



Center for Health Statistics



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COUNTY HEALTH FACTS No. 05-01

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 12.3 percent of adults in California, more than three million people, have ever been diagnosed with asthma.

More than one million adults in California had at least one asthma attack in 2003.

Orange County had the lowest lifetime asthma prevalence, 9.4 percent; Solano County had the highest prevalence, 19.2 percent.

Asthma in Adults in California Counties, 2003

By Laura E. Lund, M.A.¹

Asthma is a chronic disease of the lungs in which the airways become inflamed and constricted, leading to wheezing and difficulty breathing.² 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.³

Asthma is a serious public health problem in the United States (U.S.). Since 1980, U.S. asthma rates have increased significantly.⁴ Although the mortality rate from asthma is relatively low, lifetime prevalence is common and the economic toll and health care burden due to this disease are tremendous. In 2002, 10.6 to 11.8 percent of U.S. adults aged 18 and older had ever been diagnosed with asthma.^{3,5} During that same year, asthma contributed to 1.5 deaths per 100,000 persons of all ages, 13.9 million outpatient visits to private physician offices and hospital outpatient departments, 1.9 million visits to emergency departments, 484,000 hospitalizations, and 11.8 million missed workdays among employed persons.³ In California in 2000, more than 37,000 people were hospitalized for asthma treatment,⁶ and as of 2001, 11.5 percent of adults in the State had ever been diagnosed with asthma.⁷

This report presents information on asthma among adults aged 18 and older 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 (persons who have ever been told by a doctor that they have asthma) and asthma attack (persons with lifetime asthma who report having an asthma episode or attack within the past 12 months).^{8,9} The prevalence measure used here for lifetime asthma may result in an undercount of the number of persons with asthma, since some persons who have asthma may not have sought or

¹California Department of Health Services, Center for Health Statistics.

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

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

⁴Mannino D, Homa DM, Akinbami LJ, et al. "Surveillance for asthma --- United States, 1980-1999." *Morbidity and Mortality Weekly Report: Surveillance Summaries*. March 29, 2002. URL: <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5101a1.htm>.

⁵Centers for Disease Control and Prevention. "Asthma Prevalence and Control Characteristics by Race/Ethnicity—United States, 2002." *Morbidity and Mortality Weekly Report*. February 27, 2004. URL: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5307a1.htm>.

⁶Stockman J, Von Behren J, Shaikh N, et al. *California Asthma Facts*. Environmental Health Investigations Branch, California Department of Health Services. May 2003.

⁷Ming Y, Babey SH, Malcolm E, et al. *Asthma in California: Findings from the 2001 California Health Interview Survey*. University of California at Los Angeles: Los Angeles. November 2003.

⁸CHIS 2003 asked all respondents: "Has a doctor ever told you that you have asthma?"

⁹CHIS 2003 asked all respondents with diagnosed asthma: "During the past 12 months, have you had an episode of asthma or an asthma attack?"

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

Crude rates: In 2003 more than three million adult Californians, or about 12.3 percent of all persons aged 18 and older, had ever been diagnosed with asthma (Table 1, page 4). There was considerable variation in the proportion of adults with lifetime asthma across counties, from a low of 9.3 percent in Orange County to a high of 19.4 percent in Solano County.

Age-adjusted rates: After adjusting for differences in county age distributions, Orange County continued to have the lowest lifetime asthma rate, 9.4 percent (Table 1), and Solano County continued to have the highest rate, 19.2 percent. Comparing county rates with the overall California rate, three counties (Orange, San Diego, and Los Angeles) had lifetime asthma rates significantly below California's age-adjusted rate of 12.3 percent. Five counties and one region (Sacramento, Kern, Butte, Napa, Solano, and Humboldt/Del Norte) had lifetime asthma rates significantly higher than the State rate.

Prevalence of Asthma Attack

In 2003 more than one million adult Californians, or about 34.7 percent of all adults with lifetime asthma, experienced at least one asthma attack in the year prior to the survey (Table 2, page 5). There was significant variation in rates of asthma attack across counties, from a low of 17.9 percent of all adults with asthma in San Mateo County to a high of 51.0 percent in Butte County. Comparing county rates with the overall California rate, only San Mateo County had an asthma attack rate significantly below California's rate of 34.7 percent. San Bernardino and Butte Counties had asthma attack rates significantly higher than the State rate.

Summary

Asthma is a very common health problem in California, with more than three million adult Californians, 12.3 percent of all adults, diagnosed with asthma at some time in their lives. More than one third of all adults with asthma, or one million Californians, experienced an asthma attack in 2003. This suggests that large numbers of Californians may be at risk for serious illness and other complications associated with asthma, such as activity limitations and missed workdays. Asthma is also a significant health problem in counties across the State. Orange County, with an age-adjusted rate of 9.4 percent, had the lowest rate of adult lifetime asthma in California. Solano County, with a rate of 19.2 percent, had the highest lifetime adult asthma rate in the State. San Mateo County had the smallest proportion of adults with asthma experiencing asthma attacks, 17.9 percent, while Butte County had the highest proportion, 51.0 percent.

Although there is no cure for asthma, Californians 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.^{10,11,12} For more

¹⁰Williams 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>.

¹¹National 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.

¹²National 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.

information on asthma in California, contact the California Department of Health Services' California Asthma Public Health Initiative at (916) 323-0852 or asthma@dhs.ca.gov.

Methods

Data: CHIS 2003 is a population-based household telephone survey, representative of the non-institutionalized adult population of California, with more than 42,000 Californians participating. In addition to statewide data, CHIS 2003 provides representative samples for California counties with populations greater than 100,000. For smaller counties, CHIS 2001 provides representative data estimates for contiguous county groups, referred to as "regions" in this report. Respondents to the survey were randomly selected California residents aged 18 and older living in households with telephones. 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, both crude rates and age-adjusted rates are provided as measures of prevalence. Crude rates reflect the actual number and proportion of persons with asthma in the population. However, since asthma is more common among young adults than older persons, crude asthma rates are not useful for comparing counties if the counties being compared have different proportions of younger and older people. For example, in counties with a larger proportion of older persons lifetime asthma prevalence will tend to be lower than counties with fewer older persons, all else being equal. Age-adjustment statistically controls for these differences in county age structures. Therefore, age-adjusted rates rather than crude rates should be used for comparing lifetime asthma prevalence differences between counties or between a county and the State. Age-adjusted rates have not been provided for asthma attack prevalence, since the occurrence of asthma attack among persons with asthma should not be affected by the age distribution of a county. Examining the relationship between age and asthma attack is beyond the scope of this report. Age-adjustment was done using the direct method with the 2003 California adult population aged 18 and older as the standard. 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, 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:
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**TABLE 1
LIFETIME ASTHMA¹ IN CALIFORNIA ADULTS, BY COUNTY OR REGION, 2003**

County of Residence	Age-adjusted Rate ²	95% Confidence Interval		Crude Rate ²	95% Confidence Interval		Estimated N
		Lower	Upper		Lower	Upper	
Orange*	9.4	8.0	10.7	9.3	7.6	11.1	202,000
San Francisco	9.9	7.7	12.1	9.8	7.5	12.0	64,000
Riverside	10.1	8.3	12.0	10.2	8.2	12.1	123,000
Marin	10.5	7.1	13.9	10.1	7.3	12.8	19,000
San Diego*	10.5	9.3	11.8	10.6	9.1	12.0	230,000
Santa Barbara	10.7	7.9	13.5	10.7	7.7	13.7	31,000
San Mateo	11.1	7.9	14.2	11.0	7.9	14.2	59,000
Los Angeles*	11.1	10.5	11.8	11.1	10.4	11.8	789,000
Tuolumne/Calaveras/Amador/Inyo/Mariposa/Mono/Alpine	11.2	6.8	15.6	11.3	7.7	14.9	16,000
Imperial	11.7	8.6	14.8	11.8	8.0	15.6	12,000
Kings	12.0	9.2	14.9	11.5	8.4	14.7	10,000
Alameda	12.1	11.1	13.0	12.1	10.5	13.7	134,000
CALIFORNIA	12.3	12.0	12.7	12.3	11.9	12.8	3,154,000
Ventura	12.4	9.4	15.4	12.1	8.9	15.4	69,000
Santa Clara	13.1	11.0	15.2	13.2	10.9	15.4	17,000
Yolo	13.3	10.3	16.4	13.2	9.8	16.6	17,000
Tulare	13.5	10.5	16.5	13.5	10.2	16.8	35,000
Monterey/San Benito	13.9	10.7	17.0	13.9	10.5	17.2	45,000
Stanislaus	14.4	11.1	17.7	14.2	10.7	17.7	48,000
Sutter/Yuba	14.6	11.0	18.2	14.9	11.1	18.6	15,000
San Bernardino	14.7	12.6	16.7	14.9	12.5	17.3	187,000
Merced	14.7	11.4	17.9	14.7	11.1	18.3	23,000
Madera	14.8	11.3	18.3	15.2	11.3	19.0	13,000
Sonoma	14.9	10.9	18.8	14.6	10.9	18.3	51,000
Contra Costa	15.0	12.1	17.9	15.2	12.1	18.2	111,000
El Dorado	15.1	11.2	19.0	15.1	11.5	18.8	19,000
San Luis Obispo	15.1	11.6	18.6	15.1	11.5	18.6	28,000
Fresno	15.2	12.2	18.1	15.1	11.8	18.5	88,000
Mendocino/Lake	15.2	10.4	20.0	14.3	10.4	18.2	16,000
Placer	15.3	11.0	19.5	14.7	10.8	18.6	31,000
Tehama/Glenn/Colusa	15.4	11.3	19.6	15.7	11.7	19.8	12,000
Shasta	15.5	11.8	19.1	15.3	11.5	19.0	20,000
Sacramento*	15.5	13.1	18.0	15.6	12.9	18.3	149,000
San Joaquin	15.8	12.0	19.7	16.0	12.0	20.0	67,000
Siskiyou/Lassen/Trinity/Modoc	16.3	11.5	21.2	15.3	11.2	19.4	11,000
Santa Cruz	16.4	12.4	20.3	16.7	12.6	20.8	32,000
Nevada/Plumas/Sierra	16.4	11.4	21.5	16.3	11.9	20.7	15,000
Kern*	16.6	13.1	20.0	16.4	12.7	20.1	78,000
Humboldt/Del Norte*	17.1	13.2	20.9	16.8	13.0	20.7	19,000
Butte*	17.2	13.4	21.0	17.7	13.9	21.6	28,000
Napa*	18.5	14.1	22.9	18.3	13.5	23.1	17,000
Solano*	19.2	15.0	23.4	19.4	15.0	23.7	55,000

¹Individuals with "lifetime asthma" have ever been told by a doctor that they have asthma.
²Rate is per 100 county or State population aged 18 and older.
*Age-adjusted county 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 CALIFORNIA ADULTS WITH LIFETIME ASTHMA EXPERIENCING AN ASTHMA ATTACK WITHIN THE PAST YEAR, BY COUNTY OR REGION, 2003				
County of Residence	Rate ¹	95% Confidence Interval		Estimated N
		Lower	Upper	
San Mateo*	17.9	7.5	28.2	11,000
Sonoma	22.8	12.4	33.1	12,000
Imperial	22.8	11.1	34.4	3,000
San Francisco	24.8	15.3	34.2	16,000
Shasta	27.0	16.2	37.8	5,000
San Joaquin	27.9	17.2	38.7	19,000
Contra Costa	29.3	19.2	39.4	33,000
Santa Cruz	31.4	18.9	44.0	10,000
Placer	31.5	17.9	45.0	10,000
Tulare	32.4	21.5	43.3	11,000
San Diego	32.6	26.1	39.2	75,000
Yolo	33.3	20.5	46.2	6,000
Kings	33.5	20.9	46.1	3,000
Los Angeles	33.6	30.3	36.9	265,000
Stanislaus	33.9	22.1	45.6	16,000
Solano	34.2	22.5	45.8	19,000
Riverside	34.3	25.1	43.4	42,000
Santa Clara	34.3	25.6	43.0	57,000
Orange	34.4	25.3	43.4	70,000
Marin	34.5	21.0	48.0	7,000
CALIFORNIA	34.7	33.0	36.4	1,095,000
Mendocino/Lake	35.2	21.0	49.4	6,000
Humboldt/Del Norte	35.7	24.0	47.5	7,000
Sutter/Yuba	35.7	22.5	49.0	5,000
Kern	36.2	24.6	47.9	28,000
Ventura	36.3	23.8	48.8	25,000
Alameda	36.3	29.9	42.8	49,000
Nevada/Plumas/Sierra	37.0	22.6	51.3	6,000
Santa Barbara	37.9	23.4	52.5	12,000
San Luis Obispo	38.5	26.3	50.6	11,000
Sacramento	38.7	29.4	48.0	58,000
El Dorado	39.3	26.9	51.7	7,000
Fresno	40.1	28.6	51.6	35,000
Madera	40.7	27.6	53.7	5,000
Merced	41.2	28.4	54.1	9,000
Tuolumne/Calaveras/Amador/Inyo/ Mariposa/Mono/Alpine	41.7	24.4	59.0	7,000
Tehama/Glenn/Colusa	43.3	29.5	57.1	5,000
Napa	43.8	28.7	59.0	8,000
Siskiyou/Lassen/Trinity/Modoc	44.3	29.3	59.3	5,000
San Bernardino*	45.3	36.8	53.9	85,000
Monterey/San Benito	46.1	32.8	59.3	21,000
Butte*	51.0	38.9	63.1	14,000
¹ Rate is per 100 persons aged 18 and older with diagnosed asthma. *Age-adjusted county 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.		