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**Introduction to Asthma**

**What is asthma?**

When you breathe, air passes through your nose and down your throat into your lungs. Inside your lungs are branching tubes called airways. Asthma is a chronic (long-term) disease of the airways in the lungs. With asthma, the airways are often swollen and red (or inflamed). This makes them extra sensitive to things that you are exposed to in the environment every day or asthma “triggers.” A trigger could be a cold, the weather, or things in the environment, such as dust, chemicals, smoke and pet dander.

When someone with asthma breathes in a trigger, the insides of the airways make extra mucus and swell even more. This narrows the space for the air to move in and out of the lungs. The muscles that wrap around your airways can also tighten, making breathing even harder. When that happens, it’s called an **asthma flare-up, asthma episode or asthma “attack”** (American Lung Association, 2013).

![Asthma and Your Airways](image)

Asthma can start at any age. Sometimes, people have asthma when they are very young and as their lungs develop, the symptoms go away. Even when this happens, there is a possibility that asthma will come back later in life. Sometimes, people get asthma for the first time when they are older.

If you have asthma, you have it all the time. In most cases, we don’t know what causes asthma, and we don’t know how to cure it. We do know that if someone in your family has asthma you are more likely to have it.

Asthma is common! About 6 to 12 of every hundred adults have asthma. Some risk factors that might increase your chance of getting asthma include:

- allergies, such as eczema or seasonal being overweight
- smoking or being exposed to second hand smoke
- being exposed to exhaust, chemicals or irritants (as in auto repairs, farming, hairdressing, baking and manufacturing)
- having allergies
**Asthma symptoms**
The main symptoms experienced in asthma are:

- Chest Tightness
- Cough
- Shortness of Breath
- Wheezing

These asthma symptoms happen when the airways in your lungs become smaller. The airways become inflamed (swollen), muscles around the airways tighten (constrict) making them smaller, and more mucus is produced. This makes it hard for air to flow in and out of your lungs. This results in an increase in asthma symptoms, possibly leading to an “asthma attack.”

Not everyone who has asthma will have all of these symptoms. Not everyone who has these symptoms has asthma. Your doctor will confirm a diagnosis of asthma by checking how your lungs are working (lung function tests), a physical exam, and your medical history.

**Asthma control**
Your asthma treatment focuses on keeping your asthma well-controlled, which means:

- You have no symptoms (or if you do have symptoms, you only need to take quick-relief medicine no more than 2 days a week. More information about quick-relief and controller medicines is in TAB 7.
- You do not wake up with asthma symptoms (or if you do wake up with asthma symptoms, this happens no more than 2 nights a month).
- You can complete all your normal life activities.
- You have no asthma attacks (or no more than one asthma attack a year).
- If you use a peak flow meter, your peak flow measurement does not drop below 80 percent of your personal best.

A good way to help you know if your asthma is in control is to think about the **Rules of Two®**:  

**Do You:**

- Have asthma symptoms or take your quick-relief inhaler more than Two times a week?
- Awaken at night with asthma symptoms more than Two times a month?
- Refill your quick-relief inhaler more than Two times a year?
- Measure your peak flow at less than Two times 10 (20%) with asthma symptoms?

If you answered “yes” to any of these questions, you need to talk to your doctor or nurse about your symptoms and your asthma action plan!

Rules of Two® is a federally registered service mark of Baylor Health Care System. ©2011 Baylor Health Care System. Used with permission.
Asthma medications
There are two main types of medications that are used to treat asthma: quick-relief medications used to quickly relieve asthma symptoms and long-term control medications taken every day to control asthma and help prevent asthma attacks. Anti-inflammatory medications may also be used. These medications will be talked about throughout the sections of this HANDBOOK. Talk with your doctor or nurse if you have any questions about your asthma medication at any time!
Asthma Triggers

Common asthma triggers
When you have asthma, the airways in your lungs are very sensitive. There are many things – triggers – that can irritate the airways in your lungs, causing your airways to swell and become narrow. **Asthma triggers are different for each person.**

The most important step in controlling your asthma is to identify your personal asthma triggers. Once you know what your triggers are, avoiding them becomes one of the most important ways to manage your asthma.

If you can control exposure to your triggers, you can help prevent your airways from becoming inflamed (swollen) and causing the symptoms of asthma.

Some of the most common asthma triggers are:

*House Dust Mites* – Dust mites are tiny insects found in house dust. Dust mites can only be seen under a microscope. They thrive on moisture in the air.

![Dust Mite Image]

Dust mites are found on mattresses, pillows, carpets, bed covers, and upholstered furniture. You can **control dust mites** by:

- washing bed pillows, sheets, and covers every week in hot (130°F) water.
- using special allergy-proof mattress and pillow covers (cases, or “encasements”).
- getting rid of carpets, extra pillows, and upholstered furniture, especially in the bedroom.
- using laundry detergent.
- dusting and vacuuming often.
- using a dehumidifier in damp areas, such as basements (dust mites need moist air to live).
  - reduce indoor humidity to less than 50%.
**Cockroaches**
Waste products and rotting bodies of these insects are triggers for some people with asthma.

![Cockroaches](image)

**To help control cockroaches:**
- Keep foods in sealed containers.
- Use insect sprays; but have someone else spray when you are outside of your home. Air out your home for a few hours after spraying.
- Use roach traps.
- Dust cracks and crevices (places where cockroaches walk through) with Boric acid (be sure not to place it in areas where children can touch).
- Place baits to attract roaches in several areas. Make sure baits are stored in pet and child-proof containers and out of reach.

**Animals and pets** – All warm-blooded animals (including birds and small rodents), shed skin, fur, and feathers along with saliva and droppings.

**To deal with animals and pets:**
- Don’t have furry pets in your home. Pets will increase asthma symptoms, either right away or over time.
- If you must have furry pets, keep them out of your bedroom.
- Keep your bedroom door closed, and use a High Efficiency Particulate Air (HEPA) filter in the bedroom.
- Give your pet a bath every week (or wipe your pet with a damp cloth or pet wipe).
- Keep pets away from carpet and upholstered furniture as much as possible.
- Try to keep mice and other rodents out of the home.
**Molds** – Molds can grow indoors and outdoors, especially if there is a damp environment.

![Image of mold growth]

To deal with molds in the home:
- Repair leaks and clean with fungicide or bleach and water solutions where mold is visible. Bleach can trigger asthma symptoms, so have someone who does not have asthma use the bleach solution.
- Keep humidity at less than 50%, using a dehumidifier if necessary, especially in basements.

**Outdoor Triggers** – Pollen from trees, grass and weeds, outdoor mold, and air pollution can cause problems for people with asthma.

![Image of pollen and cityscape]

To deal with outdoor triggers:
- When possible, keep your doors and windows shut during times when outdoor triggers are present.
- Avoid outdoor activity during high pollen or ozone hours (mid-day), or use your asthma medications as directed by your doctor to “pre-medicate” prior to outdoor activity.
- Shower and shampoo after being outside to wash off pollens.
**Strong Smells** – Strong smells from painting, spraying, cleaning fluids, garden chemicals, perfumes, lotions, hair sprays, and deodorants can trigger asthma problems.

To deal with strong smells:

- Stay away from home when these chemicals and sprays are in use, and stay away until the smell clears.
- Use unscented products and ask others in your home to do the same.

**Smoking** – Cigarette, pipe, and cigar smoke are triggers that can severely affect asthma!

To deal with smoke:

- If possible, smokers in families with asthma should quit.
- Smokers should **never** smoke indoors, in cars, or around people with asthma.
- Smokers should wear a removable shirt or jacket while smoking that can be taken off when they come back inside.
- If you have asthma and you smoke, it may be difficult to get your asthma under control and keep it under control as long as you continue to smoke.

**Other triggers that may increase asthma symptoms:**

- Respiratory infections – make sure to get a flu shot annually.
- Drainage from colds and sinus problems – work with your doctor to treat early signs of respiratory and/or sinus infections, as these can trigger asthma symptoms.
- Food and medicine allergies.
- Weather changes.
- Exercise and stress – talk to your doctor if you cannot exercise without asthma symptoms. Asthma symptoms during exercise may require a change in your asthma therapy. The goal of asthma therapy is for you to be able to exercise and be active without having asthma symptoms.
- Gastroesophageal Reflux Disease (GERD) (Heartburn) – if your heartburn (GERD) is not well controlled, it can make your asthma symptoms worse.
- Sulfites in food and beverages.
Asthma Symptoms

Chest Tightness

What is chest tightness?
Chest tightness is a sensation that patients may feel because of inflammation (swelling), constriction, and increased mucus in the airways. The inflammation and constriction may also cause you to feel short of breath. You may experience chest tightness often if your asthma is not well controlled.

How do people describe chest tightness?
Some people describe chest tightness as feeling as if they are unable to take a deep breath. It may feel like there is a lot of pressure on your chest or you have pain in your chest when trying to take in a deep breath. Chest tightness can make it hard to talk, eat, or sleep at night.

What causes chest tightness?
Chest tightness in people with asthma is mainly caused by swelling (inflammation) and narrowing (constriction) of the airways. Inflammation and constriction is the body’s response to triggers (smoke, strong smells, respiratory infections, dust, pollen, extreme temperatures, exercise, animals, or strong emotions).

What can I do about chest tightness?

Medications
Inflammation of the airways can be treated short-term (immediately) with a quick-relief inhaler. If the inflammation and constriction are not treated, the inflammation increases and you will be more likely to experience symptoms. If you need to use your quick-relief inhaler more than two times a week on a regular basis, you may need a long-term control (daily) medication.

- Medications are the first thing to do to treat chest tightness in asthma.
- Use your quick-relief and long-term control medications as prescribed by your doctor.
- Keep your quick-relief inhaler with you at all times.

Activity
- Avoid smoking and being around smokers.
- Avoid contact with animals with fur or hair.
- Avoid dust, mold, pollen, and airborne chemicals or dust.
- Avoid extremes in temperature (very hot or very cold).
• Limit unnecessary activity if you are having active symptoms. When your asthma is under control, you should be as active as you want to be.

**Psychological**

• Remain calm and try to stay relaxed.
• Try breathing techniques if you are having difficulty breathing after using your quick-relief inhaler. One technique is to:
  o Breathe in through your nose for a count of 2.
  o Purse your lips, like you are going to blow out a match or candle.
  o Breathe out through pursed lips for a count of 4.
• Try relaxation exercises.

*(NOTE: Controlled breathing and relaxation exercises may help you maintain calm during respiratory distress but it will not improve lung function.)*

**What can my family members and friends do to help me with my chest tightness?**

• Remind you to take your medications as ordered.
• Avoid smoking around you.
• Help to eliminate triggers by washing bed sheets and pillows, vacuuming, and avoiding use of strong chemicals or scented products.
• Help you with cleaning, grocery shopping, and cooking.

**How can I talk with my family members and friends about my chest tightness?**

• Try to describe how the chest tightness affects your emotions and mood. Remember you are the expert.
• Try describing how the chest tightness may interfere with your usual activities and may make you tired.

**What should I discuss with my doctor or nurse about chest tightness?**

If you are experiencing chest tightness, you should talk about the following with your doctor or nurse at your next appointment:

• Using an asthma action plan to help you know when to take your quick-relief inhaler and when to seek medical attention.
• What is causing my chest tightness?
• What medications can I take to relieve my chest tightness?
• What can be done to relieve my chest tightness?

**What should I report to my doctor or nurse about my chest tightness?**

• At each routine appointment, report how often you have chest tightness because of your asthma and how severe it is.
• Report any **moderate symptoms:**
  - Some problems breathing
  - Cough, wheezing or chest tightness
  - Problems participating in normal daily activities
  - Waking at night with chest tightness
  - Thick, yellow, green or bloody phlegm (saliva mixed with mucus) that was coughed up from the respiratory tract

• **Severe symptoms** that require immediate medical attention and reporting to a doctor include:
  - Shortness of breath, chest tightness, coughing or wheezing that is not relieved or does not improve after you use your quick-relief inhaler
  - Trouble walking or talking due to shortness of breath
  - Fingers turning blue
  - Pain with breathing, chest pain, and severe wheezing
  - Cold, clammy skin with fever
  - Flared nostrils during breathing or straining of neck muscles during breathing
  - An increased pulse rate and rapid respiratory rate
  - Feeling like your heart is pounding in your chest
  - Confusion

**Where can I get more information?**

- American Lung Association at 1-800-543-Lung or [www.lungusa.org](http://www.lungusa.org)
- Asthma and Allergy Foundation of America at 800-727-8462 or [www.aafa.org](http://www.aafa.org)
- National Heart, Lung, and Blood Institute at 301-592-8573 or [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)
Cough

What is a cough?
A cough is the body’s reflex to an irritant (mechanical or chemical) or inflammation of the airways. Coughing automatically helps clear the airway and can occur frequently if asthma is not well controlled.

How do people describe coughing?
People describe a cough as either being dry and hacking or productive (producing mucus). Cough may be the only sign of asthma. Sometimes, a dry, hacking cough or productive cough occurs with a sore throat and may be a sign of a respiratory infection.

A constant cough can be tiring! Coughing can interfere with daily activities and sleep, and physical activity may make a cough worse. Coughing can also make it hard to talk and eat.

What causes coughing?
The main cause of cough in asthma is inflammation (swelling) and constriction (narrowing) of the airways. This inflammation in asthma is caused by the body’s response to triggers (such as smoke, strong smells, dust, pollen, extreme temperatures (very hot or very cold), exercise, animals, or strong emotions).

What can I do about cough?

Medications
Inflammation of the airways can be treated with a quick-relief inhaler and anti-inflammatory medications, such as inhaled steroids. If inflammation is not treated, the inflammation increases and you may be more likely to experience symptoms.

- Use your quick-relief and long-term control medications as prescribed by your doctor.
- Keep your quick-relief inhaler with you at all times.

Activity
- Avoid smoking and being around smokers.
- Avoid contact with animals with fur or hair.
- Avoid dust, mold, pollen, and airborne chemicals or dust.
- Avoid extremes in temperature (very hot or very cold).
- Limit unnecessary activity when your asthma symptoms are active.

Psychological
- Stay calm, and try to stay relaxed.
- Try relaxation exercises.
What can my family members and friends do to help me with my cough?

- Remind you to take your medications as ordered.
- Don’t smoke around you.
- Help to eliminate your asthma triggers by washing bed sheets and pillows, vacuuming, and avoiding use of strong chemicals.
- Help you with cleaning, grocery shopping, and cooking.

How can I talk with my family members and friends about my cough?

- Explain the importance of medications to control your asthma symptoms.
- Describe how the cough affects your emotions and mood. You are the expert.
- Try to describe how coughing keeps you from your usual activities and makes you tired.

What should I report to my doctor or nurse about my cough?

Cough may also be a sign of infection, especially if it is accompanied by chills, fever, and cold symptoms, or if the cough is productive (coughing up phlegm or mucus). If you have signs of infection, you should see your doctor right away.

If you are experiencing a cough, you should talk about the following with your doctor or nurse at your next appointment:

- Using an asthma action plan to help you know when to take your quick-relief inhaler and when to seek medical attention.
- What is causing your cough.
- What medications you can take to manage your asthma and cough.

Report any of the following symptoms to your doctor or nurse:

- At each routine appointment, tell your doctor or nurse how often you experience coughing because of your asthma and how severe it is.
- Report any moderate symptoms:
  - Some problems breathing
  - Persistent cough, wheezing or chest tightness
  - Cough that lasts longer than 7 days or is associated with fever
  - Problems with normal daily activities
  - Waking up at night more than twice a week with cough
  - Thick, yellow, green or bloody phlegm (saliva mixed with mucus that was coughed up from the respiratory tract)
• **Severe symptoms** that require immediate medical attention and reporting to a doctor include:
  - Cough, shortness of breath, chest tightness or wheezing that is not relieved or does not improve after you use your quick-relief inhaler
  - Trouble walking or talking due to shortness of breath
  - Lips or fingers turning blue
  - High-pitched sound (stridor) when inhaling (breathing in)
  - Pain with breathing, chest pain, and severe wheezing
  - Cold, clammy skin with fever
  - Coughing up blood
  - Flared nostrils during breathing, straining of neck muscles during breathing
  - An increased pulse rate and rapid respiratory rate
  - Heart pounding in the chest
  - Confusion

Where can I get more information?

• American Lung Association at 1-800-543-Lung or [www.lungusa.org](http://www.lungusa.org)
• Asthma and Allergy Foundation of America at 800-727-8462 or [www.aafa.org](http://www.aafa.org)
• National Heart, Lung, and Blood Institute at 301-592-8573 or [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)
**Nighttime Symptoms**

**What are nighttime symptoms?**
Asthma symptoms at night (chest tightness, shortness of breath, cough or wheeze) are a sign that your asthma is not well controlled. If you have persistent nighttime asthma symptoms, you should contact your doctor right away.

**How do people describe nighttime asthma symptoms?**
Nighttime asthma symptoms are described as shortness of breath, chest tightness, coughing, or wheezing that either keeps someone from falling asleep or causes them to wake up during sleep.

**What causes nighttime asthma symptoms?**
Nighttime asthma symptoms (cough, chest tightness, wheezing, and shortness of breath) are caused by inflammation and constriction (narrowing) of the airways.

Asthma symptoms, particularly cough and shortness of breath, are often at their worst at night or in the early morning. As a result, asthma symptoms can bother you while you sleep.

**What can I do about nighttime symptoms?**

**Medications**
Controlling your asthma by using quick-relief and long-term control medications should help prevent waking during the night because of your asthma.

- Take your quick-relief inhaler if you have asthma symptoms during the night or early morning. If you need to use your quick-relief inhaler more than two nights a month, contact your doctor. This is a sign that your asthma may not be well-controlled.
- Make sure you are taking your long-term control inhaler as prescribed to control your asthma symptoms.
- In asthma, an important goal is to be able to sleep through the night without having asthma symptoms. If you are having trouble sleeping due to your asthma, see your doctor right away to talk about your asthma management. Your medications may need to be changed.

**Activity**
Keep a sleep journal. Include how often you are having nighttime asthma symptoms. Share your sleep journal with your doctor or nurse. A sleep journal can help you and your doctor manage your asthma.
Environment

- Try not to sleep or lay down on cloth-covered cushions or furniture.
- Completely encase your mattress in a special allergy-proof cover.
- Completely encase your pillows in a special allergy-proof cover or wash the pillows each week in hot water.
- Make sure your bedroom is quiet, comfortable, and a consistent temperature.
- Place pillows in comfortable positions.

What can my family members and friends do to help me with my nighttime symptoms?

- Remind you to take your medication as ordered and to call your doctor or nurse as needed.
- Help eliminate your asthma triggers by washing bed sheets and pillows, vacuuming, and avoiding use of strong chemicals.

What should I report to my doctor or nurse about my nighttime symptoms?

- Tell your doctor or nurse how many nights per week or month you wake due to asthma symptoms. **Nighttime symptoms more than twice a month** may mean you need a medication change, because it is evidence that your asthma is not well-controlled.

- **Severe symptoms** that require immediate medical attention and reporting to a doctor include:
  - Inability to lay down because of your asthma symptoms
  - Asthma symptoms (cough, shortness of breath, wheeze, or chest tightness) that are not relieved or do not improve after using your quick-relief inhaler
  - Trouble walking or talking due to shortness of breath
  - Lips or fingernails turning blue
  - Pain with breathing, chest pain, and severe wheezing
  - Cold, clammy skin with fever
  - Flared nostrils during breathing, straining of neck muscles during breathing
  - An increased pulse rate and rapid respiratory rate
  - Heart pounding in the chest
  - Confusion

Where can I get more information?

- American Lung Association at 1-800-543-Lung or [www.lungusa.org](http://www.lungusa.org)
- Asthma and Allergy Foundation of America at 800-727-8462 or [www.aafa.org](http://www.aafa.org)
- National Heart, Lung, and Blood Institute at 301-592-8573 or [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)
**Shortness of Breath**

**What is shortness of breath (dyspnea)?**
Shortness of breath (also called dyspnea) is difficulty breathing or trouble catching your breath.

Shortness of breath or difficulty breathing sometimes happens when the body is not getting enough oxygen. In asthma, shortness of breath is caused by airway inflammation (swelling) or constriction (narrowing). Shortness of breath is a common symptom in patients with asthma and can happen when asthma is not well controlled.

**How do people describe shortness of breath?**
Some people describe shortness of breath as a feeling of working very hard to breathe. Others describe it as “air hunger” or a feeling of suffocation.

When people are short of breath, they are unable to do their usual activities. They tire more easily. Shortness of breath can make it difficult to talk, eat meals, or sleep at night.

**What causes shortness of breath?**
The main cause of shortness of breath in patients with asthma is inflammation, constriction (narrowing) of the airways, and increased mucus production. Inflammation in asthma is caused by your body’s response to triggers (such as smoke, strong smells, dust, pollen, extreme hot or cold temperatures, exercise, animals, or strong emotions).

**What can I do about shortness of breath?**

**Medications**
Constriction and inflammation of the airways can be treated with quick-relief and long-term control medications. If untreated, the inflammation increases and you may be more likely to experience asthma symptoms.

- Taking your asthma medications is the first thing you should do to treat shortness of breath in asthma. Use your quick-relief and long-term control inhalers as prescribed by your doctor.
- Keep your quick-relief inhaler with you at all times.

**Activity**
- Avoid smoking and being around smokers.
- Avoid contact with animals with fur or hair.
- Avoid dust, mold, pollen, and airborne chemicals or dust.
- Avoid extreme (hot or cold) temperatures.
- Limit unnecessary activity when you are having active asthma symptoms.
**Psychological**

- Stay calm and try to stay relaxed.

**What can my family members and friends do to help me with my shortness of breath?**

- Remind you to take your medications as ordered.
- Avoid smoking around you.
- Help to eliminate your asthma triggers by washing bed sheets and pillows, vacuuming, and avoiding use of strong chemicals.
- Help you with cleaning, grocery shopping, and cooking.

**How can I talk with my family members and friends about my shortness of breath?**

- Tell them how your shortness of breath affects your emotions and mood. Remember you are the expert.
- Describe how the shortness of breath may interfere with your usual activities and may make you tired.

**What should I report to my doctor or nurse about my shortness of breath?**

- Report at each routine appointment how often you experience shortness of breath because of your asthma, if it happens before or after activity, and how severe it is. Ask your doctor or nurse about your asthma action plan, what is causing your shortness of breath, and what you can do to relieve your shortness of breath.
- Report any moderate symptoms:
  - Some problems breathing
  - Persistent cough, wheezing, or chest tightness
  - Problems participating in normal daily activities
  - Waking at night with shortness of breath more than twice a month
  - Thick, yellow, green or bloody phlegm (saliva mixed with mucus that was coughed up from the respiratory tract)

**Severe symptoms that require immediate medical attention and reporting to a physician include:**

- Shortness of breath, chest tightness, cough or wheeze that persists after use of quick-relief inhaler
- Trouble walking or talking due to shortness of breath
- Lips or fingernails turning blue
- Pain with breathing, chest pain, and severe wheezing
- Cold, clammy skin with fever
- Flared nostrils during breathing, straining of neck muscles during breathing
- An increased pulse rate and rapid respiratory rate
- Heart pounding in the chest
- Confusion
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**Wheezing**

**What is wheezing?**
Wheezing is a high-pitched whistling sound that happens during breathing. Wheezing often happens with asthma and can also occur with shortness of breath, cough, or chest tightness.

**How do people describe wheezing?**
Some people describe wheezing as a whistling or squeaky sound coming from the chest that happens when the person breathes in or out. Wheezing may feel worse or be more noticeable if you also have other asthma symptoms such as shortness of breath, cough, or chest tightness.

**What causes wheezing?**
The main cause of wheezing in people with asthma is inflammation and constriction (narrowing) of the airways. Inflammation is caused by your body’s response to triggers (such as smoke, strong smells, dust, pollen, extreme hot or cold temperatures, exercise, animals, or strong emotions).

**What can I do about wheezing?**

*Medications*
Constriction and inflammation of the airways can be treated with a quick-relief inhaler and long-term control medications. If inflammation is not treated, it increases and you may experience more symptoms.

- Taking your asthma medications is the first thing you should do to treat wheezing in asthma. Use your quick-relief and long-term control inhalers as prescribed by your doctor.
- Keep your quick-relief inhaler with you at all times.

*Activity*
- Avoid smoking and being around smokers.
- Avoid contact with animals with fur or hair.
- Avoid dust, mold, pollen, and airborne chemicals or dust.
- Avoid extreme hot or cold temperatures.
- Limit unnecessary activity when you have asthma symptoms.
What can my family members and friends do to help me with my wheezing?

- Remind you to take your medications as ordered and contact your doctor or nurse as needed.
- Not smoke around you.
- Help eliminate your asthma triggers by washing bed sheets and pillows, vacuuming, and avoiding use of strong chemicals.

How can I talk with my family members and friends about my wheezing?

- Explain the importance of medications to control your asthma symptoms.
- Tell them how wheezing affects your emotions and mood.
- Try to describe how your wheezing interferes with your usual activities and makes you tired.

What should I discuss with my doctor or nurse about my wheezing?

If you are experiencing shortness of breath, you should discuss the following with your doctor or nurse at your next appointment:

- Using an asthma action plan to help you know when to take your quick-relief inhaler and when to seek medical attention.
- What is causing my wheezing?
- What medications can I take to manage my wheezing?
- What can be done for my wheezing?

What should I report to my doctor or nurse about my wheezing?

- How often you have wheezing because of your asthma, how severe it is, and if it happens after activity or when you are resting.
- Report any moderate symptoms:
  - Some problems breathing
  - Persistent cough, wheezing, or chest tightness
  - Problems with normal daily activities
  - Waking at night with wheezing more than twice a week
  - Thick, yellow, green or bloody phlegm (saliva mixed with mucus that was coughed up from the respiratory tract)

- Severe symptoms that require immediate medical attention and reporting to a physician include:
  - Wheezing, shortness of breath, coughing or chest tightness that persists after use of quick-relief inhaler
  - Trouble walking or talking due to wheezing and/or shortness of breath
  - Lips or fingernails turning blue
  - Pain with breathing, chest pain, and severe wheezing
  - Cold, clammy skin with fever
  - Flared nostrils during breathing, straining of neck muscles during breathing
  - An increased pulse rate and rapid respiratory rate
- Heart pounding in the chest
- Confusion

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- National Heart, Lung, and Blood Institute at 301-592-8573 or [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)
Helpful Tips for Managing Asthma Symptoms

Medications
- Taking your asthma medications is the first thing you should do to treat asthma symptoms.
  - Take your quick-relief inhaler if you have asthma symptoms. If you need to use your quick-relief inhaler more than two days a week or more than two nights a month, contact your doctor. This is a sign that your asthma may not be well-controlled.
- Make sure you are taking your long-term control inhaler as prescribed to control your asthma symptoms.
- In asthma, two important goals are to be able to be active without having asthma symptoms and to be able to sleep through the night without having asthma symptoms. If you are having trouble being active or sleeping due to your asthma, see your doctor right away to talk about your asthma management. Your medications may need to be changed.
- Keep your quick-relief inhaler with you at all times.

Activity
- Avoid smoking and being around smokers.
- Avoid contact with animals with fur or hair.
- Avoid dust, mold, pollen, and airborne chemicals or dust.
- Avoid extreme (hot or cold) temperatures.
- Limit unnecessary activity when you are having active asthma symptoms. When your asthma is under control, you should be as active as you want to be.

Psychological
- Stay calm and try to stay relaxed.
- Try breathing techniques if you are having difficulty breathing after using your quick-relief inhaler:
  - Breathe in through your nose for a count of 2.
  - Purse your lips, like you are going to blow out a match or candle.
  - Breathe out through pursed lips for a count of 4.
- Try relaxation exercises.

(NOTE: Controlled breathing and relaxation exercises may help you maintain calm during respiratory distress but it will not improve your lung function.)
Environment
- Try not to sleep or lay down on cloth-covered cushions or furniture.
- Completely cover (encase) your mattress in a special allergy-proof cover.
- Completely cover (encase) your pillows in a special allergy-proof cover or wash the pillows each week in hot water.
- Make sure your bedroom is quiet, comfortable, and a consistent temperature.
- Place pillows in comfortable positions.
- Use a HEPA (high-efficiency particulate absorption) filter in the bedroom if you have pets and are allergic to them.
- Consider removing pets from your home if you are allergic – at the very least, keep them out of your bedroom.

Sleep
- Keep a sleep and activity journal. Include how often you are having daytime and nighttime asthma symptoms.
- Share your sleep journal with your doctor or nurse. A sleep journal can help you and your doctor manage your asthma.

What can my family members and friends do to help me with asthma symptoms?
Ask family members and friends to:
- Remind you to take your medications as ordered.
- Avoid smoking around you.
- Help to eliminate your asthma triggers by washing bed sheets and pillows, vacuuming, and avoiding use of strong chemicals.
- Help you with cleaning, grocery shopping, and cooking.

How can I talk with my family members and friends about my asthma symptoms?
Here are some ideas that may help you talk to family members and friends:
- Explain the importance of medications in controlling your asthma symptoms.
- Tell them how your asthma symptoms affect your emotions and mood. Remember you are the expert.
- Tell them how many days per week or nights per month you have asthma symptoms.
- Describe how your asthma symptoms may interfere with your usual activities and may make you tired.
What to tell my doctor or nurse:

At each **routine appointment**, report how often you have symptoms because of your asthma and how severe they are.

- Tell your doctor or nurse how many days per week or nights per month you are having asthma symptoms. Daytime symptoms more than twice a week or nighttime symptoms more than twice a month may mean you need a medication change, because it is evidence that your asthma is not well-controlled.

- At each visit, you should talk with your doctor or nurse about:
  - Using an asthma action plan to help you know when to take your quick-relief inhaler and when to seek medical attention.
  - What is causing your asthma symptoms?
  - What medications can you take to prevent or relieve your asthma symptoms?
  - What else can you do to prevent or relieve your asthma symptoms?

**Moderate symptoms:**

If you experience any of the following **moderate** symptoms, report them to your doctor or nurse:

- Problems breathing.
- Persistent cough, wheezing or chest tightness.
- Cough lasting longer than 7 days or associated with fever.
- Problems participating in normal daily activities.
- Daytime asthma symptoms more than two times a week or waking at night with asthma symptoms more than two times a month.
- Thick, yellow, green or bloody phlegm (saliva mixed with mucus) that was coughed up from the respiratory tract.

**Severe symptoms:**

**Severe symptoms that require immediate medical attention** and reporting to a doctor include:

- Shortness of breath, chest tightness, coughing or wheezing that is not relieved or does not improve after you use your quick-relief inhaler.
- Trouble walking or talking due to shortness of breath.
- Lips or fingernails nails turning blue.
- High-pitched sound (stridor) when inhaling (breathing in).
- Pain with breathing, chest pain, and severe wheezing.
- Cold, clammy skin with fever.
- Coughing up blood.
- Flared nostrils during breathing or straining of neck muscles during breathing.
- An increased heart rate (pulse) and rapid breathing (respiratory) rate.
- Feeling like your heart is pounding in your chest.
- Confusion.
- Inability to lay down because of your asthma symptoms.
Monitoring Your Asthma

Knowing when your asthma is not well controlled is an important part of asthma management. You and your doctor should develop a written asthma action plan. Using the plan, you will need to regularly monitor your asthma symptoms, triggers, and medication use. Self-assessment – keeping track of your own asthma symptoms – will also help your doctor guide your treatment.

Some people with asthma are given a peak flow meter to help manage their asthma. If you have a peak flow meter, your doctor will explain how to use the meter to help monitor your asthma.

Changes in your symptoms (coughing, shortness of breath, chest tightness, or wheezing) may indicate an increase in inflammation (swelling) or narrowing of your airways. If you have symptom changes or a drop in your peak flow readings, you should use your quick-relief medication. Depending on the severity of the symptoms, you may also need to seek medical attention.
**Asthma action plan**

Every patient with asthma should have a written asthma action plan. Talk with your doctor about making an asthma action plan. An asthma action plan is a plan that you and your doctor write to help guide your asthma therapy. Once completed, you can use your asthma action plan to monitor your symptoms, determine when to use your quick-relief inhaler, and when to get medical attention. An asthma action plan is included on the next page for you and your doctor to fill out together.
**Michigan CMS Adult Quality Measures – Asthma Management Manual**

**Page 31**

**Physician**

**R E D Z O N E:** Medical Alert

- Call the doctor within 30 minutes of taking this medicine.

**Y E L L O W Z O N E:** Getting Worse

- Add quick-relief medicine and keep taking your **G R E E N Z O N E** medicine.

**G R E E N Z O N E:** Doing Well

- Take these long-term control medicines each day (inhalers and medications).

**Emergency:**

**Before:**
- Call the doctor.
- Add quick-relief medicine.

**When to Take It:**

- 2 or 4 puffs every 4-6 hours.
- 2 or 4 puffs of every 12 hours.

**Expected Duration:**

- 2 or 4 puffs every 4-6 hours.

**PROVIDER’S PHONE NUMBER:**

**HOSPITAL/EMERGENCY ROOM PHONE NUMBER:**

**Provider’s Name:**

**Date:**

**Asthma Action Plan for:**

- Physician's note (if applicable)
**Asthma symptom diary**

An asthma symptom diary is one way to keep track of your symptoms. You can use the diary to record the symptoms you are having, medications you took, your asthma triggers, and peak flow readings (if you have a peak flow meter). Sharing your asthma symptom diary with your doctor or nurse can help determine if your asthma is in control. Please see the next page for an asthma symptom diary that you can fill out and take to your doctor.

When keeping track of your symptoms and talking with your doctor or nurse, think about the **Rules of Two®**:

**Do You:**
- Have asthma symptoms or take your quick-relief inhaler more than Two times a week?
- Awaken at night with asthma symptoms more than Two times a month?
- Refill your quick-relief inhaler more than Two times a year?
- Measure your peak flow at less than Two times 10 (20%) with asthma symptoms?

If you answered “yes” to any of these questions, you need to talk to your doctor or nurse about your symptoms and your asthma action plan!

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**SYMPTOMS**

Use a check mark to show when you had symptoms.

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- Cough
- Wheeze
- Breathing Problems
Asthma Diary

With your provider's help, use this diary. Keep it up to date and always on hand. In an emergency, it's an important record of your medicines, triggers, and peak flow. Your provider will use this as part of your assessment.

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Peak flow meter
Some patients with asthma have a peak flow meter. A peak flow meter is a hand-held device that measures how quickly air flows out of your lungs. A peak flow meter can be used at an office or clinic or at home to measure how well you are breathing.

Peak flow monitoring may be used to identify triggers, recognize early signs of an asthma attack, or to see how an “asthma attack” is affecting you. If a peak flow meter is used every day at home, you can sometimes identify airway inflammation before asthma symptoms occur. Daily peak flow measurements are important to see how well your asthma is controlled.

Some people with asthma get a peak flow meter and some do not. If your doctor wants you to use a peak flow meter, make sure you understand how to use it, what to record in your asthma diary, and when to report readings that could mean your asthma is not well controlled.
How To Use a Peak Flow Meter

Your asthma is not like anyone else’s, so you will need to discover your own personal best peak flow.

**STEP 1:**
Slide the marker down as far as it will go. This sets the meter at zero.

**STEP 2:**
Stand up. Take a deep breath in, and blow all the way out as far as possible.

**STEP 3:**
Then take as deep a breath in as possible with your mouth open.

**STEP 4:**
Place the meter in your mouth and close your lips around it to form a seal. Your tongue should be away from the hole. Keep your fingers away from the markings. Blow out once as hard and fast as you can.

**STEP 5:**
Don’t touch the marker, and write down the number you get.

**STEP 6:**
Repeat twice. Reset the marker to zero each time. Write down the number each time. Your peak flow is the highest of these three numbers.
How To Use a Peak Flow Meter

- Find your peak flow number in the morning and evening.
- Hold the meter next to the chart each time you blow to make it easier to record the number.
- Circle the highest number of three blows. This is your peak flow.

How To Establish Your Personal Best Peak Flow:

When your asthma is under control, record your peak flow twice daily for 2 weeks. Measure your peak flow at the same time of day, as peak flow is lowest in the early morning and highest between 12:00 noon and 5:00 PM. The highest number during those 2 weeks will be your personal best peak flow. Reestablish your personal best peak flow with new peak flow meters. Children need to reestablish their personal best peak flow every 6 months to allow for lung growth changes.
Taking your Asthma Medications

Why is taking your asthma medications so important?
You can control your asthma and avoid an asthma attack by taking your medicine exactly as your doctor tells you and by avoiding triggers. Everyone with asthma does not take the same medicine. Some medicines are inhaled (breathed in) and some are taken as a pill. Asthma medicines come in two types—long-term control and quick-relief medications.

Long-Term Control Medications:
Long-term control medications (example, inhaled corticosteroids) are taken every day to help control asthma and prevent asthma attacks. Long-term control medicines help you have fewer and milder attacks but they do not help if you are having an asthma attack!

Quick-relief Medications:
Quick-relief medications (example, albuterol) are taken to quickly relieve asthma symptoms or treat an asthma attack.

Adherence: taking your asthma medications as your doctor prescribes
Adherence means taking your medication as directed by your doctor, including:
- Taking the prescribed number of pills/inhalations per day
- Not skipping doses or taking extra doses
- Taking the medication for as long as it is prescribed for you

Adherence is especially important in asthma. You may be given a quick-relief medication to take when you need it and a long-term control medication(s) to take every day. To be effective, long-term control medications have to be taken every day. You can learn more about adherence in TAB 9 of this handbook.

By taking the right medicine at the right time, you can:
- Breathe better
- Have more days without asthma symptoms
- Prevent or manage chronic and troublesome symptoms, such as coughing and shortness of breath
- Reduce your need for quick-relief medicines
- Help maintain good lung function
- Maintain your normal activities
- Have fewer symptoms at night so you can sleep better
- Prevent asthma attacks that could result in your going to the emergency room or being admitted to the hospital for treatment
- Potentially avoid permanent lung function changes/damage caused by frequent or severe asthma attacks
Use medicine as prescribed:

- Notify your doctor or nurse immediately if you decide not to fill a prescription.
- Do not stop the medicine before it is finished, unless you are directed to do so by your doctor or nurse.
- Do not try to adjust the dosage yourself or skip doses to minimize side effects. Do not adjust the dosage because you think the medicine is not working. Do not skip medications to save money.
- Do not take less or more than the recommended dose. Take medicines exactly as directed. This means following dosage recommendations.
- Talk with your doctor, nurse or pharmacist if you have any questions or concerns about your medicines.
- If you cannot read your labels, ask your pharmacist to print labels in larger print or in your native language, if needed.

Medication Side Effects

It is important to talk with your doctor or nurse about what you should do if you experience a side effect. If you experience any of the severe side effects listed above, notify your doctor or nurse right away or seek immediate medical attention.

If you are experiencing minor, more common side effects, continue with the medication and be sure to discuss the side effect(s) with your doctor, nurse, or pharmacist. For example, call your doctor’s office or pharmacy and ask to speak to the doctor, nurse or pharmacist. You may also talk to your doctor or nurse at your next scheduled appointment or talk to your pharmacist when you next refill your medication.
Quick-relief (Rescue) Medications

Quick-relief inhalers (also called rescue inhalers) relieve or stop asthma symptoms after they have already started. These fast acting medications are inhaled and work quickly to relax and open up your airways. This allows you to breathe easier and ideally have a decrease in asthma symptoms.

Some examples of quick relief inhalers include: albuterol (Ventolin, Proventil, or ProAir) and levalbuterol (Xopenex). Your doctor or pharmacist may call these medications short-acting beta-2 agonists.

Some people need to use their quick-acting inhaler before exercise to prevent asthma symptoms during activity. You should talk with your doctor or nurse about when you should take your medications and to make sure you are using your inhaler correctly. An asthma action plan is a good way to make a plan for what to do if you have asthma symptoms.

As a general rule, you should use your quick-relief inhaler when:

- You have some trouble breathing.
- You have chest tightness, coughing, shortness of breath, or wheezing.
- You wake up at night because of asthma symptoms.
- You are having trouble with your daily activities because of asthma symptoms.
- Your peak flow reading is 50-80% of your personal best.
- Before you exercise (to prevent asthma symptoms during exercise).

You should take 2-4 puffs of your quick-relief inhaler if you are having any of the above situations. You can repeat 2-4 puffs of your quick-relief inhaler every 20 minutes for up to one hour. Your doctor may recommend a different dose (number of puffs). Always follow your asthma action plan that you and your doctor develop together.

Notify your physician or nurse right away or call 911 if you do not get relief after using your quick-relief inhaler or if your symptoms are getting worse. These conditions may indicate your asthma is not controlled or you are experiencing a severe asthma flare-up or “attack”.
Quick-relief medication side effects:
You may have side effects from your quick-relief inhaler. Talk with your doctor or nurse if you have any of the following:

- Cough
- Throat irritation
- Bad taste
- Dizziness
- Nervousness
- Nausea
- Headache
- Palpitations (feeling like your heart is beating fast)

Severe, but Rare Side Effects
If you have any of these side effects, call 911 or go to the emergency room!

- Allergic reaction
- Chest pain
- Irregular heart beat
What to do if your quick-relief inhaler is not working

If you have severe asthma symptoms (or “asthma attack”), it is important to follow the steps of your asthma action plan. The plan will guide your treatment and tell you when to get medical treatment if your symptoms do not improve.

If your asthma symptoms do not improve or get worse after you use your quick-relief inhaler, this is a sign of a medical emergency and you need to seek care or call 911 immediately.

Some signs that your asthma is getting worse or is severe include:
- You are experiencing lots of problems breathing.
- You cannot work or complete your daily activities.
- Your asthma symptoms are getting worse instead of better.
- The quick-relief inhaler is not helping.
- Your peak flow reading is less than 50% of your personal best.

You should go to the hospital or call 911 if:
- You are experiencing the above severe symptoms, or
- You are unable to contact your physician or nurse for help.

You should immediately call 911 if you experience any of the following danger signs:
- You are having trouble walking and/or talking due to shortness of breath, or
- Your lips or fingernails are blue.

It is important to know the danger signs of your asthma so you know when to get immediate medical help. Your asthma action plan will guide you through the steps you need to take when you have an asthma emergency.
**Long-term Control Medications**

Long-term control medications (inhaled corticosteroids, long-acting bronchodilators, leukotriene modifiers) are taken every day to help control asthma and prevent asthma attacks. **Long-term control medications do NOT help if you have having asthma symptoms or an asthma attack!**

**Inhaled corticosteroids**

Inhaled corticosteroids (sometimes called inhaled steroids) are the first choice for long-term control of asthma symptoms. They work by decreasing inflammation (swelling) in the airways. Inhaled corticosteroids are safe when taken as directed and are not addictive – they can be taken every day for years. Examples of inhaled corticosteroids are Alvesco (ciclesonide); Asmanex (mometasone); QVAR (beclomethasone propionate); Pulmicort (budesonide); Flovent (fluticasone propionate). **Long-acting bronchodilators should NEVER be taken alone – they should ALWAYS be taken in combination with an inhaled corticosteroid.**

Inhaled corticosteroid side effects:
You may have side effects from your inhaled corticosteroid(s). Talk with your doctor or nurse if you have any of the following:
- Thrush (a mouth infection) – rinsing out your mouth after using your inhaler and using a spacer device (holding chamber) may help prevent thrush
- Headache
- Throat irritation
- Sinusitis
- Sore throat
- Hoarse voice
- Cough
- Runny nose
- Nausea/vomiting
- Rash
- Itching
Severe, but Rare Side Effects
If you have any of these side effects, call 911 or go to the emergency room!
  • Allergic reaction
  • High blood sugar
  • Facial swelling

Long-acting bronchodilators (beta-2 agonists)
Long-acting bronchodilators must be used in combination with inhaled corticosteroids. These medications work by slowly relaxing muscles around the airways, preventing asthma symptoms. Examples of long-acting bronchodilators are Foradil (formoterol fumerate) or Serevent (salmeterol xinafoate).

Some medications contain both inhaled corticosteroids and long-acting bronchodilators. Examples of these “combination medications“ are Advair, Dulera, and Symbicort.

Long-acting bronchodilator side effects:
You may have side effects from your long-acting bronchodilator. Talk with your doctor or nurse if you have any of the following:
  • Chest or back pain
  • Diarrhea
  • Sinusitis
  • Leg cramps
  • Rash
  • Shortness of breath
  • Swelling of feet

Severe, but Rare Side Effects
If you have any of these side effects, call 911 or go to the emergency room!
  • Allergic reaction
  • Facial swelling
  • Irregular heart beat
Other Asthma Medications
Sometimes people with asthma need to take an oral asthma medication in addition to inhaled medications.

Leukotriene modifiers
Leukotriene modifiers are a common oral medication prescribed for long-term prevention and treatment of asthma. They work by blocking the chain reaction that causes inflammation (swelling) in your airways. These medications are usually taken once per day. To treat exercise-induced asthma, the medication your doctor may prescribe the medication to be taken 2 hours before activity.

Examples of leukotriene modifiers are Accolate (zafirlukast); Singulair (montelukast); and Zyflo (zileuton).

Leukotriene modifier side effects:
You may have side effects from leukotriene modifiers. Talk with your doctor or nurse if you have any of the following:
- Anxiety/irritability
- Fever
- Headache
- Cough
- Abdominal pain
- Diarrhea
- Runny nose
- Nausea/upset stomach
- Rash
- Restlessness
- Tremor

Severe, but Rare Side Effects
If you have any of these side effects, call 911 or go to the emergency room!
- Allergic reaction
- Severe skin reaction (widespread rash or bruising)
- Depression/ suicidal ideation
- Hallucinations
Other medications used in the treatment of asthma include:

- **Cromolyn** – This medication helps to prevent airway inflammation. It is taken using a nebulizer.

- **Xolair (omalizumab)** – This medication is given to help prevent your body from responding to asthma triggers. It is given as an injection 1-2 times a month to patients with asthma who also have allergies when asthma medications are not enough to control their asthma.

- **Theophylline** – This medication helps to open the airways. It is taken in a pill form.
Tips for taking your asthma medications
If you have ever had a problem with your medicines, you are not alone. There are many things to keep track of and remember. There are many good treatments for asthma available today. Some asthma medicines relax your airways and help you breathe easier. Other treatments reduce the swelling and inflammation in your airways.

It’s important to follow your doctor and nurse’s advice about your treatment. Some medicines help prevent asthma symptoms. You need to take these medicines every day, even when you feel well. Other medicines may be needed if your asthma starts to get worse.

Asthma medication tips:
- Keep a record of all your medications.
- Carry a list of your medications with you all the time.
- Know the name of each medication.
- Know when to take the medication and how to take the medication.
- Know which of your medications are to taken every day and which of your medications are used as needed.
- Be sure you understand exactly how to take the medication:
  - correct inhalation technique
  - daily or as needed
  - what time of day
  - how many times a day
- Carry your quick-relief inhaler with you at all times in case you have asthma symptoms.
- It is important for you to learn how to use your inhaler correctly. Read the instructions that come with the inhaler. Ask your doctor, nurse, or pharmacist to show you how to use it. Then try it yourself and ask him or her make sure you are using it the right way.
- Keep long-term and quick relief inhalers separate to avoid confusion
- Have cues or reminders to help you remember when to take medications during your daily routine. For example, you can take certain medications every day before brushing your teeth, before or after breakfast, or when you get up.

What to do if you miss a dose
Talk to your doctor or nurse about what to do if you miss a medication dose. Generally, if a dose is 6 or more hours late, don’t take the dose but wait till the following time you are scheduled to take the medication.

What to do if you want to stop taking a medication
When there is a reason to stop taking your medicine (the side effects are too severe, the cost is too high, or some other reason) talk to your nurse or doctor. There may be alternatives or solutions to help you continue to take your asthma medications.
Medication Adherence

Medication adherence – taking your medication as prescribed by your doctor or nurse – is very important, but it can be challenging to fit taking your asthma medications into a busy life. There are many reasons why people find it difficult to take their medications as prescribed.

The most common reasons people with asthma have problems with medication adherence include:

- **Forgetting** - many patients forget to take their medicine. If you sometimes forget to take your medicine, set up some type of reminder system. There are pill boxes, pill boxes with alarms, phone alarms, smart phone apps etc. that you can use. Ask the pharmacist for suggestions. If you miss a pill or inhalation know what you should do next.

- **Side Effects** – Though not common with inhaled asthma medications, side effects can be a challenge for patients. Many of these side effects can be prevented or controlled. If you cannot manage the side effects yourself, do not stop the drug or reduce the dosage. Instead, talk to your nurse or doctor about managing side effects to avoid any disruption in therapy.

- **Tired of Taking Medication** – People can get tired of being reminded of their illness. This is a normal response. Talk with your nurse or doctor about these feelings. People get “medication taking fatigue.” They get tired of taking medications all the time. It is important to continue taking your medications.

- **Not Understanding Medications** - Changes to treatments can be confusing. You may need changes in your medications to get your asthma in control or if you have increased asthma symptoms.

- **Other Health Problems** – If you take medications for other chronic health problems, scheduling the asthma medication along with the other medications can be confusing. If you need help deciding how to take all your medications, talk with your doctor or nurse. They will be able to help you find a way to set up a schedule so you can take your asthma medications as recommended. Pharmacists can also help with scheduling medications when there are many drugs to coordinate.

- **Feeling Better!** Many people with asthma begin to feel better and believe they no longer need to take their daily long-term control medications. The reason they feel better is because they are using daily long-term control medications.
Problems when you do not take your asthma medication
If you do not take your asthma medications as prescribed, you may have serious health problems as a result, including:

- Increased trouble breathing
- Acute asthma attack, leading to need for emergency care or hospitalization
- Increased need for quick-relief medicines
- Poor lung function
- Decreased activity level and fatigue
- Trouble sleeping at night due to asthma symptoms
- Potential permanent lung function changes/damage

People still die from asthma. It is very, very important to take your medication as directed by your doctor and know when to seek emergency care!
Tools and tips for taking any medication:

Learning about your medication:
- Read the medication label first to make sure you are taking the correct medication, at the correct dose, at the correct time.
- Talk to your pharmacist if you have questions about your medication.
- Stay in regular contact with your doctor or nurse, either by phone or in person. Ask your doctor or nurse any questions you have about taking your asthma medications.
- Report any severe symptoms and/or side effects to your doctor or nurse.

Remember to take your medication:
- Keep a calendar or chart to track when you take your medications.
- Take your medication at the same time every day, in the same order.
- Use a daily reminder, such as a note on your refrigerator or daily planner, a smart phone app, a phone alarm, to remind you to take your medication(s).
- If you have a computer, program a start-up reminder to take your asthma medicine. Sign up with one of the free services that will send you reminder e-mail every day.
- Identify medication-taking cues, such as taking your medication when you do other regular activities. For example, before brushing your teeth or watching your favorite TV program.
- Place medications where you can see them.
- Ask a friend or family member to call or remind you to take your medicine.
- Establish a buddy system with a friend who is also on daily medication. Arrange to call each other every day with a reminder to “take your medicine.”
- Keep all your medication information together in one place, such as a medication log or diary. The log or diary should include: names of each drug, dose, reason for taking, prescribing physician, and the pharmacy name and phone number.

Stay organized!
- Ask a friend or loved one to help you organize your medication “system.”
- Plan ahead for social events, such as vacations, weekends, and celebrations, so you have your asthma medications with you.
- Make an action plan for unexpected events before they happen to make sure you have your medications with you. For example, when you get caught in traffic, held up at a store or school event, or your plane is delayed.
- Remember to refill your prescription. Each time you pick up a refill, make a note on your calendar to order and pick up the next refill one week before the medicine is due to run out.
- To save time, try setting up your medications ahead of time using pill boxes (a week or month at a time). These are available at most pharmacies.
What family, friends, and others can do to help you with your asthma medication

Here are examples of tasks others can do to help you take your asthma medication(s):

- Call and pick up your medication refills at the pharmacy.
- Help you fill out a medication calendar.
- Help you organize your pill box/ container or your medication “system.”
- Help you record your side effects or questions for your doctor or nurse.
- Go with you to the doctor. Ask them to take notes about your medication and other parts of your treatment plan.
- Call regularly to remind you to take your medication on time. If you are having problems, let them know.
- Keep a record of what medicine you take so you won’t take it twice.
- Keep a copy of your medication list.

Depending on your location and circumstance, others may be available to help with your asthma medication management:

- At work, there may be a nurse on site to help with your medication management.
- At home, a visiting nurse may be able to help you with your medication management.
Talking with your doctor or nurse about your medication

Write down all the questions you have for the nurse, doctor, or pharmacist and take them with you to your clinic/office visit. Here are some questions to ask:

- What is the brand name and generic name of this medication?
- Why am I taking this medication?
- What does this medicine do for me?
- What are the side effects of this medicine?
- What should I do if I have a problem or side effect?
- When should I tell the doctor or nurse about a problem of side effect?
- How do I take this medication?
- How often do I take it?
- How long will I be taking it? How often can I get a refill?
- What happens if I miss a dose?
- How can I tell if the medication is working?

Make sure you:

- Tell your doctor about all the medication you are already taking. This includes prescription medicines from other health care professionals and medicines you buy without a prescription (over-the-counter), such as aspirin, laxatives, vitamins, and herbal remedies.
- Tell your doctor or nurse if you have any allergies to medications.
- **Tell your doctor or nurse if you are not taking your medicine as directed.** For example, some people may stop taking their medicine, take a lower dose, or skip doses if they are having side effects. Your doctor needs to know about any changes that you make in your treatment plan.

If you have additional questions or concerns, talk with your doctor, nurse, or pharmacist.
**Spacers**

Most asthma medications are inhaled (a spray or mist that you breathe in). Inhaled medications are taken using a device that gets the medicine directly into the lungs. This helps people with asthma because the medicine works quickly to open up narrowed airways.

It is important to use correct technique when using inhaled medications to avoid side effects. For example, be sure to use a spacer device (holding chamber), and rinse out your mouth after using an inhaled corticosteroid to prevent throat irritation.

**What is a spacer?**

A spacer device is a wide plastic tube (holding chamber) that is placed between the inhaler and the user’s mouth. A spacer device makes inhalers easier to use. Spacers slow down delivery of the inhaled medications and decrease the amount of medication particles that land in the mouth and throat. A spacer device should be used every time you would normally use your inhaler. *(Note: a spacer device cannot be used with dry-powder inhalers (DPIs), such as Pulmicort or Advair).*

**To use a spacer follow these steps:**

- Make sure your hands and the spacer are clean.
- Remove the mouthpiece of the spacer.
- Shake your inhaler several times.
- Prime the inhaler into the air if your inhaler is new or has not been used in a few days.
- Attach the inhaler to the spacer.
- Keep the inhaler in an upright position.
- Exhale fully.
- Place the mouthpiece between your lips and seal your lips around the mouthpiece.
- Activate your inhaler as you breathe in slowly.
- After taking a full, slow breath, move the mouthpiece away from your mouth and hold your breath for 10 seconds or as long as possible. Repeat as directed.
- Rinse your mouth with water.
- Clean your spacer according to the manufacturer’s instructions. Repeat these steps if another puff is indicated.
**Nebulizers**

A nebulizer is a device that turns liquid medicine into a vapor (mist) that can be inhaled. Nebulizers are commonly used in the hospital setting, but they can also be used at home. A nebulizer is useful for patients who are very young, very old, or debilitated. When using a nebulizer, the person is able to breathe normally. You do not need to hold your breath like you do when you use a regular inhaler.

To use a nebulizer follow these steps:

1. Make sure your hands and the device are clean.
2. Set up your nebulizer with tubing and mouthpiece according to your nebulizer’s instructions.
3. Load the medication into the medication container.
4. Connect the nebulizer to the air compressor with the plastic tubing.
5. Plug in your compressor and then turn it on.
6. Sit in an upright, relaxed position and put the mouthpiece in your mouth.
7. Breathe normally, occasionally taking a deep breath and trying to hold for 5-10 seconds if you are able. Continue until the nebulizer sputters.
8. Tap the medication container to knock remaining droplets of medication to the bottom of the cup.
9. When the nebulizer sputters a second time, the treatment is done. A treatment usually lasts 6-10 minutes.
10. Take the nebulizer apart and rinse parts with warm water. Allow to dry completely before putting your nebulizer back together.
11. Wash all nebulizer parts once a week in warm, soapy water.
Medication storage and safety
Store your medicines in a cool, dry place away from bright windows or in rooms that are affected by outdoor weather.

Storage and safety of oral medications
- Store all your medications in a designated location. Keep all medications stored together in one place unless they require refrigeration or are labeled “store in a cool place.”
- Protect medications from moisture and direct sunlight.
- Do not mix different medications together in one container – keep all medications in the original bottle or package.
- Medicines should be stored in a cool, dry area. Do not store your medications in the medicine cabinet in the bathroom where there is a shower or bath or in the kitchen because the heat and moisture may cause deterioration.
- Flushing expired or unused medicines may cause environmental contamination of soil or water. DO NOT FLUSH unused medications or POUR them down a sink or drain.

Storage and safety tips of inhaled medications
- Keep your inhaler in a clean, dry place (for example, in a clear plastic bag in your gym bag or purse).
- Do not puncture or incinerate (burn) your canister.
- Replace the cap of the inhaler after each use. This will keep dust and dirt off the mouthpiece.
- Keep all inhalers out of heat and direct sunlight.
- Keep your inhaler away from extremes of heat or cold. Store between 59° and 86° F.
- Avoid spraying in eyes.
- Expired medications and any medication that your doctor has discontinued should be discarded. **Never use a medication, including inhalers, after the expiration date.** There are expiration dates on all of your medications, including inhalers. If you do not know where to find the expiration date, ask your doctor, nurse or pharmacist.
Some inhalers have counters on them. Never use an inhaler if the counter reads “000” – that means there is no active medication left in the device, even if you can still spray the inhaler.

**Store your medicines safely out of reach of other persons, children, and pets.**

- Never share or give your medications to another person.
- Never take prescription medication that was not prescribed for you.
- Be sure that your medications are stored out of reach of any children.
- Keep all medicines in their *original* bottle, box or bag.
- Ask the pharmacist how to dispose of medications once you are done taking them.
Asthma medications when you travel
When you are going to be traveling, it is important to plan ahead and make sure you take your asthma medications.

Planning includes:
• Packing extra medications for your trip. Bring more than you think you need in case of travel delays.
• Checking to make sure you have enough inhaler doses for your trip. If not, take a second inhaler with you.
• Carrying a written record of all your medical information, doctor and nurse contact information, and insurance card.
• Taking a complete list of your medicines, doses, schedule and important phone numbers with you including those of your doctor and local pharmacy.
• Adjusting your medication reminder system for your new daily schedule, such as time changes, while traveling.
• Medications are sensitive to temperature extremes (hot or cold). Keep medications in a cool, dry place and out of direct sunlight. Never store medications in a car’s glove compartment or trunk as cars can become too hot.
• Keeping medications dry.
• If you are flying, pack medications in your carry-on luggage. This way, you will have access to them during your flight. It will also ensure that you will have your medications if your baggage gets lost.
• If you leave your medications at home, call your doctor or nurse as soon as you realize it. They may be able to contact a pharmacy near you so that you don’t miss a dose.
Physical challenges and asthma medications

**Poor vision**
- Ask for written information to be printed larger.
- Ask pharmacies to use larger print medication labels.
- Let your pharmacist or nurse know if you have any trouble telling the difference between medications because they have similar shapes or colors.

**Poor hearing**
- Bring someone else with you to your doctor appointments to take notes and be a “second set of ears.”
- At the beginning of the visit, let your nurse or doctor know that you have difficulty hearing.
- Repeat what you heard back to the nurse or doctor to make sure you understand what they say.
- Ask for written information.
- Ask if you can record instructions so you can listen to them again after the visit.

**Poor mobility**
Sometimes medical conditions like arthritis make it hard for us to do the things we want or need to do. Handling pills, opening medication containers, or using an inhaler may be a problem for you.
- Be sure to discuss alternative ways for you to get your medications with your doctor, nurse or pharmacist.
- It may be helpful to use medication-dispensing cups or other devices, like spacers.
- The pharmacy may be able to provide you with an easy-to-open medication cap or a pre-loaded medication dispenser or package.

**Multiple chronic conditions**
Many people have multiple chronic conditions. Common chronic conditions include hypertension (high blood pressure), diabetes, heart conditions, lung disease, and arthritis. It can be very challenging to coordinate medications for these conditions.
- Your nurse, doctor, or pharmacist can help you set up a system to make it easier for you to take all your medications. They can check for safety concerns, such as possible medication or food interactions, and storage options.
- Always talk with your doctor, nurse or pharmacist if you have concerns about taking multiple medications.
References


*ConsumerMedSafety*, (1 Jan, web. 6 Mar) 

www.mayoclinic.com/health/asthma/


### Relievers / Rescue / Bronchodilators

#### Short-acting Beta₂ agonists

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<thead>
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<th>Brand</th>
<th>Active Ingredient</th>
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#### Controllers

### Inhaled Corticosteroids (ICS): Metered-Dose Inhalers (MDI)

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<th>Active Ingredient</th>
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<tr>
<td>QVAR</td>
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<td>Teva</td>
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### Asthma Medications

#### Ipratropium bromide

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<th>Active Ingredient</th>
<th>Dose</th>
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</thead>
<tbody>
<tr>
<td>Atrovent*</td>
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<td>Combivent Respimat*</td>
<td>ipratropium bromide 20 mcg, albuterol sulfate 100 mcg</td>
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* Ipratropium bromide is not a recommended rescue inhaler outside of use in the emergency room or urgent care but may, on occasion, be prescribed to supplement short-acting Beta₂ agonists.