

So You Have Asthma



U.S. Department of Health and Human Services
National Institutes of Health
National Heart, Lung, and Blood Institute

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Asthma

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Asthma

Introduction

It's like breathing through a straw. That's how many people with asthma describe what asthma feels like. But for most people with asthma, it doesn't have to be that way!



We know a lot more about asthma today than we did just a decade ago, and we have a much better understanding of how to treat it. In fact, based on what we now know, most people with asthma should be able to gain control of it—and keep it under control for a lifetime.

By working closely with your doctor or other health care provider, you should be able to learn how to control your asthma. And once it is controlled, you should usually be able to do whatever someone without asthma can do—whether it's sleeping through the night every night or competing in the Olympics.

In other words, you should be able to live a normal active life!

The following list shows what your life could be like if your asthma were controlled: As a rule, you should have:

- Few, if any, asthma symptoms
- Few, if any, awakenings during the night caused by asthma symptoms
- No need to take time off from school or work due to asthma
- No limits on your fully participating in physical activities
- No emergency department visits
- No hospital stays
- Few or no side effects from asthma medicines

Doctors often refer to this list as the goals of asthma treatment. Happily, most people with asthma can reach these goals by taking the following four actions:

- 1.** Work closely with your doctor or other health care provider to learn how to manage your asthma. This is the key to keeping your asthma under control.
- 2.** Learn which medicines you should take and when you should take each of them. Also learn how to use an inhaler and spacer correctly. Then take your medicines just as your doctor recommends.
- 3.** Identify the things that bring on your asthma symptoms—your asthma triggers. Then avoid them or, at least, reduce your exposure to them.
- 4.** Learn how to monitor your asthma and to recognize and respond quickly to warning signs of an attack.

This guide gives you the very latest on asthma and provides practical suggestions for managing it effectively. It contains information about the most effective medications for treating it and describes how to take them. It also includes information about common warning signs of an asthma attack and explains how to act quickly to keep your asthma symptoms from getting worse.

Welcome to “So You Have Asthma”—your one-stop source for the latest information on controlling your asthma.

Asthma—Some Basics

Here are some basic facts about asthma that should help you understand more about how to control it.

- Asthma is a lung disease. It is not an emotional or psychological problem, or an illusion. Don't let anyone tell you your asthma is just in your head. It is real!
- You are not alone if you have asthma. More than 20 million Americans report they have asthma.
- Asthma is on the increase, not just in the United States, but throughout the world. It is estimated that 300 million people worldwide have asthma.
- Inflammation of the lining of the airways is a major factor in asthma. Inflammation is produced by your immune system. The immune system's job is to defend your body against things that it sees as foreign and harmful—for example, bacteria, viruses, dust, chemicals. It does this by sending special cells to the organs that are being affected by these things. These cells release chemicals that produce inflammation, or swelling, around the foreign substance or substances to isolate and destroy them.

Although inflammation is a defense mechanism for our bodies, it can be harmful if it occurs at the wrong time or stays around after it's no longer needed.

Because our lungs are used to breathing in air with irritants, such as bacteria, viruses, pollens, and dusts, all day every day, they've developed ways of dealing with these things, and normally, an inflammatory response does not occur.

But the airways in the lungs of people with asthma are more sensitive to many of these things, and the immune system in these people overreacts by releasing many different kinds of cells and other chemicals to the airways.

These cells cause the following changes in your airways:

- The inner linings of your airways become swollen or inflamed (inflammation), leaving less room in the airways for the air to move through.
- The muscles surrounding the airways tighten up, which narrows the airways even more. (This is called bronchospasm.)
- The mucus glands in the airways may produce lots of thick mucus, which further blocks the airways.



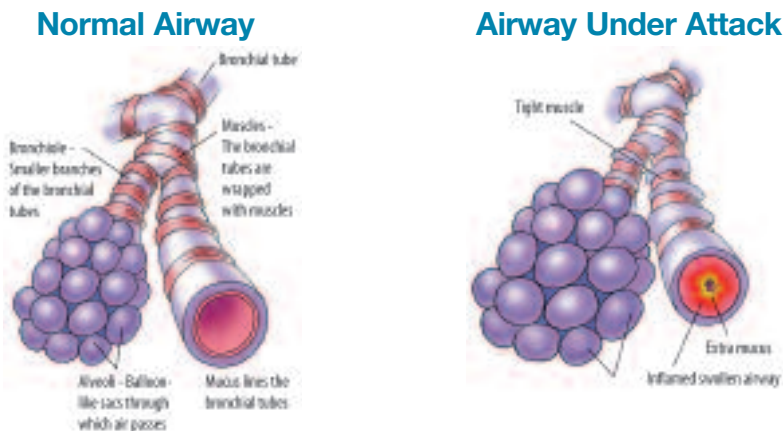
These changes make it harder for you to breathe. They also make you cough and wheeze and feel short of breath.

People with asthma can develop ongoing inflammation that makes the airways super sensitive. As a result, if the inflammation is not treated, each time your airways are exposed to your asthma triggers, the inflammation increases, and you are likely to have symptoms. (This is called bronchial hyperresponsiveness.)

Because inflammation plays such an important role in asthma, treatment for most people with asthma includes taking medicine every day for a long time to reduce and control it.

- Asthma is a **chronic** disease, like diabetes and high blood pressure. This means that once you develop asthma, you are likely to have it for a lifetime. It cannot be cured. Even when it is not causing symptoms, even when you are feeling just fine, the asthma is still there and can flare up at any time.

How Asthma Affects Your Airways



The healthy airway is open to allow the air that you breathe into your lungs to move in and out freely. When you are exposed to your asthma triggers, the sides of your airways become inflamed or swollen, and the muscles around the airways tighten, leaving less room for the air to move in and out.

Source: © American College of Chest Physicians

A chronic condition like asthma requires daily attention. Depending on how severe your asthma is, that may include monitoring your breathing and taking medicine **every day**, even when you do not have symptoms. Taking care of your asthma must become a routine part of your life, just like monitoring and taking diabetes or blood pressure medicines are for people with those chronic conditions.

- Your asthma can be controlled! By managing your asthma effectively—taking your medicines as prescribed, avoiding your asthma triggers, and monitoring your asthma—you should be able to get—and keep—your asthma under control. You should expect nothing less!

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Why You?

Doctors still don't know what causes some people to develop asthma. They think that many different genetic and environmental factors play a role.



Researchers are working hard to identify the responsible genes. They have also made progress in identifying other factors that seem to either lead to the development of asthma—or possibly protect you against developing asthma.

Probably the most important factor in the development of asthma is atopy. This is the inherited tendency to be allergic. So if other people in your family have allergies, you may have inherited a tendency to be allergic, and your chances of developing asthma are greater than average.

Researchers also are beginning to see that exposure to certain irritants when you are very young may play a role in the development of asthma. If you have a family history of asthma or allergies and your mother was exposed to certain irritants, such as tobacco smoke, when she was pregnant with you, you may be more likely to develop asthma.



Exposure to certain indoor allergens in early childhood may also play an important role in the development of asthma. In many places, exposure to house dust mites appears to have this effect. Other indoor allergens that may play an important role in the development of asthma include cat dander, cockroach droppings, and mold.

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Exposure to irritants, certain chemicals, or substances in your workplace may increase your chances of developing occupational asthma.

Changes in the way we live and work in the United States today may also increase our exposure to these allergens and irritants. For example, we now spend far more time indoors than we used to, and we have reduced ventilation in our homes and workplaces to conserve energy. This may trap allergens and irritants inside.

Researchers have also found a link between asthma and obesity. Some think that being obese may increase your chances of developing asthma, while others argue that people with asthma may not be active enough, and, as a result, they become overweight. This is an issue that is now being studied.

On the other side of the coin, medical research has identified factors that seem to help protect us against developing asthma. For example, they think that children who are exposed to certain types of infections and environments during their first year or two of life may be less likely to develop asthma. As an example, research has shown that many children who grow up on or near farms and are exposed to livestock and poultry are less likely to develop asthma and allergies. The same appears to be true of children who have two or more older siblings or attend daycare during their first 6 months.

This discovery has led to the theory that our western lifestyle—with its emphasis on hygiene and sanitation—has resulted in changes in our living conditions and an overall decline in infections in early childhood. Many young children no longer experience the same types of environmental exposures and infections that they did in years past. This affects the way their immune



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systems develop during very early childhood and may increase their chances of developing atopy and asthma. This is especially true of people who have close family members with one or both of these conditions.

This theory is called the “Hygiene Hypothesis.” It may help explain why asthma has been on the increase in recent years.

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How Does Asthma Make You Feel?

Most people with asthma experience one or more of the following symptoms:

- **Coughing.** Coughing from asthma is often worse at night or early morning, making it hard to sleep. Sometimes coughing is your only symptom. Sometimes coughing brings up mucus, or phlegm.
- **Wheezing.** Wheezing is a whistling or squeaky sound when you breathe.
- **Chest tightness.** This can feel like something is squeezing or sitting on your chest.
- **Shortness of breath.** Some people say they can't catch their breath, or they feel breathless, or out of breath. You may feel like you can't get enough air out of your lungs.



But the symptoms of asthma are different for different people.

They can vary from one time to another.

They can also vary in frequency: Some people have symptoms only once every few months, others have symptoms every week, and still others have symptoms every day.

Asthma symptoms can sometimes be mild; other times they can be serious enough to make you stop what you are doing; sometimes symptoms can be so serious that they are life threatening.

In a severe asthma attack, your airways can narrow so much that not enough oxygen can get into the blood that goes to your vital organs. This condition is a medical emergency. People can die from severe asthma attacks.

With effective asthma management, however, most people with asthma can expect to have few, if any, symptoms.

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How Do You Know If You Have Asthma?

Now that you know more about the symptoms of asthma, you can see that it's easy to confuse them with symptoms of other conditions—for example, a cold or bronchitis. But asthma can be serious, so if you have a cough that won't go away or are often short of breath, or wheeze a lot, especially at night or after being active, it's a good idea to ask your doctor or other health care provider to check out what is causing your symptoms.

It will be helpful if you monitor your symptoms for several days before seeing your doctor. Write down what symptoms you had, what time of day or night they occurred, where you were at the time, and what you were doing. Take this log of your symptoms with you when you go to see your doctor.

Also take with you a list of ALL medicines you are taking for any other condition, and the doses, in case one of them might affect your asthma or interact with an asthma medicine.

The first thing your doctor will do is to ask you some questions. Be prepared to discuss the following:

- Periods of coughing, wheezing, shortness of breath, or chest tightness that come on suddenly or occur often or seem to happen during certain times of year.
- Colds that seem to “go to the chest” or take more than 10 days to get over.
- Medicines you may have used to help your breathing.
- Your family history of asthma and allergies.
- What things seem to bring on your symptoms or make them worse.

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To help diagnose your condition, your doctor will use a stethoscope to listen to your breathing. He or she may also use a device called a spirometer to check how well your lungs are working. All you have to do is take a deep breath in and then breathe out as hard as you can into a tube that is connected to the spirometer.



The spirometer will show the amount of air you breathed out and how fast you breathed it out over a specified time period, usually 1 second. If your airways are inflamed and narrowed or if the muscles around your airways have tightened up, the results will show it.

As part of the test, your doctor may give you a medicine to help open up your airways to see if your spirometry results improve.

He or she may also test how sensitive your airways are to irritants in the air. You will be asked to gradually inhale increasing doses of methacholine, a substance that can cause your airways to narrow. After each dose, spirometry will be used to measure any changes in your ability to breathe out forcefully. Once the test is completed, you will be given a medication to open your airways back up.

Your doctor may also conduct—or send you for—other tests. These include:

- Allergy testing to find out if and what allergens affect you
- A test to see how your airways react to exercise
- Tests to see if you have gastroesophageal reflux disease (GERD)
- A test for sinus disease
- A chest x ray or an electrocardiogram to find out if a foreign object or other lung or heart disease could be causing your symptoms

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How To Control Your Asthma

Your doctor says that yes, you have asthma. Well, breathe easy—because asthma can be controlled. But YOU need to take an active role in managing it.

You don't have to do this alone though. In fact, the key to managing your asthma effectively is to work closely with your doctor or other health care provider to learn how to handle it on a routine basis.

Your Asthma Management Partnership

Think of your doctor and his or her staff as your teachers and partners in asthma management: They can work with you on an ongoing basis to keep your asthma under control.

Their role in this partnership is to help you learn how to manage your asthma by:

- Talking with you about your asthma treatment goals and how to achieve them;
- Providing you with a written asthma action plan—and making sure you understand and know how to use it;
- Discussing the medicines you should take—explaining:
 - What they do,
 - How much to take,
 - When to take each of them,
 - How to take each of them, and
 - What, if any, side effects you should look for;
- Demonstrating how to take your medicines;
- Showing you how to monitor your asthma by using a peak flow meter;

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- Discussing your asthma triggers with you and providing information about how to avoid them;
- Describing the possible warning signs of an asthma attack and explaining clearly what you should do if you feel an attack coming on;
- Addressing any concerns you have about any aspect of their recommendations; and
- Answering ALL your questions about managing your asthma simply and clearly.

Your role in this partnership is to:

- Ask questions and participate in decisions about your treatment.
- Discuss your treatment goals with your doctor and come to an agreement on what you can expect from treatment.

- Do what your doctor recommends, including taking your medicines as prescribed and monitoring your asthma on a regular basis.
- Keep your doctor informed about changes in your condition.
- Visit your doctor about every 6 months to review your written asthma action plan.



Partnering with your doctor in managing your asthma is one of the key actions you need to take to get—and keep—your asthma under control. The following sections provide information about the three other actions you need to take to control your asthma.

You and your doctor will work together to record the specifics about each of these three actions in your asthma action plan. A sample plan appears on page 44. As you read through the following sections, write down on this plan the actions that you and your doctor have agreed upon.

Your Asthma Medicines: How They Work and How To Take Them

Most people with asthma need two kinds of medicines:

1. Quick-relief medicines, to be taken when you need them, for immediate relief of your symptoms, and
2. Long-term control medicines, to be taken daily, for a long time, to stop and control the inflammation in your airways and thereby prevent symptoms and attacks.

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Everyone with asthma needs a **quick-relief or rescue medicine** to stop asthma symptoms before they get worse. An inhaled short-acting beta₂-agonist is the preferred quick-relief medicine. It acts quickly to relax tightened muscles around your airways so that your airways can open up and allow more air to flow through.

You should take your quick-relief medicine at the first sign of any asthma symptoms. Your doctor may recommend that you take this medicine at other times, as well—for example, before exercise.

WARNING!

Quick-relief medicines are very good at stopping asthma symptoms, but they do nothing to control the inflammation in your airways that produces these symptoms. If you need to use more quick-relief medicine than usual or if you need to use it every day, it may be a sign that you also need to take a long-term control medicine to reduce the inflammation in your airways. Discuss this with your doctor as soon as possible.

Long-term control medicines are used to prevent asthma symptoms from coming on in the first place. These medicines work more slowly than quick-relief medicines, and you may need to take them for several weeks before you feel their effects. Once your asthma is under control, you may be able to cut back on some of these medicines.

The most effective long-term control medicines are anti-inflammatory medicines. They reduce the inflammation in your airways, making the airways less irritable and less likely to react to your asthma triggers.



Make sure you carry a quick-relief inhaler with you at all times in case of an asthma attack.

Anti-inflammatory medicines are usually most effective when you take them every day, even when you don't have any symptoms.

The most effective anti-inflammatory medicines for most people are **inhaled corticosteroids**.

Some people don't like the idea of taking steroids. But the inhaled corticosteroids used to treat asthma have been studied over the years in large groups of adults and children as young as 2 years old and have been found to be generally safe when taken as directed by your doctor.

They also are very different from the illegal anabolic steroids taken by some athletes. They are not habit-forming—even if you take them every day for many years. And, because they are inhaled, the medicine goes right to your lungs where it is needed.

Like many other medicines, inhaled corticosteroids can have side effects. But most doctors agree that the benefits of taking them and preventing attacks far outweigh the risks of side effects.

Take inhaled corticosteroids as your doctor prescribes and use a spacer or holding chamber with your inhaler to make sure the medicine goes directly to your lungs. It's also a good idea to rinse your mouth out with water after taking these medicines.

Other long-term control medicines available to treat asthma include:

- **Inhaled long-acting beta₂-agonists.** These are bronchodilators that can help prevent symptoms when taken with inhaled corticosteroids. These medicines should not be used alone. They also should not be used to treat serious symptoms or an attack.

A two-in-one medicine containing corticosteroids and long-acting beta₂-agonists is now available.

- **Cromolyn sodium** is a nonsteroidal anti-inflammatory medicine that can be used to treat mild persistent asthma, especially in children. It's not as effective as inhaled corticosteroids.
- **Leukotriene modifiers, or anti-leukotriene medicines,** are a newer class of long-term control medicines that block the action of chemicals in your airways. If not blocked, certain chemicals, called leukotrienes, increase the inflammation in your lungs during an asthma attack.

Anti-leukotriene medicines, which are available in pill form, are used alone to treat persistent asthma or with inhaled corticosteroids to treat moderate asthma. They are not as effective as inhaled corticosteroids for most patients.

Inhaled corticosteroids are the most effective long-term control medicines for asthma, and they are generally safe for both children and adults when taken as directed by your doctor.

- **Theophylline**, also available in pill form, acts as a bronchodilator to relax and open the airways. It can help prevent nighttime symptoms. It is sometimes used alone to treat mild persistent asthma, but most of the time it is used with inhaled steroids.

If you take theophylline, you need to have your blood levels checked regularly to make sure the dose is right for you.

Taking your medicines: how's your technique?

Inhalers

Many asthma medicines—both quick-relief and long-term control medicines—come as sprays and powders in an inhaler. An inhaler is a hand-held device that delivers the medication right to the airways in your lungs where it is needed. There are several kinds of inhalers.



The metered dose inhaler (MDI) is a small canister that delivers a measured dose of medicine through your mouth to your airways. Some MDIs use a chemical to push the medicine out of the inhaler. Inhalers that use the chemical chlorofluorocarbon (CFC) are gradually being replaced. (See Box on CFCs on the next page.)

Other types of inhalers include:

- A breath-activated inhaler from which you simply breathe in by mouth, and the medicine comes out in a soft spray,
- A dry powder inhaler (DPI),
- A Turbuhaler, and
- An Aerolizer.

The CFC Story

MDIs have been in the news recently as a result of a 1987 international treaty that banned the future use of products containing chlorofluorocarbons (CFCs) worldwide. CFCs are gases that are produced by the kinds of aerosol propellants that have been used in most MDIs, and they are thought to damage the earth's protective ozone layers.

MDIs that contain CFCs are now being replaced by new inhaler devices that do not contain CFCs. This means that you will have additional choices in how you take your medicine.

CFC MDIs will remain available until an adequate number of safe and effective non-CFC inhalers are available.

It is important for you to learn how to use your inhaler correctly. Read the instructions that come with it. Also ask your health care provider or pharmacist to show you how to use it. Then try it yourself and ask him or her to make sure you are using it the right way.

Spacers

A spacer or holding chamber can make using an MDI a lot easier. It is an especially good idea to use a spacer with corticosteroid MDIs as it decreases the amount of medicine that lands on your tongue or in the back of your mouth. This reduces irritation to your throat and increases the amount of medicine that gets down into your lungs where it belongs.

There are many kinds of spacers. Some have a mouth piece. Some have a face mask that comes in different sizes to fit both children and adults.



Many spacers fit on the end of an inhaler; for some, the canister of medication fits into the device. Some MDIs come with built-in spacers.

Spacers are not needed for dry powder devices.

Most spacers also come with instructions on how to use them. It's important to ask your health care provider to show you how to use a spacer with your MDI. Then try it yourself and ask him or her to make sure you're doing it correctly.



Nebulizers

A nebulizer is another device that makes it easier to take inhaled medicines. It provides the medicine in a fine mist, rather than a spray. Using a nebulizer is usually easy; you simply breathe in and out normally through a mask or mouthpiece connected to the nebulizer. But it takes more time to use than an inhaler. It also is more expensive and requires more maintenance. Instructions for using different nebulizers vary, so follow the instructions on the package insert.

Nebulized asthma medication may be especially useful for infants, young children, and adults who have trouble using an inhaler.

Regardless of which of these devices you use, you have to use them the right way, or you won't get all the medicine into your lungs.

The best way to learn to use these devices correctly is to ask your doctor or a nurse, pharmacist, or respiratory therapist to show you how. Then demonstrate it back to him or her to make sure you have it right.

What Medicines Do I Need?

Doctors usually decide which medicines and how much of each to prescribe, based on your lung function and your pattern of symptoms—how many days and nights you have them, as shown on the chart below. Usually, if you have symptoms no more than 2 days a week or 2 nights a month, they will consider your asthma to be mild and intermittent and prescribe only quick-relief medicines to be used when you have symptoms.

If you have more frequent symptoms, you probably need daily long-term control medicines to prevent symptoms. It may take several visits before the doctor finds exactly the right medicines and doses for you.

	Days With Symptoms	Nights With Symptoms
Intermittent asthma	No more than 2 days each week	No more than 2 nights each month
Mild persistent asthma	3 days or more a week but no more than one bout of symptoms on any 1 day	3 nights or more a month
Moderate persistent asthma	Every day	More than 1 night a week
Severe persistent asthma	Throughout the day every day	Often

Now that you know more about asthma medicines and what they do, ask your doctor to write on your asthma action plan:

- The name of each of your quick-relief and long-term control medicines,
- How much of each medicine you should take, and
- When to take each of your medicines

Other measures for treating asthma include:

- Allergy shots (immunotherapy) may help if you have allergies that can't be easily controlled by avoiding your triggers and taking medicine.
- Older people with asthma should have pneumococcal (pneumonia) vaccinations.
- Antibiotics are **not** recommended for either routine or emergency treatment of asthma, except, as needed, for a bacterial infection, such as pneumonia or suspected bacterial sinusitis.

Any time your doctor prescribes a new medication—ask him or her about the right way to use it! Ask about possible side effects and how to deal with them. Also ask what to do if you forget to take the medicine. Your pharmacist can also give you information about your medicines.

Your Asthma Triggers and How To Avoid Them

Avoiding the things that bring on your asthma symptoms—your asthma triggers—is another important part of your asthma action plan.

Some of the most common things that bring on asthma symptoms are **allergens, irritants, viral infections, and exercise**.

Allergens are substances that can cause you to have an allergic reaction. That is, in some people, the immune system sees them as “foreign” or “dangerous” and reacts in an exaggerated way to protect the body against them.

How To Remember To Take Your Medicines

To Take Your Medicines:

- Put a favorite picture of yourself or a loved one on the refrigerator with a note that says, “Remember To Take Your Asthma Medicine.”
- Keep your medicine on the night stand next to your side of the bed.
- Take your asthma medicine right after you brush your teeth and keep it with your toothbrush as a reminder, or put it next to your cereal box and take it with breakfast.
- Put “sticky” notes in visible places to remind yourself to take your asthma medicine, i.e., on the refrigerator, on the cabinet where you keep your favorite morning mug (You might even keep the medicine bottle inside the mug.), on the bathroom mirror, on the front door.
- If you use the telephone company’s voice mail service, record a reminder for yourself, and the service can automatically call you every day at the same time.
- Establish a buddy system with a friend who also is on daily medication and arrange to call each other every day with a reminder to “take your medicine.”
- Ask one or more of your children or grandchildren to call you every day with a quick reminder. It’s a great way to stay in touch, and little ones love to help the grownups.
- Place your medicine in a weekly pill box, available at most pharmacies.
- If you have a personal computer, program a start-up reminder to take your asthma medicine or sign up with one of the free services that will send you reminder e-mail every day.
- If you have a watch with an alarm, program it to beep and remind you to take your asthma medicine.
- Remember to refill your prescription. Each time you pick up a refill, make a note on your calendar to order and pick up the next refill one week before the medicine is due to run out.

Some of the most common allergens for people with asthma are:

- Animal dander—scales or dried saliva from the hair, skin, or feathers of animals
- Dust mites—tiny bugs that thrive in mattresses, upholstered furniture, carpets, and stuffed animals
- Cockroach droppings
- Pollen from trees and grass
- Molds, both indoor and outdoor



Irritants are things in the environment that may irritate your lungs. Some of the most common lung irritants are:

- Cigarette smoke
- Air pollution, including ozone
- Cold air or changes in weather like freezing temperatures, high humidity, and thunderstorms
- Strong odors or sprays, such as perfumes, household cleaners, cooking fumes—especially from frying—paints, or varnishes

Other things that bring on asthma symptoms in some people include:

- Exercise (See pages 28 and 29.)
- Respiratory infections, such as colds or viral pneumonia. Also sinusitis and rhinitis.

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- Medicines, such as aspirin or other nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen, and beta-blockers, which are used in high blood pressure and glaucoma medicines
- Sulfites in food (dried fruit, processed potatoes, or shrimp) or beverages (wine or beer)
- Gastroesophageal reflux disease (GERD), a medical condition that causes heartburn
- Strong expressions of emotion (including laughing hard or crying)

This is not a complete list of all the things that can bring on your asthma symptoms. It is important for you to learn what causes problems for you.

The guide on pages 26 and 27 suggests ways to help you stay away from some common asthma triggers. Look at the things listed in dark print and put a check next to the ones that you know make your asthma worse.

Ask your doctor to help you find out what else makes your asthma worse. Then decide with your doctor what steps you will take.

You do not need to do all of the things listed in this guide. A good place to start is with the things in your bedroom that bother your asthma. Try something simple first.

How To Control Things That Make Your Asthma Worse

Allergens

❑ Animal Dander

Some people are allergic to the flakes of skin or dried saliva from animals with fur or feathers.

The best thing to do:

- Keep furred or feathered pets out of your home.

If you can't keep the pet outdoors, then:

- Keep the pet out of your bedroom and other sleeping areas at all times, and keep the door closed.
- Remove carpets and furniture covered with cloth from your home. If that is not possible, keep the pet away from fabric-covered furniture and carpets.

❑ Dust Mites

Many people with asthma are allergic to dust mites. Dust mites are tiny bugs that are found in every home—in mattresses, pillows, carpets, upholstered furniture, bedcovers, clothes, stuffed toys, and fabric or other fabric-covered items.

Things that can help:

- Encase your mattress in a special dust-proof cover.
- Encase your pillow in a special dust-proof cover or wash the pillow each week in hot water. Water must be hotter than 130° F to kill the mites. Cold or warm water used with detergent and bleach can also be effective.
- Wash the sheets and blankets on your bed each week in hot water.
- Reduce indoor humidity to below 60 percent (ideally between 30–50 percent). Dehumidifiers or central air conditioners can do this.
- Try not to sleep or lie on cloth-covered cushions.
- Remove carpets from your bedroom and those laid on concrete, if you can.
- Keep stuffed toys out of the bed or wash the toys weekly in hot water or cooler water with detergent and bleach.

❑ Cockroaches

Many people with asthma are allergic to the dried droppings and remains of cockroaches.

The best thing to do:

- Keep food and garbage in closed containers. Never leave food out.
- Use poison baits, powders, gels, or paste (for example, boric acid). You can also use traps.
- If a spray is used to kill roaches, stay out of the room until the odor goes away.



Indoor Mold

- Fix leaky faucets, pipes, or other sources of water that have mold around them.
- Clean moldy surfaces with a cleaner that has bleach in it.

Pollen and Outdoor Mold

What to do during your allergy season (when pollen or mold spore counts are high):

- Try to keep your windows closed.
- Stay indoors with windows closed from late morning to afternoon, if you can. Pollen and some mold spore counts are highest at that time.
- Ask your doctor whether you need to take or increase anti-inflammatory medicine before your allergy season starts.

Irritants

Tobacco Smoke

- If you smoke, ask your doctor for ways to help you quit. Ask family members to quit smoking, too.
- Do not allow smoking in your home or car.

Smoke, Strong Odors, and Sprays

- If possible, do not use a wood-burning stove, kerosene heater, or fireplace.
- Try to stay away from strong odors and sprays, such as perfume, talcum powder, hair spray, and paints.

Other things that bring on asthma symptoms in some people include:

Vacuum Cleaning

- Try to get someone else to vacuum for you once or twice a week, if you can. Stay out of rooms while they are being vacuumed and for a short while afterward.
- If you vacuum, use a dust mask (from a hardware store), a double-layered or microfilter vacuum cleaner bag, or a vacuum cleaner with a HEPA filter.

Other Things That Can Make Asthma Worse

- Sulfites in foods and beverages: Do not drink beer or wine or eat dried fruit, processed potatoes, or shrimp if they cause asthma symptoms.
- Cold air: Cover your nose and mouth with a scarf on cold or windy days.
- Other medicines: Tell your doctor about all the medicines you take. Include cold medicines, aspirin, vitamins and other supplements, and nonselective beta-blockers (including those in eye drops).



Asthma and Exercise

Physical activity can trigger symptoms in most people with asthma. Symptoms may occur either during or right after being active.

But regular physical activity is good for all of us. In fact, doctors recommend that most people, including people with asthma, get at least 30 minutes of moderate physical activity most days of the week.

The good news is that if you have good control of your asthma, exercise should not be a problem for you. In fact, most people with asthma should be able to participate in any physical activity they like without having asthma symptoms.

Here are some things you can do to prevent or reduce exercise-induced asthma:

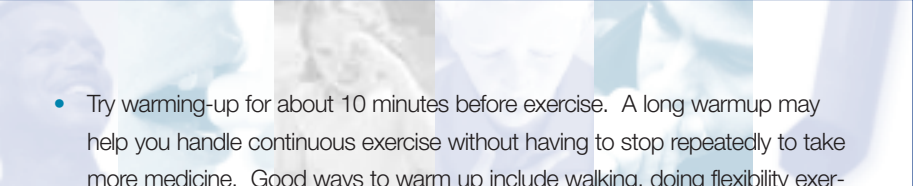
- Ask your doctor about using a short-acting beta₂-agonist inhaler about 15 minutes before exercise. This usually can prevent and control exercise-induced asthma. You can also use this medicine to relieve symptoms during and after exercise. But remember to let your doctor know if you have to use it often during or after exercise. It may be a sign that you need to start taking daily long-term control medicine or to increase your dose.

Monitoring Your Asthma

Monitoring your asthma on a regular basis will help you keep it under control.

Writing down your symptoms whenever you have them is a good idea. This will provide a good record that will help you and your doctor adjust your treatment over time. A sample symptom diary is on pg. 33.

Asthma

- 
- Try warming-up for about 10 minutes before exercise. A long warmup may help you handle continuous exercise without having to stop repeatedly to take more medicine. Good ways to warm up include walking, doing flexibility exercises, or trying other low-intensity activities.
 - Try to avoid your other asthma triggers while exercising. For example, if cold, dry air triggers your asthma, wear a scarf or cold air mask when exercising outdoors in winter.
 - If you have been having mild asthma symptoms, consider modifying the intensity or length of the activity you do.
 - Try exercising indoors when outside temperatures are extreme, or the ozone level is high. The same is true if you are allergic, and the grass has recently been mowed, or pollen counts are high.
 - When first starting to be active, try increasing your level of activity gradually over time.

Remember, asthma should not limit your participation or success in physical activities—even vigorous activities like running for long periods of time or playing basketball or soccer.

Another way to monitor your symptoms is with a peak flow meter. This is a hand-held device that shows how well air moves out of your lungs. Measuring your peak flow can help you tell how well your asthma is controlled. It can also alert you to an oncoming attack hours or even days before you feel symptoms. And during an attack, it can help tell you how bad the attack is and if your medicine is working.

Asthma
Asthma
Asthma

Here are instructions for using a peak flow meter. Don't forget to ask your doctor to teach you how and when to use it.

How to use your peak flow meter

1. Find Your Personal Best Peak Flow Number

The first step is to find your personal best peak flow number.

To find your personal best peak flow number, take your peak flow every day for 2 to 3 weeks. It is best to do this during a period when your asthma is well controlled—when you feel good and do not have any asthma symptoms.

Take your peak flow at the same time every day.

- Right after you take your quick-relief medicine to relieve symptoms
- Any other time your doctor suggests

Write down the number you get for each peak flow reading. The highest peak flow number you have during the 2 to 3 weeks is your personal best.

Your personal best can change over time. Ask your doctor when to check for a new personal best.

2. Use Your Personal Best to Help Make Treatment Decisions

The next step is to mark your peak flow zones: Your peak flow zones are based on your personal best peak flow number. The zones will help you monitor your asthma and take the right actions to keep it under control. The colors used with each zone come from the traffic light.

Green Zone (80 to 100 percent of your personal best) signals good control. If you take daily long-term control medicines, keep taking them. And keep taking them even when you are in the yellow or red zones.

Yellow Zone (50 to 79 percent of your personal best) signals caution: your asthma is getting worse. Add quick-relief medicines, as spelled out in your written asthma action plan. You might also need to increase other asthma medicines; ask your doctor.

Red Zone (below 50 percent of your personal best) signals medical alert! Add or increase quick-relief medicines according to instructions in your action plan and call your doctor now.

3. Use Your Peak Flow Meter To Check How Well Your Asthma Is Controlled

You can use your peak flow meter in several ways to check how well your asthma is controlled.

- Every morning when you wake up, before taking your asthma medicine. Make this part of your daily routine. Check this number against the peak flow number on your action plan to make sure your asthma is under control.
- When you are having asthma symptoms or an attack. First take your medicine for the attack. Then take your peak flow. This will help you see if the medicine is working for you or if you need more treatment.
- Any other time your doctor suggests.

If you use more than one peak flow meter (perhaps at home and at work), make sure they are the same brand.

Taking Your Peak Flow

1. Move the marker to the bottom of the numbered scale.
2. Stand up or sit up straight.
3. Take a deep breath—fill your lungs all the way up.
4. Hold your breath while you place the mouthpiece in your mouth, between your teeth. Close your lips around it. Do not put your tongue inside the hole.
5. Blow out as hard and fast as you can. Your peak flow meter will measure how fast you can blow out air.
6. Write down the number you get. But if you cough or make a mistake, do not write down the number. Do it over again.
7. Repeat steps 1 through 6 two more times. Write down the highest of the three numbers. This is your peak flow number.
8. Check to see which peak flow zone your peak flow number is in. Do the actions your doctor told you to do while in that zone.

4. Ask Your Doctor To Write On Your Asthma Action Plan:

- The numbers for each of your peak flow zones. Mark the zones on your peak flow meter with colored tape or a marker.
- The medicines you should take while in each peak flow zone.
- The steps you should take while in each peak flow zone.

What If My Asthma Gets Worse? Reacting Quickly to Worsening Symptoms

If your asthma is well managed, you should rarely have symptoms. But sometimes, your asthma may flare up anyway. You may start to cough or have difficulty breathing. Or you may see that you need more quick-relief medicine than usual to control your symptoms. If this happens, you may be having an asthma attack.

An asthma attack can often be stopped when you catch it early and take the right medicine. If you don't stop it, your symptoms are likely to continue to worsen.

Asthma attacks may occur without warning, but most people with asthma have warning signs before symptoms begin. Those warning signs are different for everyone. They may even be different for you at different times.

By knowing your warning signs and acting on them, you may be able to avoid a serious asthma attack. Work with your doctor to find out what your warning signs are.

What Does An Asthma Attack Feel Like?

Just as different people have different warning signs of an asthma attack, an attack may feel different to each person. Nonetheless, many people with asthma report that when they have an attack,

- Initially, breathing may become more difficult and slightly faster than usual. It may also become very difficult and either very fast or very slow.

Warning Signs

Check below any things that you know warn you of an attack coming on:

- | | |
|--|---|
| <input type="checkbox"/> awakening at night | <input type="checkbox"/> itchy nose |
| <input type="checkbox"/> coughing, especially at night | <input type="checkbox"/> chest starts to feel tight or hurts |
| <input type="checkbox"/> difficulty breathing | <input type="checkbox"/> sneezing |
| <input type="checkbox"/> chest tightness | <input type="checkbox"/> head stopped up |
| <input type="checkbox"/> wheezing | <input type="checkbox"/> headache |
| <input type="checkbox"/> breathing faster than normal | <input type="checkbox"/> restlessness |
| <input type="checkbox"/> getting out of breath easily | <input type="checkbox"/> runny nose |
| <input type="checkbox"/> feeling very tired | <input type="checkbox"/> change in face color |
| <input type="checkbox"/> Itchy, watery, or glassy eyes | <input type="checkbox"/> dark circles under eyes |
| <input type="checkbox"/> itchy, scratchy, or sore throat | <input type="checkbox"/> need more beta ₂ agonist than usual |
| <input type="checkbox"/> other _____ | |

- # Asthma
- Initially, you may be able to breathe well enough to talk in complete sentences, but gradually, you may be able to speak only a few words at a time without pausing to take a break.
 - You may begin to wheeze, cough, or feel tightness in your chest. Then, you may have severe wheezing, coughing, or chest tightness.
 - Your pulse may become very rapid.
 - You may start to perspire.
 - Your lips and fingers may start turning a bluish color

How To Manage an Asthma Attack

This is where your written asthma action plan comes in. It should tell you the following:

- Early signs to watch for that mean your asthma is starting to get worse (like a drop in your peak flow number or an increase in symptoms)
- How to adjust your medicines in response to these changes in your symptoms and peak flow measurements
- The peak flow levels and symptoms that show you need to seek emergency treatment

Turn to your asthma action plan as soon as you begin to have symptoms and follow it carefully. It can save your life.

Asthma

Putting Your Asthma Action Plan Into Action

Asthma is a complex condition, and managing it can require some real know-how. The previous sections described what you need to know to manage your asthma. This section describes how you and your doctor can work together to help you incorporate this know-how into action. It also provides a sample written asthma action plan.

Your Treatment Goals

Agreeing on your treatment goals is a key element of your partnership with your doctor. The general goals of asthma therapy were discussed on page 1, but you may have special personal goals as well. Perhaps you like to travel, and one of your goals is to be able to travel to somewhat remote locations without having to worry about your asthma.

Take a look at the following list of asthma treatment goals and add your own treatment goals to it. Show this list to your doctor.

My Asthma Treatment Goals

- Few, if any, asthma symptoms
- No awakening during the night caused by asthma symptoms
- No need to take time off from school or work due to asthma
- No limits on my full participation in physical activities
- No emergency department visits or stays in the hospital
- Few or no side effects from asthma medicines
- Personal goals: _____

Asthma

Based on your treatment goals, as well as your medical history and test results, you and your doctor can start working on a written asthma action plan that is tailored to help you make asthma management part of your daily routine. This plan should provide you with step-by-step information about each of the following topics:



- What medicines you should take, how much of each you should take, and when you should take each one.
- How to recognize when your asthma is getting worse.
- If peak flow monitoring will be helpful, and, if so, how and when to use a peak flow meter to monitor your asthma. Also how to make adjustments in your medicines based on the results.
- What your specific asthma triggers are and how to avoid them.
- What to do if your asthma is getting worse.
- How to recognize an emergency and what to do, including who to call.

As you and your doctor develop this plan, make sure you discuss the following questions:

1. Are you sure it's asthma?
2. Do I need other tests to confirm your diagnosis?
3. If I think my medicine isn't working, is it OK to take more right away? What if I miss a dose? What should I do if my





medicine causes me problems like shakiness, sore throat, or upset stomach? What if I have problems taking my medicines or following my treatment plan?

4. Is this the right way to use my inhaler?
5. Is this the right way to use my peak flow meter?
6. How can I tell if I'm having an asthma attack? What medicines should I take and how much of each should I take? When should I call you? When should I go to the emergency room?
7. Once my asthma is under control, will I be able to reduce the amount of medicine I'm taking?
8. When should I see you again?

Make sure that you understand the answers to these questions and everything else in your written asthma action plan.

Communication Tips

Tips for Establishing Good, Clear Communication Between You and Your Doctor

Speak up. Tell your doctor about your asthma treatment goals and what you want to achieve with improved asthma management. Ask your doctor for his or her help in achieving those goals.

Be open. When your doctor asks you questions, answer as honestly and completely as you can. Briefly describe your symptoms. Include when each symptom started, how often it happens, and whether it has been getting worse.

Keep it simple. If you don't understand something your doctor says, ask for a simple explanation. Be especially sure that you understand how to take any medicines you are given. If you are worried about understanding what the doctor says, or if you have trouble hearing, bring a friend or relative with you to your appointment. You may want to ask that person to write down the doctor's instructions for you.

Asthma

Following Up

Partnering with your health care provider means staying in close touch with him or her. If your medicines work well, you should plan on checking in again within the next 3–6 months. If not, call to schedule another visit right away.

Each visit with your doctor or other health care provider is an opportunity for you to confirm that you are doing the right things to manage your asthma and to learn about new things that may improve your asthma control.

To make sure you get the most out of each visit, bring with you the following items:

- Your peak flow meter and the record of your peak flows
- Your inhaler and other medicines
- The following record of your asthma. If you keep a symptom diary, bring that too.

Asthma Record

1. In the past 2 or 3 weeks, have I coughed, wheezed, felt short of breath, or felt chest tightness:
During the day? yes no
At night, waking me up? yes no
During or soon after exercise? yes no
2. Have I needed more quick-relief medicine than usual?
 yes no
3. Has my asthma kept me from doing something I wanted to do?
 yes no
If yes, what was it?

4. Have my medicines caused me any problems like shakiness, sore throat, or upset stomach?
 yes no

In the past few months:

5. Have I missed school or work because of my asthma?
 yes no
6. Have I had to go to the emergency department or hospital because of my asthma?
 yes no
7. Am I having trouble taking my medicine or following my treatment plan?
 yes no
8. Do I have any concerns about my asthma or my treatment?
 yes no
If yes, what are they?

Asthma Asthma Asthma

So You Have Asthma

Just a few years ago, having asthma meant living a life filled with should nots and cannots. That's not the case anymore. Most people with asthma should be able to get their asthma under control—and keep it that way for a lifetime.

Managing your asthma sounds like a lot to do, and there certainly is a lot to learn, but you can do it! And over time, managing your asthma will become such a routine part of your life that you will just go ahead and do it without a second thought.

Until then, here are some other sources of information about asthma and its management.

Asthma

For More Information

The National Heart, Lung, and Blood Institute (NHLBI) Health Information Center provides information to health professionals, patients, and the public about the treatment, diagnosis, and prevention of heart, lung, and blood diseases and sleep disorders. For more information, contact:

NHLBI Health Information Center

P.O. Box 30105
Bethesda, MD 20824-0105
301-592-8573
TTY: 240-629-3255
Fax: 301-592-8563
Web site: www.nhlbi.nih.gov

Also, try these other resources:

Allergy and Asthma Network/ Mothers of Asthmatics, Inc.

800-878-4403
Web site: www.aanma.org

American Academy of Allergy, Asthma, and Immunology

800-822-2762
Web site: www.aaaai.org

American College of Allergy, Asthma, and Immunology

800-842-7777
Web site: www.allergy.mcg.edu

American College of Chest Physicians

800-343-2227
Web site: www.chestnet.org

American Lung Association

800-586-4872
Web site: www.lungusa.org

Asthma and Allergy Foundation of America

800-727-8462
Web site: www.aafa.org

National Jewish Medical and Research Center (Lung Line®)

800-222-5864
Web site: www.njc.org

Asthma Action Plan

For: _____ Doctor: _____ Date: _____

Doctor's Phone Number _____ Hospital/Emergency Department Phone Number _____

GREEN ZONE

Doing Well

- No cough, wheeze, chest tightness, or shortness of breath during the day or night
- Can do usual activities

And, if a peak flow meter is used,

Peak flow: more than _____
(80 percent or more of my best peak flow)

My best peak flow is: _____

Before exercise _____

Take these long-term control medicines each day (include an anti-inflammatory).

Medicine

How much to take

When to take it

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

_____ 2 or 4 puffs _____ 5 to 60 minutes before exercise

YELLOW ZONE

Asthma Is Getting Worse

- Cough, wheeze, chest tightness, or shortness of breath, or
- Waking at night due to asthma, or
- Can do some, but not all, usual activities

-Or-

Peak flow: _____ to _____
(50 to 79 percent of my best peak flow)

First 

Add: quick-relief medicine — and keep taking your GREEN ZONE medicine.

_____ 2 or 4 puffs, every 20 minutes for up to 1 hour
(short-acting beta₂-agonist) Nebulizer, once

Second 

If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:

- Continue monitoring to be sure you stay in green zone.

-Or-

If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:

- Take: _____ 2 or 4 puffs or Nebulizer
(short-acting beta₂-agonist)
- Add: _____ mg per day For _____ (3–10) days
(oral steroid)
- Call the doctor before/ within _____ hours after taking the oral steroid.

RED ZONE

Medical Alert!

- Very short of breath, or
- Quick-relief medicines have not helped, or
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in Yellow Zone

-Or-

Peak flow: less than _____
(50 percent of my best peak flow)

Take this medicine:

_____ 4 or 6 puffs or Nebulizer
(short-acting beta₂-agonist)

_____ mg
(oral steroid)

Then call your doctor NOW. Go to the hospital or call an ambulance if:

- You are still in the red zone after 15 minutes AND
- You have not reached your doctor.

DANGER SIGNS

- Trouble walking and talking due to shortness of breath 
- Lips or fingernails are blue

- Take 4 or 6 puffs of your quick-relief medicine AND
- Go to the hospital or call for an ambulance

NOW!

(phone)

Discrimination Prohibited:

Under provisions of applicable public laws enacted by Congress since 1964, no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity (or, on the basis of sex, with respect to any education program or activity) receiving Federal financial assistance. In addition, Executive Order 11141 prohibits discrimination on the basis of age by contractors and subcontractors in the performance of Federal contracts, and Executive Order 11246 states that no federally funded contractor may discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. Therefore, the National Heart, Lung, and Blood Institute must be operated in compliance with these laws and Executive Orders.



U.S. Department of Health and Human Services
National Institutes of Health



**National Heart
Lung and Blood Institute**

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