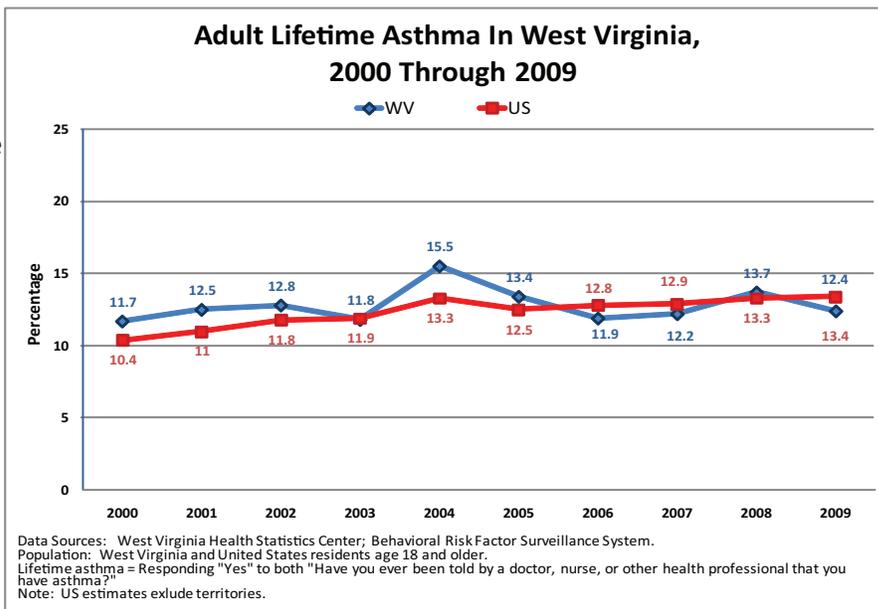


HSC Statistical Brief No. 27

Asthma Surveillance in West Virginia

Overview of Asthma in West Virginia

Asthma is a disease that affects the lungs. It causes repeated episodes of wheezing, breathlessness, chest tightness, and nighttime or early morning coughing. Asthma can be controlled by taking medications to prevent or relieve asthma episodes and by avoiding triggers that can cause the episodes. In 2009, there were approximately 177,000 adults and 47,000 children in West Virginia that have at some point in their life been diagnosed with asthma. Of those, approximately 126,000 adults and 32,000 children currently have asthma. The West Virginia Asthma Education and Prevention Program (WVAEPP) not only maintains an asthma surveillance system to track asthma, but also implements health promotion programs to reduce the burden of asthma in West Virginia.



Asthma Surveillance in West Virginia

The WVAEPP asthma surveillance system, managed by the West Virginia Health Statistics Center, utilizes multiple data sources to define the burden of asthma in West Virginia. Since 2000, the Behavioral Risk Factor Surveillance System (BRFSS) has included questions for lifetime and current asthma prevalence on the core survey conducted annually. In 2005, West Virginia began including additional questions on adult asthma history to better define the burden of asthma. The adult and child asthma call-back surveys were included in West Virginia surveys in 2007, replacing the adult asthma history module. These call-back surveys provide more detailed data on asthma prevalence, asthma symptoms and disease management, health care access and utilization, and environmental triggers. The BRFSS survey data are the main data source for the WVAEPP asthma surveillance system.

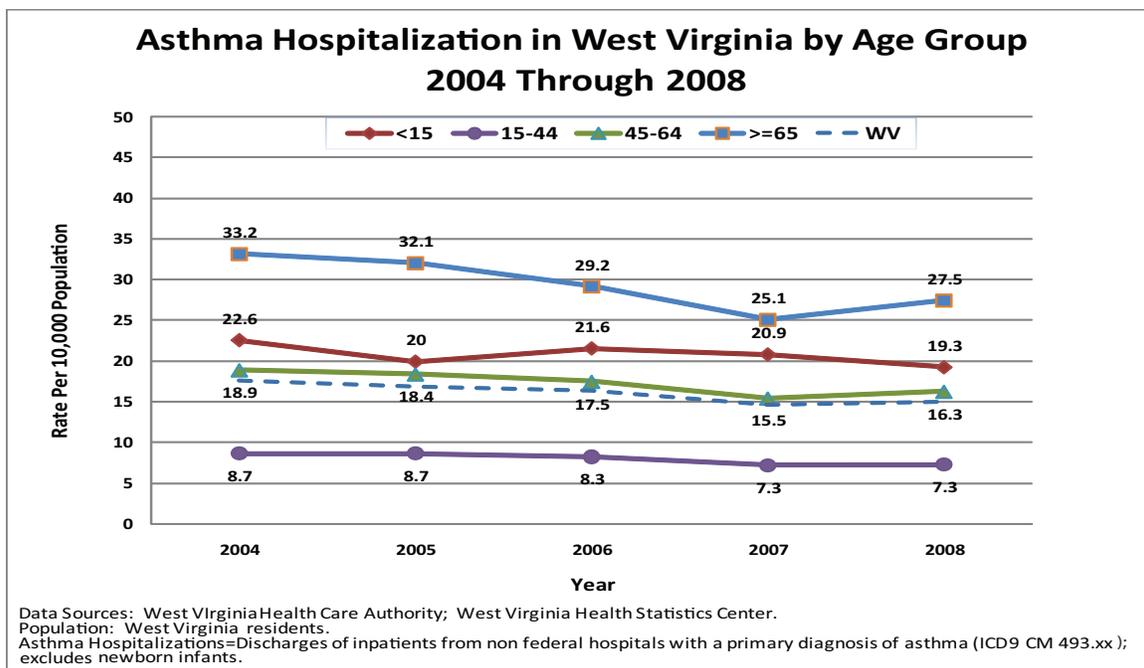
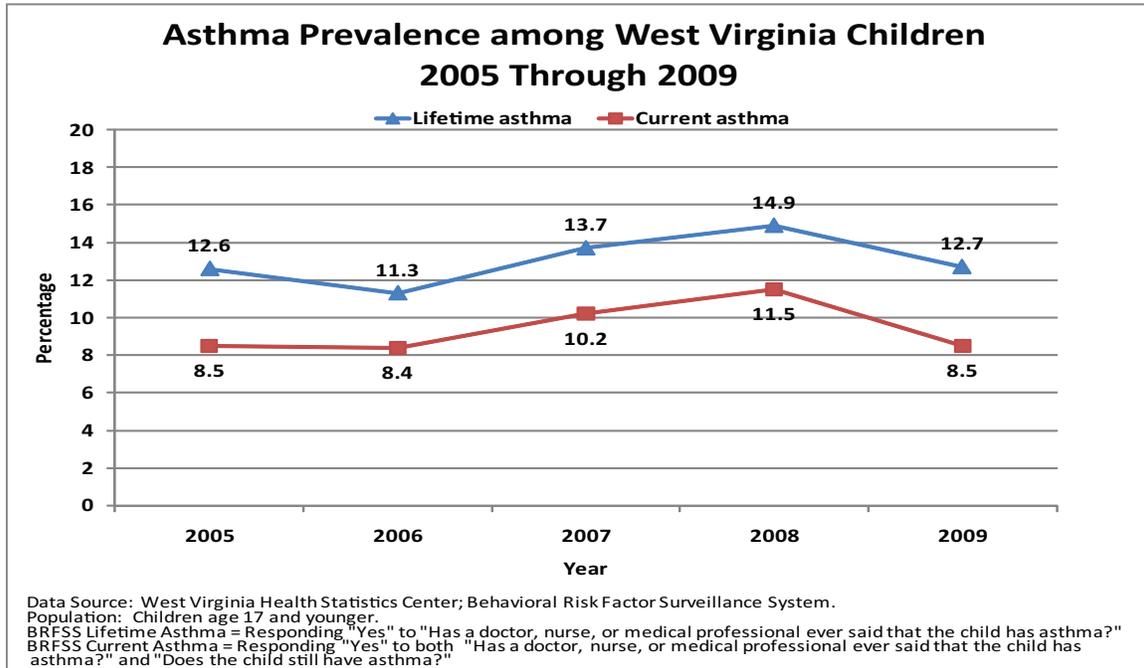
WVAEPP also develops partnerships to obtain additional data to better define the burden of asthma in West Virginia. These data include hospitalization data provided by the West Virginia Health Care Authority and mortality data provided by the West Virginia Health Statistic's Office of Vital Registration. The West Virginia Department of Education, partnering with the West Virginia Division of Tobacco Prevention, provides data on youths through the Youth Tobacco Survey (YTS) conducted every other year in West Virginia public high schools and public middle schools. As data are available, WVAEPP uses the National Survey of Children's Health (NSCH), the Youth Risk Behavior Surveillance System (YRBSS), the West Virginia Department of Education's West Virginia Electronic Information System (WVEIS) and School Nurse needs assessment, and any other data sets available as new partnerships are created. Appendix 1 shows the data currently available for WVAEPP to analyze.

Data Results

Analyses using age, gender, and socioeconomic status (SES) of those with current asthma revealed four priority populations for WVAEPP to focus efforts to reduce the asthma burden; children (age less than 18), women, seniors (age 65 and older), and those with low socioeconomic status (less than a high school diploma and earning less than \$25,000 annually).

Children

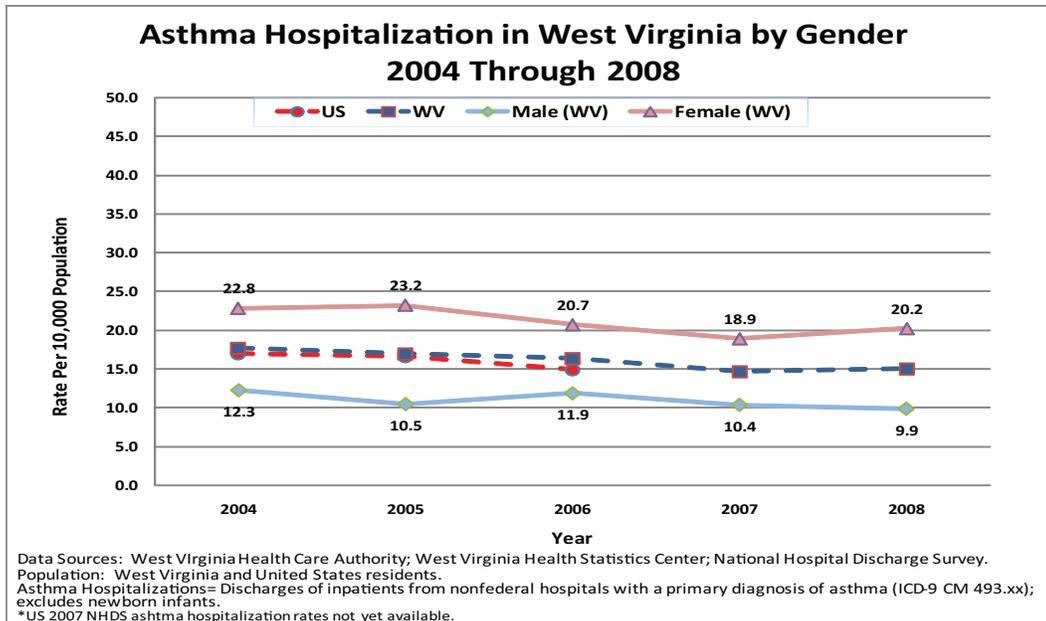
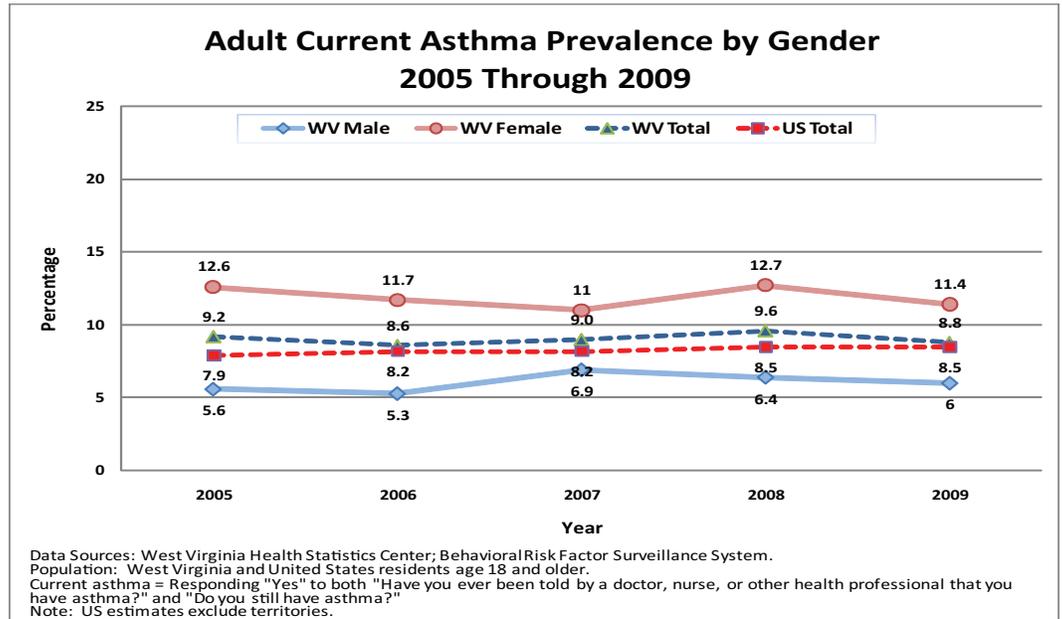
Although asthma is a controllable condition, many West Virginia children with asthma experience asthma-related symptoms and complications. According to the 2009 BRFSS, 8.5% of the population of West Virginia children reported having current asthma. This accounts for approximately 32,000 children. In the 2009 Youth Tobacco Survey, 8,400 (15.5%) West Virginia middle school students and 9,900 (13.7%) West Virginia high school students reported having current asthma. The rate of West Virginia hospitalizations for children under the age of 18 with a primary diagnosis of asthma was 16.5 per 10,000 in 2008.



Nationally, asthma is one of the leading chronic diseases among children and causes more absence from school than any other chronic disease.¹ According to the 2009 Youth Tobacco survey, one fourth of middle school students and one fifth of high school students with current asthma reported missing at least one day of school due to their asthma and almost half (44% of middle school and 43% of high school) of the students reported having an asthma episode within the last 12 months. Additional data on absenteeism will be available once the 2009 BRFSS Child Asthma Call-back survey data is released for analysis.

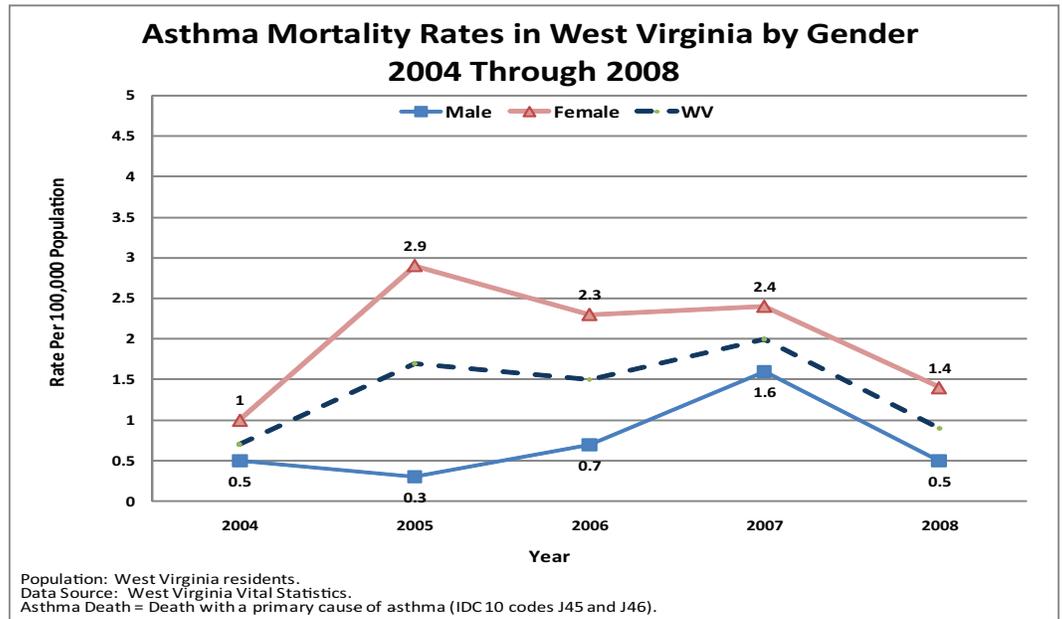
Women

West Virginia women are just as likely to have asthma as they are to have diabetes, and asthma is more common among women than coronary heart disease, heart attack, and stroke. In 2009, 84,000 (11.4%) women reported having current asthma in BRFSS. That is almost double that of men (6.0%).



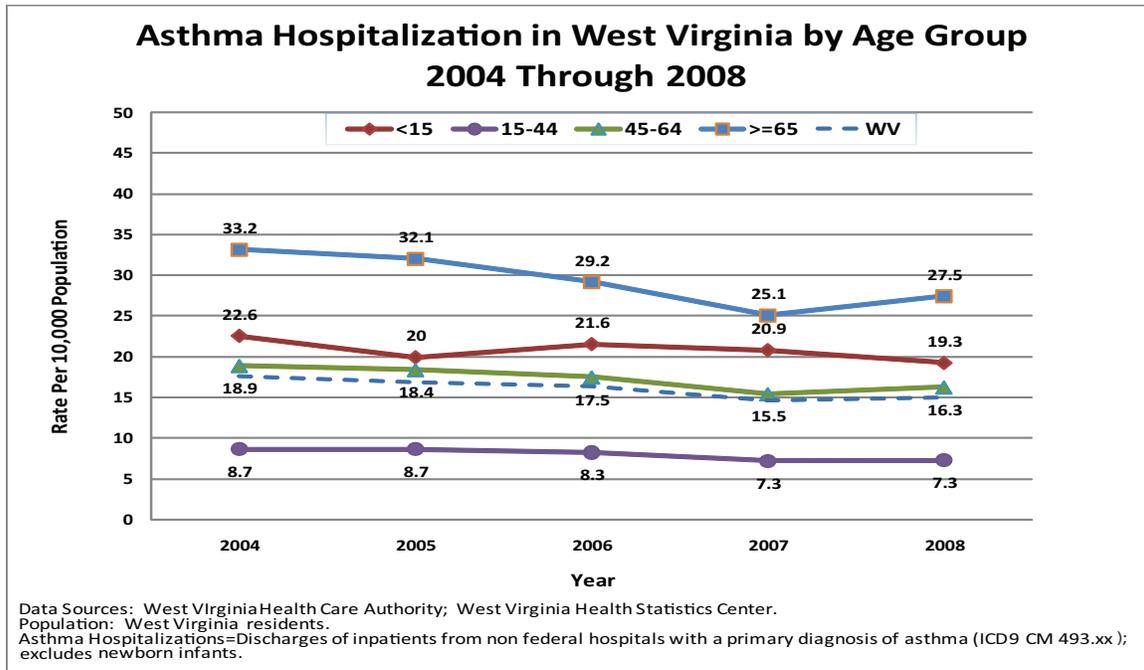
Women are also more likely than men to experience asthma-related complications that result in hospitalization and death. In 2008, the rate of hospitalizations for women (20.2 per 10,000) with a primary diagnosis of asthma was twice that of men (9.9 per 10,000).

The crude asthma mortality rate for women with asthma in West Virginia was 1.4 per 100,000 compared to 0.5 per 100,000 for men.

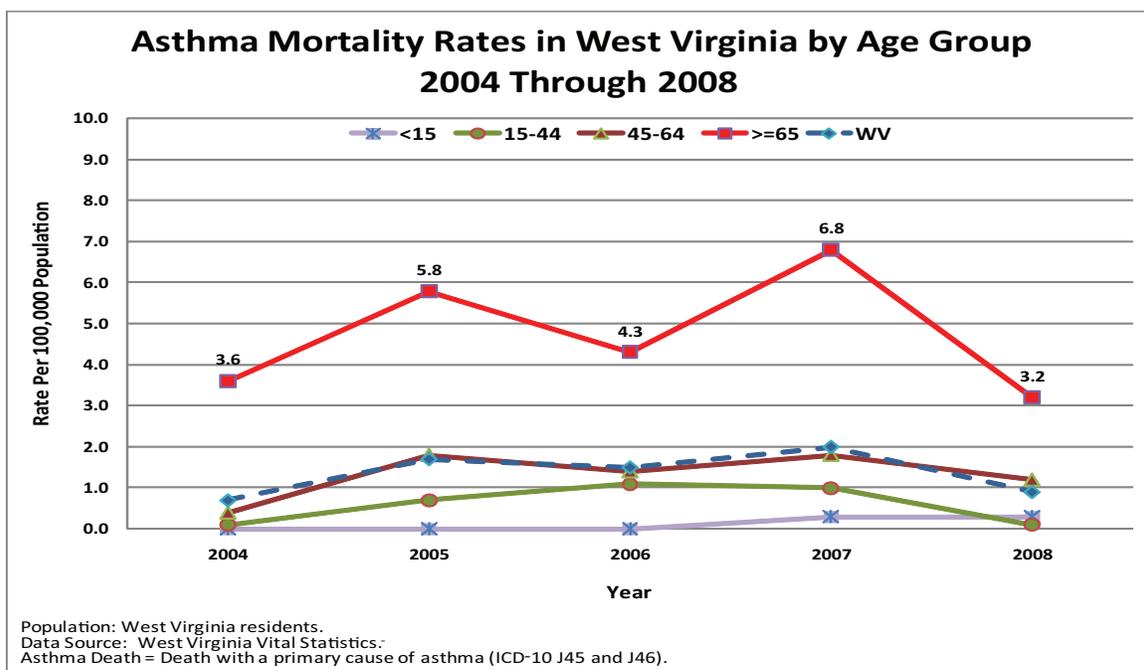


Seniors

Nearly 23,000 (7.9%) West Virginia seniors reported having current asthma in 2009. Many West Virginia seniors with asthma experience asthma-related complications that result in hospitalization and death. In 2008, the hospitalization rate for West Virginia seniors (27.5 per 10,000) was almost twice that of the state (15.1 per 10,000) and was much higher than other age groups in West Virginia.

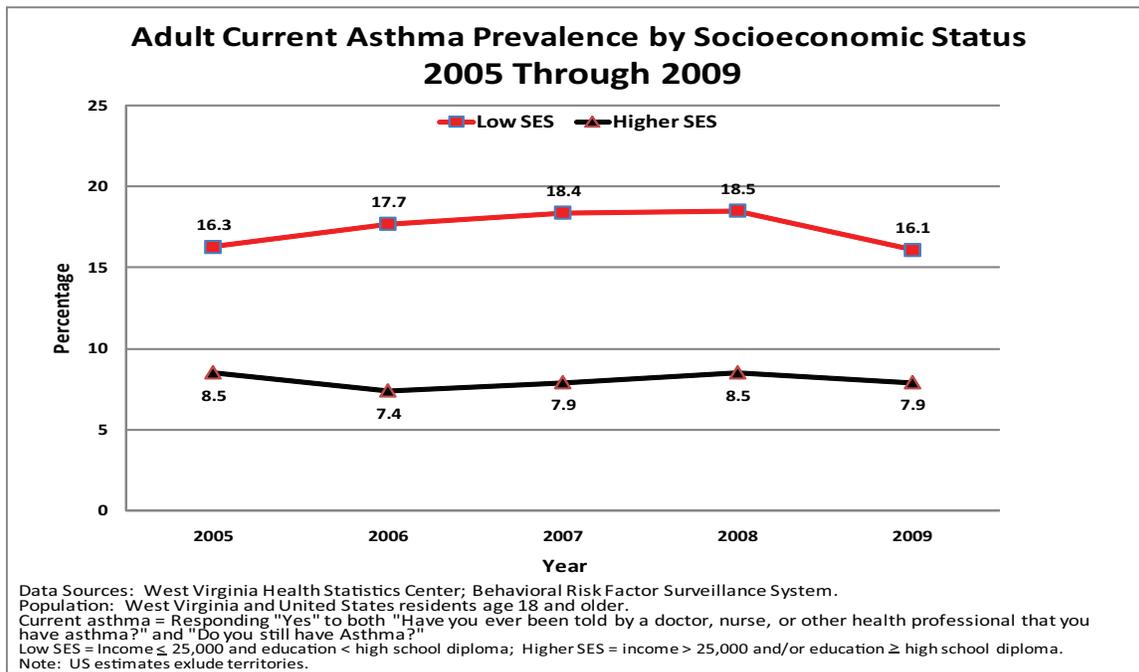


The mortality rate for West Virginia seniors (3.2 per 100,000) was significantly higher than the other age groups (0.6 per 100,000) in 2008.



Low Socioeconomic Status (SES)

In 2009, a little over 15,000 (16%) West Virginians who qualify as low SES reported having current asthma. This figure is twice that of those who do not qualify as low SES that reported having current asthma.



Discussion

Analysis using age indicated that although current asthma is less prevalent in children and seniors, the rates of hospitalizations for asthma in West Virginia for these age groups are much higher than the other age groups. Asthma mortality rates in seniors are significantly higher than any other age group in West Virginia. This may indicate a need for self-management education for these age groups to help them learn to control their asthma. Further analysis of previous self-management education, the quality of health care they receive, and exposure to environmental triggers may help WVAEPP design the most appropriate education tools for these age groups.

Analysis using gender of those with current asthma indicated that the prevalence among West Virginia women is almost twice that of males. Asthma hospitalization rates for women are twice that of men and asthma mortality rates for women in West Virginia are almost three times higher than the mortality rate of males. This analysis also indicates a need for further review of self-management education, health care received, and environmental triggers to design education for controlling asthma.

Analysis using SES indicated a significant difference in the percentage of those with current asthma that indicate a low SES than those who have a higher SES. Almost twice as many West Virginians with low SES reported having current asthma than those with a higher SES. This indicates the need to design education that takes SES into account.

WVAEPP needs to focus efforts in lowering the asthma burden in children, women, seniors, and those with low SES. These priority populations represent the largest portion of the burden of asthma in West Virginia.

References:

1. American Lung Association, Asthma in Children Fact Sheet, August 2006.

Appendix 1: WVAEPP Data Sets

Dataset	Dataset type	Years of data currently available for analysis	New data available by 08/31/2011
Behavioral Risk Factor Surveillance System (BRFSS)	Population based	<p>Core Questions: 2000-2009</p> <p>Adult Asthma History Module: 2005-2006</p> <p>Child Asthma Prevalence Module and Random Child Selection Module: 2005-2009</p> <p>Asthma call-back (adult): 2007-2009</p> <p>Asthma call-back (child): 2007-2008</p>	<p>Core Questions: 2010</p> <p>Child Prevalence Module: 2010</p> <p>Adult asthma call-back: 2010</p> <p>Child asthma call-back: 2009 and 2010</p>
Hospital Uniform Billing (UB) Database	Population based	1996-2008	2009
Vital Statistics	Population based	1980-2008	2009
School Nurse Needs Assessment	Population sub-set	1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, and 2008-2009	2010-2011
West Virginia Department of Education (DOE)—West Virginia Electronic Information System (WVEIS) Electronic Health Care Record (EHCRC)	Population sub-set	2006-2009	2010
National Survey of Children's Health (NSCH)	Population based	2003, 2007	No New
Children's Health Insurance Program (CHIP) Claims	Population sub-set	2005 analyzed	2002-2009
Youth Tobacco Survey (YTS)	Population sub-set	<p>Middle school: 2002, 2007, and 2009</p> <p>High school: 2002, 2005, 2007, and 2009</p>	2011
Youth Risk Behavior Surveillance System (YRBSS)	Population sub-set	<p>Middle school: 2001, 2007, and 2009</p> <p>High school: 2001, 2003, 2005, 2007, and 2009</p>	2011

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