

# Asthma



**Note:** The instructions for administering asthma medication found in this chapter should not be substituted for those given by a medical professional to an individual person. Nor should these instructions be substituted for directions given by a medical professional in consultation with a site where asthma medication will be administered. Consult a health care professional for specific advice on the use of asthma inhalers and nebulizers.

**A**sthma is a life-long lung disease. It affects millions of adults and children in the United States. Cases of severe asthma and deaths from asthma are increasing. As a first aid responder, there is a good chance that you could be asked to help a person with a breathing emergency caused by asthma.

In this chapter, you will read about how to identify the signals of an asthma attack. This chapter also covers how to give care to a person having an asthma attack, which includes helping the person to use an inhaler to administer quick-relief medications.

# ASTHMA

Asthma is an illness in which certain substances or conditions, called “triggers,” cause inflammation and constriction of the *airways* (small tubes in the lungs through which we breathe), making breathing difficult. Triggers of an asthma attack include exercise, cold air, allergens or irritants, such as perfume.

In 2008, the Centers for Disease Control and Prevention (CDC) estimated that over 23 million Americans were affected by asthma. Asthma is more common in children and young adults. However, its frequency and severity is increasing in all age groups in the United States. Asthma is the third-ranking cause of hospitalization among those younger than 15 years.

People diagnosed with asthma can reduce the risk of an attack by controlling environmental variables when possible. This helps to limit exposure to the triggers that can start an asthma attack.

When an attack does occur, they can use medications and other forms of treatment. Asthma medications stop the muscle spasm and open the airway, which makes breathing easier.

## Asthma Triggers

A trigger is anything that sets off or starts an asthma attack. A trigger for one person is not necessarily a trigger for another. Asthma triggers include the following:

- Dust and smoke
- Air pollution
- Respiratory infections
- Fear or anxiety
- Perfume
- Exercise
- Plants and molds
- Medications, such as aspirin
- Animal dander
- Temperature extremes
- Changes in weather

These are only a few of the things that can trigger asthma in people.

## Preventing Asthma Attacks

Prevention is key. A person can follow these preventative measures to reduce his or her risk of an attack:

- Limit triggers in the home.
- Control emotions.

- Prevent infections.
- Reduce environmental triggers.
- Exercise carefully.

## Limiting Triggers in the Home

You can reduce the chances of triggering an asthma attack at home by:

- Keeping plants outside.
- Washing bedclothes and pajamas weekly in hot water.
- Using hypoallergenic covers on mattresses and pillows.
- Eliminating or reducing the number of carpets and rugs.
- Regularly steam cleaning all carpets, rugs and upholstery.
- Keeping the home clean and free of dust and pests—wet dusting can be more effective than dry dusting.
- Not allowing, or being around, smoke.
- Regularly changing the air filter in the central air conditioning or heating unit.
- Eliminating or minimizing the number of stuffed toys.
- Using hypoallergenic health and beauty products.
- Washing pets weekly.
- Keeping pets outside of the house.

## Controlling Emotions

Certain strong emotions can trigger an asthma attack. When you feel a strong emotion, such as anger or fear, the following suggestions can reduce the chances that the emotions will trigger an asthma attack:

- Take a long deep breath in through the nose and slowly let it out through the mouth.
- Count to 10.
- Talk with a family member, trusted friend or health care provider.
- Do a relaxing activity.

## Preventing Infections

Colds and other respiratory infections can make an asthma condition worse. One of the most common ways to catch colds is by rubbing the nose or eyes with hands contaminated with a cold virus. Contamination often occurs by touching surfaces (such as doorknobs) or objects that other people have touched.

Some ways to reduce the chances of getting a cold or other respiratory infection include:

- Washing hands regularly, especially after using the restroom or shaking hands with other people and before eating.

- Cleaning environmental surfaces, such as telephones and counters, with a virus-killing disinfectant. The viruses that cause colds can survive up to 3 hours on objects such as telephones, counters and stair railings. Disinfecting them regularly can help to prevent the spread of colds and viruses.
- Getting vaccinated for illnesses when a vaccine is available, such as for influenza and whooping cough (pertussis).

Your health care provider might have other suggestions based on your medical history.

## Reducing Environmental Triggers

Sudden changes in the weather, heavy mold or pollen content in the air and pollution can trigger an asthma attack. To avoid attacks brought on by triggers in the environment:

- Wear the right clothing for the weather conditions.
- Stay indoors on days when there is a high risk of respiratory trouble.
- Take preventative medications, as prescribed by your health care provider.
- Stay away from places with high amounts of dirt, smoke and other irritants.
- Know how the weather affects your condition.
- Talk to your health care provider about other prevention strategies.

## Exercising Carefully

Exercise-induced asthma happens during or shortly after exercise. Having this type of asthma does not mean one cannot or should not exercise or play sports. It is, however, important to know what to do to prevent an asthma attack. Things to keep in mind when you have exercise-induced asthma include the following:

- Take prescribed medications 30 to 60 minutes before exercising.
- Slowly warm up before exercising. Cool down gently after exercising.
- Make sure that you drink plenty of fluids during exercise.
- Seek and follow the advice of your health care provider.
- If participating in organized sports, notify the coach of your condition.

## Using Medications to Control Asthma

People who have been diagnosed with asthma will have a personalized medication plan. They should take all medications exactly as prescribed by their health care provider.

Asthma medications are available in two forms: long-term control and quick relief.

### Long-Term Control Medications

*Long-term control medications* prevent or reverse *inflammation* (swelling) in the airway. They also help to decrease sensitivity, which helps to keep the airways from reacting to asthma triggers.

The long-term control medicines work slowly. They help to control asthma over many hours. They should be taken every day whether or not signals of asthma are present.

### Quick-Relief Medications

*Quick-relief or rescue medications* are used to stop an asthma attack. These medications work quickly to relieve the sudden swelling. They lessen wheezing, coughing and chest tightness. This allows the person to breathe easier. They also are called *short-acting bronchodilators*.

### Methods of Delivery

The most common way to take long-term control and quick-relief asthma medications is by inhaling them. Inhalation allows the medication to reach the airways faster and work quickly. There also are fewer side effects.

Medications are inhaled using a metered dose inhaler (MDI), a dry powder inhaler (DPI) or a small-volume nebulizer (Fig. 10-1). Both long-term and quick-relief medications also are available in pill and liquid form. In addition, long-term medications are available in the form of an injection given just under the skin.



**FIGURE 10-1** Long-term and quick-release medications are inhaled using an MDI, a DPI or a small-volume nebulizer.



## MDI

An MDI sends a measured dose of medicine in mist form directly into the person's mouth. The person gently presses down the top of the inhaler. This causes a small amount of pressurized gas to push the medicine out quickly. Sometimes a "spacer" is used to control the amount of medication that is inhaled. The medicine goes into the spacer and then the person inhales the medication through the mouthpiece on the spacer.

## DPI

A DPI is similar to an MDI. It is a hand-held device that delivers a dry powder form of the medication. Some dry powders are tasteless. Others are mixed with lactose to give them a sweet taste. The DPI is administered by breathing in quickly to activate the inhaler. The person does not have to press down the top of the inhaler. DPIs may be difficult for some people to use because of the need to take in a quick, strong breath.

## Small-Volume Nebulizers

Small-volume nebulizers deliver medication in the form of a mist. The mist is delivered over several minutes. This is especially helpful when the person is unable to take deep breaths. Nebulizers are commonly used for children younger than 5 years and the elderly. They also are used for people who have trouble using inhalers and for those with severe asthma.

## What to Look For

You often can tell when a person is having an asthma attack by the hoarse whistling sound made while exhaling. This sound, known as *wheezing*, occurs because air becomes trapped in the lungs. Coughing after exercise, crying or laughing are other signals that an asthma attack could begin.

Signals of an asthma attack include:

- Trouble breathing or shortness of breath.
- Rapid, shallow breathing.
- Sweating.
- Tightness in the chest.
- Inability to talk without stopping for a breath.
- Feelings of fear or confusion.



**FIGURE 10-2** To assist a person having an asthma attack, remain calm and help the person to sit comfortably.

## When to Call 9-1-1

Call 9-1-1 or the local emergency number if the person's breathing trouble does not improve in a few minutes after using the quick-relief medication.

## What to Do Until Help Arrives

Remain calm. This will help the person to remain calm and ease breathing troubles. Help the person to sit comfortably (Fig. 10-2). Loosen any tight clothing around the neck and abdomen. Assist the person with his or her prescribed quick-relief medication if requested and if permitted by state or local regulations.

## PUTTING IT ALL TOGETHER

Asthma is a life-long lung disease that affects millions of adults and children in the United States. Asthma can be controlled. Knowing the triggers for asthma and how to limit those triggers, and taking prescribed medications as directed can help to prevent an asthma attack.

It is important to be prepared to help people with breathing emergencies caused by asthma. The first step is to know the signals of an asthma attack. When you recognize the signals, act quickly and give appropriate care. Your care could help to save the life of a person with asthma.