



Health Facts for You



Tracheostomy equipment for your child

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Home Care Equipment and Supplies

Your child will need home care equipment and supplies.

- Your child's doctor will order all of the items that your child needs.
- Once the items are ordered your child's insurance will decide what will be paid for.
- Your child's case manager will help coordinate between your doctor and your insurance company.
- You will know all of this before your child is discharged.

Your child's home care equipment and supplies are supplied by a home equipment provider. You may hear them called your DME (Durable Medical Equipment) provider. Your child's DME will educate your family on equipment before your child is discharged. Once it gets closer to your child's discharge date they will deliver your equipment and supplies to your home.

Your child's insurance company limits how many supplies your child gets each month. You will want to keep track of the supplies that are being used. This will help ensure you have all the supplies you need.

Home Oxygen

Oxygen is a gas that has no color, odor or taste. Our bodies do not store it. Instead, we use the oxygen from every breath we take. You need a good supply of oxygen to the blood to protect your heart and brain. Your doctor will explain if your child needs extra oxygen.

There are two types of oxygen systems to use in the home; an oxygen tank, and an oxygen concentrator.

Using a Home Oxygen System

- You need a doctor's order or prescription to get oxygen and equipment.
- Oxygen is about 21% of the total amount of air we normally breathe. When someone receives extra oxygen, they are breathing it at an amount greater than 21%.
- The doctor's order will tell you what the liter flow setting will be. The order will also tell you when to use the oxygen, and how it will be given to you.
- **You must use the oxygen the way the doctor has ordered it. Do not change the flow rate without talking to your doctor. Too much or too little can cause harm.**
- Oxygen can be added to the heated mist system, ventilator, cough assist, or the resuscitation bag. We will show you how to add it.

Oxygen Tank

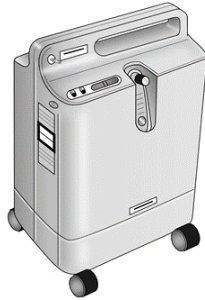
This system is portable and can be used when not at home. The oxygen is in a tank under high pressure. The tank must be in a stand to keep it safe. A regulator valve is attached to the top of the tank. It controls the flow of



oxygen from the tank to you. The tank holds a set amount of oxygen based on the size of the tank and the ordered flow rate that you need to use.

Oxygen Concentrator

This is a machine that provides oxygen by sending air into the room through filter beds. The unit is electric and provides oxygen only while the machine is running.



Oxygen Safety

Three things are needed to start a fire: heat, an item that will burn, and oxygen. While oxygen itself does not burn or explode, higher amounts of it in the air will make things burn hotter and faster.

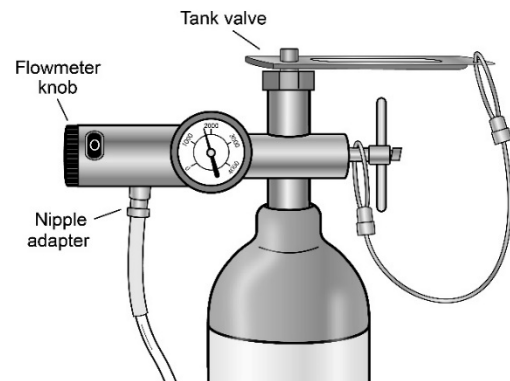
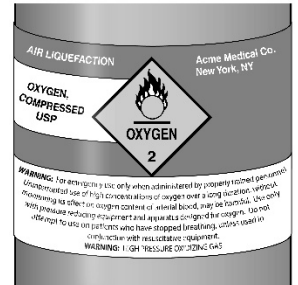
- Oxygen must be kept away from sparks, heat sources or open flames.
- "Oxygen in Use" signs should be posted at the entrance to your home. The equipment provider will give you the signs.
- **Do not** allow smoking in the room where it is stored or used.
- Matches, cigarette lighters, electronic cigarettes, candles, sparking toys, or any electric equipment that gets hot, smokes or sparks, can start a fire. These things **should not** be near where it is being used or stored.
- ****People wearing oxygen should not** be near gas stoves or open flames, even if their tank or concentrator is in another room.

Things will burn more easily where oxygen is used. Flammable things, such as oil or grease, **should not** be used around an area where there is oxygen. You should also avoid hair oils, ointments, or anything that contains petroleum products. Do not use

Vaseline®. Use a water-based lubricant, such as Ayr Nasal Gel® or K-Y® jelly instead.

How to Use an Oxygen Tank

1. Always check the label on each tank used to be sure that it contains oxygen.
2. If the label does not say oxygen, do not use it.
3. Using the wrench you were given, slowly open the **valve** on the top of the tank. Turn the valve counterclockwise one complete turn. The needle on the pressure gauge will show the amount of pressure in the tank. Listen and feel for any leaks. If you hear or feel any leaks, turn the valve off and contact your provider. **If you are learning to use the tank at the hospital, let your nurse or respiratory therapist know that there is a leak. Do not leave the unit unless you are sure that everything is working as it should.**
4. Attach the tubing to the tapered **nipple adapter** on the flowmeter. Make sure the tubing is not kinked or cut.
5. Adjust the **flowmeter knob** to the ordered liter flow.
6. The **tank valve** and **flowmeter knob** should be turned off when not in use.



Turn the tank off by turning the **valve** clockwise. Let the regulator bleed off the gas left in it after turning it off. This keeps the needle from being damaged from the pressure.

Safety and Handling Guidelines

Follow these safety rules:

- **Do not** smoke if you are using oxygen.
- **Do not** allow anyone to smoke in the room where it is being used or stored.
- Tanks should be stored upright in a tank cart or lying flat on the floor. Do not use beds or movable objects to hold up tanks.
- Keep at least 10 feet away from any heat source (fireplace, E-cigarette, stove, radiator) to prevent fires.
- Keep tanks away from extreme cold as cold metal may cause frostbite on bare skin.
- When bringing the tanks in your car, **they should be secured in the back seat, on the floor. They should be padded** to prevent rolling and to protect the tank stem from damage. **Never travel with a tank in the front seat of the car.**

- If oxygen is being used in the car, open a window one inch to prevent it from building up.
- Each new tank has an O-ring in the dust cap. If it is one color it is not the correct O-ring. The correct O-ring has two colors. Please be sure the O-ring is black and gold or green and gold.
- Each new tank always uses just one O-ring when it connects the regulator to the oxygen tank.

A full tank has about 2000 pounds of pressure in it. Read the pressure on the gauge. The table below tells you about how long a full tank of oxygen will last at certain flow settings.

Oxygen Tank Duration Chart

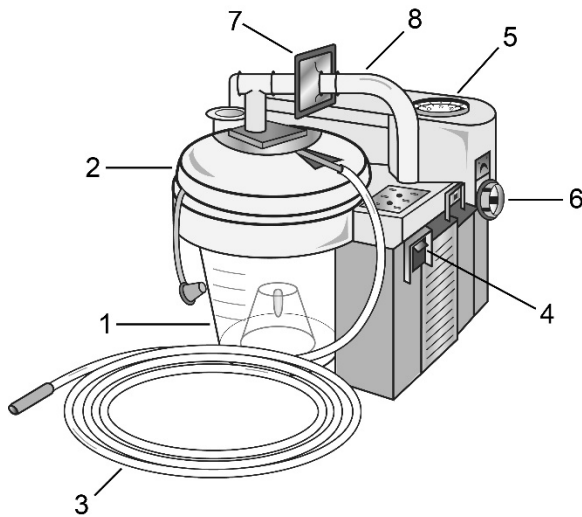
| Flow Rate | A – cylinder | D – cylinder | E – cylinder | M60 - cylinder |
|------------------|---------------------|---------------------|---------------------|-----------------------|
| .25 | 11.4 hours | 21.2 hours | 37.2 hours | |
| .5 | 5.7 hours | 10.6 hours | 18.6 hours | |
| 1 | 2.8 hours | 5.3 hours | 9.3 hours | 28.2 hours |
| 2 | 1.4 hours | 2.6 hours | 4.6 hours | 14.2 hours |
| 3 | 1.0 hours | 1.7 hours | 3.1 hours | 9.4 hours |
| 4 | 42 minutes | 1.3 hours | 2.3 hours | 7 hours |
| 5 | 34 minutes | 1.0 hours | 1.8 hours | 5.6 hours |

Portable Suction Machine

Your child will have a portable suction machine at home. It removes the mucus from your child's trach tube, nose and mouth. It comes in a carrying case with a strap to make it easier to take with you. You need to have access to your child's portable suction at all times.

The portable suction machine has an internal battery. The internal battery charges when the suction machine is plugged in. It is best to leave it plugged in whenever possible to make sure the battery stays charged for when your child is traveling, or if the power goes out.

1. Collection bottle
2. Lid
3. Patient tubing
4. On/off switch
5. Pressure gauge
6. Pressure adjusting knob
7. Suction filter
8. Connection tubing



Setting Suction Pressure

Adjust your child's suction pressure to the correct settings. Cover the end of the patient tubing with your thumb and check the pressure gauge.

If the suction pressure is not correct, check all connections. Test again. If it's still not correct, turn the knob on the side of the machine to raise or lower the pressure to the correct setting. Test again.

If your child's suction has too much pressure it can damage your child's airway.

Cleaning Your Suction Machine

Rinse the patient tubing with tap water to clear the mucus from the tubing after suctioning. Empty the mucus from the collection bottle into the toilet. Rinse the bottle at least one time per day.

Tips

- Check the suction pressure gauge and adjust the pressure as needed.
- Check the power source. If the battery is running low it will not suction at full strength.
- Check all the connections. If there is a loose connection the suction may be low.
- Check the filter. The machine will not work if the filter is wet. It needs to be replaced. Do not tip suction bottle.
- The portable suction machine has an internal battery. The internal battery charges when the suction machine is plugged in. It is best to leave it plugged in whenever possible.

Ventilator Terms

Below are some terms you will hear your child's pulmonary team discuss:

Ventilator rate (set rate): The number of breaths the ventilator gives your child in 1 minute.

Respiratory Rate (RR, actual rate): The number of breaths taken in one minute.

Tidal Volume (V_t): The amount of air the ventilator gives to your child with each breath.

Minute ventilation (V_e): The volume of gas inhaled or exhaled from a person's lungs per minute.

Inspiratory Time (I-Time): The amount of time it takes for the ventilator to give your child each breath.

Inspiratory to Expiratory Ratio (I:E Ratio): The length of time it takes your child to breathe in versus the length of time it takes to breathe out.

Peak Inspiratory Pressure (PIP): The amount of pressure it takes to fill up your child's lungs breathing in. PIP can vary with each breath, especially if your child has a set volume mode on the ventilator.

Positive End Expiratory Pressure (PEEP): The pressure your child's ventilator holds at the end of each breath. PEEP is important because it prevents your child's air sacs (alveoli) from collapsing.

Alarms

Disconnect Alarm: When a ventilator is disconnected from your child or a high leak is detected.

Low pressure alarm: Alarms when the ventilator does not reach the pressure needed to give your child a full breath. It happens when there is a leak somewhere. For example, if the ventilator tubing has come off your child's trach tube.

High pressure alarm: Alarms when the ventilator reaches the high-pressure setting. It occurs when there is something blocking the airway. For example, too much mucus, coughing, laughing or a kink in the ventilator tubing.

Low minute ventilation alarm: This alarm will sound when the amount of air taken in per minute drops below a certain set value. It acts similar to a low-pressure alarm and usually indicates some kind of leak or disconnect.

High minute ventilation alarm: an increased respiratory rate or tidal volume will increase minute ventilation. This alarm often occurs when reconnecting the patient back to ventilator circuit (pressure in the circuit has increased)

High or low respiratory rate alarms: If your child's breathing rate increases or decreases beyond these set alarms rates, and alarm may be triggered. If a low rate alarm is triggered, back up breaths may be provide depending on your child's settings.

Other Terms

Airway resistance: Friction caused by the movement of air through out the airway. Mucous plugging, swelling, or tightening of the airway can cause an increase in resistance.

Lung compliance: The ability of the lungs to stretch and expand.

Cleaning and Disinfecting Equipment

You need to clean and disinfect your child's home care equipment. This will keep it working well and prevent your child from getting infections. There are two steps to cleaning and disinfecting your child's equipment. Step 1, clean to remove dust, dirt, and particles. Step 2, disinfect to destroy any harmful germs.

Supplies

- Dish soap
- Clean dishcloth
- Brush
- White vinegar
- Two plastic storage containers
- Sterile water or boiled and cooled tap water

Steps for Cleaning Equipment

1. Wash hands or use hand sanitizer.
2. Run tap water for 2 minutes to clear the pipes.
3. Fill container with warm tap water and small amount of dish soap.
4. Completely take apart your child's equipment.
5. Soak your child's equipment in the soapy water for a few minutes.
6. Scrub your child's equipment well with the brush
7. Rinse your child's equipment well with warm tap water.
8. Gently shake excess water off the equipment.

Steps for Disinfecting Equipment




1. Mix one part vinegar to two parts sterile water in a clean plastic container to make disinfecting solution.
2. Soak your child's equipment in the disinfecting solution. Be sure all of the equipment is completely under the disinfecting solution. There should be no air bubbles visible in the equipment.
3. Soak for 30 minutes to 2 hours.
4. Wash your hands or use hand sanitizer again right before removing equipment from disinfecting solution.
5. Rinse all equipment well with sterile water.
6. Gently shake the equipment to remove extra water
7. Air-dry on a clean towel
8. Hang tubing to dry
9. Rinse brushes and hang to dry
10. Rinse the containers and set on a clean towel to dry.
11. Once equipment is completely dry wash your hand or use hand sanitizer again.
12. Re-assemble your child's equipment, and place equipment in clean plastic bags or containers.




Tips





- The brushes that are used to clean and disinfect equipment should be new and only used to clean your child's equipment.
- Soaking your child's equipment will loosen dust, dirt and particles from the equipment.
- One part vinegar and 2 parts water is 1 cup vinegar to 2 cups water. Mix more vinegar and water to completely cover equipment, if needed.
- Soaking your child's equipment for longer than 2 hours can harm the surface.
- Store your child's equipment in a sealed container or in a clean plastic bag.
- If you notice water droplets or a vinegar smell inside your storage container or bag, the equipment was not completely dry. This moisture can allow bacteria to grow. You will need to clean, disinfect, and dry it again.
- Neb kits can be washed with other respiratory equipment.



Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 3/2024 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing HF#8340.

Equipment Cleaning Schedule and Amount Needed





| Piece of Equipment | When and How to Change | Tips | Amount |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------|
| <p>Air Compressor Filter</p>  | <p>Weekly: Clean with warm soapy water, rinse well, air dry</p> | <p>Do not run the air compressor without a filter.</p> | <p>1 per month</p> |
| <p>Heat Moisture Exchange (HME or Artificial nose)</p>  | <p>Every other day: Change and discard.</p> | <p>Also discard if soiled or secretions block the filter.</p> | <p>30 per month</p> |
| <p>Small Volume Nebulizer Kits (Micro-Neb Kits)</p>  | <p>Daily: Rinse after every treatment and set on a towel to dry.</p> <p>Every other day: Clean and disinfect with vinegar and water.</p> | | <p>2 per month</p> |

| Equipment | When and How to Change | Tips | Amount |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <p>Suction Machine, Patient Tubing, and Collection Bottle</p>  | <p>Daily: Collection bottle –discard secretions in toilet (not sink) and rinse bottle Patient tubing- suction/rinse water through tubing daily.</p> <p>Weekly: Discard and change patient tubing and collection bottle.</p> <p>Weekly: Wipe off the suction machine.</p> | <p>Always clean the bottle after cleaning other equipment.</p> <p>No need to disinfect.</p> <p>Do not tip suction bottle or get filter wet.</p> <p>Replace filter immediately if it gets wet. Machine will not work if filter is wet. It is helpful to keep an extra filter in your Go-Bag.</p> | <p>Suction canisters – 2 per month</p> <p>Suction tubing – 6 per month</p> |
| <p>Heated Humidification System (Circuit or tubing, mask, and drainage bags)</p>  | <p>Weekly: Change and discard</p> | | |
| <p>Humidifier Column or Chamber</p>  | <p>Monthly: Change and discard</p> | | <p>1 per month</p> |

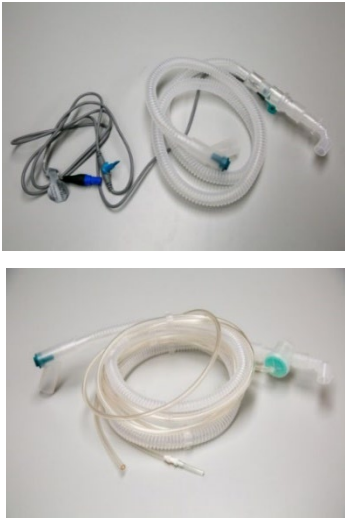


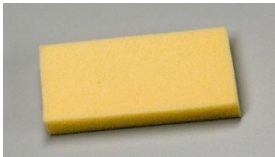
| Equipment | When and How to Change | Tips | Amount |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <p>Tracheostomy Tube</p>  | <p>Weekly: As doctor orders</p> | <p>Discard tracheostomy tube as per manufacture's recommendations</p> <p>Discard if there are any cracks or changes to the color of the tracheostomy tube</p> <p>May order one new tracheostomy tube per month</p> | <p>1 per month</p> <p>Trach ties 35 per month</p> |
| <p>Trach Mask</p>  | <p>Weekly: Wash with warm soapy water, rinse well, air dry.</p> <p>Monthly: Change and discard</p> | | <p>4 per month</p> |
| <p>Flex Probes</p>  | <p>Replace sticky band until the flex probe no longer sticks.</p> <p>Reuse flex probe as long as it functions.</p> | <p>Flex probe should work for weeks to months</p> | |
| <p>Disposable Wrap Probes Size: Neo, Infant or Peds</p>  | | | <p>4 per month</p> |

| Equipment | When and How to Change | Tips | Amount |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------------|
| <p data-bbox="203 275 394 306">Patient Cable</p>  | | | 4 per year |
| <p data-bbox="203 638 594 669">Resuscitation Bag and Mask</p>  | <p data-bbox="683 638 889 743">Monthly: Replace if used after 1 month</p> | | |

Cough Assist Equipment

| Equipment | When and How to Change | Tips |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <p>Mask</p>  | <p>Daily: Rinse with warm water</p> <p>Weekly: Wash with warm soapy water, then disinfect</p> | <p>1 per 3 months</p> |
| <p>Circuit</p>  | <p>Weekly: Wash with warm soapy water, disinfect, rinse well, air dry</p> | |
| <p>Bacteria Filter (side of machine)</p>  | <p>Monthly: Change and discard</p> | |
| <p>Intake Foam Filter (back of machine)</p>  | <p>Daily: Check for dust</p> <p>Weekly: Wash in warm soapy water, rinse well, and air dry.</p> | <p>Do not run cough assist without a filter.</p> <p>Use the foam filter only, do not use white paper filters.</p> |

Ventilator Equipment

| Equipment | When and How to Change | Tips |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <p>Circuit (pre-packaged tubing with exhalation valve)</p>  | <p>Monthly: Change and discard</p> <p>Monthly: Clean reusable parts with warm soapy water, rinse well, air dry.</p> | <p>The trach adapter can be changed and cleaned every day or every other day.</p> |
| <p>Humidifier Chamber</p>  | <p>Monthly: Change and discard.</p> | <p>To be done with circuit changes</p> |
| <p>Bacteria Filter (side of the machine)</p>  | <p>Monthly: Change and discard.</p> | <p>To be done with circuit changes</p> |
| <p>Intake Foam Filter (back of Trilogy) (side of LTV)</p>  | <p>Daily: Check for dust</p> <p>Weekly: Wash with warm soapy water, rinse well, air dry.</p> | <p>Do not run ventilator without a filter.</p> <p>Use the foam filter only, do not use white paper filters.</p> |