EDUCATION
(BOOKLET 4)

Respiratory Devices To Help You Breathe Better

Allina Health

Respiratory Devices To Help You Breathe Better

First edition

Developed by Allina Health.

Disclaimer

This publication is for general information only and is not intended to provide specific advice or recommendations for any individual. The information it contains cannot be used to diagnose medical conditions or prescribe treatment. The information provided is designed to support, not replace, the relationship that exists between a patient and his/her existing physician. For specific information about your health condition, please contact your health care provider.

Table of Contents

How to Use a Metered Dose Inhaler (MDI)

If you have a MDI that looks like the one in the photo, follow these directions.

When You Start a New MDI

1. Prime the canister before you take a breath. Only do this if you received directions to do it.

2. Shake the MDI for 10 seconds. Point it away from you in the air.

3. Press the canister 3 or 4 times.

4. The MDI counter should move. For example, if your MDI shows "204" on the counter, it should show "200" when you are done.

5. You only need to prime the MDI the first time you take it out of the package.

MDI With Chamber or Spacer

1. Shake the canister quickly for 5 seconds.

2. Remove the cap(s).

3. Make sure there are no foreign objects in the inhaler or chamber.

4. Chamber: Insert the inhaler mouthpiece into the inhaler adapter of the chamber. Spacer: Insert the inhaler mouthpiece into one end of the spacer.

5. Grasp the inhaler firmly. Place the chamber mouthpiece between your teeth and close your lips. Gently exhale (breathe out).

7. Firmly press the canister one time.

8. Inhale (breathe in) slowly through your mouth. Keep your lips sealed around the mouthpiece. (A whistling sound means you are breathing too fast.)

9. Hold your breath for 10 seconds.

10. Remove the chamber or spacer from your mouth and exhale normally.

11. Wait 30 to 60 seconds. Shake the inhaler. Repeat steps 6 through 10 for the number of puffs you are prescribed.

12. Chamber: Replace the caps. Store the inhaler and chamber in a clean, dry place. Spacer: Remove the inhaler and spacer. Replace the cap. Store the inhaler and chamber in a clean, dry place.

Respiratory Devices To Help You Breathe Better

Metered Dose Inhalers and Dry Powder Inhalers

Tip

Follow the instructions from your primary care provider and the device maker.

A metered dose inhaler (known as MDI) lets you breathe medicine into your lungs. There are two types of MDI:

- with valved holding chamber
- with spacers.

Together, you and your primary care provider will decide which is right for you.

An example of an MDI.

Metered dose inhaler with valved holding chamber

A valved holding chamber takes away timing issues by letting you breathe at your own pace and it gets the medicine to your lungs better.

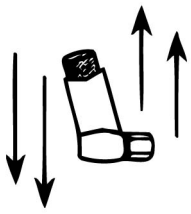
- Before using a new MDI canister, depress it 2 times into the air. This is called "priming."
- If you have a hard time depressing the canister when the MDI is inserted into the chamber, you may press the canister with two hands away from your mouth then bring the chamber to your mouth and inhale the trapped medicine.
- Rinse your mouth and spit after using your inhaler that has a coritcosteroid.
- When you are not using the inhaler place the cap on the inhaler to keep it from getting dirty.

How to use it

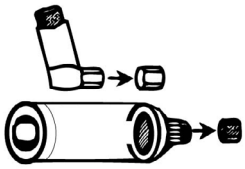
See the next page for how to use an MDI with a valved holding chamber.

How to use an MDI with a valved holding chamber

1. Shake the inhaler canister quickly for 5 seconds.

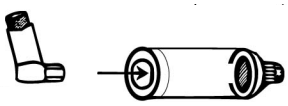


2. Remove the caps from the inhaler and the chamber.

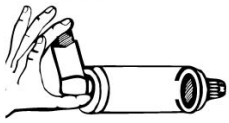


3. Look to make sure there are not any foreign objects in the inhaler or the chamber.

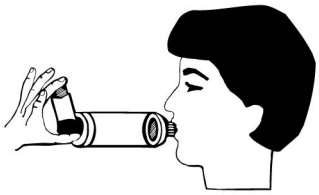
4. Insert the inhaler mouthpiece into the inhaler adapter of the chamber.



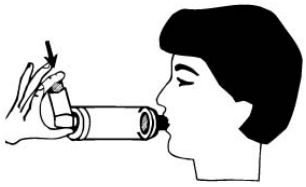
5. Grasp the inhaler in a good position to firmly spray it.



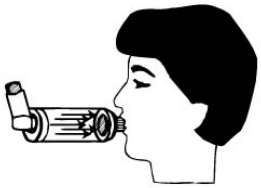
6. Place the chamber mouthpiece in your mouth between your teeth and close your lips. Gently exhale as fully as is comfortable.



7. Firmly press the canister once.

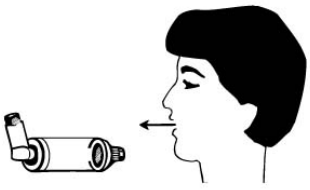


8. Inhale a full breath slowly through your mouth while keeping your lips sealed around the mouthpiece. A whistling sound means you are breathing too fast.



9. Hold your breath for 10 seconds if you can.

10. Remove the chamber from your mouth and exhale normally.



11. Wait 30 to 60 seconds. Shake the inhaler again and repeat steps 5 through 10 for the number of puffs ordered by your primary care provider.
Note: If you use albuterol, wait 1 to 2 minutes.

12. Remove the inhaler and holding chamber. Replace the caps. Store your inhaler and chamber in a clean, dry location.

How to clean your valved holding chamber

- Clean your valved holding chamber when it is new, and then once a week:
- Remove the cap and the chamber's inhaler adapter (boot). (A)
- Soak parts in a basin filled with warm water and a mild dish soap solution for 20 to 30 minutes.
- Gently rinse chamber parts in warm water.
- Remove the parts from the solution. Gently shake extra water.
- Set parts on clean towel to air dry. (B)
- When completely dry, put it back together.

A

B

Metered dose inhaler with spacers

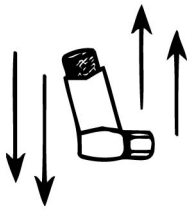
A metered dose inhaler with a spacer is easier to carry and it costs less than an MDI with a chamber.

How to use it

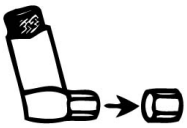
See the next page for how to use an MDI with spacers.

How to use an MDI with spacers

1. Shake the inhaler canister quickly for 5 seconds.

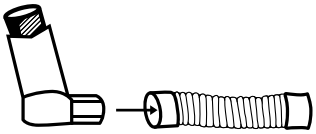


2. Remove the cap from the inhaler.

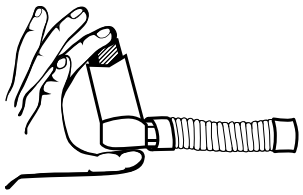


3. Look to make sure there are not any foreign objects in the inhaler or the spacer.

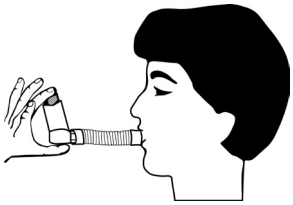
4. Insert the inhaler mouthpiece into one end of the spacer.



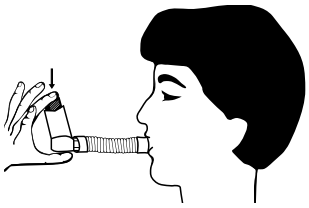
5. Grasp the inhaler in a good position to firmly spray it.



6. Place the spacer mouthpiece in your mouth between your teeth and close your lips. Gently exhale as fully as is comfortable.



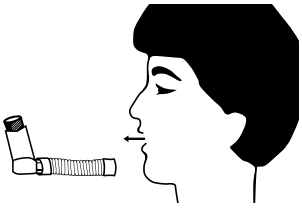
7. Firmly press the inhaler canister once.



8. Inhale a full breath slowly through your mouth.

9. Hold your breath for 10 seconds if you can.

10. Remove the spacer from your mouth and exhale normally.



11. Wait 30 to 60 seconds. Shake the inhaler again and repeat steps 5 through 10 for the number of puffs ordered by your primary care provider.
Note: If you use albuterol, wait 1 to 2 minutes.

12. Remove the inhaler and spacer. Replace the cap. Store your inhaler and spacer in a clean, dry location.

Tip

Follow the instructions from your primary care provider and the device maker.

Dry power inhalers

A dry powder inhaler (known as DPI) lets you breathe medicine into your lungs. The medicine is a dry powder. There are several different brands and types such as Diskus®, Flexhaler®, Aerolizer®, Hanihaler®, Twisthaler® and Aerolizer®.

Together, you and your primary care provider will decide which is right for you.

Examples of dry powder inhalers.

Nebulizers and Compressors

Tip

Follow the instructions from your primary care provider and the device maker.

A nebulizer ("neb machine") gives medicine as a fine mist you breathe into your lungs.

An example of a nebulizer.

There are many different nebulizer choices. They vary in price, size, speed and how well they work. Talk with your primary care provider about which type of nebulizer is right for you. Be sure to clean your nebulizer. If it is not clean, it may cause an infection. Rinse your mouth and spit after using a corticosteroid in your inhaler.

How to use your nebulizer

- Turn on the neb machine.
- Hold the neb cup in an upright position for the whole treatment.
  - — **Facemask**: Put on the mask so it covers your mouth and nose.
  - — **Mouthpiece**: Place it over your tongue and between your teeth. You should be able to see the mist at the opposite end disappear as you breathe in.
- Take deep breaths. Hold each breath for 2 or 3 seconds.
- Stop the treatment when all of the medicine is gone from the neb cup. You will hear a sputter and see a less mist. When this happens, tap on the neb cup gently to get the rest of the medicine back to the bottom of the neb cup.

How to clean your nebulizer

- **After each use**: Rinse the nebulizer with sterile or distilled water. Let it air dry completely before using it again. Do not put it in the dishwasher.
- **Every day**: Wash it with warm soapy water. Rinse with sterile or distilled water. Let it air dry fully before using it again.
- **Once a week**: Disinfect it with a distilled white vinegar solution or a product you can buy such as Control III®. Rinse and let it air dry completely before using it again.

How to use a small volume compressor nebulizer

1. Put the equipment on a level, steady surface. Plug the power cord into a wall outlet.

2. Wash your hands. Connect one end of the tube to the air outlet connector.

3. Add the medicine as prescribed with the unit dose vial.

4. Connect the mouthpiece, T-piece and reservoir tubing to the nebulizer.

5. Attach the tubing to the air inlet.

6. Turn on the power switch.

7. Sit in a comfortable position. Put the mouthpiece between your upper and lower teeth, over your tongue and with your lips closed.

Breathe normally, but take a deeper breath every minute until the nebulizer begins to sputter.

Turn off the power switch.

How to clean a small volume compressor nebulizer

1. Disconnect the nebulizer from the tubing. Take all the pieces apart. Wash in warm, soapy water.

2. Rinse the nebulizer parts in warm water and gently shake off any water.

3. Lay the parts on a clean towel or dish rack to air dry. Once dry, put the pieces together and keep in a cool, dry place.

Peak Flow Meter

A peak flow meter can help you control your asthma by telling you when an asthma attack is coming before you notice any symptoms. Then you can take your medicine to stop the attack. Peak flow meters are most helpful if you have moderate to severe asthma.

If you use more than one peak flow meter, make sure you use the same brand.

Find your personal best

To find your personal best peak flow number, take your peak flow each day for 2 to 3 weeks. Make sure your asthma is under control during this time.

Measure your peak flow:

- once in the morning **and** once at night
- right after you take your short-acting quick-relief medicine to relieve symptoms
- any other time your primary care provider suggests.

The highest number you get at the end of the 2 to 3 weeks is your personal best.

Remember that these readings are only to find your personal best. Normally you will check your asthma by taking your peak flow each morning and night.

Some electronic peak flow meters also display "FEVI," which is the amount of air exhaled (breathed out) in 1 second. Your primary care provider may also want you to record this number.

Follow the instructions from your provider and the manufacturer.

Setting your peak flow zones

Your peak flow zones are based on your personal best peak flow number. The zones help you take the right action to keep your asthma under control.

- 80 to 100 percent of your personal best: **good control**.
  - — Keep taking your long-term control medicine.
- 50 to 80 percent of your personal best: **caution**.
  - — You might be in danger of having an attack.
  - — Make sure you have taken your long-term control medicine.
  - — Take your quick-relief medicine.
  - — Your primary care provider may have you increase other asthma medicines.
  - — Try and avoid any known triggers.
- Below 50 percent of your personal best: **medical alert**.
  - — Make sure you have taken your long-term control medicine.
  - — Take your quick-relief medicine and call your primary care provider right away.
  - — If you do not improve after taking your quick-relief medicines, call 911 or have someone take you to a hospital Emergency Department.

How to take your peak flow

1. Move the marker to the bottom of the numbered scale.
2. Stand or sit up straight.
3. Take a deep breath.
4. Place the mouthpiece between your teeth and close your lips around it. Do not let your tongue block it.
5. Blow as hard and fast as you can.
6. If you cough or make a mistake, repeat the test. Write down the number you get.

7. Repeat steps 1 through 6, two more times. Write down the highest of the 3 numbers.
8. Find which peak flow zone (below) your peak flow number is in. Do what your primary care provider has told you to do when you are in that zone.

When to use your peak flow meter

Once you have found your personal best peak flow number, check your peak flow:

- every morning when you wake up, before you take your medicine
- every evening
- when you are having asthma symptoms or an asthma attack; also, after taking medicine for an attack (to see if the medicine is working)
- any other time your primary care provider suggests.

Each time you see your primary care provider, bring your peak flow meter and the peak flow numbers you have recorded. Have your primary care provider or nurse check how you use your meter to be sure you are getting the best results.

Oxygen Therapy

Important

Oxygen is safe if you use it correctly. Your primary care provider has chosen a dose for you. Follow the directions carefully.

Oxygen will start a fire when it mixes with flammable objects such as cigarettes.

Smoking while using oxygen is very dangerous. It could start a fire.

Never smoke while using oxygen.

Call your home medical company to learn more about safety.

If you have shortness of breath, using oxygen therapy may help you feel better. Your primary care provider will prescribe how much oxygen you need and how often.

Oxygen concentrator

An oxygen concentrator is a machine you plug in to an outlet. It does not store oxygen. Instead, it concentrates and purifies the oxygen from the air around you and delivers it through a tube (cannula) you wear in your nose.

You will receive directions on how to use and clean the cannula, humidifier and other parts of the concentrator. Even though the concentrator does not store oxygen, you will need to follow all safety precautions.

There are small, lightweight portable oxygen concentrators that you may be able wear when going outside of your home. They work the same way as the in-home machine but they work with a battery.

Oxygen tank

An oxygen tank delivers pure oxygen to you through a tube (cannula) you wear in your nose. You may be able to use the tank when going outside of your home.

You will receive directions on how to use and clean the cannula, and how to set up and use the tank. You will need to follow all safety precautions.

Portable oxygen tanks.

Oxygen concentrator.

A cannula (tube) that delivers oxygen.

Inspiratory Muscle Training

Inspiratory muscle training is a series of breathing exercises to help your breathing (respiratory) muscles get stronger. This will help you to breathe easier.

You may learn some breathing exercises and you may breathe into a special device that works your breathing muscles.

Continuous Positive Airway Pressure (CPAP) Therapy

A CPAP provides a steady airflow while you sleep.

You may need to use a CPAP machine if you have sleep apnea. This machine blows air into your throat while you sleep to keep your airway open.

For this treatment, you wear a mask over your nose while you sleep. The machine blows air into your throat through a tube connected to the mask. This increased air pressure keeps your airway open.

The CPAP machine sits by your bed. It filters air from your room and delivers the air to you at an increased pressure. The air pressure can be adjusted so you get the right amount you need.

Regular use of the CPAP machine will keep your breathing from stopping. Treatment may cause side effects, including:

- dry, stuffy or runny nose
- irritation of skin on your face
- stomach bloating
- sore eyes
- headache
- itching
- nosebleeds.

Talk with your primary care provider if you have side effects or if you think you are getting a cold.

Bilevel Positive Airway Pressure (BiPAP) Therapy

A BiPAP provides different airflows while you sleep.

A BiPAP works like a CPAP machine (see page 16). The main difference between the two is a BiPAP has different air pressure settings.

The machine makes one air pressure for breathing in and one air pressure for breathing out. This helps you to get more air into your lungs and makes breathing easier.

Add humidity to prevent thick secretions

You will need more humidity (moisture in the air). When you breathe through your nose and mouth, the air is filtered, warmed and moistened. Because you breathe through the tracheostomy, you need extra moisture in the air.

You will need more humidity when your secretions become thick, dry, or form small plugs. Pink- or blood-tinged secretions may also be a sign that you need more humidity.

To add moisture, you can do the following.

- Run a warm air humidifier, a machine that adds moisture to the air. Because germs grow in a humidifier, you will need to clean it often. Follow the maker's instructions for cleaning.
- Drink a lot of liquids. This will help to thin out the secretions so you can cough them out or suction them.
- Use a disposable humidity device or humidified tracheostomy collar. (You can buy these at a medical equipment supply store.)

Loosen thick secretions

If you cannot cough out the secretions, or if you have a mucous plug, try the following suggestions.

- Fill a bowl, pan or sink with very warm water. Place a towel over your head and lean over the water. Breathe in the steam.
- Go into the bathroom and close the door. Run a hot shower or fill the bathtub with hot water. Sit on the toilet or a chair in the bathroom. Breathe in the steam.
- Fill a tea kettle with water. Heat it and breathe the steam.

Suction your secretions

You will need to suction the secretions you are not able to cough out. Clearing your airway will make breathing easier. To suction, follow these steps:

- Connect the suction catheter with the suction catheter tubing.
- Pour sterile water or saline into a bowl. Dip the catheter tip into the water.
- Take a deep breath.
- Gently insert the catheter into the inner cannula of the tracheostomy tube. Advance it until you start to cough.
- Apply suction by covering the vent with your thumb. Apply suction only while you are removing the catheter.
- Do not apply suction for more than 10 seconds.
- Do not insert the catheter more than three times in a row. If you need more suctioning, rest for about 10 minutes before trying again.
- Take a deep breath after removing the suction catheter.
- Clear the secretions from the catheter by suctioning sterile water or saline through the catheter.
- After you are finished, throw the catheter away.

If suctioning does not clear your airway, remove and clean the inner cannula (see the next section).

Clean the suction machine

- Empty the secretions from the suction bottle into the toilet.
- Wash the suction bottle and tubing with hot, soapy water.
- Clean the suction machine every day.

Cleaning the inner cannula of your tracheostomy

You should clean your inner cannula and the skin around your tracheostomy twice a day. Clean more often if you have thick, dry mucus. Cleaning this often will help prevent skin irritation and an infection in your respiratory tract.

Gather all of the equipment you will need including:

- a small bowl or plastic cup
- a tracheostomy brush or pipe cleaners
- saline
- Velcro® tracheostomy ties
- 4-by-4-inch gauze dressings
- 4-by-4-inch tracheostomy dressings (with a slit).

To clean a non-disposable inner cannula:

- Remove and throw away the old tracheostomy dressing.
- Fill a bowl or cup with sterile water or saline.
- Position yourself and your supplies in front of a mirror with good lighting.
- Hold the plate of the outer cannula of the tracheostomy tube with one hand. Unlock and remove the inner cannula by aligning it with the notch area. The inner cannula should slide out easily with a downward motion toward your chest.
- Put the inner cannula in the sterile water or saline. Let it soak for about 60 seconds to loosen any secretions.
- Use the tracheostomy brush and pipe cleaners to clean the inner cannula.
- Rinse the cannula in the bowl of sterile water or saline or under warm tap water.
- Shake the cannula to get rid of extra water.
- Look through the cannula to make sure it is clean.
- Replace the inner cannula into the tracheostomy tube and lock into place.
- Wash your hands.

To change a disposable inner cannula:

- Unclip the cannula.
- Take the cannula out and throw it away.
- Put in a new cannula and clip it into place.
- Wash your hands.

If a family member or friend is helping you, have them wear sterile gloves. This will help prevent spreading germs.

Stoma care

- Wash your hands well.
- Use a mild soap (with no perfume) and sterile water or saline to wash the skin around your tracheal opening. Use a washcloth or cotton-tipped swabs that will not leave fuzz, string or other material on your skin.
- If your skin is irritated, talk with your primary care provider about putting a thin layer of ointment (such as Bacitracin®) near your tracheostomy site.
- Put a clean slit dressing around your tube and under the ties. Be sure to hold your tube in place while changing the dressing.

Vent Management

A ventilator helps you breathe and supplies extra oxygen for the lungs. This oxygen goes into the lungs through a special breathing tube (an endotracheal tube).

This tube may be inserted through the nose, mouth or trachea and goes through the larynx (voice box) into the lungs. The tube may be uncomfortable, but it is not painful. While the breathing tube is in place, you will not be able to talk.

While the breathing tube is in place, you may not be able to cough very well. To help remove secretions from your lungs, a member of your health care team will place a small catheter (tube) through the breathing tube and into the lungs to remove the secretions (by suction). This process may cause brief discomfort and you may be given pain medicine.

As your health improves, you will be weaned from the ventilator. Weaning is the process of gradually removing the ventilator as you can breathe on your own. This process may occur over several hours or several days.

To Do List

- ❑ Know what type of breathing devices you are using.
- ❑ Know how to use your device(s).
- ❑ Know how and when to get medicine refills.
- ❑ Know when to call your primary care provider.
- ❑ Know how and when to contact the maker of your device.
- ❑ Know how to use oxygen therapy.
- ❑ Keep all follow-up appointments.

Questions and Notes

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