



Jurisdiction Profile:

# Asthma in Baltimore City

## Background

**What is Asthma?** Asthma is a controllable, chronic lung disease characterized by inflammation of the airways that leads to reversible airway constriction and excess mucus secretion. Narrowing of the airways results in reduced airflow that may cause symptoms of wheezing, coughing, tightness of the chest, and difficulty breathing.

Asthma is a serious and complex chronic respiratory disease with no known cure that currently affects an estimated 823,000 Maryland adults and children. In 2009, asthma in Maryland resulted in 11,474 hospitalizations, 39,834 visits to hospital emergency departments, thousands of hours of lost school and work days, and 67 deaths. Maryland costs for asthma in hospital and emergency departments totaled over \$99 million in 2009. Due to the burden on patients, families, and society, asthma is considered a major public health concern in Maryland and nationally.

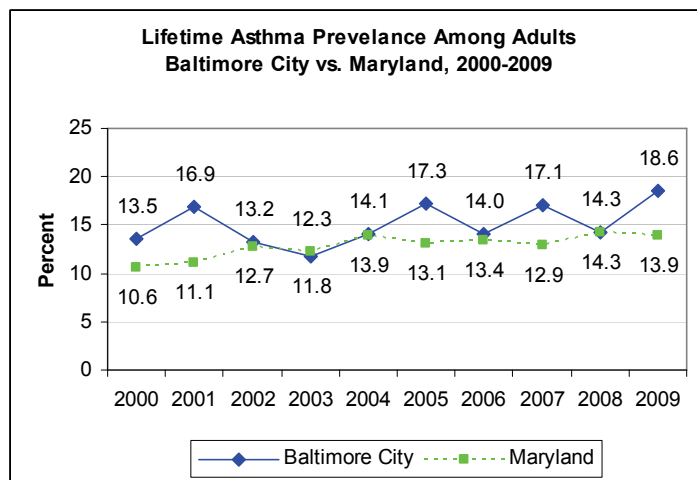
Baltimore City Population Demographics, 2009		
Race	White	213,216
	Black	407,598
Age	0 - 4 yrs	45,379
	5 - 17 yrs	97,612
	18 - 64 yrs	419,135
	65+ yrs	75,292
	Total	637,418

**Data** in this report are from Maryland's Behavioral Risk Factor Surveillance System (BRFSS), Maryland Health Services Cost Review Commission (HSCRC), and Maryland's Vital Statistics Administration (VSA). Rates are calculated based on population statistics from the CDC's National Center for Health Statistics (NCHS) vintage population files. Data have been age-adjusted to the 2000 U.S. estimated population where 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.

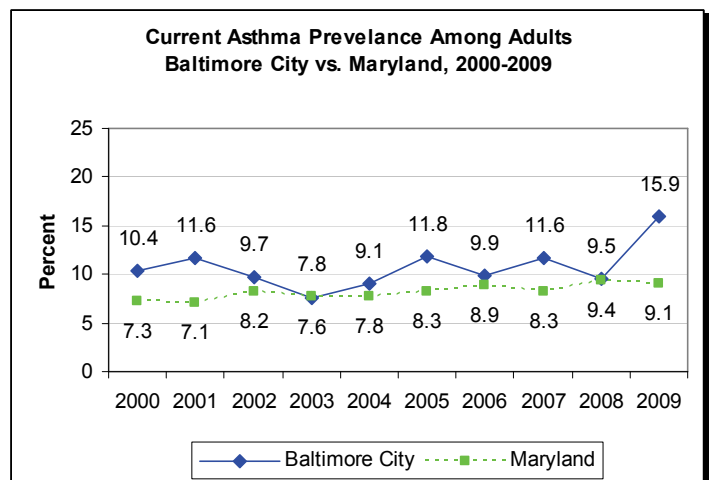
## Prevalence

Statewide in 2009, approximately 594,609 (13.9%) Maryland adults had a history of asthma. In Baltimore City, approximately 18.6% of adult residents had been diagnosed with asthma. Of these, 15.9% reported that they currently have asthma, representing approximately 65,227 adults in Baltimore City.

While asthma is one of the most common illnesses among children, there is little reliable county level data on the prevalence of asthma in children.



Maryland BRFSS, 2000-2009.



Maryland BRFSS, 2000-2009.

\* "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."

## Emergency Department Visits

### Asthma Emergency Department Visit Rates (per 10,000) Baltimore City vs. Maryland, 2009

Age	Baltimore City		Maryland	
	n	Rate	n	Rate
Children 0 - 4 yrs	2,317	510.6	7,443	195.6
	5,197	313.2	11,077	114.7
	5,514	360.2	18,520	136.1
Adults 18 - 64 yrs	6,718	166.3	20,296	56.3
	253	33.6	1,018	14.7
	6,971	144.1	21,314	50.3
Total	12,485	203.3	39,834	72.3

Maryland HSCRC, 2009.

<sup>a</sup> Rates are age-adjusted to the 2000 U.S. standard population.

In Baltimore City, the asthma ED visit rate was approximately 6.5 times higher among Black residents compared to White residents (309.3 vs. 47.9 per 10,000) in 2009.

The asthma ED visit rate among Black residents was approximately 1.9 times higher in Baltimore City compared to Maryland as a whole (309.3 vs. 160.4 per 10,000). The asthma ED visit rate among residents in the category of Other was 2.0 times higher in Baltimore City compared to Maryland as a whole (179.0 vs. 91.3 per 10,000).

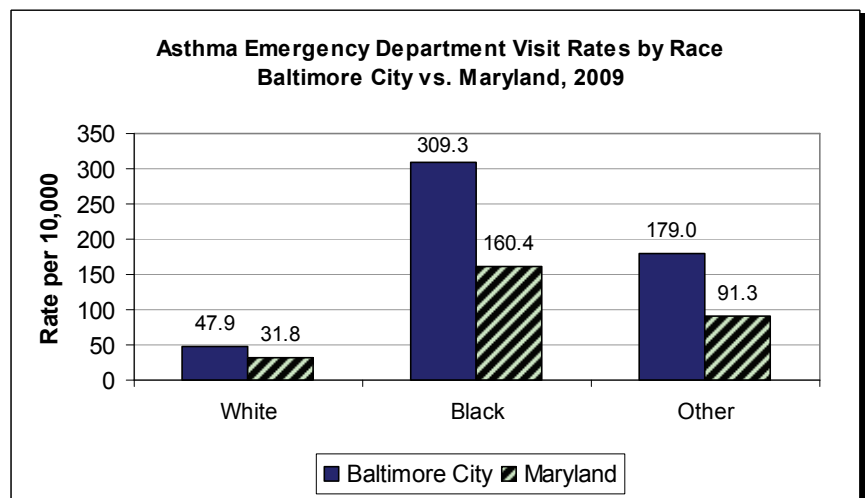
In 2009, asthma ED visit rates in Baltimore City exceeded the Healthy People 2010 goals for all age groups. The difference is most dramatic for 0 to 4 year old children.

Maryland ED visit rates exceeded Healthy People 2010 goals for all age groups with the exception of the adult age group of 65 years of age and older.

There were 12,485 emergency department (ED) visits with asthma as a principal diagnosis in Baltimore City for 2009, resulting in an age-adjusted rate of 203.3 per 10,000.

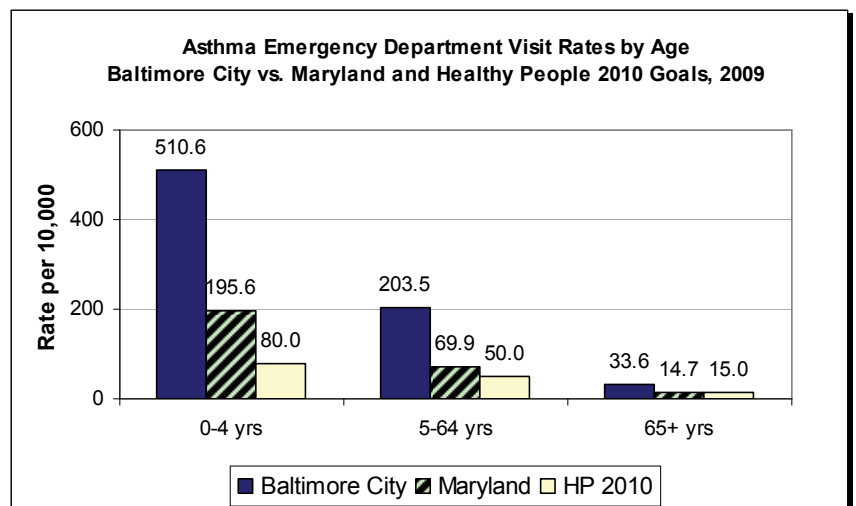
The ED visit rate for asthma among adult residents ( $\geq 18$  years) in Baltimore City was higher than the ED visit rate for Maryland adults as a whole (144.1 vs. 50.3 per 10,000).

The ED visit rate for asthma among children ( $< 18$  years) in Baltimore City was higher than the ED visit rate for Maryland children as a whole (360.2 vs. 136.1 per 10,000).



Maryland HSCRC, 2009.

<sup>a</sup> Rates are age-adjusted to the 2000 U.S. standard population.



Maryland HSCRC, 2009; DATA2010 Healthy People 2010 Database, U.S. DHHS, 2010.

<sup>a</sup> Rates are age-adjusted to the 2000 U.S. standard population.

## Hospitalizations

### Asthma Hospitalization Rates (per 10,000) Baltimore City vs. Maryland, 2009

Age	Baltimore City		Maryland		
	n	Rate	n	Rate	
Children	0 - 4 yrs	367	80.9	1,834	48.2
	5 - 17 yrs	425	41.3	1,400	17.4
	< 18 yrs	792	50.7	2,976	25.4
Adults	18 - 64 yrs	1772	44.1	5867	9.5
	65+ yrs	383	50.9	2,087	30.0
	≥ 18 yrs	2155	42.9	7954	13.2
<b>Total</b>		<b>2947</b>	<b>47.2</b>	<b>11,474</b>	<b>19.8</b>

MD HSCRC, DE Dept of Health, PA Health Care Cost Containment Council, WV Health Care Authority, 2009.

<sup>a</sup> Rates are age-adjusted to the 2000 U.S. standard population.

<sup>b</sup> Includes Maryland residents hospitalized in Delaware, Pennsylvania, Washington D.C., and West Virginia (MD county data not available for Delaware hospitalizations; MD state data only includes Delaware for total, 0-4, and 65+ due to age groupings).

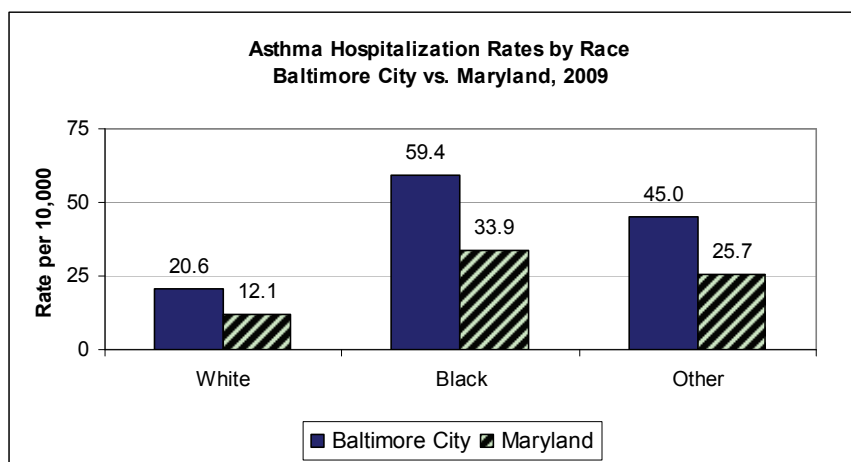
There were 2,947 hospitalizations for asthma as a principal diagnosis in Baltimore City in 2009, resulting in an age-adjusted rate of 47.2 per 10,000.

The hospitalization rate for asthma among adult residents (≥ 18 years) in Baltimore City was approximately 3.3 times higher than the hospitalization rate for Maryland adults as a whole (42.9 vs. 13.2 per 10,000).

The hospitalization rate for asthma among children (< 18 years) in Baltimore City was approximately 2.0 times higher than the hospitalization rate for Maryland children as a whole (50.7 vs. 25.4 per 10,000).

In Baltimore City, the hospitalization rate for asthma was approximately 2.9 times higher among Black residents and 2.2 times higher among residents in the Other category compared to White residents (59.4 vs. 20.6 per 10,000; 45.0 vs. 20.6 per 10,000).

The hospitalization rate for asthma was higher in Baltimore City for all three race categories compared to Maryland as a whole.

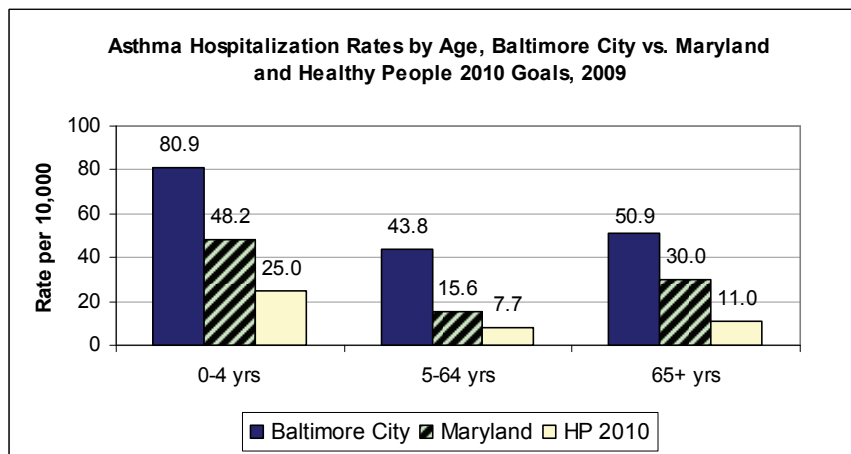


Maryland HSCRC, 2009; Pennsylvania Health Care Cost Containment Council, 2009.

<sup>a</sup> Rates are age-adjusted to the 2000 U.S. standard population.

<sup>b</sup> Includes Maryland residents hospitalized in Pennsylvania and Washington D.C.

In 2009, asthma hospitalization rates in Baltimore City and Maryland exceeded the Healthy People 2010 goals for all age groups. The difference is most dramatic for 5 to 64 year olds in Baltimore City.



MD HSCRC, DE Dept of Health, PA Health Care Cost Containment Council, WV Health Care Authority, 2009.

<sup>a</sup> Rates are age-adjusted to the 2000 U.S. standard population.

<sup>b</sup> Includes Maryland residents hospitalized in Delaware, Pennsylvania, Washington D.C., and West Virginia (MD county data not available for Delaware hospitalizations; MD state data only includes Delaware for total, 0-4, and 65+ due to age groupings).

## Cost of Asthma

The average cost per asthma ED visit for children was \$820 in Baltimore City and \$658 in Maryland. The average cost per asthma ED visit for adults was \$831 in Baltimore City and \$647 for Maryland. The total average cost for an asthma ED visit in Baltimore City was found to be statistically different than the state of Maryland.

In Baltimore City, private insurance was the source of payment for approximately 18.9% of asthma ED visits, while public insurance was the source of 57.5% of the visits.

Private insurance was the source of payment for approximately 34.2% of asthma ED visits in Maryland, while public insurance was the source for 45.6% of the visits.

The average cost per asthma hospitalization for children was \$7,506 in Baltimore City and \$5,403 in Maryland. The average cost per asthma hospitalization for adults was \$7,932 in Baltimore City and \$7,397 in Maryland. The total average cost for an asthma hospitalization in Baltimore City was found to be statistically different than the state of Maryland.

In Baltimore City, private insurance was the source of payment for approximately 18.4% of all 2009 asthma hospitalizations, while public insurance was the source of 72.1% of the stays.

Private insurance was the source of payment for 30.6% of asthma hospitalizations in Maryland, while public insurance was the source for 60% of the asthma hospitalizations.

### Costs per Emergency Room Visit for Asthma, 2009

Age	Baltimore City		Maryland	
	Average	Total	Average	Total
Children (0-17 yrs)	\$820	\$4,521,303	\$658	\$12,188,425
Adults (18+ yrs)	\$831	\$5,791,520	\$647	\$13,795,690
Total	\$826	\$10,312,823	\$652	\$25,984,115

Maryland HSCRC, 2009.

### Source of Payment for Asthma Emergency Room Visits, 2009

Source of Payment	Baltimore City	Maryland
Medicare	5.4%	5.2%
Medicaid	52.1%	40.4%
Private Insurance	18.9%	34.2%
Self Pay/Charity	23.2%	18.6%
Other/Unknown	0.4%	1.6%

Maryland HSCRC, 2009.

### Costs per Hospitalization for Asthma, 2009

Age	Baltimore City		Maryland	
	Average	Total	Average	Total
Children (0-17 yrs)	\$7,506	\$5,929,899	\$5,403	\$16,078,883
Adults (18+ yrs)	\$7,932	\$12,077,242	\$7,397	\$57,274,922
Total	\$7,818	\$23,007,141	\$6,843	\$73,353,805

Maryland HSCRC, 2009.

### Source of Payment for Asthma Hospitalizations, 2009

Source of Payment	Baltimore City	Maryland
Medicare	21.3%	26.0%
Medicaid	50.8%	34.0%
Private Insurance	18.4%	30.6%
Self Pay/Charity	9.1%	7.7%
Other/Unknown	0.4%	1.7%

Maryland HSCRC, 2009.

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.