same amount of oxygen to the alveoli and yield a higher conservation ratio at the same time. Therefore, more sensitive units will usually have smaller pulse volumes and higher conservation ratios. The reverse is true for less sensitive conservers.

Knowing this, you may wonder how this relates to the current conserver options. Each type of device uses the principles described above in different variations, trading off efficiency in one area for better performance in another, whether it is weight, size, conservation ratio or bolus size. There are three main criteria by which to classify a conserver and determine which features are most important to you.

1. Electronic and Pneumatic

This is the best-known classification of oxygen conservers. Put simply, an electronic conserver uses a circuit board and software-controlled valves and sensors to sense a breath and deliver oxygen. A pneumatic device uses mechanical means to accomplish the same task.

Both types have their advantages. The use of electronics allows conservers to respond more quickly and deliver sooner than most pneumatics; as such, they can saturate the patient with smaller pulse volumes and will yield a higher savings ratio. Pneumatic conservers, on the other hand, often sacrifice sensitivity and conservation ratio in favor of lighter weight and battery-free operation. Either type, when properly made, can saturate a patient, though electronic conservers tend to be the more economical choice in the long-term by virtue of superior conservation ability.

2. Pulse, Demand and Hybrid

At the inception of conserving device technology, the division between pulse, demand and hybrid delivery methods was much more clearly defined. The improvement of technology may have blurred the line somewhat, but all conservers still lean towards one characteristic more than others.

A pulse type conserver delivers a clearly definable pulse of oxygen during inspiration. No oxygen is delivered anywhere else in the cycle.

A demand type conserver is similar to a SCUBA valve the patient breathes in and the oxygen turns on; the patient exhales and it turns off. Because of the additional oxygen delivered in the latter part of inhalation, true demand devices have a low-conservation ratio. Few of these types are still made today, and they are not considered top-sellers. It is important to note that many people will refer to any conserving device as a demand device because they activate on demand at patient inspiration.

The hybrid delivery method is most common among pneumatic conservers, particularly ones that utilize dual-lumen cannulas. A small flow of oxygen is always present throughout the cycle to cancel false inspiratory signals and help reduce double pulsing. A pulse of oxygen is then delivered at the earlier part of inspiration, in addition to the continuous flow. This methodology can often be effective, but conservation ratios tend to be lower because of the wasted oxygen during exhalation.

3. Fixed Pulse vs. Minute Volume

Until recently, all conserving devices fell into the category of fixed-pulse; that is, the amount of oxygen per pulse remains the same regardless of breath rate. As breath rate increases, so does the amount of oxygen delivered per minute. Minute volume conservers, on the other hand, make a certain amount of oxygen available per minute, regardless of the breath rate. As the breath rate increases, the size of the pulse decreases.

Minute volume conservers have a distinct advantage in the conservation category some pneumatics that use this technology can give savings ratios of up to six to 1 on certain liter flow settings. Also, because the amount of oxygen that is delivered is static, the tank duration is always predictable.

At lower breath rates and settings, minute volume conservers can saturate patients, as well as their fixed-volume counterparts. At higher breath rates, however, the decreasing size of each pulse can be problematic for patients with greater oxygen needs. Plus, the variability of the pulse size makes titrating a patient on the device problematic.

Choosing the Best Device for Your Patient

With these factors in mind, what is the best oxygen-conserving device? Like most consumer products, "best" is largely subjective and is based on a matter of lifestyle and individual preference. Not all people would want to drive the same car, whether because of size, ease of operation, or functionality; therefore, a single device is not likely to satisfy every patient.

A user who is active and needs maximum tank duration might want the superior conservation of an electronic, pulse conserver, as might a less active patient who wants a lighter weight cylinder without sacrificing too much duration. A user who has trouble remembering to change batteries and does not care as much about duration could benefit from a pneumatic conserver.

The important point to remember is that patients should be titrated on any device before they are sent out into the world. You might also wish to ask follow-up questions in the first few months: Do they feel out of breath? Do they turn up the settings while active? Do they find it easy to use? While it is impossible to stock every conserver to satisfy every need, a brief look at your patient base might show you the similarities among them and help you narrow the possibilities down to two or three models. This will allow you to satisfy 99 percent of your new referrals, and you can deal with the 1% on a case-by-case basis.

Glossary

Sensitivity: The amount of negative pressure or vacuum (usually measured in centimeters of water) a conserver requires to respond to patient inspiration.

Response Time: The amount of time from the initial part of inspiration a conserver takes to respond to patient inspiration.

Pulse Volume (Bolus): The size of the oxygen pulse (usually measured in cc or ml.)

Conservation (Savings) Ratio: The increase in time a conserver yields over continuous flow on the same setting; usually written "x:y" (3:1 means a cylinder will last three times longer with the conserver than it would on continuous flow.)

Electronic: A conserver that runs off battery power and uses electronics to sense inspiration and deliver oxygen.

Pneumatic: A conserver that uses mechanical means (normally air pressure) to sense inspiration and deliver oxygen.

Pulse: A conserver that delivers a definable pulse of oxygen at inspiration and nowhere else in the cycle.

Demand: A conserver that turns on during inspiration (negative pressure) and turns off during exhalation (positive pressure) much like a SCUBA valve.

Hybrid: A conserver that delivers a minimal continuous flow of oxygen throughout, as well as a larger pulse during inspiration.

Fixed Pulse: A conserver that delivers a predetermined, fixed amount of oxygen on every breath, regardless of breath rate.

Minute Volume: A conserver that delivers a fixed amount of oxygen per minute; pulse sizes will vary depending on breath rate.

Seven Questions to Ask Before Buying

By compiling the answers to the Questions 1-5, you will be able to accurately compare the operation of each device based on hard data, not sales pitches. Questions 6-7 are important to ensure both the clinical efficacy and the safety of the device.

1. What is the sensitivity of the conserver?

2. What is the pulse volume at each setting?

3. What is the maximum breath per minute rate the conserver can deliver?

4. Is this fixed pulse or minute volume operation?

5. What is the conservation ratio at each setting?

6. Are there clinical studies available that demonstrate the efficacy of the device?

7. Does this device have FDA approval?

Traveling with your oxygen.

Let us know if you are going out of town as soon as you know your plans. We will make arrangements so that you will have enough oxygen to get you to your destination. You may take your concentrator or we can make arrangements to have a provider at your destination to bring you a concentrator.

Concentrator Troubleshooting

Problem: Your concentrator is not operating and the alarm is sounding.

Possible Causes: Plug is not firmly in outlet, circuit breaker has tripped, power has been interrupted.

Solutions: Check plug at outlet, verify power outlet by plugging another electrical device, check main fuse at circuit breaker, use backup cylinder and notify Cooper Medical.

Problem: Flow will not adjust to prescribed liter flow

Possible Causes: Obstruction in tubing, obstruction in humidifier bottle, excessive tubing length.

Solutions: Try disconnecting tubing or water bottle. If the flow rate ball jumps up, replace tubing or humidifier. Do not exceed 50 feet of tubing

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Problem: Yellow light is blinking

Possible Causes: Unit has not had long enough time to reach oxygen concentration, concentrator has possibly overheated or malfunctioned.

Solutions: If you have just turned the machine on, let it run for 30 minutes and if the light does not turn off contact Cooper Medial. Check to make sure that the filter has not been obstructed by bedding or curtains, make sure your filter is clean. If problem persists, contact us.

Problem: Water in tubing

Possible Causes: Condensation in tubing from water bottle due to temperature extremes

Solutions: Change tubing, operate machine without humidifier, place a water trap in place of your swivel connector.

Problem: You can't feel oxygen coming from nasal cannula

Possible Causes: Obstruction in tubing, excessive length of tubing, flow is coming out but is to little to feel

Solutions: Place nasal cannula into a glass of water. If you see bubbling, the flow is coming through and may just be hard to feel.