



## Center for Health Statistics



**March  
2005**

### COUNTY HEALTH FACTS No. 05-03

County Health Facts is a series of reports using California Health Interview Survey data to describe the health status of California's counties.

#### 2003 HIGHLIGHTS:

**About 14.8 percent of children and adolescents in California have ever been diagnosed with asthma.**

**More than half a million children and adolescents in California had at least one asthma attack in 2003.**

**Marin County had the lowest lifetime asthma prevalence in children and teens, 8.5 percent; San Joaquin County had the highest prevalence, 23.1 percent.**

## Asthma in Children and Adolescents in California Counties, 2003

By Laura E. Lund, M.A.<sup>1</sup>

Asthma is a chronic disease of the lungs in which the airways become inflamed and constricted, leading to wheezing and difficulty breathing.<sup>2</sup> Asthma attacks can range in severity from mild to life threatening; symptoms include shortness of breath, coughing, wheezing, and chest pain or tightness. Factors that can bring on an asthma attack include allergens, infections, exercise, abrupt changes in the weather, or exposure to airway irritants, such as tobacco smoke.<sup>3</sup>

Asthma in young children and adolescents is a serious public health problem in the United States (U.S.). The National Health Interview Survey has found that persons under age 18 have higher rates of asthma than any other age group; in 2002, 122 out of every 1000 children under age 18 had asthma, compared to 106 persons with asthma per 1000 adults aged 18 and older.<sup>3</sup> Of special concern is the significant increase in asthma prevalence rates in children and youth since 1980. Among children aged 0-4 years, asthma rates increased 160 percent between 1980 and 1994, while asthma rates in 5-14 year olds rose by 74 percent during this time period.<sup>4</sup>

The mortality rate from asthma in children and adolescents in the U.S. is low, 0.3 deaths per 100,000 children aged 0-17 in 2002.<sup>3</sup> However, lifetime asthma prevalence is common, and the effects of asthma on children and their caregivers can be devastating. Asthma in children and teens results in missed days of school, limitations on daily activities, emergency department visits for treatment of asthma symptoms, and hospitalizations.<sup>3</sup> Although there is no cure for asthma, persons with asthma can reduce their risk for asthma-related problems by working with their health care providers to manage their disease according to established guidelines in four areas: using objective measures of lung function to monitor severity and control of the disease, avoiding environmental factors that bring on asthma episodes, using appropriate medication to achieve long-term asthma management and control, and establishing a provider-patient partnership for asthma management.<sup>5,6,7</sup>

<sup>1</sup>California Department of Health Services, Center for Health Statistics.

<sup>2</sup>National Institutes of Health. *Asthma*. URL: <http://www2.niaid.nih.gov/newsroom/focuson/asthma01/basics.htm>.

<sup>3</sup>National Center for Health Statistics. "Asthma Prevalence, Health Care Use and Mortality." URL: <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/asthma/asthma.htm>.

<sup>4</sup>Mannino DM, Homa DM, Pertowski CA, et al. "Surveillance for Asthma---United States, 1960-1995." *Morbidity and Mortality Weekly Report Surveillance Summaries*. April 24, 1998 / 47(SS-1);1-28.

<sup>5</sup>Williams SG, Schmidt DK, Redd SC, et al. "Key Clinical Activities for Quality Asthma Care." *Morbidity and Mortality Weekly Report: Recommendations and Reports*. March 28, 2003. URL: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5206a1.htm>.

<sup>6</sup>National Asthma Education and Prevention Program. *Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma*. NIH Pub. No. 97-4051. Bethesda, MD: NIH, 1997.

This report presents information on asthma prevalence in children and adolescents aged 0-17 years in California counties. All data are from the California Health Interview Survey (CHIS 2003). (See “Methods” on page three for a description of the survey and analytic methods used.) This report looks at the prevalence of lifetime asthma (children and teens who have ever been told by a doctor that they have asthma) and asthma attack (children and teens with lifetime asthma who had an asthma episode or attack within the past 12 months).<sup>8,9</sup> The prevalence measure used here for lifetime asthma may result in an undercount of the number of children and youth with asthma, since some persons who have asthma may not have sought or received a physician’s diagnosis. The terms “rate”, “percent”, and “proportion” are used interchangeably throughout this report to refer to the prevalence of lifetime asthma and asthma attack.

## Prevalence of Lifetime Asthma

In 2003 about 14.8 percent of all persons under age 18 had ever been diagnosed with asthma (Table 1, page 4), more than 1.4 million children and adolescents. There was considerable variation in the proportion of children and youth with lifetime asthma across counties, from a low of 8.5 percent in Marin County to a high of 23.1 percent in San Joaquin County, although most differences between counties were not statistically significant. Comparing county rates with the overall California rate, only one county (Riverside) had a lifetime asthma rate that was significantly lower than California’s rate of 14.8 percent. There were no counties or regions with lifetime asthma rates significantly higher than the State rate.

## Prevalence of Asthma Attack

In 2003 about 36.3 percent of all persons under age 18 with lifetime asthma experienced an asthma attack (Table 2, page 5), or about half a million California children and adolescents. County asthma attack rates varied considerably, from a low of 17.7 percent of children and adolescents with asthma in San Luis Obispo County to a high of 70.1 percent in Mendocino/Lake County. In spite of the wide variation in asthma attack rates only the lowest and highest rate were significantly different from each other. There were no counties or regions with asthma attack rates significantly higher or lower than the State rate.

## Summary

Asthma is a very common health problem in California children and adolescents, with 14.8 percent of all persons under age 18 having been diagnosed with asthma. In addition, more than one third of all children and adolescents with asthma (36.3 percent) experienced an asthma attack in 2003. This suggests that large numbers of Californian children and adolescents may be at risk for serious illness and other complications associated with asthma, such as activity limitations and missed days of school. Asthma in children and adolescents is also a significant health problem in counties across the State, with lifetime asthma rates varying from 8.5 percent of all children and adolescents in Marin County to 23.1 percent in San Joaquin County.

---

<sup>7</sup>National Asthma Education and Prevention Program. *Expert Panel Report: Guidelines for the Diagnosis and Management of Asthma*, Update on Selected Topics 2002, National Institutes of Health Publication No. 02 - 5074, June 2003.

<sup>8</sup>CHIS 2003 asked adolescent respondents: “Has a doctor *ever* told you or your parents that you have asthma?” CHIS 2003 asked adult respondents answering for children aged 0-12: “Has a doctor *ever* told you that [CHILD’S NAME] has asthma?”

<sup>9</sup>CHIS 2003 asked all adolescent respondents with diagnosed asthma: “During the *past 12 months*, have you had an episode of asthma or an asthma attack?” CHIS 2003 asked adult respondents answering for children aged 0-12 with diagnosed asthma: “During the *past 12 months*, has [he/she] had an episode of asthma or an asthma attack?”

While asthma is quite common in children and adolescents, and at this time there is no cure for this disease, the burden of asthma can be reduced significantly through appropriate asthma management. It is especially important for children and their parents/guardians to have a written asthma action plan developed with the assistance of a health care provider. More information on asthma in California through the California Department of Health Services' California Asthma Public Health Initiative at [www.dhs.ca.gov/caphi](http://www.dhs.ca.gov/caphi).

## Methods

**Data:** CHIS 2003 is a population-based household telephone survey, representative of the non-institutionalized population of California, with more than 42,000 California households participating. In addition to statewide data, CHIS 2003 provides representative samples for California counties with populations greater than 100,000. For smaller counties, CHIS 2003 provides representative data estimates for contiguous county groups, referred to as "regions" in this report. In 2003 4,000 adolescents (aged 12-17) and 8,500 children (aged 0-11) participated in the survey. CHIS 2003 is a collaboration of the California Department of Health Services, the University of California at Los Angeles Center for Health Policy Research, and the Public Health Institute. More information on the CHIS 2003 sample is available at <http://www.chis.ucla.edu>.

**Analysis:** In this report, crude rates are provided as measures of prevalence. Crude rates reflect the actual number and proportion of persons under age 18 with lifetime asthma or experiencing an asthma attack. Contact the author for further information on the methods used to calculate rates in this report.

The 95 percent confidence intervals (CIs) are presented for each rate. Because CHIS data are collected through a sampling method, there may be some random error in the rate estimate. The CIs represent the range of values likely to contain the "true" population rate 95 percent of the time. In this report, rates are considered to be significantly different from each other when their confidence intervals do not overlap.

**Limitations:** The CHIS data are self-reported by respondents to the survey (parents or legal guardians provide information for children under age 12) and may be subject to error, such as respondent failure to recall information about existing health conditions. Only persons living in households with telephones were included in the survey. Participation in CHIS is voluntary; persons who refused to participate may be different than those who were interviewed. Details on response rates, respondent characteristics, and other survey information can be obtained at <http://www.chis.ucla.edu>.

For more information on CHIS 2003 contact:  
Laura E. Lund, CHIS Coordinator  
California Department of Health Services  
Center for Health Statistics  
Office of Health Information and Research MS 5103  
PO Box 997410  
Sacramento, CA 95899-7410.

**TABLE 1  
LIFETIME ASTHMA<sup>1</sup> IN CALIFORNIA CHILDREN AND ADOLESCENTS, BY COUNTY OR REGION, 2003**

County of Residence	Rate <sup>2</sup>	95% Confidence Interval		Estimated N
		Lower	Upper	
Marin	8.5	2.9	14.1	4,000
Mendocino/Lake	8.7	2.7	14.7	3,000
Riverside*	9.6	6.3	12.8	48,000
Stanislaus	11.0	6.0	16.0	16,000
Santa Cruz	11.3	4.9	17.7	7,000
San Diego	11.4	8.3	14.5	82,000
Sutter/Yuba	11.6	5.6	17.7	5,000
Ventura	11.7	6.0	17.5	25,000
Siskiyou/Lassen/Trinity/Modoc	12.1	4.2	20.1	3,000
San Luis Obispo	12.4	6.2	18.7	6,000
San Mateo	12.6	6.7	18.6	21,000
Humboldt/Del Norte	12.7	6.3	19.1	4,000
Shasta	13.2	5.9	20.5	5,000
Yolo	13.3	7.4	19.2	6,000
Tuolumne/Calaveras/Amador/Inyo/ Mariposa/Mono/Alpine	13.4	4.8	22.0	5,000
Orange	14.2	10.6	17.8	112,000
Santa Clara	14.5	9.8	19.2	63,000
Los Angeles	14.5	12.8	16.2	398,000
Fresno	14.8	9.6	19.9	38,000
<b>CALIFORNIA</b>	<b>14.8</b>	<b>13.9</b>	<b>15.7</b>	<b>1,404,000</b>
Placer	14.8	8.1	21.5	11,000
San Francisco	14.9	7.7	22.1	17,000
Monterey/San Benito	15.2	8.5	21.9	20,000
Napa	15.4	7.8	23.0	5,000
Madera	15.5	9.1	21.9	6,000
San Bernardino	16.2	11.9	20.6	92,000
Alameda	16.5	13.1	19.9	59,000
Nevada/Plumas/Sierra	17.2	7.6	26.9	4,000
El Dorado	17.4	10.1	24.6	7,000
Kern	17.5	11.1	23.7	38,000
Merced	17.6	11.5	23.6	13,000
Santa Barabara	17.7	10.0	25.3	18,000
Contra Costa	18.3	12.5	24.1	48,000
Tehama/Glenn/Colusa	18.5	9.6	27.5	5,000
Tulare	19.1	13.0	25.2	24,000
Sonoma	19.1	11.1	27.1	21,000
Imperial	19.2	13.1	25.3	9,000
Solano	19.7	12.6	26.8	22,000
Sacramento	20.1	13.7	26.5	71,000
Kings	21.0	14.3	27.7	8,000
Butte	21.7	13.8	29.7	10,000
San Joaquin	23.1	15.5	30.7	43,000

<sup>1</sup>Individuals with "lifetime asthma" have ever been told by a doctor that they have asthma.  
<sup>2</sup>Rate is per 100 county or State population under age 18.  
\*Rate is significantly different from the State rate.

Sources: University of California at Los Angeles Center for Health Policy Research and State of California, Department of Health Services. 2003 California Health Interview Survey. State of California, Department of Finance. Race/Ethnic Population with Age and Sex Detail, 2003. Sacramento, CA. May 2004.  
Prepared by: Department of Health Services, Center for Health Statistics.

**TABLE 2  
CHILDREN AND ADOLESCENTS IN CALIFORNIA WITH LIFETIME ASTHMA  
EXPERIENCING AN ASTHMA ATTACK WITHIN THE PAST YEAR,  
BY COUNTY OR REGION, 2003**

County of Residence	Rate <sup>1</sup>	95% Confidence Interval		Estimated N
		Lower	Upper	
San Luis Obispo	17.7	1.2	34.3	1,000
Butte	22.6	5.7	39.5	2,000
Riverside	23.4	10.7	36.0	11,000
Orange	24.7	14.1	35.3	28,000
Sutter/Yuba	26.1	5.9	46.4	1,000
El Dorado	26.3	8.1	44.6	2,000
Nevada/Plumas/Sierra	28.4	2.3	54.5	1,000
Tehama/Glenn/Colusa	28.8	3.3	54.3	1,000
Sacramento	29.5	13.3	45.8	21,000
Merced	30.0	12.8	47.2	4,000
San Bernardino	31.2	17.9	44.5	29,000
Contra Costa	31.2	15.5	46.9	15,000
San Francisco	33.9	9.8	58.0	6,000
San Diego	34.6	20.6	48.6	28,000
<b>CALIFORNIA</b>	<b>36.3</b>	<b>32.2</b>	<b>39.5</b>	<b>510,000</b>
Santa Clara	36.9	19.5	54.4	23,000
Placer	38.9	15.3	62.4	4,000
Kings	39.8	21.9	57.7	3,000
Los Angeles	39.8	33.5	46.1	159,000
Madera	41.5	19.8	63.2	2,000
Imperial	41.6	24.2	59.0	4,000
Tulare	42.7	24.5	60.8	10,000
Fresno	42.8	24.4	61.1	16,000
Shasta	43.2	12.0	74.3	2,000
Alameda	43.4	31.7	55.2	26,000
Ventura	44.0	17.2	70.9	11,000
Solano	44.7	24.5	65.0	10,000
Humboldt/Del Norte	45.0	17.5	72.5	2,000
Napa	45.5	18.9	72.1	2,000
Santa Cruz	46.0	15.2	76.8	3,000
San Joaquin	47.6	28.3	66.9	21,000
Santa Barbara	48.8	23.8	73.8	9,000
Kern	49.9	30.1	69.7	19,000
Yolo	51.6	27.5	75.6	3,000
Stanislaus	52.7	28.8	76.7	8,000
Sonoma	55.8	32.0	79.6	12,000
Mendocino/Lake	70.1	39.0	100.0	2,000
Siskiyou/Lassen/Trinity/Modoc	*	*	*	*
Tuolumne/Calaveras/Amador/Inyo/ Mariposa/Mono/Alpine	*	*	*	*
San Mateo	*	*	*	*
Marin	*	*	*	*
Monterey/San Benito	*	*	*	*

<sup>1</sup>Rate is per 100 persons under age 18 with diagnosed asthma.  
\*Not reported due to small cell size (n<5)

Sources: University of California at Los Angeles Center for Health Policy Research and State of California, Department of Health Services. 2003 California Health Interview Survey. State of California, Department of Finance. Race/Ethnic Population with Age and Sex Detail, 2003. Sacramento, CA. May 2004. Prepared by: Department of Health Services, Center for Health Statistics.