



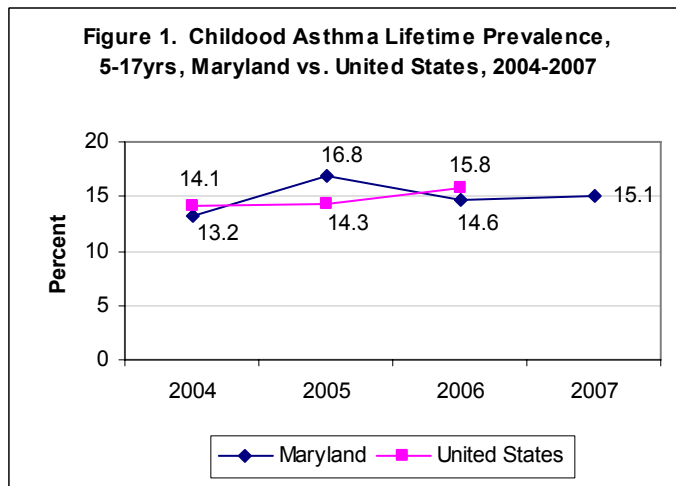
Mini-Surveillance Report #1:

Asthma in Children and Youth

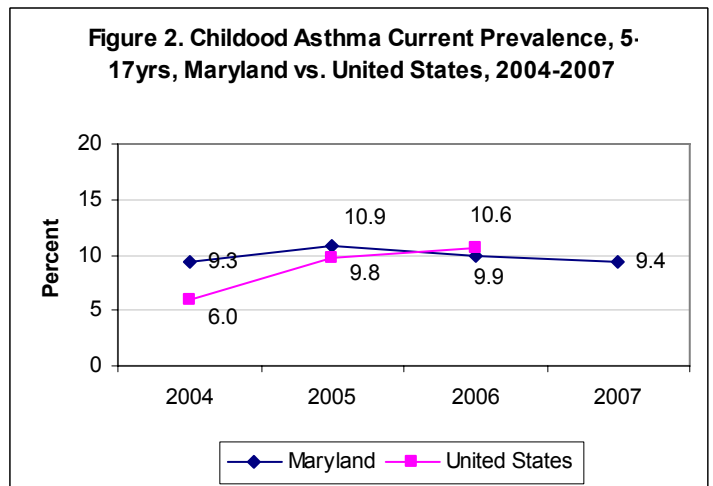
Background

Asthma is a chronic inflammatory disease of the small airways in the lungs that affects people of all ages, races, ethnicities, and genders. This report presents trends in asthma prevalence and health care utilization for young children, ages 5 through 18 years old, by race/ethnicity and age. This report represents data from the CDC Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Survey (YRBS), Maryland Youth Tobacco Survey, the Maryland Health Services Cost Review Commission (HSCRC) Hospital Discharge Data, and the Maryland Vital Statistics Administration. Rates are calculated based on population statistics from the National Center for Health Statistics (NCHS) Vintage Population File. Where possible, data have been age-adjusted to the 2000 U.S. estimated population.

Asthma and Children: Asthma is one of the most common chronic diseases among children in the U.S., affecting 6 million (8.5%) children and adolescents under the age of 18. Due to the smaller and narrower size of their respiratory pathways, children are more sensitive to particulate matter and other irritants that can trigger an asthma attack. Therefore, poor air quality has a greater impact on children's respiratory systems and the burden of asthma is greater.



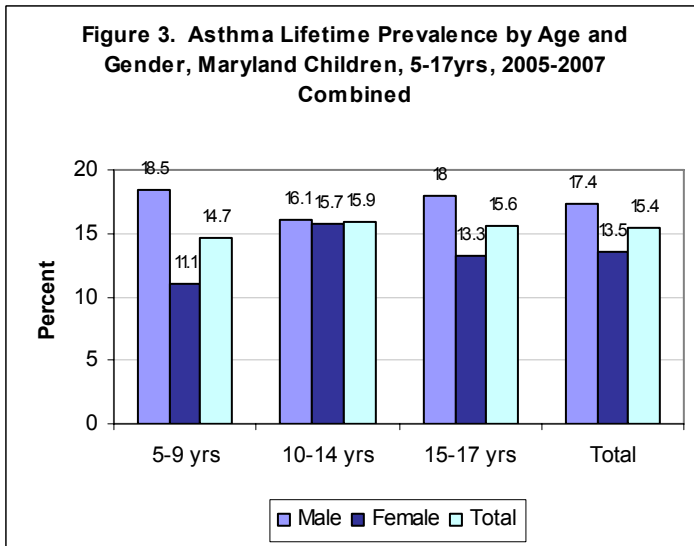
Source: Maryland BRFSS, CDC/NCHS National Health Interview Survey



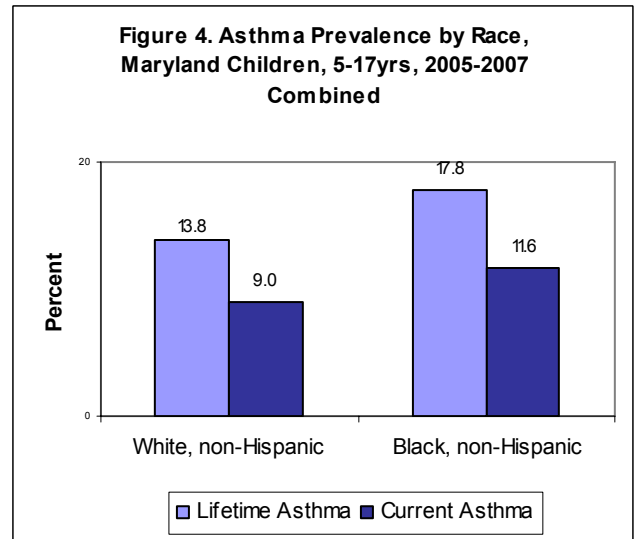
Source: Maryland BRFSS, CDC/NCHS National Health Interview Survey

Prevalence: In 2007, more than one in six Maryland children (15.1%) between the age of 5 and 17 had been told by a health professional at some point during their lifetime that they had asthma. Of these, 9.4% reported that they currently have asthma, representing 87,000 children. Nationally, in 2006, 15.8% of children between the age of 5 and 17 have been told they had asthma.

Asthma affects boys and girls of all ages, race, and ethnic groups. Among Maryland children under the age of 18, asthma is slightly more common among boys (17.4%) than girls (13.5%) and among Black non-Hispanics (17.8%) than White non-Hispanics (13.8%). Racial disparities remained evident in asthma prevalence. Black non-Hispanic children were more likely than White non-Hispanic children to have both lifetime and current asthma.

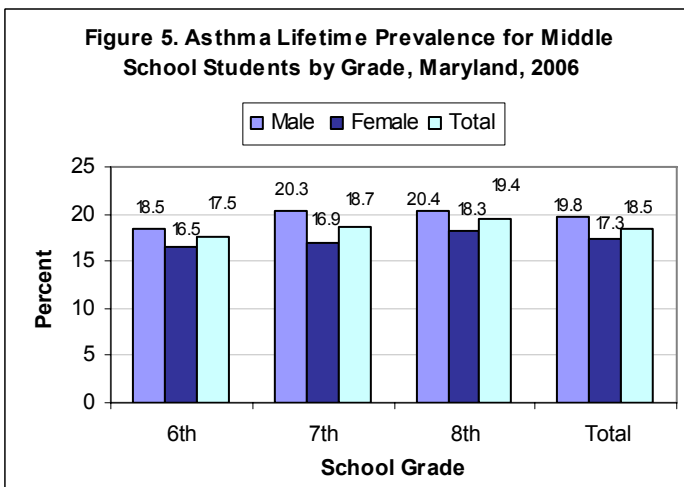


Source: BRFSS

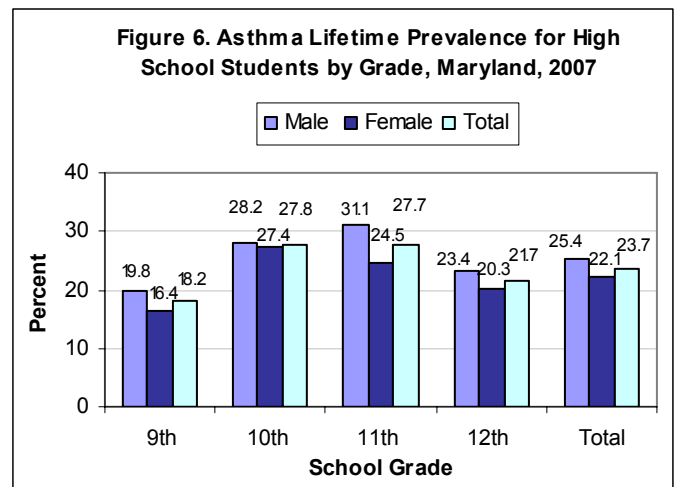


Source: BRFSS

Asthma in adolescents continues to be a public health concern in Maryland. In 2007, high school youth in Maryland reported lifetime asthma prevalence rates that were higher than national rates (23.7 vs. 20.7%, $p=0.05$). Additionally, current asthma prevalence rates were also higher than national rates; 13.4% vs. 10.9%, $p=0.07$). Approximately 18.5% middle school children reported having been diagnosed with asthma in 2006. In regards to gender, males had a slightly higher rate of asthma than females; though the difference was not statistically significant.



Source: Youth Tobacco Survey



Source: Youth Risk Behavior Survey

Asthma Health Care Utilization

From 2002 to 2006, there is no consistent trend in the rate of hospitalization for children. The hospitalization rate for Maryland children aged 5-18 years was 12.8 per 10,000 population without including those hospitalized outside of Maryland, or 14.0 per 10,000 population when hospitalizations outside of Maryland are included.

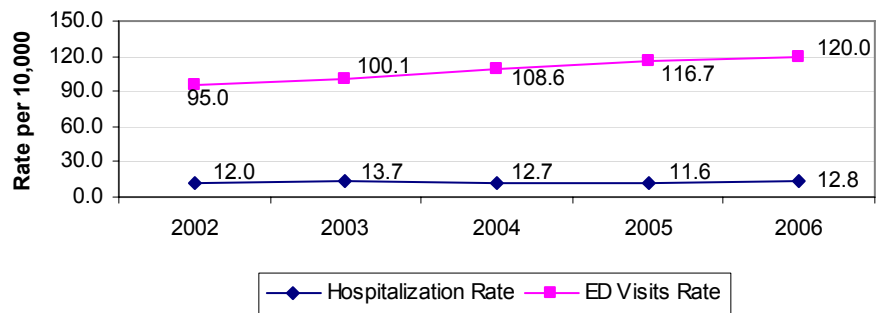
Hospitalization rates for Black children in 2006 continued to be nearly three times that of Whites. Males continue to have higher hospitalization rates than females, and children aged 5-9 years had the highest asthma hospitalization rates of 22.3 per 10,000. The hospitalization rate declines with age.

Maryland children hospitalized for asthma spent an average of 2.1 days in the hospital (median of 2 days). This has remained relatively constant since 2000.

From 2002-2006, there is a continuous increase in the rate of Emergency Department (ED) visits for children. In 2006, among children aged 5-18 years, there were 120 visits per 10,000 children, for a total of 12,682 visits to EDs for asthma. Black children in Maryland visit the ED at four times the rate of Whites. Young children continue to be brought to the ED for asthma more often than older children.

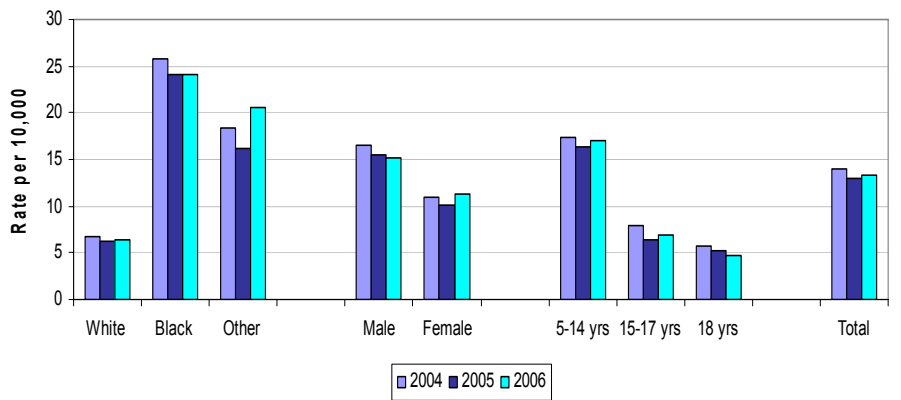
The impact of asthma varies with age; while prevalence increases with age, an inverse trend is noted in health care utilization. Similar trends are noted nationally.

Figure 7. Pediatric Asthma Hospitalization Rate and Emergency Department Visit Rates, 5-18yrs, Maryland, 2002-2006



Source: HSCRC

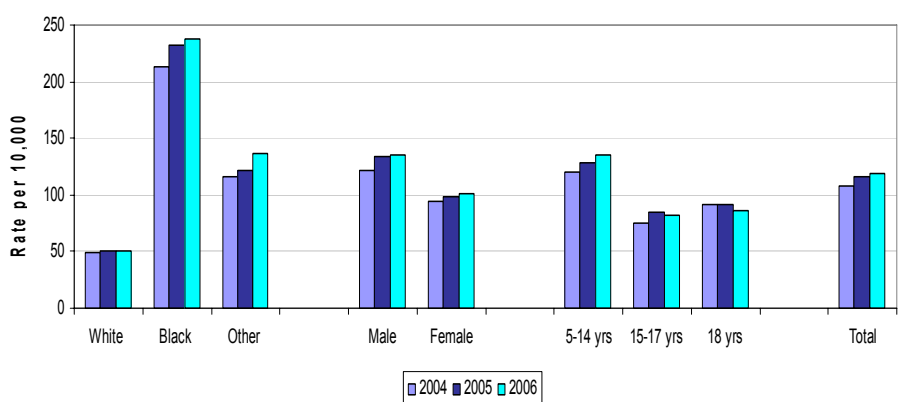
Asthma Hospitalization Rates by Race, Sex, and Age, Maryland Children, 5-18yrs, 2004-2006



Source: HSCRC.

Hospitalizations of Maryland residents in the District of Columbia and West Virginia are included in 2001-2006 data. Hospitalizations of Maryland residents in Delaware, and Pennsylvania are included in 2001-2005 data. Hospitalization of Maryland residents in West Virginia are included in all data except rates by race, because West Virginia does not collect data on race.

Asthma Emergency Department Visit Rates by Race, Sex and Age, Maryland Children, 5-18yrs, 2004-2006



Source: HSCRC

Cost of Asthma

After adjusting for inflation, the total cost of childhood asthma hospitalization among children between the age of 5 and 18 years decreased 2.7% from \$7.2 million in 2003 to \$7.0 million in 2006. The average cost of childhood asthma hospitalization increased 6.7% from \$4,865 in 2003 to \$5,194 in 2006.

The total cost of childhood asthma ED visits among children between the age of 5 and 18 years decreased 22% from \$9.4 million in 2003 to \$7.3 million in 2006. The average cost of asthma ED visits decreased 33.4% from \$869 in 2003 to \$579 in 2006.

Between 2004 and 2006, while there was a decline in the percentage of asthma ED visits for patients with private insurance, the percentage of asthma hospitalizations remained relatively the same. A larger percentage of hospitalizations and ED visits were covered by Medicaid. The percentage of asthma hospitalization and ED costs paid for by private insurance decreased as the percentage covered by public insurance increased.

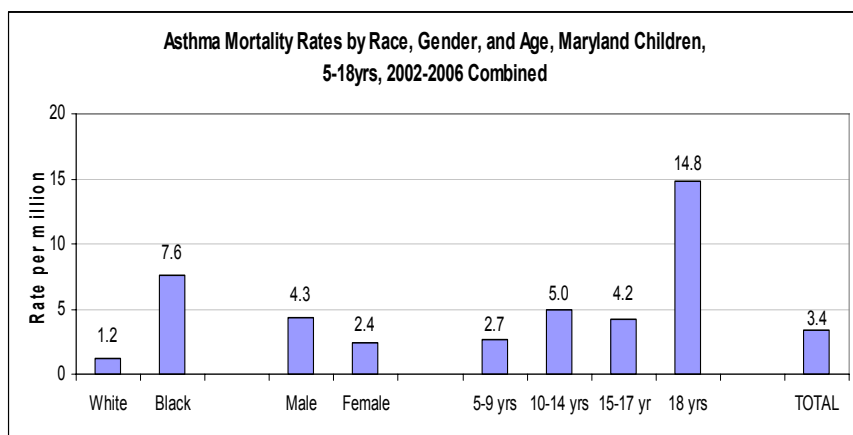
Table 1. Asthma Costs by Payor, MD children, 5-18yrs, 2006

	Visits (#)	Average Charge per Visit (\$)	Total Charges (\$)
Hospitalizations			
Medicaid	715	5,539	3,960,201
Private Insurance	573	4,873	2,792,006
Self Pay	33	4,024	132,784
Other/Unknown	20	3,739	74,790
Total	1,342	5,194	6,969,903
ED Visits			
Medicaid	6,106	593	3,616,589
Private Insurance	5,212	567	2,957,506
Self Pay	1,134	578	655,068
Other/Unknown	227	499	113,264
Total	12,681	579	7,343,567

In 2006, the total hospitalization charges for children under the age of 19 were \$13,157,183.

Emergency department visits accounted for an additional \$12,261,037

Asthma Mortality



Source: Maryland Vital Statistics Administration

Asthma is a rare cause of death in children and adolescents; however, deaths do occur and are potentially preventable. Because of the small numbers of deaths each year, five year averages present a slightly more stable picture of trends in asthma mortality. From 2002-2006, an average of 5.2 Maryland children and youth died each year from asthma as an underlying cause. Disparities in asthma mortality continue to exist. In Maryland, Black children and youth have more than six times the death rate of Whites in the age group of 5-18 years.

This publication was supported by Cooperative Agreement Number 2U59EH324212-05 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

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