


# IN GOOD HEALTH

A Publication Compiled by the Clinical Pharmacy Team of  **Health Solutions**  
PHARMACY BENEFITS MANAGEMENT

## **ASTHMA OVERVIEW**

Asthma is a chronic inflammatory disorder of the airway affecting nearly 20 million Americans. The airway is the tube that carries oxygen (air) in and out of your lungs. In people that have asthma, three major features are present: *inflammation* (swelling), *airway obstruction* and *airway irritability*.

Inflammation is the body's natural response to injury or irritation. The inside walls of the airway are inflamed in people with asthma. This inflammation increases the sensitivity of the airway (*airway irritability*), making it react strongly to allergy-causing substances or triggers.

During an asthma attack, *airway obstruction* occurs in response to an allergen or trigger. The muscle bands surrounding the airway tightens, which narrows the airway and allows less air to flow to lung tissue. Cells in the airway may also produce more mucus than normal, which also narrows the airway. These airway changes make it harder to breathe.

### **Symptoms**

Symptoms of asthma are the result of airways that are tightened, swollen and filled with mucus. Symptoms can vary between individuals, as well as in the same person and can sometimes be absent. An asthma "attack" is defined as the sudden worsening of symptoms. Some symptoms include: coughing (especially at night or early morning), wheezing, tightness in the chest and shortness of breath.

### **Causes**

There are things in the environment that can contribute to asthma symptoms and cause an asthma attack. Some of the more common factors include exercise, allergens, irritants and viral infections. Some people have asthma only when they exercise or have a viral infection; however, the majority of people with asthma have allergies to airborne substances.


Allergy-causing airborne substances include pollens (trees, grass, weeds), animal dander, fungal spores, mold and dust mites. Allergies and sensitivities to food, preservatives and/or medications may also be responsible. Asthma triggers include respiratory infections, health conditions such as gastroesophageal reflux disease (GERD), strenuous exercise, weather conditions and strong emotions. Inhaled irritants such as tobacco smoke, perfumes, cleaning agents and burning wood are also triggers.

### **Treatment**

There is no cure for asthma, but most people with this condition can control it so that they have few and infrequent symptoms and can lead active lives. Treatment involves medications, avoiding asthma triggers, monitoring and recording of daily symptoms and peak flow or airway capacity monitoring.

Medications used in the treatment of asthma fall into two general categories – long-term or short-acting/quick relief.

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**Long Term Medication** – These medications are taken every day. They are used to prevent an asthma attack from occurring and include:

- *Anti-inflammatory medications* are the primary category of drugs used for long-term control of asthma. Anti-inflammatory drugs are corticosteroids (steroids). Corticosteroids reduce airway inflammation and mucus production, resulting in airways that are less sensitive to the effects of triggers. Inhaled corticosteroids are primarily used for long term control, while oral corticosteroids (such as prednisone) are reserved for more difficult episodes. High dose, short-term oral corticosteroids are used to abort an attack.
- *Inhaled Mast cell stabilizers* reduce the body's chemical response to triggers and thereby reduce airway hyperactivity.
- *Leukotriene modifiers* inhibit the production of leukotrienes, a chemical in the body responsible for inflammation, edema (swelling), mucous secretion, and airway constriction.
- *Monoclonal antibody* medications, which are taken by injection, decrease the production IgE, a chemical responsible for allergic response.
- *Xanthine derivatives* relax bronchial muscles and act upon the kidney to rid the body of excess fluid.
- *Long-acting beta<sub>2</sub> agonists* cause relaxation of the bronchial muscle and inhibit chemicals involved in asthma response. These are usually taken along with an inhaled corticosteroid medication.

**Short Acting/Quick Relief Medication** – These products are used to provide quick symptom relief. Cough, chest tightness and wheezing are signs of airway constriction. These medications are available in both oral and inhaled formulations. These medications are used to alleviate, or in special situations to prevent, an asthma attack.

- *Short-acting beta<sub>2</sub> agonists* which are generally called “rescue inhalers” are taken on an as needed basis. These products relax bronchial muscles and inhibit chemicals involved in the response to asthma triggers.

Monitoring your asthma symptoms by recording when they started and the environment factors at the time (i.e. season, food eaten, pets around) may be beneficial in recognizing triggers. Some individuals find they have many triggers, while others find that they may only have one. Once identified, these triggers can be avoided and prevent the possibility of an asthma attack. Your physician may order skin or blood testing which can also be helpful in trigger identification.

A device called a peak flow meter is used to measure how much and how quickly air can be expelled from the lungs. Measurement of air volume can alert you to changes that are occurring in your ability to breath, and the possibility of the onset of an asthma attack. If you do not currently use a peak flow meter, check with your physician to determine if this device may be beneficial to you.

Treating asthma is an important part of any asthma sufferers' life. To do so, they must work closely with their physician to learn how to manage their condition, stay away from asthma triggers, take medicines as directed and monitor their condition so they can respond quickly to signs of an attack.