

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), cystic fibrosis (CF), sleep disordered breathing, interstitial lung disease, or pulmonary hypertension may require oxygen therapy. Extra oxygen protects their bodies from the effects of low oxygen levels, helps them to grow and function better, and allows them to stay more active.



Why do some children need oxygen therapy?

The air we breathe contains about 21 percent oxygen. 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. Children with lung problems who live or travel to areas at high altitude may also need oxygen because there is less oxygen in the air. The oxygen therapy is required to help these children grow and develop.

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. This device can check your child's O₂ sat 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 90-93% O₂ sat or higher. Your healthcare provider will also help you define an acceptable lower limit O₂ sat for your child. Another test that is sometimes done to check the level of oxygen in the blood is called a blood gas.

How much oxygen should my child take?

Oxygen is a medical treatment requiring a prescription from your healthcare provider. This prescription will indicate the oxygen setting or flow rate for your child. 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 oxygen 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 in premature babies.

Will my child need oxygen during sleep?

During sleep, people slow 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 healthcare 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?

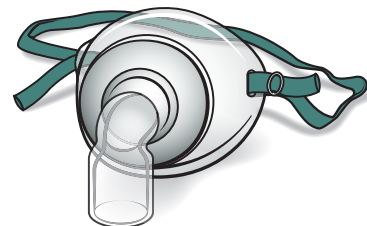
Some children only need to use extra oxygen when they are active or while sleeping. However, in some cases, a child needs extra oxygen 24 hours a day. At times, your child may seem fine to you, and may not appear to be low in oxygen. However, this does not always mean his or her body's oxygen level is 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 healthcare provider if you think a change in your child's oxygen therapy is needed.

How do I give my child oxygen?

Oxygen can be delivered from three types of sources: An oxygen concentrator, liquid oxygen system, or oxygen cylinder (tank). Your child will also need to use a nasal cannula or a face mask (or trach mask for children with tracheostomies) that connects to the oxygen source through tubing. The right choice for you 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. For more information on oxygen systems, see ATS Patient Information Fact Sheet on oxygen delivery systems in a future issue of AJRCCM.



How should I clean my child's oxygen equipment?

Wipe down the nasal prongs or mask with warm soapy water at least once a week or as needed.

The oxygen machine or tanks can be wiped down. Ask your medical equipment and healthcare provider about how to clean your equipment.

Replace the nasal cannula or mask every 1-3 months or after an illness. It is always good to have an extra nasal cannula and extension tubing for safety reasons.

What can I use for dry/irritated nasal passages and lips?

Many people on oxygen find it more comfortable to have added moisture (humidification) rather than breathing in dry gas. Oxygen, even if humidified, can cause nose irritation with bleeding or congestion. A humidifier device holds distilled water and is attached to the oxygen system. You should not use petroleum based products like petroleum jelly with a dry or irritated nose. Use saline based products such as nasal saline spray, rinse or gel in the nose.

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. Talk to your healthcare provider if your child is having problems tolerating oxygen.

What should I watch out for to tell if my child is getting worse or needing more oxygen?

You may find times when your child needs more oxygen. If you have a home pulse oximeter, you can use it to check your child. Your healthcare provider can define O₂ sat levels to use to adjust your child's oxygen. In addition, you will want to watch for signs and symptoms that might suggest your child is getting worse. These can include:

- morning headaches,
- having more cough, wheezing, or chest congestion,
- short of breath or breathing hard,
- acting more tired or drowsy
- less active than usual or having to stop more often during play to rest or catch his or her breath.
- 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. Avoid toys with friction motors that emit sparks. 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.

How can I leave the house to do errands or attend doctor's appointments with my child on oxygen?

Your home care company will provide small oxygen tanks that can be used when you have to go out. Make sure that you have plenty of oxygen in case of delays or emergencies. You should keep emergency numbers handy (healthcare providers, oxygen supply company, local hospital) just in case. To transport oxygen cylinders, firmly secure them on the floor of the back seat and

leave a window open at least an inch.

What do we need to do when my child travels out of town?

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 your regular emergency numbers handy (healthcare providers, oxygen supply company) as well as contact information for local hospitals and healthcare providers just in case.

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R_x Action Steps

- ✓ Oxygen is a medical treatment. Use oxygen exactly as prescribed by your child's healthcare provider.
- ✓ If your child has any of the following signs or symptoms, contact your healthcare provider:
 - morning headaches
 - increased breathing rate, short of breath or breathing hard
 - tired or drowsy when he or she should not be
 - less active than usual
 - changes in color: pale, blue lips or nail beds
 - increased irritability
 - loss of appetite
- ✓ Oxygen used properly is safe. Do not smoke near oxygen, or keep oxygen near open flames, or other sources of heat or flames.
- ✓ Avoid toys with friction motors that emit sparks.
- ✓ Create an action with your healthcare team to handle emergency situations, such as power outages.

Healthcare Provider's Contact Number:**Additional Lung Health Information****American Thoracic Society**

www.thoracic.org/patients

Fact Sheets on:

- Child with trachostomy
- Emergency/Disaster
- Pulse Oximetry

National Heart Lung & Blood Institute

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

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