Patient Instructions

Oxygen Cylinder and Concentrator Systems
Your physician has prescribed your oxygen to be used in the following manner:

_____ liters per minute during **normal activity**.

_____ liters per minute with **sleep**.

_____ liters per minute when **exercising**.

_____ liters per minute **continuously**.

You have size _____ cylinders.

Please note that the information provided here is meant to supplement, not replace, any special directions provided by your physician.

**Oxygen is a prescribed drug. Never increase or decrease your oxygen flow rate without the specific approval of your physician.** If your physician changes your oxygen flow rate or hours of use, notify your homecare provider immediately.

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**Equipment and Accessories**

<table>
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<th>Part Number</th>
<th>Description</th>
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Oxygen

All people need oxygen in order to live. Oxygen is a gas that we can’t see, taste, or smell, yet is always there in the air which surrounds us. The amount of oxygen in the air is always 21 percent.

Oxygen is inhaled into our lungs and is then transported through the blood to all parts of the body. Oxygen helps convert food to heat and energy. This process is called metabolism. When the respiratory system is working properly, oxygen is inhaled and transported to the cells with ease. Carbon dioxide, a by-product of metabolism, is then returned to the lungs and exhaled.

Using Supplemental Oxygen

The 21 percent concentration of oxygen in the air around us is enough for people with normally functioning lungs and heart. However, a person with lung or heart problems may often benefit from breathing air which has a higher concentration of oxygen in it.

When the body does not get enough oxygen, a person may experience difficulty in breathing, fatigue, loss of memory, headaches and/or confusion. Using supplemental oxygen may help provide relief from these symptoms.
Oxygen Safety Precautions

Oxygen is very safe to use when you create the proper conditions.

By using the following safety rules, you will create a very safe environment when you use your oxygen.

Cylinders containing oxygen may explode or cause a fire if the oxygen inside the cylinder is near fire or flames.

For safety reasons, it is recommended that you install smoke alarms outside each sleeping area and on each level in the home. Fire extinguishers are also recommended.

**Warning ⚠️ Heat**

Keep oxygen equipment and oxygen tubing at least five (5) feet away from any source of heat.

Keep the oxygen equipment and oxygen tubing away from open flames, stoves, space heaters, or any source of heat.

Cylinders under high pressure may be explosive if exposed to extreme heat.

**Warning ⚠️ Grease/Flammables**

Never use grease or oil on oxygen equipment.

Keep equipment away from all flammable materials such as oil, grease, aerosols, paints, gasoline and solvents. Hand, hair or body lotions should not come in contact with oxygen equipment.

**Warning ⚠️ Cylinder Stability**

Secure cylinders at all times, even when traveling.
Compressed gas oxygen is stored in cylinders under very high pressures. For this reason, cylinders must be secured from falling or rolling at all times. When in use, cylinders must be kept in an upright position through the use of a specially designed base or cart. For information on securing cylinders for storage, see the “Storage” section below.

The weight of the cylinder can cause injury and damage property if it were to fall on someone or something. The cylinder valve could also be knocked off if the cylinder were to fall over. The high pressure coming out of a broken valve opening could then cause the cylinder to move about the room in a destructive, uncontrolled manner.

**No Smoking**

Do not permit smoking in the same room as your oxygen equipment.

Place “No Smoking” signs on the front door or in a front window of your residence. You are also encouraged to post “No Smoking” signs in the room where your equipment is in use.

It is possible for you to be in a large room such as a restaurant where smoking is permitted as long as lighted smoking materials are not within five (5) feet of you. Nevertheless, when visiting restaurants, always ask to sit in the no smoking section.

**Cooking**

It is best to cook using a microwave oven only. Cooking on a gas stove is not recommended.
Oxygen Safety Precautions (continued)

Storage
Do not place your oxygen equipment in a small or unventilated storage area.

Do not place oxygen equipment in a small storage area such as a closet or car trunk. Any venting oxygen could create a fire hazard.

At Home
Cylinders may be stored either lying down (unstacked) or upright in a specially designed oxygen cylinder base or cart. When storing portable oxygen cylinders, the cylinders must be secured at all times from falling, if upright, or from rolling, if lying down. It is possible to store cylinders under a bed, if the area is well ventilated and the bedding does not extend to the floor.

While Traveling
When traveling with oxygen cylinders, the cylinders must be secured from movement at all times. Cylinders may be stored either lying down (unstacked) or upright in an approved oxygen cylinder storage rack.

Please store and care for your oxygen concentrator and cylinders carefully. Do not store oxygen equipment in an unattended vehicle.

Oil-Based Toiletries and Small Appliances
When using oxygen, never use oil-based face or hair creams, a hair dryer or an electric razor.
Oxygen Safety Precautions (continued)

It is possible in certain conditions that the combination of oxygen, oil-based toiletries, and a spark from an electrical appliance such as an electric blanket, hair dryer, electric razor or heating pad, could ignite and cause burns. Never use oil-based hair lubricants, face and hand lotions, petroleum jelly products, or aerosol sprays. Always use water-based cosmetics or creams.

Furniture Polish
Clean the concentrator surface with a damp cloth. Never use wax, spray or furniture polish.

Extension Cord
Do not use an extension cord with the concentrator.

Electrical Outlet
Never plug the concentrator into an outlet that is being used to power other major appliances.

Home Address
Make sure your home address can be easily seen from the street during both day and night.

Check to see that your address numbers are easy to spot and read from the street. If you are expecting a night delivery or visit, turn on the porch light. This will allow your homecare provider and emergency personnel to locate your residence easily.
Emergencies and Natural Disasters

In the event of an emergency or natural disaster, follow the radio or television emergency instructions broadcast by your local authorities.

Handwashing Technique

Hands must be clean prior to handling supplies and solutions. Wash hands before beginning any procedure.

Step 1: Wet hands thoroughly with warm water.

Step 2: Use antibacterial soap.

Step 3: Wash hands for 1–2 minutes using a rotary motion and friction. Wash:
  • Back and palm of each hand
  • Between all fingers

Step 4: Rinse hands under running water.

Step 5: Dry on clean cloth or paper towel.
Care of Your Oxygen Tubing

Minimal care is required of your oxygen tubing and nasal cannula or oxygen mask. We recommend that once or twice during the day, you remove the cannula or mask and wipe it clean with a damp cloth. You should discard and replace your nasal cannula or oxygen mask every two weeks. **Discard and replace your tubing every 90 days.** Do not use alcohol or oil-based products on or near your cannula or mask.

Moisture may accumulate inside the oxygen tubing, especially if you are using a humidifier bottle. Excess moisture may reduce oxygen flow. If this happens you may try the following procedure:

You should use your back-up oxygen system while refilling and cleaning your humidifier bottle.

**Step 1:** Remove humidifier bottle from cylinder.

**Step 2:** Attach a nipple adapter to the outlet tube.

**Step 3:** Remove the oxygen tubing from the humidifier bottle and attach it to the nipple adapter.

**Step 4:** Allow the oxygen to run directly through the tubing. Within a few minutes, the tubing will be dry.

**Step 5:** When the tubing is dry, disconnect it, remove the nipple adapter, reconnect the humidifier bottle to the cylinder and reattach the oxygen tubing to the humidifier bottle.

**Step 6:** Recheck the liter flow to make sure the oxygen is flowing at the prescribed level.

**Note:** If excess moisture is a recurrent problem, be sure to call your homecare provider to request a “water trap.”
Equipment and Medical Concerns

If you experience any of the following problems, call your physician:

- Increased shortness of breath
- Chest pain
- Fever or chills
- Increased wheezing
- Increased mucus production
- Mucus becomes thicker
- Change in mucus color
- Headaches
- Loss of appetite
- Increased cough
- Swelling in your ankles or around your eyes
- Weight gain overnight
- Feeling dizzy or sleepy
- Any change in physical sensation after taking a new medication

If you are having trouble with your equipment call your homecare provider.

If you experience any physical change, call your physician.

If you experience severe physical problems, call 911 or the local rescue squad.
Early planning and careful preparation are the keys to an enjoyable trip. The following tips should help you plan and prepare for any trip.

• Contact your physician to make sure your proposed trip is medically safe and to obtain additional copies of your prescription.

• Contact your homecare provider for assistance with getting oxygen refills along your driving route or at your final destination.

• Have cash available to pay for oxygen refills or equipment.

Call your local branch to request our free Great Escapes™ Patient Travel Program Kit.

If traveling by car or recreational vehicle:

• Remind passengers not to smoke in the vehicle in which you are traveling.

• Secure all cylinders in a manner that prevents them from moving within the vehicle. Cylinders may be stored upright or lying down as long as they are secure.

• Keep one window partially open to provide fresh air circulation.

• Do not store oxygen in the trunk of your car.

• Do not store oxygen in an area where the internal or external temperature could reach 120 degrees Fahrenheit.

• When traveling in, or occupying a recreational vehicle, do not store oxygen near gas or open flame.

• Stay at least 5 feet away from all open flames, such as camp stoves, lanterns, heaters, etc.
Travel Tips (continued)

If traveling by bus, train or ship:

• Contact the reservation office for specific information about the use of oxygen and special accommodations.

• Most companies require at least two weeks notice if you are going to be using oxygen on your trip.

If traveling by airplane:

• Most airlines require at least four weeks notice if you are going to be using oxygen on your trip.

• Ask your physician what flow rate to use during your flight.

• Request a direct flight, if one is available.

• We offer the Great Escapes program to assist with your travel arrangements. Contact your local homecare branch at least six weeks prior to your travel date for more information.

• Most airlines allow patients to bring portable oxygen concentrators on board. As part of the Great Escapes travel program, your homecare provider can supply most patients with a portable oxygen concentrator that is allowed on most airlines.

• Before you depart on a plane, ensure that arrangements have been made for your oxygen at your final destination.

For further information, please contact your local homecare provider location to assist with your travel arrangements.
Feedback on Our Services

We are part of the Apria Healthcare family of companies, which is among America’s most experienced and respected home respiratory care providers, and our patient satisfaction scores are consistently high. It is possible, however, that you may have a concern and we welcome feedback. To voice a concern, you should take these steps:

1. Call your local branch and ask to speak to the branch manager.
   OR

2. Contact us by e-mail at:
   Patient_Satisfaction@Apria.com
   OR


Satisfaction Survey Process

Our goal is to ensure your satisfaction. You will likely receive a patient satisfaction questionnaire and we hope that you will take a few minutes to fill it out and return it to us. The postage is prepaid by your homecare provider.
Patients who require smaller amounts of supplemental oxygen often use a high-pressure cylinder system.

With this system, oxygen gas is pressurized to a high level and stored in steel or aluminum cylinders. The pressure is measured in pounds per square inch (PSI). The higher the pressure, the greater the amount of oxygen which can be compressed into the space of the cylinder.

Your cylinder system consists of the following parts: the cylinder which stores the pressurized oxygen, the cylinder stand which stabilizes the cylinder to prevent accidental tipping, a regulator which controls the flow of oxygen from the cylinder and, if recommended, a humidifier bottle.

The oxygen is delivered to you through a nasal cannula or face mask. The tubing on the cannula or mask is attached to the outlet on the regulator. Sometimes, an extra length of tubing may be provided. This will allow you to move about at a farther distance from your cylinder.

Oxygen cylinders are available in various sizes. Depending upon the size of the cylinder and the amount of oxygen you use, the oxygen will last for different periods of time.

The most commonly used large cylinder is the H cylinder. The standard H cylinder weighs approximately 150 pounds and is meant to be used as a stationary source. It contains over 6500 liters of oxygen. At 2 liters per minute, this is enough oxygen for over 2 days of continuous use.
Patients needing a portable supply of oxygen use a smaller lightweight system. The weight of these portable cylinders ranges from 3.5 – 18 pounds.

There are several sizes of portable oxygen cylinders. The most common are the M6(B), ML6, and E cylinders.

The M6 or “B” cylinder is the smallest of these cylinders. It is made of aluminum and is almost always used with an oxygen conserving device. When used in conjunction with an oxygen conserving device, the M6 cylinder, at a setting of 2 liters per minute, will last approximately 4 hours. The M6 cylinder is usually carried in a carrying case with a shoulder strap. The “E” cylinder is the largest of the portables and is often used with a wheeled cart.
If the prescribed flow rate of oxygen is less than one liter per minute, a special pediatric regulator is used. The pediatric regulator has settings for very low flows, such as 1/16, 1/8 and 1/4.
Your Stationary Cylinder System

The regulator on a stationary cylinder system consists of the **pressure gauge** which tells you how much oxygen is left in the tank and a **flowmeter** which indicates the flow rate of oxygen.

**Operating Your Cylinder System**

The following step-by-step instructions will help you operate your cylinder system.

**Attaching the Regulator to a Full Cylinder**

To attach the regulator assembly to a full cylinder, follow the steps below:

**Step 1:** If necessary, remove the white tape on the cylinder by turning counterclockwise.

**Step 2:** Open the cylinder valve slightly by turning counterclockwise. This will blow off any dust in the orifice of the cylinder outlet. Close the valve tightly.

**Caution:** Make sure the valve opening is not directed at yourself or anyone else when opening the cylinder.
Step 3: Attach the regulator to the cylinder by threading the regulator connector nut clockwise on the cylinder outlet. Tighten firmly with a cylinder wrench.

Step 4: Attach a nipple adapter to the regulator outlet and attach the oxygen tubing to the nipple adapter.

Turning On Your Oxygen

Step 1: Slowly open the cylinder valve by turning counterclockwise.

The needle in the pressure gauge will register the amount of oxygen in the cylinder.

A full cylinder registers approximately 2,000 pounds per square inch (PSI).
Step 2: If your oxygen system has a flow rate dial gauge, adjust the liter control knob until the needle on the gauge registers at the prescribed number.

Step 3: If your oxygen system has a flowmeter, adjust the liter control knob until the middle of the indicator ball is at the prescribed number.

Your physician has prescribed the oxygen flow rate for you. Never change the flow rate without instructions from your physician. If you are confused about the prescribed setting, please consult your physician or homecare provider immediately.

Step 4: Fit the nasal cannula or the oxygen mask to your face so that it is comfortable.

**Nasal Cannula**

- Insert the two prongs of the cannula into your nostrils. Make sure the prongs curve into your nostrils.

- Slide the tubing over behind your ears.

- Adjust the tubing to fit comfortably under your chin by sliding the adjuster upward. Be careful not to adjust it too tightly.
Oxygen Mask

Place the oxygen mask over your mouth and nose.

- Slide the loose elastic strap over your head and position it above your ears.
- Pull the end of the elastic on each side of the mask until the mask fits comfortably. Pinch the metal nose strap to fit snugly around your nose.

  This will prevent oxygen from blowing into your eyes.

- Oxygen masks require a higher flow rate. Use only if prescribed by your physician.

Note: Do not use an oxygen mask if your physician prescribed a nasal cannula.

You should use your oxygen at the proper flow rate for the number of hours each day your physician has prescribed.

Turning Off Your Oxygen

When you are finished using your oxygen, turn off your cylinder system by following the steps below:

Step 1: Remove the nasal cannula or oxygen mask.

Step 2: Turn the cylinder valve clockwise until it is tight. This stops the flow of oxygen from the cylinder.

  - The needle on the pressure gauge will drop to zero.
  - The indicator ball on the flowmeter (or the needle on the flowrate dial gauge) will drop to zero.

Step 3: When both the pressure gauge and the flowmeter (or flowrate dial gauge) register zero, turn the liter control knob counterclockwise until it is tight.
Your Portable Cylinder System

Your portable cylinder system consists of a cylinder, which stores the pressurized oxygen and a regulator, which controls the flow of oxygen from the cylinder. In addition, there is a special washer that fits between the regulator and the cylinder which prevents the oxygen from leaking out of the cylinder when the regulator is attached. It is very important that the proper washer be used at all times. Only use the washer provided. If you have lost or cannot find the washer, contact your homecare provider immediately for a replacement. **DO NOT** use the cylinder and regulator without the washer.

Most smaller portable cylinders are used with a carrying case. The larger portable cylinder may be used with a wheeled cart. The regulator consists of the pressure gauge, which tells you how much oxygen is left in the cylinder, and a flow rate dial gauge or flowmeter, which indicates the flow rate of oxygen.

Note: Do not use a humidifier bottle with a portable system.

Operating Your Portable Cylinder System

The following step-by-step instructions will help you operate your portable cylinder system.

Attaching the Regulator to a Full Cylinder

To attach the regulator assembly to a full D or E cylinder, follow the steps below:
Step 1: Wash hands. (See page 7.)

Step 2: Slowly remove any protective tape. Using only the cylinder wrench provided, open the cylinder valve slightly by turning counterclockwise. This will blow off any dust in the orifice of the cylinder outlet. Close the valve tightly.

Caution: Make sure the valve opening is not directed at yourself or anyone else when opening the cylinder.

Step 3: Make sure valve system is free of all debris and oil.

Step 4: Inspect the regulator and make sure that the washer is in place before attempting to place the regulator on the cylinder. If the washer is missing or is damaged, call your homecare provider immediately for a replacement. **DO NOT** use the regulator with a missing or damaged washer.

Step 5: Slip the regulator over the cylinder valve and neck of the full cylinder. Line up the pins on the regulator with the holes on the neck of the cylinder.

Step 6: Hand tighten the tee screw by turning clockwise.

Step 7: Slowly open the cylinder valve by turning the nut at the top of the valve counterclockwise. Your system may require the use of a cylinder wrench. If there is a leak you may hear a hissing sound. Tighten the tee screw to secure the connection. If the leak persists, the washer may be damaged and may need to be replaced.
Your Portable Cylinder System (continued)

**Step 8:** If the washer appears to be deformed, damaged, or broken, it needs to be replaced before the cylinder and regulator can be used. Remove the old washer as shown (left) and replace it with a new one. Do not use any sharp instruments (e.g., knife) to remove the old washer; sharp instruments could scratch the regulator and cause an oxygen leak. If the leak persists, call your homecare provider.

**Step 9:** Attach the oxygen tubing to the nipple outlet.

**Turning On Your Oxygen**

To turn on your portable cylinder system, follow the steps below:

**Step 1:** *Slowly* open the cylinder valve by turning the nut at the top of the valve counterclockwise. Never open the valve rapidly. You may have to use a cylinder wrench.

The needle on the pressure gauge will register the amount of oxygen in the cylinder. A full D or E cylinder shows approximately 2,000 PSI on the gauge.

**Step 2:** *If your oxygen system has a flow rate dial gauge,* adjust the liter control knob until the needle on the gauge registers at the prescribed number.

*If your oxygen system has a flowmeter,* adjust the liter control knob until the middle of the indicator ball is at the prescribed number.
Note: Cylinder and regulator must be in upright position to read indicator ball and flow rate.

Your physician has prescribed the oxygen rate for you. Never change this flow rate without instructions from your physician.

Step 3: Fit the nasal cannula or oxygen mask to your face so that it is comfortable. See pages 18–19 for more instructions on placement.

Turning Off Your Oxygen

When you are finished using your oxygen, turn off your portable cylinder system following the steps below:

Step 1: Remove the nasal cannula or oxygen mask.

Step 2: Close the cylinder valve by turning clockwise all the way. Your system may may require the use of a cylinder wrench.

- This stops the flow of oxygen from the cylinder.
- The needle on the pressure gauge will drop to zero.
- The indicator ball on the flowmeter (or the needle on the flow rate dial gauge) will drop to zero.

Step 3: When both the pressure gauge and the flowmeter register zero, turn the liter control knob counterclockwise until it is tight.
Your oxygen flow is measured in liters per minute (LPM).

Average oxygen usage time is based on continuous flow rate.

These figures are approximate and are to be used only as a general guide. Individual usage time may vary.

### H Cylinder Supply Time Guide

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<thead>
<tr>
<th>PRESSURE GAUGE READING</th>
<th>Liter Flow per Minute</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Approximate Time Remaining:</strong></td>
<td></td>
</tr>
<tr>
<td>2000 psi</td>
<td>4 days/6 hrs.</td>
</tr>
<tr>
<td>1500 psi</td>
<td>3 days/3 hrs.</td>
</tr>
<tr>
<td>1000 psi</td>
<td>2 days</td>
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<tr>
<td>500 psi</td>
<td>1 day</td>
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### PEDIATRIC H Cylinder Supply Time Guide

<table>
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<tr>
<th>PRESSURE GAUGE READING</th>
<th>Liter Flow per Minute</th>
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<tr>
<td></td>
<td>1/16</td>
</tr>
<tr>
<td><strong>Approximate Time Remaining:</strong></td>
<td></td>
</tr>
<tr>
<td>2000 psi</td>
<td>68 days</td>
</tr>
<tr>
<td>1500 psi</td>
<td>52 days</td>
</tr>
<tr>
<td>1000 psi</td>
<td>34 days</td>
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<tr>
<td>500 psi</td>
<td>16 days</td>
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### D Cylinder Oxygen Supply Time Guide

<table>
<thead>
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<th>PRESSURE GAUGE READING</th>
<th>Liter Flow per Minute</th>
<th>Approximate Time Remaining:</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2000 psi</td>
<td>5 hrs.</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>1500 psi</td>
<td>3 hrs./30 min.</td>
<td>1 hr./30 min.</td>
</tr>
<tr>
<td>1000 psi</td>
<td>2 hrs.</td>
<td>1 hr.</td>
</tr>
<tr>
<td>500 psi</td>
<td>1 hr.</td>
<td>15 min.</td>
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### PEDIATRIC D Cylinder Oxygen Supply Time Guide

<table>
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<tr>
<th>PRESSURE GAUGE READING</th>
<th>Liter Flow per Minute</th>
<th>Approximate Time Remaining:</th>
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<tbody>
<tr>
<td></td>
<td>1/16</td>
<td>1/8</td>
</tr>
<tr>
<td>2000 psi</td>
<td>3 days</td>
<td>1 day/12 hrs.</td>
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<tr>
<td>1500 psi</td>
<td>2 days/12 hrs.</td>
<td>1 day/6 hrs.</td>
</tr>
<tr>
<td>1000 psi</td>
<td>1 day/12 hrs.</td>
<td>18 hrs.</td>
</tr>
<tr>
<td>500 psi</td>
<td>18 hrs.</td>
<td>9 hrs.</td>
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## Oxygen Cylinder Supply Times (continued)

### E Cylinder Oxygen Supply Time Guide

<table>
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<th>Approximate Time Remaining</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2000 psi</td>
<td>9 hrs.</td>
<td>4 hrs./30 min.</td>
</tr>
<tr>
<td>1500 psi</td>
<td>7 hrs.</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>1000 psi</td>
<td>4 hrs./30 min.</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>500 psi</td>
<td>2 hrs.</td>
<td>1 hr.</td>
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### PEDIATRIC

#### E Cylinder Oxygen Supply Time Guide

<table>
<thead>
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<th>PRESSURE GAUGE READING</th>
<th>Liter Flow per Minute</th>
<th>Approximate Time Remaining</th>
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<tbody>
<tr>
<td></td>
<td>1/16</td>
<td>1/8</td>
</tr>
<tr>
<td>2000 psi</td>
<td>6+ days</td>
<td>3 days</td>
</tr>
<tr>
<td>1500 psi</td>
<td>4+ days</td>
<td>2+ days</td>
</tr>
<tr>
<td>1000 psi</td>
<td>3+ days</td>
<td>1+ days</td>
</tr>
<tr>
<td>500 psi</td>
<td>1+ days</td>
<td>18 hrs.</td>
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# M Cylinder Oxygen Supply Time Guide

<table>
<thead>
<tr>
<th>PRESSURE GAUGE READING</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2200 psi</td>
<td>57 hrs.</td>
<td>29 hrs.</td>
<td>19 hrs.</td>
<td>14 hrs.</td>
<td>11 hrs.</td>
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<tr>
<td>1650 psi</td>
<td>43 hrs.</td>
<td>22 hrs.</td>
<td>14 hrs.</td>
<td>11 hrs.</td>
<td>9 hrs.</td>
</tr>
<tr>
<td>1100 psi</td>
<td>29 hrs.</td>
<td>14 hrs.</td>
<td>10 hrs.</td>
<td>7 hrs.</td>
<td>6 hrs.</td>
</tr>
<tr>
<td>550 psi</td>
<td>14 hrs.</td>
<td>7 hrs.</td>
<td>5 hrs.</td>
<td>4 hrs.</td>
<td>3 hrs.</td>
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</tbody>
</table>
Replacing Your Cylinder

Step 1: Remove the nasal cannula or oxygen mask.

Step 2: Close the cylinder valve by turning the nut at the top of the tank clockwise all the way. You may have to use a cylinder wrench.

Step 3: When both the pressure gauge and the flowmeter register zero, turn the liter control knob counterclockwise until it is tight (see middle picture for dial gauge and lower picture for flowmeter).

Step 4: Loosen the regulator at the tee screw. If necessary, use the key to loosen the screw.

Step 5: Remove the regulator by lifting it up over the cylinder valve.
Replacing Your Cylinder (continued)

**Step 6:** Remove the tank seal from the valve of the new cylinder.

**Step 7:** **Slowly** open the cylinder valve slightly by turning counterclockwise. This will blow off any dust in the orifice of the cylinder outlet. Close the valve tightly.

**Caution:** Make sure the valve opening is not directed at yourself or anyone else when opening the cylinder.

**Step 8:** Replace the regulator as described on page 16 under “Attaching the Regulator to a Full Cylinder” for standard cylinder systems, or on page 20 under “Attaching the Regulator to a Full Cylinder” for portable cylinder systems.

**Step 9:** **Slowly** open the cylinder valve by turning the nut at the top of the valve counterclockwise. Your system may require the use of a cylinder wrench. If there is a leak you may hear a hissing sound. Tighten the tee screw to secure the connection. If the leak persists, the washer may be damaged and may need to be replaced.

**Step 10:** If the washer appears to be deformed, damaged, or broken, it needs to be replaced before the cylinder and regulator can be used. Remove the old washer as shown (left) and replace it with a new one.

Do not use any sharp instruments (e.g., knife) to remove the old washer; sharp instruments could scratch the regulator and cause an oxygen leak.

If the leak persists, call your homecare provider.
Reordering Oxygen

Always be aware of the amount of oxygen remaining in your cylinder.

You will most likely be on an automatic redelivery schedule, but always knowing how much oxygen you have will prevent any worry of running out while your resupply is being delivered.

If you are not on an automatic delivery schedule, reorder a new cylinder two days before your cylinder has been calculated to run out. This will allow your homecare provider location to schedule your delivery without causing you to worry.

Consult the tables on pages 24–27 for guidelines.
## Oxygen Cylinder Troubleshooting

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Probable Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No oxygen coming from cannula or mask</td>
<td>Empty cylinder</td>
<td>Check pressure gauge for oxygen contents. If cylinder is empty, remove regulator and attach to new full cylinder. Call your homecare provider for additional oxygen.</td>
</tr>
<tr>
<td>Decreased awareness of oxygen flow</td>
<td>Place cannula prongs in a clean glass of water. If you observe bubbles coming from your cannula, your unit is working correctly.</td>
<td></td>
</tr>
<tr>
<td>Faulty cannula or mask</td>
<td>Remove cannula or mask and check tubing for kinks or obstructions. Replace with new cannula or mask if needed.</td>
<td></td>
</tr>
<tr>
<td>Loose connections</td>
<td>Check all connections, especially humidifier bottle to regulator and humidifier top to jar.</td>
<td></td>
</tr>
<tr>
<td>Plugged humidifier bottle</td>
<td>Remove humidifier bottle. If flow is restored, clean or replace with new humidifier bottle.</td>
<td></td>
</tr>
<tr>
<td>Cylinder valve is closed or liter control knob is off</td>
<td>Check cylinder valve to make sure it is open. Check flowmeter to make sure it is on.</td>
<td></td>
</tr>
<tr>
<td>Faulty regulator</td>
<td>Call your homecare provider. NEVER attempt to fix the regulator yourself.</td>
<td></td>
</tr>
<tr>
<td>Oxygen cylinder hisses and is leaking oxygen</td>
<td>Regulator not attached tightly</td>
<td>Turn the oxygen off. Check and retighten connection between regulator and cylinder.</td>
</tr>
<tr>
<td></td>
<td>Faulty washer</td>
<td>Replace washer.</td>
</tr>
<tr>
<td></td>
<td>Faulty regulator</td>
<td>Call your homecare provider. NEVER attempt to fix the regulator yourself.</td>
</tr>
<tr>
<td>All other problems or questions about equipment</td>
<td></td>
<td>Call your homecare provider.</td>
</tr>
</tbody>
</table>
An oxygen concentrator is an electrically operated device that draws in room air, separates the oxygen from the other gases in the air and delivers the concentrated oxygen to you. The concentrator acts like a strainer. It traps oxygen and releases the other gases (mostly nitrogen) back into the room air. This process goes on continuously until the oxygen inside the unit is highly concentrated. At two liters per minute, the air which you receive from your concentrator is more than 90 percent oxygen.

Oxygen concentrators are available in different sizes and models. However, all models have the same basic parts: a **power switch** to turn the unit on and off, a **flow selector** that regulates the amount of oxygen you receive and an **alarm system** that alerts you if the power is interrupted.

The oxygen is delivered to you through a nasal cannula or face mask. The tubing on the cannula or mask is attached to the outlet on the unit. Sometimes, an extra length of tubing may be provided. This will allow you to move a farther distance from your concentrator.

**Where to Place Your Concentrator**

Place your concentrator in a well ventilated area, away from fireplaces, stove, any heat source or heat vent. Do not place it in a closet. Place it at least 12 inches from any drapes, bedding, walls or any other item that may block the inlet ports. If the concentrator is too noisy, place it in an adjacent room but make sure that the alarm is still audible to the patient or caregiver.
Operating
Your Oxygen
Concentrator

The following step-by-step instructions will help you operate your oxygen concentrator.

**Step 1:** Insert the power plug into a nearby power outlet.

**Note:** Most of your homecare provider’s oxygen concentrators use “2-prong” power plugs and do not require a 3-prong, grounded AC power outlet.

However, if the equipment that has been provided to you has a 3-prong power plug and your home does not have 3-prong power outlets, your patient service technician will exchange your concentrator for a unit that utilizes the 2-prong plug.

**Step 2:** Attach nipple valve to the concentrator outlet tube and attach the oxygen tubing to the nipple outlet.

**Step 3:** If a humidifier bottle is recommended, attach a filled humidifier bottle.

- Center the threaded cap on the humidifier bottle under the threaded outlet tube on the concentrator.
- Turn the cap on the humidifier bottle until it is tightly screwed onto the outlet tube.
- Attach oxygen tubing to the nipple outlet.

**Note:** Humidifier bottles are generally recommended only for patients using flow rates greater than four liters per minute.

**Step 4:** Press the ON/OFF switch to the ON position. The alarm will sound for a few seconds until the proper pressure is reached.
Operating Your Oxygen Concentrator (continued)

Step 5: Adjust the oxygen flow rate by turning the liter control knob until the flow is at the prescribed number.

Rotary Flow Control:

Turn the dial until the prescribed liter number appears.

Flowmeter with Liter Tube:

Adjust the liter control knob until the middle of the indicator ball is at the prescribed number.

- Your physician has prescribed the oxygen flow rate for you.
- Never change this liter flow without instructions from your physician.

Step 6: Fit the nasal cannula or the oxygen mask to your face so that it is comfortable.
Operating Your Oxygen Concentrator (continued)

Nasal Cannula:

Insert the two prongs of the cannula into your nostrils. Make sure the prongs face upward and curve into your nostrils.

• Slide the tubing over and behind each ear.

• Adjust the tubing to fit comfortably under your chin by sliding the adjuster upward. Be careful not to adjust it too tightly.

Oxygen Mask

Place the oxygen mask over your mouth and nose.

• Slide the loose elastic strap over your head and position it above your ears.

• Pull the end of the elastic on each side of the mask until the mask fits comfortably. Pinch the metal nose strap to fit snugly around your nose. This will prevent oxygen from blowing into your eyes.

Note: Do not use an oxygen mask if your physician prescribed a nasal cannula. Oxygen masks must only be used with liter flow rates of five liters (or more) per minute.

Step 7: You should use your concentrator for the number of hours each day which your physician has prescribed. When you have finished using your oxygen, you should:

• Remove the nasal cannula or oxygen mask.

• Turn the ON/OFF switch to the OFF position.
Cleaning and Maintenance Procedures

**All Cleaning Must Be Done in a Clean Environment**

The external filter, humidifier bottle and cabinet require periodic cleaning. The cabinet can be washed with a damp cloth. See below for filter maintenance, and see page 37 for humidifier bottle care.

Cleaning and decontamination of respiratory therapy equipment in the home is of major concern. To prevent equipment contamination, a simple but effective cleaning procedure must be carried out on a routine basis. Do all cleaning and disinfecting in a clean environment. Avoid doing it after vacuuming, under an open window, or in dusty, dirty, smoky areas.

**Filter Cleaning and Maintenance**

The external filter requires cleaning once a week.

**Step 1**: Remove the filter.

**Step 2**: Wash in warm water and a non-lotion detergent (such as Joy®).

**Step 3**: Rinse the filter thoroughly with warm water.

**Step 4**: Gently squeeze water from the filter, then pat it dry with a clean towel.

**Step 5**: Reattach the filter.
If you are using a humidifier bottle with your oxygen concentrator, you will need to check the water level in the jar frequently. When the water runs low or the bubbling stops, you need to refill the jar. **You should use your back-up oxygen system while refilling and cleaning your humidifier bottle.**

**Refilling the Humidifier Bottle**

**Step 1:** Wash your hands as instructed on page 7.

**Step 2:** Turn the oxygen concentrator off.

**Step 3:** Unscrew the jar from the humidifier bottle lid.

**Step 4:** Discard any water remaining in the jar.

**Step 5:** Rinse bottle under a strong stream of warm tap water. Shake off the excess water.

**Step 6:** Refill the jar with distilled water to the fill line. Do not overfill the bottle. Too much water in the bottle will cause water to collect in your oxygen tubing.

**Step 7:** Screw the bottle back on the humidifier bottle lid until it is tight. Be certain the jar is screwed on straight. Cross-threading will cause oxygen to escape out the top of the jar.
Twice Weekly Cleaning and Disinfection

It is very important to clean your humidifier bottle to prevent infection. The following procedure should be done every three days.

Step 1: Wash your hands as instructed on page 7.

Step 2: Turn the oxygen concentrator off.

Step 3: Remove the humidifier bottle.

Step 4: Wash the entire humidifier bottle in a solution of liquid detergent and warm water.

Step 5: Rinse the bottle thoroughly. Shake off the excess water.

Step 6: Mix together one part white vinegar and one part water.

Step 7: Soak humidifier bottle for 30 minutes in vinegar solution.

Step 8: Rinse bottle in warm tap water.

Step 9: Allow the bottle to air dry.

Step 10: Discard vinegar solution.

Step 11: Replace your humidifier bottle as instructed.
# Oxygen Concentrator Troubleshooting

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Probable Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No oxygen seems to be flowing from your system</td>
<td>Cannula or nipple adapter not connected tightly</td>
<td>Place the end of your cannula in a small glass of water and look for a steady flow of bubbles. If you can see the bubbles, your oxygen system is working fine.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you can’t see any bubbles coming from both of your cannula prongs or if the bubbles have decreased in volume, check to see that the cannula is connected tightly to your oxygen system and that the nipple adapter is screwed on tightly.</td>
</tr>
<tr>
<td>Water blocking the oxygen tubing</td>
<td>Overfilling your humidifier bottle or tubing lying on a floor that is cold</td>
<td>You should use your back-up oxygen system while attending to water in your tubing.</td>
</tr>
<tr>
<td>Unit not operating (power failure alarm sounds)</td>
<td>Plug not firmly in wall</td>
<td>Check plug at outlet.</td>
</tr>
<tr>
<td></td>
<td>Concentrator circuit breaker has been set off</td>
<td>Press reset button.</td>
</tr>
<tr>
<td></td>
<td>No power at wall outlet</td>
<td>Check power source (fuse or circuit breaker). Wall switch that controls plug may be switched off. Try another outlet.</td>
</tr>
<tr>
<td></td>
<td>Electrical power outage</td>
<td>Use back-up oxygen system until power is restored.</td>
</tr>
</tbody>
</table>
## Oxygen Concentrator Troubleshooting (continued)

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Probable Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to dial prescribed flow rate</td>
<td>Obstructed humidifier bottle</td>
<td>Disconnect humidifier bottle. If flow is restored, replace with new humidifier bottle or use a nipple adapter.</td>
</tr>
<tr>
<td></td>
<td>Obstruction in tubing</td>
<td>Disconnect tubing. If flow rate is restored, replace with new tubing.</td>
</tr>
<tr>
<td></td>
<td>Obstruction in cannula</td>
<td>Disconnect cannula from tubing. If proper flow rate is restored, replace with a new cannula.</td>
</tr>
<tr>
<td>Temperature light/alarm is on</td>
<td>Unit overheated</td>
<td>Check to see that unit is not obstructed by drapes, bedspread, wall, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check to see that filters are clean.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turn unit off and go to your back-up system for 30 minutes while your concentrator is cooling. Restart your concentrator.</td>
</tr>
<tr>
<td>All other problems or alarms</td>
<td></td>
<td>Contact your homecare provider.</td>
</tr>
</tbody>
</table>