

Asthma and Your Child



Asthma is a chronic disease of the breathing tubes that carry air to the lungs. These airways become narrow and their linings become swollen, irritated, and inflamed. In patients with asthma, the airways are always irritated and inflamed, even though symptoms are not always present. The degree and severity of airway irritation varies over time. One of the most important goals of asthma treatment is to control the irritation in the airways.

Read on to learn more about who gets asthma, symptoms, diagnosis, triggers, and treatment as well as how to communicate with your child's school.

Who gets asthma?

Asthma is the most common serious chronic disease of childhood. It is the leading cause of school absence for chronic disease. In the United States, nearly 5 million children have asthma. It can cause lots of sickness and result in hospital stays and even death. The number of children with asthma is increasing, and the amount of illness caused by asthma may also be increasing in some parts of the country. The reasons for these increases are not exactly known.

Recent studies suggest that how often and how early a child has certain exposures can influence the development of asthma. For example, children who come from large families, live with pets, or attend child care often in the first year of life are actually *less* likely to develop asthma.

Studies have also shown that a child's exposure to infections early in life can affect whether he develops allergies or asthma. Some infections seem to decrease the risk of developing asthma, whereas one infection, respiratory syncytial virus (RSV), increases the risk during childhood.

What are symptoms of asthma?

Symptoms of asthma can be different for each person. They can appear quickly or develop slowly. Some children have symptoms of asthma often enough that they have to take medicine every day. Other children may need medicine just once in a while.

A cough may be the first and sometimes only asthma symptom. Other symptoms may include

- Difficulty breathing
- Wheezing
- Shortness of breath
- Tightness in the chest
- Decreased exercise tolerance

How is asthma diagnosed?

It's often difficult, especially in young children, to diagnose asthma. After a careful physical exam, your pediatrician will need to ask you specific questions about your child's health. The information that you provide will help your pediatrician determine if your child has asthma.

- Does your child have symptoms such as wheezing, coughing, or shortness of breath?

- How often do the symptoms occur and how bad do they get?
- Is your child missing school or unable to participate in sports or other activities because of breathing problems?
- Is coughing or wheezing keeping your child up at night?
- What triggers the symptoms?
- When do the symptoms get worse (for example, with colds, allergens, exercise)?
- Is there a history of chronic runny nose or eczema?
- Which medicines have been tried? Did they help?
- Is there any family history of allergies or asthma?

If your child is old enough (usually older than 5 or 6 years), your pediatrician may also test your child's lung function. One way to do this is with a *spirometer*. This device measures the amount of air blown out of the lungs. Your pediatrician may also want to test your child's lung function after giving her some asthma medicine.

Some children don't feel better after using medicines. If medicines don't work, tests may be given to check for other conditions that can make asthma worse or have the same symptoms as asthma. These conditions include allergic rhinitis (hay fever), sinusitis (sinus infection), gastroesophageal reflux disease (heartburn), vocal cord dysfunction (spasms of the vocal cords or voice box), and obesity.

Keep in mind that asthma can be a complicated disease to diagnose, and the results of airway function testing may be normal even if your child has asthma. For some children, the tendency to wheeze with infections goes away as they get older and their lungs grow.

What are asthma triggers?

Certain things cause asthma *attacks* or make asthma worse. These are called *triggers*. Some common asthma triggers are

1. **Allergens** (Things to which your child might be allergic. Nearly all children with asthma have allergies, and allergies can be a major cause of asthma symptoms.)
 - House dust mites
 - Animal dander
 - Cockroaches
 - Mold
 - Pollens
2. **Infections of the lungs and sinuses**
 - Viral infections
 - Other infections such as pneumonia or sinus infections
3. **Irritants in the environment** (air that you breathe)
 - Cigarette and other smoke
 - Air pollution
 - Cold or dry air
 - Odors, fragrances, chemicals in sprays, and cleaning products

- Unventilated space heaters (gas or kerosene) and fireplaces
- Odors and gases released from new carpets, furniture, or materials in new buildings

4. Exercise (About 80% of people with asthma develop wheezing, coughing, and a tight feeling in the chest when they exercise.)

These triggers can be found in your home, your child's school, child care, and relatives' homes.

How is asthma treated?

The goal of asthma treatment is to reduce symptoms so children can fully participate in normal physical activities. This can be done by avoiding asthma triggers and providing asthma medicine. It's also important to prevent emergency department visits and hospital stays because of asthma attacks. If your child experiences asthma symptoms more than once or twice per week, let your pediatrician know.

Avoiding triggers

While you can't make your home completely allergen- or irritant-free, there are things you can do to reduce your child's exposure to triggers. This will help decrease symptoms as well as the need for asthma medicines. The following tips may help:

- **Don't smoke.** Also, don't let anyone else smoke in your home or car.
- **Reduce exposure to dust mites.** If your child is allergic to dust mites, cover your child's mattress and pillows with special allergy-proof covers, wash his bedding in hot water every 1 to 2 weeks, remove stuffed toys from the bedroom, and vacuum and dust often. If possible, use a dehumidifier or remove carpeting in the bedroom. Bedrooms in basements should not be carpeted.
- **Reduce exposure to pet allergens.** If your child is allergic to furry pets, remove the pets from the home. If this isn't possible, keep the pets out of your child's bedroom and wash them often. Consider a high-efficiency particulate air (HEPA) filter in the bedroom and if possible, remove carpeting.
- **Control cockroaches.** If you have a roach problem, always use the least toxic methods to control them. For example, you should repair holes in walls or other entry points, set roach traps, and avoid leaving out exposed food, water, or garbage. Avoid bug sprays and bombs as these could trigger an asthma attack. If these measures fail, you may need to consult a licensed exterminator.
- **Prevent mold.** Mold in homes is often caused by excessive moisture indoors. This can result from water damage caused by flooding, leaky roofs, leaking pipes, or excessive humidity. Repair any sources of water leakage. Control indoor humidity by using exhaust fans in the bathrooms and kitchen and adding a dehumidifier in areas with high humidity. The Environmental Protection Agency (EPA) currently recommends cleaning existing mold with detergent and water (though there may be debris that can continue to contribute to allergic reactions). Some materials such as wallboards with mold have to be replaced.
- **Reduce pollen exposure.** If your child is allergic to pollen, use an air conditioner in your child's bedroom, with the fresh air vent closed, and leave doors and windows closed during high pollen times. (Seasons with high pollen counts vary by region. Check with your allergist, local newspaper, or the Internet for local pollen counts.)
- **Reduce indoor irritants.** Use unscented cleaning products and avoid mothballs, room deodorizers, and scented candles.

- **Check air quality reports.** When the air quality is very poor, keep your child indoors. Check weather forecasts or the Internet for air quality reports.

Using medicines

Asthma is different in every child, and symptoms can change over time. Your pediatrician will decide which asthma medicine is best for your child based on the severity and frequency of symptoms and your child's age. Children with asthma whose symptoms occur once in a while are given medicines only for short periods. Children with asthma whose symptoms occur more often need to take controller medicines every day.

Sometimes it's necessary to take several medicines at the same time to control and prevent symptoms. Your pediatrician may give your child several medicines at first, to get the asthma symptoms under control, and then decrease the medicines as needed. Your pediatrician may also recommend a peak flow meter for your child to use at home to monitor lung function. This can help you make decisions about changing therapy or follow the effects of changes made by your pediatrician.

It usually helps to have an *asthma management plan* written down so you can refer to it from time to time. Such a plan should contain information on daily medicines your child takes as well as instructions on what to do for symptoms. A plan should also be provided to your child's school or child care. Asthma medicines come in a variety of forms, including the following:

- Metered-dose inhalers (MDIs)
- Dry powder inhalers (DPIs)
- Liquids that can be used in nebulizers
- Pills

Inhaled forms are preferred because they deliver the medicine directly to the air passages with minimal side effects.

There are 2 groups of asthma medicines: quick-relief medicines and controller medicines.

Quick-relief medicines

Quick-relief medicines are for short-term use to open up narrowed airways and help relieve the feeling of tightness in the chest, wheezing, and breathlessness. They can also be used to prevent exercise-induced asthma. These medicines are taken only on an as-needed basis. The most common quick-relief medicine is albuterol. Your pediatrician may also recommend having an oral corticosteroid medicine (pill or liquid) available should your child have a moderate to severe asthma attack.

Exercise and asthma

Physical activity is important for your child's physical and mental health. Children with asthma should be able and encouraged to participate completely in physical education, sports, and other activities in school.

Exercise can often trigger symptoms in children with asthma. It can almost always be prevented with the use of quick-relief medicines taken 10 to 15 minutes before exercise. If it occurs often, however, it may mean your child's asthma isn't under control. Proper asthma control can make a great difference in your child's ability to exercise normally. It is important for parents to speak to their child's physical education teachers and coaches about their child's asthma management.

Controller medicines

Controller medicines are used on a daily basis to control asthma and reduce the number of days or nights that your child has symptoms. Controller medicines are not used for relief of symptoms. Children with symptoms more than twice per week or who wake up more than twice per month should be on controller medicines.

Controller medicines include the following:

- Inhaled steroids
- Long-acting bronchodilators
- Combination products that contain inhaled steroids and long-acting bronchodilators
- Leukotriene receptor antagonists (only available in oral form)
- Other inhaled medicines such as cromolyn or nedocromil

Inhaled corticosteroids are the preferred controller medicine for all ages. When used in recommended doses, they are safe for most children. In your child's case, however, your pediatrician may recommend another type of controller medicine.

Devices to help deliver asthma medicines

Medicines for asthma can be given to your child using a variety of devices including the following:

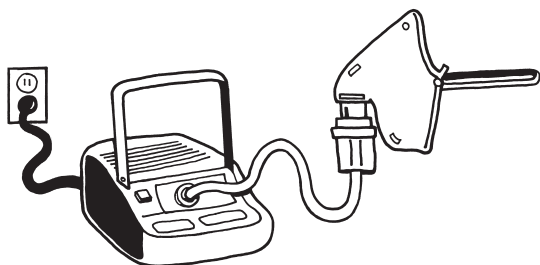
- **Nebulizer.** This may be used with very young children. This device uses an air compressor and cup to change liquid medicine into a mist that can be inhaled through a mouthpiece or mask. Controller medicines and quick-relief medicines can be given this way.
- **Metered-dose inhaler.** This is the most commonly used device for asthma medicines. Spacers, with an attached mask or mouthpiece, should be used to help make it easier to use MDIs. They should always be used with inhaled steroids.
- **Dry powder inhaler.** This device is available for some medicines. You don't need to coordinate pressing with breathing with a DPI, but its use still requires some training. It may have less taste and often has a built-in counter to help keep track of doses taken and doses left.

Because there are several different inhalers on the market, your pediatrician will suggest the one that is best for your child. There are important differences in the way they are used and amounts of medicines they deliver to the airways. You and your child will be taught how to use the inhaler, but your child's technique should be checked regularly to make sure she is getting the right dose of medicine.



Peak flow meter

To help monitor asthma, your child may need to use a *peak flow meter*. This is a handheld device that measures how fast a person can blow air out of the lungs. Asthma treatment plans using peak flow meters use 3 zones—green, yellow, and red, like traffic lights—to help you decide if your child's asthma is doing well or getting worse. Peak flow rates *decrease* (the numbers on the



scale go down) when your child's asthma is getting worse or out of control. Peak flow rates *increase* (the numbers on the scale go up) when the asthma treatment is working and the airways are opening up.

When to use the peak flow meter (if your pediatrician has recommended one)

Check your child's asthma using the peak flow meter at the following times:

- Every morning before he takes any medicines.
- If your child's symptoms worsen or he has an asthma attack. Check the peak flow rate before and after using medicines for the attack. This will help you to see if the medicines are working.
- Other times during the day, if your pediatrician suggests.

Keep in mind, there are differences in peak flow rate measurements at different times of the day. These differences are minimal when asthma is well controlled. Increasing differences may be an early sign of worsening asthma. Also, children of different sizes and ages have different peak flow rate measurements.

Keep a record of your child's peak flow numbers each day. This will help you and your pediatrician see how your child's asthma is doing. Bring this record with you when you visit your pediatrician.

Asthma and schools

Children spend many hours at school. That is why it is so important that asthma symptoms are well managed while they are there. It's also important that you are aware of your child's symptoms and any problems with how your child's asthma is managed in school.

The following are other things to keep in mind:

- **Communicate.** Good communication is important to asthma care and management in school. You might want to meet with your child's teachers, the school nurse, and coaches at the beginning of the school year. The school needs to know about your child's asthma, how severe it is, what medicines your child takes, and what to do in an emergency. This communication can be helped by having your pediatrician complete an asthma action plan for the school, as well as a medicine permission form that includes whether your child should be allowed to carry and use her own inhaler. You should also sign a release at school and your pediatrician's office to allow the exchange of medical information between you, the school, and your pediatrician. Ask the school about its policies on how your child will get access to her medicines and how they deal with emergencies, field trips, and after-school activities. The school should also inform you about any changes or problems with your child's symptoms while she is at school.
- **Keep a peak flow meter at school.** Peak flow meters can be helpful for school staff in determining the severity of an asthma attack.
- **Check for triggers at school.** The environment at school is as important as the environment at home. Use the *How Asthma-Friendly Is Your School?* checklist to check your child's school and classroom. This checklist is available on the National Heart, Lung, and Blood Institute Web site at www.nhlbi.nih.gov/health/public/lung/asthma/friendhi.htm.

Coping with asthma at school

Talk with your child about how well his asthma is being managed in school. Also talk with your child's teachers, school nurse, coaches, and other school personnel about how well your child is coping with asthma in school.

The following are some problems students with asthma may face at school:

- **Missing school** because of asthma symptoms or doctor visits.
- **Avoiding school or school activities.** Work with your pediatrician and school personnel to encourage your child to participate in school activities.
- **Not taking medicine before exercise.** Your child may avoid going to the school office or nurse's office to use his inhaler before exercise. Schools that allow children to carry their inhalers with them can help avoid this problem. This is a good idea only if your child always remembers to take his medicine and knows how to take it properly.

Remember

Asthma is a complicated yet treatable condition. By using medicines, avoiding triggers and environments that can cause asthma attacks, and carefully managing symptoms, children with asthma can lead normal and healthy lives.

The following are some things to keep in mind:

- If you are concerned your child may have asthma, talk with your pediatrician. Your pediatrician may test your child's airway function. It is important to remember that asthma is a complicated disease to diagnose, and the results of airway function testing may be normal even if your child has asthma.
- Decreasing your child's exposure to triggers will help decrease symptoms and the need for asthma medicines.
- There is no one magic medicine that controls all asthma. Sometimes several medicines need to be taken at the same time to control and prevent symptoms. Your pediatrician will choose the best medicines for your child and talk with you about when to use them.
- To help control asthma, your child may need to use a peak flow meter.
- It's important that asthma symptoms are well managed while your child is at school.

If you have any questions about your child's health, symptoms of asthma, or how your child's asthma is being managed, talk with your pediatrician.

Source: American Academy of Pediatrics, Section on Allergy and Immunology: *Pediatric Asthma Speaker's Kit*. Elk Grove Village, IL: American Academy of Pediatrics; 2003

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

From your doctor

