



## Kids and Asthma

A Report to the Yuma Community from  
Yuma HealthQuery  
a Community-University Partnership

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## Executive Summary

There is continuing concern in Yuma County about the number of children with asthma. The information on asthma in Yuma County that is presented in this report is drawn from the Yuma HealthQuery (YHQ) a voluntary, cooperative effort between Yuma's health care providers, schools, and other health related organizations with the support and technical assistance of Arizona State University.

Our report shows that, on average, 6.5 percent of Yuma children are treated for asthma annually. This treatment rate is somewhat higher than the national rate of 4.0 percent (Lozano *et al.*, 1999). However, with the current level of analysis we cannot say if this difference is statistically significant. Lozano has reported that children with asthma use substantially more health services than other children with 1.9 times as many ambulatory provider visits, 2.2 times as many emergency department (ED) visits and 3.5 times as many hospitalizations (Lozano *et al.*, 1999). Our results also demonstrate that children with chronic asthma use more provider services. Previous research by Miller has shown that Black children are more likely to have asthma than children in other ethnic groups (Miller, 2000). Our results are consistent with previous research and show that Black children living in Yuma County are twice as likely to have asthma as children of other ethnic groups. The majority of children with chronic asthma in Yuma County are insured by AHCCCS. However, a significant number of these children have no health insurance. These uninsured children with asthma are likely to rely on the ED for asthma care since their ability to receive appropriate and timely preventive health care services for asthma is limited.

The primary results of this report show:

- Approximately 2,800 children in Yuma County receive health care for asthma in any given year (1999-2001), and the percent of children with asthma remains fairly stable from 1999-2001 (Table 1).
- From 1999-2001 the proportion of Black children with asthma is higher than the proportion of children of other racial/ethnic groups with asthma (Figure 4).

- In 1999-2001 the primary insurance sources for children with asthma are not very different from the primary insurance sources for children without asthma in Yuma County (Figure 6).
- Children with asthma are more likely to access the ED than children without asthma (Figure 7).
- Among children with chronic asthma, there is a trend of slightly decreasing service utilization from 1999-2001 (Figure 13).

## **Community Partners**

YHQ is made possible by the cooperation of the following members of the Yuma Community.

### ***Yuma Advisory Committee List***

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Arizona Public Service	Donna Phipps, Community Development
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Tim Foist, Superintendent  
Toni Badone, Assistant Superintendent,  
Curriculum

\* Data Partner

## **Background**

Yuma HealthQuery (YHQ) is a county-wide, multi-year database created and maintained by the voluntary cooperation of private and public health insurers, health care providers, schools, and health related community agencies, with technical support from Arizona State University. YHQ includes demographic, diagnostic, insurance coverage, immunization and health care utilization data, and an annual door-to-door survey of low income neighborhoods by a local community agency. It includes every child who used the ED or inpatient care and every child seen by a YHQ data partner, and/or who was insured by AHCCCS or SCHIP, and/or was immunized.

Comparisons between the YHQ 2000 data and the Census 2000 show that YHQ includes all of Yuma's children age 0 to 4 years; 57 percent of children ages 5 to 9 years; 47 percent of children ages 10 to 14 years; and 41 percent of children ages 15 to 19. Overall, approximately 63 percent of all children in Yuma in 2000 are included in the data set. The data are weighted so that the results represent the underlying population distribution and the population totals in Yuma County. That is, each child has been assigned a weight to adjust the YHQ data to match the age, ethnicity, and gender distribution of all children in Yuma County in the year 2000.

## **Asthma**

Asthma is an inflammation of the lungs that causes intermittent narrowing and blockage of the airways. Symptoms of asthma include coughing, wheezing, chest tightness, and shortness of breath. Asthma is the most common cause of chronic disease in the pediatric population. The prevalence of asthma has increased by 72 percent over the past 15 years. Over 214,000 children in the U.S. are hospitalized each year for asthma. Childhood asthma is the most common cause of missed school days, ED visits and hospitalizations in the U.S. On average, children who have asthma miss one week of school each year due to the disease (Liu *et al.*, 2004).

## Results

The first section of this report briefly describes the characteristics and utilization behaviors of children who were treated for asthma in 1999 through 2001. In this section the data on Yuma's children include information for all children in the years 1999, 2000, and 2001. These data reflect the increasing number of children living in Yuma County. The second section of the report presents results for a subset of Yuma County's children. This subset includes children who have data in the YHQ in all three years (1999, 2000, and 2001). Examining the subset of children with three consecutive years of data permits us to picture trends over time that are not affected by changes in the underlying population. This examination also provides us with a better picture of health care utilization by children who have chronic asthma. In both sections school districts are grouped and defined using zip codes. Those children who moved during the school year from one district to another are described as living in 'multiple school districts.' In some cases the number of children living in less populated areas of Yuma County is so small that reporting the information might allow for their identification. In these cases, the data are omitted from this report.

Between 6.8 and 6.7 percent of the children in the YHQ data set are treated for asthma in a typical year. The percentage of children receiving care for asthma was nearly constant over the period 1999 to 2001 although the numbers rose with increases in the population (Table 1).

**Table 1. Data on Yuma’s Children, YHQ**

	1999	2000	2001
<i>YHQ Children (actual count)</i>	29,199	32,268	36,075
<i>YHQ Children (weighted total)</i>	51,212	51,128	51,406
<i>Yuma County Children Census Count</i>	46,087	51,002	53,035
<i>YHQ Children with Asthma (actual count)</i>	1,541	1,873	2,050
<i>YHQ Children with Asthma (weighted total)</i>	2,708	2,977	2,858

Note: 1999 census numbers are based on projections from the 1990 census, 2000 census numbers are based on the 2000 census data, and 2001 census numbers are projections from the 2000 census. All are extracted from [www.census.gov](http://www.census.gov). Weighted counts in some years exceed census counts/projections because the weights are based on underlying population distributions in the year 2000.

The characteristics of children changed little with increases in population. Therefore, the graphs presented below describe the 2001 data, the most recent year with complete data from all our data partners.

### ***All Children, 2001***

Figures 1-7 describe YHQ children who received any form of health care in 2001. Children with missing gender, race, zip code (in 2001), and insurance status (in 2001) are excluded from these analyses. The numbers (N) are actual numbers of children. The percentages are weighted. The primary findings are:

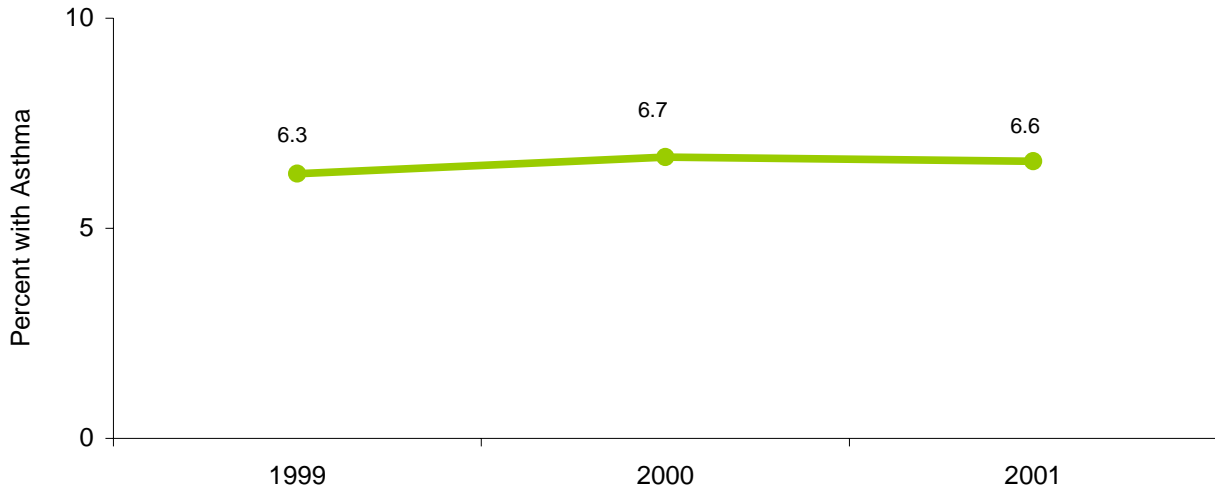
- Early elementary school children (5 to 9 year olds) are most likely to have asthma (Figure 3).
- Black children are more likely to have asthma than other children (Figure 4).
- The percentages of children with asthma in the Yuma, Antelope, and Somerton school districts are similar to the average percent of children with asthma in Yuma County. However, a larger proportion of children who transfer between



multiple school districts in 2001 have asthma and a smaller proportion of students in the Gadsden school district have asthma (Figure 5).

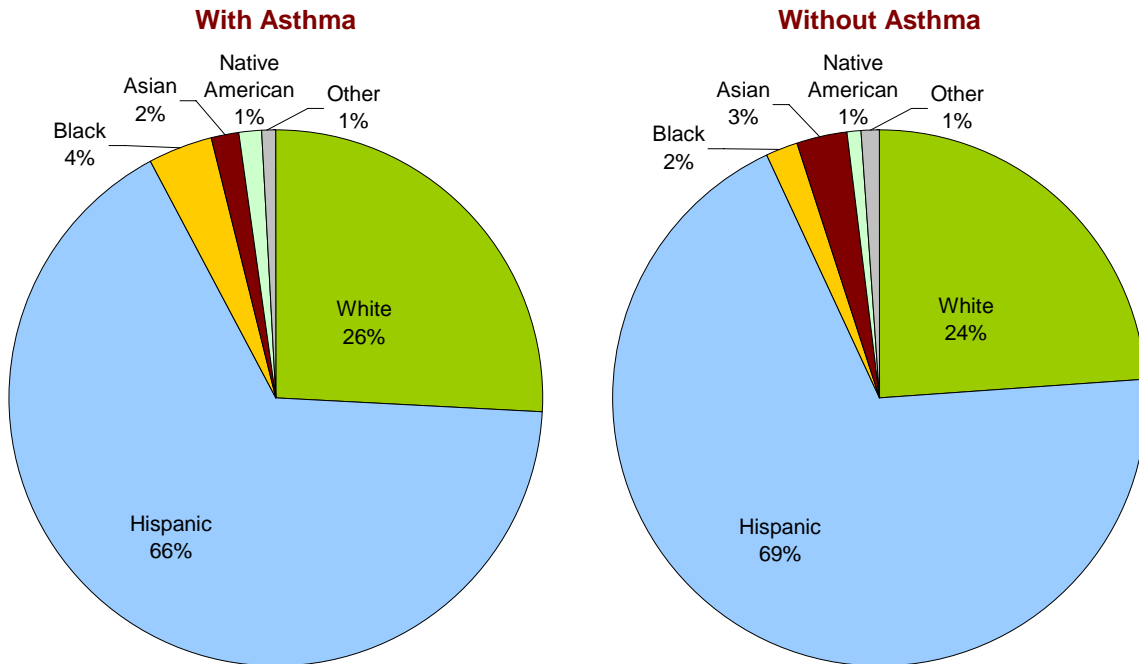
- Approximately six percent of children with asthma are uninsured, and this is similar to the proportion of uninsured, non-asthmatic children (Figure 6).
- Children with asthma are more likely to visit the ED than children without asthma (Figure 7).

**Figure 1. Children Treated for Asthma, 1999-2001**



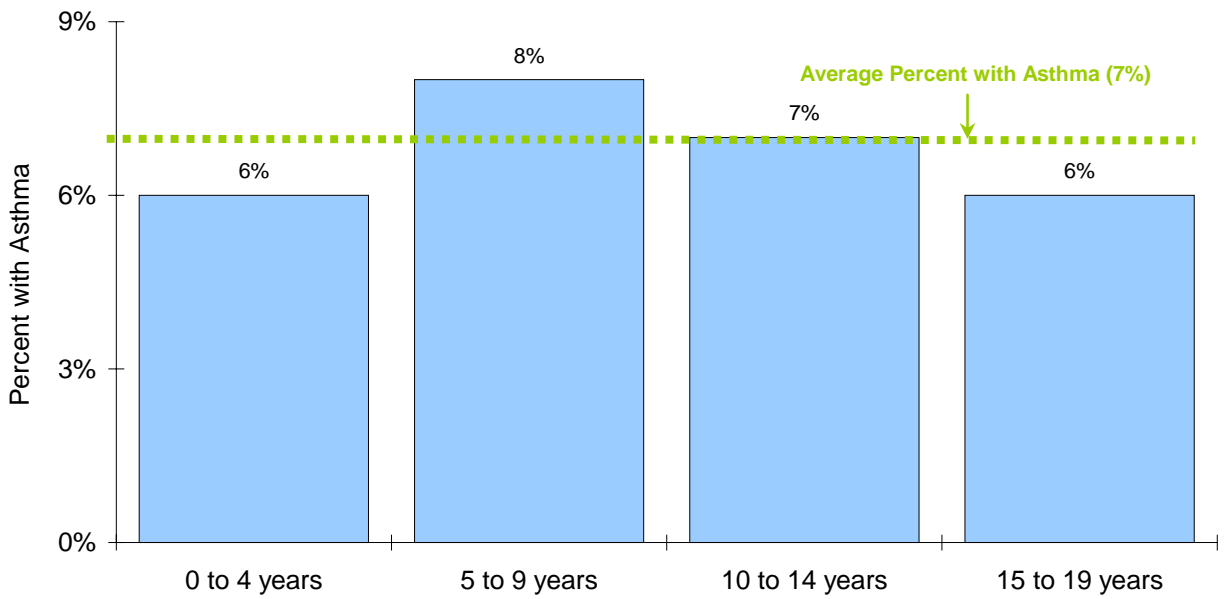
Source: YHQ children who received care.  
 Note: Percentages based on weighted data.

**Figure 2. Children in Yuma County by Race/Ethnicity, 2001 (N=30,176)**



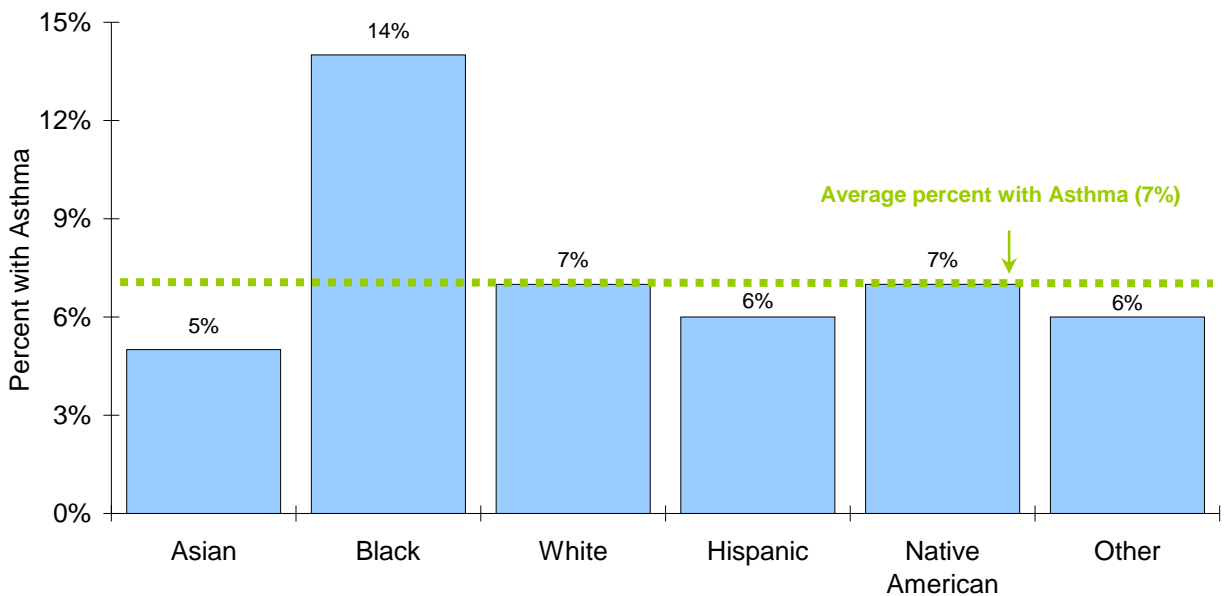
Source: 2001 YHQ children who received care.  
 Note: Percentages are weighted.

**Figure 3. Children with Asthma by Age, 2001 (N=30,176)**



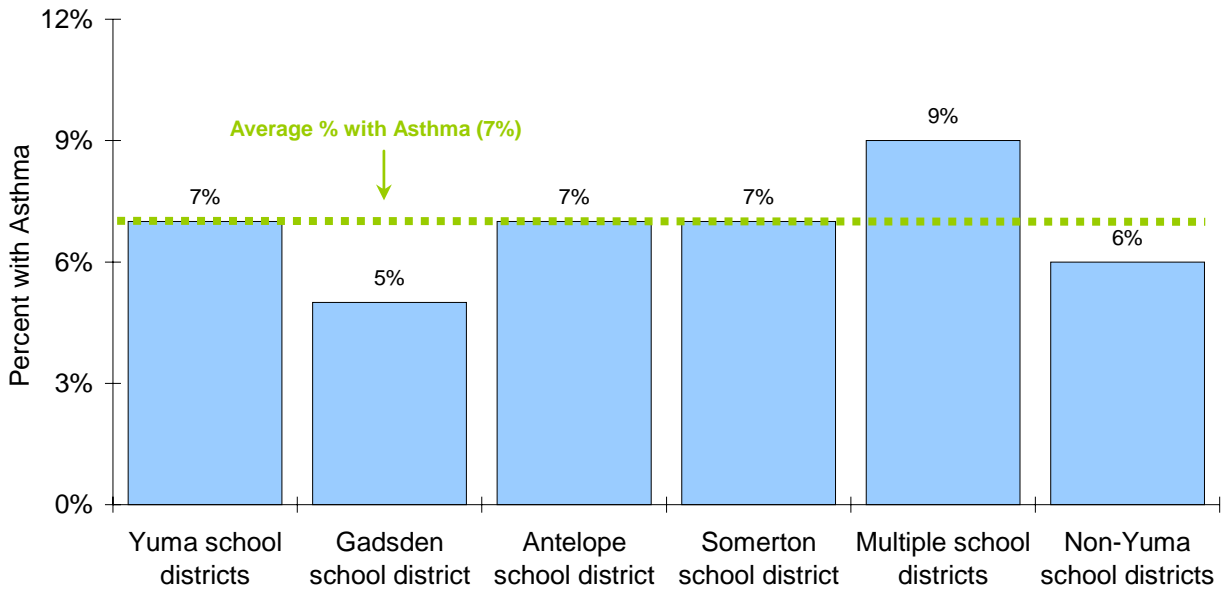
Source: 2001 YHQ children who received care.  
Note: Percentages are weighted.

**Figure 4. Children with Asthma by Race/Ethnicity, 2001 (N=30,176)**



Source: 2001 YHQ children who received care.  
Note: Percentages are weighted.

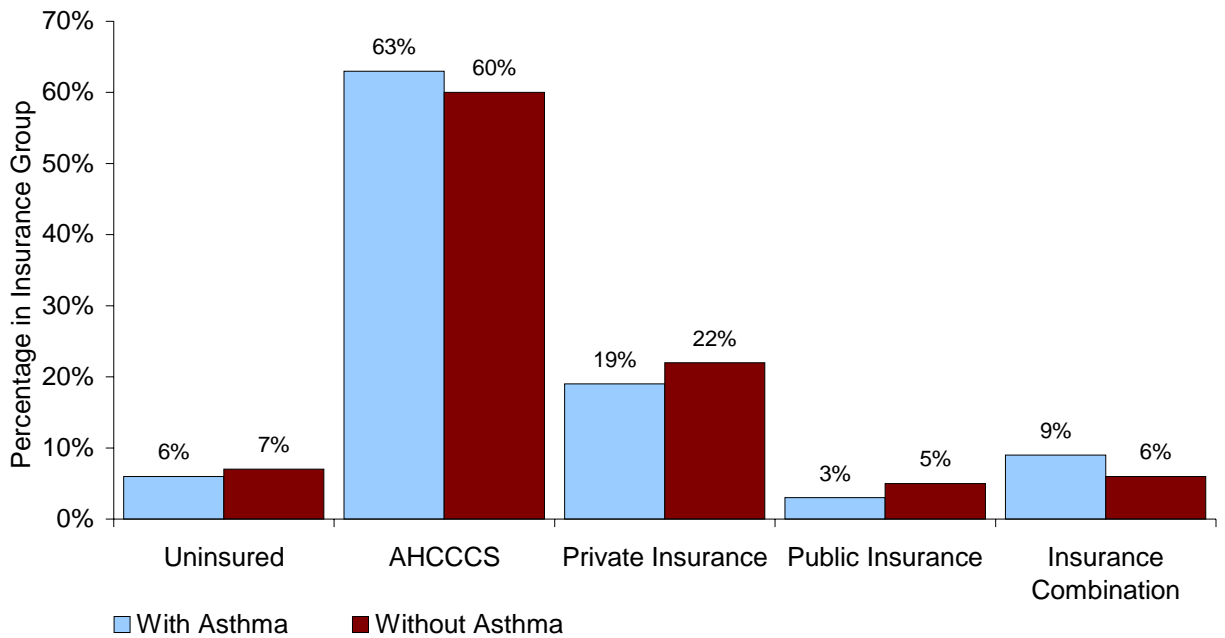
**Figure 5. Asthma by School District, 2001 (N=30,176)**



Source: 2001 YHQ children who received care.

Note: Percentages are weighted. Data from Hyde and Mohawk school districts excluded because cell sizes <30. Yuma=85364, 85366, 85369, 85367; Gadsen=85336, 85349; Hyde=85333; Mohawk=85347, 85352; Somerton=85350; Antelope=85356.

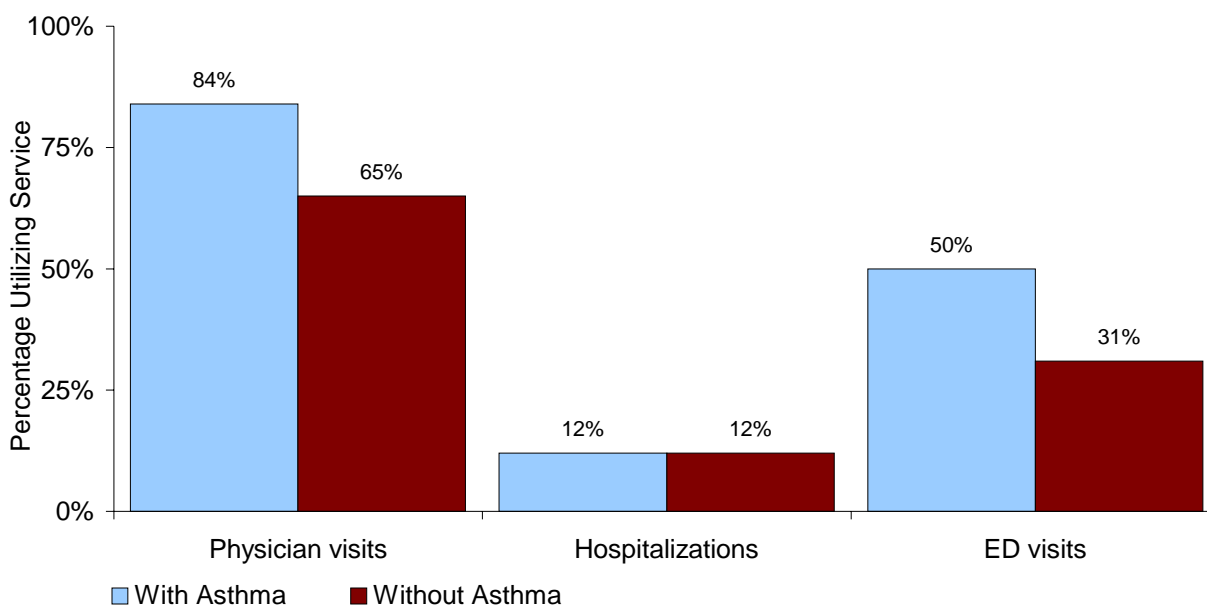
**Figure 6. Primary Insurance Source for Children with and without Asthma, 2001 (N=30,176)**



Source: 2001 YHQ children who receive care.

Note: Percentages are weighted.

**Figure 7. Provider Utilization for Children with and without Asthma, 2001 (N=30,176)**



Source: 2001 YHQ children who receive care.

Note: Percentages are weighted; individuals can see more than one provider.

### **Children with Three Consecutive Years of Data**

Our second set of results follows the health care experiences of the subset of Yuma's children for whom we have data for three consecutive years. Examining this group of children allows us to compare the evolution of asthma and its treatment over time for a single group of children. There are 11,879 children in the group which, when weighted, represents 19,828 children. Children with missing gender, race, zip code, and insurance status are excluded from these analyses. The numbers (N) are actual numbers of children. The percentages are weighted.

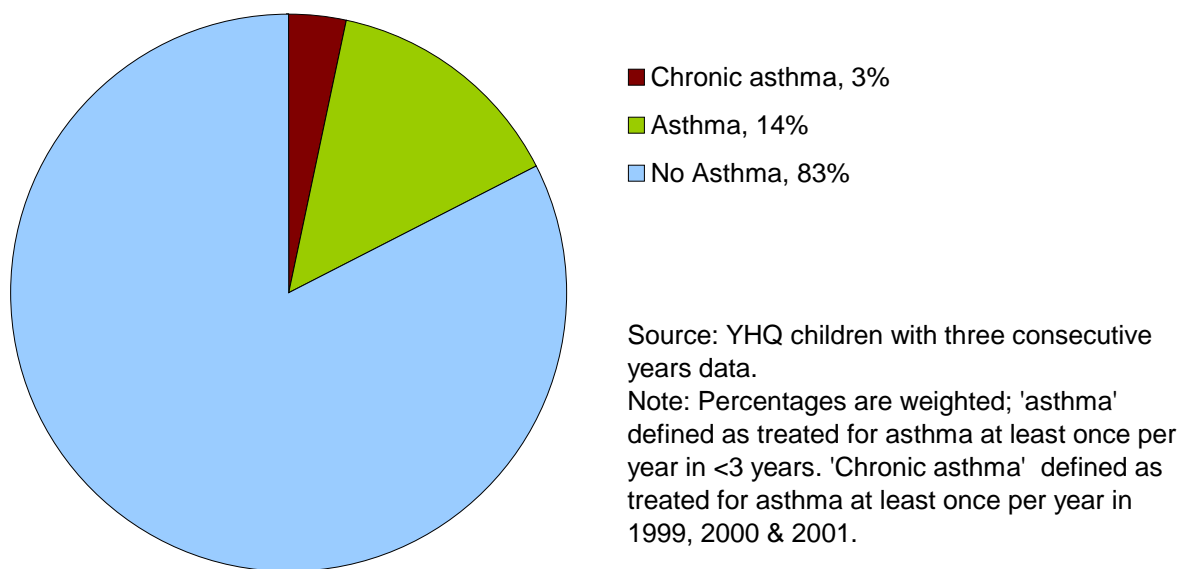
For these analyses we present separate results for children with chronic asthma, children with asthma, and children without asthma. We define children with 'chronic asthma' as those children who received care for asthma at least once in all three years. We defined children with 'asthma' as those children who received care for asthma in less than three years. Arguably not every member of the 'chronic asthma' group truly has chronic asthma. Certainly, to be seen at least once per year for three consecutive years does not necessarily mean that the asthma is chronic. However, we can be fairly

certain that our definition of 'chronic asthma' is sensitive enough to capture all children with truly chronic asthma, at the expense of also capturing some who do not have chronic asthma.

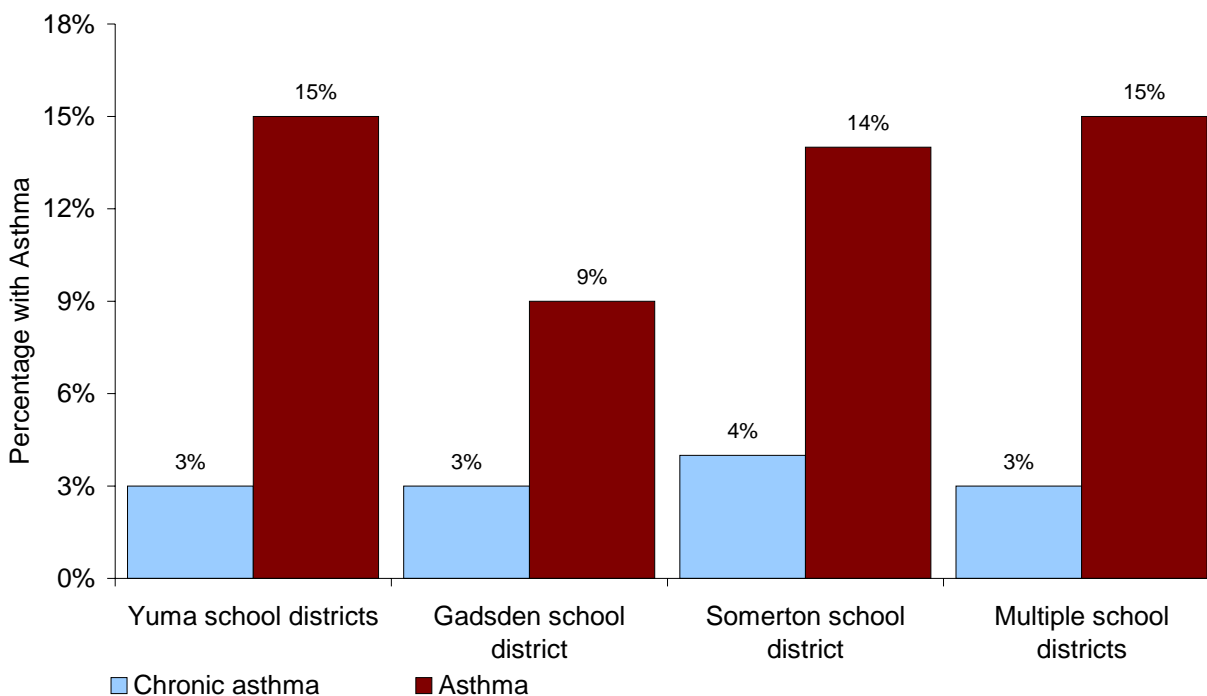
The primary results from these data are:

- Seventeen percent of children with three consecutive years of data receive care for asthma at least once in three years (Figure 8).
- The percent of children with three consecutive years of data with asthma remains constant across school districts (though slightly lower in Gadsden) and years (1999-2001). For this reason, only 2001 data are displayed (Figure 9).
- Children with asthma are more likely to be hospitalized or to visit the ED than children without asthma (Figures 10-13).
- From 1999 to 2001 health care utilization patterns show a severity gradient: children without asthma are using fewer services, children with asthma are using slightly more services, and children with chronic asthma are using even more services (Figures 10-13).
- Approximately 40 to 45 percent of children with chronic asthma receive emergency care annually and 13 to 19 percent are hospitalized (Figure 13).
- A majority of Yuma County children have AHCCCS as their primary insurer. However, there do not appear to be any major differences between children without asthma, children with asthma, and children with chronic asthma (Figures 14-17).

**Figure 8. Asthmatic Children with Three Consecutive Years of Data, 1999-2001 (N=11,879)**

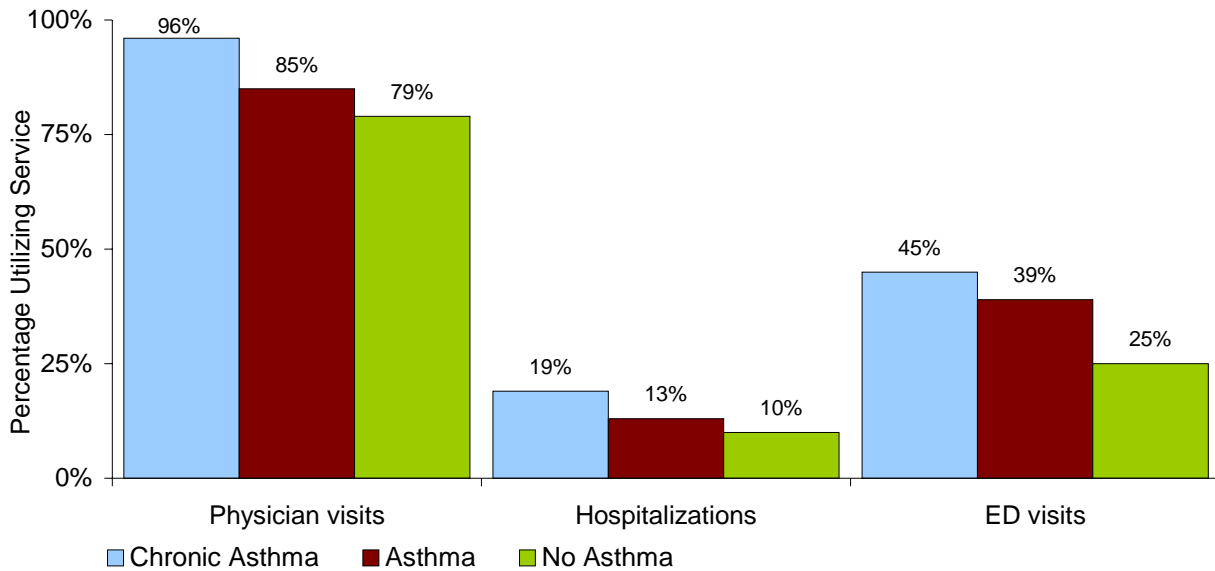


**Figure 9. Asthmatic Children with Three Consecutive Years of Data by School District, 2001 (N=11,879)**



Source: YHQ children with three consecutive years data.  
 Note: Percentages are weighted. 'Asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001. Data from Hyde, Mohawk, Antelope, and Non-Yuma school districts excluded because cell sizes <30. Yuma=85364, 85366, 85369, 85367; Gadsen=85336, 85349; Hyde= 85333; Mohawk=85347, 85352; Somerton=85350; Antelope=85356.

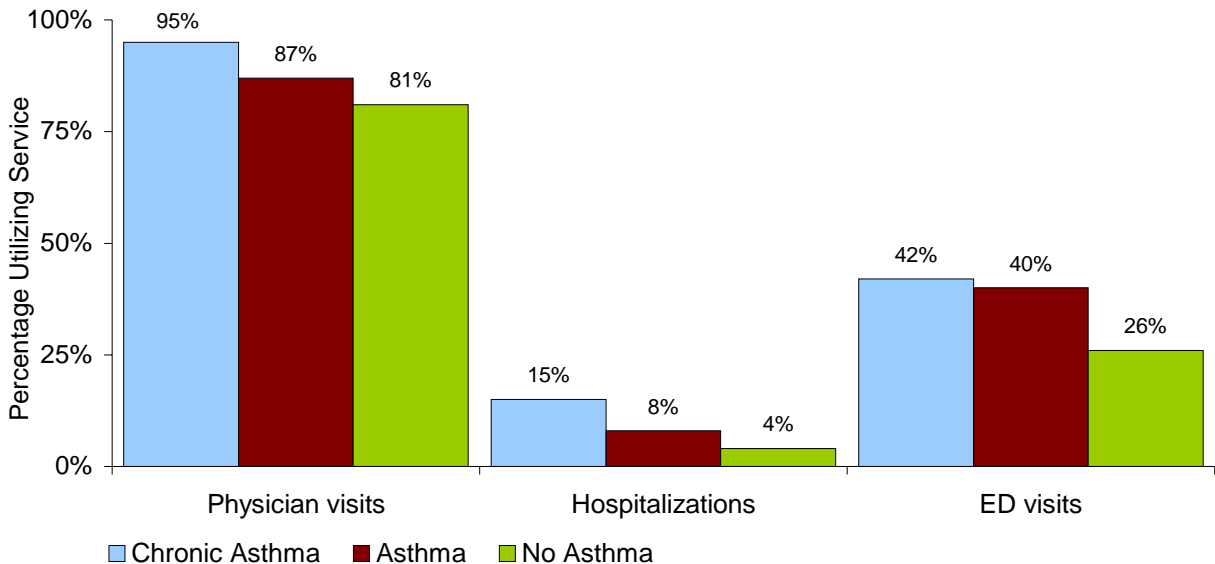
**Figure 10. Provider Utilization for Children with Three Consecutive Years of Data, 1999 (N=11,879)**



Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.

**Figure 11. Provider Utilization for Children with Three Consecutive Years of Data, 2000 (N=11,879)**

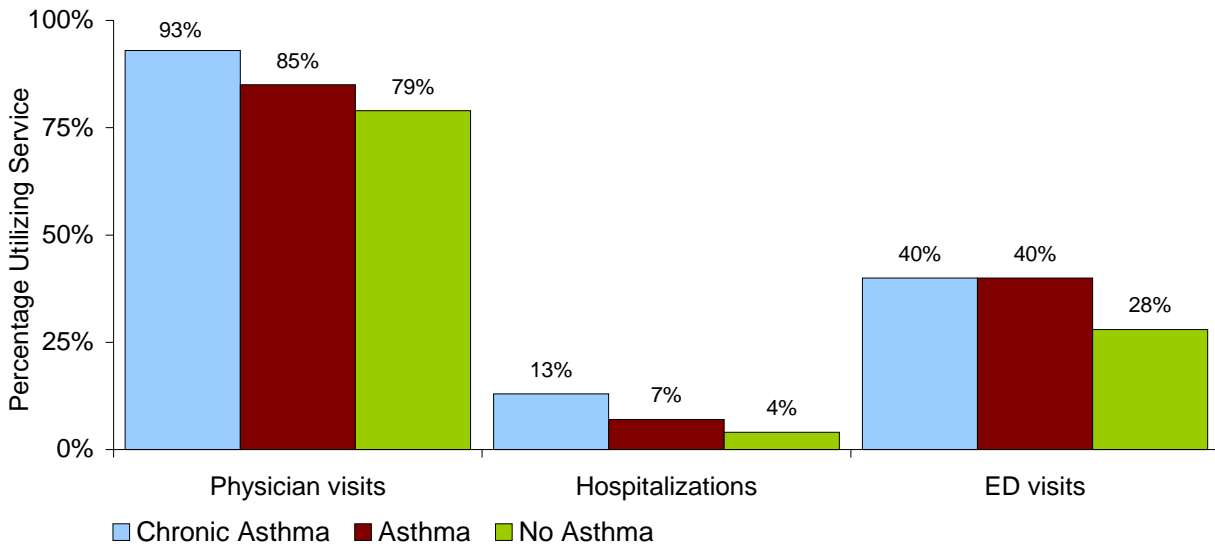


Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.



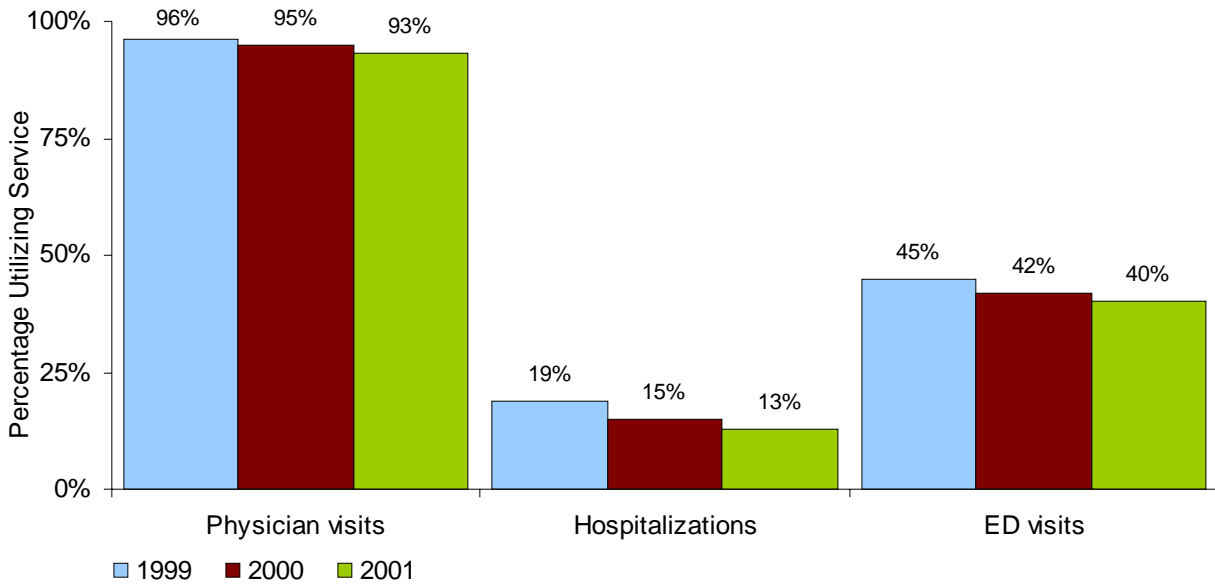
**Figure 12. Provider Utilization for Children with Three Consecutive Years of Data, 2001 (N=11,879)**



Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.

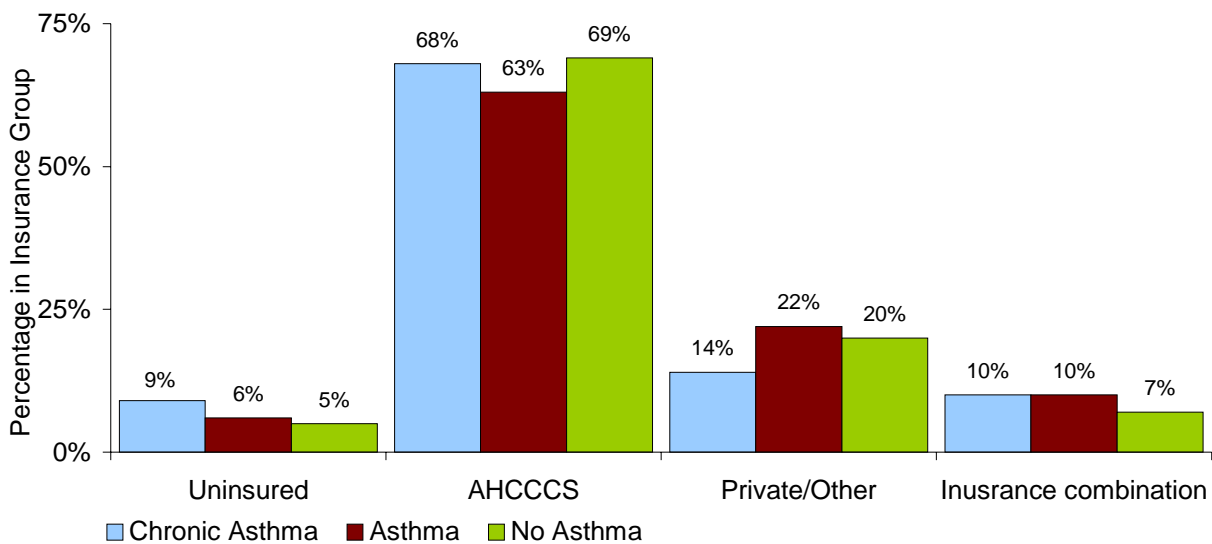
**Figure 13. Provider Utilization for Children with Three Consecutive Years of Data with Chronic Asthma, 1999-2001 (N=11,879)**



Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.

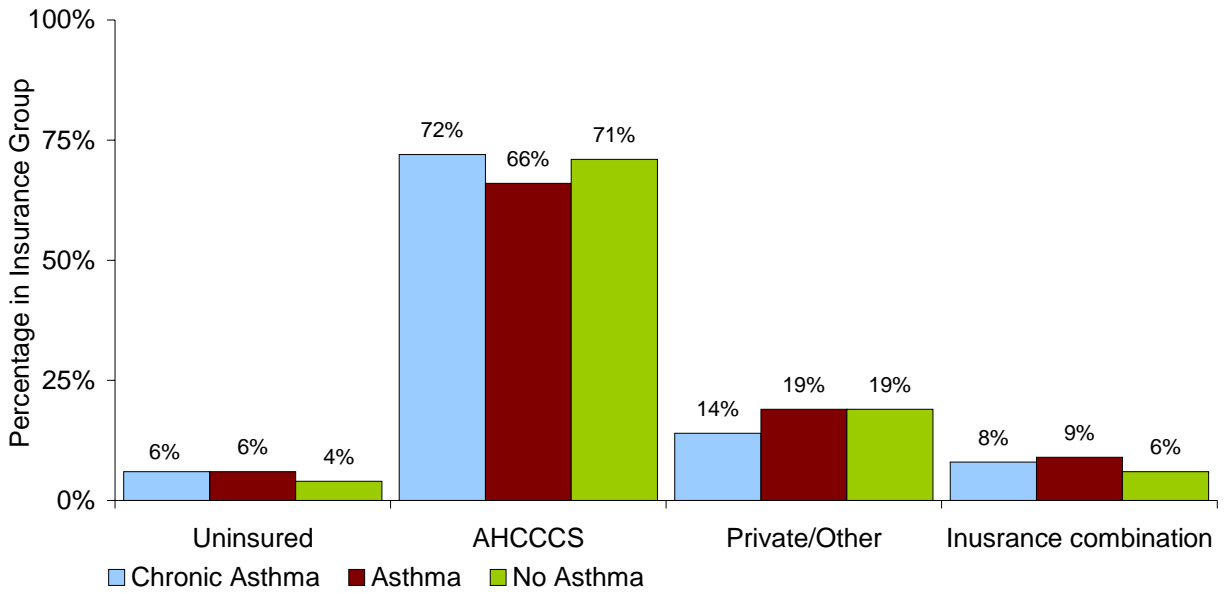
**Figure 14. Primary Insurance Coverage for Children with Three Consecutive Years of Data, 1999 (N=11,879)**



Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.

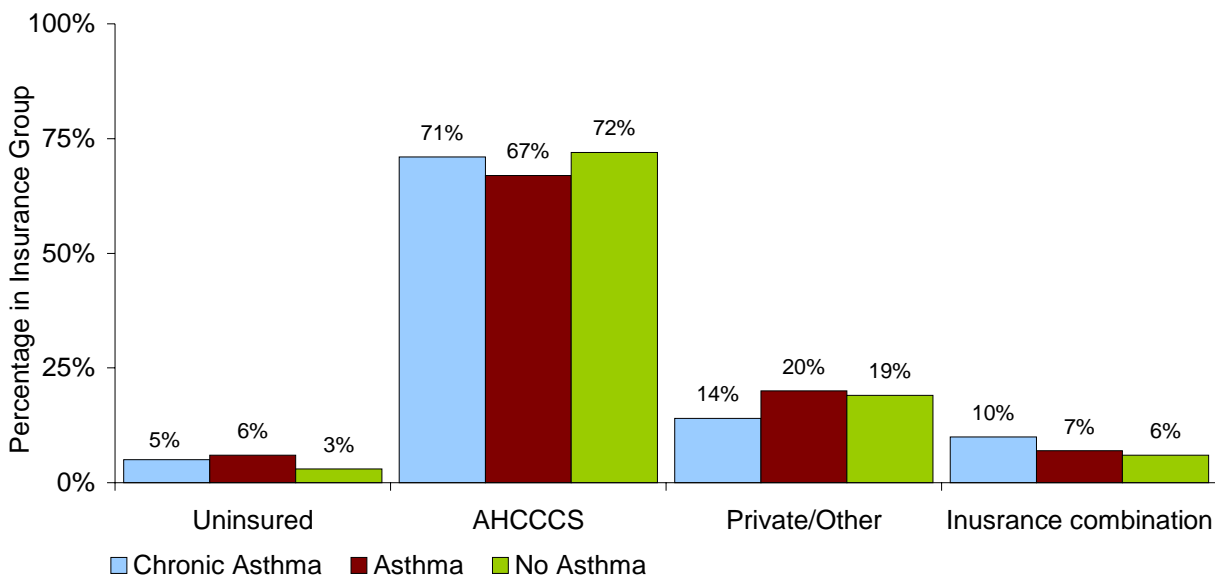
**Figure 15. Primary Insurance Coverage for Children with Three Consecutive Years of Data, 2000 (N=11,879)**



Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.

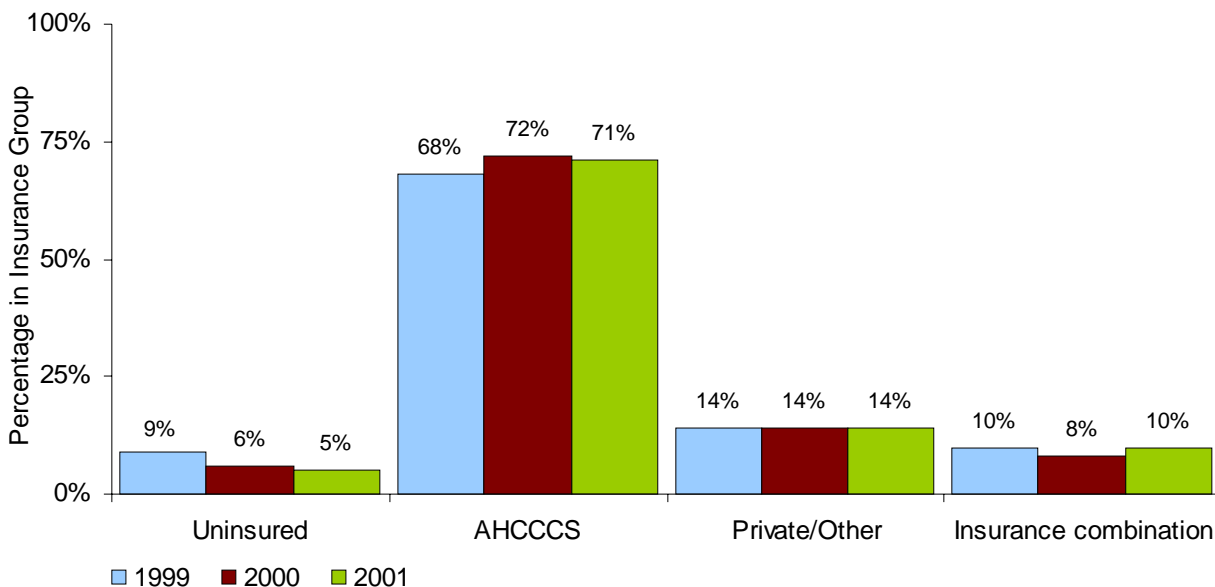
**Figure 16. Primary Insurance Coverage for Children with Three Consecutive Years of Data, 2001 (N=11,879)**



Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.

**Figure 17. Primary Insurance Coverage for Children with Three Consecutive Years of Data with Chronic Asthma, 1999 - 2001 (N=11,879)**



Source: YHQ children with three consecutive years data.

Note: Percentages are weighted; individuals can see more than one provider; 'asthma' defined as treated for asthma at least once per year in <3 years. 'Chronic asthma' defined as treated for asthma at least once per year in 1999, 2000, & 2001.

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- Miller, J. E. (2000). The effects of race/ethnicity and income on early childhood asthma prevalence and health care use. *Am J Public Health*, *90*(3), 428-430.