What is asthma?
Asthma is a chronic lung disease that affects more than 25 million Americans and can be life threatening if not properly managed. An asthma attack occurs when an irritant causes the narrowing of the airway passages, which results in the tightening of the bronchial walls and excess mucus production. This condition causes symptoms from minor wheezing to severe difficulty in breathing and must be treated promptly.

What causes asthma?
Asthma can develop at any age, however one is more likely to get asthma if there is an inherited predisposition and/or the individual is sensitive to environmental allergens and irritants. Asthma is the most common chronic illness suffered by children. Although some children may outgrow asthma with age, others may experience asthma their entire life.

Although it is difficult to determine what causes asthma, research has shown that the following factors may contribute to the development of asthma:

- Genetic predisposition
- Environmental pollutants
- Exposure to secondhand smoke
- Exposure to occupational triggers (e.g., chemicals)
- Respiratory infections in childhood
- Low birth weight
- Obesity
- Gastroesophageal Reflex Disease (GERD)

What are some common triggers of an asthma attack?(639,155),(999,995)
Common triggers that may irritate the airway passages and cause an asthma attack may include:

- Viral infections
- Allergens (pollen, mold, animal/pet dander, etc.)
- Irritants (cold air, tobacco, smoke, chemical fumes, etc.)
- Exercise
- Medications

How can an asthma attack be prevented from happening?
Recognizing and understanding what triggers an asthma attack is the first line of prevention. However, even if these allergens and irritants are identified it may be impossible to avoid them, thus making the management of asthma very challenging. Following the advice from a health care provider as well as adopting the following behaviors may be helpful in preventing future attacks.

1. Develop an action plan
   - Create a detailed plan for taking maintenance medications and managing acute attacks

2. Monitor breathing
   - Be aware of the signs of an impending attack such as wheezing and difficulty breathing.

3. Treat attacks early
   - Act quickly to help prevent a severe attack.

What is the treatment for Asthma?
Asthma attacks can become life threatening. Therefore, it is important that this condition be managed properly. A health care provider can help develop a safe and effective treatment plan to help control this condition. The goals of treatment may include attack prevention and/or symptom relief.

Quick relief treatment (Taken during an asthma attack)
- Bronchodilators

Long-term treatment (taken daily to prevent asthma attacks):
- Inhaled corticosteroids
- Cromolyn or Nedocromil
- Leukotrienes modifiers
- Inhaled beta 2-agonists
- Methylxanthines
- Omalizumab

Immunotherapy (allergy shots) may also be used to treat allergy-related asthma. Immunotherapy involves injections containing small amounts of allergens that are given on a set schedule over a period of time. The goal of immunotherapy is to decrease the body's sensitivity to specific allergens.
4. Exercise
• Regular exercise can help strengthen the heart and lungs as well as provide other health benefits. It is recommended that an individual speak to a health care provider before participating in any exercise.

5. Use the air conditioner
• Use a good air filter and change it on a monthly basis.

6. Decontaminate the house
• Keep your residence clean and minimize dust. Use a dust proof encasement on mattresses and pillows.

7. Reduce pet dander
• Bathe pets or have them groomed regularly. Do not allow pets in the bedroom.

What to do during an asthma attack?
It is important to be prepared for an asthma attack. This means carrying medication and an emergency contact list at all times. The following steps give a general guide for how to respond during an asthma attack:

• Take your usual dose of bronchodilator (usually from an inhaler) immediately. It is preferable to use a spacer to enhance the benefits of the medicine.
• Keep calm and try to relax as much as possible. Sit down (do not lie down) and place hands on knees to help support the body. Also, make an attempt to slow down breathing (this prevents exhaustion).
• Wait 5-10 minutes to see if symptoms disappear.
• If symptoms disappear, resume activities that were engaged in before the attack.
• If this treatment has no effect, call a health care provider or the local emergency number.
• Continue to use your bronchodilator inhaler every few minutes until help arrives. Continued inhalation is safe because it is not possible to overdose on a bronchodilator.

Six goals for the effective management of asthma from the national institutes of health
Ways to prevent chronic and troublesome symptoms:
• Maintain normal breathing (as much as possible)
• Maintain normal activity levels, including exercise
• Prevent recurring flare ups to minimize the need for emergency room visits/hospitalization
• Provide optimal medication therapy with minimal or no adverse effects
• Meet patient’s and family’s expectations for satisfactory asthma care

If these goals are not being adequately met, it is important that all concerns be discussed with a health care provider.

References
• www.lungusa.org (American Lung Association)
• www.asthma.org.uk (National Asthma Campaign)
• www.mayoclinic.com (Mayo Clinic)
• www.aaaai.org (American Academy of Allergy Asthma and Immunology)
• www.nih.gov (National Institutes of Health)