

Oxygen Therapy for Children

Children with lung disease can have low levels of oxygen in their bodies and some need to use extra (supplemental) oxygen in order to bring their oxygen levels up to a healthier level. Children with lung diseases such as bronchopulmonary dysplasia (BPD) or cystic fibrosis (CF) may require oxygen therapy. Extra oxygen protects their bodies from the effects of low oxygen levels, helps them to function better, and allows them to stay more active.



Why do some children need oxygen therapy?

Oxygen is a basic need for all humans. The air we breathe contains about 21 percent oxygen at sea level. This amount is enough for children who have healthy lungs and many with lung disease. However, some children with lung disease are unable to get enough oxygen in their bodies through normal breathing. They require extra oxygen to maintain normal function.

How do I know if my child needs oxygen?

A healthcare provider will figure out if your child needs oxygen therapy by measuring the oxygen level (oxygen saturation or O₂ sat) using a device called a pulse oximeter. This device can be clipped painlessly on to your child's finger, toe or earlobe. With this device, O₂ sats can be checked over a period of time, for example, during sleep or exercise. The general goal is to keep your child's oxygen at a level that meets the body's need for oxygen, usually 90-92% O₂ sat or higher. Your health care provider will help you define what is an acceptable lower limit for O₂ sat is for your child. Another test that is sometimes done to test the level of oxygen in the blood is an arterial blood gas (ABG). This test is called an arterial blood gas (ABG). Blood is drawn from an artery (usually in the wrist).

How much oxygen should my child take?

Oxygen is a medical treatment. A healthcare provider writes a prescription for the amount of oxygen needed. The provider will prescribe an oxygen setting or flow rate. You may need to use a different setting or flow rate for different activities, for example during exercise, eating, and sleep. It is very important that you use the oxygen exactly as it has been prescribed. Using too little may stress your child's brain and heart, resulting in fatigue, memory loss or changes in heart function. Too much oxygen can also be a problem at times, especially for the lungs.

Will my child need oxygen during sleep?

During sleep, people slow down their breathing and may not breathe as deeply. If a person has a low oxygen level

while awake, usually he or she will have a lower level during sleep. In some cases, children who may not need extra oxygen while awake may need oxygen while sleeping. Your health care provider will help you figure out if and how much oxygen your child should use when sleeping.

Will my child need oxygen during physical activity?

During physical activity, a person breathes in faster and deeper to get more oxygen. To find out how much oxygen is needed when your child is active, the provider can have your child do a walking or jogging test while measuring his or her oxygen saturation. Young children and infants can also be observed during play activities and feeding.

How many hours per day will my child need oxygen?

Some children only need to use extra oxygen when they are active or while sleeping. However, in some cases, a child needs extra oxygen 24 hours a day. At times, your child may seem fine to you. Your child may not appear to be low in oxygen or have blue skin or lips. However, this does not always mean his or her body's oxygen level is ideal. It is best to have your child's oxygen level checked if you are not sure how much oxygen is needed. Sometimes a pulse oximeter is sent home for you to use.

Will my child always need to use oxygen?

Your child may be able to reduce or stop use of oxygen if his or her lung condition improves. However, many children who require extra oxygen to treat their chronic lung problem will need to continue their oxygen therapy. Some children may need to use extra oxygen only during a disease flare-up or infection. You should never reduce or stop your child's oxygen therapy on your own. Talk to your child's health care provider if you think a change in your child's oxygen therapy is needed.

What are the different kinds of oxygen systems?

Oxygen can be delivered from three types of sources: An oxygen concentrator, liquid oxygen system, or oxygen pressurized in a metal cylinder (tank). The right choice for your

child depends on how much is needed, and your child's daily activities. Other things to keep in mind are where you live, costs, and insurance restrictions.

What are oxygen concentrators?

An oxygen concentrator produces oxygen by concentrating the oxygen that is already in the air and removing other gases. The concentrator is powered by electricity.

What is liquid oxygen?

Liquid oxygen is made by super-cooling oxygen gas, changing it to a liquid form. When in liquid form, oxygen takes up much less room and can be stored in a special container.

What are oxygen cylinders?

Oxygen is compressed into a metal cylinder (also called a tank) under high pressure. Oxygen may be stored in either large or small cylinders.

What are oxygen conserving devices?

Oxygen conserving devices make the delivery of oxygen more efficient, and reduce the amount of oxygen that is wasted. There are several types of oxygen conserving devices, however, they cannot be used by many younger children.

What is a nasal cannula?

A nasal cannula is a tube that has two prongs to go in the nose passages (nostrils). The tube is attached to the oxygen system. Different sizes of nasal cannula are available and some prongs are softer than others.

What is a trach mask or collar?

Some children have a tracheostomy tube in their neck to breathe. If oxygen is needed, it can be given using a tracheostomy collar (trach mask). This trach mask may at times be used at night with humidified (moist warm) room air to prevent the trach from getting mucus plugs. Oxygen can be given as well through a ventilator attached to the trach.

How do I help my child be comfortable using oxygen?

Some children resist wearing nasal cannula or a mask on their face. Sometimes it helps to let them play with a spare mask, see it on another child, or put one on a doll or favorite stuffed toy. Praise the child for keeping the tube or mask on his or her face. If your child's nose gets irritated from the nasal cannula, you can switch to a face mask. Remember that there is more leak of oxygen around the mask so the lowest level of oxygen flow used with a face mask is 5 liters. If you use a very high flow with nasal cannula, it can be more irritating to the nose. If more than that is needed, you should switch to a face mask. Using a humidifier to help keep the oxygen moist can help prevent nose irritation from dry air.

What should I watch out for while my child uses oxygen therapy?

If your child has any of the following signs or symptoms, contact your health care provider:

- morning headaches,
- short of breath or breathing hard,

- tired or drowsy when he or she should not be,
- less active than usual,
- blue lips or nail beds.

Do I have to worry about oxygen exploding or burning?

Oxygen alone will not explode and does not burn, but oxygen will make a flame hotter and burn stronger. Never smoke around oxygen devices or a person using oxygen. Keep oxygen at least 6 feet (2 meters) away from any open flame. Stabilize all cylinders by placing carts in a safe place or by securing them to a wall. Remember: oxygen is safe and helpful if it is used according to directions.

What do we need to do when my child travels?

Your child can travel even on oxygen therapy. However, travel with oxygen requires careful planning well in advance of your trip. Check with your transportation company (airline, train, bus, boat) about its policies for travel with oxygen. Contact your oxygen company to arrange for your oxygen supply during your trip. Make sure that you have plenty of oxygen in case of delays or emergencies. Keep a copy of your child's oxygen and medicine prescriptions with you. You should keep emergency numbers handy (healthcare provider, oxygen supply company, and get names of local doctors and hospitals where you are traveling to) just in case.

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Action Steps

- ✓ Oxygen is a medical treatment. Use oxygen exactly as prescribed by your child's health care provider.
- ✓ If your child has any of these symptoms: shortness of breath, morning headache, or seems more tired or drowsy, contact your child's health care provider.
- ✓ Oxygen used properly is safe. Do not smoke near oxygen, or keep oxygen near open flames, or other sources of heat or flames.

Healthcare Provider's Contact Number:

Additional Lung Health Information

American Thoracic Society

www.thoracic.org/patients

National Heart Lung & Blood Institute

<http://www.nhlbi.nih.gov/health/health-topics/topics/ox>

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