

## Tracheostomy Care: Humidity and Hydration

Moisture on the inside of the lungs helps keep mucus thin. Thin mucus is easier to cough out of the lungs. When the mucus is thick and sticky, it is harder to cough out. Sometimes it sticks to the inside of the airways. If the mucus stays inside the lungs, germs can grow in the mucus and cause lung infections.

If your child has a tracheostomy (“trach”), the thick, sticky mucus can also stick to the inside of the trach tube. Too much mucus can block the flow of air to the lungs and make it harder for the child to breathe. When that happens, you need to change the trach tube.

You need to do two things to keep the mucus moist and thin: hydration and humidification.

### Hydration

Hydration means the amount of fluid that is in the body. Mucus in the lungs can take fluid from the body. If the body is dry, the mucus will be dry, too. If the body has enough fluid, the mucus will be moist and thin. The best way to keep the body hydrated is to give your child **lots of liquids** to drink.

Any kind of liquid that your child drinks will hydrate the body. It is important to remember to give different liquids – not just water. Check with your child's doctor or nurse to find out how much liquid your child needs.

### Humidification

Humidification means the amount of moisture in the air that your child breathes in. If the air is dry, it will dry out the mucus in the lungs and trach tube. If the air your child breathes is humidified (moist), the mucus will absorb this moisture and stay thin. There are several ways to humidify (moisturize) the air before it reaches your child's lungs. The method you use depends on how long your child has had the tracheostomy, the dryness of the air, and thickness of your child's mucus. Humidify the air through a mist collar, a Humid-Vent<sup>®</sup>, a ventilator, or saline aerosols.

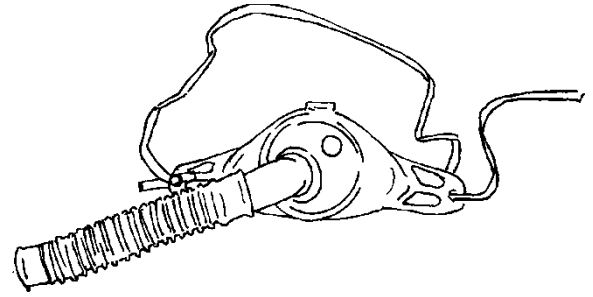
## Mist collar

The mist collar is attached to an air compressor. The air compressor pushes air through a bottle of water. As the air flows through the water, it picks up moisture. The moisturized air then flows through the tubing to the collar placed over your child's trach (Picture 1).

This moisture is a very fine mist. It **DOES NOT** form "water in the lungs." It just gives the needed moisture to the air your child breathes.

When your child first gets the trach, he will need to have the mist collar on most of the time. Even with the mist collar on, you can hold, feed and play with your child. After a while, he or she will need the mist collar only when sleeping. When your child's mucus gets thick, you may need to increase the amount of time he spends with the mist collar attached to the trach while awake.

If your child is on oxygen, it will be provided by a concentrator and delivered by the mist collar. Your child will need the mist collar on at all times so the oxygen does not make the secretions too dry.



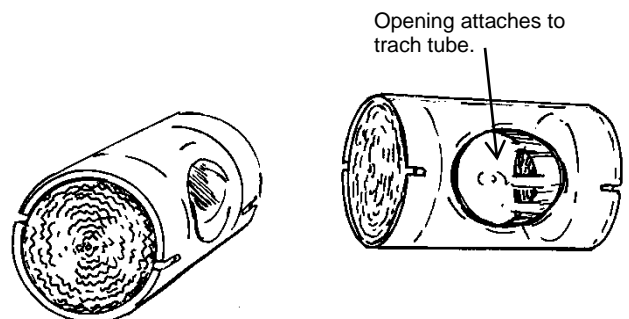
**Picture 1** The mist collar sends humidified air to your child's trach.

## Humid-Vent

A Humid-Vent is a small "nose-like" piece of plastic that fits over the trach opening. Each end of the Humid-Vent is made up of rows and rows of thin filter paper (Picture 2). The filter paper picks up the moisture in the air your child exhales (breathes out). Then, when your child inhales (breathes in), the air passes through the Humid-Vent and picks up the moisture from the filter paper. The air that reaches your child's lungs is humidified.

The Humid-Vent is disposable and **cannot be cleaned**. If your child coughs mucus into the Humid-Vent, throw it away and get a clean one. Each Humid-Vent is made to last for several hours and then needs to be replaced.

Humid-Vents are available from your medical equipment supply company.



**Picture 2** The Humid-Vent picks up moisture from exhaled air. Inhaled air is humidified by the moisture on the filter paper.

## Weaning your child from the mist collar or Humid-Vent

Unless your child has problems with very thick mucus, he will get used to going without the mist collar during the day, and use it only at night. It is important to wean your child *slowly* from using the mist collar while he is awake, and gradually replace it with the Humid-Vent. To wean your child, follow these steps:

1. Start by using the Humid-Vent instead of the mist collar for 1 hour the first day.
2. Increase the time your child has the mist collar off (and the Humid-Vent on) by 1 hour every day. Do this until your child is using the mist collar only while sleeping.
3. **Wean from the Humid-Vent only if directed by your child's practitioner.** If your doctor says it is OK, leave the Humid-Vent **off** for 1 hour while your child is awake. Increase the time without the Humid-Vent by 1 hour each day, just as you did with the mist collar. After a while, your child will be able to go without the Humid-Vent during the day.

## Saline aerosols

An aerosol (AIR o sol) is a mist. It might have medicine in it. To keep secretions from getting thick use saline aerosols. Aerosols help make breathing problems better. You will need:

- Aerosol machine (compressor)
- Tubing
- 1 or 2 nebulizers (the container where the medicine is poured)
- Sterile saline ampules
- White vinegar for cleaning the equipment (or disinfectant recommended by your home care company)

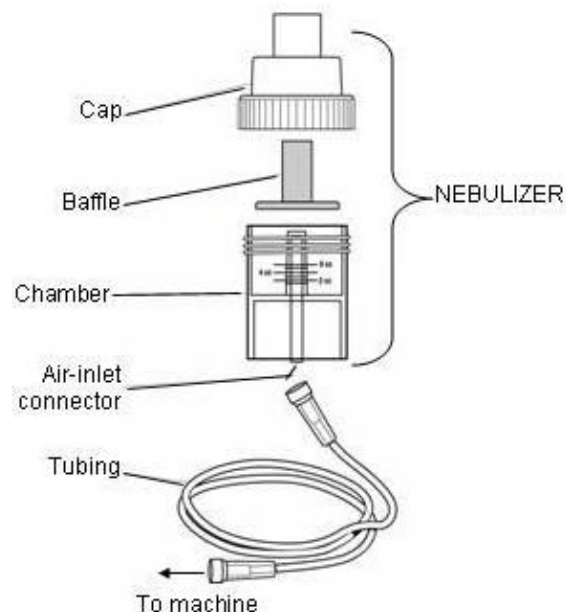
## How to get an aerosol machine

- You must have a doctor's prescription to get an aerosol machine. Often the staff at the doctor's office will order the machine for you.
- Several different medical supply companies stock the aerosol machine. Most of them let you either rent or purchase the aerosol machine. You may want to compare costs before ordering because the cost of the machine varies with each medical supply company. Many insurance companies or Medicaid/Medicare will pay for some or all of the cost.
- Usually someone from the supply company will deliver the machine to your home and show you how to use and care for it.

## How to give an aerosol treatment

### Opening the medicine and connecting the machine

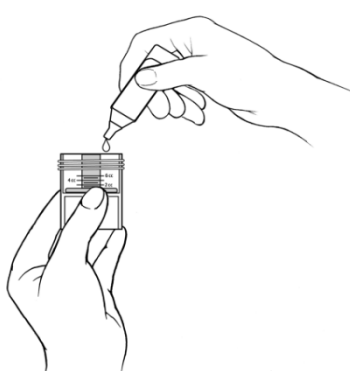
1. Wash your hands well.
2. Unscrew the nebulizer and remove the cap from the chamber.
3. You will get the saline from the pharmacy in a plastic vial or bottle. It is ready for use in the machine. Open the saline vial (Picture 4) and put it all in the chamber of the nebulizer (Picture 5).
4. Hold the chamber still and screw the cap back onto the chamber (Picture 6).
5. Connect the mask to the top of the nebulizer cap (Picture 7).
6. Connect one end of the tubing to the bottom of the nebulizer and the other end of the tubing to the aerosol machine (Picture 8). It does not matter which end of the tubing is attached to the machine.
7. Plug in the aerosol machine. Do not use an extension cord. Turn the machine on.



**Picture 3** The nebulizer is used with a mask over the trach



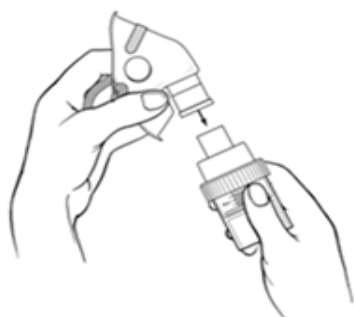
**Picture 4**



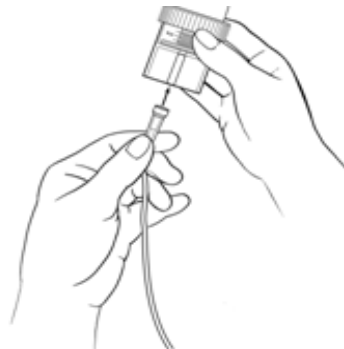
**Picture 5**



**Picture 6**



**Picture 7**



**Picture 8**

## After each treatment

1. Turn off the machine.
2. Remove the nebulizer from the tubing.
3. Unscrew the top half (nebulizer cap) from the bottom half (chamber) of the nebulizer. Remove the inner baffle. (Picture 3) **Note:** The nebulizer will not work if the removable baffle is not in it.
4. Wash the parts with soap and water and rinse well.
5. Let the equipment air dry on a clean paper towel.
6. Store the equipment and the medicine out of the reach of children.
7. Check the nebulizer and tubing for breaks and cracks. Throw away broken or cracked equipment. Be sure to reorder new equipment when needed.

## How to clean the aerosol equipment

**Every day** - Clean the outside of the machine with a damp cloth after unplugging the machine. Do not wash the tubing or compressor.

Clean the nebulizer to kill bacteria and remove the build-up. All parts attached to the tubing can and should be washed. Take it apart and wash the parts in warm, soapy water. (Check the booklet or video that comes with your child's machine. Many nebulizers can be washed in the dishwasher.)

**Once a week** - Disinfect the equipment using either a vinegar solution or a disinfectant recommended by your home care company:

1. To make a vinegar solution: mix one cup of water with one cup of white vinegar (the kind that looks like water).
2. Take the nebulizer apart and place the parts in a clean pot or bowl.
3. Pour enough vinegar solution in the bowl to cover the parts. Let them soak for half an hour.
4. Wash the mouthpiece or mask with hot soapy water.
5. Rinse the equipment with water and air-dry on a clean paper towel.
  - ✓ If the filter on the aerosol machine is dark brown, put in a new one. Follow the manufacturer's directions for replacing the filter. Always keep an extra filter on hand. If you need a new one, contact the provider.
  - ✓ Store the equipment and medicine out of reach of your child. The nebulizer can be stored inside the machine, along with the tubing.