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CARE AT HOME:

# ASTHMA

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A guide for caregivers

**Children's**  
MINNESOTA

[childrensMN.org](http://childrensMN.org)

# Content

Your child has asthma — a chronic lung disease. To best control the symptoms of asthma, it is important that you learn all you can about asthma.

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Access videos on the following topics by scanning the QR code with the QR reader application or the camera on your smartphone.

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- Asthma Inhaler with Spacer
- Asthma Medicines
- Asthma Triggers

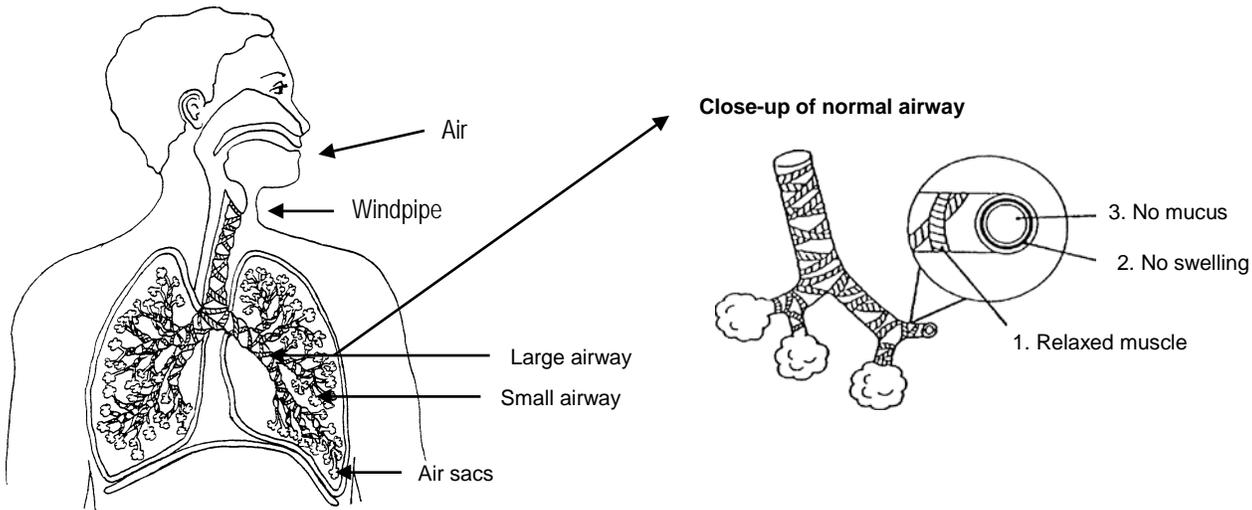


# Asthma

Asthma is a chronic (long term) disease of the lungs. Even when you have no symptoms, you still have asthma. It is important to follow your Asthma Action Plan to control your asthma. (See Asthma Action Plan).

## Normal Breathing

When you breathe, air goes in through your nose and mouth. It flows down your windpipe, through your large and small airways and into the air sacs.



## Asthma episode or flare-up

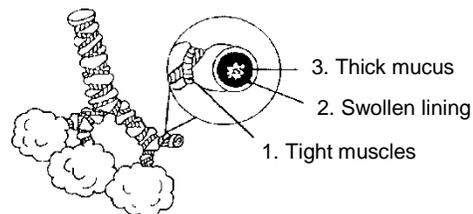
During an asthma episode:

1. The muscles around the airways tighten, making the airways smaller.
2. The lining of the airways becomes swollen.
3. Thick mucus forms, blocking small airways.

These changes make it hard for air to flow in and out of the lungs. You may have one or all of the following symptoms:

- Coughing
- Wheezing
- Shortness of breath
- Chest tightness

Close-up of airway during a flare-up



## WHAT CAUSES ASTHMA EPISODES?

Things that cause asthma episodes are called triggers. Each person may have different triggers. Triggers can be colds, smoke, allergies or exercise. Learn what triggers your asthma so you can avoid them. (See asthma trigger control.)

## HOW TO TREAT EPISODES

You will work with your doctor/nurse practitioner to develop an Asthma Action Plan. Your Asthma Action Plan is a plan for how to manage your asthma on a daily basis as well as what to do when your asthma gets worse.

### Your plan will include:

- Triggers and how to avoid them
- Medicine to take every day (Green Zone)
- Early warning signs of an asthma episode and how to treat it (Yellow Zone)
- When to get help (Red Zone)

### Asthma Action Plan Zones

|   |   |   |
|---|---|---|
| <b>Green Zone</b> means: "I feel good and have no symptoms."  | → | Take your controller medicine every day.                          |
| <b>Yellow Zone</b> means: "I do not feel good." You may have early warning signs such as cough with cold. | → | It is important to start your rescue medicine now.                |
| <b>Red Zone</b> means: "I feel awful." You may be coughing all the time and have a hard time breathing.   | → | Take these medicines now and call your doctor/nurse practitioner. |

**Call 911 if you are worried about getting through the next 30 minutes.**

## HOW DO I KNOW IF ASTHMA IS UNDER CONTROL?

The goal is to be in the Green Zone. Asthma is under control if you can:

- Sleep all night
- Not cough or wheeze during the day or at night
- Be active
- Not miss school or work

### FOLLOW-UP CARE:

- See your doctor/nurse practitioner every 6 months
- Follow your asthma action plan
- Have refills for your medicine
- Share your asthma plan with school and daycare

# Asthma action plan

|  |            |   |              |
|--|------------|---|--------------|
| Patient Name: _____  |            | Date of Birth: _____  |              |
| Date _____   | Time _____ | Height _____  | Weight _____ |
| <b>Asthma severity</b><br><b>Allergies:</b><br><b>Food Allergies:</b><br><b>Medication Allergies:</b>  |            | Other Triggers:   |              |
| <b>Green Zone: I feel good</b><br><ul style="list-style-type: none"> <li>+ Can work and play</li> <li>+ Can sleep at night</li> <li>+ No cough or wheeze</li> </ul>  |            | <b>Take these controller medications every day:</b><br><br>Additional orders:   |              |
| Peak flow range _____ to _____<br>(80-100% of personal best/predicted)   |            | <b>For physical activity/gym/recess, take:</b>  |              |
| <b>Yellow Zone: I do not feel good</b><br><ul style="list-style-type: none"> <li>+ Cough with phlegm</li> <li>+ Waking at night with cough</li> <li>+ Wheeze, tight chest, or shortness of breath</li> </ul> Peak flow range _____ to _____<br>(50-79% of personal best/predicted) |            | <b>Keep taking the Green and Yellow Zone controller medications.</b><br><b>Take these rescue medications as needed to keep asthma from getting worse:</b><br><br>Additional orders: |              |
| <b>If getting less than 4 hours of relief from albuterol, contact your health care provider.</b>   |            |   |              |
| <b>Red Zone: I feel awful</b><br><ul style="list-style-type: none"> <li>+ Breathing is hard and fast</li> <li>+ Getting worse and medicine not helping</li> <li>+ Cough continuously</li> </ul> Peak flow range _____ to _____<br>(Less than 50% of personal best/predicted)       |            | <b>Keep taking the Green and Yellow Zone medicines.</b><br><b>Take these medications NOW and call your health care provider:</b><br><br>Additional orders:                          |              |
| <b>If breathing does not improve and you cannot contact your health care provider, go to the emergency room. CALL 911 if:</b>  |            |   |              |
| <ul style="list-style-type: none"> <li>+ You can't talk in full sentences</li> <li>+ You can't get air</li> </ul>  |            | <ul style="list-style-type: none"> <li>+ You are worried about getting through the next 30 minutes</li> <li>+ Fingernails or lips are grey or blue</li> </ul>                       |              |
| <b>INFLUENZA SHOT IN THE FALL</b>  |            | <b>AVOID ASTHMA TRIGGERS</b>  |              |
| <b>NO SMOKING IN HOME OR CAR</b>   |            |   |              |
| Follow up appointment at: Clinic Name _____ Clinic & Phone Number _____  |            | Return to clinic in: _____  |              |
| Parent/Guardian signature _____  |            | Date _____  |              |
| Health Care provider signature _____   |            | Date _____  |              |
| Provider name _____  |            |   |              |

AAP has been given and reviewed with patient and/or parent. This form provides consent for school/daycare to administer to my child the above medicine as provided by parent or guardian and allows the child to carry the inhaler for which our provider has assessed ability and if approved by the school nurse.

# Asthma trigger control

Triggers are things that can make your asthma worse. Know your triggers so you can stay away from them and prevent asthma flare-ups.

| Triggers   |   | What to do to avoid your triggers   |
|--|---|---|
| <p><b>Smoke:</b><br/>Smoke can make asthma worse.</p>  |    | <ul style="list-style-type: none"> <li>• Do not allow smoking in your home or car.</li> <li>• If you smoke, ask your provider for ways to help you quit. Call 1-800-quit-now (1-800-784-8669).</li> </ul>   |
| <p><b>Colds:</b><br/>Illnesses can trigger asthma.</p>   |    | <ul style="list-style-type: none"> <li>• Wash your hands often.</li> <li>• Keep your hands away from your face</li> <li>• Avoid contact with people who are sick.</li> <li>• Get a flu shot every fall.</li> </ul>  |
| <p><b>Dust mites:</b><br/>These tiny bugs live in bedding and carpeting and are too small to be seen.</p>    |    | <ul style="list-style-type: none"> <li>• Put a dust mite cover on your pillow and mattress.</li> <li>• Wash sheets and blankets in hot water weekly.</li> <li>• Wash stuffed animals frequently.</li> <li>• Vacuum carpet weekly with a HEPA vacuum.</li> </ul> |
| <p><b>Mold:</b><br/>Mold can grow in warm, humid areas.</p>  |   | <ul style="list-style-type: none"> <li>• Clean moldy surfaces with hot soapy water.</li> <li>• Fix leaking faucets and pipes.</li> <li>• Use a dehumidifier in a damp basement.</li> </ul>  |
| <p><b>Animals:</b><br/>Some people are allergic to animals.</p>  |  | <ul style="list-style-type: none"> <li>• Do not have pets in your home. If you can't keep the pet out of the home, then keep it out of the bedroom and keep the door closed.</li> <li>• Avoid contact with pets and wash your hands if you pet them.</li> </ul> |
| <p><b>Cockroaches and mice:</b><br/>Some people are allergic to droppings from these pests.</p>              |  | <ul style="list-style-type: none"> <li>• Do not leave food or garbage uncovered.</li> <li>• Keep food out bedroom.</li> <li>• Call an exterminator.</li> </ul>  |
| <p><b>Exercise:</b><br/>Exercise can trigger asthma. Talk to your provider so you do not avoid exercise.</p> |  | <ul style="list-style-type: none"> <li>• Take your rescue inhaler before you exercise, if directed by your provider.</li> <li>• Warm up and cool down after exercise.</li> <li>• Cover your nose and mouth with a scarf during cold weather.</li> </ul>         |
| <p><b>Pollen:</b><br/>Trees, grass and weeds can trigger asthma during the spring and fall.</p>              |  | <ul style="list-style-type: none"> <li>• Keep your doors and windows shut during allergy season.</li> <li>• Ask your provider about taking allergy medicine.</li> </ul>   |
| <p><b>Strong odors:</b><br/>These can irritate airways.</p>  |   | <ul style="list-style-type: none"> <li>• Avoid strong odors, cleaning products, perfumes and hairsprays.</li> </ul>   |

# Asthma medicines

**There are two main types of medicine:**

- Rescue or quick relief medicine
  - Bronchodilators
  - Steroids (liquid or pills)
- Controllers or preventive medicine
  - Inhaled steroids
  - Leukotrienes

## RESCUE MEDICINE

### **Bronchodilators (Albuterol)**

#### **How they work:**

They work by relaxing the muscles around the airways so air can move in and out easier.

#### **When to use them:**

Rescue medicines are used during an asthma episode to relieve coughing, wheezing and shortness of breath. You should start these at the first sign of a cold. This medicine will be listed in your yellow zone of your asthma action plan. This medicine should begin to work in about 5 minutes and last about 4 hours. If exercise is one of your triggers, you may also be instructed to use this medicine 10-15 minutes before exercise to prevent coughing and/or shortness of breath during exercise.

#### **Side effects:**

You may notice a fast heartbeat or a jittery feeling. Often, these side effects go away after using the medicine for a while. Call your doctor/nurse practitioner if the side effects bother you or don't go away.

### **Steroid (liquid or pills) (Prednisone, Orapred, Decadron)**

#### **How they work:**

They work by decreasing swelling and mucus inside the airways. They start to work in about 6-12 hours.

#### **When to use them:**

This medicine may be taken during an asthma episode when the rescue medicine alone is not helping. This medicine will be listed in the red zone of your asthma action plan.

#### **Side effects:**

You may notice an increase in appetite, stomachache or feeling more hyper.

Take this medicine with food to help prevent side effects. The goal is to be on this medicine no more than two times per year.

## **CONTROLLER MEDICINE**

### **Inhaled steroids (QVAR, Flovent, Pulmicort)**

#### **How they work:**

They work by reducing swelling and mucus. They are the best medicine for controlling asthma. They are not the muscle-building steroids and are safe to use every day. Because they are inhaled into the lungs and not swallowed they have fewer side effects than the oral steroid medicine.

#### **When to use them:**

They must be taken every day, even when you are healthy to control your asthma and prevent asthma episodes.

#### **Side effects:**

Side effects may be hoarseness and possible yeast infection in your mouth. Use a spacer with your metered dose inhaler. Rinse and spit after using this medicine to prevent side effects.

### **Leukotrienes (Singulair)**

#### **How they work:**

They work by reducing swelling and mucus.

#### **When to use them:**

They must be taken every day, even when you are healthy to control your asthma and prevent asthma episodes. This medicine is a pill and should be taken in the evening.

#### **Side effects:**

Headache, stomachache or changes in behavior may be side effects. You should let your doctor know if you have these symptoms.

## **MEDICINE TIPS:**

- Be sure to have refills for your medicine (don't run out).
- Have a rescue inhaler at home and school/daycare.
- Keep your medicines in sight and work it into your daily routine so you remember to take it.
- Follow your Asthma Action Plan.

# Inhalers

## How should I use an inhaler?

There are different types of inhalers – metered dose inhaler (MDI), breath activated inhaler and dry powder inhaler. Follow these instructions below for the type of inhaler prescribed.

There are always new inhalers being developed. If your inhaler is not listed here, follow the package insert regarding how to use the inhaler.

If you use more than one kind of inhaled medicine at a time, the reliever medicine (such as albuterol) should be taken first to open the airways. This helps the other medicine(s) go deeper into the lungs, so they will work better.

## Metered dose inhaler (MDI)

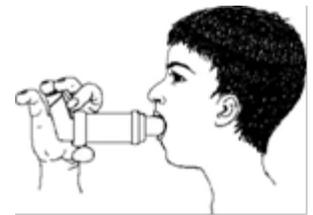
A metered dose inhaler is used with a spacing device, also called a spacer or holding chamber. It helps the mist reach deeply into the lung. If you are not able to hold your breath for 10 seconds, you may need to use a spacer with a mask.

### Prepare the inhaler:

1. Remove caps from inhaler and the spacer.
2. Shake the inhaler well (about 5 seconds) to mix the medicine and propellant.
3. Insert the inhaler into the spacer.

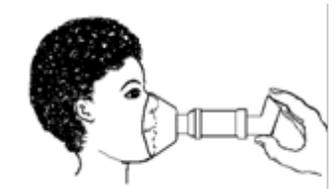
### Using a spacer without a mask:

1. Breathe out slowly all the way.
2. Put the mouthpiece into your mouth, over your tongue, between your teeth and close your lips around it.
3. Press down on the inhaler as you start to breathe in slowly and deeply through your mouth.
4. Hold your breath for 10 seconds to let the medicine stay in the lungs and airways.
5. Exhale slowly.
6. Wait about 1 minute between puffs of the rescue medicine. There is no need to wait between puffs of the controller medicine.



### Using a spacer with a mask:

1. Put the mask over nose and mouth.
2. Press down on the inhaler.
3. Keep the mask sealed around the nose and mouth and breathe in and out for 3 to 5 breaths.
4. Rinse your mouth with water and spit it out after using a steroid (controller) inhaler.



## How do I know when an MDI is empty?

### Don't Run Out

Inhalers have counter windows so you know how many doses are left. If it says 0, throw it away and get a new inhaler.

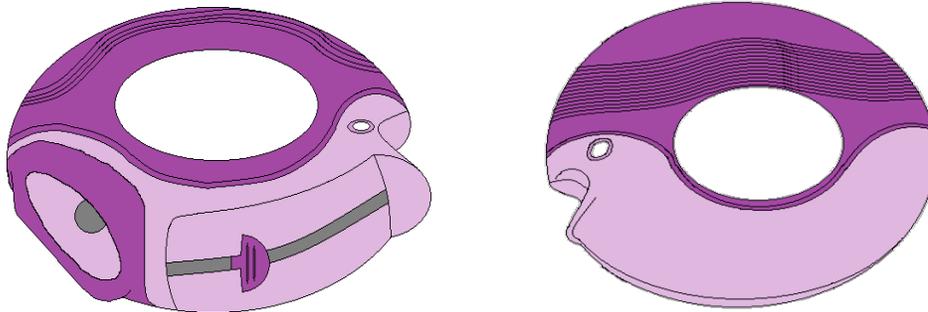
## How do I care for the spacer?

Follow the directions on the package to clean your spacer.

## DRY POWDER INHALER:

### Diskus

1. Hold the Diskus in one hand. Push the thumb grip back as far as it will go, until the mouthpiece appears and snaps into place.
2. Hold the Diskus level with the mouthpiece towards you. Slide the lever all the way until it clicks.
3. Turn your head away from the Diskus and breathe out completely.
4. Put the mouthpiece between your lips. Breathe in steadily and deeply.
5. Remove the Diskus from your mouth.



6. Hold your breath for 10 seconds. Then breathe out slowly.
7. Close the Diskus by sliding the thumb grip back as far as it will go.
8. Rinse your mouth and spit without swallowing.

## How do I know when the Diskus is empty?

The dose indicator on top tells how many doses are left. When the number is 0, throw the Diskus away and use a new one.

## Dry powder inhaler: Flexhaler

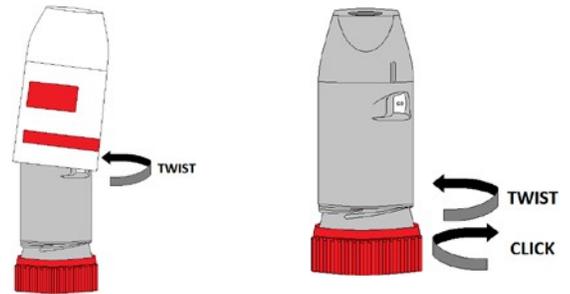
### Priming the Flexhaler

A new Flexhaler should be primed once before its first use. Follow these steps:

1. Turn the cover and lift it off.
2. Hold the Flexhaler upright, with mouthpiece up.
3. Twist the brown grip fully to the right and back again to the left.
4. Repeat step 3. Now it is ready to use.

### Using the Flexhaler

1. Twist the cover and lift it off. Hold the Flexhaler upright (mouthpiece up).
2. Twist the brown grip to the right as far as it will go, then back to the left until it clicks.
3. Turn your head away from the Flexhaler and breathe out completely. (Note: Do not shake or exhale into it)
4. Put the mouthpiece between your lips and inhale deeply and forcefully to fill your lungs.
5. Remove the Flexhaler from your mouth.
6. Hold your breath for 10 seconds. Then breathe out slowly.
7. Repeat steps 2 through 6, if a second puff is prescribed.
8. When finished, replace the cover and twist shut.
9. Rinse your mouth and spit without swallowing.

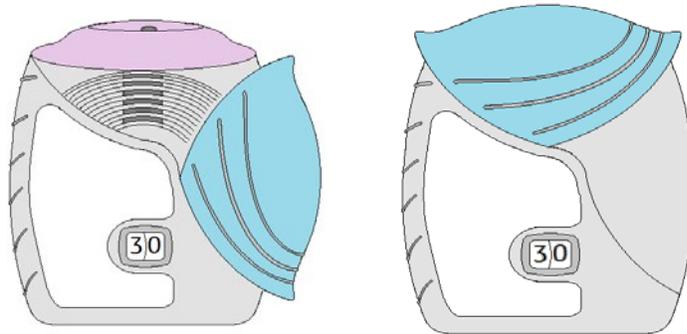


### How do I know if a Flexhaler is empty?

The inhaler is empty when the "0" on the red background reaches the middle of the window. Throw the inhaler away and start a new one.

## Dry powder inhaler: Ellipta

1. Open the cover of the inhaler by sliding down to expose the mouthpiece until you hear a click. The counter will countdown by one number. Breathe out fully while holding the inhaler away from your mouth.
2. Put the mouthpiece firmly between your lips and take one long steady breath in through your mouth.
3. Hold your breath for about 10 seconds.
4. Be careful not to cover the vent with your fingers when inhaling
5. Remove the inhaler from your mouth.
6. Close the inhaler by sliding the cover up and over the mouthpiece as far as it will go.

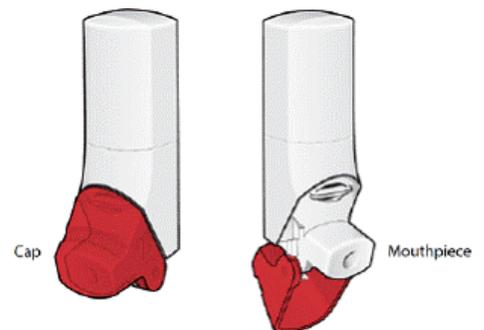


### How do I know if Ellipta is empty?

The inhaler is empty when the “0” on the red background reaches the middle of the window. Throw the inhaler away and start a new one.

## Dry powder: Respiclick

1. Open the cap all the way back until you hear a “click”
2. Breathe out through your mouth, not into the inhaler mouthpiece.
3. Put the mouthpiece in your mouth and close your lips around it.
4. Breathe in deeply
5. Hold your breath for about 10 seconds
6. Remove the inhaler from your mouth and close the cap.
7. Repeat steps 1 through 6 if another dose is needed.



### How do I know if Respiclick is empty?

The inhaler is empty when the “0” on the red background reaches the middle of the window. Throw the inhaler away and start a new one.

## **Redihaler (Breath activated; no spacer required)**

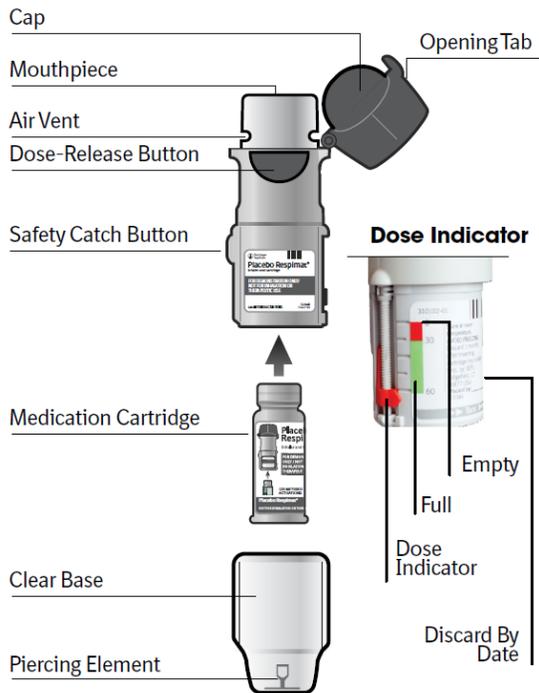
1. Open the cap.
2. Hold the inhaler upright.
3. Breathe out but not into the mouthpiece.
4. Place the mouthpiece between your lips so you can form a good seal.
5. Breathe in deeply to release the medicine. You will hear a "click" when the medicine comes out so keep breathing in.
6. Hold your breath for 10 seconds.
7. Breathe out slowly away from the inhaler.
8. Close the cap.
9. If a second dose is needed, repeat steps 1-8.



### **How do I know if Redihaler is empty?**

The inhaler is empty when the dose counter shows "0". Throw the inhaler away and start a new one.

## Respimat (slow-moving mist inhaler; no spacer required)



1. Prese the safety catch button while firmly pulling the clear base straight off with your other hand. Be careful not to touch the piercing element.
2. Write the discard by date on the label (number of months from today's date).
3. Insert the narrow end of your medication cartridge into the inhaler.
4. Place the inhaler on a flat surface and push down firmly until it clicks into place.
5. Replace the clear base by aligning the notch with the safety catch button and slide together until it clicks.
6. With the cap closed, turn the clear base in the direction of the arrows on the label until it clicks.
7. Push on the small, circular opening tab until the cap snaps fully open.
8. With the inhaler pointed toward the ground, press the dose-release button. Look for a mist.
9. Repeat steps 7 & 8 until 4 visible mists have been dispensed.

### Daily use

1. With the cap closed, turn the clear base in the direction of the arrows on the label until it clicks.
2. Open the hinged cap by pushing up on the small, circular tab until the cap snaps fully open.
3. Breathe out slowly and fully. Close your lips around the mouthpiece without covering the air vents.
4. Point the inhaler to the back of your throat. While taking a slow, deep breath through your mouth, press the dark gray dose-release button and continue to breathe in.
5. Hold your breath for 10 seconds or for as long as comfortable.

# Nebulizer

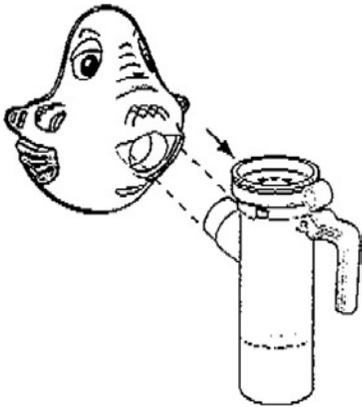
## What is a nebulizer?

A nebulizer treatment (“neb”) gives medicine as a fine mist that is breathed into the lungs through a mask or a mouthpiece. You will have a nebulizer machine and a nebulizer cup to put the medicine in.

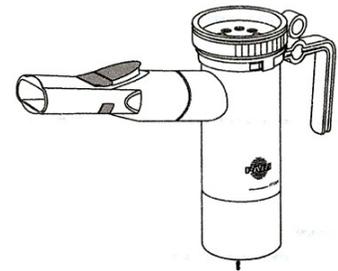
## How to use a nebulizer machine

The following is an example of what a nebulizer cup may look like. There are different types of machines and cups so it is important to have your health care provider show you how to use it.

### For infants and young children



### For older children and teens



Sometimes more than one medicine will be used. Check with your doctor or pharmacist about mixing the medicines together.

Hold the neb cup in an upright position for the whole treatment. The treatment will last about 7-10 minutes. Use either a facemask or a mouthpiece to deliver the medicine. Just blowing the medicine at the nose and mouth does not get the medicine into the lungs.

**Face mask:** a face mask should be used for younger children.

**Mouthpiece:** for older kids a mouthpiece can be used. Place the mouthpiece over the tongue and between the teeth. You should be able to see the mist at the opposite end disappear as the medicine is inhaled.

## How should I care for the equipment?

Clean the parts of the nebulizer according to the directions that come with the machine.

Some nebulizer cups are disposable and should be used for one week only. After one week the cup will not get the medicine into the lungs effectively. Ask your health care provider or company which one you have. Keep extra supplies on hand at home.

Use a non-disposable neb cup and replace every 6 months.

Write down the name of the company that supplied the machine in case you have problems or need more supplies.

## Asthma resources

### Resources:

Children's Minnesota Asthma Clinic  
Minneapolis: 612-813-6107  
St. Paul: 651-220-6700

Minneapolis Hospital  
2525 Chicago Avenue South  
Minneapolis MN 55404  
612-813-6000

St. Paul Hospital  
345 North Smith Avenue  
St. Paul MN 55012  
651-220-6000

### FAMILY RESOURCE CENTER: MINNEAPOLIS

Second floor, across from the Welcome Center (Suite 2109)

#### Hours:

Monday – Friday: 7 a.m.–5 p.m.

Saturday: 10 a.m.–4 p.m.

#### Staff available:

Monday – Friday: 9 a.m.–5 p.m.

Saturday: 10 a.m.–4 p.m.

[612-813-6816](tel:612-813-6816)

### FAMILY RESOURCE CENTER: ST. PAUL

River Tower, third floor (Suite 3107) • Take the River Tower elevators to the third floor and go right.

#### Hours:

Monday – Friday: 7 a.m. – 5 p.m.

#### Staff available:

Monday – Friday: 9 a.m. –5 p.m.

[651-220-6368](tel:651-220-6368)

### Children's Physician Network Asthma information:

<https://www.childrensMN.org/services/care-specialties-departments/pediatric-asthma/>



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