

**“BREATH OF LIFE”
ENVIRONMENTAL ASTHMA AND AIRWAY INFLAMMATION**

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Dr. Kline is Professor of Internal Medicine and of Occupational and Environmental Medicine at the University of Iowa. He developed and directs the University of Iowa Asthma Center, which has a mission of excellence in clinical care, clinical and basic research, and education related to asthma and other airways diseases.

His research focuses on understanding the basic mechanisms of airway inflammation with the goal of developing new treatments for this common disease. He moved from California to Iowa City in 1990 to complete his training in Pulmonary Medicine, and he has not been able to tear himself away since; he is married and has four Sons and three dogs



Paul B. McCray, M.D.

Dr. McCray is Professor of Pediatrics, Microbiology and Internal Medicine, and serves as Vice Chair for Pediatric for the University of Iowa Department of Pediatrics. Dr. McCray received his undergraduate degree from Saint Olaf College, and continued to the University of Iowa for his medical, pediatrics, and pulmonary training. He cares for infants and children with cystic fibrosis, asthma, and developmental anomalies of the lung.

Dr. McCray directs a research lab that focuses on the causes and treatment of Cystic Fibrosis (CF) and other forms of pulmonary disease.

What are the symptoms of asthma?

- Wheezing
- Coughing
- Chest tightness
- And/or shortness of breath that may occur in response to specific exposures

What causes asthma?

The reason people get asthma is not fully known, although it can be inherited and exposure to certain environments can lead to its development. Triggers that cause asthma symptoms to appear are different for each individual, but may include dust and dust mites, cold air, smoke, exercise, mold, pet dander, and pollen.

Who is affected by asthma?

- Over 20 million Americans suffer from asthma.
- It can develop at any age, yet children 18 and younger account for about a third of all asthma cases.
- It affects all races, yet is more common in African Americans and Latinos.
- The number of people affected is eight to 10 times higher in industrialized countries than in developing ones.

What is asthma?

Asthma is chronic airway inflammation characterized by recurrent episodes of coughing, chest tightness, breathlessness, and wheezing resulting from obstructed and narrowed air passages. Asthma symptoms can be intermittent, mild persistent, moderate persistent, or severe persistent.

When acute asthma occurs, the air passages in the lungs tighten. The thin, inner linings of the air passage tubes become swollen and inflamed. Mucus produced in these tubes increases and thickens, making it harder to breathe. During an acute episode of asthma, the chest feels tight and it may be difficult to speak. Often it is easier to inhale than to exhale. Coughing or a high-pitched whistling sound (called wheezing) may be heard when breathing.

What are some of the asthma triggers?

Acute asthma symptoms may be triggered by:

- irritants (such as cigarette or wood smoke, chemicals, perfumes, or household cleaners)
- climate (such as changes in humidity or temperature extremes)
- strenuous exercise
- viral respiratory infections
- allergens (such things as airborne pollens, molds, animal dander, some foods, or medications)
- reflux disease (stomach acid backing up into the esophagus)

Medications for asthma can be given by inhalation, orally, or by injection into soft tissue, muscle, or directly into a vein. The advantage of inhaled medication is that high concentrations of medication are delivered directly into the airways and systemic side effects are avoided or minimized.

Medications used for asthma management depend on the severity of symptoms. Maintenance medications are used daily on a long-term basis to control asthma. Intervention medications act to relieve constriction of airway and the associated symptoms of cough, wheezing, or chest tightness.

The selection of medications within these two groups of medications is made based on the pattern of symptoms. The goal is to manage asthma with the least possible medication.

If you have asthma, become a participant in the management of your asthma. Learn more about the disease, avoid known asthma triggers, and follow your treatment plan. People with asthma can lead a comfortable, healthy, and active life.

Asthma in the U.S.

It is estimated that five to 15 percent of the population or more than 15 million people in the U.S. alone have asthma. This respiratory disease costs more than \$6 billion per year in this country, much of it due to the expense of hospitalization and medication used to treat the disorder.

Asthma is the most common chronic disease of childhood, affecting more than five million children.

Despite important strides that have been made in our understanding of asthma over the last 20 years, its prevalence has been increasing worldwide.

In Iowa

Asthma affects over 200,000 Iowans, including over 40,000 under age 18. Costs associated with asthma in Iowa total over \$110 million.

International studies suggest that children raised on a farm are somewhat protected against developing allergies and asthma. However, at least 12 percent of children that live in rural Iowa have asthma, and some areas appear to have as much asthma as children in the inner city. Living on a farm that raises pigs increases the chance of developing asthma, as does exposure to other livestock. In some studies, pesticide use has been associated with wheezing asthma. Therefore, the possibility that living on a farm in Iowa decreases the chance of having asthma is unclear.

Asthma remains an important public health problem for both children and adults in Iowa.

Source: University of Iowa Website.