



Asthma among California's Children, Adults and the Elderly: A Geographic Look by Legislative Districts

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September 2004

Asthma is a chronic lung condition characterized by wheezing, breathlessness, chest tightness, and nighttime or early morning coughing; it has been on the rise in the United States over the past two decades.¹ In California, about three million children and adults who have ever been diagnosed with asthma also experienced asthma symptoms at least once in 2002. This policy brief provides data for California legislative districts to highlight the variation in asthma symptom prevalence for children and adults across the state. Asthma symptom prevalence rates at the district level are estimates created by a small-area methodology, based on rates from the 2001 California Health Interview Survey (CHIS 2001) that are applied to population data from the 2000 Census and 2002 California Department of Finance. This first-of-its-kind sub-county data are relevant for policy makers, advocates, and medical providers to illuminate the problem of asthma throughout California and within local communities.²

Variations in Children's Asthma Symptoms across State Legislative and Congressional Districts

Asthma is especially problematic for children, as it is the second most common chronic childhood condition and is the leading cause of activity restrictions among children. About 924,000 California children diagnosed with asthma under the age of 17 had symptoms at least once during 2002. The proportions of all

children who had asthma symptoms in the last 12 months ranged from 5 to 16% in Assembly districts (Exhibit 1) and from 6 to 14% in Senate districts (Exhibit 2). The majority of legislative districts had rates similar to the statewide average of 9.6%, although some legislative districts across the state fared better or worse than the statewide average. The legislative districts with higher asthma symptom prevalence rates for children were located primarily in the state's interior regions, including parts of Solano, Yolo, Fresno, Madera, Tulare, Mariposa, San Joaquin, Stanislaus and Tuolumne counties. Other Assembly and Senate districts with notably high rates of asthma symptom prevalence were located in Sonoma, Napa, Yolo, Marin, San Francisco, San Bernardino and San Diego counties. Assembly and Senate districts with lower rates of symptom prevalence were located primarily in Southern California and along the central coast.

The variation in children's asthma symptom prevalence rates in Congressional districts (Exhibit 3) was similar to our findings on state legislative districts. The proportions of all children who had asthma symptoms in the last 12 months ranged from 6 to 14% in Congressional districts. Congressional districts with lower rates were primarily located in Southern California, whereas districts with higher rates were primarily located in the state's interior regions.

(Continued on page 4)

1 DM Mannino, DM Homa, LJ Akinbami, JE Moorman, C Gwynn, SC Redd. *Surveillance for Asthma – United States, 1980-1999*. Morbidity and Mortality Weekly Report, Surveillance Summary. 2002 Mar 29; 51(1): 1-13.

2 Asthma data at the county or county-group level are available at http://www.healthpolicy.ucla.edu/pubs/files/Asthma_Rpt_FINAL_R.pdf

Asthma among California's Children, Adults and the Elderly: A Geographic Look by Legislative Districts

Exhibit 1:
Asthma Symptom
Prevalence Rates by
Assembly District,
All Ages

Source: 2001 California
Health Interview Survey and
the 2000 Census.

Assembly
Districts

CALIFORNIA RESIDENTS REPORTING ASTHMA SYMPTOMS AT LEAST ONCE IN THE LAST 12 MONTHS							
	CHILDREN AGES 0-17†		ADULTS AGES 18-64		ADULTS AGES 65+		County Location of Assembly District
	Rate*	95% Range **	Rate*	95% Range **	Rate*	95% Range **	
CALIFORNIA	10%	(9-10)	9%	(8-9)	8%	(7-8)	
District 01	10%	(7-13)	12%	(10-14)	7%	(5-10)	Del Norte, Humboldt, Lake, Mendocino, Sonoma, Trinity
District 02	10%	(7-13)	11%	(9-12)	11%	(8-13)	Butte, Colusa, Glenn, Modoc, Shasta, Siskiyou, Sutter, Tehama, Yolo
District 03	11%	(8-13)	10%	(9-12)	7%	(5-9)	Butte, Lassen, Nevada, Placer, Plumas, Sierra, Yuba
District 04	10%	(8-13)	12%	(10-14)	8%	(5-11)	Alpine, El Dorado, Placer, Sacramento
District 05	11%	(8-15)	12%	(10-14)	8%	(4-12)	Placer, Sacramento
District 06	14%	(10-18)	9%	(7-11)	5%	(3-8)	Marin, Sonoma
District 07	13%	(10-16)	12%	(10-14)	7%	(5-9)	Napa, Solano, Sonoma
District 08	15%	(12-17)	13%	(11-14)	10%	(7-13)	Solano, Yolo
District 09	11%	(7-15)	12%	(9-14)	9%	(5-13)	Sacramento
District 10	11%	(8-13)	11%	(9-12)	8%	(6-11)	Amador, El Dorado, Sacramento, San Joaquin
District 11	10%	(6-13)	12%	(9-14)	10%	(6-15)	Contra Costa
District 12	10%	(6-14)	8%	(6-10)	7%	(4-11)	San Francisco, San Mateo
District 13	12%	(6-17)	9%	(7-11)	7%	(4-10)	San Francisco
District 14	10%	(7-13)	11%	(9-12)	8%	(5-11)	Alameda, Contra Costa
District 15	10%	(8-13)	10%	(9-12)	8%	(6-11)	Alameda, Contra Costa, Sacramento, San Joaquin
District 16	11%	(7-15)	11%	(9-13)	11%	(6-16)	Alameda
District 17	11%	(8-13)	10%	(8-12)	8%	(5-11)	Merced, San Joaquin, Stanislaus
District 18	10%	(7-14)	10%	(8-13)	12%	(6-17)	Alameda
District 19	10%	(6-13)	6%	(4-8)	8%	(4-12)	San Mateo
District 20	9%	(6-12)	9%	(7-10)	9%	(4-14)	Alameda, Santa Clara
District 21	10%	(7-12)	7%	(6-8)	6%	(4-9)	San Mateo, Santa Clara
District 22	9%	(6-12)	8%	(6-10)	6%***	(2-10)	Santa Clara
District 23	8%	(5-11)	7%	(5-9)	7%***	(2-13)	Santa Clara
District 24	10%	(7-14)	9%	(7-11)	7%***	(3-12)	Santa Clara
District 25	10%	(7-13)	10%	(9-12)	10%	(7-13)	Calaveras, Madera, Mariposa, Mono, Stanislaus, Tuolumne
District 26	10%	(7-12)	10%	(8-11)	8%	(5-12)	San Joaquin, Stanislaus
District 27	9%	(7-12)	8%	(7-10)	7%	(4-10)	Monterey, Santa Clara, Santa Cruz
District 28	7%	(5-9)	6%	(5-7)	6%	(3-9)	Monterey, San Benito, Santa Clara, Santa Cruz
District 29	16%	(12-20)	13%	(11-16)	10%	(6-14)	Fresno, Madera, Tulare
District 30	11%	(9-13)	8%	(7-9)	8%	(5-11)	Fresno, Kern, Kings, Tulare
District 31	14%	(10-19)	11%	(9-13)	9%	(5-13)	Fresno, Tulare
District 32	12%	(8-15)	10%	(8-12)	10%	(5-15)	Kern, San Bernardino
District 33	10%	(7-13)	10%	(7-12)	8%	(5-11)	San Luis Obispo, Santa Barbara
District 34	12%	(9-15)	10%	(8-12)	9%	(5-12)	Inyo, Kern, San Bernardino, Tulare
District 35	8%	(5-11)	8%	(6-9)	7%	(5-10)	Santa Barbara, Ventura
District 36	12%	(8-16)	13%	(10-16)	9%	(5-13)	Los Angeles, San Bernardino
District 37	10%	(6-13)	9%	(7-11)	8%	(4-12)	Los Angeles, Ventura
District 38	10%	(7-12)	9%	(8-10)	8%	(5-10)	Los Angeles, Ventura
District 39	7%	(5-9)	6%	(5-7)	6%	(3-8)	Los Angeles
District 40	7%	(5-9)	8%	(7-9)	6%	(4-9)	Los Angeles

(Continued)

†CHIS 2001 did not ask about asthma diagnosis and asthma symptoms among children ages 0-1 because asthma is commonly not clinically diagnosed for that age group. However, this age group is included to be consistent with census data. Therefore, the asthma symptom prevalence rate for the overall 0-17 age group may actually be higher than reported here.

* The numbers presented here are the midpoint of the "95% range."

** The "95% range" (commonly called a confidence interval) provides a more reliable estimate of the asthma symptom prevalence rate for persons in the population group.

***Relative standard error (RSE) for this estimate exceeds 30%. RSEs above 30% are considered less reliable.

Asthma among California's Children, Adults and the Elderly: A Geographic Look by Legislative Districts

*Exhibit 1 (continued):
Asthma Symptom
Prevalence Rates by
Assembly District,
All Ages*

Source: 2001 California Health Interview Survey and the 2000 Census.

CALIFORNIA RESIDENTS REPORTING ASTHMA SYMPTOMS AT LEAST ONCE IN THE LAST 12 MONTHS							County Location of Assembly District
CALIFORNIA	CHILDREN AGES 0-17 [†]		ADULTS AGES 18-64		ADULTS AGES 65+		
	Rate*	95% Range	Rate*	95% Range	Rate*	95% Range	
		**		**		**	
District 41	8%	(7-10)	8%	(7-9)	6%	(4-8)	Los Angeles, Ventura
District 42	8%	(6-10)	9%	(7-10)	6%	(4-9)	Los Angeles
District 43	8%	(6-10)	8%	(7-9)	6%	(4-8)	Los Angeles
District 44	10%	(8-13)	8%	(7-10)	5%	(3-7)	Los Angeles
District 45	7%	(4-9)	6%	(5-8)	8%***	(3-13)	Los Angeles
District 46	5%	(4-7)	5%	(4-6)	8%	(3-12)	Los Angeles
District 47	7%	(5-9)	10%	(8-11)	8%	(5-12)	Los Angeles
District 48	6%	(4-8)	8%	(6-9)	10%	(4-15)	Los Angeles
District 49	7%	(5-9)	6%	(5-8)	5%	(3-8)	Los Angeles
District 50	7%	(4-9)	5%	(4-7)	10%	(5-14)	Los Angeles
District 51	10%	(8-13)	8%	(7-10)	5%	(3-7)	Los Angeles
District 52	5%	(3-8)	7%	(5-9)	9%***	(1-17)	Los Angeles
District 53	9%	(7-11)	8%	(6-9)	5%	(3-6)	Los Angeles
District 54	10%	(7-13)	8%	(6-9)	4%	(2-6)	Los Angeles
District 55	10%	(8-12)	7%	(6-8)	5%	(3-7)	Los Angeles
District 56	9%	(6-11)	7%	(5-9)	9%	(6-13)	Los Angeles, Orange
District 57	10%	(7-13)	7%	(5-9)	6%	(3-8)	Los Angeles
District 58	8%	(6-11)	6%	(5-8)	9%	(5-13)	Los Angeles
District 59	14%	(11-16)	11%	(9-12)	8%	(5-11)	Los Angeles, San Bernardino
District 60	10%	(9-12)	8%	(7-9)	7%	(5-9)	Los Angeles, Orange, San Bernardino
District 61	11%	(9-13)	8%	(6-9)	7%	(4-10)	Los Angeles, San Bernardino
District 62	13%	(10-16)	9%	(7-11)	9%	(4-13)	San Bernardino
District 63	14%	(10-17)	10%	(8-12)	9%	(5-13)	Riverside, San Diego
District 64	10%	(6-13)	9%	(7-11)	4%	(2-7)	Orange
District 65	11%	(8-14)	11%	(9-12)	7%	(4-9)	Orange
District 66	10%	(7-13)	8%	(7-10)	6%	(4-8)	Orange
District 67	9%	(7-12)	9%	(7-10)	7%	(4-9)	Orange
District 68	8%	(5-10)	8%	(6-9)	7%	(4-11)	Orange
District 69	6%	(4-8)	5%	(4-6)	5%	(3-8)	Orange
District 70	10%	(7-12)	8%	(7-10)	6%	(3-8)	Orange
District 71	10%	(8-12)	8%	(7-10)	5%	(4-7)	Orange, Riverside
District 72	9%	(6-11)	8%	(7-9)	7%	(4-9)	Orange
District 73	10%	(8-12)	9%	(7-10)	7%	(5-9)	Orange, San Diego
District 74	10%	(7-12)	7%	(6-8)	8%	(5-10)	San Diego
District 75	10%	(8-13)	7%	(5-8)	7%	(4-9)	San Diego
District 76	9%	(7-12)	7%	(6-9)	9%	(6-12)	San Diego
District 77	11%	(8-14)	8%	(7-10)	10%	(7-14)	San Diego
District 78	11%	(8-13)	8%	(6-9)	9%	(6-11)	San Diego
District 79	9%	(6-11)	6%	(5-7)	8%	(5-11)	San Diego
District 80	9%	(7-11)	8%	(6-9)	6%	(3-8)	Imperial, Riverside

*Assembly
Districts*

†CHIS 2001 did not ask about asthma diagnosis and asthma symptoms among children ages 0-1 because asthma is commonly not clinically diagnosed for that age group. However, this age group is included to be consistent with census data. Therefore, the asthma symptom prevalence rate for the overall 0-17 age group may actually be higher than reported here.

* The numbers presented here are the midpoint of the "95% range."

**The "95% range" (commonly called a confidence interval) provides a more reliable estimate of the asthma symptom prevalence rate for persons in the population group.

***Relative standard error (RSE) for this estimate exceeds 30%. RSEs above 30% are considered less reliable.

Non-Elderly Adults in State Legislative and Congressional Districts

In 2002, almost two million non-elderly adults who had ever been diagnosed with asthma had asthma symptoms at least once during the previous year (8.7% of adults ages 18-64). The proportions of non-elderly adults who had at least one asthma symptom in the last 12 months ranged from 5 to 13% in Assembly districts (Exhibit 1) and from 6 to 12% in Senate districts (Exhibit 2). Moreover, high numbers of adults with asthma symptoms in 2002 were more broadly distributed throughout the state compared to children. Legislative districts with notably high rates of asthma symptoms among non-elderly adults were primarily in the central, northern and interior regions of the state, including parts of Fresno, Madera, Tulare, Stanislaus, Solano, Yolo, Sacramento, Humboldt, Lake, Mendocino, Napa, Sonoma, Mariposa, San Joaquin, Los Angeles and San Bernardino counties. Districts with low asthma symptom prevalence were primarily located in the greater Southern California region and along the state's central coast. However, low rates still translated to large numbers because the non-elderly adult population represented a significant proportion of the state's total population. Therefore, even Assembly districts with asthma symptom prevalence rates of 5 or 6% had approximately 13,000 to 17,000 non-elderly adults who had asthma symptoms. Similarly, Senate districts with rates of 6 or 7% had approximately 30,000 to 40,000 non-elderly adults residing in the district who reported having asthma symptoms at least once in 2002.

The asthma symptom prevalence rates for non-elderly adults, ages 18-64, in Congressional districts were similar to the patterns for state legislative districts (Exhibit 3). Congressional districts with notably high rates of non-elderly adults who had asthma symptoms were in California's interior and northern regions. Congressional districts with notably lower rates of non-elderly adults who had asthma symptoms in the last 12 months were primarily located along the central coast and in Los Angeles and Orange counties. However, Congressional districts with lower rates of non-elderly adults with asthma

symptoms were also found across the state, including San Diego County to the south, Imperial County to the southeast, and San Francisco County to the north.

Elderly Adults in Legislative and Congressional Districts

Asthma is a major health concern for California's elderly population. Asthma among adults age 65 and over is particularly challenging because symptoms can be mistaken for other chronic diseases and can exacerbate other chronic conditions. The rates of asthma symptom prevalence among California's older population who had been diagnosed with asthma ranged from 4 to 12% in Assembly districts and from 4 to 11% in Senate districts. The majority of legislative districts had asthma symptom prevalence rates similar to the statewide average of 7.6% for adults age 65 and over. However, for both Assembly and Senate districts, we found notably higher rates of asthma symptom prevalence among older adults in the northern and central valley regions of the state, specifically, parts of Alameda, Contra Costa, Butte, Colusa, Glenn, Modoc, Shasta, Siskiyou, Sutter, Tehama and Yolo counties. Similar to our findings among non-elderly adults, the Assembly and Senate districts with lower asthma symptom prevalence rates for the 65 and over population were located in Southern California, specifically in Orange, Los Angeles and Riverside counties.

The variation in the asthma symptom prevalence rates for older adults in California's Congressional districts was similar to our findings on legislative districts (Exhibit 3). Many Congressional districts fared better than the statewide average for older adults, most notably in parts of Riverside and Los Angeles Counties. Nevertheless, Congressional districts located in Alameda, Contra Costa, Solano, Los Angeles and San Diego counties had notably high rates of asthma symptoms among older adults in the last 12 months.

Conclusion

Asthma is a complex disease caused or worsened by a combination of environmental, genetic and other factors. Although there is no

(Continued on page 8)

Asthma among California's Children, Adults and the Elderly: A Geographic Look by Legislative Districts

CALIFORNIA RESIDENTS REPORTING ASTHMA SYMPTOMS AT LEAST ONCE IN THE LAST 12 MONTHS							County Location of Senate District
CALIFORNIA District	CHILDREN AGES 0-17 [†]		ADULTS AGES 18-64		ADULTS AGES 65+		
	Rate*	95% Range	Rate*	95% Range	Rate*	95% Range	
		**		**		**	
CALIFORNIA	10%	(9-10)	9%	(8-9)	8%	(7-8)	
District 01	10%	(8-12)	11%	(10-12)	8%	(6-10)	Alpine, Amador, Calaveras, El Dorado, Lassen, Modoc, Mono, Nevada, Placer, Plumas, Sacramento, Sierra
District 02	12%	(9-14)	12%	(11-13)	7%	(5-9)	Humboldt, Lake, Mendocino, Napa, Solano, Sonoma
District 03	13%	(10-16)	9%	(8-10)	6%	(4-8)	Marin, San Francisco, Sonoma
District 04	10%	(9-12)	11%	(10-12)	9%	(7-10)	Butte, Colusa, Del Norte, Glenn, Nevada, Placer, Shasta, Siskiyou, Sutter, Tehama, Trinity, Yuba
District 05	12%	(10-14)	11%	(9-12)	10%	(7-12)	Sacramento, San Joaquin, Solano, Yolo
District 06	11%	(8-15)	12%	(10-15)	9%	(5-13)	Sacramento
District 07	9%	(6-13)	11%	(8-13)	9%	(5-12)	Contra Costa
District 08	10%	(7-13)	7%	(6-8)	8%	(5-10)	San Francisco, San Mateo
District 09	11%	(7-14)	11%	(9-13)	11%	(6-15)	Alameda, Contra Costa
District 10	10%	(7-13)	9%	(7-11)	10%	(5-15)	Alameda, Contra Costa
District 11	10%	(8-13)	8%	(7-10)	7%	(4-10)	San Mateo, Santa Clara, Santa Cruz
District 12	9%	(7-11)	9%	(7-10)	8%	(5-11)	Madera, Merced, Monterey, San Benito, Stanislaus
District 13	9%	(6-12)	8%	(6-9)	7%***	(2-11)	Santa Clara
District 14	14%	(11-17)	12%	(10-13)	9%	(7-11)	Fresno, Madera, Mariposa, San Joaquin, Stanislaus, Tuolumne
District 15	9%	(8-11)	9%	(7-10)	7%	(5-9)	Monterey, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz
District 16	12%	(10-14)	9%	(8-10)	9%	(6-11)	Fresno, Kern, Kings, Tulare
District 17	11%	(9-14)	11%	(9-13)	9%	(6-11)	Los Angeles, San Bernardino, Ventura
District 18	12%	(10-14)	10%	(9-12)	10%	(7-13)	Inyo, Kern, San Bernardino, Tulare
District 19	9%	(6-12)	9%	(7-10)	8%	(5-11)	Los Angeles, Santa Barbara, Ventura
District 20	7%	(5-9)	7%	(5-8)	6%	(4-9)	Los Angeles
District 21	9%	(7-11)	8%	(7-9)	6%	(4-8)	Los Angeles
District 22	6%	(7-15)	6%	(5-7)	7%	(4-10)	Los Angeles
District 23	8%	(6-10)	8%	(7-9)	6%	(5-8)	Los Angeles, Ventura
District 24	9%	(6-11)	7%	(5-8)	6%	(4-8)	Los Angeles
District 25	9%	(7-11)	8%	(7-10)	5%	(3-8)	Los Angeles
District 26	6%	(4-8)	9%	(7-10)	9%	(5-13)	Los Angeles
District 27	8%	(6-10)	7%	(6-8)	8%	(5-11)	Los Angeles
District 28	9%	(7-11)	7%	(6-9)	4%	(3-6)	Los Angeles
District 29	11%	(9-13)	9%	(7-10)	6%	(5-8)	Los Angeles, Orange, San Bernardino
District 30	8%	(5-10)	6%	(4-8)	10%	(5-14)	Los Angeles
District 31	12%	(9-14)	10%	(8-11)	8%	(5-11)	Riverside, San Bernardino
District 32	12%	(9-15)	9%	(7-10)	8%	(4-12)	Los Angeles, San Bernardino
District 33	10%	(7-12)	8%	(7-10)	6%	(4-8)	Orange
District 34	7%	(5-9)	6%	(5-8)	7%	(4-10)	Orange
District 35	9%	(7-12)	8%	(7-10)	6%	(4-9)	Orange
District 36	11%	(9-13)	8%	(7-9)	9%	(6-11)	Riverside, San Diego
District 37	10%	(6-13)	9%	(7-11)	5%	(2-7)	Riverside
District 38	10%	(8-12)	7%	(6-8)	8%	(6-10)	Orange, San Diego
District 39	10%	(8-13)	7%	(6-9)	8%	(6-11)	San Diego
District 40	9%	(7-11)	7%	(6-8)	8%	(5-10)	Imperial, Riverside, San Diego

*Exhibit 2:
Asthma Symptom
Prevalence Rates by
Senate District, All Ages*
Source: 2001 California
Health Interview Survey and
the 2000 Census.

*Senate
Districts*

[†]CHIS 2001 did not ask about asthma diagnosis and asthma symptoms among children ages 0-1 because asthma is commonly not clinically diagnosed for that age group. However, this age group is included to be consistent with census data. Therefore, the asthma symptom prevalence rate for the overall 0-17 age group may actually be higher than reported here.

* The numbers presented here are the midpoint of the "95% range."

**The "95% range" (commonly called a confidence interval) provides a more reliable estimate of the asthma symptom prevalence rate for persons in the population group.

***Relative standard error (RSE) for this estimate exceeds 30%. RSEs above 30% are considered less reliable.

Exhibit 3:
Asthma Symptom Prevalence Rates by Congressional District, All Ages

Source: 2001 California Health Interview Survey and the 2000 Census.

Congressional Districts

	CALIFORNIA RESIDENTS REPORTING ASTHMA SYMPTOMS AT LEAST ONCE IN THE LAST 12 MONTHS						County Location of Congressional District
	CHILDREN AGES 0-17†		ADULTS AGES 18-64		ADULTS AGES 65+		
	Rate*	95% Range**	Rate*	95% Range**	Rate*	95% Range**	
CALIFORNIA	10%	(9-10)	9%	(8-9)	8%	(7-8)	
District 01	10%	(8-12)	12%	(11-14)	7%	(6-9)	Del Norte, Humboldt, Lake, Mendocino, Napa, Sonoma, Yolo
District 02	11%	(8-13)	11%	(9-12)	9%	(7-11)	Butte, Colusa, Glenn, Shasta, Siskiyou, Sutter, Tehama, Trinity, Yolo, Yuba
District 03	11%	(8-15)	11%	(9-13)	9%	(5-12)	Alpine, Amador, Calaveras, Sacramento, Solano
District 04	10%	(7-12)	11%	(9-13)	8%	(6-10)	Butte, El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Sierra
District 05	11%	(8-15)	12%	(10-15)	9%	(5-13)	Sacramento
District 06	13%	(9-17)	9%	(7-11)	5%	(3-8)	Marin, Sonoma
District 07	12%	(9-15)	12%	(10-14)	10%	(7-13)	Contra Costa, Solano
District 08	11%	(6-16)	9%	(7-10)	7%	(4-10)	San Francisco
District 09	11%	(7-15)	11%	(9-13)	11%	(6-16)	Alameda
District 10	11%	(9-14)	12%	(10-13)	9%	(6-11)	Alameda, Contra Costa, Sacramento, Solano
District 11	10%	(8-13)	9%	(8-11)	9%	(6-12)	Alameda, Contra Costa, San Joaquin, Santa Clara
District 12	10%	(6-13)	6%	(5-8)	8%	(5-11)	San Francisco, San Mateo
District 13	10%	(6-13)	9%	(7-11)	10%	(5-16)	Alameda
District 14	10%	(7-12)	7%	(6-9)	6%	(4-8)	San Mateo, Santa Clara, Santa Cruz
District 15	9%	(6-13)	9%	(7-10)	7%***	(3-12)	Santa Clara
District 16	9%	(6-12)	8%	(6-10)	7%***	(2-12)	Santa Clara
District 17	7%	(4-9)	7%	(5-8)	6%	(3-10)	Monterey, San Benito, Santa Cruz
District 18	10%	(8-12)	10%	(9-12)	8%	(6-11)	Fresno, Madera, Merced, San Joaquin, Stanislaus
District 19	13%	(10-16)	12%	(10-13)	9%	(7-12)	Fresno, Madera, Mariposa, Stanislaus, Tuolumne
District 20	12%	(10-15)	9%	(7-10)	9%	(6-12)	Fresno, Kern, Kings
District 21	13%	(10-16)	11%	(9-13)	8%	(5-11)	Fresno, Tulare
District 22	12%	(9-14)	11%	(9-12)	9%	(6-13)	Kern, Los Angeles, San Luis Obispo
District 23	8%	(6-10)	8%	(7-9)	7%	(5-10)	San Luis Obispo, Santa Barbara, Ventura
District 24	10%	(6-13)	9%	(7-11)	9%	(5-13)	Santa Barbara, Ventura
District 25	11%	(9-14)	11%	(9-13)	9%	(6-11)	Inyo, Los Angeles, Mono, San Bernardino
District 26	12%	(10-14)	9%	(8-11)	7%	(5-9)	Los Angeles, San Bernardino
District 27	8%	(6-10)	8%	(7-9)	6%	(4-9)	Los Angeles
District 28	7%	(5-9)	7%	(6-8)	6%	(4-8)	Los Angeles
District 29	9%	(7-11)	8%	(7-9)	5%	(3-7)	Los Angeles
District 30	8%	(6-10)	9%	(7-10)	6%	(4-8)	Los Angeles
District 31	6%	(4-8)	6%	(4-7)	8%***	(3-13)	Los Angeles
District 32	9%	(6-11)	7%	(5-8)	6%	(4-9)	Los Angeles
District 33	7%	(5-9)	9%	(7-10)	9%	(5-13)	Los Angeles
District 34	7%	(5-9)	6%	(4-7)	9%	(5-13)	Los Angeles
District 35	9%	(7-11)	8%	(7-10)	6%	(3-9)	Los Angeles
District 36	9%	(7-11)	7%	(6-8)	4%	(3-6)	Los Angeles
District 37	9%	(7-11)	8%	(7-9)	5%	(3-8)	Los Angeles
District 38	9%	(7-11)	7%	(5-8)	8%	(4-10)	Los Angeles
District 39	7%	(5-9)	6%	(5-8)	10%	(6-14)	Los Angeles
District 40	9%	(7-11)	8%	(7-10)	7%	(4-9)	Orange
District 41	14%	(11-17)	11%	(9-13)	9%	(5-12)	Riverside, San Bernardino
District 42	11%	(9-13)	8%	(7-10)	7%	(5-9)	Los Angeles, Orange, San Bernardino
District 43	13%	(9-16)	9%	(7-11)	9%	(4-13)	San Bernardino
District 44	9%	(7-12)	9%	(7-10)	5%	(3-7)	Orange, Riverside
District 45	9%	(6-12)	9%	(7-10)	4%	(2-7)	Riverside
District 46	9%	(7-11)	8%	(7-10)	6%	(4-7)	Los Angeles, Orange
District 47	7%	(4-9)	6%	(4-7)	6%	(4-9)	Orange
District 48	10%	(7-12)	8%	(7-10)	5%	(3-8)	Orange
District 49	10%	(8-12)	8%	(7-9)	7%	(5-9)	Riverside, San Diego
District 50	10%	(7-12)	7%	(6-8)	7%	(5-10)	San Diego
District 51	10%	(8-12)	7%	(6-8)	8%	(6-11)	Imperial, San Diego
District 52	11%	(8-14)	8%	(7-10)	10%	(7-13)	San Diego
District 53	9%	(7-11)	7%	(6-9)	9%	(6-12)	San Diego

†CHIS 2001 did not ask about asthma diagnosis and asthma symptoms among children ages 0-1 because asthma is commonly not clinically diagnosed for that age group. However, this age group is included to be consistent with census data. Therefore, the asthma symptom prevalence rate for the overall 0-17 age group may actually be higher than reported here.

*The numbers presented here are the midpoint of the "95% range."

**The "95% range" (commonly called a confidence interval) provides a more reliable estimate of the asthma symptom prevalence rate for persons in the population group.

***Relative standard error (RSE) for this estimate exceeds 30%. RSEs above 30% are considered less reliable.

cure for asthma, its symptoms can be controlled. The National Heart, Lung, and Blood Institute (NHLBI) recommends that persons with asthma receive education on how to manage the condition, use appropriate medications and carefully monitor the condition, as well as control exposure to potential environmental triggers. However, many of California's children and adults fail to receive adequate care or the information needed to manage their asthma.³ In addition, common environmental triggers can often be found indoors and outdoors. Indoor asthma triggers include secondhand tobacco smoke, house dust mites, cockroach allergens, mold and pets. Outdoor environmental triggers include air pollution and seasonal weather, such as cold, dry and windy conditions characteristic of the fall, and pollens often found in fall and spring. The NHLBI states that asthma symptoms should be minimal and not acute or chronic when the condition is appropriately controlled. Thus, frequent asthma symptoms can be a sign of both inadequate medical control and/or persistent exposure to environmental triggers, as well as greater severity of the condition.

Asthma can have serious health, quality of life and economic consequences for patients, families and society.⁴ Moreover, asthma can strike at any age. This policy brief presents local-level data that are useful to advocates and policy makers who are striving to create a healthier California. The results of this study suggest that some areas of the state could benefit from community-based asthma intervention programs for residents of all ages, especially those in legislative districts that are located in the Central Valley, and in particular, Fresno, Madera, Tulare, Solano and Yolo counties. However, asthma education and management only keep the condition in check for persons who already have it. Creating a healthier population means preventing the development of new asthma cases. Creating a healthier environment is key in the fight against asthma, and eliminating or minimizing

environmental triggers would be a step in the right direction. For example, the American Lung Association recently reported that many California counties have unhealthy levels of ozone, an air pollutant that may be closely linked to causing and aggravating asthma. Policies that address ozone emissions and other air pollutants would protect the environment, and ultimately, the health of all Californians.

Data Sources and Methods

This policy brief is based on findings from the 2001 California Health Interview Survey (CHIS 2001), 2000-2002 Current Population Surveys (CPS), 2000 Census, 2002 Department of Finance population projections, and the California State Senate Office of Demographics' file of legislative districts. The estimates of asthma symptom prevalence were created using a small-area methodology of the multiple data sources listed here. A detailed description of the methodology used in this study is available from the authors.

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Acknowledgements

The authors appreciate the valuable contributions of reviewers Susan Babey, Raquel F. Donoso and David Núñez.

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Citation

CA Mendez-Luck, H Yu, YY Meng, J Chia, M Jhawar, A Sripipatana, and SP Wallace. *Asthma among California's Children, Adults and the Elderly: A Geographic Look by Legislative Districts*. Los Angeles: UCLA Center for Health Policy Research, 2004.

Funder



The California Endowment funded the research and development of this policy brief.

The views expressed in this report are those of the authors and do not necessarily represent the UCLA Center for Health Policy Research, the Regents of the University of California, The California Endowment, or other funding agencies.

PB2004-5

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*Editor-in-Chief: E. Richard Brown, PhD
Director of Communications: Valerie Steiner
Communications Assistant: Celeste Maglan
Editing Services: Sheri Penney
Production: Ikkanda Design Group*



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is affiliated with the UCLA School of Public Health
and the UCLA School of Public Affairs**

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