



## Equipment for Asthma Care in Children

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### Use and Care of a Nebulizer

A nebulizer is a device driven by a compressed air machine. It allows you to take asthma medicine in the form of a mist (wet aerosol). It consists of a cup; a mouthpiece attached to a T-shaped part or a mask, and thin, plastic tubing to connect to the compressed air machine. It is used mostly by three types of patients:

- Young children under age 5
- Patients who have problems using metered dose inhalers
- Patients with severe asthma

A nebulizer helps make sure they get the right amount of medicine.

A routine for cleaning the nebulizer is important because an unclean and nebulizer may cause an infection. A good cleaning routine keeps the nebulizer from clogging up and helps it last longer.

Directions for using the compressed air machine may vary (check the machine's direction), but generally the tubing has to be put into the outlet of the machine before it is turned on.

### How to Use a Nebulizer

1. Measure the correct amount of normal saline solution using a clean dropper and put it into the cup. If your medicine is premixed, go to step 3.
2. Draw up the correct amount of medicine using a clean eyedropper or syringe and put it into the cup with the saline solution. Once you know your number of drops, you can count them as a check on yourself.

3. Fasten the mouthpiece to the T-shaped part and then fasten this unit to the cup **OR** fasten the mask to the cup. For a child over the age of 2, use a mouthpiece unit because it will deliver more medicine than a mask.
4. Put the mouthpiece in your mouth. Seal your lips tightly around it **OR** place the mask on your face.
5. Turn on the air compressor machine.
6. Take slow, deep breaths in through the mouth.
7. Hold each breath 1 to 2 seconds before breathing out.
8. Continue until the medicine is gone from the cup (approximately 10 minutes).
9. Store the medicine as directed after each use.

### **Cleaning the Nebulizer**

**Don't forget:** Cleaning and getting rid of germs prevents infection. Cleaning keeps the nebulizer from clogging up and helps it last longer.

### **After Each Use**

1. Remove the mask or the mouthpiece and T-shaped part from the cup. Remove the tubing and set it aside. The tubing should not be washed or rinsed. Rinse the mask or mouthpiece and T-shaped part – as well as the eyedropper or syringe – in warm running water for 30 seconds. Use distilled or sterile water for rinsing, if possible.
2. Shake off excess water. Air dry on a clean cloth or paper towel.
3. Put the mask or the mouthpiece and T-shaped part, cup, and tubing back together and connect the device to the compressed air machine. Run the machine for 10 to 20 seconds to dry the inside of the nebulizer.
4. Disconnect the tubing from the compressed air machine. Store the nebulizer in a ziplock plastic bag.
5. Place a cover over the compressed air machine.

### **Once Every Day**

1. Remove the mask or the mouthpiece and T-shaped part from the cup. Remove the tubing and set it aside. The tubing should not be washed or rinsed.

2. Wash the mask or the mouthpiece and T-shaped part – as well as the eyedropper or syringe – with a mild dishwashing soap and warm water.
3. Rinse under a strong stream of water for 30 seconds. Use distilled (or sterile) water if possible.
4. Shake off excess water. Air dry on a clean cloth or paper towel.
5. Put the mask or the mouthpiece and T-shaped part, cup, and tubing back together and connect the device to the compressed air machine. Run the machine for 10 to 20 seconds to dry the inside of the nebulizer.
6. Disconnect the tubing from the compressed air machine. Store the nebulizer in a ziplock plastic bag.
7. Place a cover over the compressed air machine.

### **Once or Twice a Week**

1. Remove the mask or the mouthpiece and T-shaped part from the cup. Remove the tubing and set it aside. The tubing should not be washed or rinsed. Wash the mask or the mouthpiece and T-shaped part – as well as the eyedropper or syringe – with a mild dishwashing soap and warm water.
  2. Rinse under a strong stream of water for 30 seconds.
  3. Soak for 30 minutes in a solution that is one part distilled white vinegar and two parts distilled water. Throw out the vinegar water solution after use; do not reuse it.
  4. Rinse the nebulizer parts and the eyedropper or syringe under warm running water for 1 minute. Use distilled or sterile water, if possible.
  5. Shake off excess water. Air dry on a clean cloth or paper towel.
  6. Put the mask or the mouthpiece and T-shaped part, cup, and tubing back together and connect the device to the compressed air machine. Run the machine for 10 to 20 seconds to dry the inside of the nebulizer thoroughly.
  7. Disconnect the tubing from the compressed air machine. Store the nebulizer in a ziplock plastic bag.
  8. Clean the surface of the compressed air machine with a well-wrung, soapy cloth or sponge. You could also use an alcohol or disinfectant wipe. **NEVER PUT THE COMPRESSED AIR MACHINE IN WATER.**
  9. Place a cover over the compressed air machine.
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## How to Use a Peak Flow Meter

A peak flow meter is a device that measures how well air moves out of your lungs. During an asthma episode the airways of the lungs begin to narrow slowly. The peak flow meter can be used to find out if there is narrowing in the airway hours – even days – before you have any symptoms of asthma. By taking your medicine early (before symptoms) you may be able to stop the episode quickly and avoid a serious episode of asthma. Peak flow meters are used to check your asthma the way that blood pressure cuffs are used to check high blood pressure.

The peak flow meter can also be used to help you and your doctor:

- Decide if your medicine plan is working well.
- Decide when to add or stop medicine.
- Decide when to seek emergency care.
- Identify triggers – that is, what causes your asthma symptoms to increase.
- Talk about your asthma with more knowledge.

All patients age 5 and older who have moderate or severe asthma should think about using a peak flow meter. Some children as young as 3 can also use it. Ask your doctor or nurse to show you how to use a peak flow meter.

### How to use a Peak Flow Meter

1. Place the indicator at the base of the numbered scale.
2. Stand up.
3. Take a deep breath.
4. Place the meter in your mouth and close your lips around the mouthpiece. Do not put your tongue inside the hole.
5. Blow out as hard and fast as you can.
6. Write down the number you get.
7. Repeat steps 1 through 6 two more times.
8. Write down the highest of the three numbers achieved.

### Find Your Personal Best Peak Flow Number

Your *personal best* peak flow number is the highest peak flow number you can achieve over a 2-week period when your asthma is under good control.

Good control is when you feel good and do not have any asthma symptoms.

Each patient's asthma is different and your best peak flow may be higher or lower than the average usual number for someone of your height, weight, and sex. This means that it is important for you to find your own personal best peak flow number. Your own medicine plan needs to be based on your own personal best peak flow number.

To find out your personal best peak flow number, take peak flow readings:

- Every day for 2 weeks
- Mornings and evenings (when you wake up and about 10-12 hours later)
- Before and after taking inhaled beta<sub>2</sub>-agonist (if you take this medicine)
- As instructed by your doctor

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## **Spacers**

Unless you use your inhaler the right way, much of the medicine may end up on your tongue, on the back of your throat, or in the air. Use of a spacer or holding chamber can help this problem.

A spacer or holding chamber is a device that attaches to a metered dose inhaler. It holds the medicine in its chamber long enough for you to inhale it in one or two slow deep breaths. The spacer makes it easy for you to use the medicines the right way (especially if your child is young or you have a hard time using just an inhaler). A spacer will also help prevent you from getting a yeast infection in your mouth (thrush) when taking inhaled steroid medicines.

There are many models of spacers or holding chambers that you can purchase through your pharmacist or a medical supply company. Ask your doctor about the different models.

## How To Use a Spacer

1. Attach the inhaler to the spacer or holding chamber as explained by your doctor or by using the directions that come with the product.
2. Shake well.
3. Press the button on the inhaler. This will put one puff of the medicine in the holding chamber.
4. Place the mouthpiece of the spacer in your mouth and inhale slowly. (A facemask may be helpful for a young child.)
5. Hold your breath for a few seconds and then exhale. Repeat steps 4 and 5 *two* more times.
6. If your doctor has prescribed two puffs, wait between puffs for the amount of time he or she has directed and repeat steps 4 and 5.

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