

Asthma Education

What is asthma?

Asthma is a common, chronic respiratory condition of the lungs that causes difficulty breathing. Asthma causes the airways to swell due to inflammation, the muscles around the airways to tighten, and a buildup of mucus to block the airways. This reduces the amount of oxygen delivered to the lungs and makes it difficult to breathe. Symptoms of asthma may include coughing, wheezing, or tightness in the chest. These symptoms often come and go in children, but that doesn't mean their asthma has gone away.

Asthma can be a serious, even life-threatening condition, but with good asthma management, your child can live a normal, healthy life.

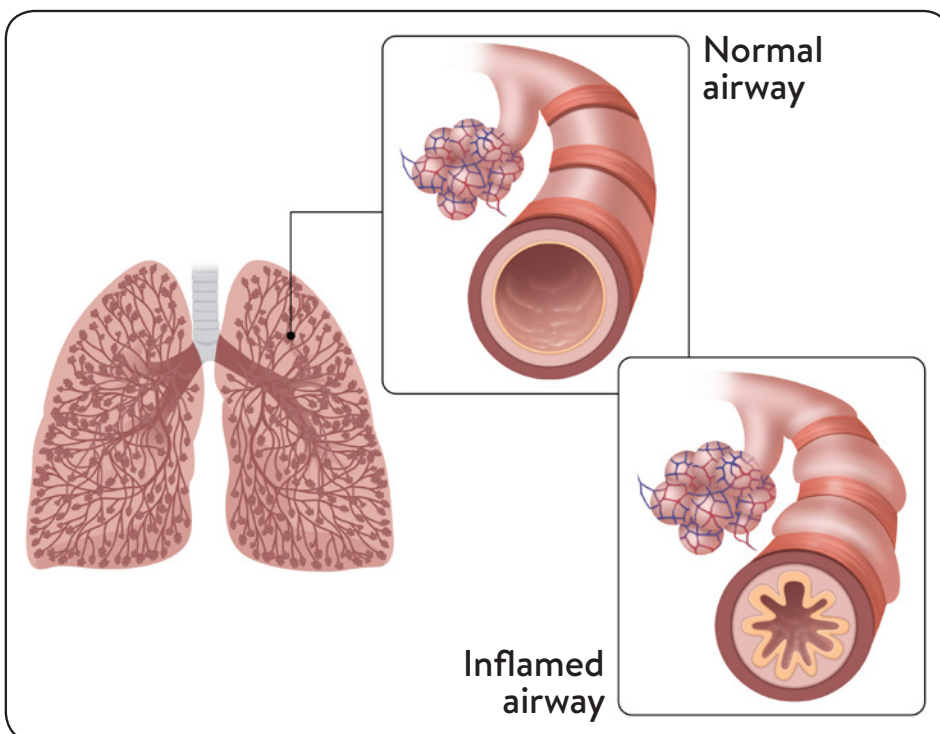
What is the asthma response?

Asthma makes your child's lungs hypersensitive to things they are exposed to in the environment every day. Certain things, called asthma triggers, can cause asthma attacks. Asthma triggers may include: a cold, the weather, or things in the environment such as dust, chemicals, smoke, and pet dander. When your child breathes in a trigger, their airways become inflamed and swollen. This reduces the space for the air to move in and out of the lungs, making it difficult to breathe. The muscles that wrap around the airways tighten. This is called an asthma "attack." Asthma attacks can be severe when the early signs and symptoms are hidden or missed. This is why it is important to maintain asthma medications.

What happens in the lungs of a child with asthma?

Three responses can occur in the lungs of a child with asthma, which may result in coughing, wheezing, or a tight chest. Some children may also feel out of breath.

1. **Airways become inflamed.** Swelling inside the lungs of a child with asthma can cause the airways to be sensitive and overreact to triggers.
2. **Muscles tighten around the airways.** Smooth muscle, which your child is unable to control, wrap around the airways, or breathing tubes. When the muscles involuntarily squeeze, it's called bronchoconstriction or bronchospasm. This makes it difficult to move air in and out through their breathing tubes.
3. **Extra mucus is made inside the lungs.** This can cause your child to cough.



In asthma, the airways in the lungs:

- Swell on the inside
- Squeeze closed
- Produce extra mucus

What are the signs of breathing difficulty or respiratory distress?

The best way to measure your child's breathing difficulty is to know the amount of "work" or effort your child is using to breathe.

1. Know your child's normal breathing pattern while sleeping and at rest.
2. Be aware of the important warning signs that show increased work of breathing.
3. Call and speak to your healthcare provider if you are unsure if your child is working hard to breathe or if your child shows any of the signs listed below.

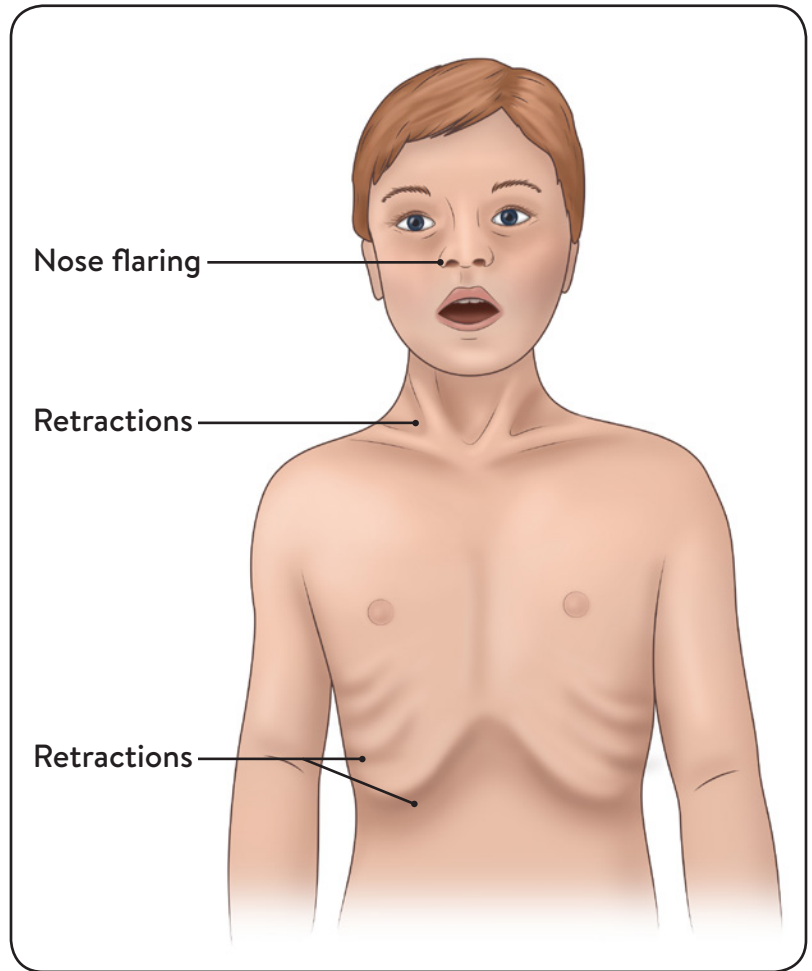
How your child might look:

- Nose flaring
- Grunting or wheezing while breathing out
- Retractions – muscles pulling in visibly above/between/ below the ribs or using belly muscles to push air out
- Increase or decrease in breathing rate (see table below)
- Fussy or agitated behavior
- Increased sleepiness
- Dry cough that won't stop

How your child might act:

Some behavioral signs that your child may be working harder to breathe:

- Waking up from sleeping with cough
- Unable to eat/play/run comfortably due to difficulty breathing
- Acting tired or weak
- Fussy behavior
- Eating less than normal or having to rest while eating
- In babies, pulling off the breast or away from the bottle to take a breath while feeding



Concerning breathing rates

Some children breathe faster with an asthma episode. Concerning breathing (respiratory) rates are:

Age	Rate
0-2 months.....	>60
2 months-1 year.....	>50
1-5 years.....	>40
6-12 years.....	>30
12-18 years.....	>20

To find your child's breathing (respiratory) rate:

When your child's sleeping or at rest, count the number of times their stomach/chest rises and falls in 60 seconds. One rise and fall equals one breath. That number is the breathing (respiratory) rate per minute.

Using a Metered Dose Inhaler (MDI) with a Spacer

It takes a lot of practice to use an inhaler correctly without a spacer. Incorrect use can cause most of the medicine to hit the tongue and back of the throat. This means your child will not receive the correct dose of medicine. Using a spacer with a MDI is recommended and makes treatment easier and more effective.

Spacers hold the medicine until your child is ready to breathe it in. This helps the medicine travel into the smaller airways and reduces side effects. You may also hear the spacer called an AeroChamber.

Directions for using a spacer:

Read through all steps before administering the medication.

Step 1 – Prepare your MDI per manufacturer instructions. Remove the cap on the spacer’s mouthpiece

Step 2 - Shake the MDI rapidly for 2 seconds

Step 3 – Insert the MDI into the spacer

Step 4 – Blow air out of lungs and put spacer in mouth

Step 5 – Press down on the inhaler, releasing medicine to fill the spacer

Step 6 – Seal your lips around the mouthpiece of the spacer. Take in a slow, deep breath to inhale the medicine. There should not be a whistle sound

Step 7 – Hold your breath and slowly count to 10

Step 8 – Release your breath and breathe normally

Step 9 – Shake the MDI again and repeat the steps, starting at step 4, for each additional prescribed puff



Weekly cleaning of the spacer:

- Remove the rubber-like ring from the end of the spacer
- Soak the parts for 15 minutes in a mild liquid dish soap and lukewarm water
- Rinse in clean water
- Allow to air dry
- Reassemble when dry

Using a Metered Dose Inhaler (MDI) with a Spacer and Mask

The spacer with mask is helpful for young children or anyone who is having trouble using the regular spacer.

Directions for using a spacer:

Read through all steps before administering the medication.

Step 1 – Prepare your MDI per manufacturer instructions. Remove the cap on the spacer's mouthpiece

Step 2 - Shake the MDI rapidly for 2 seconds

Step 3 – Insert the MDI into the spacer

Step 4 – Place the mask over your child's nose and mouth. They can breathe normally

Step 5 – While keeping a good seal on the mask around your child's mouth and nose, press down on the inhaler, releasing medicine to fill the spacer. Administer 1 puff at a time

Step 6 – Hold the mask in place and have your child take in 5 breaths to empty the chamber

Step 7 – Shake the MDI and repeat the steps, starting at step 5, for each additional prescribed puff

Step 8 – After using a mask, wipe skin around your child's mouth and nose with a wet cloth



Weekly cleaning of the spacer with mouthpiece or mask:

- Remove the rubber-like ring from the end of the spacer
- To detach the mask/mouthpiece, twist the chamber
- Soak the parts for 15 minutes in a mild liquid dish soap and lukewarm water
- Rinse in clean water
- Allow to air dry
- Reassemble when dry. Fit the mask/mouthpiece on the chamber and twist firmly until securely locked into position

Asthma Medications: Controller vs. Rescue

What is a controller asthma medication?

A controller medication is a maintenance medication and is to be taken on a regular schedule to prevent asthma symptoms. Your healthcare provider may prescribe these medicines to reduce or prevent asthma episodes and symptoms. For these medications to work the best, they must be taken every day, even when you may feel or look well. Controller medications can come in the form of an inhaler that is breathed in or in the form of a pill that is swallowed.

A few examples of a controller medication are: Flovent HFA, Qvar, Pulmicort, Advair, Symbicort, or Singlair



Flovent HFA
(fluticasone)



Qvar
(beclomethasone)



Symbicort
(budesonide & formoterol)



Advair HFA
(fluticasone & salmeterol)



Pulmicort Flexhaler
(budesonide)



Singlair Tablets
(montelukast sodium)

Asthma Medications: Controller vs. Rescue

What is a rescue asthma medication?

A rescue medication is a quick relief medication and is to be taken when your asthma symptoms occur. Your healthcare provider may prescribe this type of medication for you to carry with you and use when your asthma symptoms appear. This is an inhaled medication.

A few examples of an inhaled rescue medication are: Albuterol (ProAir HFA, Proventil HFA, Ventolin HFA), or Xopenex HFA



ProAir HFA
(albuterol)



Proventil HFA
(albuterol)



Ventolin HFA
(albuterol)



Xopenex HFA
(levalbuterol)

*Expensive and used for those who suffer from the side affects of the above options.

Controlling Asthma Triggers

Asthma episodes or flares can come and go. They are often triggered by something in the environment the lungs come in contact with. Symptoms may be hidden at first, or can happen right away. It's important to learn what triggers your child's asthma. Here are several common asthma triggers and ways they can be controlled.

☐ INFECTIONS

Colds or upper respiratory infections, ear infections, sinus infections, flu, RSV (respiratory syncytial virus)

- Get regular exercise and sleep
- Avoid contact with those who are sick
- Wash hands frequently
- Get an annual flu shot



☐ SMOKE

Tobacco and marijuana smoke, e-cigarettes and vapor cigarettes, secondhand smoke, and wood smoke from a fireplace, camp fire, or barbecue

- Do not smoke or allow smoking in the home or car
- Avoid secondhand smoke
- If a family member smokes, have them smoke outside



☐ WEATHER AND AIR POLLUTION

Cold air, weather changes, car exhaust, and air pollution

- If cold air is a trigger, breathe through your nose or cover up with a scarf
- Stay indoors with the windows closed on bad pollution days



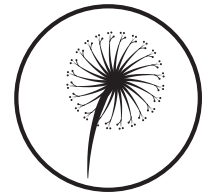
☐ EXERCISE

- Warm up before exercising
- Exercise indoors if pollen or pollution is bad
- Take medication before exercising if directed by your doctor

☐ POLLEN AND OUTDOOR MOLDS

Pollen, grass, trees, weeds, and mold

- Stay indoors and close windows when pollen and mold counts are high
- Avoid fans; use air conditioners



☐ ANIMALS

Cat, dog, hamster, bird, or other furry or feathered warm-blooded animals

- Consider not having pets; avoid pets with fur or feathers
- Keep pets out of the bedroom
- Wash hands after petting animals



☐ DUST

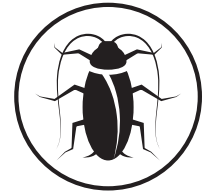
Household dust mites

- Vacuum weekly with a high efficiency filter vacuum; vacuum when people with asthma aren't home
- Remove carpet if possible
- Clean floors weekly with a damp mop
- Wash bedding and stuffed toys in hot water every 1-2 weeks; freeze stuffed toys unable to be washed for 24 hours
- Protect mattresses and pillow with dust-mite proof zippered covers
- Replace heating and cooling system filters regularly

☐ MOLD

Household mold

- Use exhaust fans or open windows when showering or cooking
- Remove mold from hard surfaces by scrubbing with detergent and hot water and rinse clean with water; replace moldy absorbent materials
- Clean when people with asthma aren't in the room
- Fix leaks and other sources of water or moisture



☐ PESTS

Cockroaches

- Put away all food and garbage; store food in airtight containers
- Use traps and poison baits instead of sprays/bombs; keep all bait away from children
- Remove cockroach bodies and fill any gaps or holes in the home with caulk
- Fix leaks and other sources of water or moisture



☐ ODORS/SPRAYS

Household products (extra strength cleaners, ammonia, bleach, paint, furniture polish, air fresheners, scented laundry detergent), aerosol products, and perfumes

- Avoid strongly scented personal care products, scented or extra strength cleaning products, and aerosol products
- Clean when people with asthma aren't in the room

☐ OTHER

Heartburn or gastroesophageal reflux disease (GERD) and strong emotions (laughing, crying, yelling, fear, stress)