



The **ASTHMA** EPIDEMIOLOGY *Update*

Summer 2009

Asthma in Selected North Carolina Counties and Regions

Introduction

In 2008, about 11.7% of adults (820,238) in North Carolina had been diagnosed with asthma at some point in their lives (lifetime asthma prevalence) and about 7.6% (532,804) still had this chronic condition (current asthma prevalence). The U.S. lifetime and current prevalence rates are 12.9% (29,300,105) and 8.2% (18,595,673), respectively, for 2007 (latest data available).¹ In 2007, asthma was responsible for 10,534 hospitalizations in North Carolina, resulting in a rate of 116.1 per 100,000 population, compared to the 2006 national rate of 149 per 100,000 (most recent data available).¹

Source: American Lung Association, *Trends in Asthma Morbidity and Mortality*, January 2009.

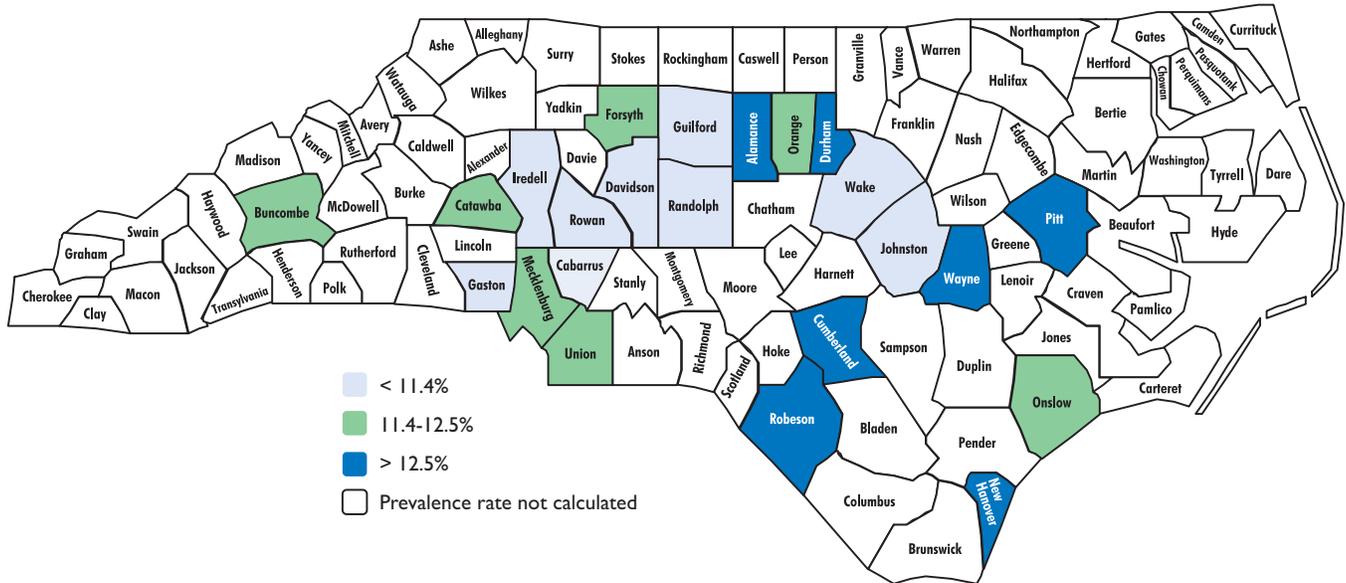
This issue of ***The Asthma Epidemiology Update*** provides data on asthma prevalence for adults 18 and older for selected counties; geographic and Area Health Education Center (AHEC) regions; and hospitalizations (adults and children) in North Carolina.

Asthma Prevalence

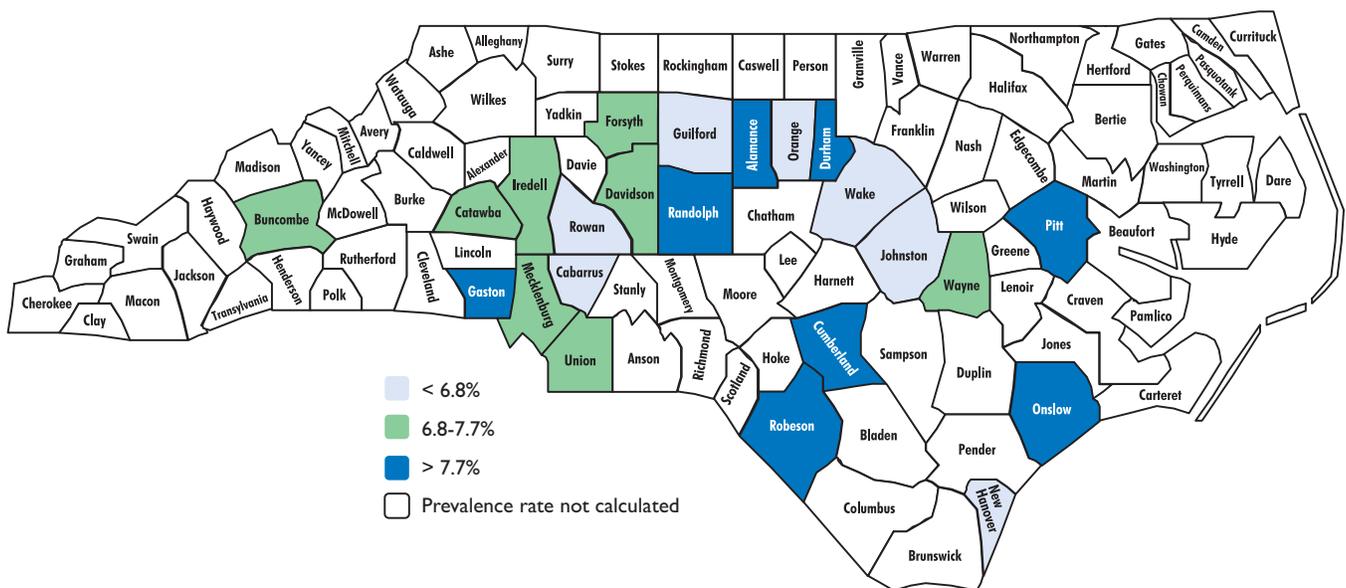
The sampling scheme for the 2008 North Carolina Behavioral Risk Factor Surveillance System (BRFSS) Survey allows for county-level estimates for 23 of the State's largest counties. The results for these counties are shown below.

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Lifetime Asthma among Adults, Selected NC Counties, 2008



Current Asthma among Adults, Selected NC Counties, 2008



Lifetime and Current Asthma among Adults Ages 18+ Years, by County and Region, North Carolina, 2008

| | Percent | 95% CI** | Estimated Number of People with Lifetime Asthma | Percent | 95% CI** | Estimated Number of People with Current Asthma |
|---|---------|-----------|---|---------|----------|--|
| North Carolina | 11.7 | 10.9-12.5 | 820,238 | 7.6 | 7.0- 8.2 | 532,804 |
| COUNTY/REGIONS | | | | | | |
| Alamance | 15.8* | 9.5-25.0 | 17,667 | 12.9* | 7.0-22.7 | 14,425 |
| Buncombe | 11.6* | 8.3-16.0 | 20,815 | 7.5* | 5.0-10.9 | 13,458 |
| Cabarrus | 11.2 | 8.0-15.6 | 14,250 | 6.5* | 4.4-9.5 | 8,270 |
| Catawba | 12.4 | 8.9-17.2 | 14,649 | 7.2* | 4.9-10.4 | 8,506 |
| Cumberland | 14.2 | 10.1-19.6 | 32,136 | 9.6* | 6.4-14.1 | 21,726 |
| Davidson | 9.6* | 6.6-13.8 | 11,758 | 7.4* | 4.7-11.4 | 9,064 |
| Durham | 12.6* | 8.9-17.5 | 24,534 | 8.7* | 5.7-13.0 | 16,940 |
| Forsyth | 12.2* | 8.4-17.4 | 31,726 | 7.2* | 4.7-10.9 | 18,723 |
| Gaston | 11.2 | 8.2-15.2 | 17,453 | 8.0* | 5.5-11.5 | 12,466 |
| Guilford | 9.1* | 6.2-13.1 | 32,593 | 3.5* | 2.2-5.6 | 12,536 |
| Iredell | 11.1 | 8.1-15.3 | 12,966 | 7.2* | 4.9-10.3 | 8,410 |
| Johnston | 10.2 | 6.5-15.6 | 12,297 | 5.4* | 2.5-11.1 | 6,510 |
| Mecklenburg | 11.8 | 9.0-15.3 | 76,575 | 7.4 | 5.2-10.5 | 48,022 |
| New Hanover | 12.9* | 9.3-17.6 | 19,560 | 6.4* | 4.0-10.0 | 9,704 |
| Onslow | 11.5 | 8.3-15.7 | 14,456 | 8.5* | 5.8-12.4 | 10,685 |
| Orange | 11.5* | 8.0-16.2 | 12,062 | 6.2* | 3.9-9.6 | 6,503 |
| Pitt | 14.5 | 9.9-20.8 | 17,224 | 8.4* | 5.3-13.1 | 9,978 |
| Randolph | 10.4 | 7.4-14.5 | 11,187 | 7.9* | 5.1-11.8 | 8,498 |
| Robeson | 15.1 | 7.6-27.9 | 14,145 | 12.2* | 5.1-26.4 | 11,428 |
| Rowan | 10.7 | 7.7-14.8 | 11,385 | 6.6* | 4.2-10.0 | 7,023 |
| Union | 12.2 | 8.4-17.3 | 17,226 | 7.1* | 4.1-11.8 | 10,025 |
| Wake | 6.1* | 4.2-8.8 | 39,520 | 4.1* | 2.5-6.7 | 26,563 |
| Wayne | 13.4* | 7.7-22.1 | 11,541 | 7.1* | 4.6-10.8 | 6,115 |
| NC REGIONS*** | | | | | | |
| Eastern NC | 12.1 | 10.8-13.5 | | 7.9 | 6.9-9.1 | |
| Piedmont | 11.1 | 10.1-12.3 | | 7.0 | 6.2-7.9 | |
| Western NC | 13.3 | 11.7-15.0 | | 9.5 | 8.2-10.9 | |
| AREA HEALTH EDUCATION CTRS. (AHEC) | | | | | | |
| Mountain AHEC | 12.9 | 11.0-15.0 | | 8.9 | 7.5-10.6 | |
| Northwest | 12.1 | 10.6-13.7 | | 8.3 | 7.1-9.6 | |
| Charlotte | 12.4 | 10.6-14.6 | | 7.6 | 6.2-9.3 | |
| Greensboro | 12.1 | 9.7-15.0 | | 7.4 | 5.6-9.8 | |
| Southern Regional | 13.7 | 11.1-16.7 | | 9.5 | 7.4-12.2 | |
| Coastal | 12.2 | 8.9-16.5 | | 5.6 | 4.2-7.6 | |
| Wake | 8.7 | 6.9-11.0 | | 5.5 | 4.1-7.4 | |
| Area L | 11.0 | 7.7-15.5 | | 8.0 | 5.1-12.2 | |
| Eastern | 11.7 | 9.8-13.8 | | 8.0 | 6.6-9.7 | |

Source: North Carolina State Center for Health Statistics, North Carolina Behavioral Risk Factor Surveillance System, 2008. Percentages are weighted.

* Percentage based on cell size less than 50; use caution in interpreting

** CI - Confidence Interval (is a range of values within which there is a 95% chance that the true prevalence estimate lies)

*** **Eastern North Carolina:** Beaufort, Bertie, Bladen, Brunswick, Camden, Carteret, Chowan, Columbus, Craven, Cumberland, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Harnett, Hertford, Hoke, Hyde, Johnston, Jones, Lenoir, Martin, Nash, New Hanover, Northampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Robeson, Sampson, Scotland, Tyrrell, Washington, Wayne, and Wilson counties.

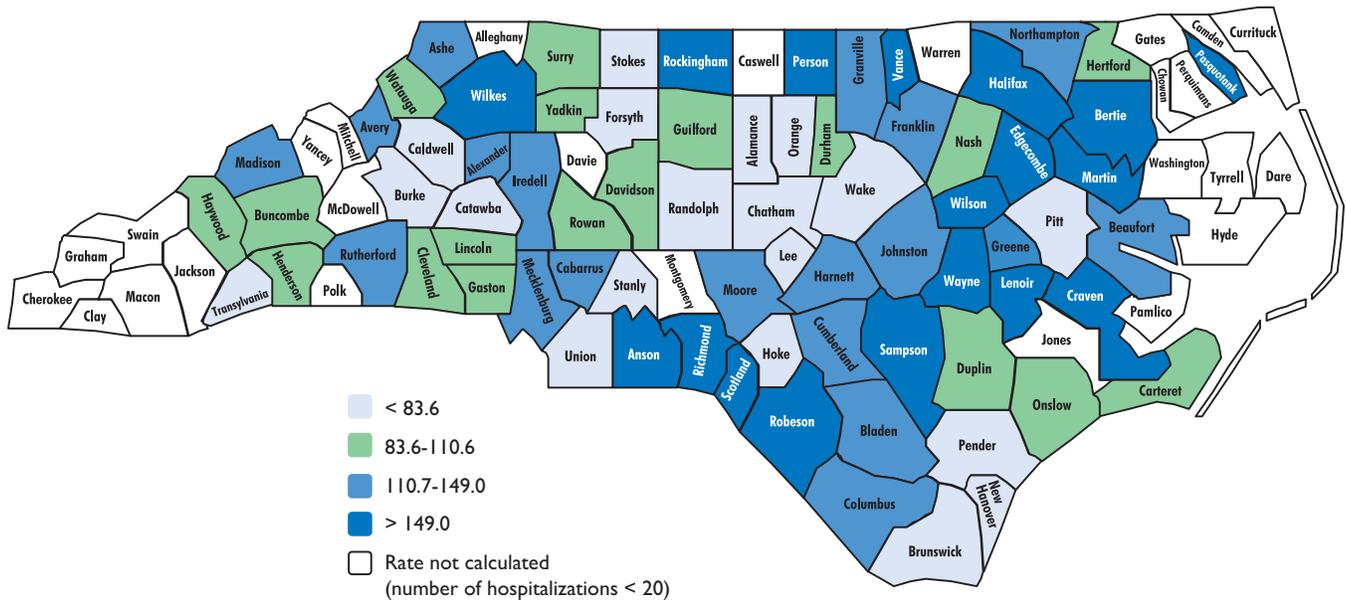
Piedmont North Carolina: Alamance, Alexander, Anson, Cabarrus, Caswell, Catawba, Chatham, Cleveland, Davidson, Davie, Durham, Forsyth, Franklin, Gaston, Granville, Guilford, Iredell, Lee, Lincoln, Mecklenburg, Montgomery, Moore, Orange, Person, Randolph, Richmond, Rockingham, Rowan, Stanly, Stokes, Union, Vance, Wake, Warren, and Yadkin counties.

Western North Carolina: Alleghany, Ashe, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, McDowell, Macon, Madison, Mitchell, Polk, Rutherford, Surry, Swain, Transylvania, Watauga, Wilkes, and Yancey counties.

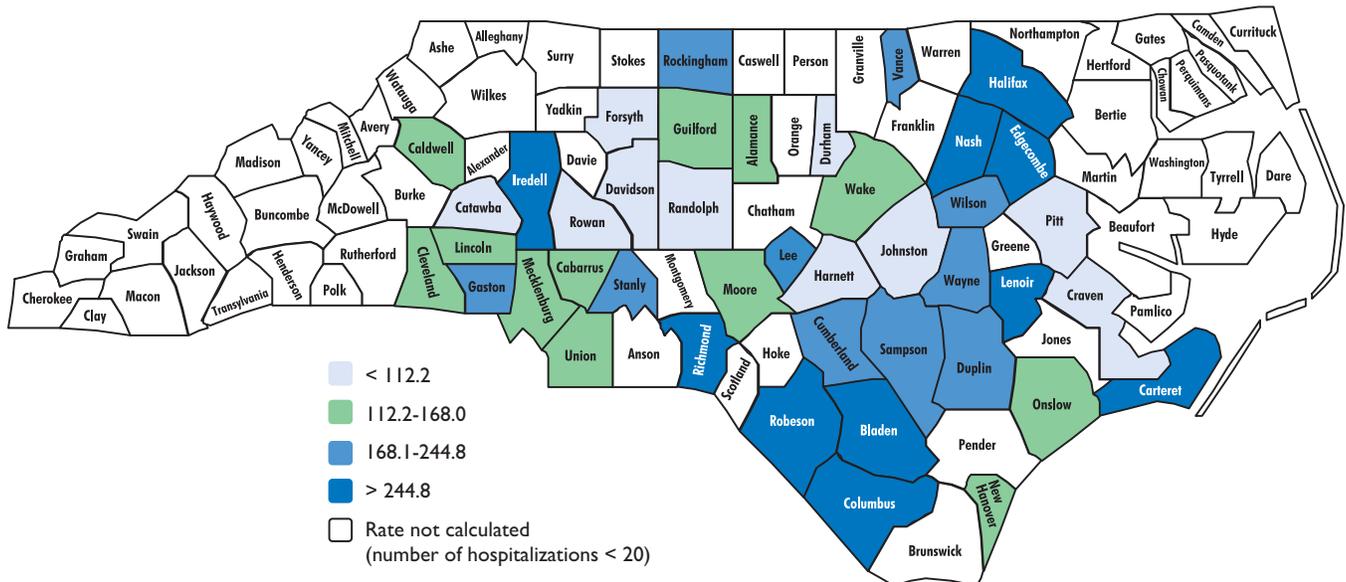
Hospitalizations Due To Asthma

Hospitalization data are provided for all 100 N.C. counties, although age-specific crude rates are calculated only if there are 20 or more cases for a particular county. Maps include only these counties.

Hospitalizations Per 100,000 Population Due to Asthma, Adults 18+ Years, 2007



Hospitalizations Per 100,000 Population Due to Asthma, Children <18 Years, 2007



Hospitalizations Due to Asthma Per 100,000 Population, by County and Age Group, North Carolina, 2007

| COUNTY | Number of Hospitalizations | | Age-specific Crude Rate* | | COUNTY | Number of Hospitalizations | | Age-specific Crude Rate* | |
|-----------------------|----------------------------|-------------|--------------------------|--------------|-------------|----------------------------|-----|--------------------------|-------|
| | 0-17 | 18+ | 0-17 | 18+ | | 0-17 | 18+ | 0-17 | 18+ |
| North Carolina | 3151 | 7383 | 143.6 | 107.4 | | | | | |
| Alamance | 57 | 79 | 164.2 | 72.9 | Johnston | 36 | 162 | 85.5 | 140.6 |
| Alexander | 14 | 33 | * | 118.2 | Jones | 6 | 15 | * | * |
| Alleghany | 1 | 8 | * | * | Lee | 25 | 34 | 174.2 | 80.9 |
| Anson | 12 | 44 | * | 228.5 | Lenoir | 61 | 80 | 436.7 | 183.2 |
| Ashe | 4 | 24 | * | 114.6 | Lincoln | 29 | 53 | 166.6 | 95.7 |
| Avery | 4 | 22 | * | 146.1 | McDowell | 12 | 12 | * | * |
| Beaufort | 16 | 43 | * | 119.9 | Macon | 5 | 19 | * | * |
| Bertie | 3 | 40 | * | 261.6 | Madison | 1 | 20 | * | 123.5 |
| Bladen | 21 | 32 | 264.5 | 130.3 | Martin | 16 | 74 | * | 406.1 |
| Brunswick | 17 | 58 | * | 72.9 | Mecklenburg | 369 | 755 | 165.7 | 117.9 |
| Buncombe | 18 | 172 | * | 96.7 | Mitchell | 4 | 13 | * | * |
| Burke | 12 | 55 | * | 80.9 | Montgomery | 5 | 14 | * | * |
| Cabarrus | 51 | 135 | 116.9 | 111.8 | Moore | 20 | 78 | 113.6 | 117.6 |
| Caldwell | 25 | 42 | 138.6 | 68.5 | Nash | 69 | 76 | 302.3 | 108.4 |
| Camden | 1 | 12 | * | * | New Hanover | 45 | 84 | 114.9 | 55.7 |
| Cartaret | 36 | 51 | 312.7 | 98.5 | Northampton | 5 | 22 | * | 133.3 |
| Caswell | 2 | 9 | * | * | Onslow | 55 | 109 | 132.1 | 85.4 |
| Catawba | 38 | 74 | 101.5 | 63.8 | Orange | 19 | 54 | * | 53.1 |
| Chatham | 10 | 28 | * | 60.5 | Pamlico | 3 | 19 | * | * |
| Cherokee | 6 | 15 | * | * | Pasquotank | 18 | 48 | * | 152.9 |
| Chowan | 4 | 8 | * | * | Pender | 7 | 25 | * | 63.0 |
| Clay | 0 | 9 | 0.0 | * | Perquimans | 3 | 14 | * | * |
| Cleveland | 30 | 77 | 125.5 | 105.1 | Person | 11 | 44 | * | 152.0 |
| Columbus | 47 | 54 | 353.4 | 131.2 | Pitt | 24 | 86 | 66.6 | 74.2 |
| Craven | 25 | 132 | 110.9 | 178.7 | Polk | 0 | 10 | 0.0 | * |
| Cumberland | 177 | 309 | 211.7 | 134.3 | Randolph | 28 | 55 | 81.9 | 52.3 |
| Currituck | 2 | 10 | * | * | Richmond | 52 | 118 | 442.3 | 338.0 |
| Dare | 2 | 15 | * | * | Robeson | 176 | 218 | 481.7 | 234.7 |
| Davidson | 38 | 116 | 101.9 | 97.4 | Rockingham | 48 | 180 | 233.6 | 253.2 |
| Davie | 6 | 16 | * | * | Rowan | 27 | 99 | 81.6 | 95.7 |
| Duplin | 26 | 43 | 188.0 | 109.4 | Rutherford | 15 | 67 | * | 138.2 |
| Durham | 57 | 169 | 92.8 | 87.4 | Sampson | 35 | 74 | 207.8 | 155.2 |
| Edgecombe | 53 | 79 | 406.5 | 203.7 | Scotland | 17 | 72 | * | 266.6 |

Cont. on p. 6

| | | | | | | | | | |
|-----------|-----|-----|-------|-------|--------------|-----|-----|-------|-------|
| Forsyth | 42 | 209 | 50.4 | 81.8 | Stanly | 24 | 30 | 169.3 | 66.7 |
| Franklin | 13 | 53 | * | 125.8 | Stokes | 2 | 23 | * | 65.0 |
| Gaston | 90 | 139 | 188.8 | 90.7 | Surry | 18 | 56 | * | 100.2 |
| Gates | 2 | 6 | * | * | Swain | 9 | 10 | * | * |
| Graham | 4 | 5 | * | * | Transylvania | 6 | 20 | * | 80.3 |
| Granville | 5 | 58 | * | 135.5 | Tyrrell | 0 | 2 | 0.0 | * |
| Greene | 6 | 21 | * | 132.4 | Union | 84 | 98 | 162.7 | 75.0 |
| Guilford | 132 | 355 | 119.3 | 101.4 | Vance | 25 | 80 | 211.7 | 251.8 |
| Halifax | 34 | 82 | 256.1 | 194.9 | Wake | 265 | 441 | 122.9 | 71.5 |
| Harnett | 29 | 107 | 103.7 | 136.2 | Warren | 9 | 16 | * | * |
| Haywood | 10 | 45 | * | 98.6 | Washington | 5 | 8 | * | * |
| Henderson | 11 | 78 | * | 96.4 | Watauga | 10 | 38 | * | 100.0 |
| Hertford | 2 | 18 | * | 98.0 | Wayne | 52 | 153 | 176.1 | 178.5 |
| Hoke | 13 | 21 | * | 70.4 | Wilkes | 14 | 85 | * | 163.2 |
| Hyde | 0 | 12 | 0.0 | * | Wilson | 45 | 95 | 229.0 | 162.9 |
| Iredell | 114 | 144 | 297.2 | 128.5 | Yadkin | 6 | 31 | * | 107.9 |
| Jackson | 9 | 16 | * | * | Yancey | 0 | 12 | 0.0 | * |

Source: North Carolina State Center for Health Statistics, 2007 provisional data. Newborns were not included.

* Rates are not calculated when number of hospitalizations is less than 20.

Future Topics

Additional data from the 2008 North Carolina BRFSS and the 2008 North Carolina Childhood Health Assessment and Monitoring Program (CHAMP) will allow us to provide further information on behavioral risk factors, and asthma management and control. We continue to explore other sources of surveillance data and will share 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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