



# The ASTHMA EPIDEMIOLOGY Update

Winter 2008/2009

## Childhood Asthma in North Carolina

### Introduction

Childhood asthma continues to be an important public health issue in North Carolina. In 2007, about 15.7% (348,176) of children under the age of 18 in North Carolina had been diagnosed with asthma at some point in their lives (lifetime asthma prevalence) as compared to about 12.1% (828,046) of adults (18 and older). About 9.8% (217,333) of these children still had this chronic condition (current asthma prevalence), versus 7.8% (533,781) of adults. The U.S. lifetime and current prevalence rates for children are 13.5% (about 9,876,000) and 9.3% (about 6,819,000), respectively, for 2006 (latest data available).<sup>1</sup> In 2006, asthma was responsible for 2,867 hospitalizations among

children in North Carolina, resulting in a rate of 133.4 per 100,000 N.C. residents. Among N.C. adults, there were 7,655 hospitalizations due to asthma, a rate of 114.2 per 100,000 N.C. adult residents.

This issue of *The Asthma Epidemiology Update* presents prevalence and hospitalization data for childhood asthma in North Carolina. It also provides an in-depth look at selected asthma outcomes and management behaviors among children with asthma. Prevalence and hospitalization data from the past several years will be examined to present a snapshot of changes over time for both adults and children affected by asthma.

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<sup>1</sup>Source: National Health Interview Survey, National Center for Health Statistics, Center for Disease Control and Prevention, compiled 3/18/2008.

## Asthma Prevalence

Boys had a slightly higher lifetime asthma prevalence rate than girls, while African American children had significantly higher lifetime and current prevalence rates than their white counterparts. The 5-10 year age group had slightly higher lifetime and current prevalence rates than the other age groups.

### Lifetime and Current Prevalence, by Gender, Race, and Age, North Carolina, 2007

	Lifetime Prevalence		Current Prevalence	
	Rate	C.I. (95%)	Rate	C.I. (95%)
TOTAL	15.7%	14.0-17.5	9.8%	8.4-11.3
Boys	17.5%	15.1-20.2	9.8%	7.9-12.0
Girls	13.7%	11.5-16.3	9.8%	7.9-12.1
White	14.5%	12.6-16.6	8.3%	6.9- 9.9
African American	23.2%	18.6-28.5	17.4%	13.4-22.4
Under 5	8.7%	6.2-12.3	6.7%	4.4- 9.9
5 through 10	17.9%	14.9-21.3	11.3%	8.9-14.3
11 through 13	17.5%	13.6-22.3	10.4%	7.4-14.6
14 through 17	17.7%	14.4-21.4	10.0%	7.5-13.1

**Source:** Child Health Assessment and Monitoring Program (CHAMP), N.C. State Center for Health Statistics, 2008.

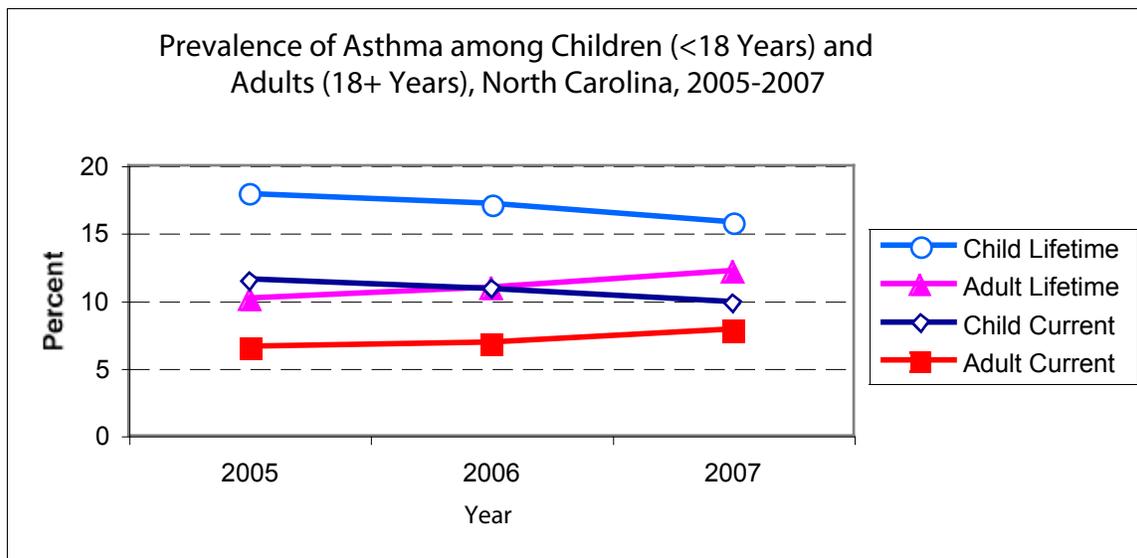
In 2006, N.C. children under the age of 18 had a higher hospitalization rate (133.4 per 100,000 population) than adults (114.2 per 100,000 population). When examining the rates across age groups, those under the age of 5 had the highest rate (259.7 per 100,000), followed by persons 65 years of age and older (217.4 per 100,000).

### Asthma Hospitalizations and Age-specific Crude Rates, North Carolina, 2006

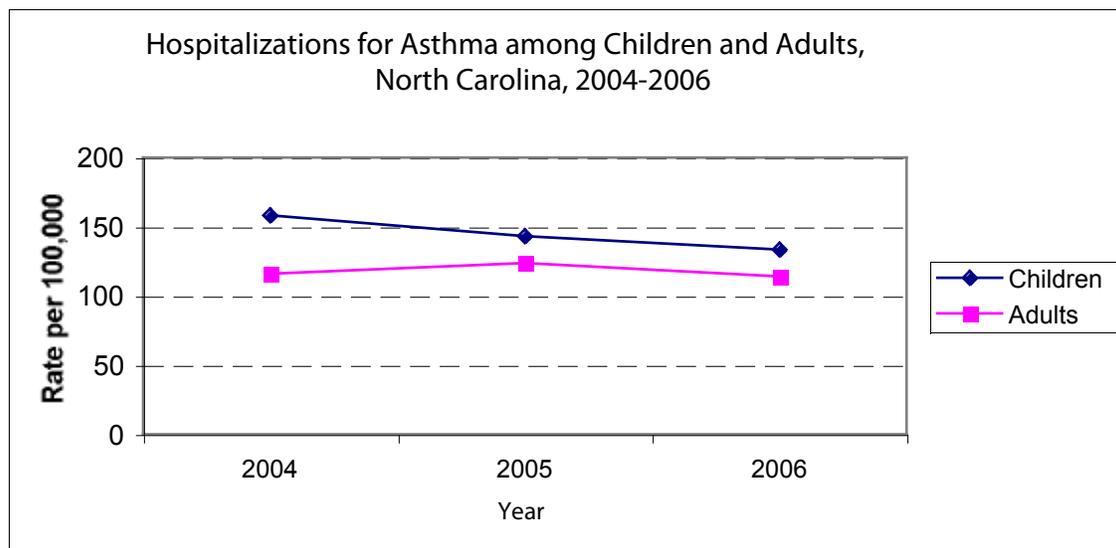
	Age Group (Years)				
	0-4	5-14	15-34	35-64	65+
Number of Hospitalizations	1,534	1,222	1,090	4,383	2,303
Age-specific Crude Rate (per 100,000 Population)	259.7	102.0	44.0	124.0	217.4

**Source:** North Carolina State Center for Health Statistics, 2006 provisional data. Newborns were not included.

During 2005 - 2007, childhood asthma prevalence in North Carolina decreased, while adult asthma prevalence increased. From 2004 to 2006, the hospitalization rates for asthma decreased for both children and adults.



**Sources:** Child Health Assessment and Monitoring Program (Only data for 2005-2007 are available), Behavioral Risk Factor Surveillance System (BRFSS), N.C. State Center for Health Statistics, 2008.



**Source:** North Carolina State Center for Health Statistics, 2004-2006. Newborns were not included.

## Asthma Outcomes and Management Behaviors

The 2007 North Carolina Childhood Health Assessment and Monitoring Program (CHAMP) provides additional information about childhood asthma outcomes and management behaviors. Some notable findings are:

- More African American children reported having an emergency room or urgent care visit due to asthma than did white children.
- More boys missed school due to asthma than girls.
- More boys used daily asthma medication than girls.

- More white children used rescue asthma medication than did African American children.
- More boys and more white children had asthma management plans, as compared to their counterparts.
- More girls and African American children than their counterparts reported that they were allowed to self-administer emergency asthma medication at school.

The following six tables summarize these and other findings from the 2007 CHAMP survey.

### Emergency Room or Urgent Care Visits Due to Asthma in Past 12 Months

	Yes		No	
	Percent	C.I. (95%)	Percent	C.I. (95%)
TOTAL	27.2%	20.5-35.2	72.8%	64.8-79.5
Boys	28.5	19.4-39.8	71.5	60.2-80.6
Girls	25.9	16.8-37.8	74.1	62.2-83.2
White	26.6	18.4-36.8	73.4	63.2-81.6
African American	31.2* (n=19)	19.7-45.6	68.8	54.4-80.3

**Source:** Child Health Assessment and Monitoring Program, N.C. State Center for Health Statistics, 2008.

\*Interpret with caution; percentage calculated with a numerator of less than 20.

### Days of Daycare or School Missed Due to Asthma in Past 12 Months

	No Days		Less than 1 Week		1 to 2 Weeks		2 or More Weeks	
	Percent	C.I. (95%)	Percent	C.I. (95%)	Percent	C.I. (95%)	Percent	C.I. (95%)
TOTAL	50.1%	41.0-59.2	29.1%	21.5-38.2	12.3%	7.5-19.4	8.5%* (n=12)	4.2-16.5
Boys	46.8	34.9-59.0	32.8	22.2-45.4	**	**	**	**
Girls	54.1	40.3-67.3	24.7	15.0-38.1	**	**	**	**
White	50.7	39.5-61.9	26.9	18.2-37.9	**	**	**	**
African American	44.4	29.8-60.0	34.2* (n=19)	21.2-50.2	**	**	**	**

**Source:** Child Health Assessment and Monitoring Program, N.C. State Center for Health Statistics, 2008.

\*Interpret with caution; percentage calculated with a numerator of less than 20

\*\*Numerators too small for meaningful comparisons

### Use of Daily (Controller) Medication for Asthma

	Yes		No	
	Percent	C.I. (95%)	Percent	C.I. (95%)
TOTAL	57.8%	50.0-65.3	42.2%	34.7-50.0
Boys	66.3	56.1-75.2	33.7	24.8-43.9
Girls	48.9	37.8-60.1	51.1	39.9-62.2
White	59.3	49.9-68.1	40.7	31.9-50.1
African American	56.1	27.4-80.1	43.9	30.7-57.9

Source: Child Health Assessment and Monitoring Program, N.C. State Center for Health Statistics, 2008.

### Use of Rescue Medication for Asthma

	Yes		No	
	Percent	C.I. (95%)	Percent	C.I. (95%)
TOTAL	81.8%	74.9-87.1	18.2%	12.9-25.1
Boys	81.3	71.5-88.2	18.7	11.8-28.5
Girls	82.3	71.8-89.5	17.7	10.5-28.2
White	85.9	78.1-91.3	14.1	8.7-21.9
African American	76.9	63.4-86.5	23.1	13.5-36.3

Source: Child Health Assessment and Monitoring Program, N.C. State Center for Health Statistics, 2008.

### Asthma Management Plan Received from Doctor or Other Health Professional

	Yes		No	
	Percent	C.I. (95%)	Percent	C.I. (95%)
TOTAL	64.3%	56.4-71.5	35.7%	28.5-43.6
Boys	68.3	57.7-77.2	31.7	22.8-42.3
Girls	60.3	48.6-71.0	39.7	29.0-51.4
White	67.2	58.2-75.0	32.8	25.0-41.8
African American	63.0	48.1-75.7	37.0	24.3-51.9

Source: Child Health Assessment and Monitoring Program, N.C. State Center for Health Statistics, 2008.

### Child Allowed to Self Administer Emergency Medication for Asthma at School

	Yes		No	
	Percent	C.I. (95%)	Percent	C.I. (95%)
TOTAL	52.3%	43.6-60.9	47.7%	39.1-56.4
Boys	48.8	37.0-60.8	51.2	39.2-63.0
Girls	56.1	43.5-67.9	43.9	32.1-56.5
White	50.2	39.7-60.7	49.8	39.3-60.3
African American	58.4	42.8-72.5	41.6	27.5-57.2

Source: Child Health Assessment and Monitoring Program, N.C. State Center for Health Statistics, 2008.

# Future Topics

The North Carolina Asthma Program also investigates asthma issues of current interest to both the research and healthcare communities. With the availability of data from other (non-asthma) modules of data sources such as the Behavioral Risk Factor Surveillance System (BRFSS) and CHAMP, we are able to examine topics regarding obesity and asthma, health insurance coverage and asthma, and aging and asthma, among others. We continue to explore other sources of surveillance data and will share updated asthma-related information of interest with you. As always, we welcome your comments and suggestions on this issue and for future topics; please contact the North Carolina Asthma Program at 919-707-5213.



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