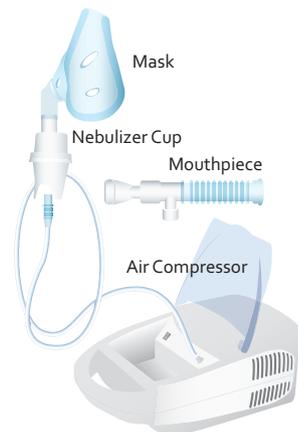


Nebulizer Breathing Treatments at Home

Nebulizer (neb) breathing treatments use an air compressor (machine) and a cup (nebulizer) that holds liquid medicine. Air from the machine passes through a tube to the cup and turns the medicine into a mist that the person breathes in using a mouthpiece or a facemask. There are many types of medicine that can be breathed in by nebulizer. Some medicines require a special type of nebulizer to make the right size mist to inhale. There are also machines called ultrasonic nebulizers that use sound waves to make the mist but they are not as common and can be more costly. Nebulizer treatments can be used by people who have lung problems such as COPD, bronchiectasis, cystic fibrosis, or asthma. This fact sheet will review how to use and clean a nebulizer breathing treatment at home.



Many people can benefit from using a nebulizer, including:

- Older people who have arthritis that makes it hard to use an inhaler
- People who have trouble using an inhaler device
- People who benefit from the humidification (moisture) nebulizers provide during a treatment
- People who have severe disease and may not be able to inhale as quickly and deeply as needed to use some inhaler devices
- People who need medicines that are only available as nebulizer solutions.

Dornase alfa (Pulmozyme) is a medicine used in cystic fibrosis that only comes as a nebulizer solution. There are long acting anticholinergic medicines used for COPD in a nebulizer.

Compared to a metered dose inhaler, it takes longer to use a nebulizer. Nebulizers do require daily cleaning. You can talk to your healthcare provider about what device is best for you.

The basic pieces of equipment used to give a nebulizer treatment are shown in the picture above. The medicine is placed into the cup. A neb facemask should be used by children who are less than 6 years of age or by people who are unable to breathe well with a mouthpiece. If using a mouthpiece, it should be placed in the mouth. If using a facemask, it should fit tightly on the face. Never hold the face mask or mouthpiece, in front of the face (sometimes called "blow by"). This will result in much of the medicine being lost to the air and not inhaled, or the medicine could blow into the eyes, which can cause problems.

Getting Ready to Give a Treatment

- Wash your hands with soap and water and be sure your equipment is clean.
- Put the right dose of medicine in the neb cup. Some medicines come pre-measured, this is called a unit dose vial. Sometimes extra saline (salt water) is added to the medicine. It is best to have 3-4 ml (about 1 teaspoon) of medicine to make a good mist. Ask your healthcare provider if you are unsure how much salt water to add. If you use more than one medicine in the neb machine, ask

your healthcare provider if they can be mixed together. When in doubt don't mix!

- Be sure the air compressor machine is on a hard flat clean surface. Do not use the floor as dust and allergen particles from the floor may be drawn into the machine. Do not put it on a soft surface like a bed or couch where the air openings and ventilation slots may be blocked. Most air compressor machines are powered by electricity. Some have a battery back-up.
- Connect the tubing and neb cup. Attach the neb facemask, or mouthpiece, to the neb cup.
- Make sure to hold the neb cup upright so the medicine does not spill out.

Giving the Treatment

- Make sure you are sitting up to take the neb. This will let you take deeper breaths to get more medicine into your lungs.
- You should see a mist come out of the neb facemask, or mouthpiece, when you turn on the machine.
- When the facemask is in place, make sure there is no mist leaking out the sides. The mask should feel comfortable, yet snug. There are different size masks, so be sure to get the one that fits your face best.
- If using a mouthpiece, place it in your mouth between your teeth. Close your lips around the mouthpiece, so no air leaks out.
- Take slow deep breaths. Do this until there is no more mist coming out of the facemask, or mouthpiece. When the mist stops the treatment is done. This could take 10-20 minutes depending on the machine and the amount of medicine.

Cleaning the Nebulizer Equipment

- Cleaning your equipment after each treatment is important. Dirty equipment can cause lung infections.
- Before cleaning your equipment, wash your hands.
- Then, rinse the nebulizer cup and facemask, or mouthpiece, with water and dry with a paper towel.
- At least once a day do a deeper cleaning using warm water and a mild, clear detergent. Fill a bowl or sink with warm water and add a mild, clear detergent (like dishwashing soap). Submerge

the nebulizer parts and swish back and forth gently. Rinse with water and shake off excess water. It may also be recommended that you soak the nebulizer equipment in a soapy solution for 30 minutes, then soak in a vinegar solution (2 parts sterile water, 1 part white vinegar) for 30 minutes.

- You may be advised to disinfect the equipment. Check with your healthcare provider and the product information for your nebulizer for directions on how to do this. Some equipment can be disinfected using a heat method. Some plastics can warp or melt with heat and you will need to use a disinfecting solution.

Heat Disinfecting Methods

Any of the following methods using heat to disinfect respiratory equipment can be used, IF it does not damage the equipment.

- Use an electric steam sterilizer (such as a baby bottle sterilizer).
- Place in boiling water and boil for 5 minutes.
- Place in water in a microwave safe bowl/or microwavable bag and microwave for 5 minutes.
- Using a dishwasher with a 30-minute wash cycle and water temperature that is hotter than 158 degrees. Check to see if your dishwasher has a "Sanitize" setting.

Disinfecting Solutions

You can use either of the following solutions to disinfect your nebulizer. You should use a fresh batch of solution each time you clean the equipment. Both of these solutions can be purchased without a prescription. Pour the solutions out right after you finish cleaning. Do not leave disinfectant solutions in reach of children. Remember, these chemicals could be dangerous to a child.

Disinfecting solutions and soaking times:

- 70% isopropyl alcohol – 5 minutes
- 3% hydrogen peroxide – 30 minutes

After disinfecting you need to rinse the parts with water. For people at higher risk of infection, you can use sterile water. You can get this from a medical supply company, or make it by boiling water for 5 minutes and then letting it cool.) Put the pieces on a clean towel or cloth to air dry. Do not store until they are completely dry—this may take more than 2 hours in hot and humid weather.

You can wipe the outside of the tubing that connects the compressor machine to the neb cup. Do not try to clean inside the tubing. If you get water inside of the tubing, it will not dry out well. If the tubing looks dirty inside, you need to get a new one.

Disposable neb cup and tubing sets can be used for two weeks. Reusable neb cup and tubing sets can be used for up to six months—but only if you are cleaning them as described above. You may want to have several sets so you can use them in the day and clean them all at once. When needed you can wipe the outside of the machine and tubing with a damp cloth or alcohol.

If your neb cup, or tubing set, cracks, leaks or does not make a mist, replace.

Store all equipment in a clean, dry place.

The air compressor machine has a filter that will need to be changed – usually if it starts to turn gray you should replace it. Check the manual or talk to your healthcare provider to learn how and how often to do this. You should not use the machine if the power cord is damaged or it is not working properly. Never cover the machine with anything. Make sure the air openings and ventilation slots are free of lint, hair, dust or other debris. Each machine has a manufacturer's warranty.

If you need new supplies, you can ask your healthcare provider for an order that can be sent to a pharmacy, or DME company.

Ask your healthcare provider to review any possible side effects, or problems, to watch for with the medicine being used.

Special Precautions

If you do not keep your equipment clean, mold can grow in it. Then, the mist can contain mold spores that get in the air and anyone near you can breathe in the mold. This can cause an infection particularly if a person has reduced immunity (ability to fight infection).

Special precautions are needed if a person has COVID 19 and needs to use a nebulizer to prevent virus spread. The virus can stay for hours in the air and on surfaces. This risk is not for the person who has the infection but for those around him or her.

- Use one room that other people can avoid.
- Other people should stay out of that room for at least 3 hours after.
- A caregiver helping should wear a disposable mask and gloves and throw them away after the treatment in a sealed bag.
- Ask your healthcare provider about any other steps you should take for using your inhaled medicines.

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Rx Action Steps

- ✓ Know how to take a nebulizer treatment correctly.
- ✓ Clean your nebulizer equipment daily to avoid infection risk.
- ✓ Ask your healthcare provider if you need any replacement parts.
- ✓ Tell your healthcare provider how well the medicine is working for you.

Healthcare Provider's Contact Number:

Other Resources

American Lung Association

- <https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/patient-resources-and-videos/how-to-use-a-nebulizer>
- <https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/patient-resources-and-videos/how-to-clean-a-nebulizer>

COPD Foundation

- <https://www.copdfoundation.org/Learn-More/I-am-a-Person-with-COPD/Treatments-Medications.aspx>
- <https://www.copdfoundation.org/Learn-More/Educational-Materials-Resources/Educational-Video-Series.aspx>

Medline Plus - US National Library of Medicine

- <https://medlineplus.gov/ency/patientinstructions/000006.htm>

American College of Allergy, Asthma & Immunology (ACAAI)

- <https://college.acaai.org/publications/college-insider/nebulizer-use-during-covid-19-pandemic>

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