MARYLAND ASTHMA CONTROL PROGRAM

Department of Health and Mental Hygiene
Family Health Administration
Center for Maternal and Child Health

August 2011

Data Brief #5:

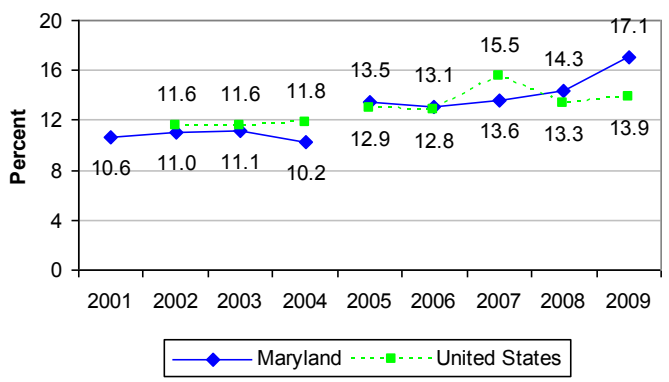
Asthma in Maryland's Children and Youth

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, under 18 years old, by race/ethnicity and age. Data are from Maryland's Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Survey (YRBS), Maryland Youth Tobacco Survey (YTS), Maryland Health Services Cost Review Commission (HSCRC) hospital discharge data, and Maryland's Vital Statistics Administration (VSA). Rates are calculated based on population statistics from the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS) vintage population files. Data have been age-adjusted to the 2000 U.S. estimated population when noted. Since some Maryland residents are hospitalized in neighboring states, data on hospitalization of Maryland residents from Delaware, Pennsylvania*, Washington D.C., and West Virginia are included when possible.

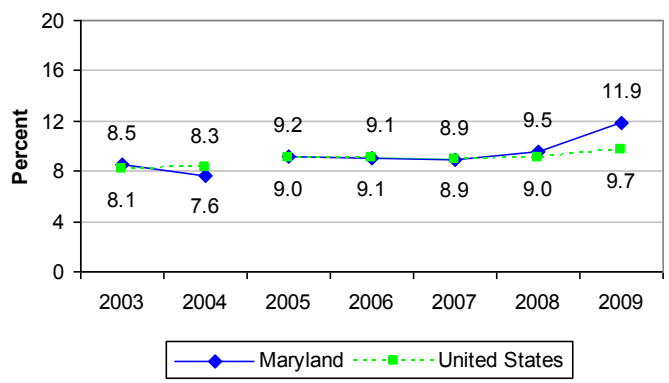
Asthma and Children: Asthma affects both adults and children and is the most common chronic disease of childhood and the 3rd leading cause of hospitalizations for children under 15 years old.[1, 2] Children are more sensitive to particulate matter and other irritants that can trigger an asthma attack due to smaller and narrower size of their respiratory pathways. Therefore, poor air quality has a greater impact on children's respiratory systems.

Figure 1: Trend in Lifetime Asthma Prevelance Among Children Ages 0-17, Maryland vs. U.S., 2001-2009



Maryland BRFSS, 2001-2009; CDC BRFSS, 2002-2009.
[a] Survey question for lifetime asthma prevalence changed in 2005, data from 2001-2004 are not comparable to 2005-2009 data.
[b] BRFSS data for children is not collected in all states, each year the number of states collecting data on child asthma prevalence has been between 22 and 37 states.

Figure 2: Trend in Current Asthma Prevelance Among Children Ages 0-17, Maryland vs. U.S., 2001-2009



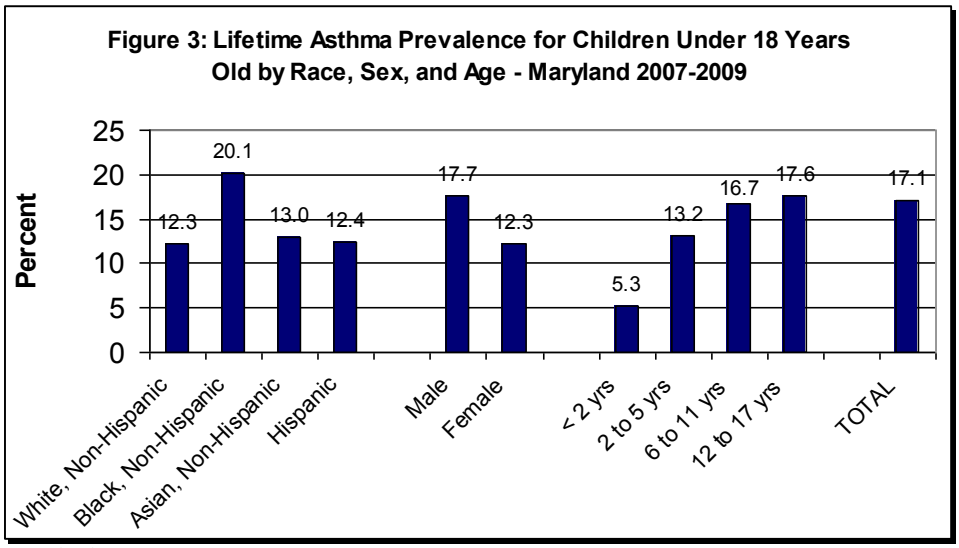
Maryland BRFSS, 2003-2009; CDC BRFSS, 2003-2009.
[a] Survey question for lifetime asthma prevalence changed in 2005, data from 2001-2004 are not comparable to 2005-2009 data.
[b] BRFSS data for children is not collected in all states, each year the number of states collecting data on child asthma prevalence has been between 22 and 37 states.

Lifetime Prevalence: In 2009, more than 228,000 Maryland children (17.1%), under the age of 18, had been told by a health professional at some point during their lifetime that they had asthma. Approximately 10.2 million (13.9%) children in the United States, under 18 years of age, had been diagnosed with asthma at some point in their lifetime.[3]

Current Prevalence: The prevalence of current asthma ('Do you still have asthma?') for Maryland children under the age of 18 in 2009 was 11.9%, an estimated 158,500 children. Nationally, an estimated 7.1 million (9.7%) children currently had asthma in 2009.[3]

* "The Pennsylvania Health Care Cost Containment Council (PHC4) is an independent state agency responsible for addressing the problem of escalating health costs, ensuring the quality of health care, and increasing access to healthcare for all citizens regardless of ability to pay. PHC4 has provided data to this entity in an effort to further PHC4's mission of educating the public and containing health care costs in Pennsylvania. PHC4, its agents, and staff, have made no representation, guarantee, or warranty, expressed or implied, that the data -- financial, patient, payor, and physician specific information -- provided to this entity, are error-free, or that the use of the data will avoid differences of opinion or interpretation. This analysis was not prepared by PHC4. This analysis was done by MACP. PHC4, its agents and staff, bear no responsibility or liability for the results of the analysis, which are solely the opinion of MACP."

Asthma Children and Youth Trends by Race, Sex, and Age



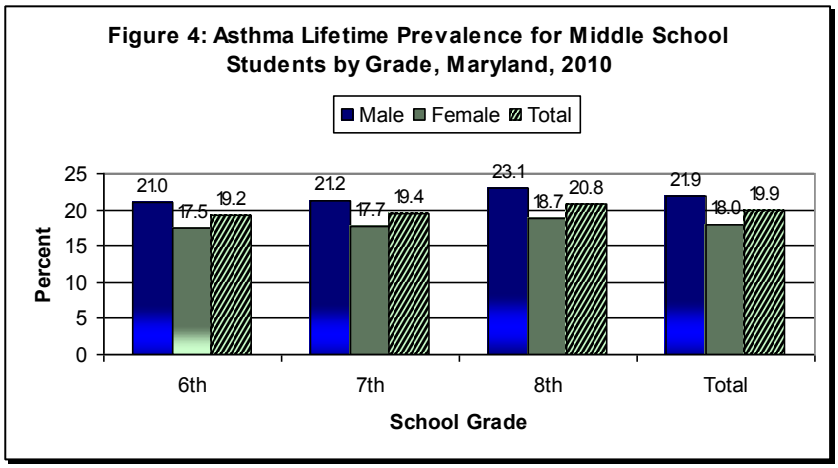
Maryland BRFSS, 2007-2009.

Asthma affects boys and girls of all ages, races, and ethnicities.

As shown in Figure 3, asthma was found to be significantly higher in Black, non-Hispanic children under 18 years old in Maryland when compared to White, non-Hispanic children (20.1% vs. 12.3%).

Additionally, boys had a significantly higher prevalence of asthma compared to girls (17.7% vs. 12.3%).

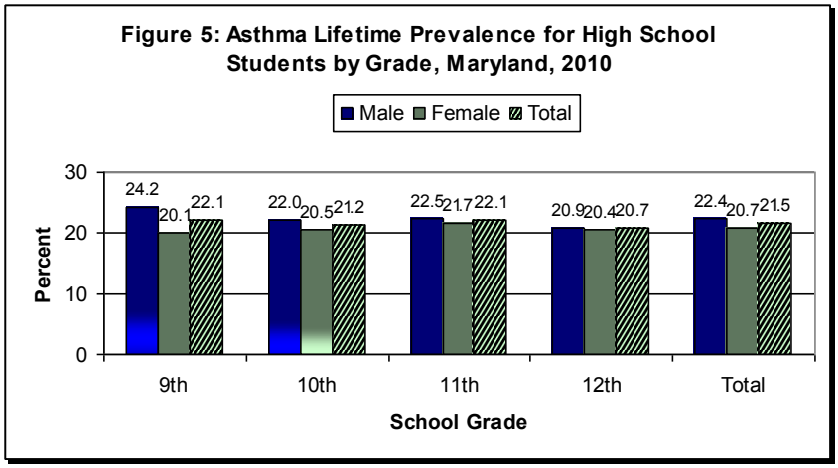
Asthma in adolescents continues to be a public health concern in Maryland. In 2010, middle school youth in Maryland reported lifetime asthma prevalence rates that were significantly different between the sexes for every middle school grade, with males having a higher prevalence than females.



Maryland YTS, 2010.

For high school students in 2010, approximately 21.5% reported having ever been diagnosed with asthma. 9th grade males had a significantly higher prevalence of asthma compared to 9th grade females.

Current asthma prevalence rates for high school students in Maryland were higher than national rates (data not displayed), but were not statistically significant (11.8% vs. 10.8%, p=0.24).

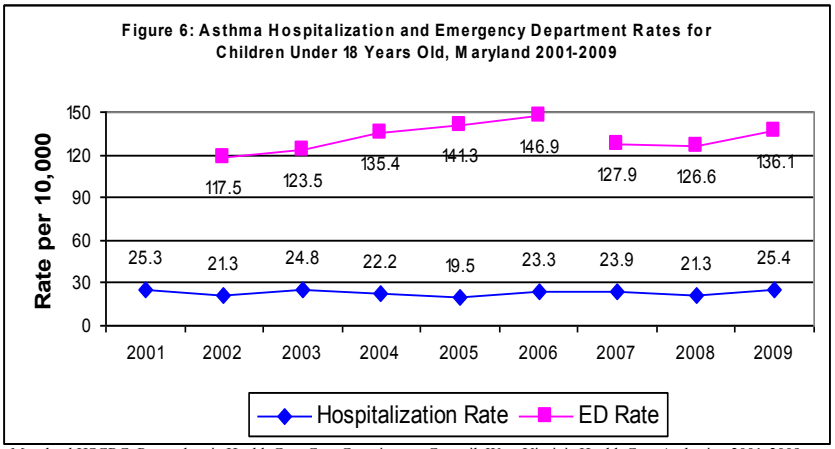


Maryland YTS, 2010.

Asthma Children and Youth Health Care Utilization and Costs

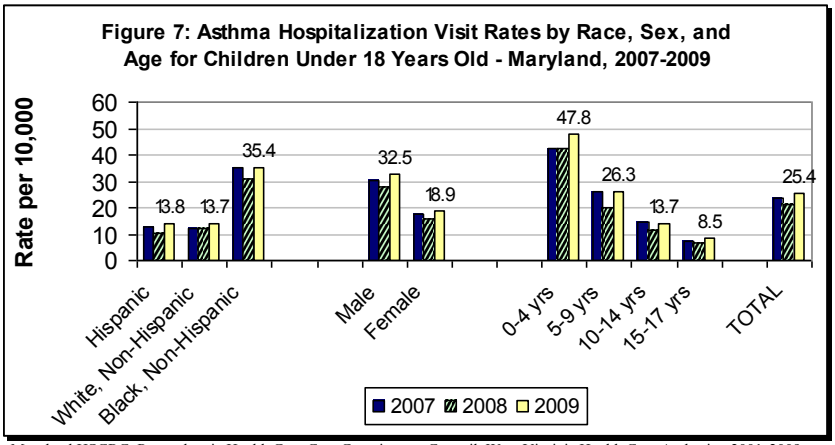
From 2001 to 2009, the has been a stable trend in asthma hospitalization rates for Maryland's children under the age of 18.

Emergency room (ED) rates for children with asthma in Maryland increased from 2002 to 2006. There is no clear trend yet for ED visit rates in children with asthma from 2007 to 2009.



Maryland HSCRC, Pennsylvania Health Care Cost Containment Council, West Virginia Health Care Authority, 2001-2009.
[a] Rates are age-adjusted to the 2000 U.S. standard population.
[b] Includes Maryland residents hospitalized in Pennsylvania, Washington D.C., and West Virginia.
[c] ED data collection methodology changed in 2007 - data years ≤ 2006 are not comparable to ≥ 2007.

In 2009, asthma hospitalization rates for Black, non-Hispanic children continued to be 2.6 times that of Hispanic and White, non-Hispanic children. The hospitalization rate of males continued to be higher than that of females and children 0 to 4 years old had the highest asthma hospitalization rates. The hospitalization rate declined with age.

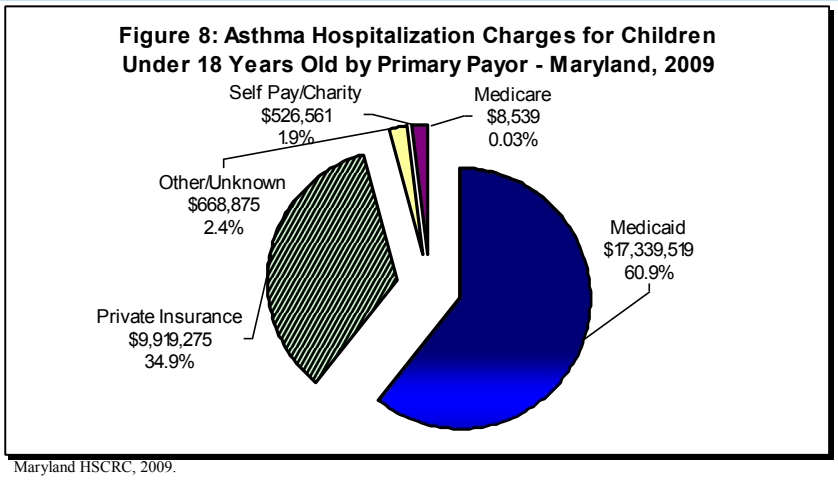


Maryland HSCRC, Pennsylvania Health Care Cost Containment Council, West Virginia Health Care Authority, 2001-2009.
[a] Rates are age-adjusted to the 2000 U.S. standard population.
[b] Includes Maryland residents hospitalized in Pennsylvania, Washington D.C., and West Virginia.
[c] Out of state data for ethnicity only includes Pennsylvania.

Maryland children, 0 to 17 years old, hospitalized for asthma spent a total of 5,953 days in the hospital during 2009, with an average stay of 2.0 days. Females and males had similar hospital stay averages (2.1 vs. 1.9 days). Additionally, Black and White children had similar hospital stay averages (2.2 vs. 1.8 days). [Maryland HSCRC, 2009]

For children in 2009, total charges for asthma hospitalizations were approximately $28.5 million and the average charge for an inpatient stay was $5,162. Medicaid covered the largest percentage of hospitalization visits at 60.9%.

Emergency department visits accounted for an additional $12.2 million. The average charge for an emergency department visit for asthma was $658 (data not displayed).

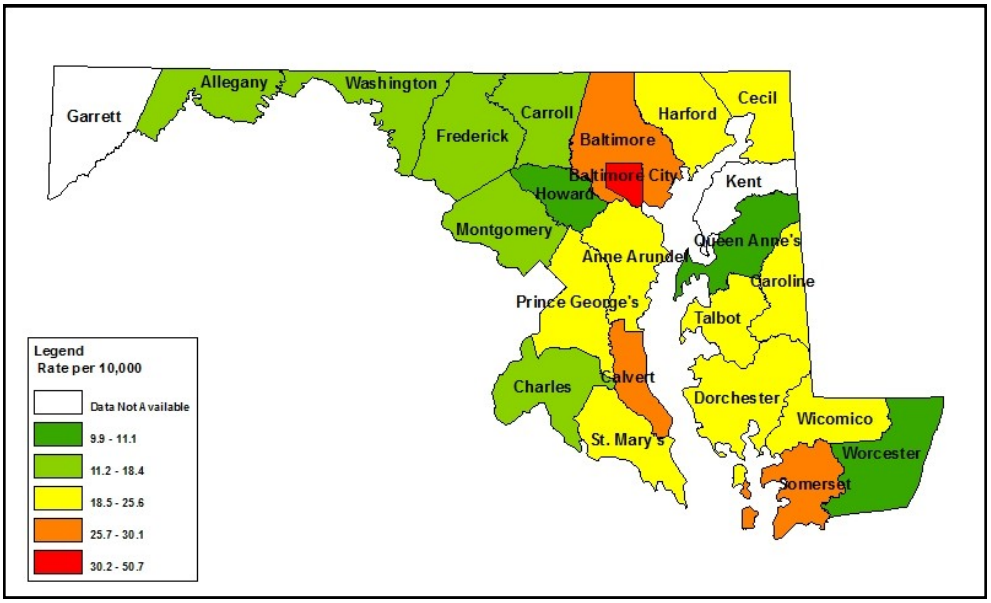


Maryland HSCRC, 2009.

Martin O'Malley, Governor
Anthony G. Brown, Lieutenant Governor
Joshua M. Sharfstein, Secretary, DHMH

Asthma Hospitalization Rates in Children and Youth by Jurisdiction

Figure 9: Asthma Hospitalization Rates by Jurisdiction, Maryland 2009



Maryland HSCRC, 2009; Pennsylvania Health Care Cost Containment Council, 2009; West Virginia Health Care Authority, 2009.
[a] Rates are age-adjusted to the 2000 U.S. standard population.
[b] Includes Maryland residents hospitalized in Pennsylvania, Washington D.C., and West Virginia.
[c] Data from jurisdictions with low counts are not available for display.

Table 1: Maryland Hospitalization Rates for Children by Jurisdiction, 2009

Jurisdiction	Hospitalization Rates (per 10,000)		Total Number of Hospitalizations
NORTHWEST	17.0	**	202
Garrett	--		--
Allegany	18.4	**	25
Washington	18.4	**	68
Frederick	16.8	**	105
BALTIMORE METRO	29.3	**	1,940
Baltimore City	50.7	**	792
Baltimore County	28.5		537
Anne Arundel	24.2		321
Carroll	14.0	**	59
Howard	11.1	**	86
Harford	23.3		145
NATIONAL CAPITOL	18.4	**	913
Montgomery	15.8	**	420
Prince George's	21.5	**	493
SOUTHERN MD	22.9		210
Calvert	30.1	**	68
Charles	17.2	**	68
Saint Mary's	25.0		74
EASTERN SHORE	21.2	**	225
Cecil	23.8		63
Kent	--		--
Queen Anne's	10.0	**	12
Caroline	25.6		24
Talbot	24.7		18
Dorchester	22.1		17
Wicomico	24.3		62
Somerset	27.3		13
Worcester	9.9	**	10
TOTAL	25.4		3,490

MD HSCRC, Pennsylvania Health Care Cost Containment Council, WV Health Care Authority, 2009.
[a] Rates are age-adjusted to the 2000 U.S. standard population.
[b] Includes Maryland residents hospitalized in Pennsylvania, Washington D.C., and West Virginia.
**Rate significantly different from state of Maryland rate ($p < 0.05$).

Baltimore City and Calvert were the only jurisdictions that had significantly higher asthma hospitalization rates of children compared to Maryland's state rate in 2009 (50.7 and 30.1 per 10,000 vs. 25.4 per 10,000).

Baltimore and Somerset counties both had high asthma hospitalization rates of children, but these counties were not statistically higher than the overall Maryland rate.

REFERENCES

1. American Lung Association, Epidemiology and Statistics Unit, Research and Program Services. Trends in Asthma Morbidity and Mortality; Washington DC: American Lung Association; Jan 2009.

2. DeFrances CJ, Cullen KA, Kozak LJ. National Hospital Discharge Society: 2005 Annual Summary with detailed Diagnosis and Procedure Data. National Center for Health Statistics. Vital Health Stat: 12(165); 2007.

3. Bloom B, Cohen RA, Freeman G. Summary health statistics for U.S. children: National Health Interview Survey, 2009. National Center for Health Statistics. Vital Health Stat: 10 (247); 2010.

This publication was supported by Cooperative Agreement Number EH000497-01 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.

Published by the Maryland Asthma Control Program
Direct inquiries on this report to: Andrea Bankoski, Epidemiologist
Phone: 410-767-4387 Email: abankoski@dhmh.state.md.us