



Instructions for Asthma Medication Administration

- Using a Metered-dose Inhaler
- Using a Dry-powder Inhaler
- Using a Nebulizer

MDI OR HFA

An MDI (metered dose inhaler) is an inhaler that delivers medication using an aerosol propellant. It is often referred to as "HFA" which stands for the newer, fluorocarbon-free type of propellant. For example "Albuterol HFA" refers to an Albuterol metered-dose inhaler.

Spacer

A spacer device is a hollow tube that connects to the inhaler, with either a facemask or a mouthpiece on the other end. Using a spacer with an inhaler is highly recommended, and is especially important for younger children who cannot time their breathing well while using an inhaler. It also works to slow down the medication so more of it gets into the airflow stream that travels deeper into the lungs. Even for older children, teens, and adults, we recommend using a spacer; but if it's not possible for one reason or another, you can use just the inhaler.

Using an inhaler with a spacer (with mask)—the preferred method for infants or children who cannot coordinate their breathing well:

1. Take the cap off and shake the inhaler.
2. Connect the inhaler to the soft opening of the spacer.
3. Place the mask snugly over the nose and mouth of your child.
4. Press down on the inhaler one time.
5. Have your child breathe in and out 5 to 10 times.
6. Repeat as prescribed by your doctor. (Wait 30 seconds between puffs.)
7. When finished, rinse your child's mouth out and replace the cap on the inhaler.

Adapted from the *American Thoracic Society Patient Information Series*: "Using Your New Inhaler with HFA Propellant" 2008

Using an inhaler with a spacer (without mask)—the preferred method for older children, teens and adults:

1. Take the cap off and shake the inhaler.
2. Connect the inhaler to the soft opening of the spacer.
3. Breathe out all the way.
4. Place your mouth on the mouthpiece of the spacer. If a mask is used, it must fit snugly over the nose and mouth.
5. Press down on the inhaler one time.
6. Breathe in slowly over 5 seconds, hold your breath for 10 seconds, and then exhale.
7. Repeat as prescribed by your doctor. (Wait 30 seconds between puffs.)
8. When finished, rinse your mouth out and replace the cap on the inhaler.

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Using an inhaler without a spacer (not the preferred method):

1. Take the cap off and shake the inhaler. Hold the inhaler upright.
2. Breathe out all the way.
3. Hold the inhaler 1 inch from your mouth or seal your mouth around the mouthpiece.
4. As you breathe in slowly, press down on the inhaler one time.
5. Keep breathing in slowly as deep as you can.
6. Hold your breath for ten seconds.
7. Exhale. Repeat as prescribed by your doctor. Wait 30 seconds between puffs.
8. Rinse your mouth out. Replace the cap on the inhaler.

Adapted from the Expert Panel Report 3: *Guidelines for the Diagnosis and Management of Asthma*. 2007; and *Up to Date: Patient Information: Asthma Inhaler Techniques in Children*

DPI

A DPI is an inhaler that has no aerosol propellant. The medication is an inhalable, very fine dry powder, designed and safe to be inhaled. A deep breath in provides the force to deliver medication to the lungs. There are several different kinds. Please look at the manufacturer's instructions for more detail.

Using a DPI:

1. Load a dose of medication. Depending on the type of DPI, there may be a lever you slide or a piece you twist until it clicks.
2. Exhale normally. Do not exhale into the mouthpiece.
3. Tilt your head back slightly. Place the mouthpiece in your mouth.
4. Breathe in quickly and deeply (this triggers the inhaler to release). Hold your breath for 10 seconds.
5. Turn your head from the mouthpiece and exhale.
6. (Repeat if directed by your doctor, waiting 30 seconds between puffs.)
7. Rinse your mouth after use.

Adapted from *Up to Date: Patient Information: Asthma Inhaler Techniques in Children*

NEBULIZER

Nebulizers transform liquid medication into an aerosol that can be inhaled. They are sometimes used for infants and young children who cannot use inhalers.

Using a Nebulizer:

1. Medication comes in vials. Twist the top of a vial and pour the medication into the nebulizer cup. Close the cup.
2. Attach the top of the nebulizer cup to a mouthpiece or mask.
3. Connect the bottom of the nebulizer cup with tubing to the air compressor.
4. Turn the compressor on. The nebulizer is working if a mist is coming out.
5. Place the mouth over the mouthpiece. If a mask is used, place it snugly over the nose and mouth.
6. Occasionally tap the side of the nebulizer cup to loosen medication stuck to the sides.
7. Turn off the compressor once the nebulizer starts to sputter. That means the treatment is complete. Treatments should last around 10 minutes.
8. Clean the nebulizer after use to prevent bacterial growth.

Adapted from *Emedicine: Use of Metered Dose Inhalers, and Nebulizers: Treatment and Medication*. 2010