

WHAT IS ASTHMA?



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WHAT IS ASTHMA?

Breathing is not something you think about much unless you are one of the 15 million Americans with asthma. About 1.3 million children, in the United States, under five years of age have asthma. Asthma is a common problem that affects one of every 12 children in childcare or preschool. We know that asthma tends to run in families. It is not something that you catch from someone or that you can give to someone – in other words, it is not contagious. Children do not outgrow asthma. As they get older, many children have fewer symptoms or none at all. But, asthma symptoms may return later in life. While we still don't know what actually causes asthma, we do know how it works and how to treat it.

Asthma is a chronic disease of long-lasting sensitivity and swelling (inflammation) of the lining of the bronchial tubes or airways in the lungs. When people have asthma, the airways in their lungs react to things that usually do not bother people who don't have asthma. The reactions of the airways make it difficult to breathe. **These breathing problems are called asthma “attacks”, “flare-ups”, or “episodes”.** During an asthma episode, someone with asthma will have any or all of the following signs and symptoms: coughing, wheezing, shortness of breath, rapid breathing, or chest tightness. A common myth is that children with asthma have a major psychological problem that has caused their asthma. Emotional factors are **not** the cause of asthma; however, emotional stress can sometimes trigger an asthma episode or make an episode worse.



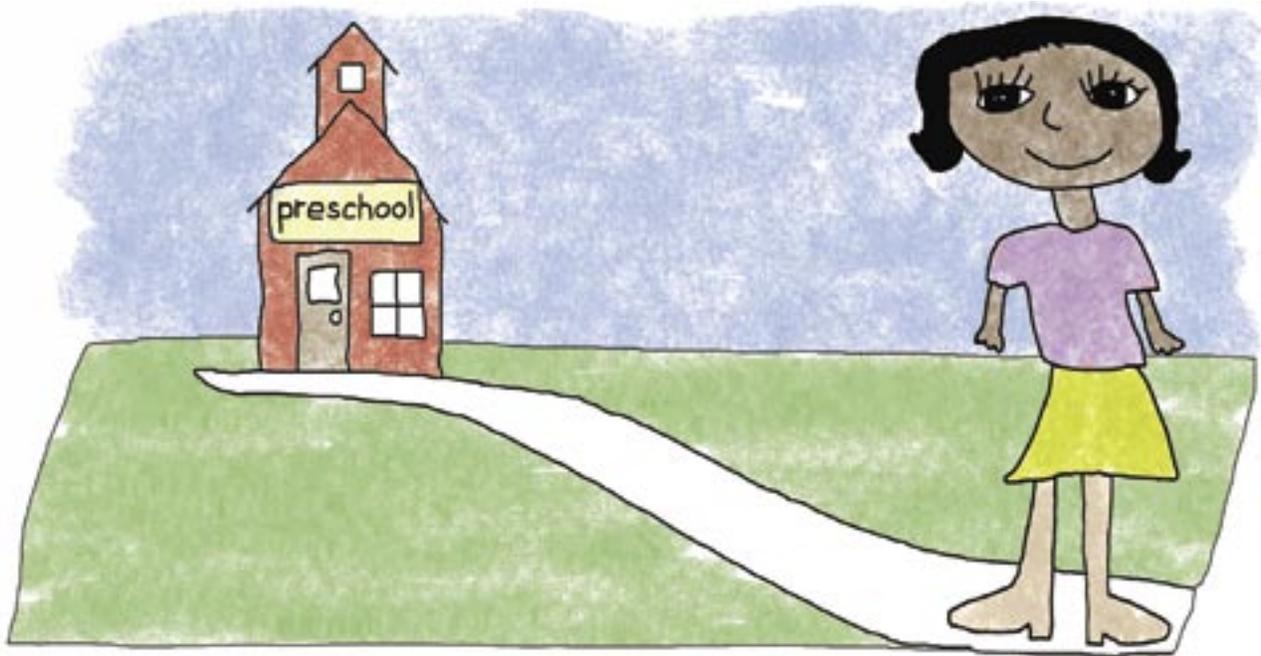
The good news is that **asthma is very treatable**. We know how to help children with asthma and their families take care of it. Although there is currently no “cure” for asthma, with good asthma care and management, almost all people who have asthma can lead fully active lives. Early treatment of asthma helps prevent long-term changes in the lungs, especially in children.

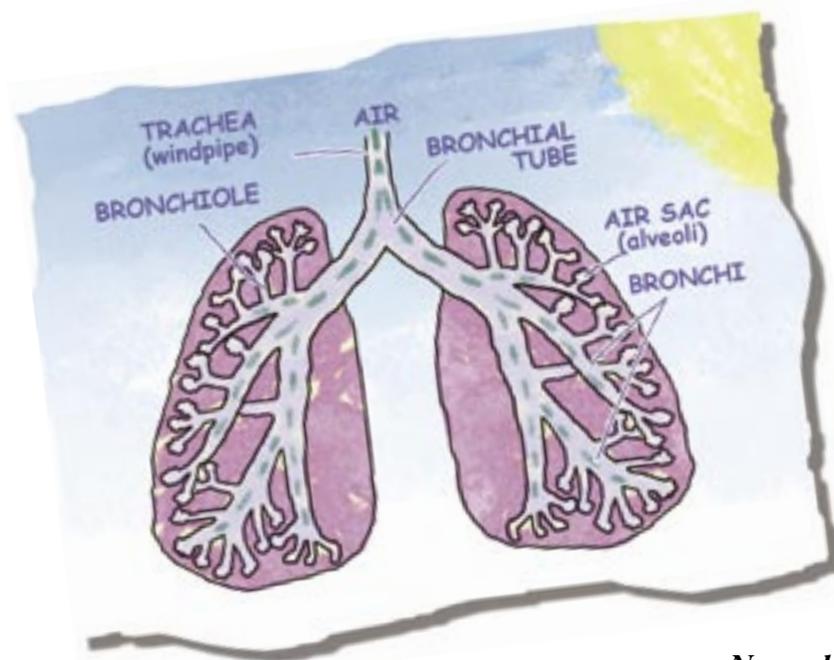
A correct diagnosis, a treatment plan, and good patient education about asthma are essential to helping children and parents gain control of a child’s asthma. A written **asthma action plan** -- developed with the doctor, parent, child, and other care givers -- helps the child avoid things that bring about his or her asthma and know what to do when asthma symptoms appear.

Many children may have asthma that has not been properly diagnosed or well managed. Often, a child’s asthma symptoms can look like other illnesses such as colds, bronchitis, pneumonia or allergies. Even when a proper diagnosis of asthma is made, the asthma may not be treated well enough to allow the child to be free of asthma symptoms most of the time. When children with asthma are under-diagnosed or under-treated, they tend to miss preschool or childcare, sleep poorly, and have frequent emergency care visits. In the United States, many of the 200,000 asthma hospitalizations and 2 million asthma emergency visits that children make each year are made by children under five years of age. Many of these visits could be avoided if children were fully treated for their asthma. Uncontrolled asthma symptoms can interfere with the child’s physical, social, and emotional development.



Good asthma management for children in preschool and childcare settings promotes school readiness. Helping children control their asthma prior to starting kindergarten can have a positive effect on their ability to regularly attend school and learn and grow to their full potential.





Normal Lungs

HOW DO NORMAL LUNGS FUNCTION?

To better understand asthma, it helps to learn how the lungs work. Lungs allow oxygen to enter the body and remove carbon dioxide. As air passes through the nose and mouth, it is warmed and moistened. Some particles in the air (like dust, pollen, molds, and bacteria) and chemicals (like perfume, aerosol sprays, and diesel exhaust) are trapped in the nose and mouth. This helps prevent injury to the lungs. The air goes through the windpipe (trachea) to smaller and smaller airways (bronchial and bronchiole tubes). The airways branch out like an upside down tree within the lungs. The airways have a delicate lining (mucosa) which is coated with a thin layer of mucus. Tiny foreign particles are trapped by the sticky mucus and eventually removed from the airways by breathing and coughing. The airways end in tiny air sacs called alveoli where the oxygen is exchanged with carbon dioxide. The oxygen enters the blood stream and the carbon dioxide is breathed out. Bundles of muscles surround the airways.

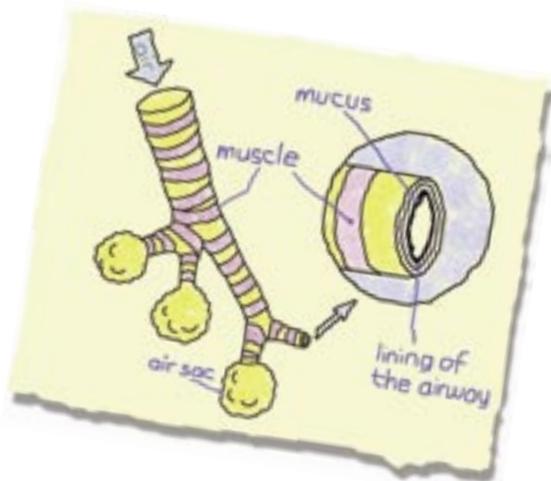
WHAT HAPPENS DURING AN ASTHMA EPISODE?

Asthma episodes can be unpredictable. They may appear suddenly or unexpectedly. They usually start with mild asthma signs and get progressively more severe if not noticed and treated properly.

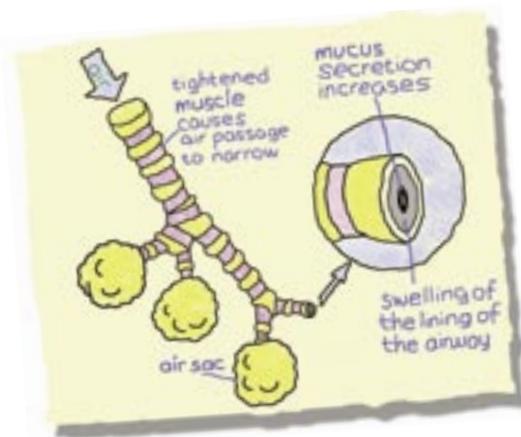
During an asthma episode, three major changes take place in the lungs:

- 1) Cells lining the airways (or bronchial tubes) get inflamed or swollen. This narrows the opening in the airways and reduces the flow of air.
- 2) These cells make more mucus than normal. This may block air flow even more.
- 3) The muscles around the airways tighten making them narrower.

These reactions of the airways during an asthma episode make the airways very narrow. In an asthma episode, changes in the airways leave less room for air to flow in and out of the lungs. This makes it hard to breathe. Less air can get into and out of the lungs – like sucking through a narrow straw rather than a large one. When air flows out of a narrow airway it makes a whistling sound – called wheezing. For example,



Lungs Before an Attack



Lungs During an Attack

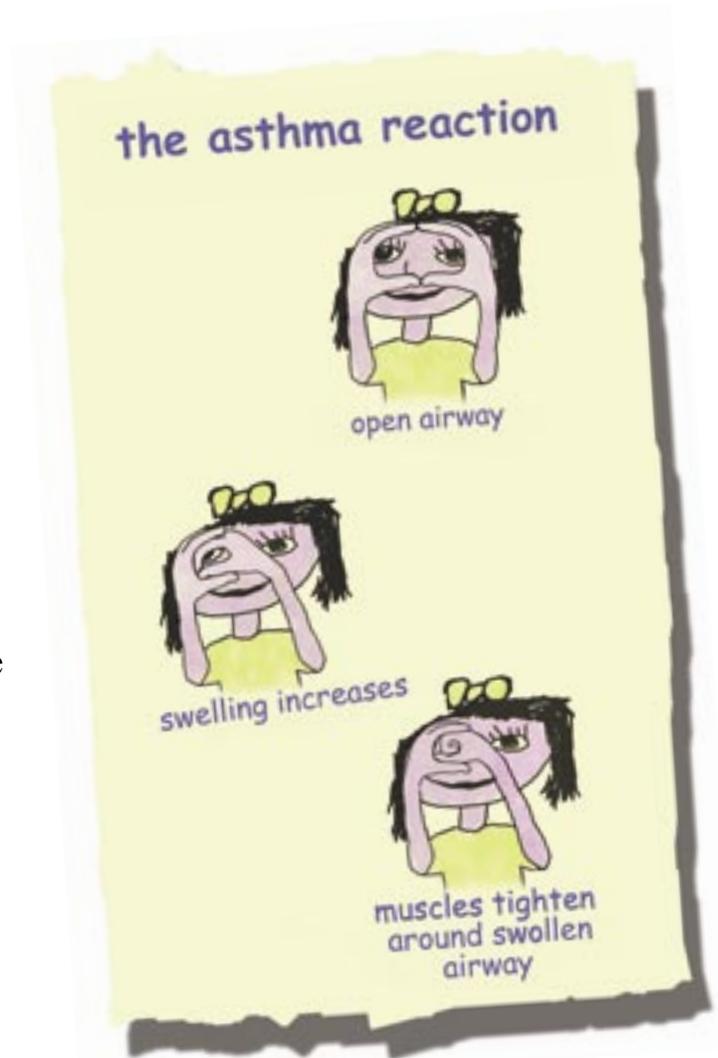
Adapted from One Minute Asthma: What you Need to Know © Pedipress, Inc. www.pedipress.com

letting the air out through the tight opening of a balloon creates a high-pitched whistling sound – similar to what happens in the lungs during an asthma episode. To move enough air out of these narrow airways, the child must breathe harder and faster to push the air out. The child’s chest skin will suck in around the ribs and neck. The narrower the airways become the worse the child’s asthma signs appear.

Doctors have learned a lot about how to treat these problems and to keep them from occurring in the first place. By avoiding the child’s asthma triggers, and by learning what to look for and what to do when asthma signs appear, the child’s asthma team can help the child control his or her asthma.

This is a way to see what happens to the lungs when a child has asthma signs using both hands.

- 1) Place the tips of the fingers and thumbs together and make a large circle of your hands. This represents the normal open airway.
- 2) Slide the curved left hand into the palm of the right hand. This narrows the circle and represents swelling in the airway.
- 3) Squeeze the right hand around the left hand. This narrows the airway further. This represents the muscles tightening around the airway, narrowing it further.



Visual Demonstration of Asthma – Using Hands

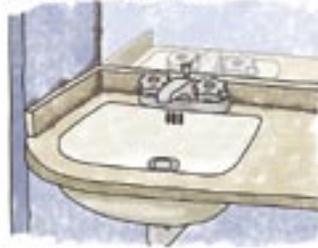
Adapted from One Minute Asthma Training Program © Pedipress, Inc. www.pedipress.com

Common Asthma Triggers

viral illness
colds & flu



mold and mildew



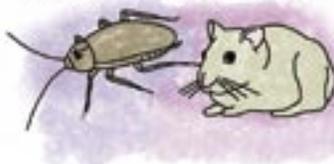
pollen



weather
very hot or cold



pest droppings
rodents and cockroaches



hard yelling, laughing
or crying



pet dander
from furry or feathered animals



environmental irritants
smoke, pollution, fumes, odors



dust and dust mites



WHAT TRIGGERS AN ASTHMA EPISODE?

Children with asthma have sensitive airways that react to the environment. The narrowing of the airways causes the signs and symptoms of asthma. This narrowing of the airways or **asthma episode is started or “triggered”** by exposure to allergens or irritants or other events. *Allergens* are found in the everyday environment and include pollen, dust mites, animal dander, cockroach droppings, and mold. *Irritants* include strong smells or odors like tobacco smoke, diesel exhaust, chemicals, perfumes, and air pollution. Viruses (such as colds and flu), cold air, vigorous exercise, and hard laughing, yelling or crying can also trigger an asthma episode. Given how common some asthma triggers are, it may be hard to figure out what starts an asthma episode, but something always triggers it.

Parents, doctors, and care providers can work together to help identify the child's asthma triggers -- for example – a parent or caregiver may notice that the child's asthma signs start after a visit to a relative with a cat, or with a cold, or with exposure to cigarette smoke. Each time the child has an episode, the teacher or caregiver should note where the child was and what he or she was doing. Over time a pattern may emerge that can point to the child's asthma triggers. Knowing the child's triggers and avoiding them can give the child and family more control over the child's asthma.

To help prevent asthma episodes, keep the child away from his or her asthma triggers. The effects of triggers can last two weeks. Also, they add up. Some children only develop asthma symptoms if two or three triggers are present. Exposure to several triggers over time can lead to an asthma episode. For example, if the child is exposed to cigarette smoke one day, he or she may not have asthma symptoms but the airways are sensitized. The next day or day after, the child may develop a head cold and on that day may start to have asthma symptoms. By noting when a trigger exposure has occurred and watching for asthma signs, caregivers can help get treatment started early – and hopefully, avoid a trip to the doctor or emergency room.



How long an asthma episode lasts can vary and often depends on the trigger. An asthma episode brought on by exercise will usually pass within a few hours after treatment. But, if an infection is the cause, the episode could last as long as a few weeks. In this event, the parent may instruct the preschool or childcare staff to provide an asthma treatment on a regular schedule – such as every four hours until the child's asthma improves.

ASTHMA SEVERITY CLASSIFICATIONS

The child's asthma severity is determined by how often the child has asthma episodes and is key to the type of medicine or treatment that the child will need to control his or her asthma. The doctor decides what medicines to give the child based on how severe the child's asthma is. Asthma is classified into four categories depending on how often the child has asthma signs. That is why it is important to keep a record of the child's asthma signs. The doctor evaluates the child's asthma severity and prescribes medicines that are right for that child. Many children have **persistent asthma** and will be treated with a controller medicine that is taken every day at home to prevent asthma episodes. Persistent asthma may become more or less severe over time.

- **Mild Intermittent**

Asthma signs happen less than 2 days per week or less than 2 nights per month.

- **Mild Persistent**

Asthma signs happen more than 2 days per week or more than 2 nights per month, on average.

- **Moderate Persistent**

Asthma signs happen every day or more than 4 nights per month.

- **Severe Persistent**

Asthma signs happen frequently during the day or most nights per month.

ASTHMA VARIABILITY

Some children have asthma only during certain seasons of the year, while others have it throughout the year. If signs only occur within a three to six month period each year, the asthma is called seasonal. **Seasonal asthma** may be mild intermittent, mild persistent or moderate persistent. Seasonal asthma can be due to upper respiratory infections and have nothing to do with an allergy. Generally, children with seasonal asthma only need to take a controller medicine every day during their asthma season. They may also be treated with a quick relief medicine and possibly anti-histamines or allergy medicines. They also will occasionally need to take a quick relief medicine at other times of the year.

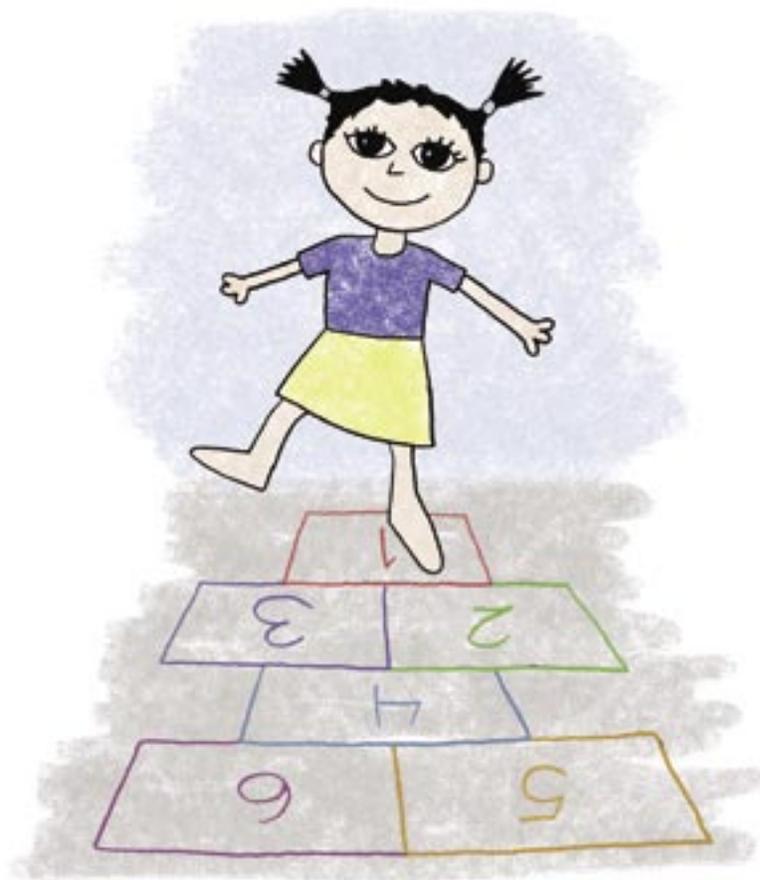
ASTHMA ACTION PLANS

Since asthma varies from child to child, asthma medicines will be different as to the type, amount, and frequency of medicine needed to keep asthma under control. An individualized, written asthma action plan lets the family and caregivers know what to do for each child.



An **asthma action plan** is a step-by-step listing of signs to look for, medicines to give, and what to do if the child shows signs of an asthma episode. There are many ways the asthma action plan can be written or displayed (examples are included in ASTHMA FORMS beginning on page 87). An asthma action plan should include:

- The child's known asthma triggers
- What to do if a child is having an asthma episode
- Instructions for asthma medicines
- When to call the parents, doctor or seek emergency assistance
- Current telephone numbers for emergency contacts



THE ASTHMA TEAM

It takes a “team” -- parents, the doctor, relatives, preschool teachers, childcare staff, and other caregivers -- to help children with asthma get the proper care they need to control their asthma. As a team, the adults works with each other and the child to win over asthma. When a child has asthma, it is important for the team caring for the child to:

- Take asthma seriously and work together.
- Have a written asthma action plan.
- Help the child avoid asthma triggers.
- Know the child’s asthma signs and how to score them and what to do if they occur – using a written asthma action plan for direction.
- Make sure the child’s rescue medicine is close by at all times.
- Know how to give asthma medicines when needed.
- Get help when asthma symptoms don’t improve.

