

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 five years
- Patients who have problems using metered dose inhalers
- Patients with severe asthma.

A nebulizer helps make sure a patient gets the right amount of medicine. A routine for cleaning the nebulizer is important because an unclean 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 directions), but generally the tubing has to be put into the outlet of the machine before it is turned on. It is important to keep the compressor clean and free of insects. It is also important to regularly change the compressor's filter, according to the manufacturer's instructions.

How to Use a Nebulizer

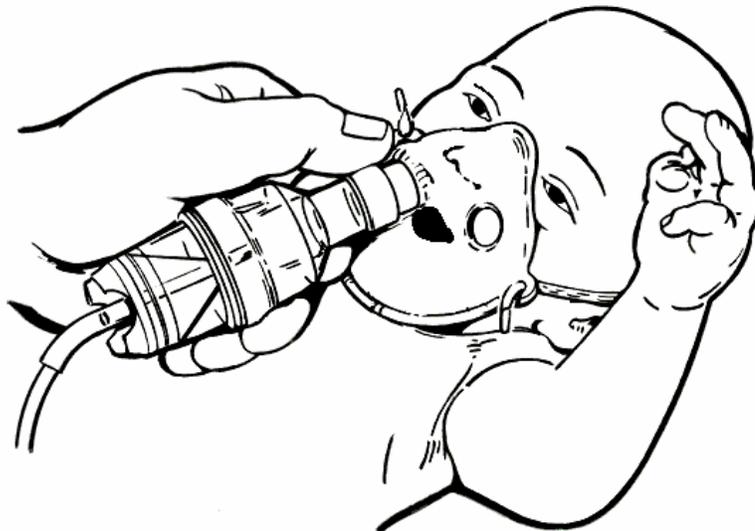
1. Select a comfortable area in your child care facility where the compressor can be placed and treatments can be given without interruption. A car seat or infant carrier can provide a comforting, secure place for the treatment.
2. Wash your hands thoroughly with warm water and soap.
3. If your medication must be mixed with saline solution, measure the correct amount of normal saline solution using a clean dropper and put it into the cup. Medications for the treatment may be pre-measured in unit dose vials or in bulk solution. For bulk solution, use the eye dropper or syringe for measuring the medication. These are usually provided with the medication. Go to Step 4. If your medicine is premixed, and does not need to be mixed with normal saline, then open the unit dose vial and deposit the medication into the nebulizer cup. You may also use saline specific for use in the lungs that comes in vials or cans. Follow the instructions on their containers for measuring these. Then, go to step 5.
4. Draw up the correct amount of medicine using a clean eyedropper or syringe and put it into the cup with the saline solution. Screw the nebulizer cap shut. Gently swirl the nebulizer to mix the medication and saline solution. (It is important to have an adequate amount of rescue medication available, in case the medication is spilled.)

5. Fasten the mouthpiece to the T-shaped part and then fasten this unit to the cup OR fasten the mask to the cup. If your nebulizer includes a medication saving reservoir tubing, attach this tubing to the opposite end of the T piece. Fasten the cup to the tubing. Fasten the other end of the tubing to the compressor. Plug the compressor into a three-prong grounded outlet, or use a battery-style compressor. For a child over the age of two years, it is more efficient to use a mouthpiece unit because it will deliver more medicine than a mask. However, children up to the age of five years may prefer using a mask.
6. Position the child in a comfortable position sitting up to allow for deep breathing. Put the mouthpiece in child's mouth. Have child seal his/her lips tightly around it OR place the mask on his/her face by securing it around the child's head.
7. Turn on the air compressor machine. Look for a steady mist coming from the nebulizer cup. If the mist does not come out of the nebulizer mouthpiece or mask, check to make sure the machine's filter cap is tightly secured. Also, make sure the machine's intake area is not blocked.
8. Tell child to take slow, deep breaths in through the mouth at the beginning of the treatment. Then, the child can continue the treatment breathing normally through the mouth. If a child is using a face mask, tell the child to breathe normally. A little bit of coughing is to be expected during a nebulizer treatment. You do not have to turn off the machine if the child is mildly coughing.
9. Continue until the medicine is gone from the cup (approximately 10 minutes). As the medicine disappears, there may be some left on the bottom of the nebulizer cup. Flick the cup gently with your finger to disperse the remaining medication.
10. Store the medicine as directed after each use.
11. Nebulizers should not be shared. Keep each child's equipment separate.

NOTE: Blowing medication in front of the face without the mask or a mouth piece is **not** an efficient way to deliver the medication. Also, some children may need to be on regularly scheduled nebulizer treatments throughout the day. In these cases, it is important to have more than one nebulizer available so that clean and dry nebulizers can be used for each treatment.

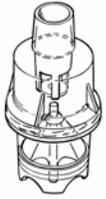
After the Treatment

Turn the compressor off. Clean nebulizer equipment after each use (Refer to pages 15 & 16 Cleaning a Nebulizer).



THE NEBULIZER EQUIPMENT

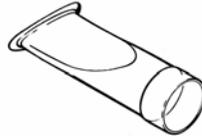
- Nebulizers are used to turn liquid medication into a mist so that it can be breathed in.
- Nebulizer therapy uses a prescribed drug.
- Nebulizer equipment may vary in appearance, although most models contain the following components.



Nebulizer



Nebulizer
T-Piece



Mouth Piece



Cup + Mouthpiece



Mask & Nebulizer
assembled for use



Nebulizer Machine



Nebulizer Tubing



Measuring
Medication



Unit Dose
Vial



Medication
Dropper



Syringe



Two Types of Peak Flow Meters

NOTE: A peak flow meter is used by people with lung disease to measure lung function. Specifically, peak flow meters measure how well a person can move air through the airways in his lungs. Peak flow meters are used both by people who use nebulizers and inhalers.

STEPS FOR USING AN INHALER

Children and parents should demonstrate their inhaler technique at every doctor's visit, so the doctor can make sure the child is using his medication correctly.

1. Remove the cap and hold inhaler upright.
2. Shake the inhaler. (If you have a spacer and the type of inhaler that can be used with a spacer, Go to page 13 for instructions.)
3. Tilt your head back slightly and breathe out slowly.
4. Position the inhaler in one of the following ways- (A or B is optimal, but C is acceptable for those who have difficulty with A or B.) C is required for breath-activated inhalers:



A. Open mouth with inhaler 1 to 2 inches away. This technique is not as efficient as use with a spacer.



B. Use spacer/holder chamber (that is recommended especially for young children and for people using corticosteroids). This is the most efficient way to use this type of inhaler.



C. In the mouth. Do not use for corticosteroids. Using this method with corticosteroids will leave the medication on the tongue, possibly causing thrush, a yeast infection on the tongue. This technique is not as efficient as when a spacer is used. However some inhalers must be used like this because they are breath-activated and cannot be used with a spacer.



D. NOTE: Dry powder inhalers use a different delivery and inhalation technique. They dispense a fine dry powder, rather than a spray. To use a dry powder inhaler, it is important to close the mouth tightly around the mouthpiece of the inhaler and to inhale rapidly. You cannot use a spacer with this type of inhaler. This type of inhaler may also come in a diskus, which is round, rather than a canister and inhaler.

5. Press down on the inhaler to release medication as child starts to breathe in slowly. With dry powder inhalers, you may have to click or slide a button or lever before sealing your mouth around the inhaler and taking a deep breath. You cannot use a spacer device with these types of inhalers.
6. Tell child to breathe in slowly (3 to 5 seconds).
7. Tell child to hold his/her breath for 10 seconds to allow the medicine to reach deeply into his/her lungs. Tell the child to exhale.
8. Repeat puff as directed. If a child's doctor has prescribed two puffs, then wait between puffs for the amount of time the doctor has directed (usually 60 seconds) and take the second puff. Waiting one minute between puffs permits the second puff to penetrate the child's lungs better.
9. Spacers/holding chambers are useful for all patients. They are particularly recommended for young children and older adults and for use with inhaled corticosteroids.

Avoid common inhaler mistakes. Follow these inhaler tips:

- Tell child to exhale before pressing his/her inhaler.
- Tell child to inhale slowly through his/her mouth, not his/her nose.
- Press down on a child's inhaler at the start of inhalation (or within the first second of inhalation). Tell child to keep inhaling as you press down on the inhaler.
- Press the inhaler only once while the child is inhaling (one breath for each puff).
- Make sure child inhales evenly and deeply and holds the breath for ten seconds before exhaling.

NOTE: Other inhalers are becoming available in addition to those illustrated above. Different types of inhalers may require different techniques. Source: Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma. National Asthma Education and Prevention Program, National Heart, Lung, and Blood Institute, 1997.

USING AN INHALER WITH A SPACER

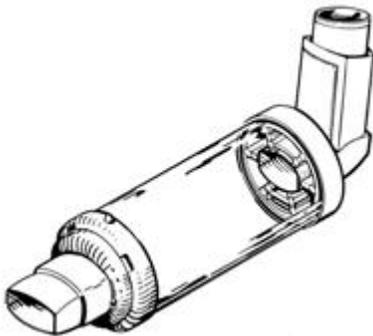
Unless an inhaler is used correctly, much of the medicine may end up on the child's tongue, on the back of his/her throat, or in the air. Use of a spacer, or holding chamber, can help this problem.

A spacer, or holding chamber, is a device that attaches to a metered dose inhaler (spacers are not used with dry powder inhalers such as Maxair® and Advair®). It holds the medicine in its chamber long enough for a child to inhale it in one or two slow deep breaths. When a child uses a spacer, he should breathe in softly and slowly. If the spacer is being used incorrectly, it will whistle. If the spacer whistles, then the breath is too quick and hard and this means the medication is not going to be efficiently delivered. Teach the child to use the spacer without making it whistle. The spacer makes it easy to use the medicines the correct way (especially if the child is young or has a hard time using an inhaler). It helps a child not cough when using an inhaler. A spacer will also help prevent a child from getting a yeast infection (thrush) in his/her mouth when taking inhaled steroid medications (because the medication is being inhaled, rather than ending up on the tongue. However, a child should always rinse his mouth after using an inhaled steroid, even if it is used with a spacer.)

There are many models of spacers or holding chambers that can be purchased through a pharmacy or medical supply company. Ask a child's doctor about the different models. A prescription is needed to purchase a spacer.

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. Place the mouthpiece of the spacer in child's mouth and tell child to inhale slowly. (A face mask may be helpful for a young child).
4. Press the button on the inhaler. This will put one puff of the medication in the holding chamber. (#3 and #4 should be done simultaneously.)
5. Tell the child to hold his/her breath for a few seconds and then exhale.
6. If child's doctor has prescribed two puffs, wait between puffs for the amount of time he or she has directed (usually 60 seconds) and repeat steps 4 and 5.



Spacer and Inhaler



Child using inhaler with spacer