



Community Health Assessment Quarterly

Volume 5, Issue 1

Spring 2010

Asthma

Introduction

Asthma is a chronic disease of the lungs that affects almost 23 million Americans including 7 million children.¹ Through appropriate medical care, we can treat and manage asthma, however, it is a condition without a cure. While many persons with asthma experience respiratory symptoms infrequently, exposure to certain irritants can set off an asthma attack. An asthma attack can involve difficulty breathing and wheezing with symptoms ranging in severity and, in extreme instances, an attack may lead to death. Regardless of severity, asthma affects quality of life by restricting activity and requiring medical care.

During an asthma attack the airways leading from the nose and mouth to the lungs become narrow and the inside lining of the airways becomes swollen and starts producing extra mucous. At the same time, muscles surrounding the outside of the airways can start to tighten. The result is that less air enters and leaves the lungs causing shortness of breath and wheezing.²

A person can get asthma at any age and its causes are unclear. However, some factors are associated with a greater risk of developing the disease. Those with a family history of asthma, respiratory infections in infancy that caused lung damage, certain types of allergies, or exposure to air pollutants can develop asthma.³

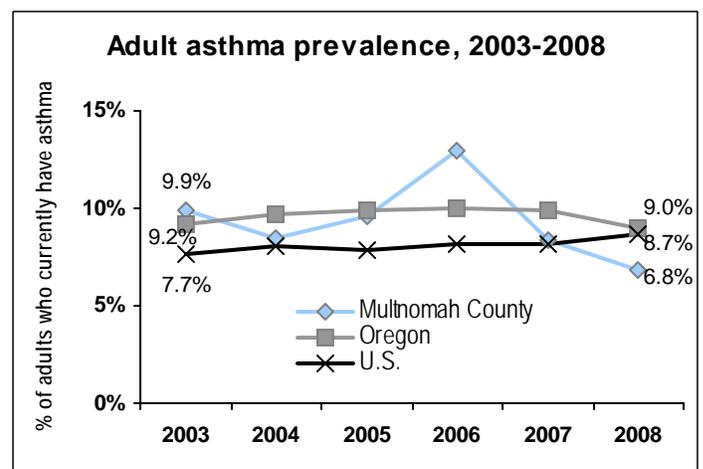
For people with asthma certain types of triggers⁴ can set off the symptoms of an attack including:

- Cigarette smoke (either smoking yourself or being exposed to secondhand smoke)
- Allergens such as mold, pollen, dust, cockroaches, dust mites, animal droppings, and dander from animals with fur or feathers

- Irritants including perfumes, room fresheners, cleaning fluids including bleach, air pollution, wood smoke and kerosene heaters
- Respiratory infections such as the common cold and influenza
- Chemicals including sulfur dioxide and sulfites (used to preserve foods and beverages), the off-gassing of new products or furniture, and aspirin or other anti-inflammatory drugs
- Exercise
- Stress.

Asthma trends in Multnomah County

Data on adult asthma are collected annually through the Behavioral Risk Factor Surveillance System, a telephone survey administered nationally. The proportion of adult survey respondents countywide who were diagnosed as currently having asthma declined slightly between 2003 and 2008 from 9.9% to 6.8%.⁵ State and national rates have remained steady over this period. Oregon's adult asthma prevalence varied between 9.0% and 10.0% while nationwide the percentage ranged from 7.7% to 8.7%.



Adult populations affected in Multnomah County

For the following analysis BRFSS data from multiple years have been combined to maintain statistical accuracy at the county and state levels when comparing them to the nation.

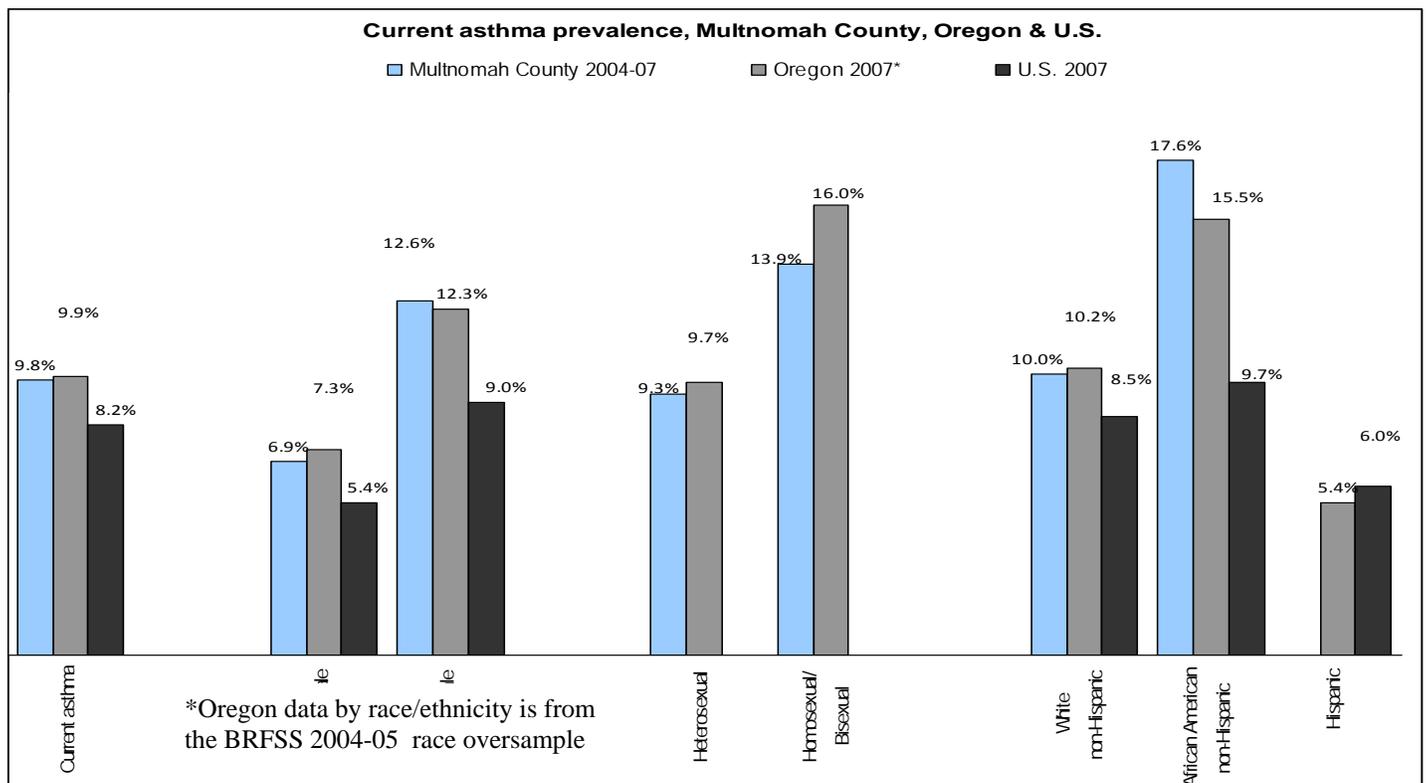
During the 2004-07 period 15.6% of adults 18 years or older in Multnomah County reported that they had been diagnosed with asthma during their lifetime.⁵ In comparison, 16% of all Oregon adults and 12.9% of adults nationwide in 2007 reported a lifetime diagnosis of asthma.⁵ In some cases, those diagnosed with asthma in early life show no signs of the disease by the time they reach adulthood. Only 9.8% of the adult population in Multnomah County reported currently having asthma when surveyed in 2004-07.⁵ In comparison 9.9% of all adult Oregonians and 8.2% of adults nationwide had asthma currently in 2007.^{6,7}

Age-group—Current asthma prevalence varied little by age group among Multnomah County adults in 2004-07 and among adults statewide in 2007.^{5,6} Similar proportions of adults reported asthma in the 18 to 34 year old, 35 to 64 year old, and 65 years and older categories.

Gender— Similar to national and statewide statistics, a greater proportion of adult women resid-

ing in Multnomah County have asthma currently when compared with men. In 2004-07, approximately 6.9% of men and 12.6% of women reported having current asthma in Multnomah County⁵ compared with 7.3% of men and 12.4% of women statewide in 2007.⁶ There is no clear biological explanation for this discrepancy between the genders. As young children boys are more likely to suffer from asthma than girls. This pattern reverses by adolescence and into adulthood. It is possible that the difference in asthma prevalence among men and women is due to social and environmental factors.⁸

Race/ethnicity—The proportion of adults presently living with asthma also varies by race/ethnicity. In 2007, 8.5% of White non-Hispanics reported current asthma in the U.S. Among African-American non-Hispanics nationwide 9.7% of adults reported having current asthma in 2007.⁹ In Oregon 10.2% of White non-Hispanic adults and 15.5% of African American non-Hispanic adults reported current asthma in 2004-05.⁶ During 2004-07 in Multnomah County 10.0% of the White non-Hispanic adult population and 17.6% of the African-American non-Hispanic population reported current asthma.⁵ Data suggest that economic disparities, higher rates of smoking, and



higher self-reported rates of overweight and obesity contribute to a greater proportion of African-American adults reporting current asthma.⁶ Due to small numbers, we are unable to report asthma prevalence in other race/ethnicity categories.

Sexual orientation—Current asthma prevalence was higher among county residents who self-identify as homosexual or bisexual compared with those who self identify as heterosexual adults. In 2004-07 13.9% of homosexual and bisexual survey respondents reported having current asthma compared with 9.3% among heterosexual respondents in the county.⁵ As with racial/ethnic disparities, a higher smoking rate, higher reported stress levels, and higher reported levels of overweight/obesity among lesbians are potential reasons for the higher levels of current asthma in this population.

Socioeconomic status—Educational attainment and household income both showed an inverse relationship with current asthma prevalence among adults in Multnomah County as well as statewide. In 2004-07, adult county residents with less than a college degree were more likely to have asthma compared with college graduates. Ten percent of residents without a high school diploma, 11.3% of high school graduates, and 11.1% of residents with some college education reported having asthma currently. In comparison, 8.3% of college graduates reported having the disease.⁵

A similar relationship exists between household income and the proportion of adults with asthma. A larger proportion of county residents earning less than \$15,000 a year (prevalence of 16.6% of adults) had current asthma compared with residents earning more than \$50,000 a year (prevalence of 7.8% of adults) in 2004-07.⁵ Again, this reflects trends at the state and federal levels. Among the reasons for this discrepancy in asthma prevalence are environmental triggers in substandard housing for low income residents such as mold, mildew, cockroaches and other allergens. In addition, smoking rates among low income residents is typically much higher compared with higher income residents.⁶ The combination of exposures may explain why the proportion of adults with asthma is more than twice as high in low income adults compared with the higher income residents in the county.

Childhood asthma

The proportion of children with asthma is reported through the Oregon Healthy Teen Survey which is administered to 8th and 11th grade students statewide. Between 2004 and 2007 gender-specific asthma prevalence remained stable for Oregon students in both grades varying between 9.7% and 10.8%. A gender difference in asthma prevalence is present in this age group with girls being more likely to report asthma than boys. However, the difference is less pronounced compared with adult males and females.

In 2005-06 the proportion of Multnomah County 8th graders reporting asthma was 9.5% compared to 10.2% statewide. Among 11th graders, 9.8% of the students responding to the survey said they had asthma compared with 10.4% of 11th graders statewide.⁶

Asthma-related emergency department visits and hospitalization

In addition to measuring the proportion of the county population that suffers from asthma, it is useful to examine the rates of visits to emergency departments (EDs) and hospitalizations due to asthma. Together, these measures create a more complete picture of the burden that asthma places on the quality of life of those living with the disease. The rate of ED visits and cost of hospitalizations also provides information on the financial burden of the disease to the health care system.

The most accurate and complete data on asthma-related ED visits can be obtained for persons aged 4 to 55 years old who are covered under Medicaid or the State Children's Health Insurance Plan (SCHIP) for at least six months. ED visit data are not available for asthma patients who have other types of health insurance or no health insurance. The most current county data show that in 2004-06 the rate of ED visits was almost 25 per 100 children with asthma from birth to 17 years of age. Among adults (ages 18 to 55 years) the ED visit rate during the same period was 16 out of every 100 adults with asthma.¹⁰ Asthma is one of the leading cause of ED visits nationally.⁶

In 2002-06 in Multnomah County the asthma hospitalization rate was 7.8 per 10,000 residents.¹¹ In comparison, the statewide hospitalization rate was

6.6 per 10,000 persons. These rates are based on the number of hospitalizations in this period rather than the number of individuals hospitalized. There were 2,588 asthma-related hospitalizations in 2002-06 among Multnomah County residents costing nearly \$29 million in hospital charges. Since 1997 the annual cost of asthma-related hospitalizations has increased from approximately \$3.3 million to about \$7 million in 2007.¹¹

Efforts to reduce asthma in Multnomah County

Multnomah County Health Department's (MCHD) Healthy Homes program serves low income families with children who have less controlled asthma. The program's goal is to reduce the frequency of asthma attacks, ED visits, and hospitalizations. During a six month period, community health workers and nurses complete an average of eight home visits to provide education on asthma triggers in the home and on medication management.

The Asthma Inspection Referral program (AIR) allows health care providers to refer pediatric patients with asthma to this free home inspection program regardless of income level. A community referral program (CAIR) will begin in summer 2010 allowing low income households without a

health care provider to access these health department services.

MCHD also works with city government, non-profit groups and representatives of landlord associations to identify ways in which low income rental housing can meet healthy housing standards. Through these efforts they seek to prevent asthma and other health issues in residents of these rental units.

Asthma Care Management staff at MCHD's primary care clinics work with school based health centers to develop case management and teaching strategies for children with persistent asthma.

Oregon Department of Human Services (DHS) provides education on asthma management for those currently suffering from asthma. The state government also convenes work groups to collect asthma data and to set policy to prevent asthma. DHS is also working with health care providers to improve the medical care of those already diagnosed with asthma. These efforts are focused on reducing the overuse or underuse of asthma control medication that may result in poor health outcomes including uncontrolled asthma. In addition, state public health efforts are also focused on linking persons with asthma to smoking cessation resources, when needed.

References: (1) Pleis JR, Lucas JW, Ward BW. Summary health statistics for U.S. adults: National Health Interview Survey, 2008. National Center for Health Statistics. Vital Health Stat 10(242). 2009; (2) The Mayo Clinic. Mechanism of asthma. URL: <http://www.mayoclinic.com/health/medical/IM03162> accessed on 03/29/10; (3) Asthma and Allergy Foundation of America. What causes asthma? URL: <http://www.aafa.org/display.cfm?id=8&cont=6> accessed on 03/29/10; (4) Centers for Disease Control and Prevention. Important asthma triggers. URL: <http://www.cdc.gov/asthma/triggers.html> accessed on 03/29/10; (5) Oregon Department of Human Services, Public Health Division, Center for Health Statistics. Behavioral Risk Factor Surveillance System data for 2003 through 2008; (6) Oregon Asthma Program. 2009. The Burden of Asthma in Oregon: 2008. Available online at www.oregon.gov/ph/asthma/docs/burden.pdf; (7) Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion National Center for Chronic Disease Prevention and Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Behavioral Risk Factor Surveillance System data for 2003 through 2008; (8) Medscape Today. Gender-specific differences in asthma. URL: http://www.medscape.com/viewarticle/409544_3 accessed on

03/29/10; (9) Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. Table C5 Adult Self-Reported Current Asthma Prevalence Rate (Percent) and Prevalence (Number) by Race/Ethnicity and State or Territory: BRFSS 2007; (10) E-mail correspondence from Rodney Garland, Oregon Asthma Program dated 03/15/10 citing Oregon Division of Medical Assistance Programs statistics; (11) E-mail correspondence from Rodney Garland, Oregon Asthma Program dated 03/15/10 citing Oregon Hospital Discharge Index data.

Community Health Assessment

Quarterly is published four times per year by Multnomah County Health Department Health Assessment and Evaluation Office 426 SW Stark St 9th Floor, Portland OR 97204.

If you have questions or comments, please contact Maya Bhat at maya.bhat@co.multnomah.or.us or at 503-988-3663 x29055.

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