



So You Have Asthma

A GUIDE FOR PATIENTS AND THEIR FAMILIES



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



So You Have Asthma

A GUIDE FOR PATIENTS
AND THEIR FAMILIES



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



National Heart, Lung,
and Blood Institute

NIH Publication No. 13-5248
Originally Printed 2007
Revised March 2013

Contents

Overview	1
Introduction.....	3
Asthma—Some Basics.....	4
Why You?.....	6
How Does Asthma Make You Feel?.....	8
How Do You Know if You Have Asthma?.....	9
How To Control Your Asthma	11
Your Asthma Management Partnership.....	11
Your Written Asthma Action Plan	12
Your Asthma Medicines: How They Work and How To Take Them	12
Taking Your Medicines: How's Your Technique?.....	15
What Medicines Do You Need?.....	17
Your Asthma Triggers and How To Avoid Them.....	18
Co-existing Medical Conditions.....	22
Asthma and Physical Activity	22
Monitoring Your Asthma	24
How To Find Your Personal Best Peak Flow Number	24
How To Use Your Peak Flow Meter To Monitor Your Asthma	25
What if Your Asthma Gets Worse? Reacting Quickly to Worsening Symptoms.....	27
What Does an Asthma Attack Feel Like?	27
How To Manage an Asthma Attack	28
Following Up	29
So You Have Asthma	30
Tools To Help You Keep Your Asthma Under Control	31
Tips for Creating Good, Clear Communication With Your Doctor or Other Health Care Professional.....	32
Sample List of Questions To Ask Your Doctor or Other Health Care Professional	33
Sample Asthma Action Plan.....	34
How To Remember To Take Your Medicines.....	35
How To Use a Metered-Dose Inhaler.....	36
How To Use a Dry Powder Inhaler.....	37
How To Use a Nebulizer.....	38
Tool to Assess Asthma Control	39
Sample Self-Assessment Sheet for Follow-Up Visits.....	40
For More Information.....	41



■ OVERVIEW

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

If you have asthma, you're not alone. About 26 million Americans have asthma.^{1,2} Asthma is on the rise in the United States and throughout the world. An estimated 300 million people worldwide have asthma.³

Asthma is a chronic disease. Like diabetes and high blood pressure, asthma takes ongoing monitoring and management to keep it under control.

This guide offers practical suggestions to help you manage your asthma. It contains information about the most effective asthma medications and describes how to take them. It provides a list of possible asthma triggers and recommends ways to reduce your exposure to those that affect you. 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.

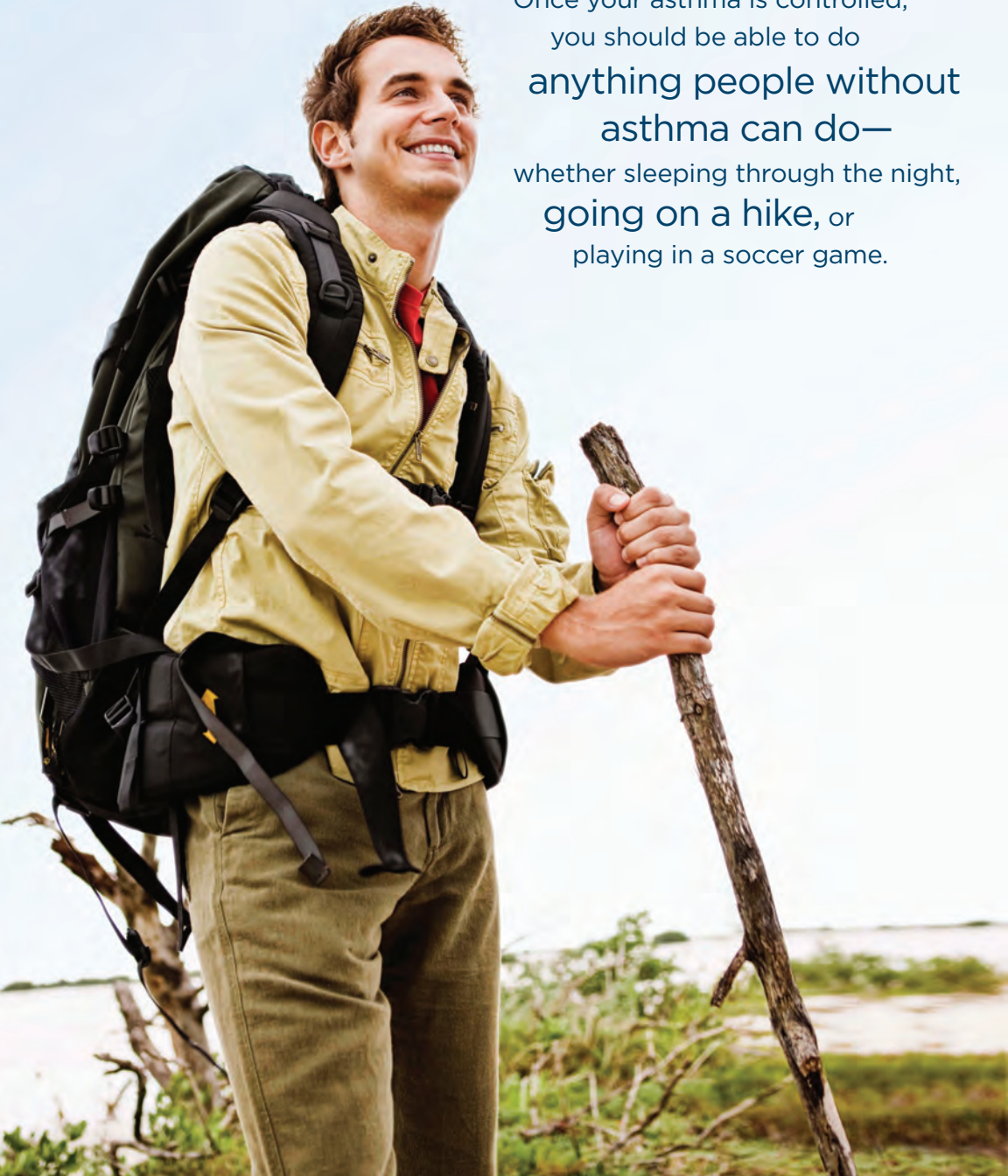
¹ Schiller JS, Lucas JW, Ward BW, Peregoy JA. Summary health statistics for U.S. adults: National Health Interview Survey, 2011. *Vital Health Stat* 2012;10(256):1-219.

² Bloom B, Cohen RA, Freeman G. Summary health statistics for U.S. children: National Health Interview Survey, 2011. *Vital Health Stat* 2012;10(254):1-148.

³ World Health Organization. Chronic Respiratory Diseases. In: *Global Surveillance, Prevention and Control of Chronic Respiratory Diseases: A comprehensive approach*. Geneva: WHO; 2007. pp 12-36.

Most people with asthma should be able to
get it under control and keep it that way.

Once your asthma is controlled,
you should be able to do
anything people without
asthma can do—
whether sleeping through the night,
going on a hike, or
playing in a soccer game.



■ INTRODUCTION

It's like breathing through a straw. That's how many people who have asthma describe what asthma feels like. But for most people who have 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 who have asthma should be able to gain control of it—and keep it under control for a lifetime.

And once your asthma is controlled, you should be able to do anything that someone without asthma can do—whether it's sleeping through the night, going on a hike, or playing in a soccer game.

In other words, you should be able to live a normal, active life! With good asthma control, you can:

- Be free from troublesome symptoms day and night:
 - No coughing or wheezing
 - No difficulty breathing or chest tightness
 - No nighttime awakening due to asthma
- Have the best possible lung function
- Participate fully in any activities of your choice
- Miss few or no school or work days because of asthma symptoms
- Have fewer or no urgent care visits or hospital stays for asthma
- Have few or no side effects from asthma medicines

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

- 1** Work closely with your doctor and other health care professionals (such as a nurse practitioner, physician assistant, nurse, respiratory therapist or asthma educator) to learn how to manage your asthma and keep it under control. Regular “asthma check-ups” with your doctor will help.
- 2** Learn which medicines to take, when to take them, and how to use them correctly. For your quick-relief inhaler, ask your doctor if you can add a spacer to make it easier to take the medicine. Then take all of your medicines just as your doctor recommends.
- 3** Identify the things that bring on your asthma symptoms, also called your asthma triggers. Then avoid them, or at least reduce your contact with them.
- 4** Watch for changes in your asthma. You need to know when an asthma attack is coming and what to do. If you act quickly and follow the doctor's instructions, you can help keep your asthma symptoms from getting worse. ■

■ ASTHMA — SOME BASICS

Here are some basic facts about what asthma is and what you can do to control it.

- **Asthma is a lung disease.** It is a physical and medical problem that needs treatment. It is not something that you imagined or made up. Don't let anyone tell you your asthma is just in your head. It's in your lungs, and it's real!
- **Asthma is serious.** A person can die during an asthma attack. That's why knowing how to take care of your asthma and when to get emergency help is so important.
- **Asthma does not go away, and it cannot be cured.** Once you develop asthma, you are likely to have it for a lifetime. Even when you have no symptoms—even when you are feeling just fine—the asthma is still there and can flare up at any time.
- **Asthma symptoms result from ongoing inflammation (swelling) that makes your airways super sensitive and more narrow than normal.** Although inflammation is a helpful 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. That is what happens when you have asthma.

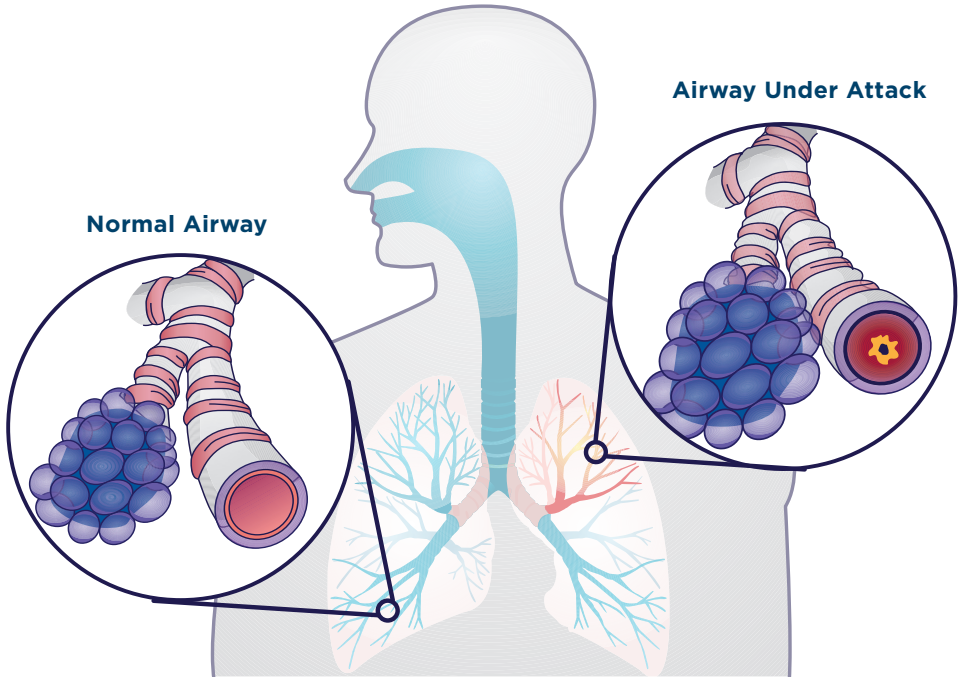
The airways in your lungs are more sensitive to things that they see as foreign and threatening—such as tobacco smoke, dust, chemicals, colds or flu, and pollen—also called asthma “triggers.” Your immune system overreacts to these things by releasing different kinds of cells and chemicals that cause the following changes in the airways:

- The inner linings of the airways become more inflamed (swollen), leaving even less room in the airways for the air to move through.
- The muscles surrounding the airways get bigger and tighten. This squeezes the airways and makes them smaller. (This is called bronchospasm.)
- Glands in the airways produce lots of thick mucus, which further blocks the airways.

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

If the inflammation associated with asthma is not treated, each time your airways are exposed to your asthma triggers, the inflammation increases, and you are likely to have symptoms that may get worse.

How Asthma Affects Your Airways



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

Adapted from American College of Chest Physicians

- **Your asthma can be controlled!** Discuss your asthma with your doctor. Together, you can create a treatment plan that will help you:
 - **Reduce impairment**—so you can keep asthma symptoms away, keep up with your usual daily activities, and sleep through the night.
 - **Reduce risk**—so you can prevent asthma attacks, stay out of the emergency room or hospital, and have fewer side effects from your medicines.

Managing your asthma effectively means working closely with your doctor, taking your medicines as prescribed, avoiding your asthma triggers, and watching for any changes in your asthma. These steps will help you to reduce impairment and risk so you can gain—and keep—control of your asthma. You should expect nothing less! ■



Treatment for most people who have asthma includes taking a long-term control medicine every day. The medicine will help reduce inflammation and prevent asthma symptoms.

■ WHY YOU?

Researchers are still working hard to learn more about what causes some people to develop asthma. They think that many different genetic and environmental factors play a role, especially during the first years of life when the immune system is still developing.

Probably the most important factor in the development of asthma is atopy. This is the inherited tendency to be allergic. 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 plays a role in the development of asthma. For example, 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 dust mites appears to have this effect. Other indoor allergens that may play an important role in the development of asthma include cat and dog dander (flakes of skin or dried saliva), cockroach droppings, and mold.

Certain viral respiratory infections in early life also appear to play a part in the development of asthma and of ongoing wheezing.

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 contact with these allergens and irritants. We now spend far more time indoors than we used to, and we've reduced ventilation in our homes and workplaces to conserve energy. This may trap allergens and irritants inside.

On the other side of the coin, medical research has shown that children who are exposed to certain types of infections and environments during the first year or two of life may be less likely to develop asthma. Such exposures may be protective factors against asthma. For example, some children who grow up on or near farms have been shown to be less likely to develop asthma and allergies. Asthma and allergies also appear to be less common among children who have two or more older siblings or who attend daycare during their first 6 months.

This discovery has led to the theory that our western lifestyle—with its emphasis on hygiene, sanitation, and indoor living and working—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 children did in years past. This affects the way their immune 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 increasing in recent years. ■

■ HOW DOES ASTHMA MAKE YOU FEEL?

Most people who have 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—like they can't get enough air out of their lungs.

The symptoms of asthma are different for different people. And symptoms for one person can change from one time to another. So can the frequency of symptoms.



How often you get symptoms will let you and your doctor know if you need to do more to control your asthma. Call your doctor if—

- You have asthma symptoms more than 2 days a week.
- Your asthma wakes you up 2 or more times a month.
- You are using your quick-relief inhaler more than 2 days a week.
- Your asthma is getting in the way of your usual activities.

These are signs that your asthma is not well controlled and may be getting worse.

Asthma symptoms can sometimes be mild. At other times, they can be serious enough to make you stop what you are doing. And 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 who have asthma can expect to have few, if any, symptoms. ■

■ HOW DO YOU KNOW IF YOU HAVE ASTHMA?

It's easy to confuse asthma symptoms 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 you wheeze, especially at night or after being active, it's a good idea to ask your doctor or other health care professional to check out what is causing your symptoms.

You can do several helpful things before seeing your doctor.

First, write down:

- Symptoms you've had
- Time of day or night they've occurred
- Where you were at the time
- What you were doing

Second, create a list for the doctor of ALL the medicines and supplements that you are taking—or bring them all with you in a bag. Even if you are taking medicines for other conditions, one of them might affect your asthma or interact with an asthma medicine.

Third, think ahead about the questions the doctor may ask you. For example, do you have any of 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
- A history in your family of asthma and allergies
- Things that seem to bring on your symptoms or make them worse
- Symptoms that make it harder for you to live a normal, active life

Finally, write down any questions that you want to ask your doctor. If you do not understand what the doctor is saying, ask the doctor to tell you again or to write it down for you.

To help diagnose your condition, your doctor will examine you, focusing especially on your upper respiratory tract (nose, mouth, throat), chest, and skin. He or she will use a stethoscope to listen to your breathing and look for other signs of asthma or allergies—such as eczema, an allergic skin condition.

Your doctor may also use a device called a spirometer to check how well your lungs are working. You'll be asked to take a deep breath in and then breathe out as hard as you can into a tube that is connected to the spirometer. You may have to do this several times to complete the test.

The spirometer will show the amount of air you breathed out and how fast you breathed it out over a certain 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.

If your doctor or other health care professional needs more information to make a diagnosis, he or she may also conduct other tests or send you to an asthma specialist for tests. These tests will help rule out any other conditions that might be causing your symptoms.

These tests might include:

- Allergy testing to find out what things cause your asthma symptoms
- A test to see how your airways react to exercise
- Tests to see if you have other conditions that may make your symptoms worse—for example, gastroesophageal reflux disease, obstructive sleep apnea, or rhinitis (runny, itchy, sneezy, or stuffy nose)
- 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

Of course, diagnosing asthma and starting treatment is only the first step. In follow-up visits, you and your doctor or other health care professional will work to achieve—and maintain—control of your asthma. ■



Your doctor should use a device called a spirometer to check how well your lungs are working.

Photo courtesy of Spirometry 360, University of Washington

■ HOW TO CONTROL YOUR ASTHMA

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

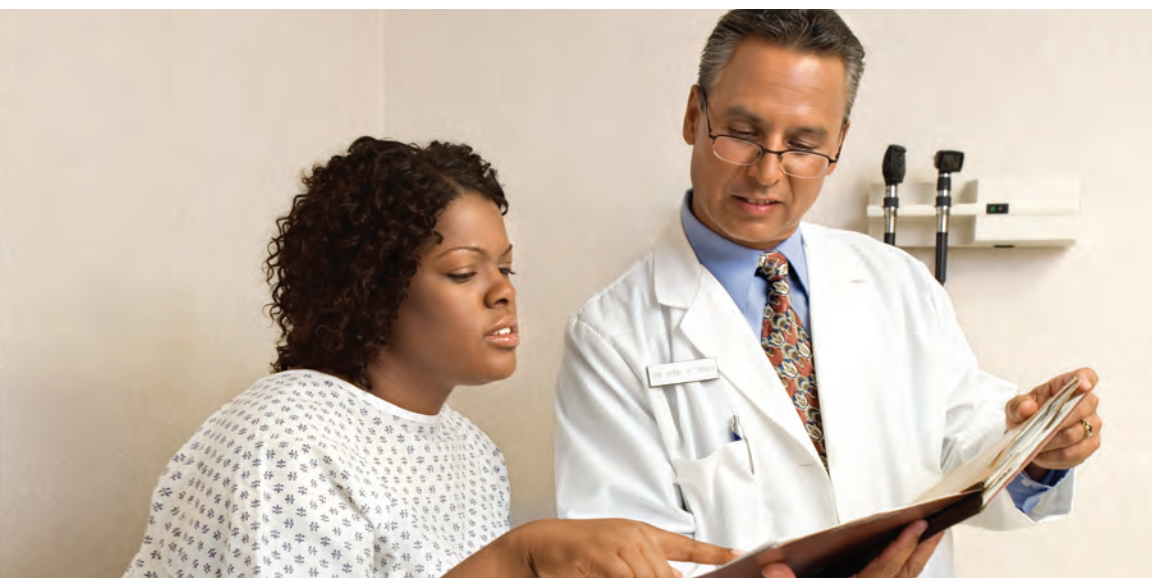
You don’t have to do it alone though. In fact, one of the most important actions you can take is to work closely with your doctor or other health care professional to learn how to manage your asthma on a routine basis.

Your Asthma Management Partnership

Think of your doctor and other health care team members (such as nurse practitioner, physician assistant, nurse, respiratory therapist, pharmacist, or asthma educator) as your partners in asthma management. While you know best how your body is feeling on a day-to-day basis, they know best how to help you get and keep your asthma under control.

Don’t hesitate to:

- Discuss your treatment goals with your doctor
- Ask questions and express concerns
- Ask the doctor to explain something again in a different way if you don’t understand
- Get involved in decisions about your treatment so it meets your needs and is something that you know you can do
- Let your doctor know right away about any changes in your asthma condition and make time to see him or her on a regular, agreed-upon schedule



Remember, nearly everyone who has asthma can get and keep it under control. Working closely with your doctor or other health care professional to manage your asthma on an ongoing basis is essential to your achieving your goals.

(See pages 32 and 33 for more tips about communicating with your doctor or other health care professional and for a list of questions you may want to ask your doctor.)

Your Written Asthma Action Plan

One of the first things you and your doctor should work on is a written asthma action plan. This plan will remind you of how to manage your asthma on a daily basis and how to recognize and handle worsening asthma. Be sure you understand the plan completely and know how to use it.

In particular, your asthma action plan should:

- Include the medicines you should take—explaining:
 - What they are and what they do
 - How much to take
 - When to take each of them
 - How to take each of them
 - What, if any, side effects you should look for
- List your asthma triggers and provide information on ways to avoid or reduce them
- Show how to monitor your asthma control using symptoms or peak flow readings

- Show how to recognize and handle worsening asthma:
 - What signs to watch for
 - How to adjust your medicines in response to these signs
 - When to seek emergency care
 - What number to call in an emergency

The next sections provide more information about each of the actions addressed in your written asthma action plan. A sample asthma action plan appears on page 34. As you read through the following sections, write down on this sample plan the actions you and your doctor have discussed. Then, the next time you see your doctor, share it with him or her and make sure you agree on everything in it.

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

Most people who have asthma need two kinds of medicines: long-term control medicines and quick-relief medicines.

1 Long-term control medicines.

These are medicines that you take every day for a long time, to stop and control the inflammation in your airways and thereby prevent symptoms and attacks from coming on in the first place.

These medicines work slowly, and you may need to take them for several weeks or longer before you feel better. If your asthma is not well controlled, your doctor may increase the dose or add another medicine to your treatment. Once your asthma is under

control, your doctor may be able to reduce 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 sensitive and less likely to react to your asthma triggers.

Anti-inflammatory medicines are 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 who have asthma are inhaled corticosteroids.

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

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

- **Inhaled long-acting beta₂-agonists**—These bronchodilators can help prevent symptoms when taken *with* inhaled corticosteroids by helping to keep airway muscles relaxed. These medicines should *not* be used alone. They also should not be used to treat symptoms or an attack. Two-in-one medicines that contain both corticosteroids and long-acting beta₂-agonists are available.
- **Cromolyn sodium**—This nonsteroidal anti-inflammatory medicine can be used to treat mild persistent asthma, especially in children. It's not as effective as inhaled corticosteroids.



DID YOU KNOW?

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. Be sure to rinse your mouth out with water, and don't swallow the water, after taking these medicines. Rinsing helps prevent an infection in the mouth.

- **Leukotriene modifiers**—These anti-leukotriene medicines are a newer class of long-term control medicines that block the action of chemicals in your airways. If not blocked, these 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 mild persistent asthma or with inhaled corticosteroids to treat moderate persistent asthma. They are not as effective as inhaled corticosteroids for most patients.

- **Theophylline**—This medicine, 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 corticosteroids.

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

With long-term control medicines, it's important to take them every day, as your doctor prescribes. The suggestions on page 35 can help you remember to take your medicines.

- 2 Quick-relief medicines.** You take these medicines when you need immediate relief of your symptoms. Everyone who has asthma needs a quick-relief medicine—usually taken by inhaler—to stop asthma symptoms before they get worse.

The preferred quick-relief medicine is an inhaled short-acting beta₂-agonist. 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.

Short-acting beta₂-agonists include albuterol, levalbuterol, and pirbuterol. They are also called by their brand names.

Other quick-relief medicines are:

- **Anticholinergics**—These medicines are used primarily in the emergency department, but if you have moderate to severe asthma, your doctor may recommend that you use them with a short-acting beta₂-agonist to relieve symptoms. Or, if you can't tolerate a short-acting beta₂-agonist, this may be the treatment of choice for you.



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



Carry a quick-relief inhaler with you at all times to stop asthma symptoms before they get worse.

- Systemic corticosteroids—Usually taken in the form of a pill or syrup, systemic corticosteroids may be used to speed your recovery after an asthma attack and to prevent more attacks. You would take them for 3–10 days. People who have severe asthma may need to take systemic corticosteroids for longer periods of time.

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 medicine right to the airways in your lungs where it is needed. There are several kinds of inhalers—just a few examples are pictured on the next page.



IMPORTANT!

Quick-relief medicine is very good at stopping asthma symptoms, but it does nothing to control the inflammation in your airways that produces these symptoms. If you need to use your quick-relief inhaler more often than usual, or if you need to use it more than 2 days a week, 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.



The **metered dose inhaler (MDI)** is a small canister that delivers a measured dose of medicine through your mouth to your airways.

A **dry powder inhaler** delivers a pre-set amount of asthma medicine in powder form.

Different types of inhalers require different ways to use them. It is important for you to learn how to use *your* inhaler correctly. Read the instructions that come with it. Also, ask your doctor, pharmacist, or other health care professional 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 AND VALVED HOLDING CHAMBERS

A spacer or valved holding chamber can make using an MDI a lot easier. It can also decrease 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 that can be chosen to fit your needs.

- Some have a mouthpiece.
- Some have a facemask that comes in different sizes to fit infants, children, and adults.
- Many spacers fit on the end of an inhaler; for some, the canister of medicine fits into the device.
- Some MDIs come with built-in spacers.

Spacers are not needed for dry powder devices.

Spacers also come with instructions on how to use them and keep them clean. It's important to ask your doctor, pharmacist, or other health care professional 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 for taking inhaled medicines. It provides the medicine in a fine, steady mist. 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's also more expensive and requires more maintenance. Instructions for using different nebulizers vary, so follow the instructions on the package insert.

Nebulized asthma medicine 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, pharmacist, or other health care professional to show you how. Then demonstrate it back to him or her to make sure you have it right.

Pages 36 through 38 offer general steps for how to use a metered-dose inhaler, dry powder inhaler, and nebulizer.



What Medicines Do You Need?

Your doctor is likely to consider a number of factors when deciding which medicines and how much of each you need. Your medicines should:

- Prevent your ongoing symptoms (you should not need to use your quick-relief medicine more than 2 days a week)
- Help maintain your normal lung function
- Help you be as active as you want to be, whether at work or at school
- Prevent your having repeated asthma attacks
- Help do all of this without causing major side effects

Each time you see your doctor, he or she will weigh all these things before recommending any changes in your medicines.

Usually, if you have been doing well for several months, your doctor may consider reducing the number or doses of medicines you're taking. But if your asthma is still not under control, he or she may recommend adding some medicines or increasing the doses of some of those you're already taking.

The goal is to achieve the best asthma control possible with the least amount of medicine.

It may take several visits before the doctor finds exactly the right medicines and doses for you. This is why watching your asthma symptoms and seeing your doctor regularly are so important.

Your doctor may also recommend other treatments to help manage other conditions that can affect your asthma. These include:

- Allergy shots (immunotherapy) if your allergies aren't easily controlled by avoiding your triggers and taking medicine.
- Pneumococcal (pneumonia) vaccinations, for older adults.
- Antibiotics, if you have a bacterial infection, such as pneumonia or suspected bacterial sinusitis. Antibiotics are not recommended for routine or emergency treatment of asthma.

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
- When to take each of your medicines

Any time your doctor prescribes a new medicine, ask him or her about the right way to take 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 action to control your asthma. Avoiding your asthma triggers can help reduce the inflammation in your lungs, your symptoms, and even your need for medicine.

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

Airborne allergens are substances that you breathe in and that can cause you to have an allergic reaction. That is, in some people, the immune system sees them as “foreign” or “threatening” and reacts in an overly strong way to protect the body against them.

Some of the most common allergens that affect people who have asthma are:

- Cockroach droppings
- Dust mites—tiny bugs (too small to see) that thrive in dust, mattresses, upholstered furniture, carpets, and stuffed animals
- Warm-blooded animals, including pets such as cats and dogs—which have allergens in their dander (flakes of skin), urine, feces, and saliva
- Pollen from trees, grass, and weeds
- Molds, both indoor and outdoor

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

- Tobacco smoke
- Air pollution, including ozone
- Formaldehyde and other chemicals (called volatile organic compounds) from newly installed linoleum flooring, synthetic carpeting, particleboard, wall coverings, furniture, and recent painting
- Gas stoves and other appliances not vented to the outdoors
- Fumes from buses, wood-burning appliances, or fireplaces
- Strong odors or sprays, such as perfume, talcum powder, hairspray, and paints.
- Changes in weather and exposure to cold air

Tobacco smoke is a common lung irritant. The guide on pages 20 and 21 suggests ways to help you control the triggers in your home and environment.

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

- Exercise and other physical activity (See page 22)
- Viral respiratory infections, including colds, respiratory syncytial virus (RSV), and the flu
- Medicines such as aspirin or other nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen, and beta-blockers that are used in high blood pressure and glaucoma medicines
- Bacterial respiratory infections, including Mycoplasma and Chlamydia
- Sulfites used as preservatives in food (dried fruit, instant potatoes, or shrimp) or drinks (wine or beer)

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

The guide on pages 20 and 21 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.



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 hair.

The best thing to do:

- Keep pets with fur or hair out of your home.

If you must have a pet, then:

- Keep the pet out of your bedroom and other sleeping areas, and keep the door closed.
- Remove carpets and cloth furniture from your home. If you can't do that, keep the pet away from cloth furniture and carpets.

DUST MITES

Many people who have asthma are allergic to dust mites. Dust mites are tiny bugs (too small to see) that are found in every home—in dust, mattresses, pillows, carpets, cloth furniture, sheets and blankets, clothes, stuffed toys, and other cloth-covered items.

Things that may help:

- Put your mattress and pillow in special dust-proof covers.
- Wash sheets and blankets on your bed each week in hot water. Water must be hotter than 130 °F to kill the dust mites. Cold or warm water used with detergent and bleach can also kill dust mites.
- Reduce indoor humidity to below 60 percent. Between 30 and 50 percent is best. Dehumidifiers or central air conditioners can do this.

- Try not to sleep or lie on cloth cushions.
- Remove carpets from your bedroom and those laid on concrete.
- Keep stuffed toys off of the bed or sleeping area. Wash stuffed toys weekly in hot water or cooler water with detergent and bleach. Dust mites can also be killed by placing stuffed animals in the freezer overnight in a plastic bag.

COCKROACHES

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

The best things to do:

- Keep food and garbage in closed containers.
- Never leave food, dirty dishes, or standing water 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 leaking faucets, pipes, or other sources of water that have mold around them.
- Scrub mold off hard surfaces with soap and water, and dry completely. Wear gloves to avoid touching mold with your bare hands. If you use a cleaner with bleach or a strong smell, always ventilate the area.

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.
- If you do go outside, change your clothes as soon as you get inside and put dirty clothes in a covered hamper or container to avoid spreading allergens inside your home.
- 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, SPRAYS, AND FUMES

- If possible, do not use a wood-burning stove, kerosene heater, or fireplace. Vent gas stoves to outside.
- 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. 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 (used to prevent spoiling) in foods and beverages:** Do not drink beer or wine or eat dried fruit, instant 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 used, for example, in some eye drops and medicines for anxiety and high blood pressure.
- **Infections:** Certain lung infections like a cold or the flu may also make your asthma worse.

You don't need to do all of the things listed in the guide, but doing just one or two things will probably not be effective. Try to use as many approaches as possible to really solve the problem.

A good place to start is with the things in your bedroom that bother your asthma. Try something simple first. For example, if you're allergic to dust mites, try using special dust mite-proof covers on your pillows and mattress, and wash the sheets, blankets, and pillows in hot water each week. Another thing you might consider is removing the carpet from your bedroom. And, using a dehumidifier or central air conditioner to reduce indoor humidity to or below 60 percent, ideally 30-50 percent, will help even more.

If you smoke, ask your doctor for help to quit. If family members smoke, ask them to quit, too. Don't let anyone smoke around you, in your home, or in your car.

Co-existing Medical Conditions

Some people have other medical conditions, along with their asthma, that may make asthma worse and harder to treat. These co-existing conditions include:

- Gastroesophageal reflux disease
- Obesity
- Obstructive sleep apnea
- Rhinitis/sinusitis
- Allergic bronchopulmonary aspergillosis
- Stress, depression, and other psychological factors

Treating these conditions may improve your asthma control.

Asthma and Physical Activity

Exercise and other physical activity can bring on symptoms in most people who have asthma. Symptoms may occur either during or right after being active. This is called exercise-induced asthma (or exercise-induced bronchospasm).

But regular physical activity is good for all of us. In fact, doctors recommend that most people, including those who have asthma, get at least 2 hours and 30 minutes of aerobic physical activity that requires moderate effort every week (at least 1 hour a day for children 6-17 years of age). This activity should be for at least 10 minutes at a time.

The good news is that if your asthma is well controlled, physical activity should not be a problem. In fact, most people who have 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 your quick-relief medicine 5 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 the dose of your long-term control medicine.

- Try warming up before you exercise or do physical activity. This 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 doing other low-intensity activities.
- Try to avoid your other asthma triggers while exercising or doing other physical activity. For example, if cold, dry air makes your asthma worse, wear a scarf or cold air mask when exercising outdoors in winter.

- If you have been having mild asthma symptoms, consider reducing 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 more intense and sustained activities like running or playing basketball or soccer.



Monitoring Your Asthma

Monitoring your asthma on a regular basis is important to keeping your asthma under control.

Keeping track of your symptoms whenever you have them is a good idea. This will help you and your doctor adjust your treatment over time. The assessment tool on page 39 can help you monitor your asthma.

Another way to monitor your asthma 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 asthma 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.

The peak flow meter also can be used to help you and your doctor:

- Learn what makes your asthma worse
- Decide if your treatment plan is working well
- Decide when to add or stop medicine
- Decide when to seek emergency care

Here are instructions for using a peak flow meter to monitor how well your asthma is under control. It is also a good idea to ask your doctor, pharmacist, or other health care professional to show you how to use your peak flow meter. The first step is

to find your personal best peak flow number; then you can use the peak flow meter to keep an eye on how well your asthma is under control on a daily basis.

How To Find Your Personal Best Peak Flow Number

Your personal best peak flow number is the highest peak flow number you can achieve over a 2-week period when your asthma is under good control—that is, when you feel good and have no symptoms.

To find your personal best peak flow number, follow the steps in the box on page 25 to take your peak flow readings:

- At least twice a day for 2 to 3 weeks
- When you wake up and in late afternoon or early evening
- 15–20 minutes after you take your quick-relief medicine
- Any other time your doctor suggests

Write down the number you get for each peak flow reading. Your doctor will use these numbers to determine your personal best peak flow. Then your doctor will use that number to create three peak flow zones. These zones are usually set up on your asthma action plan like a traffic light—in green, yellow, and red. What your doctor tells you to do in each zone will help you know what to do when your peak flow number changes.



HOW TO USE A PEAK FLOW METER

1. Always stand up. Remove any food or gum from your mouth.
2. Make sure the marker on the peak flow meter is at the bottom of the scale.
3. Breathe in slowly and deeply. Hold that breath.
4. Place mouthpiece on your tongue and close lips around it to form a tight seal (do **not** put tongue in the hole).
5. Blow out as hard and fast as possible.
6. Write down the number next to the marker. (If you cough or make a mistake, don't write down that number. Do it over again.)
7. Repeat steps 3 through 6 two more times.
8. Record the highest of these numbers in a notebook, calendar, or asthma diary.



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.

How To Use Your Peak Flow Meter To Monitor Your Asthma

Every morning when you wake up, before taking your asthma medicine, take your peak flow by following the steps above. Make this part of your daily routine. Check this number against the peak flow zones on your written asthma action plan.

Use the zone that your peak flow is in to help make treatment decisions. The zones will help you monitor your asthma and take the right actions to keep it under control or to treat symptoms.



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



Green Zone (Go)—80 to 100 percent of your personal best—signals good control and no asthma symptoms. 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 (Caution)—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 (Medical Alert!)—less than 50 percent of your personal best—signals medical alert! Add or increase quick-relief medicines according to instructions in your written asthma action plan and call your doctor now.

Also, use your peak flow meter:

- When you're 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. ■

■ WHAT IF YOUR ASTHMA GETS WORSE? REACTING QUICKLY TO WORSENING SYMPTOMS

Sometimes, even if your asthma has been under control, you may start having symptoms.

Some people have early warning signs and symptoms that an asthma attack is coming, even before more serious asthma symptoms start. These early warning signs can be different for everyone. They can even be different for you at different times.

Work with your doctor to find out your warning signs. When you see those signs, act fast to stop symptoms and

improve the chances of avoiding an asthma attack.

Some of these warning signs sound just like common asthma symptoms. The difference is that they are milder. But pay attention to your early warning signs. Even mild asthma symptoms can get worse quickly and lead to an asthma attack.



EARLY WARNING SIGNS AND SYMPTOMS OF AN ASTHMA ATTACK

Check below any signs that warn you that an asthma attack may be coming:

- | | |
|---|---|
| <input type="checkbox"/> mild cough | <input type="checkbox"/> itchy, watery, or glassy eyes |
| <input type="checkbox"/> mild difficulty breathing | <input type="checkbox"/> itchy or runny nose |
| <input type="checkbox"/> mild wheeze | <input type="checkbox"/> need more quick-relief medicine than usual |
| <input type="checkbox"/> chest starts to hurt or feel tight | <input type="checkbox"/> low peak flow readings |
| <input type="checkbox"/> waking up at night | <input type="checkbox"/> other _____ |
| <input type="checkbox"/> cannot do all of your usual activities | <input type="checkbox"/> other _____ |
| <input type="checkbox"/> itchy, scratchy, or sore throat | |

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, people who have asthma commonly report the following signs and symptoms of an asthma attack:

- It's hard to breathe, especially to breathe air out, and you may breathe faster than usual.
- You may wheeze, cough, or feel tightness in your chest.
- Your heart may beat very fast.
- You may start to sweat.
- Initially, you may be able to breathe well enough to talk in complete sentences, but in more severe attacks, you may be able to speak only a few words at a time without pausing to take a break.

How To Manage an Asthma Attack

It's best to be prepared *before* symptoms get worse or an asthma attack happens. Review your asthma action plan so you know what to do if you have symptoms or an asthma attack. Keep your asthma action plan where you can easily find it. **Follow your asthma action plan as soon as you begin to have symptoms, and follow it carefully. It can save your life!**

Your asthma action plan tells you what to do if you have an asthma attack, including:

- What medicines to take and how much to take (based on your symptoms and peak flow number)
- How to know if the medicine is working
- What to do if the medicine does not stop the asthma attack symptoms
- When to call for emergency help and what number to call ■

If you are ever unsure what to do in case of an asthma attack, call 9-1-1 or your local emergency service.





■ FOLLOWING UP

Partnering with your health care professional means staying in touch regularly to maintain control of your asthma.

If your medicines work well, you should plan on seeing your doctor again in the next 2 to 6 weeks. If not, call to schedule another visit right away. Once your asthma is under control, you may be able to gradually cut back your doctor visits to once every 1 to 6 months.

Each visit with your doctor or other health care professional is a chance for you to find out if you are doing the right things to manage your asthma and to learn about things that may improve your asthma control.

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

- Your peak flow meter and the record of your peak flows, if you use a peak flow meter

- Your inhaler and other medicines
- A record of recent asthma symptoms or attacks, medication use, and hospital visits (see page 39 for a tool to help you monitor your asthma control)
- Your written asthma action plan

Ask your doctor to make sure you're using your inhalers and peak flow meter the right way.

Also ask your doctor to review and update your written asthma action plan.

A list of sample questions for your doctor or other health care professional appears on page 33. Before you leave the doctor's office, be sure you have the answers to these and any other questions you have. ■

■ 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.

Today, most people who have 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—especially

when it's a team effort! And over time, managing your asthma will become a routine part of your life.

The tools on the pages that follow will help you to keep your asthma under control. ■



Tools To Help
You Keep Your
Asthma Under
Control

Tips for Creating Good, Clear Communication With Your Doctor or Other Health Care Professional

SPEAK UP. Tell your doctor or other health care professional about what you want to achieve by improving control of your asthma. Ask for his or her help in achieving those treatment goals.

BE OPEN. When your doctor or other health care professional asks you questions, answer as honestly and completely as you can. Briefly describe your symptoms. Include when you started having each symptom, how often you have it, and whether it has been getting worse.

KEEP IT SIMPLE. If you don't understand something your doctor or other health care professional 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 or other health care professional 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 instructions for you.



Sample List of Questions To Ask Your Doctor or Other Health Care Professional

1. Are you sure it's asthma?
2. Do I need other tests to confirm the diagnosis?
3. If I think my medicine isn't working, is it OK to take more right away?
4. What should I do if I miss a dose?
5. Will my medicine cause me any problems, like shakiness, sore throat, or upset stomach?
6. What if I have problems taking my medicines or following my treatment plan?
7. Is this the right way to use my inhaler? How do I use my inhaler with a spacer?
8. Is this the right way to use my peak flow meter?
9. 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?
10. Once my asthma is under control, will I be able to reduce the amount of medicine I'm taking?
11. When should I see you again?

Asthma Action Plan

For: Doctor's Phone Number _____ Doctor: _____ Date: _____
 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 _____

2 or 4 puffs



5 minutes before exercise

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

Medicine

How much to take

When to take it

	
---	---

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
- Nebulizer, once

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 the green zone.

-Or-

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

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



Second

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:

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

(phone) _____

NOW!

SOURCE: National Heart, Lung, and Blood Institute, National Institutes of Health, U.S. Department of Health and Human Services, NIH Publication No. 07-5251, April 2007.

How To Remember 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 nightstand next to your side of the bed so you can see it when you wake up and when you go to bed.
- Take your asthma medicine right before you brush your teeth.
- Put “sticky” notes in visible places to remind yourself to take your asthma medicine—on the refrigerator, on the cabinet where you keep your favorite morning mug (you might even keep the medicine inside the mug), on the mirror, on the front door.
- If you use the phone 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 medicine 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.
- If you take pills for asthma, place your medicine in a weekly pillbox, 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 a reminder email every day.
- Set your phone or watch alarm to 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.



How To Use a Metered-Dose Inhaler

A metered-dose inhaler is a device that sprays a pre-set amount of medicine through the mouth to the airways. To keep your asthma under control, it is important to take your medicine as prescribed by your doctor or other health care professional and to use the proper technique to deliver the medicine to your lungs. If you don't use your inhaler correctly, you won't get the medicine you need.

Here are general steps for how to use and clean a metered-dose inhaler. Be sure to read the instructions that come with *your* inhaler. Ask your doctor, pharmacist, or other health care professional (such as nurse practitioner, physician assistant, nurse, respiratory therapist, or asthma educator) to show you how to use your inhaler. Review your technique at each follow-up visit.

1. Take off cap. Shake the inhaler. Prime (spray or pump) the inhaler as needed according to manufacturer's instructions (each brand is different).
2. If you use a spacer or valved holding chamber (VHC), remove the cap and look into the mouthpiece to make sure nothing is in it. Place the inhaler in the rubber ring on the end of the spacer/VHC.
3. Stand up or sit up straight.
4. Take a deep breath in. Tilt head back slightly and blow out completely to empty your lungs.
5. Place the mouthpiece of the inhaler or spacer/VHC in your mouth and close your lips around it to form a tight seal.
6. As you start to breathe in, press down firmly on the top of the medicine canister to release one "puff" of medicine. Breathe in slowly (gently) and as deeply as you can for 3 to 5 seconds.
7. Hold your breath and count to 10.
8. Take the inhaler or spacer/VHC out of your mouth. Breathe out slowly.
9. If you are supposed to take 2 puffs of medicine per dose, wait 1 minute and repeat steps 3 through 8.
10. If using an inhaled corticosteroid, rinse out your mouth with water and spit it out. Rinsing will help to prevent an infection in the mouth.

HOW TO CLEAN A METERED-DOSE INHALER AND SPACER/VHC

Keep your inhaler and spacer/VHC clean so they can work properly. Read the manufacturer's instructions and talk to your doctor, pharmacist, or other health care professional about how to clean your inhaler and spacer/VHC (each brand is different). When cleaning your inhaler and spacer/VHC, remember:

- Never put the medicine canister in water.
- Never brush or wipe inside the spacer/VHC.

How To Use a Dry Powder Inhaler

A dry powder inhaler has pre-set doses of medicine in powder form. The medicine gets to your airways when you take a deep, fast breath in from the inhaler. To keep your asthma under control, it is important to take your medicine as prescribed by your doctor or other health care professional and to use the proper technique to deliver the medicine to your lungs. If you don't use your inhaler correctly, you won't get the medicine you need.

Here are general steps for how to use and clean a dry powder inhaler. Be sure to read the instructions that come with *your* inhaler. Ask your doctor, pharmacist, or other health care professional (such as nurse practitioner, physician assistant, nurse, respiratory therapist, or asthma educator) to show you how to use your inhaler. Review your technique at each follow-up visit.

1. Remove cap and hold inhaler upright (like a rocket). If the inhaler is a Diskus®, hold it flat (like a flying saucer).
2. Load a dose of medicine according to manufacturer's instructions (each brand of inhaler is different; you may have to prime the inhaler the first time you use it). Do **not** shake the inhaler.
3. Stand up or sit up straight.
4. Take a deep breath in and blow out completely to empty your lungs. Do **not** blow into the inhaler.
5. Place the mouthpiece of the inhaler in your mouth and close your lips around it to form a tight seal.
6. Take a fast, deep, forceful breath in through your mouth.
7. Hold your breath and count to 10.
8. Take the inhaler out of your mouth. Breathe out slowly, facing away from the inhaler.
9. If you are supposed to take more than 1 inhalation of medicine per dose, wait 1 minute and repeat steps 2 through 8.
10. When you finish, put the cover back on the inhaler or slide the cover closed. Store the inhaler in a cool, dry place (not in the bathroom).
11. If using an inhaled corticosteroid, rinse out your mouth with water and spit it out. Rinsing helps to prevent an infection in the mouth.

HOW TO CLEAN A DRY POWDER INHALER

1. Wipe the mouthpiece at least once a week with a dry cloth.
2. **Do NOT use water** to clean the dry powder inhaler.

How To Use a Nebulizer

A nebulizer is a machine that delivers medicine in a fine, steady mist. To keep your asthma under control, it is important to take your medicine as prescribed by your doctor or other health care professional and to use the proper technique to deliver the medicine to your lungs. If you don't use your nebulizer correctly, you won't get the medicine you need.

Here are general steps for how to use and clean a nebulizer. Be sure to read the instructions that come with *your* nebulizer. Ask your doctor, pharmacist, or other health care professional (such as nurse practitioner, physician assistant, nurse, respiratory therapist, or asthma educator) to show you how to use your nebulizer. Review your technique at each follow-up visit.

1. Wash hands well.
2. Put together the nebulizer machine, tubing, medicine cup, and mouthpiece or mask according to manufacturer's instructions.
3. Put the prescribed amount of medicine into the medicine cup. If your medicine comes in a pre-measured capsule or vial, empty it into the cup.
4. Place the mouthpiece in your mouth and close your lips around it to form a tight seal. If your child uses a mask, make sure it fits snugly over your child's nose and mouth. Never hold the mouthpiece or mask away from the face.
5. Turn on the nebulizer machine. You should see a light mist coming from the back of the tube opposite the mouthpiece or from the mask.
6. Take normal breaths through the mouth while the machine is on. Continue the treatment until the medicine cup is empty or the mist stops, about 10 minutes.
7. Take the mouthpiece out of your mouth (or remove mask) and turn off the machine.
8. If using an inhaled corticosteroid, rinse mouth with water and spit it out. If using a mask, also wash the face.

HOW TO CLEAN A NEBULIZER

After each treatment:

- Wash hands well.
- Wash the medicine cup and mouthpiece or mask with a mixture of warm water and mild soap. Do **not** wash the tubing.
- Rinse well and shake off excess water.
- Air dry on a paper towel.

Once a week:

Disinfect nebulizer parts to help kill any germs. Follow instructions for each nebulizer part listed in the package insert.

Always remember:

- Do **not** wash or boil the tubing.
- Air dry parts on a paper towel.

Between uses:

- Store nebulizer parts in a dry, clean plastic storage bag. If the nebulizer is used by more than one person, keep each person's medicine cup, mouthpiece or mask, and tubing in a separate, labeled bag to prevent the spread of germs.
- Wipe surface with a clean, damp cloth as needed. Cover nebulizer machine with a clean, dry cloth and store as manufacturer instructs.
- Replace medicine cup, mouthpiece, mask, tubing, filter, and other parts according to manufacturer's instructions or when they appear worn or damaged.

Tool to Assess Asthma Control

ASTHMA THERAPY ASSESSMENT QUESTIONNAIRE* (ATAQ)

Instructions: Check 1 answer for each question and enter point value (0 or 1) on line.

1. In the *past 4 weeks*, did you:

a) Miss any work, school, or normal daily activity because of your asthma?

YES (1) NO (0) UNSURE (1)

b) Wake up at night because of asthma?

YES (1) NO (0) UNSURE (1)

c) Believe that your asthma was well controlled?

YES (1) NO (0) UNSURE (1)

2. Do you use an inhaler for *quick relief* from asthma symptoms?

YES NO UNSURE

If yes, in the *past 4 weeks*, what was the *highest number of puffs in 1 day* you took of the inhaler?

0 (0)

1 to 4 puffs (0)

5 to 8 puffs[†] (1)

9 to 12 puffs[†] (1)

More than 12 puffs (1)

Enter score

Add the numbers in the white area and enter the total score here.

TOTAL

If the score is 1 or greater, discuss the questionnaire with your doctor.

Source: Reprinted with permission by Merck & Co., Inc. Copyright © 2008 Merck & Co., Inc. All rights reserved.

* The control domain is 1 domain of the ATAQ instrument. Other disease management domains are included in the complete instrument.

† This reflects a lower threshold than was used in the ATAQ validation studies to identify potential control problems. This modification was designed to encourage patients and providers to discuss how asthma medications are being used.

Sample Self-Assessment Sheet for Follow-Up Visits*

A Tool for Assessing Asthma Control

Name: _____ Date: _____

YOUR ASTHMA CONTROL

How many days in the past week have you had chest tightness, cough, shortness of breath, or wheezing (whistling in your chest)?

0 1 2 3 4 5 6 7

How many nights in the past week have you had chest tightness, cough, shortness of breath, or wheezing (whistling in your chest)?

0 1 2 3 4 5 6 7

Do you perform peak flow readings at home?

YES NO

If yes, did you bring your peak flow chart?

YES NO

How many days in the past week has asthma restricted your physical activity?

0 1 2 3 4 5 6 7

Have you had any asthma attacks since your last visit?

YES NO

Have you had any unscheduled visits to a doctor, including the emergency department, since your last visit?

YES NO

How well controlled is your asthma, in your opinion?

very well controlled somewhat well controlled not well controlled Average number of puffs per day _____

TAKING YOUR MEDICINE

What problems have you had taking your medicine or following your asthma action plan?

Please ask the doctor or nurse to review how you take your medicine.

YOUR QUESTIONS

What questions or concerns would you like to discuss with the doctor?

How satisfied are you with your asthma care?

very satisfied somewhat satisfied not satisfied

*These questions are examples and do not represent a standardized assessment instrument. Other examples of asthma control questions: Asthma Control Questionnaire (Juniper); Asthma Therapy Assessment Questionnaire (Volmer); Asthma Control Test (Nathan); Asthma Control Score (Boulet)

■ 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
Phone: 301-592-8573
Fax: 301-592-8563
Web site: www.nhlbi.nih.gov

.....

Also, contact these organizations for other resources:

Allergy and Asthma Network Mothers of Asthmatics

8201 Greensboro Drive, Suite 300
McLean, VA 22102
800-878-4403
Web site: www.aanma.org

American Academy of Allergy, Asthma, and Immunology

555 East Wells Street, Suite 1100
Milwaukee, WI 53202-3823
414-272-6071
Web site: www.aaaai.org

American Association for Respiratory Care

9425 North MacArthur Boulevard, Suite 100
Irving, TX 75063
972-243-2272
Web site: www.aarc.org

American College of Allergy, Asthma and Immunology

85 West Algonquin Road, Suite 550
Arlington Heights, IL 60005
847-427-1200
Web site: www.acaai.org

American Lung Association

1301 Pennsylvania Avenue, NW, Suite 800
Washington, DC 20004
800-586-4872 (800-LUNG-USA)
202-785-3355
Web site: www.lungusa.org

Association of Asthma Educators

1215 Anthony Avenue
Columbia, SC 29201
888-988-7747
Web site: www.asthmaeducators.org

Asthma and Allergy Foundation of America

8201 Corporate Drive, Suite 1000
Landover, MD 20785
800-727-8462
Web site: www.aafa.org

Centers for Disease Control and Prevention

1600 Clifton Road, NE
Atlanta, GA 30333
800-232-4636 (800-CDC-INFO)
TTY: 888-232-6348
Web site: www.cdc.gov

Food Allergy & Anaphylaxis Network

11781 Lee Jackson Highway, Suite 160
Fairfax, VA 22033
800-929-4040
Web site: www.foodallergy.org

National Jewish Health

1400 Jackson Street
Denver, CO 80206
877-225-5654
Web site: www.njc.org

U.S. Environmental Protection Agency

Indoor Air Division
1200 Pennsylvania Ave. SW
Mail Code 66095
Washington, DC 20460
Web site: www.airnow.gov

So you have asthma... It can be controlled!

And you can live a normal, active life.



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

NIH Publication No. 13-5248
Originally Printed 2007
Revised March 2013