




*Breathing  
Easier*

*with  
Asthma*

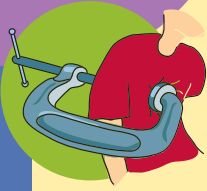


A persistent  
cough.



A whistling  
sound when  
you breathe.

Tightness in  
your chest, or  
trouble catching  
your breath....



When your asthma symptoms  
**flare up**, you might feel like  
your asthma is controlling you.

You don't have to feel that  
way. You can  
**learn to control**  
**your asthma,**  
  
**and breathe easily**  
once again.

# INTRODUCTION

Asthma is a serious—and sometimes life-threatening—disease of the lungs and airways. It’s also a very common disease: an estimated 15 million Americans have asthma, and the number continues to grow every year.

Fortunately, our ability to treat asthma is also growing. Today, you can expect that with a little knowledge and discipline, you can completely control your asthma. You can expect to do all the things you enjoy doing.

This booklet provides information and tools to help you live a better, healthier life with asthma.

*Note: if you’re a parent reading this to help understand and control your child’s asthma, please substitute “your child” for “you” in the text.*

“

*Now, after two months of treatment, I feel a big sense of relief and accomplishment. No more waking up at night—no more fear that every head cold could leave me gasping for breath! I see now that asthma is something you can deal with if you take time to learn and practice what you’ve learned.*

—Cara, newly diagnosed with asthma

”

## WHAT’S INSIDE:

see page

## 4 Understanding Asthma

What happens when you breathe? . . . . .	4
What happens with asthma? . . . . .	6
What causes asthma? . . . . .	7

## 9 Diagnosing Asthma

Tests . . . . .	9
Classifications. . . . .	10
Working with your asthma care team. . . . .	11
What’s ahead? . . . . .	12

## 13 Controlling Asthma

Know your symptoms. . . . .	14
Avoid your triggers. . . . .	17
Take your medication correctly . . . . .	23
Follow your Asthma Action Plan every day . . . . .	24
Take the Asthma Control Test every month . . . . .	24

## 25 Medication Basics

Types of asthma medication . . . . .	25
Medication delivery devices . . . . .	28
Tips for staying on schedule. . . . .	29
Tips for parents . . . . .	30

## 36 How Tos

How to monitor your peak flow. . . . .	36
How to use a “press-and-breath” inhaler . . . . .	38
How to use a nebulizer . . . . .	42

## 44 Resources

## 45 Asthma Action Plan

## 46 Asthma Control Test

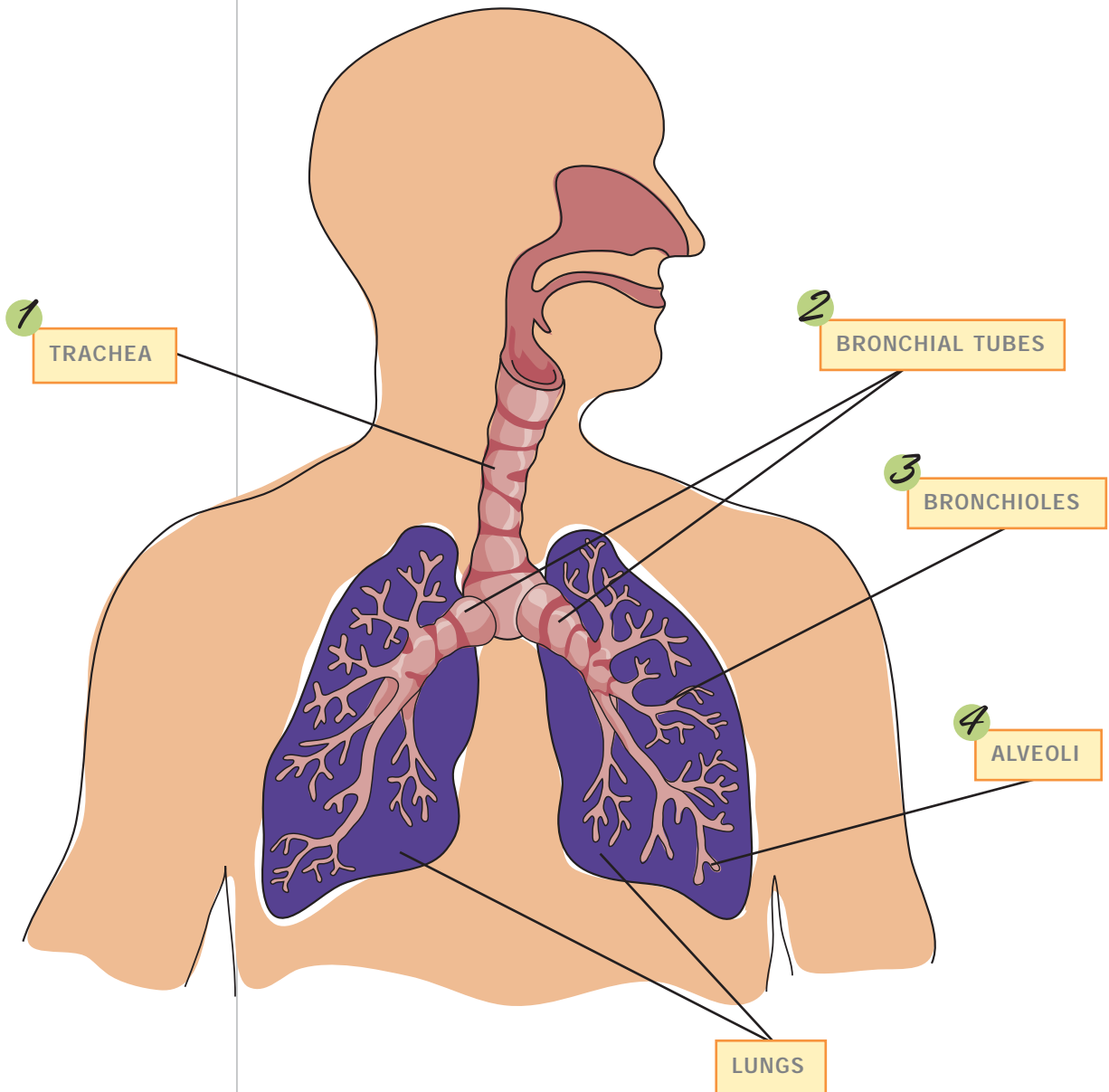
For ages 4 to 11 years. . . . .	46
For ages 12 and older . . . . .	47

## UNDERSTANDING ASTHMA

To learn to control your asthma, you first need to understand how your lungs and airways work and what happens with asthma.

### WHAT HAPPENS WHEN YOU BREATHE?

When you breathe, you absorb oxygen from the air. You also get rid of carbon dioxide, a gas that's produced when your body's cells use up oxygen. This exchange takes place in your lungs, two sponge-like organs in your chest.



Here's how it works:

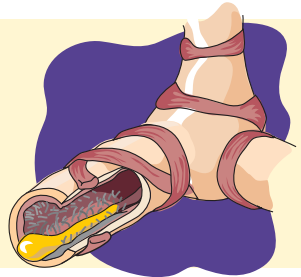
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When you take a breath in, air flows down your throat and windpipe (trachea).



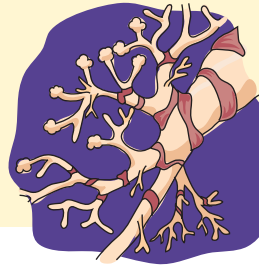
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From the trachea, air flows into two large, tubular airways (bronchial tubes). The bronchial tubes branch as they extend into your lungs.



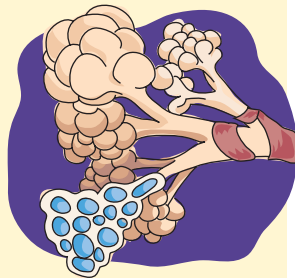
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From the bronchial tubes, air goes deeper into the lungs through smaller and smaller branches. These smaller airways are called bronchioles.



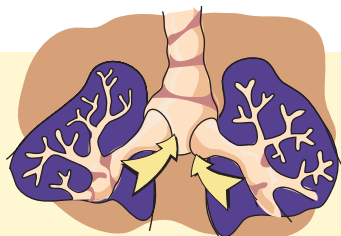
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At the end of this maze of little branches are tiny air sacs called alveoli. These sacs take oxygen from the air you breathe and pass it into your bloodstream. They also collect carbon dioxide from the bloodstream for you to breathe out.



5

When you breathe out, air—now carrying carbon dioxide—travels out of your lungs the way it came in.



## Your airways, inside and out

### Inside:

The inner lining of your bronchial tubes produces **mucus**, a sticky fluid that helps keep airways moist and lubricated.

### Outside:

The outer walls of your airways are surrounded by bands of muscle.

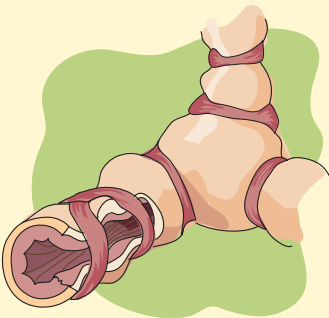
## Inflammation

and your airways:

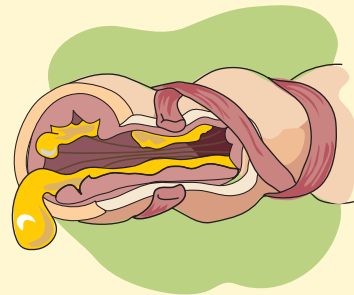
**3** reasons your airways become too narrow



The lining swells inward



The muscles around the airways tighten



Mucus production increases

### WHAT HAPPENS WITH ASTHMA?

When you have asthma, your airways are inflamed much of the time. This inflammation can make breathing difficult for three reasons:

- The inside lining of the airways swells inward. This narrows the space inside your airways.
- The muscles around the airways tighten. This tightening is called bronchospasm (or bronchoconstriction). Bronchospasm also narrows your airways.
- Your airways produce more mucus. Excess mucus clogs the airways, narrowing the space for air to pass through.

With your inflamed airways narrowed by swelling, bronchospasm, and excess mucus, air doesn't move as easily into and out of your lungs. It can be like trying to breathe through a narrow straw—you have to work extra hard to get air in and out. Other asthma symptoms, like coughing, wheezing, and chest tightness, can also happen. You're having an asthma flare-up (also called an asthma "attack").

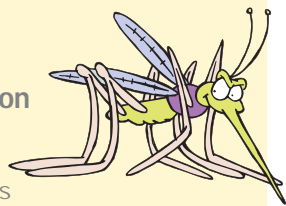
Since asthma interferes with your breathing, it's a serious condition. Uncontrolled asthma causes people to miss work or school, go to the hospital, or even die. Fortunately, people can learn to control their asthma and avoid serious problems.

### INFLAMMATION, ALL THE TIME?

If you have asthma, your airways are inflamed much of the time. Even when you have no symptoms, you might still have inflammation in your airways. This puts you at risk for another flare-up.

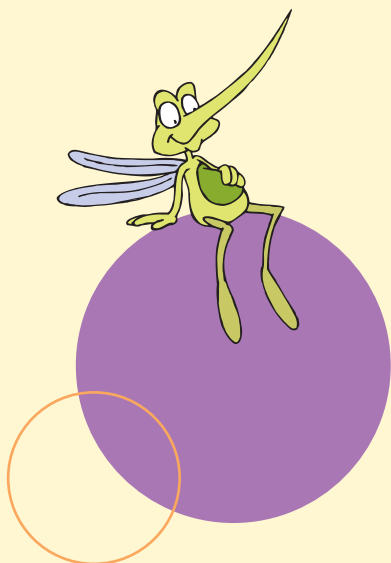


## Understanding inflammation



Inflammation is your body's reaction to injury, infection, or irritation. Anyone who's ever had a mosquito bite has seen inflammation in action. It's the swelling, redness, heat, and pain where the mosquito has bitten you. And if you're the type to scratch your mosquito bites, you know something else about inflammation: it tends to get worse quickly if you irritate the affected area.

You can't see the inflammation that happens with asthma. Asthma inflammation is deep inside your lungs, in your airways. Yet just as with a mosquito bite, treatment means reducing the existing inflammation—and working to avoid things that will irritate your lungs even more.



## WHAT CAUSES ASTHMA?

Scientists don't really know what causes asthma. But they do know a lot about what causes asthma symptoms to flare up from time to time, and who tends to get asthma.

### What brings on an asthma flare-up?

If you have asthma, your inflamed airways are “twitchy”—they overreact to irritants in your environment. These irritants are called triggers, and they include anything that sets off (triggers) an asthma flare-up.

Different people have different triggers. Some common asthma triggers are allergies, chest colds, pollution, and exercise. To control your asthma, you have to find out what your triggers are—and learn how to deal with them.

For some people, illness—especially a cold or flu—can trigger an asthma flare-up.



“

*My dad has asthma, and my sister got asthma when she was little. So I wasn't that shocked to learn that I have asthma, too. But I wasn't really freaked out, either. I already knew that medications can help a lot.*

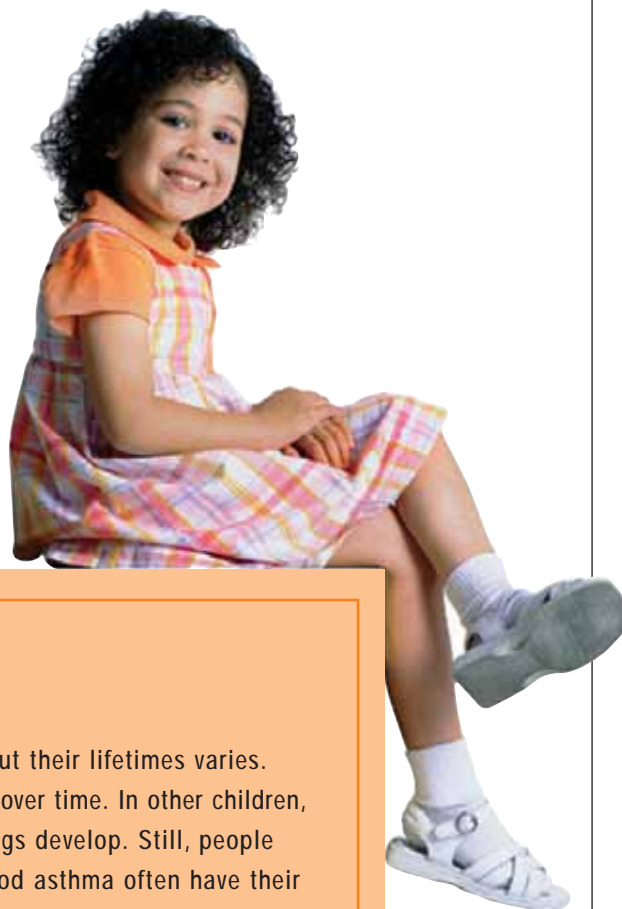
—Trevor, age 16

”

### Who tends to get asthma?

Although anyone can get asthma at any age, studies have shown the following trends:

- Asthma often starts in childhood, and is more common in children than in adults. Still, asthma affects people of all ages—and studies show an increasing number of asthma cases in older people.
- More boys than girls have asthma—but in adulthood, more women than men have asthma.
- People who have allergies—or whose family members have allergies—are more likely than other people to have asthma.
- Asthma tends to run in families. If your mother, father, or siblings have asthma, you're at an increased risk for the disease.
- People who smoke—or who are around a lot of secondhand smoke—are also more likely to get asthma.



#### Myth:

“Children usually outgrow asthma.”

#### Truth:

How asthma affects children throughout their lifetimes varies. In some children, symptoms get worse over time. In other children, symptoms seem to go away as the lungs develop. Still, people who seem to have “outgrown” childhood asthma often have their symptoms reappear in adulthood. The bottom line? Even if symptoms go away, the tendency toward asthma is still there. That's why people diagnosed with asthma—children and adults alike—should work with a doctor to match their treatment plan to their current condition.



## DIAGNOSING ASTHMA

If asthma is suspected, your doctor will usually want to ask questions, examine you, and perhaps run a few tests. This section provides more details about what and who is involved in making an asthma diagnosis.

### TESTS

Here's what your doctor may do to gather information before an asthma diagnosis:

- **During the medical history**, your doctor will ask questions about your symptoms and what seems to trigger them. Your doctor will pay particular attention to repeated symptoms. Try to provide as many details as possible, even if they seem unrelated.
- **During your physical examination**, your doctor may listen to your breathing and heartbeat, and check your body for signs of allergies. (Allergies are common asthma triggers.)
- **A lung function test** (also called a **pulmonary function test**, or **PFT**), shows how well your lungs are working. For example, **spirometry** measures how much air you can breathe out, and how fast. In addition to other readings, spirometry can give your forced expiratory volume, or **FEV<sub>1</sub>**. FEV<sub>1</sub> is the volume of air you can blow out in one second—and it is a useful measure both for diagnosing asthma and for checking asthma control later on.
- **With various other tests**, your doctor may gather more information about your lungs, your breathing, and your asthma triggers. For example, chest x-rays can help rule out other lung problems that could be causing your symptoms. Blood tests and skin prick tests can check for allergies that might cause your asthma symptoms.



### Common asthma symptoms

To diagnose and treat your asthma, your doctor will ask you about the following symptoms:

- Coughing
- Wheezing (a whistling sound when you breathe)
- Chest tightness
- Shortness of breath

Symptoms can be mild or severe.

For more information on asthma symptoms, see page 14.

### KIDS AND LUNG FUNCTION TESTS

It's often difficult to do lung function tests in children under 5 or 6 years of age—they usually lack the coordination to perform the tests correctly. To diagnose asthma in a young child, a doctor will rely mainly on a medical history and physical examination.

## CLASSIFICATIONS

Once information has been gathered from all these sources, your doctor can diagnose your asthma and rate its severity by using the standard classifications from the National Institutes of Health (NIH). These classifications, shown below, are based on symptoms before treatment.

### Step 1 asthma

*If you have all of the following:*

- No limitations on physical activity
- Daytime symptoms 2 times per week or less
- Nighttime symptoms 2 times per month or less
- Flare-ups that are brief (a few hours to a few days)
- FEV<sub>1</sub> at 80% or more than predicted best

Then you have...

**mild intermittent asthma**

### Step 2 asthma

*If you have even 1 of the following:*

- Daytime symptoms more than 2 times per week, but less than 1 time a day
- Nighttime symptoms 2 or more times per month
- Flare-ups that may interfere with physical activity
- FEV<sub>1</sub> at 80% or more than predicted best

Then you have...

**mild persistent asthma**

### Step 3 asthma

*If you have even 1 of the following:*

- Daytime symptoms every day
- Nighttime symptoms more than once a week
- Flare-ups that interfere with physical activity
- FEV<sub>1</sub> greater than 60%, but less than 80%, of your predicted best

Then you have...

**moderate persistent asthma**

### Step 4 asthma

*If you have even 1 of the following:*

- Continual daytime symptoms
- Frequent nighttime symptoms
- Frequent flare-ups
- Limited physical activity
- FEV<sub>1</sub> 60% or less than your predicted best

Then you have...

**severe persistent asthma**



“

*Our son, Henry, had been coughing at night for months. We even had several trips to the hospital when chest colds brought on breathing problems. The doctors there mentioned asthma...but we didn't pay much attention. Most of the time, Henry seemed fine.*

*Luckily, our pediatrician followed up. She ran some tests, and then showed us how she arrived at her diagnosis. Once we saw the classifications of symptoms, it was pretty obvious: Henry has mild persistent asthma.*

—Peter, father of a 5-year-old with asthma

”



## WORKING WITH YOUR ASTHMA CARE TEAM

A variety of healthcare providers can help diagnose and treat your asthma. Although you may not work with all of these people—their roles often overlap—you might want to know more about each of the following providers:

- **Primary care provider.** This is the person you usually see for health problems. Your primary care provider could be a family practice doctor, a pediatrician, a general internist, a nurse practitioner, or a physician assistant.
- **Pulmonologist.** This is a doctor who specializes in lung and breathing problems, including asthma.
- **Allergist.** An allergist is a doctor who can help determine whether allergies play a role in your asthma. An allergist is an asthma specialist who can tell you specifically which allergens trigger your symptoms, and help you to avoid them or reduce their harmful effects.
- **Asthma educator.** Asthma educators can help explain asthma and your treatment plan. They can also teach you how to take medication correctly and monitor your symptoms.
- **Care manager.** A care manager (also called a case manager) can help follow up on and coordinate your asthma treatment.

As you work with medical professionals, keep in mind that **YOU** are the most important person on your asthma care team! To control your asthma, you'll need to take responsibility for your condition. This means learning as much as you can about asthma, communicating with your team regularly, following your treatment plan, and involving other people (such as your family, teachers, or employers) to support you.



## Tips for working with your asthma care team

To work together to control your asthma, you and your healthcare providers should come to a few agreements:

- **Agree on clear treatment goals.** You and your healthcare providers need to share the same idea about what “good asthma control” looks like.
- **Agree on the things you need to do to control your asthma.** (Then do them!)
- **Agree about follow-up appointments.** You need to see your doctor to review your treatment at least every year or so—or more often if your asthma is moderate or severe or if your treatment has changed. And you should always call if your symptoms change or don't improve, or if you have bothersome side effects from your asthma medication.

## WHAT'S AHEAD?

What are your assumptions about asthma—and what do you expect from treatment? Do you think you'll always live with a few symptoms, or that you won't be able to be physically active?

In fact, you can expect to lead a healthy, active life with asthma. By working with your care team and following your treatment plan faithfully, you can expect to:

- **Feel better.** Your symptoms should happen less often—and be less severe when they do happen. Most people should expect to be free of symptoms almost all of the time!
- **Do more.** You should be able to be as active as you want to be. Many star athletes have asthma. For them—and for you—the key is finding the right treatment plan to prevent asthma symptoms caused by exercise.
- **Need less help.** As you learn to control your asthma on your own, you can expect to need less help from your care team or emergency room staff.



“

*I thought that if you had asthma, you just had to learn to live with a few symptoms. But my new doctor disagreed. And after a few weeks on a new treatment plan, I see that she was right. I really can control my asthma.*

—Bob, a long-time asthma patient

”

Asthma is different for everyone, and it might take some time to settle into a treatment plan that controls your symptoms well. But don't get discouraged—and don't let low expectations keep you from getting the most out of your treatment. Keep working with your asthma team to discover what works best for you.



## CONTROLLING ASTHMA

Although no one's happy to get an asthma diagnosis, knowing that your symptoms come from asthma is helpful. It means that instead of being at the mercy of your symptoms, you can begin to take charge of your health by controlling your asthma.

How can you control your asthma? Work with your asthma care team to do the following:

- Know your symptoms
- Avoid your triggers
- Take your medication correctly
- Follow your Action Plan every day
- Do the Asthma Control Test every month

This section gives more information about each of these topics.

### ASTHMA ACTION PLAN: YOUR DAILY TOOL

To help you stay on track with treatment, your doctor will fill out an Asthma Action Plan for you. The Action Plan lists your symptoms, your triggers, and your medications. **And just as the colors on the stoplight tell a driver what to do, the zones in your Action Plan tell you how to keep your asthma under control.** For more on the Asthma Action Plan, see page 24.

#### GREEN

When you're in the green zone, your asthma doesn't interfere with work, play, or sleep.



#### YELLOW

When you're in the yellow zone, your asthma is getting worse. You need to take action to keep symptoms from becoming severe.



#### RED

Once in the red zone, your asthma is severe. You need to get medical help right away.



#### Myth:

"Asthma treatments don't work."

#### Truth:

Newer asthma treatments are remarkably effective. The key is making sure you're doing the right things, the right way. Talk to your healthcare provider if you're having trouble controlling your asthma. Before adjusting your medication, they might follow the ICE formula to check for problems:

**I**nhaler: Is your inhaler technique correct?

**C**ompliance: Are you taking your medications as directed?

**E**nvironment: Has something in your environment changed?

It often takes some experimenting to get your treatment working well for you. Don't give up—keep working with your healthcare provider until you find what works best for you.

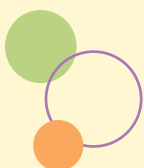


## Early warning signs?

People with asthma sometimes say that they can tell when their asthma is starting to flare up—even before they get one of the classic symptoms like coughing or wheezing. Here are some of the “early warning signs” that people have reported:

- Sighing a lot
- Getting “the look”—a tense, worried face or circles under the eyes
- Having a “tickle” in the throat, clearing the throat a lot
- A “full” feeling in the chest, and difficulty taking a deep breath

Pay attention to your body. You might be able to pick up on one of your own early warning signs of a flare-up. This can help you begin treatment early, and prevent more serious symptoms.



## KNOW YOUR SYMPTOMS

To control your asthma, you first need to be able to recognize your symptoms. This section tells you what you need to know to do this.

### Asthma symptoms: from bad to worse

Below are some common asthma symptoms, described as you might have them as an asthma flare-up worsens:

- **Cough.** The first thing you may notice is a persistent (ongoing) cough, especially at night.
- **Wheezing.** You may hear a high-pitched whistling sound as you breathe. This sound, called wheezing, means that the air is having trouble moving through your airways. Wheezing usually happens when you breathe out. But as your asthma worsens, you might also hear wheezing when you breathe in.
- **Difficulty breathing, chest tightness.** As your breathing becomes more difficult, you can feel pain or tightness in your chest. Children are more likely to say that their chest hurts.
- **Shallow breathing.** You may find it difficult to take a deep breath. Your breaths become smaller and smaller—more and more shallow—as your condition worsens.
- **Fast breathing.** As your breathing becomes more shallow, it also becomes faster as your body tries to get more oxygen into your lungs. “Fast” breathing for adults is about 30 or more breaths a minute while at rest. A child breathing faster than 50 breaths a minute while at rest is breathing fast.
- **Retractions.** As your asthma flare-up worsens, you may notice that the skin and muscles between your ribs and at the base of your throat are “pulling in” or “retracting” with each breath in. These retractions show that you’re really struggling to get air into your lungs.
- **Life-threatening symptoms.** If an asthma flare-up becomes very severe, you won’t be able to work hard enough to breathe in. At this point, your retractions and wheezing may actually begin to go away. Your breathing will become very shallow. And, because your body isn’t getting enough oxygen, your face and lips may turn slightly blue. Symptoms like these are very dangerous and require immediate emergency care.



## How symptoms can vary

Asthma symptoms vary from person to person and from time to time. As you try to understand how asthma affects you, consider these factors:

- **TYPE:** What type of symptoms do you usually have? For some people with asthma, breathing becomes difficult. Yet for many others, coughing is the only symptom.
- **TIME:** When do you have symptoms? You may experience symptoms only at night. Or, you may only notice symptoms at certain times of the year. Do you get them when you're active, or at rest?
- **DURATION:** How long do symptoms last, and how often do you have them? Your symptoms may last only for a few minutes, or continue for a few days. You might have them every day, or they may flare up unexpectedly and get worse quickly.
- **SEVERITY:** How do your symptoms affect your life? Are they just a bother—or do they stop you from doing the things you want to do?



“

*I was first treated for asthma when I was 12. I remember it well, because I was so surprised when I took that first puff. I felt my lungs open up, the air moving easily in and out...I hadn't felt that good in a long time, maybe ever.*

*I have a friend who talks the same way about getting her first pair of eyeglasses—it's like a whole new world. I guess that once you get help, you suddenly realize what you've been missing.*

—Wanda, a long-time asthma patient

**Myth:** “Asthma isn't serious” or “Mild asthma doesn't require treatment.”

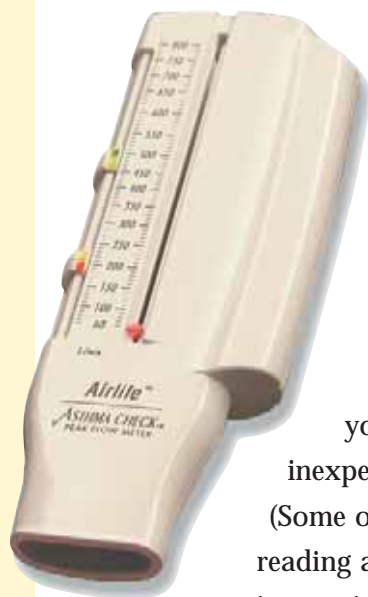
**Truth:**

You should always take asthma seriously. It's a chronic (long-lasting) condition that has no cure. Its symptoms can come on suddenly and get worse quickly—and may even become life-threatening. In fact, many deaths from asthma occur in people who previously thought that their asthma was mild. **Follow your Asthma Action Plan.** You might not need to take medication every day. But you **DO** need to take care of yourself to help avoid and treat dangerous flare-ups—and to keep living an active, healthy life every day.

HIGH  
OR  
LOW?

## KNOWING THE SCORE

Peak flow and FEV<sub>1</sub> scores are best (higher) when your large airways are clear. They're lower when your airways are narrowed. Your goal is "clear": getting the high score that shows your asthma is under control.



### Measuring peak flow and FEV<sub>1</sub>

As part of monitoring your symptoms, you may be asked to check your peak flow regularly. Peak flow measures how quickly you can blow air out of your lungs. It can be a helpful indication of how well your lungs are working—and how well your asthma is controlled.

If your healthcare provider recommends that you monitor your peak flow, you'll need to use an inexpensive, handheld device called a peak flow meter. (Some of the newer meters can give you your FEV<sub>1</sub> reading as well as a peak flow.) See page 36 for general instructions for monitoring peak flow.



“

*Carlos is a much happier little boy this year. In fact, using peak flow readings has made our whole family feel calmer. We don't have to try to guess how sick Carlos is. His peak flow readings tell us when there's trouble, and the rest of the time, we can relax.*

—Oscar, father of an 8-year-old  
with asthma

”

## AVOID YOUR TRIGGERS

A trigger is anything—a condition, a substance, an activity—that causes inflammation in your sensitive airways. A trigger makes your asthma worse or keeps it from getting better.

To control your asthma, you have to figure out what your triggers are and take steps to avoid them. The table below can help.

## TRIGGERS: TAKE THEM PERSONALLY

Different people have different triggers. Work with your asthma care team to identify your personal triggers and learn how to avoid them.

### TRIGGER

Put a  next to the things that make your asthma worse.

#### RESPIRATORY INFECTIONS

Colds, influenza (the flu), sinus infections, and other illnesses can trigger an asthma flare-up. These illnesses tend to last longer if you have asthma.




#### EXERCISE

Exercise is one of the most common triggers of asthma symptoms. In many people, exercise brings on coughing, wheezing, or shortness of breath during or after exercise. Still, exercise is the one trigger you should NOT avoid—when your symptoms are well controlled, exercise is good for your lungs.



### TIPS for avoiding or eliminating trigger

Put a  next to the things you'll do to control your asthma. Start with simple things.

#### Preventing illness is the key.

- ☐ Take care of yourself: Get plenty of rest, eat a healthy diet, and exercise regularly. If possible, avoid being around people who are sick.
- ☐ Get a flu shot once a year in the fall.
- ☐ Wash your hands often to prevent the spread of germs.

#### You should be able to be active without symptoms.

If exercise is one of your triggers, talk to your healthcare provider. Your provider may recommend the following strategies:

- ☐ Take medication 5 to 10 minutes before you begin exercise.
- ☐ Warm up for 10 minutes before exercise to help your body adjust to changes in breathing and temperature.
- ☐ Get some aerobic exercise every day. Aerobic exercise is anything that gets your heart pumping a little faster.

## TRIGGER

### ❏ IRRITANTS IN THE AIR

*such as smoke, pollution, odors, fumes, and sprays*

The air we breathe—both indoors and out—contains pollutants that can irritate lungs and cause asthma symptoms.

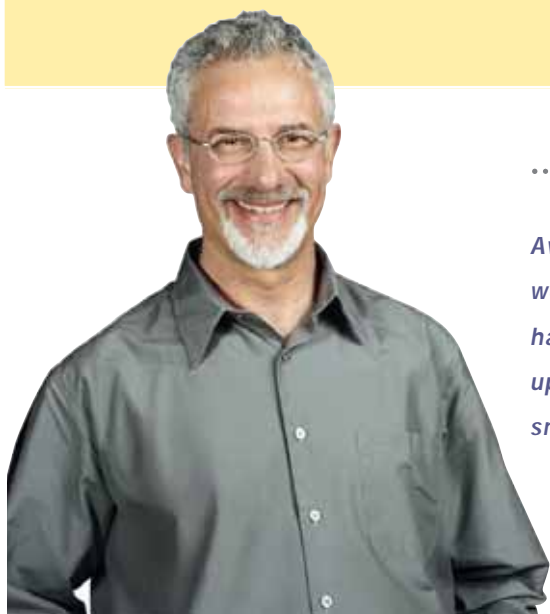
Among the worst of the airborne irritants is tobacco smoke from cigarettes, pipes, and cigars. Smoke from wood-burning fireplaces, kerosene heaters, and gas stoves can also cause problems for people with asthma. Other airborne irritants include industrial and exhaust fumes, aerosol sprays, perfumes, and fumes from paint, glues, and household cleaning products.



## TIPS

The best strategy is to avoid airborne irritants whenever possible.

- ❏ Get rid of your swamp cooler—use central air conditioning. If this isn't possible, at least use an air conditioner in your bedroom.
- ❏ Watch the news for pollution alerts (high ozone days), and be ready to step up your treatment if necessary.
- ❏ If you smoke, quit. Ask family members to quit smoking, too.
- ❏ Don't allow smoking in your home.
- ❏ Be sure no one smokes at your child's day care center.
- ❏ Don't use wood burning stoves, fireplaces, or kerosene heaters to heat your home.
- ❏ Avoid perfumes and perfumed products such as talcum powder, candles, and hair spray.
- ❏ Reduce strong cooking odors by using an exhaust fan and opening windows when you cook.
- ❏ Don't stay in your home, school, or work site if it's being painted.
- ❏ If gas fumes irritate your airways, have someone else pump your gas for you.
- ❏ If you can't get rid of irritants in the ways described above, use an indoor air-cleaning device. A HEPA (high-efficiency particulate air) purifier is a good one to try.





“

*Avoiding my main trigger, smoke, used to be hard for me. People would light up a cigarette, and I'd sit there and suffer. Later, I'd have to take more medicine to get back under control! But I'm more upfront now. I just tell people I have asthma, and that there's no smoking in my house. People get used to it—and I feel a lot better.*

—Tobias, diagnosed with asthma 3 years ago

”

TRIGGER	TIPS
<p> <b>ALLERGENS</b>  <i>such as animal dander, pollen, molds, dust mites, cockroach droppings, and certain foods and food additives</i></p> <p>Allergens are things that cause you to have an allergic reaction. In some people, allergens can also trigger asthma symptoms.</p> 	<p>Everyone with persistent asthma should have allergy testing to determine if allergies are a factor in their asthma.</p> <p>Once you know your allergens, the best strategy is to avoid or reduce your exposure to them whenever possible.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> For allergens you can't avoid or reduce, ask your healthcare provider about getting a series of allergy shots (called <b>immunotherapy</b>). Allergy shots have been shown to help asthma that is triggered by allergies.</li> <li><input type="checkbox"/> Get rid of your swamp cooler—use central air conditioning. If this isn't possible, at least use an air conditioner in your bedroom. This can help protect you from a variety of airborne allergens.</li> <li><input type="checkbox"/> If possible, use a central vacuuming system—this will pull allergens out of the house. Or, use a vacuum cleaner with a HEPA filter.</li> </ul>
<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Animal dander.</b> Contrary to what many people think, it's not the animal's fur that people are allergic to. The culprit is actually a protein found in pet's <b>dander</b> (flakes of skin) and saliva. Even if you have a short-haired animal or an animal that doesn't shed—and even when you keep animal hair cleaned up—a lot of the dander will remain behind.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> If possible, remove the animal from your home, and avoid visiting family or friends with pets.</li> <li><input type="checkbox"/> At a minimum, keep pets off of the bed and out of the bedroom.</li> <li><input type="checkbox"/> Block heating vents, or place filters over them.</li> <li><input type="checkbox"/> When possible, remove carpets and cloth-covered furniture from your home.</li> <li><input type="checkbox"/> Replace carpets with solid surface flooring.</li> <li><input type="checkbox"/> If you have a cat, use a HEPA filter to clean the air in your home. (HEPA filters can help pick up the small, fine dander that cats produce—but are less effective in picking up dander from dogs.)</li> </ul>
<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Pollen.</b> Pollens are powder-like substances produced by blooming trees, grasses, and weeds. Pollens usually cause seasonal allergies, sometimes called hay fever. If you tend to have symptoms like sneezing or itchy nose or eyes at predictable times of the year, you might be allergic to pollen. Another sign is if your asthma worsens at particular times of the year.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Keep windows in your house and car closed.</li> <li><input type="checkbox"/> During allergy seasons, limit outdoor activities on windy days and when pollen counts are high.</li> <li><input type="checkbox"/> Keep lawns short (no more than 2 inches high) to minimize flowering. Make sure your yard is free of weeds such as pigweed and ragweed.</li> <li><input type="checkbox"/> Use central air conditioning—or at least a room air conditioner—to stay cool indoors. If you can't get rid of your swamp cooler, a HEPA filter may help reduce pollen.</li> </ul>

TRIGGER	TIPS
<p>❑ <b>Molds.</b> Molds that grow in warm, damp, and poorly lit places—like your bathroom, closets, basement, and even behind wallpaper—may cause asthma symptoms.</p> <p>In dry areas of the West, mold is mostly a problem in homes with swamp coolers or humidifiers, or homes that have been water-damaged.</p>	<p>❑ Use central air conditioning (not a swamp cooler!) during the summer months. Don't use a humidifier.</p> <p>❑ Increase ventilation in damp areas (kitchen, bathrooms, etc.) by installing exhaust fans.</p> <p>❑ Regularly clean mold-prone areas with a cleaner that has bleach in it.</p> <p>❑ Limit the number of houseplants you keep in your home.</p> <p>❑ Shake excess water off of shower curtains. Don't let water collect in dish drainers, plant trays, or refrigerator drip pans.</p> <p>❑ If your home has persistent mold growth from water damage, you'll need to replace the damaged area. For example, you may need to replace damaged wallboard inside a wall.</p>
<p>❑ <b>Dust mites.</b> Dust mites are tiny insects—too small to be seen with the naked eye—that feed on human skin. Even if your home is clean, there's still enough dust to support millions of dust mites.</p> <p>Dust mites thrive in warm, humid environments. They're usually not a problem in dry areas of the West (but might be if you have a swamp cooler). Dust mites especially love places like mattresses, pillows, carpets, curtains, stuffed animals, and furniture upholstery.</p>	<p>If you test positive for dust mite allergy:</p> <p>❑ Wash bed linens and stuffed toys at least once a week in HOT water to kill dust mites. The temperature of the water must be hotter than 130° to kill the mites. (Everything on the bed should be washable with hot water—sheets, pillowcases, any stuffed animals—or have a special allergy cover.)</p> <p>❑ Put airtight covers around mattresses, box springs, pillows, and comforters.</p> <p>❑ If possible, remove carpeting from the bedroom and use washable throw rugs instead.</p> <p>❑ Regularly wipe furniture with a damp cloth each month during the winter season. Place filters over heater vents.</p> <p>❑ When possible, replace upholstered furniture with wood, leather, and vinyl furniture that can be easily wiped clean.</p> <p>❑ Keep indoor humidity to less than 50%. In dry areas of the West, this is usually easy to do—unless you have a swamp cooler or humidifier.</p>



TRIGGER	TIPS
<p><input type="checkbox"/> <b>Cockroach droppings.</b> Droppings and remains from cockroaches may cause an allergic reaction and asthma symptoms in some people. Cockroaches aren't common in the Intermountain West—although reports suggest that their numbers are increasing.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Keep food covered and out of the bedroom.</li> <li><input type="checkbox"/> Remove garbage from your house daily.</li> <li><input type="checkbox"/> Keep counter tops and oven tops clean.</li> <li><input type="checkbox"/> Set bait traps or use professional pest control services. Spray insecticides, but only when the person with asthma is out of the house.</li> </ul>
<p><input type="checkbox"/> <b>Certain foods and food additives.</b> Foods that most frequently trigger allergic reactions in children include eggs, milk, wheat, soy, fish, corn, and peanuts. In adults, fish, shellfish, and nuts are common allergens. Sulfites, an additive found in processed foods and drinks (such as dried fruits, fruit juices, vegetables, and wines), can also be a problem.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Avoid the food that's causing your allergic symptoms.</li> <li><input type="checkbox"/> Read ingredient labels.</li> <li><input type="checkbox"/> Ask questions at restaurants.</li> <li><input type="checkbox"/> Ask your healthcare providers what to do in case you are accidentally exposed to food allergens. (You may need to carry special medication in case of an exposure.)</li> </ul>
<p><input type="checkbox"/> <b>WEATHER</b></p> <p>A sudden blast of cold air, excess heat and humidity, and dry climates can all trigger asthma symptoms.</p> 	<p><b>Protect your body from extremes in temperature and humidity.</b></p> <p><b>In cold weather</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Dress appropriately in cold weather.</li> <li><input type="checkbox"/> Wear a scarf over your nose and mouth to keep your breath warm and moist. You can also wear one of the special masks made for people with asthma.</li> <li><input type="checkbox"/> Breathe in through your nose rather than your mouth to help warm the air before it reaches your lungs.</li> </ul> <p><b>In hot, humid environments</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use air conditioning in your home and in your car.</li> <li><input type="checkbox"/> Drink plenty of fluids.</li> </ul>

## TRIGGER

### EMOTIONAL STRESS

Emotions don't cause asthma. But strong emotional reactions like laughing, crying, and sighing may trigger symptoms, especially if your asthma isn't under control. Family and job-related stresses can bring on asthma symptoms in adults. In children, asthma symptoms may be triggered by a divorce, a death in the family, or even the start of a new school year.



## TIPS

Try to remain calm.

- ☐ Take deep breaths.
- ☐ Consciously slow your breathing by counting while you breathe in and out.
- ☐ Do any activity that distracts and relaxes you.

### SLEEP

For many people, asthma symptoms occur at night. This is called **nocturnal asthma**. Nocturnal asthma can be brought on by a number of factors—allergens in the bedroom, a drop in body temperature, and heartburn (or **GERD, gastroesophageal reflux disease**).



Try to find out why your asthma is worse at night—and then eliminate those causes.

- ☐ Keep your bedroom clear of allergens and follow your Asthma Action Plan.
- ☐ Treat gastroesophageal reflux disease.
- ☐ If you often have asthma symptoms at night—your asthma is not controlled. Contact your doctor for an adjustment to your treatment plan.

### MEDICATIONS

Some medications, especially those that contain aspirin, may cause asthma symptoms. Medications called beta blockers, which are used to treat a variety of conditions, can also make asthma worse.



- ☐ Consult with your healthcare provider or pharmacist before you take medications other than the ones that have been prescribed for your asthma.

Having trouble with your triggers? Keep a record.

If you're not sure which triggers affect you, make a note each time an asthma flare-up occurs. Keep track of the following:

- Where you were (at work, school, in your home, outside)
- What you were doing (running, vacuuming, petting the cat)
- When it happened (at night, after eating, during or after exercise, when stressed or excited)

As you build your record, you should start to notice patterns that may help you identify your triggers.

### RECORD OF ASTHMA SYMPTOMS, CIRCUMSTANCES

- March 26: Nighttime cough. **Outside** gardening (day), sunny.
- May 10: Wheezing, nighttime cough. Party in **Shelley's backyard** (evening), Somewhat **windy**.
- May 11: Wheezing, chest tight, nighttime cough. Home from work (chest cold?).
- May 12: Wheezing, nighttime cough. Home from work again.
- June 1: Coughing, nighttime coughing. **Hiking** (day).

### TAKE YOUR MEDICATION CORRECTLY

Taking your medication correctly is one of the most important things you can do to keep your asthma under control. This means understanding how your various medications work and using them just as they've been prescribed. Pages 25 to 35 tell you more about using your medication correctly.



### Be a detective

Keep in mind that triggers may not always be obvious. You may have to do some detective work to find the trigger that's causing your symptoms.

Looks like I tend to get symptoms outside.  
Worst flare-up came from being outside on a windy day...  
trigger = pollen?  
Ask doc about allergy test.



**Myth:** "The best time to use an inhaler with your child is when she's crying. More medicine gets into the lungs this way."

**Truth:** If you give a treatment while the child is crying, the medication will only reach the upper airways. It won't go deep into the lungs where it's needed most. Wait to give a treatment until after the child has stopped crying.

## FOLLOW YOUR ASTHMA ACTION PLAN EVERY DAY

The things you do to control your asthma need to be daily habits, like brushing your teeth and combing your hair. An Asthma Action Plan can help. The Plan lists symptoms to watch, triggers to avoid, and when and how to take your asthma medications. Follow your Plan every day.



## TAKE THE ASTHMA CONTROL TEST EVERY MONTH

Studies have shown that many people *think* their asthma is controlled—when it's really not. That's why the Asthma Control Test was developed. Take this simple test every month to make sure your treatment is working well for you.

This is the Childhood Asthma Control Test (CACT) for children 4 to 11 years old. It is a 19-item test that asks about symptoms and asthma control over the past 4 weeks. The test is divided into two sections: 'How is your asthma controlled?' and 'How is your asthma controlled?'. The test is scored from 0 to 19, with 19 being the best score. The test is designed to be easy for children to understand and complete.

Use this version  
for kids age 4 to 11 years

Use this version  
for adolescents and adults  
age 12 and up

This is the Asthma Control Test (ACT) for people 12 years and older. It is a 5-item test that asks about symptoms and asthma control over the past 4 weeks. The test is scored from 0 to 25, with 25 being the best score. The test is designed to be easy for adults to understand and complete.

See pages  
45 to 47 for an  
Asthma Action Plan and  
Asthma Control Test  
for your own use.

...and at least every  
2 years,  
**a breathing  
test**

If you have persistent asthma, check in with your doctor at least every two years. Your doctor needs to review your treatment and order a lung function test (breathing test) to double check that your asthma is controlled.

## MEDICATION BASICS

To get the most out of your asthma medication, you need to:

- Understand the different types of medication and when to take them
- Use your medication delivery device—your inhaler or nebulizer—correctly
- Establish good habits for staying on schedule with your medication

This section gives some basic information to help you do these things.

### TYPES OF ASTHMA MEDICATION

There are two basic types of asthma medications, quick-relief and controller medications.

	When you should use them	What they do, what they don't do	What to watch out for
<b>Quick-relief medications</b>  Also called "rescue medications"	<ul style="list-style-type: none"> <li>■ <b>When you first notice asthma symptoms.</b> Quick-relief medication can stop an asthma flare-up from getting worse.</li> <li>■ <b>Before you encounter one of your asthma triggers.</b> For example, if exercise is a trigger for you, your doctor may recommend taking quick-relief medication before you play or work out.</li> </ul>	<ul style="list-style-type: none"> <li>■ Quick-relief medications can <b>relieve severe asthma symptoms, or symptoms that come on fast</b> (sudden onset symptoms). They <b>work immediately</b>—usually within 5 to 10 minutes—to help open airways during an asthma flare-up.</li> <li>■ Quick-relief medications <b>do NOT prevent future symptoms.</b></li> </ul>	<b>Using quick-relief medication more than 2 times a week to stop asthma flare-ups?</b> This may be a sign that your treatment plan isn't working. Talk to your healthcare provider.
<b>Examples of quick-relief medication:</b> <ul style="list-style-type: none"> <li>■ <b>Short-acting beta<sub>2</sub>-agonists</b> (inhaled):               <ul style="list-style-type: none"> <li>■ albuterol (<b>Proventil</b>, <b>Proventil HFA</b>, <b>Ventolin HFA</b>)</li> <li>■ pirbuterol (<b>Maxair</b>)</li> <li>■ levalbuterol (<b>Xopenex</b>)</li> </ul> </li> <li>■ <b>Anti-cholinergics</b> (inhaled):               <ul style="list-style-type: none"> <li>■ ipratropium bromide (<b>Atrovent</b>)</li> </ul> </li> </ul>			

See controller medication information on the next page—

	When you should use them	What they do, what they don't do	What to watch out for
<b>Controller medications</b>  Also called "maintenance medications"	<ul style="list-style-type: none"> <li>■ <b>Every day.</b> Controller medications are usually prescribed for people with persistent asthma. For these medications to work, you must take them every day on a regular basis—even when you're symptom-free and feeling well.</li> </ul>	<ul style="list-style-type: none"> <li>■ Taken regularly, controller medications <b>help prevent asthma flare-ups.</b></li> <li>■ Controller medications <b>can NOT stop a sudden or severe asthma flare-up.</b> For flare-ups, use your quick-relief or oral steroid medication as directed in your Action Plan.</li> </ul>	<b>Still having symptoms while taking your controller medications?</b> Talk to your healthcare provider. Your goal is to stay symptom-free most of the time.

### Examples of controller medication:

- **Corticosteroids** (inhaled):
  - fluticasone (**Flovent**)
  - budesonide (**Pulmicort**)
  - beclomethasone (**Qvar**)
  - mometasone furoate (**Asmanex**)
- **Long-acting beta<sub>2</sub>-agonists, called LABAs** (inhaled):
  - salmeterol (**Serevent**)
  - formoterol (**Foradil**)
- **Combination medications:** corticosteroid + long-acting beta<sub>2</sub>-agonist (inhaled):
  - fluticasone/salmeterol (**Advair**)
- **Mast-cell stabilizers** (inhaled):
  - nedocromil (**Tilade**)
  - cromolyn (**Intal**)
- **Leukotriene modifiers** (inhaled):
  - montelukast (**Singulair**)
- **Methylxanthines** (pills or liquid taken by mouth)
  - sustained-release theophylline

#### Note:

Serevent and Foradil—which are long-acting beta<sub>2</sub>-agonists—should not be used alone, but rather in addition to corticosteroids.

### WHAT THE EXPERTS SAY

Experts from the National Institutes of Health recommend the use of inhaled corticosteroids for everyone with persistent asthma (mild, moderate, or severe). Studies show that inhaled steroids improve asthma control better than other controller medications. That's because they help control inflammation, the underlying cause of asthma symptoms.



## BE PREPARED!

Even in a person with mild asthma, asthma symptoms can come on fast—and get worse quickly. Make sure you're prepared to treat flare-ups by doing the following:

**Carry your quick-relief medication with you always.** You want to be able to treat symptoms as soon as they start.

**Keep an oral steroid medication at home,** if you have a prescription for one. When your Action Plan tells you to take oral medications, you'll need it on hand.

**Take your asthma medications with you when you travel.** You can't always predict when you'll encounter an asthma trigger in a new place.

**Myth:** "Steroids aren't safe."

**Truth:** Actually, the inhaled corticosteroids you take for your asthma are quite safe, even for young children. These steroids are different from the anabolic steroids that some bodybuilders use to build muscle. They won't make you more muscular or more violent—but used correctly, they **WILL** help you control your asthma. As with any medication, there are possible side effects to corticosteroids— but benefits for asthma control far outweigh the risks.

## WHAT ABOUT ORAL STEROIDS?

In addition to the inhaled corticosteroids used as a controller medication, your doctor may prescribe a second corticosteroid for you. Because they're usually taken by mouth as pills or liquids, these medications are often called simply "**oral steroids.**" Examples include the following:

- prednisone (Deltasone, Meticorten, Orasone)
- prednisolone (Orapred, Pediapred, Prelone)
- methylprednisolone (Medrol, Solu-Medrol)
- dexamethasone (Decadron)

Oral steroids are generally used for only 3 to 10 days to help control a flare-up that isn't responding to quick-relief medication. They are potent medications that help stop inflammation in your lungs. If you have a prescription for oral steroids, your Action Plan will tell you when you need to take them.



## MEDICATION DELIVERY DEVICES

There are several different devices used to help people inhale (breathe in) asthma medication and send it right into the lungs, where it's needed.

### Inhalers

Many asthma medications come in small, hand-held devices called **inhalers**. Because they deliver medication in fixed, measured amounts, they're also called **metered dose inhalers**, or **MDIs**. Some inhalers have a pressurized canister that sprays out medication when you press down on it. Other inhalers contain powdered medication that's released when you breathe in through a mouthpiece. A few common inhaler types appear below.



*For instructions on using a standard, "press-and-breathe" type of inhaler—like the one shown above left—see page 38.*



### Nebulizer

A **nebulizer** is a device that turns asthma medication into a fine mist that you can easily breathe into your lungs. Doctors commonly prescribe nebulizers to children, who may have trouble using inhalers. Nebulizers may also work best for people with severe asthma, who may not be able to take in a deep enough breath to use an inhaler. As with an inhaler, it's important to work with your doctor or asthma educator to make sure you're using your nebulizer correctly.



*For instructions on using a nebulizer—see page 42.*



## The **right** medication, the wrong way?

If your symptoms don't improve with medication, it might be because you're not using the device properly.

For example, if you aren't using your inhaler correctly, most of the medication will end up in your mouth and throat, instead of in your lungs where you need it to work.

To make sure you're getting the most from your asthma medication:

- **Always follow the instructions** for your specific brand of inhaler or nebulizer
- **Have your doctor or asthma educator check** to make sure you're using your device correctly.

## TIPS FOR STAYING ON SCHEDULE

Once you perfect your technique for using an inhalation device, you still have another challenge—remembering to take your medications. Try these tips to stay on schedule:

- **Keep your medications in plain sight.** Remember the expression, “out of sight, out of mind”? To remind yourself to take your asthma medications, keep them on a counter, on your bedside table—anywhere you’ll see them often.
- **Make medications part of your routine.** Try to take your controller medications at the same time every day. One way to do this is to take your medications at the same time you do other daily activities—like brushing your teeth or eating a meal.
- **Organize your pills.** If you’re taking asthma medications in pill form, keep pills in a container with a compartment for each day of the week.
- **Get a 3-month supply if you can.** Call your health insurance company to see if they allow you to get a 3-month supply of asthma medication from a local or mail-order pharmacy. This service can save you time and help make sure you always have enough medication on hand. It can also save you money—you may only have to pay one or two co-pays for the 3-month supply.
- **Track your inhaled doses.** Some inhalers automatically count how much medication you’ve used, or how much is left inside the device. Other inhalers—like the standard “press-and-breathe” inhalers—don’t. You’ll have to keep track yourself. Here are two ways to do this.

- Use a calendar to mark the doses you’ve taken—and when you’ll need to refill your prescription.
- Label your inhaler. For daily controller medications, write the date you start using the medication, and the date you should discard it. For quick-relief medications, mark off each dose you use. See page 41 for details on tracking your doses.



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*At first, I didn’t really want to take my asthma medicine. I’d skip doses all the time. Taking any kind of drug made me feel like I was sick. After a few more flare-ups though, my attitude changed. Now I feel like my meds are a healthy thing. If I take them consistently, I hardly ever have problems.*

—Damian, age 28

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## Tips for Parents

Children have special challenges in taking daily medications. Below are some tips to help you and your child establish a good routine and work together to solve problems.

Establish good routines for taking medication.

### 0-3 years (infants and toddlers)

- **Prepare and practice together.** Give very simple explanations of what you're doing and why ("I'm going to put this mask on you to help you breathe better"). First "practice" the procedure on yourself, a doll, or a stuffed animal—then let your child have a turn at practice. Give toddlers as much control as possible by giving them choices (for example, where to have a treatment, or whether to sit on the bed or a parent's lap).
- **Help your child relax.** Try swaddling—not just with a blanket, but also with your body. Make a soothing "sh-sh-sh" sound, or talk in a calm, soothing voice. Listen to lullabies or other relaxing music. Try rocking, bouncing, swaying, or walking with your child in your arms.
- **Distract your child.** Offer musical or light-up toys, pop-up books, bubbles, or other distractions while you're giving medication.
- **Give immediate rewards.** After giving medication, follow up with a treat such as a special activity or book. Praise your child for taking the medication (even if it has been a struggle).



## 3-5 years (pre-schoolers)

- **Prepare and practice.** Tell your child specifically what they will feel, hear, smell, taste, and see. Practice giving medication to a doll or stuffed animal together. Provide choices about where to take the medication, whether to sit or stand, and so on.
- **Help your child relax.** Listen to favorite music. Have your child take deep breaths and let toes, fingers, hands, and arms go limp. Tell a joke or watch a funny cartoon (humor relaxes most of us).
- **Distract your child.** While giving medication, tell a story, or talk about child's favorite place or thing to do. Read a book or do a puzzle together.
- **Offer rewards.** Award a token (such as a sticker) each time your child takes medication easily. Once your child has earned a certain number of tokens, trade the tokens for a treat.

### HOW ASTHMA-FRIENDLY IS YOUR CHILD'S SCHOOL OR DAY CARE?

The National Institutes of Health (NIH) can help you find out. See the fact sheets available online at [www.nhlbi.nih.gov/health/public/lung/](http://www.nhlbi.nih.gov/health/public/lung/). Information is in English and Spanish.



## 6-12 years (school-age children)

- **Prepare your child.** Just as with younger children, you need to explain why the medication is needed, and what it will feel like to take it.
- **Involve your child.** Let your child have as much control as possible over the process of taking medication. Talk with your child about how to make taking medication more fun, or easier to remember.
- **Help your child relax.** Listen to music, take deep breaths, or do other things that your child finds calming.
- **Offer rewards.** As long as they are age-appropriate, rewards will work just as well for school-age children as they do for younger kids. You can space the rewards farther apart than with younger children.



## 13-18 years (teens)

- **Explain asthma and asthma treatment fully.** Don't assume that your teen knows the whys and hows of taking medication. Explain why some medications will be more effective if taken routinely. Also explain the consequences of NOT taking medication—for example, your child may risk missing school or a special event.
- **Agree on a plan.** First, work with your teen to create a plan that will help your teen to remember to take medications. Next, problem solve together. If your teen routinely forgets medication or resists taking it, try to tackle the problem together. Ask, "What don't you like about taking your medication?" and "What can we do to make this easier?"
- **Offer rewards if necessary.** Teens don't usually need rewards or treats to take their medication—but you might try them if your teen is having trouble staying motivated.



**Myth:** "Asthma means you can't play sports."

**Truth:**

You should be able to play any sport—even a demanding endurance sport—if you follow a treatment plan to control your asthma. Many top athletes have asthma. Often, they take inhaled corticosteroids as a controller medication to prevent airway inflammation and help them perform their best. These are NOT the same as the anabolic steroids banned by sports organizations such as the National Collegiate Athletic Association (NCAA) or the International Olympic Committee (IOC).



“What will my friends think?”

## Helping your child adjust to an asthma diagnosis

If having asthma makes your child feel “weird,” you’ll need to address this feeling—or risk having your child resist treatment. Here are a few things you can do to help your child adjust:

- Do everything you can to understand your child’s asthma and get comfortable with your child’s treatment. If YOU act like asthma is a tragedy—or if you question the need for treatment—your child will probably do the same.
- Arrange for your child to take medication at a time, and in a way, that other kids won’t notice.
- Give your child the words for talking to their friends about the need for medication. For example, your child might simply say, “I have asthma. It means my lungs get bothered by certain things—so I take medication to help them work well.”
- Visit your child’s school and explain asthma to the students and teachers.



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*We really want our 5-year-old, Reuben, to feel okay about taking his medicines—even in front of his friends. So we say that just like Popeye eats a can of spinach to get big muscles—Reuben can sometimes take a puff to get strong. It works! Reuben will take a puff, then make a big muscle...it’s fun. I think maybe his friends even think it’s cool.*

—David, father of a 5-year-old with asthma

”



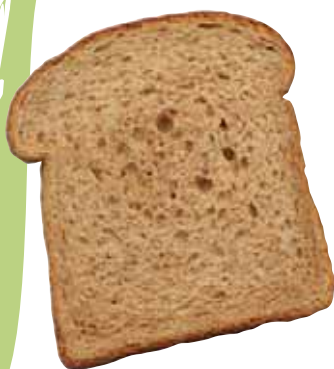
### The “yuck” factor

Some asthma medications don't taste very good. Using a spacer with your inhaler will help a lot. So will drinking a good-tasting juice after taking medication.

### Following up

Research shows that over time, most people—both adults and children—tend to become a bit careless about taking medication. To make sure your child stays on track, try these tips:

- **Follow up whenever medications need to re-ordered.** Has your child used up as much medication as you would expect? If not, they're probably skipping doses.
- **Specifically ask your older child:** “How many times did you take your medication this week?” Phrasing your question in this specific way encourages a truthful answer.
- **Encourage your child to re-establish a good routine** by keeping track of their medication use with a chart for a month to six weeks.
- **Stay alert to changes in your child's habits and attitudes.** As your children grow, developmental issues and schedule changes can affect their progress. The beginning of the school year may be a good time to talk with your child about asthma. It's also a good time to include a new teacher in your child's asthma team.
- **Don't forget to praise and reward your child for following their [Asthma Action Plan](#) and taking the [Asthma Control Test](#).**



### Pill Practice

If your child has trouble swallowing pills, try this:

- Start by rolling a tiny piece of bread in a ball and have your child swallow it.
- Slowly work up to larger balls until the bread “pills” are the size of your child's real pills.

Because bread tastes good and won't scratch the throat, this is a great way to teach pill swallowing.

## Solving problems

If you find that your child isn't taking medication properly, you need to talk about why. Keep the tone positive and encouraging. Start by pointing out what IS working, then go on to explore the following possible problems together:

- **"I don't WANT to take my medication!"** If your child actively resists taking medication, find out why. Is he embarrassed? Does the medication taste bad? Are medication side effects bothering her? Work with your child and your child's healthcare providers and teachers to find ways to minimize these problems.
- **"It's too hard."** Make sure your child understands when and how to take various medications. (The Asthma Action Plan can help here.) Have your doctor or asthma educator reinforce your child's technique for taking inhaled medications. If your child has a hard time taking pills, try having them practice by swallowing tiny bread balls to get used to the feeling.
- **"I don't need medication."** There are lots of reasons why children might think they don't need medication. First, they might have become used to poor lung function and think that it's normal. They could be practicing "wishful thinking"—deciding that their asthma has gone away. (Just because you don't have symptoms now doesn't mean your asthma is gone!) Or perhaps they're not getting much benefit from their medication anyway—in which case, they need to have their treatment adjusted. Make an appointment with your child's doctor to review and agree upon an Asthma Action Plan.

If you've tried these tips without success, consider having your child talk to a professional counselor.



“

*Last year I went on a vacation with my family. Before I went, I was worried about having an asthma attack while I was there. We were going during hay fever season! So I reviewed my treatment with my doctor. We came up with a plan, and I followed it during my trip. It worked—I had no problems at all.*

*I'm really grateful for these medications. As long as I take them right, I feel like there's nothing I can't do.*

—Christian, a long-time asthma patient

”



## Peak flow: an early warning system

Since your peak flow score often drops before you notice any symptoms, you can use it as an early warning system for asthma flare-ups.

## HOW TO MONITOR YOUR PEAK FLOW

Your doctor or asthma educator may ask you to regularly monitor your peak flow. Your peak flow can tell you a lot about how well your lungs are working—and how well your asthma is controlled. Peak flow is measured using an inexpensive, handheld device called a peak flow meter.

### HOW TO MEASURE YOUR PEAK FLOW

Correct peak flow technique is important. Your healthcare provider should show you (or your child) how to use a peak flow meter, and should review the technique from time to time. In general, follow these steps:



- 1 Move the pointer to the lowest setting on the scale.
- 2 Stand up.
- 3 Take a very deep breath. (Fill your lungs all the way.)
- 4 Hold your breath while placing the mouthpiece in your mouth, between your teeth.
- 5 Close your lips around the mouthpiece.
- 6 Blow out as hard and as fast as you can in a single blow (about 1 second or less). The peak flow meter measures how quickly you can blow air out. Be sure to blow from deep in your lungs—not from your mouth.
- 7 If you make a mistake or cough, don't accept the reading. Do the test over again.
- 8 Repeat steps 1-7 two more times. The highest of your 3 scores is your peak flow.



## DETERMINING YOUR “PERSONAL BEST”

Take peak flow readings for 2 weeks, when you’re feeling well and your asthma is under control. Write the highest number you get each day—morning and evening—in the chart below. The highest score over the 2-week period is your personal best. This is the number that you should compare to future peak flow readings. This number may change over time. So from time to time, you might want to repeat this exercise for another 2-week period when you’re feeling well.

Record of “personal bests” over a 2-week period

	Sun		Mon		Tues		Wed		Thurs		Fri		Sat	
	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm
Week 1														
Week 2														

## DETERMINING PEAK FLOW ZONES—YOUR ASTHMA ACTION PLAN

Fill in the chart below to determine the ranges of your peak flow zones. These ranges can be used along with asthma signs and symptoms to monitor your asthma. Also fill in these ranges on your Asthma Action Plan.



**GREEN ZONE**  
(GO—MAINTAIN)  
80-100% of  
PERSONAL BEST

$\frac{\text{your personal best} \times 0.8}{\text{your personal best}}$



**YELLOW ZONE**  
(CAUTION—  
STEP UP THERAPY)  
50-80% of  
PERSONAL BEST

$\frac{\text{your personal best} \times 0.5}{\text{your personal best} \times 0.8}$



**RED ZONE**  
(STOP—GET  
HELP NOW!)  
< 50% of  
PERSONAL BEST

$< \frac{\text{your personal best} \times 0.5}{\text{your personal best} \times 0.5}$

## Keep a record

A record book may come with your peak flow meter. Use it faithfully to record your peak flows and help identify patterns of asthma symptoms—and how they relate to triggers and changes in asthma medicines. Bring your record book to each visit to your healthcare provider.



## HOW TO USE A “PRESS-AND-BREATHE” INHALER

The standard “press-and-breathe” inhaler consists of a pressurized canister, a plastic holder, and a cap. It sprays a fixed amount of medication (called a metered dose) in through your mouth when you press down on the canister. For best results, especially with certain medications, your doctor or asthma educator may recommend you use your inhaler with a spacer (also called a holding chamber or valved holding chamber).

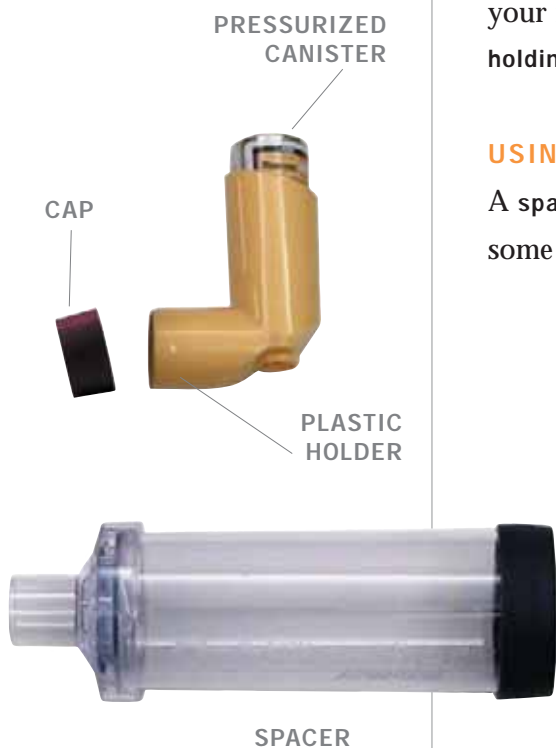
### USING AN INHALER WITH A SPACER

A spacer is a special tube that attaches to your inhaler. Here are some reasons your doctor may recommend a spacer for you:

- It helps prevent medication from being lost in the surrounding air and upper airway. This increases the amount of medication that makes it to your lungs.
- If you’re using an inhaler that contains steroids, using a spacer can help prevent unwanted side effects such as thrush (a yeast infection in your mouth), hoarseness, and a sore throat.
- Using a spacer is easier for many patients. A spacer can be used with a mouthpiece (best for most patients) or a mask (for young children or others who have difficulty using the mouthpiece).

### USING AN INHALER WITHOUT A SPACER

Using an inhaler without a spacer is discouraged with some medications such as inhaled steroids. If you do use an inhaler without a spacer, use the **open-mouth technique** described on the following page. (If you’re using a breath-actuated device—such as a Maxair Autohaler or a Turbuhaler—you’ll have to use a closed-mouth technique. Follow the instructions provided with your prescription.)



Inhalers are the most common device for delivering asthma medications. This is because these inhalers—when used correctly—deliver the right amount of medication directly to the lungs where it is needed most. To get the most benefit from asthma medication, it’s important to learn to use your inhaler correctly.



## INSTRUCTIONS FOR USING A PRESS-AND-BREATHE INHALER

- 1 Remove the cap from the inhaler, and from the spacer if necessary.
- 2 Prime the inhaler (squirt a puff into the air) if necessary. This type of inhaler needs to be primed before you take a puff from a new canister—or if the inhaler has not been used in the last 48 hours. Check the package insert for specific priming instructions.
- 3 If you're using a spacer, insert the inhaler into the rubber end of the spacer.
- 4 Shake the inhaler well immediately before each puff to mix and warm the contents.
- 5 Breathe out.

### If you're using a spacer with a mouthpiece



- 6 Place the mouthpiece fully into the mouth between the teeth, holding the inhaler upright and closing the lips around the mouthpiece.
- 7 Press the canister down to release a puff of medication.
- 8 Breathe in deeply and slowly—for 3 to 5 seconds—through your mouth.
- 9 Hold your breath for 10 seconds.
- 10 Remove the spacer from your mouth and breathe out slowly.
- 11 Repeat steps 4 through 10 for each inhalation prescribed by your doctor.

### If you're using a spacer with a mask



- 6 Place the mask over the patient's mouth and nose, with the inhaler upright. Maintain the seal between the face and mask.
- 7 Press the canister down to release a puff of medication.
- 8 Encourage the patient to breathe in deeply and slowly—for 3 to 5 seconds—when possible.
- 9 Maintain the seal for 6 breaths while the patient breathes in, then remove the mask from their face.
- 10 Repeat steps 4 through 9 for each inhalation prescribed by your doctor.

### If you're using the open-mouth technique



- 6 Position the canister mouthpiece about 1½ to 2 inches in front of your OPEN mouth. Do not place the mouthpiece in your mouth with your lips closed around it.
- 7 Start breathing in deeply and slowly—for 3 to 5 seconds—through your mouth while pressing the canister down to release a puff of medication.
- 8 Hold your breath for 10 seconds, then breathe out slowly.
- 9 Repeat steps 4 through 8 for each inhalation prescribed by your doctor.

*Note: If you're using an inhaler with a steroid, rinse your mouth with water after each use.*



### Helping your child use a mask: **persistence pays!**

Young children are the most common users of spacers with masks. But at first, children tend to resist having a mask put over their faces.

What can you do to help your child adjust? Be consistent in giving the medication! Eventually children will cooperate if you let them know you're serious about treating their asthma. By contrast, if children get the idea that treatment is optional, they'll probably continue to resist.



### CLEANING YOUR INHALER AND SPACER

It is important to wash your press-and-breathe inhaler and your spacer regularly.

**Clean the inhaler thoroughly and frequently:**

- 1 Remove the metal canister and cleanse the plastic case and cap by rinsing thoroughly in warm, running water. Be sure to clear medication build-up from the spray nozzle.
- 2 Thoroughly dry the plastic case and cap.
- 3 Gently replace the canister in the case with a twisting motion, and put the cap back on the mouthpiece.

**Clean the spacer prior to first use and weekly thereafter:**

- 1 Remove the rubber end piece and wash the spacer in mild detergent (dishwashing liquid works well) and warm water.
- 2 After washing, allow the spacer to air-dry—don't wipe it dry. Air-drying will reduce the amount of medication pulled to the sides of the spacer by static charges.



*Clean your inhaler and spacer at least once a week to help keep medication from building up on them.*

## TRACKING YOUR DOSES

A good way to tell how much medication is left in your press-and-breathe inhaler is to track your use. “Puffing” your inhaler (pressing down to release a metered dose), floating your inhaler in water, or shaking your inhaler aren’t accurate ways to tell if any medication is left. That’s because even after the medication is gone, some of the propellant used to push the medication out will remain in the canister. So even an “empty” inhaler may still puff, float, or feel full. To track your use of asthma medication, follow the guidelines below:

### Daily controller medications

- 1 Check the canister label to see how many “puffs” (metered doses or actuations) it contains.  $\frac{\text{(number of puffs in canister)}}{\text{(number of puffs to take per day)}}$
- 2 Figure out how many puffs you will take per day (for example, 2 puffs, 2 times a day = 4 puffs a day).  $\div$
- 3 Divide your answer from step 1 by your answer from step 2.  $= \text{(number of days the inhaler will last)}$

#### Example:

Canister contains 120 puffs

You take 2 puffs, 2 times a day (4 puffs/day)

$$\begin{array}{r} 120 \\ \div 4 \\ \hline 30 \end{array}$$

(number of days the inhaler will last)

- 4 On the canister, write the date that you start the inhaler. Also write the date you should discard it (based on your calculations).
- 5 When you reach the “discard date,” throw away the canister and start a new one. If you keep an empty canister lying around, you’re likely to get it mixed up—and then you won’t have medication when you need it.

### Quick-relief medications

Since quick-relief medications aren’t usually taken on a regular basis, the guidelines above won’t work. Instead, place a blank mailing label on the inhaler, and mark off each dose you use, including any priming puffs.

## Track your medication!

The best way to tell when your inhaler is empty is to keep careful track of your puffs.



For daily controller medications, write the date that you start using the inhaler and the date you should discard it.



For quick-relief medications, place a blank mailing label on the inhaler and mark off each dose you use.

## HOW TO USE A NEBULIZER

A nebulizer uses forced air to turn asthma medication into a fine mist so that it can easily be breathed into the lungs. For some people—and with some medications—nebulizers are the most effective way of delivering inhaled medications.

A nebulizer consists of the following components:

- A compressed air machine
- A medication cup to contain the medication
- Thin plastic tubing that connects the medication cup to the compressed air machine
- A facemask or mouthpiece used to breathe in the mist



Using a nebulizer with either a facemask or a mouthpiece—and following the directions provided here—will help ensure that you or your child receive as much of the medication as possible.



*A snug-fitting FACEMASK should be used if the person receiving the treatment is unable (or unlikely) to breathe only through the mouth during the treatment.*



*A MOUTHPIECE can be used for all other people.*

## INSTRUCTIONS

If a nebulizer is recommended for you or your child, your doctor or asthma educator will provide specific instructions for using it. Here are some general instructions:

- 1 Fill the medication cup with the prescribed amount of medication(s).
- 2 Connect the tubing.
- 3 Sit upright to make deeper breaths possible.
- 4 Holding the medication cup upright, insert the mouthpiece or put the mask up to the face.
- 5 Turn the machine on.
- 6 If possible, breathe deeply and slowly through your mouth.
- 7 Tap the medication cup if the contents begin to sputter before the medication is gone.

### Blow-by technique—do not use!

“Blow-by” refers to the practice of directing the mist stream of the nebulizer toward the mouth and nose of the person receiving the treatment. As the name suggests, most of the medication blows right by and never reaches the patient. Even if the outlet of the nebulizer is placed ½-inch from the mouth and nose, most of the medication is lost to the surrounding air. If your child has difficulty using a mouthpiece—and resists using a mask—try the tips at right.

## CLEANING AND MAINTENANCE

The parts of the nebulizer need regular cleaning and inspection. Clean the various parts of the nebulizer with each use, and replace them according to the manufacturer’s recommendations. Sometimes the company that provides you with the equipment will check your equipment for you.



### Helping your child adjust to a nebulizer with a mask

Young children are the most common users of nebulizers with masks. To help children adjust to the mask, try the following tips:

- Invite the child to explore the mask and practice having it over their face or to pretend giving it to a doll or parent.
- When appropriate, encourage the child to participate in holding the mask during the treatment.
- If the child has difficulty holding still while using the mask, provide a small incentive or distraction.
- If the preceding tips do not work, you may need to gently hold the child while using the mask.

### PERSISTENCE PAYS!

Children who resist the mask at first will eventually cooperate if treatments are given consistently. If children sense that treatments are optional, they will likely continue to resist.



## RESOURCES

Contact these groups to learn more about asthma:



### Allergy and Asthma Network—Mothers of Asthmatics

2751 Prosperity Ave.,  
Suite 150  
Fairfax, VA 22031

**1-800-878-4403**  
[www.aanma.org](http://www.aanma.org)

### American Academy of Allergy, Asthma, and Immunology

611 East Wells Street  
Milwaukee, WI 53202

**(414) 272-6071**  
[www.aaaai.org](http://www.aaaai.org)

### American Lung Association

61 Broadway, 6th Floor  
NY, NY 10006

**1-800-LUNG-USA**  
[www.lungusa.org](http://www.lungusa.org)

For information on **Camp Wyatt**, an asthma camp for kids, call the Utah chapter of the ALA at (801) 484-4456.

### Intermountain Healthcare

Asthma Online Center includes asthma education class schedules  
[www.intermountainhealthcare.org/asthma](http://www.intermountainhealthcare.org/asthma)

Primary Children's Hospital/KidsHealth  
[www.primarychildrens.org](http://www.primarychildrens.org)

also **Primary Children's Asthma Education Classes** Free to the public,  
Mon-Sat 9-11 AM.  
**Scheduling, call:**  
**801.662.2690**

### Asthma and Allergy Foundation of America

1233 20th Street, NW, Suite 402  
Washington, D.C. 20036

**1-800-7-ASTHMA**  
[www.aafa.org](http://www.aafa.org)

### National Jewish Medical and Research Center—Lung Line

1400 Jackson Street  
Denver, CO 80206

**1-800-222-LUNG**  
(to talk with a nurse)  
[www.njc.org](http://www.njc.org)

### National Asthma Education and Prevention Program

P.O. Box 30105  
Bethesda, MD 20824-0105

**(301) 592-8573**  
[www.nhlbi.nih.gov/about/naepp](http://www.nhlbi.nih.gov/about/naepp)

### Asthma Action America

1901 L Street, NW  
Suite 300  
Washington, DC 20036

[www.asthmaactionamerica.org](http://www.asthmaactionamerica.org)

### Starbright Foundation

Free asthma CD-ROM game with parent guide (English and Spanish) available at:

[www.starbright.org](http://www.starbright.org)





Date \_\_\_\_\_ Patient name \_\_\_\_\_ DOB \_\_\_\_\_  
MD \_\_\_\_\_ MRN \_\_\_\_\_ ☐ Reviewed with: guardian/patient Verbalized understanding ☐ yes ☐ no

# Asthma ACTION PLAN

- Breathing is easy
- No coughing
- No wheezing
- No shortness of breath
- Can work, play, and sleep easily
- Using quick-relief medication less than twice a week
- **PEAK FLOW**  
80%–100% of personal best

\_\_\_\_\_ – \_\_\_\_\_

- Using quick-relief medication more than twice a week\*
- Coughing
- Wheezing
- Shortness of breath
- Difficulty with physical activity
- Waking at night
- Tightness in chest
- **PEAK FLOW**  
50%–80% of personal best

\_\_\_\_\_ – \_\_\_\_\_

\*You might need a change in your treatment plan

- Medication is not helping
- Breathing is very difficult
- Cannot walk or play
- Cannot talk easily
- **PEAK FLOW**  
Less than 50% of personal best

\_\_\_\_\_



Avoid these asthma triggers: \_\_\_\_\_

Take CONTROLLER medication: \_\_\_\_\_

Take QUICK-RELIEF medication:

☐ Before exercise: \_\_\_\_\_

☐ Before exposure to a trigger: \_\_\_\_\_

Keep ORAL STEROIDS on hand in case you fall into STEP 3 of the yellow zone or into the red zone.

STEP 1: Add QUICK-RELIEF medication:

STEP 2: Monitor your symptoms:

- If symptoms **GO AWAY** quickly, return to the green zone.
- If symptoms **CONTINUE** or return within a few hours:

☐ Add \_\_\_\_\_

STEP 3: Continue monitoring your symptoms:

- If symptoms **CONTINUE** after step 2 treatment:

☐ Add \_\_\_\_\_

*oral steroid medication*

☐ Call your healthcare provider: \_\_\_\_\_

☐ Call your healthcare provider: \_\_\_\_\_

If you can't reach your healthcare provider quickly, go to the nearest hospital emergency room or call 911 immediately.

☐ Go to the hospital emergency room or call 911 immediately.

- If you have an oral steroid at home, take \_\_\_\_\_ mg of \_\_\_\_\_ as you leave for the hospital.

- Continue to use your quick-relief medication \_\_\_\_\_ as you go to the emergency room.

**Asthma symptoms can get worse quickly. When in doubt, seek medical help.**

# Childhood Asthma Control Test for children 4 to 11 years old. Know the score.

This test will provide a score that may help your doctor determine if your child's asthma treatment plan is working or if it might be time for a change.

## How to take the Childhood Asthma Control Test

**Step 1** Let your child respond to the first four questions (1 to 4). If your child needs help reading or understanding the question, you may help, but let your child select the response. Complete the remaining three questions (5 to 7) on your own and without letting your child's response influence your answers. There are no right or wrong answers.

**Step 2** Write the number of each answer in the score box provided.

**Step 3** Add up each score box for the total.

**Step 4** Take the test to the doctor to talk about your child's total score.

**19  
or less**





If your child's score is 19 or less, it may be a sign that your child's asthma is not controlled as well as it could be. Bring this test to the doctor to talk about the results.

## Have your child complete these questions.

### 1. How is your asthma today?

 <p><b>0</b> Very bad</p>	 <p><b>1</b> Bad</p>	 <p><b>2</b> Good</p>	 <p><b>3</b> Very good</p>
--	---	--	---


### 2. How much of a problem is your asthma when you run, exercise or play sports?

 <p><b>0</b> It's a big problem, I can't do what I want to do.</p>	 <p><b>1</b> It's a problem and I don't like it.</p>	 <p><b>2</b> It's a little problem but it's okay.</p>	 <p><b>3</b> It's not a problem.</p>
---	---	--	---

### 3. Do you cough because of your asthma?

 <p><b>0</b> Yes, all the time.</p>	 <p><b>1</b> Yes, most of the time.</p>	 <p><b>2</b> Yes, some of the time.</p>	 <p><b>3</b> No, none of the time.</p>
--	--	--	---

### 4. Do you wake up during the night because of your asthma?

 <p><b>0</b> Yes, all the time.</p>	 <p><b>1</b> Yes, most of the time.</p>	 <p><b>2</b> Yes, some of the time.</p>	 <p><b>3</b> No, none of the time.</p>
--	--	--	---

## Please complete the following questions on your own.

### 5. During the last 4 weeks, how many days did your child have any daytime asthma symptoms?

<b>5</b> Not at all	<b>4</b> 1-3 days	<b>3</b> 4-10 days	<b>2</b> 11-18 days	<b>1</b> 19-24 days	<b>0</b> Everyday
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------

### 6. During the last 4 weeks, how many days did your child wheeze during the day because of asthma?

<b>5</b> Not at all	<b>4</b> 1-3 days	<b>3</b> 4-10 days	<b>2</b> 11-18 days	<b>1</b> 19-24 days	<b>0</b> Everyday
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------

### 7. During the last 4 weeks, how many days did your child wake up during the night because of asthma?

<b>5</b> Not at all	<b>4</b> 1-3 days	<b>3</b> 4-10 days	<b>2</b> 11-18 days	<b>1</b> 19-24 days	<b>0</b> Everyday
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------

SCORE








TOTAL



GlaxoSmithKline

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# Take the Asthma Control Test™ (ACT) for people 12 years and older. Know your score. Share your results with your doctor.

- Step 1** Write the number of each answer in the score box provided.
- Step 2** Add up each score box for your total.
- Step 3** Take the test to the doctor to talk about your score.

**1. In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or home?**

All of the time	1	Most of the time	2	Some of the time	3	A little of the time	4	None of the time	5
-----------------	---	------------------	---	------------------	---	----------------------	---	------------------	---

**2. During the past 4 weeks, how often have you had shortness of breath?**

More than once a day	1	Once a day	2	3-6 times a week	3	Once or twice a week	4	Not at all	5
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**3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?**

4 or more nights a week	1	2 or 3 nights a week	2	Once a week	3	Once or twice	4	Not at all	5
-------------------------	---	----------------------	---	-------------	---	---------------	---	------------	---

**4. During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?**

3 or more times per day	1	1 or 2 times per day	2	2 or 3 times a week	3	Once a week or less	4	Not at all	5
-------------------------	---	----------------------	---	---------------------	---	---------------------	---	------------	---

**5. How would you rate your asthma control during the past 4 weeks?**

Not controlled at all	1	Poorly controlled	2	Somewhat controlled	3	Well controlled	4	Completely controlled	5
-----------------------	---	-------------------	---	---------------------	---	-----------------	---	-----------------------	---

SCORE

TOTAL



The American Lung Association supports the Asthma Control Test™ and does not endorse products.

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**19**  
or less

If your score is 19 or less, your asthma may not be controlled as well as it could be. Talk to your doctor.



GlaxoSmithKline

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