California Asthma Facts

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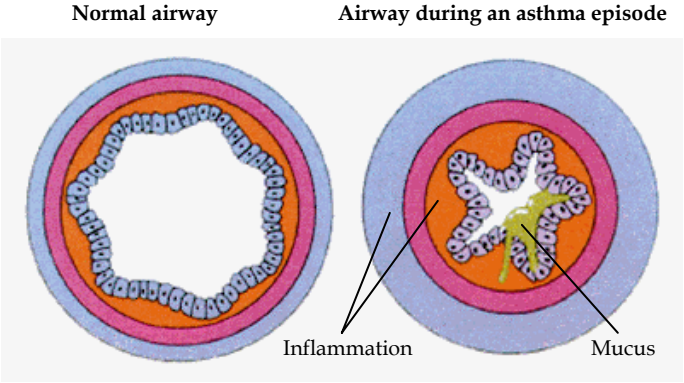
What is Asthma?

Asthma is a chronic inflammatory lung disease characterized by recurrent episodes of breathlessness, wheezing, coughing, and chest tightness, called exacerbations. The severity of exacerbations can range from mild to life-threatening. Exacerbations can be triggered by exposures and conditions such as respiratory infections, house dust mites, animal dander, mold, pollen, exercise, tobacco smoke, and indoor and outdoor air pollutants. The exact causes of asthma are unknown. The development of asthma is determined by the interaction between genetics and environmental triggers. The frequency and severity of asthma symptoms and the associated visits to the emergency room and hospital can be reduced by using medications and reducing exposure to environmental triggers. Figure 1 shows the difference between normal bronchial tubes (*left*) and bronchial tubes affected by an asthma attack (*right*).



Source: The University of North Carolina at Chapel Hill Pulmonary and Critical Care Medicine

Figure 1. Change in Bronchial Tubes

Asthma Hospitalizations

Most people who receive medical treatment for the management and control of asthma do not usually get hospitalized. However, with inadequate medical control, persistent exposure to environmental triggers, or greater severity of the disease, hospitalizations often occur. In 2000, there were 37,096 hospitalizations due to asthma in California. The overall annual state age-adjusted asthma hospitalization rate was 10.54 per 10,000 residents. It is important to note that hospitalization rates are not indicators of asthma prevalence, or current asthma. Hospitalization rates are the number of hospitalizations for asthma during one year, divided by the state's population for that year. Rates varied by gender, age, race, and county. (*continued on page 2)*

Asthma Prevalence

Four million Californians have suffered from asthma at some point in their lifetime. Based on data from the California Health Interview Survey (CHIS), the lifetime asthma prevalence in 2001 was 11.9%. About three million adults and children reported having current asthma symptoms (8.8% of the population). One in four of the people with current asthma experienced such symptoms every day or every week. CHIS was conducted by the UCLA Center for Health Policy Research.

See http://www.chis.ucla.edu/ for more details.

Inside this issue: This issue of *California Asthma Facts* focuses on rates of asthma hospitalizations in California. Future issues will focus on other asthma-related topics.

Gray Davis, Governor
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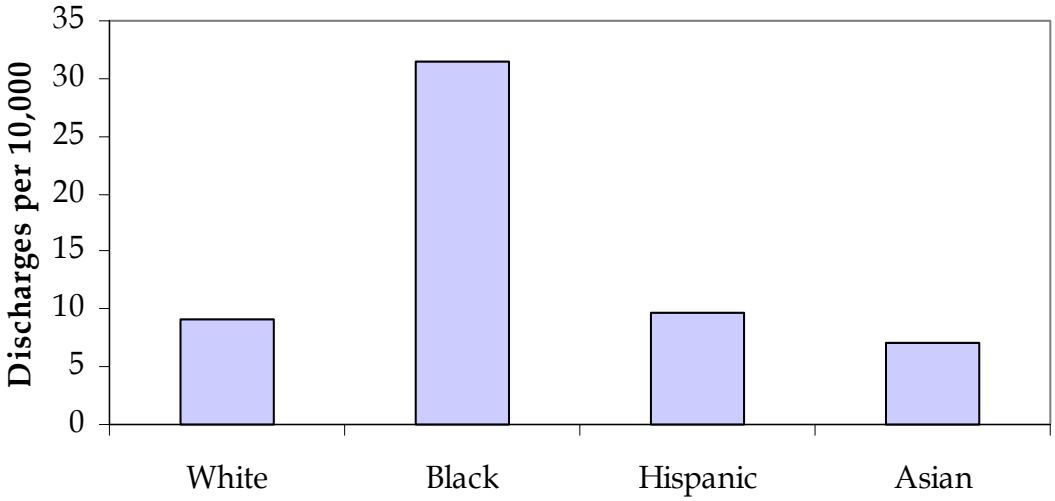
Asthma Hospitalizations (*continued*)

Overall, hospitalization rates among females were higher than males (12.32 vs. 8.96 per 10,000). Among all Californians, children under five years of age had the highest hospitalization rate (31.74 per 10,000). The hospital discharge rate was highest among Blacks (31.45 per 10,000). Figure 2 presents the overall age-adjusted state asthma hospitalization rates by race among Californians. Blacks were hospitalized three times more than Whites, Hispanics, and Asians. The next table shows asthma hospitalization rates by county. More detailed county information will be coming soon in the third edition California County Asthma Hospitalization Chart Book, 1998-2000.

Website: www.dhs.ca.gov/ehib/ehib2/topics/asthma.html.

"Blacks were hospitalized for asthma three times more than other ethnic groups."

Figure 2. Age-Adjusted Asthma Hospital Discharge Rates* for Californians (All Ages) by Race, 2000



* Age-adjusted to the 2000 U.S. Population

METHODS

Hospitalization data from the 2000 California Patient Discharge Data was obtained from the California Office of Statewide Health Planning and Development. These computerized records included all hospital discharges in California, except from federal facilities. This database contains demographic information on each patient discharge, including age, sex, race, and zip code of residence. All discharges with asthma as the primary diagnosis were selected, based on the ninth revision of the International Classification of Diseases (ICD-9), code 493. California population estimates for rate calculations were obtained from the California Department of Finance and United States population estimates for age-adjusted rate calculations were obtained from the United States Census Bureau. Eleven age groups were used: < 1 years, 1—4 years, 5—84 years in ten year age-groups, and over 84 years.

Table 1. Age-Adjusted Asthma Hospitalization Rates[1] in California by County, 2000

	Children (Age 0 to 14 years)			Adolescents & Adults (Age 15 years and older)			All Ages		
County[2]	**N**	**Rate**	**(95% CI)**	**N**	**Rate**	**(95% CI)**	**N**	**Rate**	**(95% CI)**
Alameda	1220	36.63	(34.59 - 38.72)	1180	10.65	(10.06 - 11.26)	2400	16.23	(15.58 - 16.89)
Butte	91	22.28	(17.95 - 27.07)	121	6.86	(5.64 - 8.19)	212	10.17	(8.83 - 11.60)
Calaveras	12	**	**	20	**	**	32	8.42	(6.00 - 11.25)
Contra Costa	425	21.50	(19.50 - 23.59)	713	9.66	(8.96 - 10.39)	1138	12.20	(11.50 - 12.92)
El Dorado	28	**	**	53	4.07	(3.04 - 5.24)	81	5.06	(4.02 - 6.22)
Fresno	645	28.83	(26.64 - 31.11)	403	6.98	(6.32 - 7.68)	1048	11.67	(10.93 - 12.44)
Humboldt	27	**	**	79	7.56	(5.98 - 9.34)	106	8.29	(6.78 - 9.94)
Imperial	201	47.77	(41.35 - 54.65)	100	9.57	(7.80 - 11.51)	301	17.77	(15.67 - 20.00)
Kern	326	17.63	(15.75 - 19.61)	315	6.49	(5.80 - 7.22)	641	8.88	(8.18 - 9.62)
Kings	74	21.72	(16.98 - 27.05)	99	12.16	(9.95 - 14.59)	173	14.21	(12.14 - 16.45)
Lake	28	**	**	39	9.47	(6.84 - 12.53)	67	12.77	(9.99 - 15.89)
Los Angeles	5155	20.34	(19.78 - 20.90)	6747	9.72	(9.49 - 9.95)	11902	12.00	(11.78 - 12.22)
Madera	56	17.23	(12.91 - 22.17)	65	7.07	(5.49 - 8.86)	121	9.25	(7.65 - 11.01)
Marin	63	14.58	(11.21 - 18.39)	77	3.77	(2.97 - 4.67)	140	6.09	(5.14 - 7.12)
Mendocino	23	**	**	64	8.53	(6.51 - 10.81)	87	9.40	(7.50 - 11.52)
Merced	87	14.04	(11.23 - 17.17)	109	7.78	(6.44 - 9.26)	196	9.13	(7.87 - 10.48)
Monterey	162	15.24	(12.97 - 17.70)	217	7.59	(6.62 - 8.62)	379	9.23	(8.31 - 10.21)
Napa	22	**	**	48	4.49	(3.28 - 5.89)	70	5.46	(4.24 - 6.82)
Nevada	13	**	**	34	3.97	(2.68 - 5.51)	47	4.87	(3.56 - 6.39)
Orange	923	12.81	(11.99 - 13.67)	1181	5.84	(5.52 - 6.17)	2104	7.34	(7.02 - 7.66)
Placer	33	6.34	(4.37 - 8.68)	78	4.11	(3.25 - 5.08)	111	4.59	(3.78 - 5.49)
Riverside	899	22.52	(21.07 - 24.03)	1059	9.11	(8.57 - 9.66)	1958	11.99	(11.45 - 12.54)
Sacramento	476	16.56	(15.11 - 18.09)	855	9.36	(8.75 - 10.00)	1331	10.91	(10.33 - 11.51)
San Bernardino	1254	26.28	(24.84 - 27.76)	1393	11.51	(10.92 - 12.13)	2647	14.68	(14.11 - 15.27)
San Diego	1053	14.73	(13.84 - 15.65)	1410	6.71	(6.37 - 7.06)	2463	8.43	(8.10 - 8.77)
San Francisco	210	15.82	(13.74 - 18.04)	623	8.92	(8.20 - 9.67)	833	10.40	(9.68 - 11.14)
San Joaquin	316	21.66	(19.33 - 24.12)	435	10.23	(9.30 - 11.20)	751	12.68	(11.78 - 13.62)
San Luis Obispo	33	7.25	(5.00 - 9.91)	91	4.55	(3.67 - 5.53)	124	5.13	(4.27 - 6.06)
San Mateo	211	13.26	(11.52 - 15.12)	327	5.45	(4.86 - 6.06)	538	7.12	(6.53 - 7.74)
Santa Barbara	81	8.75	(6.94 - 10.78)	118	3.72	(3.08 - 4.41)	199	4.80	(4.15 - 5.49)
Santa Clara	498	12.29	(11.22 - 13.41)	799	6.24	(5.82 - 6.67)	1297	7.54	(7.13 - 7.95)
Santa Cruz	56	10.15	(7.67 - 12.98)	103	5.10	(4.16 - 6.13)	159	6.18	(5.26 - 7.18)
Shasta	91	25.20	(20.33 - 30.59)	122	9.09	(7.56 - 10.75)	213	12.55	(10.94 - 14.27)
Siskiyou	9	**	**	24	**	**	33	7.31	(4.99 - 10.06)
Solano	149	15.88	(13.45 - 18.52)	286	9.90	(8.81 - 11.07)	435	11.19	(10.16 - 12.26)
Sonoma	68	7.41	(5.76 - 9.27)	197	5.35	(4.62 - 6.13)	265	5.79	(5.11 - 6.51)
Stanislaus	174	14.74	(12.62 - 17.01)	253	7.66	(6.76 - 8.62)	427	9.18	(8.32 - 10.09)
Sutter	30	15.38	(10.34 - 21.41)	55	8.72	(6.56 - 11.19)	85	10.15	(8.08 - 12.46)
Tehama	18	**	**	46	10.97	(8.09 - 14.29)	64	11.92	(9.24 - 14.94)
Tulare	145	13.24	(11.14 - 15.52)	236	9.04	(7.94 - 10.21)	381	9.94	(8.94 - 10.99)
Tuolumne	9	**	**	24	**	**	33	6.28	(4.36 - 8.55)
Ventura	220	12.23	(10.66 - 13.91)	466	8.39	(7.66 - 9.16)	686	9.21	(8.54 - 9.91)
Yolo	33	9.27	(6.45 - 12.59)	93	8.49	(6.92 - 10.23)	126	8.66	(7.27 - 10.18)
Yuba	18	**	**	52	11.70	(8.77 - 15.06)	70	11.36	(8.86 - 14.17)
STATEWIDE	**15821**	**18.73**	**(18.44 - 19.03)**	**21275**	**8.29**	**(8.18 - 8.40)**	**37096**	**10.54**	**(10.43 - 10.64)**

N = Number of asthma hospitalizations; CI = Confidence Interval, a measure of statistical uncertainty; ** Rate not presented if the number of cases was less than thirty.

[1] Rates were calculated per 10,000 residents and age-adjusted to the 2000 U.S. Population.

[2] The following counties were excluded due to uncalculated rates as a result of having less than thirty asthma hospitalizations: Alpine, Amador, Colusa, Del Norte, Glenn, Inyo, Lassen, Mariposa, Modoc, Mono, Plumas, San Benito, Sierra, and Trinity.

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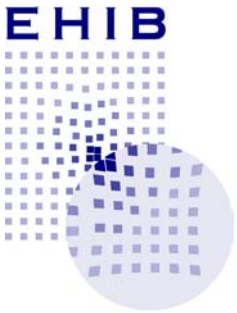

The California Department of Health Services has worked with leading asthma organizations, agencies, and public interest groups throughout the state to develop an integrated plan, *The Statewide Strategic Plan for Asthma in California* to address the asthma epidemic in California. This plan is being implemented by the Environmental Health Investigations Branch and the Chronic Disease Control Branch in conjunction with additional funding from the Centers for Disease Control and Prevention. Major components of the strategic plan include epidemiology and evaluation, public education, asthma treatment and management, secondary prevention of asthma, and policy. Please visit our websites for more information:

www.dhs.ca.gov/ehib/

www.dhs.ca.gov/ps/cdic/cdcb/Medicine/Asthma/index.htm

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