An Introduction to the Problem of Asthma

Asthma is a chronic lung disease characterized by recurrent respiratory symptoms such as wheezing, breathlessness, chest tightness, coughing, and variable airflow obstruction that is reversible spontaneously or with treatment. During an asthma attack three things occur: broncho-constriction, mucous production, and inflammation.

Experts are not sure why some people develop asthma. Many factors may be involved, one of which is heredity. Some doctors believe that the airways become oversensitive because of damage to the cells caused by a viral infection such as a cold or flu. Others believe that the initial damage is caused by an allergic reaction causing the lungs to overreact to viral infections. One theory is that babies may be particularly prone to reactions caused by allergens (substances that spark allergic symptoms) because their immune systems are immature and unable to cope with airborne allergens and common asthma triggers such as house dust mites’ dung, exhaust fumes, or cigarette smoke. Asthma does tend to run in families, and is more likely to exist in families prone to allergies. However, because there are so many different factors involved it can be extremely difficult to predict exactly who in a family will develop asthma. It appears that genetic predisposition interacts with environmental factors to trigger the onset of the disease. Environmental factors that seem to increase the risk of developing asthma include being exposed to cigarette smoke early in life, exposure to pet dander early in life, and certain types of infection early in life.

Asthma is a major public health problem in the United States. The disease affects approximately 20.3 million people, nearly 6.3 million of whom are under the age of 18 years. It accounts for an estimated 14.5 million lost workdays for adults and 14 million lost school days in children annually. The collective cost of the disease is estimated at $14.0 billion for the year 2002 (1).

There is a disturbing trend of increasing prevalence of asthma in the United States. Between 1980 and 1996, the prevalence of asthma in the United States increased by almost 74%. Also disturbing is amount of asthma-related health care utilization in this country. In 1999, there were an estimated 10.8 million physician office and hospital outpatient department visits, 1.9 million emergency room visits, and 478,000 hospitalizations due to asthma. The rates for such health care utilization have been disproportionately higher among blacks, women, and young children. For example, the rate of hospitalizations among African-Americans in 1999 was nearly triple that of whites (2).

Although asthma mortality in the United States is among the lowest in the world, in the year 2000 there were still approximately 4,500 asthma-related deaths in this country (1). Moreover, the asthma mortality rate has risen over the past 20 years or so, especially in African-Americans and individuals age 85 and older. This increase is of particular concern because it comes at a time when mortality rates from most natural causes in the United States are on the decline.

Secondhand smoke is being increasingly recognized as an important trigger for asthma. According to the Environmental Protection Agency, secondhand smoke exacerbates asthma in an estimated 200,000 to a million children in the United States every year (3). It also causes an estimated 8,000-26,000 new cases of asthma among children in the U.S. every year (4). According to a 1996 meta-analysis conducted by DiFranza and Lew, secondhand smoke (household smoking) is associated with an increased prevalence of asthma, accounting for an estimated 307,000-522,000 cases among children younger than 15 years of age; secondhand smoke also exacerbates existing asthma, being responsible for about 0.5 million visits to physicians by children every year (5).
The reasons for the increasing morbidity and mortality seen with asthma are not very clear. However, many asthma-related hospitalizations and deaths are preventable, and occur after certain “missteps” occur. For example, the patient or his/her caretaker may fail to avoid environmental factors that make asthma worse, recognize early warning signs of worsening asthma, appreciate the severity of an attack, take appropriate medication, or get prompt medical help when problems occur. The clinician may fail to diagnose asthma, initiate appropriate therapy, adequately monitor the patient's condition, recognize serious complications, and/or educate the patient to prevent symptoms and develop a crisis plan for emergencies. These issues became the impetus for the development of the National Asthma Education and Prevention Program (NAEPP) in 1988, and helped define the program's objectives:

For Patients and the Public

- Increase public awareness of asthma as a significant public health problem.
- Increase public awareness of the signs and symptoms of asthma.
- Improve the knowledge, attitudes, and skills of patients regarding the detection, treatment, and control of asthma, particularly in high-risk populations.
- Define guidelines for effective asthma education programs.
- Promote development, dissemination, and use of patient and family education materials.

For Health Professionals

- Increase knowledge, attitudes, and skills of all health professionals regarding signs, symptoms, and management strategies for asthma.
- Encourage health professionals treating patients with asthma to adequately track and monitor patient status and to use objective measures of lung function.
- Assist and encourage health professional schools and continuing education programs to include up-to-date and accurate information on diagnosis, pathogenesis, and treatment of patients with asthma.
- Promote and encourage the concept of active patient participation with the physician in the management of asthma.
- Develop resources and materials for use by health professionals.
- Promote research to answer unresolved questions about underlying causes of asthma and appropriate asthma treatment and management practices.

With the implementation of these objectives, it is thought that the effect of asthma on our population can be minimized. The working objectives for respiratory diseases are outlined in the West Virginia Healthy People 2010 Objectives for Respiratory Diseases (see Appendix A).