

An Introduction to  
**Asthma in Children  
and Teens**



**UCDAVIS  
HEALTH**

**CHILDREN'S  
HOSPITAL**



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## Asthma in Children and Teens

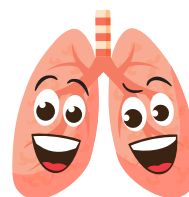
Our goal is to help you take control of your child's asthma so you can avoid the emergency room and hospital. Your child's doctors, nurses and respiratory therapists will help you and your child learn about the signs and symptoms of asthma, home medications and asthma triggers. We will also review the asthma action plan, so that you feel comfortable in managing your child's asthma. By the time you go home, you will know:

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## An Introduction to Asthma

### What is Asthma?

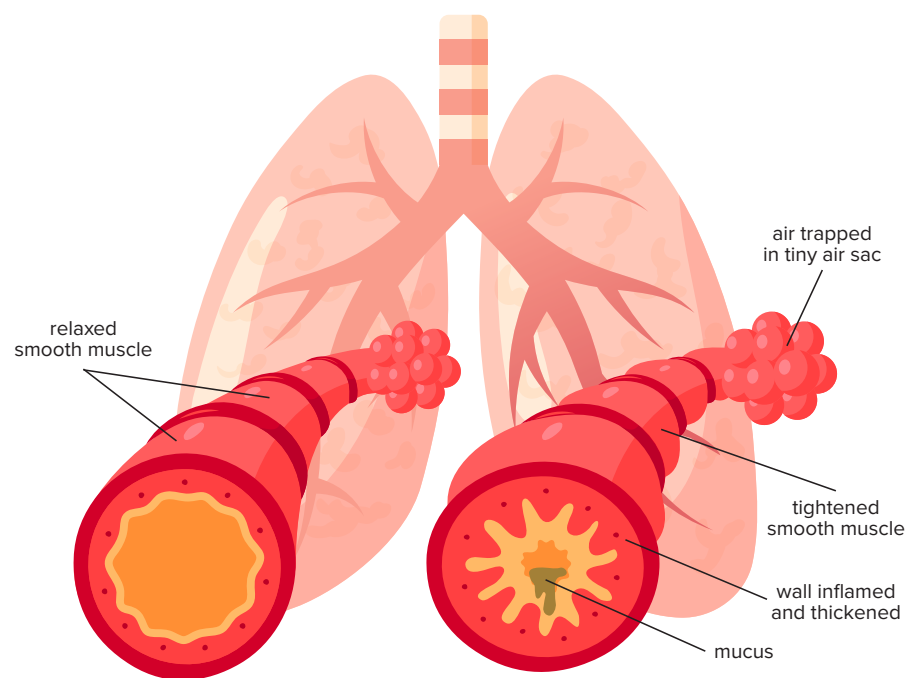
- Asthma is a long-term disease of the airways (breathing tubes) in the lungs.
- A child with asthma has sensitive airways that can react to many things, such as cigarette smoke, pollen, viruses, or cold air.
- Asthma causes the airways in the lungs to narrow due to inflammation. This results in asthma symptoms that can be mild to severe.
- Even when your child is feeling fine, asthma is present, so a reaction can occur at any time.
- Asthma takes ongoing monitoring and management to keep symptoms under control.
- The exact cause of asthma is not known. Genetics (what runs in your family) and environment (what is in the air you breathe) are both important. There is no cure for asthma, but it is very treatable with medication.
- Asthma symptoms may disappear as your child gets older. Children with severe asthma are less likely to outgrow their symptoms.
- There are steps you can take to control your child's asthma so that he or she can live a normal, active life and sleep through the night without asthma problems.



*What questions do you have about asthma?*

# What Happens During an Asthma Attack?

- During an asthma attack, the lining of your child's airway becomes swollen and produces thick, sticky mucus. The muscles around the airways tighten causing the airways to narrow.
- These changes in the airways block the flow of air, which make it hard to breathe and causes other asthma symptoms like coughing or wheezing.
- The airways can narrow so much that it is hard for air to go in and out of your child's lungs.
- It is important for you as a parent to recognize these symptoms your child might experience.



Normal airway

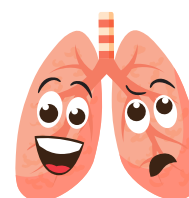
Asthma Attack -  
airway swelling,  
tightening and mucus

# Symptoms of Asthma

Symptoms are what you feel in your body. The symptoms of asthma are different for every child, but here are some common symptoms of asthma that your child may experience:

- **Coughing:** Your child's cough might be worse at night or after exercise. Coughing may be the only asthma symptom your child experiences.
- **Shortness of breath:** Your child might say they can't catch their breath or they feel out of breath, like they can't get enough air out of their lungs. They might have trouble saying more than a few words at a time.
- **Wheezing:** A whistling or squeaky sound when your child breathes.
- **Tightness in the chest:** Your child might feel as if someone is squeezing or sitting on their chest.

Your child may have some or all of these symptoms. These symptoms might be mild or very severe in an asthma attack. Learn to recognize your child's symptoms. Quick management of symptoms will make the attack less severe.



*What symptoms did your child experience before coming to the hospital?*

# The Asthma Symptom Guide



SYMPTOM ZONE	WHAT TO DO
<p><b>GREEN ZONE - Doing well</b></p> <ul style="list-style-type: none"> <li>No cough, wheeze, chest tightness or shortness of breath during the day or night.</li> <li>Your child can do usual activities.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to take your medications as directed.</li> <li>Utilize your <b>controller</b> medication daily and your <b>reliever</b> medication as needed.</li> </ul>
<p><b>YELLOW ZONE - Asthma is getting worse</b></p> <ul style="list-style-type: none"> <li>Cough, wheeze, chest tightness or shortness of breath, <b>OR</b></li> <li>Waking at night due to asthma, <b>OR</b></li> <li>Can do some, but not all, usual activities</li> </ul>	<ul style="list-style-type: none"> <li>Follow the asthma action plan.</li> </ul>
<p><b>RED ZONE - Medical Alert!</b></p> <ul style="list-style-type: none"> <li>Very short of breath, or</li> <li>Quick relief medicines have not helped, <b>OR</b></li> <li>Cannot do usual activities, <b>OR</b></li> <li>Symptoms are the same or getting worse after 24 hours in Yellow Zone</li> </ul>	<ul style="list-style-type: none"> <li>Call your doctor immediately or 911 if it is an emergency.</li> </ul>

# Asthma Triggers

Help keep your child's asthma symptoms from getting worse by knowing what things trigger your child's asthma.

Discuss with your doctor other things that can make your child's asthma worse.

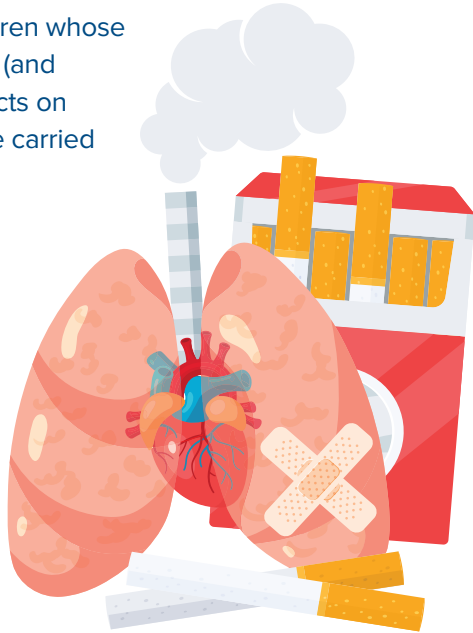


# Asthma Triggers

**Many different things (called triggers) can make your child's asthma worse. It is important to learn your child's triggers, so that they can be avoided.**

## Smoking (cigarettes, e-cigarettes, and vaping)

- Do not smoke inside your house or car, even when a child is not present.
- There are studies showing that children whose family members smoke only outside (and never inside) still have negative effects on their health. Toxins from smoking are carried in on dust, clothing, skin and hair.
- If a member of your home smokes outside, have them change their clothes and wash their hands up to their elbows before interacting with your child.
- Your medical team or primary care provider may be able to refer you or a family member to a program to help them quit smoking. If you are interested in this service, please let us know.
- The effects of vaping and electronic e-cigarettes are not as well studied or understood as regular cigarettes. However, it is known that vaping inside may be dangerous for infants or young children. If you chose to vape, please do so outside.



## Colds and Infections

- Encourage frequent hand washing to help prevent your child from catching a cold.
- Make sure your child gets proper rest, eats a balanced diet and exercises regularly.
- Talk to your child's doctor about flu shots.

## Sprays and Perfumes

- Avoid use of household sprays/perfumes if it bothers your child.

## Exercise

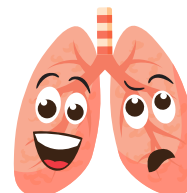
- If your child has asthma symptoms with exercise, give your child albuterol at least 15 minutes before exercising.
- Have your child warm up before and cool down after exercising.

## Allergens

- Examples: Pollens, animal dander, cockroaches, dust and molds.
- There are tests to determine your child's allergies.
- If your child suffers from seasonal allergies, he or she will be at higher risk for asthma attacks during this time.

■ Additional information about quitting smoking can be found at 1-800-NO-BUTTS or [www.nobutts.org](http://www.nobutts.org)

■ Additional information on UC Davis health care web site: [www.ucdmc.ucdavis.edu/livinghealthy/topic/Smoking](http://www.ucdmc.ucdavis.edu/livinghealthy/topic/Smoking) or [www.breathefree.ucdavis.edu](http://www.breathefree.ucdavis.edu)



***Which of these triggers has affected your child's asthma?***

# Asthma Medications

Medications have a variety of names; please verify with your pharmacist or health care provider which is quick relief and which is long acting.

## Quick Relief Medications (Rescue):

These medications give your child quick relief of his or her symptoms. Your child should take these medications at the first sign of any asthma symptoms. Rescue medications do not replace the need for daily use of long term control medications.

### ■ Albuterol (ProVentil, Ventolin or ProAir) or Xopenex (levalbuterol):

- A reliever medication opens airways in the lungs. It relaxes the muscles in and around the airways that tighten during asthma attacks.
- Albuterol can be given by using an inhaler or a nebulizer.
- Inhaled albuterol works within five minutes and has very few side effects.
- Albuterol relieves symptoms, but cannot reduce or prevent the swelling that causes the symptoms.
- Normal side effects for this type of medication include jitteriness, trembling or increased heart rate.



## Long Term Control Medications (Maintenance):

These medications are taken every day to prevent symptoms and asthma attacks. These medications reduce swelling and inflammation inside your child's airway. This makes the airways less sensitive and less likely to react to triggers. These medications will not relieve symptoms during a breathing emergency!

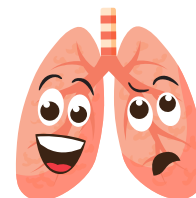
### ■ Inhaled Corticosteroids:

- A controller medication used for patients with persistent asthma.
- These medications are most effective when taken every day, even when your child does not have symptoms.
- This medication is non-habit forming and goes directly to your child's lungs where it is needed most.
- Be sure to rinse your child's mouth out with water after using these medications, to prevent infections in the mouth.

### ■ Other Controller Medications:

- Your child may need other medications to help prevent swelling of the airways, such as Singulair (montelukast).

**Oral Corticosteroids** (liquid or tablet): These medications are used for asthma attacks to reduce swelling of the airways and prevent the episodes from getting even more severe. This medication is given for a short time, usually five days.



*What medications is your child currently taking to control his or her asthma?*

# Taking Your Medications

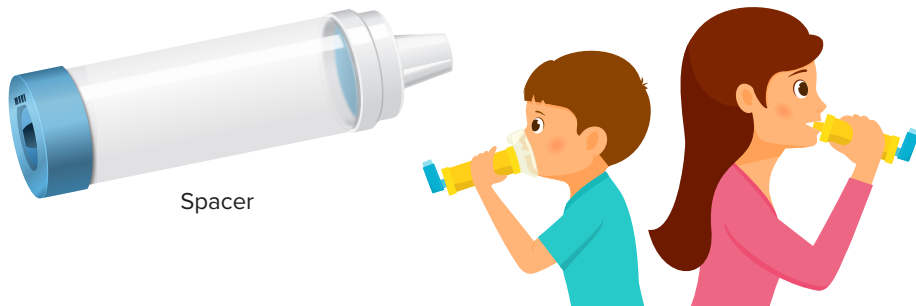
## Inhaler

- A metered dose inhaler is a hand held device that delivers medication right to your child's lungs where it is needed.
- Both quick relief and long-term control medications can be delivered with an inhaler.
- Remember to shake your child's inhaler for 5 to 10 seconds before each use and have your child hold their breath for 10 seconds after the release of the medication to allow the medication to reach deeply into their lungs.



## Spacers

- A spacer is a device that is attached to an inhaler.
- This device holds the medication in its chamber to help your child get more of the medication.
- Your nurse or respiratory therapist will teach you how to properly use the spacer device.
- Younger children or children who have trouble holding their breath may need a spacer with a mask.
- If your child is unable to hold their breath, you should hold the mask with spacer over their mouth and nose until they have taken at least 5-10 breaths.
- Some inhalers are "breath-actuated" and do not require use of a spacer. The medicine is delivered when your child takes a breath from the inhaler.
- Breath-actuated inhalers are only appropriate for some older children, so your doctor or medical provider will need to choose the right inhaler carefully.



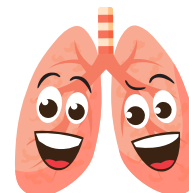
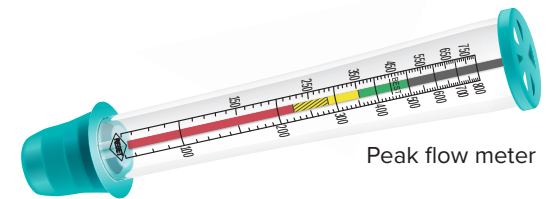
## Nebulizers

- A nebulizer provides medication to your child through a small, steady mist.
- Your child simply breathes in and out normally through a mask or mouthpiece connected to the nebulizer.
- This is sometimes used with infants and young children.
- If your child requires a nebulizer at home, you will be taught how to use and care for the equipment.



## Peak Flow Meter

- The peak flow meter is a simple tool that can be used daily as an early warning tool for your child's asthma. Any child over the age of five can use a peak flow meter.
- The peak flow meter measures how well your child's airways are working.
- Your nurse or respiratory therapist will show you how to use a peak flow meter. You will be able to take one home to help monitor your child's asthma.



*Which of these devices has your child used?*

# Asthma Action Plan

An asthma action plan helps you recognize and treat your child's symptoms in a timely manner.

## STEP

**1**

If your child develops asthma symptoms, give two puffs of the reliever medication.

**IF SYMPTOMS DO NOT GO AWAY AFTER 15 MINUTES, GO TO STEP 2**



**2**

Give four more puffs of the reliever medication.

**IF SYMPTOMS ARE STILL PRESENT 15 MINUTES AFTER THE 4 PUFFS OR IF SYMPTOMS RETURN WITHIN 4 HOURS GO TO STEP 3**



**3**

Call your primary care doctor immediately. If you cannot get in touch with your doctor and you are still concerned, take your child to the closest emergency department or call 911. While awaiting medical services, give 6 puffs of albuterol every 10 minutes until you arrive at the hospital or the medics arrive at your home.

**IF ASTHMA SYMPTOMS GO AWAY AFTER STEP 1 OR 2, BUT COME BACK FOUR OR MORE HOURS LATER, START ON STEP 1 AGAIN AND REPEAT THE STEPS**



**IF BREATHING DIFFICULTY IS SEVERE OR YOUR CHILD IS UNCONSCIOUS, CALL 911**

# Signs of Medical Emergency

By utilizing the asthma home management plan, we hope your child's asthma can be managed and better controlled. However, it is important to be aware of symptoms that are signs of a medical emergency.

**Call 911 immediately if your child develops any of the following symptoms:**

- **Difficulty breathing**
  - Hunched over
  - Unable to lay down
  - Chest muscles pulled in to breathe
- **Passed out**
- **Unresponsive**
- **Blue lips/fingernails**
- **Difficulty walking**
- **Difficulty speaking**






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