



CENTER FOR HEALTH STATISTICS

DATA SUMMARY

REPORT REGISTER NO. DS01-08000
(August, 2001)

**HIV/AIDS DEATHS
CALIFORNIA, 1998**

Introduction

This report presents the latest death data in California due to Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS). The numbers and rates of HIV/AIDS deaths in this report were compiled and analyzed by sex, age, and race/ethnicity.

In recent years, the age-adjusted death rate due to HIV/AIDS has been declining in California and the U.S. California's rate began dropping in 1995, while the U.S. rate started decreasing in 1996.^{1,2} In 1998 California's age-adjusted death rate (4.0 per 100,000 population) fell 25.0 percent from the 1997 rate of 5.2, while the U.S. age-adjusted rate (4.6) dropped 21 percent from its 1997 rate of 5.9.³ Because of the significant decline in HIV/AIDS death rates, the prevalence of people living with HIV/AIDS has increased. According to the Centers for Disease Control and Prevention, an estimated 274,624 persons were living with AIDS representing a 10.9 percent increase from 1997.^{4,5}

As with other diseases, *survival analysis* is the most appropriate statistical technique for determining whether or not survival has increased, not analysis of mortality. Consequently, the death data within this report should be supplemented with incidence data to adequately measure the impact of the HIV/AIDS epidemic. Data related to the incidence of HIV/AIDS in California can be obtained from the Department of Health Services, Office of AIDS.

Methodological Approach

The method used to analyze vital statistics data is also important. Analyzing only the number of deaths has its disadvantages and can be misleading because the population at risk is not taken into consideration. Crude death rates show the actual rate of dying in a given population, but because of the age compositions of various populations, they do not provide a statistically valid method for comparing geographic areas and/or multiple reporting periods. Age-specific death rates are the number of deaths per 100,000 population in a specific age group and are used along with standard population proportions to develop a weighted average rate. This rate is referred to as an age-adjusted death rate and removes the effect of different age structures of the populations whose rates are being compared. Age-adjusted death rates therefore provide the preferred method for comparisons of different race/ethnic groups, sexes, and geographic areas and measuring death rates over time. The 1940 United States (standard million) population is used as the basis for age-adjustments in this report.

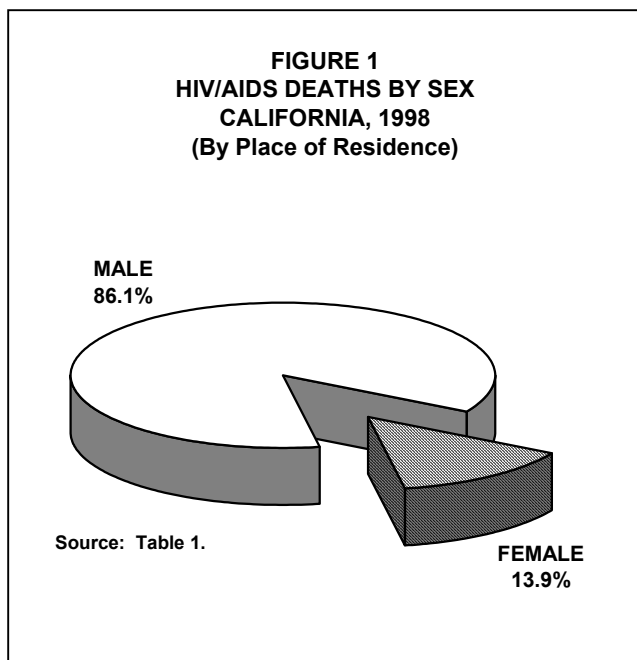
HIV/AIDS Deaths

Table 1 (page 6) displays HIV/AIDS death data for 1998 by race/ethnicity, age, and sex. In 1998, there were 1,432 deaths among California residents due to HIV/AIDS, a 22.9 percent drop in deaths from the 1997 figure (1,857). The majority of the 1,432 deaths were

This Data Summary was prepared by Cynthia Schmidt, Center for Health Statistics, 304 S Street, P.O. Box 942732, Sacramento, CA 94234-7320, Telephone (916) 445-6355

among decedents aged 25-64 (1,371). Of the four race/ethnic groups, Whites had the highest number of deaths (733) followed by Hispanics (345), Blacks (316), and Asian/Other (38).

Figure 1 shows the disparity in HIV/AIDS deaths by sex. Of the total number of deaths in California, males accounted for 86.1 percent (1,233), while females made up the remaining 13.9 percent (199). The large disparity in HIV/AIDS deaths by sex also existed among each of the four race/ethnic groups.

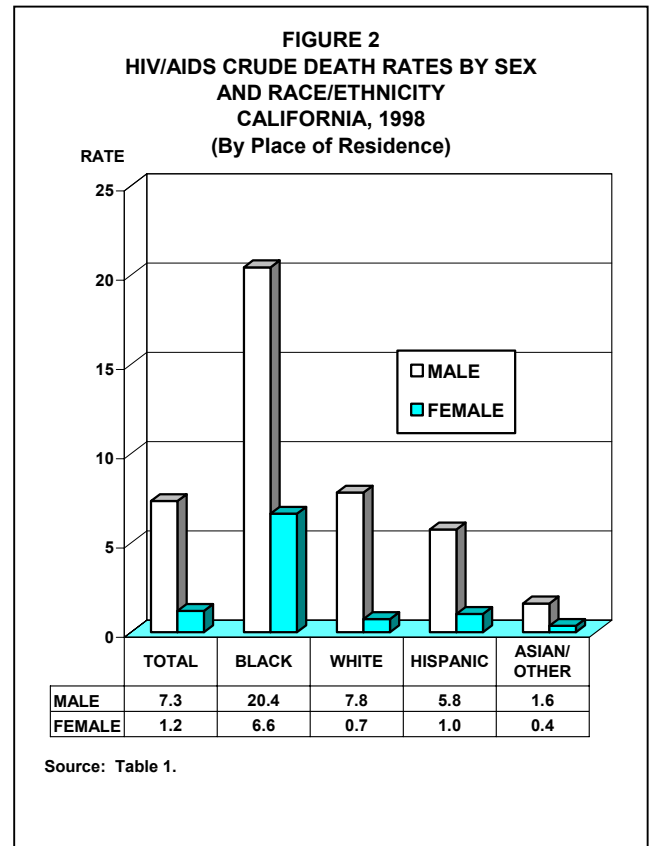


HIV/AIDS Crude Death Rates

California's 1998 crude death rate due to HIV/AIDS was 4.3 per 100,000 population, a 23.2 percent decrease from the 1997 rate of 5.6.⁵ The rate among males also declined from 9.9 in 1997 to 7.3 in 1998, a 26.3 percent drop. The female rate declined 7.7 percent from 1.3 in 1997 to 1.2 in 1998.

Blacks had the highest crude death rate (13.4 per 100,000 population) in 1998, followed by Whites (4.2), Hispanics (3.5), and Asian/Other

(1.0). As shown in **Figure 2**, Black males and females also had the highest rates by gender, 20.4 and 6.6 respectively. In contrast, Asian/Other males and females had the lowest death rates, 1.6 and 0.4 respectively.



HIV/AIDS Age-Specific Death Rates

Of the reliable age-specific death rates in 1998, California residents aged 35-44 had the highest (10.8 per 100,000 population), while those aged 65-74 had the lowest (1.6). The next highest rate among decedents was for the 45-54 age group at 8.3.

The highest age-specific death rates among males and females were also in the 35-44 age group. In this age group, the death rate among males was 18.5 per 100,000 population and the female death rate was 2.7. The lowest reliable death rates were among males aged 65-74 (3.2) and females aged 25-34 (1.9).

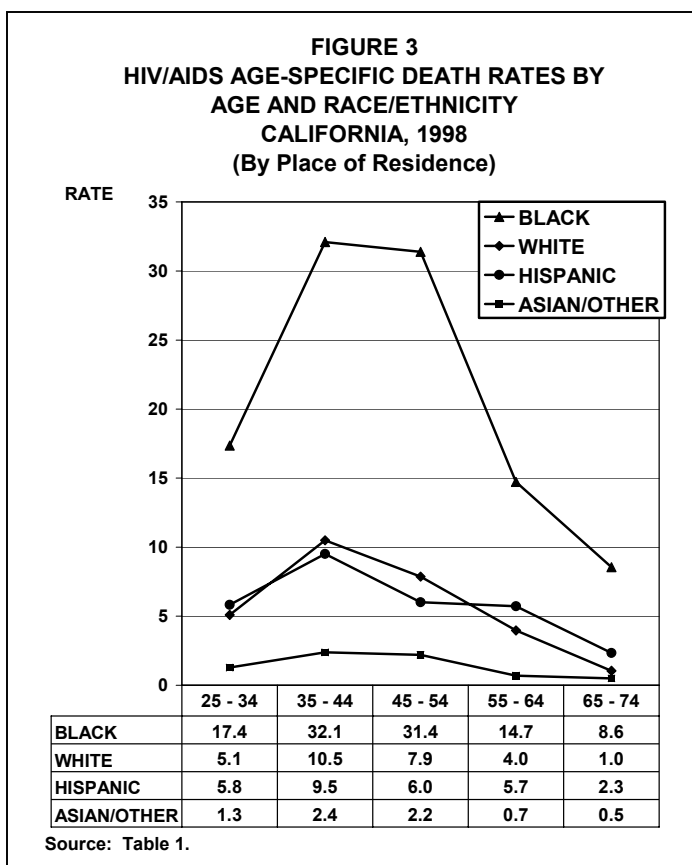
As illustrated in **Figure 3**, Blacks had the highest age-specific death rates among the four race/ethnic groups. The highest Black rate was among decedents aged 35-44 (32.1 per 100,000 population) and the lowest reliable rate was among those aged 55-64 (14.7). White and Hispanic rates, although different, do not vary significantly in each age group. Both had the highest rates in the 35-44 year old age group, 10.5 among Whites and 9.5 among Hispanics. The lowest reliable White rate was among decedents aged 55-64 (4.0), and the lowest reliable Hispanic rate was among decedents aged 55-64 (5.7). Asian/Other had no reliable age-specific rates.

The 1998 age-adjusted death rate among Blacks (12.8 per 100,000 population) dropped 26.9 percent from their 1997 rate of 17.5, but continued to have the highest rate among the four race/ethnic groups. The 1998 rate among Whites (3.6) and Hispanics (3.7) also decreased 25.0 and 22.9 percent respectively from their 1997 rate of 4.8 for both groups. Asian/Other had the lowest 1998 rate (0.9), also the same as their 1997 rate.

As shown in **Figure 4**, Black males and females also had the highest rates by gender, 19.9 and 6.3 respectively. The rates among White males (6.6) and females (0.7) were similar to Hispanic males (6.0) and females (1.1). Asian/Other males had the lowest reliable rate at 1.5.

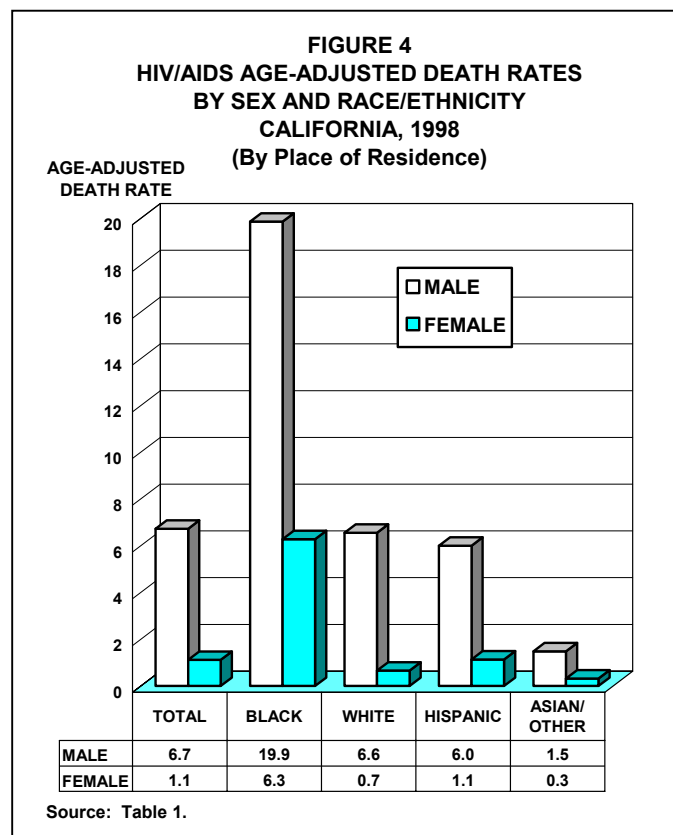
HIV/AIDS Death Data by County

Table 2 (page 7) shows the 1996-1998 three-year average numbers of HIV/AIDS deaths with the crude and age-adjusted death rates for California's 58 counties. Among the 58 counties, Los Angeles County had the highest



HIV/AIDS Age-Adjusted Death Rates

Table 1 (page 6) shows that California's 1998 age-adjusted death rate was 4.0 per 100,000 population, a 23.1 percent decrease from the 1997 rate of 5.2. The rate among males also declined from 9.1 in 1997 to 6.7 in 1998, a 26.4 percent drop. The female rate declined 8.3 percent from 1.2 in 1997 to 1.1 in 1998.



three-year average number of deaths (912.3), which was 36.5 percent of all HIV/AIDS deaths in California (2,498.7). San Francisco County averaged the next highest number of deaths (373.0) followed by San Diego County (203.7). Six counties including Alpine, Lassen, Modoc, Mono, San Benito, and Sierra had no HIV/AIDS deaths from 1996 through 1998.

Of the counties with reliable crude death rates, San Francisco County had the highest rate (48.0 per 100,000 population). Alameda County had the second highest rate (10.4) followed by Los Angeles County (9.6). Santa Clara and Kern County both had the lowest (3.0). The rate for California was 7.6.

Similar to the crude death rates, San Francisco County also had the highest age-adjusted death rate (38.7 per 100,000 population). Alameda County had the second highest rate (9.1) followed by Los Angeles County (8.9). Santa Clara County had the lowest rate (2.6) among all of the counties with reliable rates. California's rate was 7.0.

HIV/AIDS Death Data by Local Health Jurisdiction

Table 3 shows the 1996-1998 three-year average death numbers and crude rates due to HIV/AIDS for California's three local (city) health jurisdictions. Among these local health jurisdictions, Berkeley averaged 11.3 deaths due to HIV/AIDS, while Long Beach had 80.7 deaths and Pasadena had 15.7 deaths. The crude death rates due to HIV/AIDS were 10.6 per 100,000 population in Berkeley, 18.3 in Long Beach, and 11.3 in Pasadena.

Age-adjusted death rates were not calculated for the local health jurisdictions because city population estimates by age are not available.

Technical Notes

In accordance with the National Center for Health Statistics, the HIV/AIDS death data presented in this report are selected using ICD-9 codes 042-044.

The four race/ethnic groups presented in **Table 1** are mutually exclusive. White, Black, and Asian/Other exclude Hispanic ethnicity, while Hispanic includes any race/ethnic group.

In order to remain consistent with the population data obtained from the Department of Finance, the "White race/ethnic group" includes: White, Other (specified), Not Stated, and Unknown; and the "Asian/Other race/ethnic group" includes: Aleut, American Indian, Asian Indian, Asian (specified/unspecified), Cambodian, Chinese, Eskimo, Filipino, Guamanian, Hawaiian, Japanese, Korean, Laotian, Other Pacific Islander, Samoan, Thai, and Vietnamese. In addition, caution should be exercised in the interpretation of mortality data by race/ethnicity. Misclassification of race/ethnicity on the death certificate may contribute to death rates that may be underestimated among Hispanics and Asian/Other.⁶

**TABLE 3
DEATHS DUE TO HIV/AIDS
AMONG THE LOCAL HEALTH
JURISDICTIONS
CALIFORNIA, 1996-1998
(By Place of Residence)**

LOCAL HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	1997 POPULATION	CRUDE DEATH RATE
BERKELEY	11.3	106,300	10.6
LONG BEACH	80.7	440,800	18.3
PASADENA	15.7	138,600	11.3

Note: Rates are per 100,000 population; ICD-9 codes 042-044.

Source: State of California, Department of Finance, Historical Estimates of California Cities and Counties, April 1990 through January 2000, May 2001.

State of California, Department of Health Services, Death Records.

As with any vital statistics data, caution needs to be exercised when analyzing small numbers, including the rates derived from them. Death rates calculated from a small number of deaths and/or population tend to be unreliable and subject to significant variation from one year to the next. Consequently, **Tables 2 and 3** present three-year annual average death data to increase the reliability of the data by county and local health jurisdiction. To assist the reader, 95 percent confidence intervals are provided in the data tables for measuring the reliability of death rates. Rates with a relative standard error (coefficient of variation) greater than or equal to 23 percent are indicated with an asterisk (*).

In addition, the population data used to calculate the crude rates in **Table 3** differ from the population data used to calculate the crude rates in **Table 2**. Consequently, caution should be exercised when comparing the crude rates among the three local health jurisdictions with the rates among the 58 California counties.

The 1940 United States (standard million) population was utilized in this report for age adjustments because it corresponds to prior statistical reports produced on HIV/AIDS by the California Department of Health Services, Center for Health Statistics and the U.S. Department of Health and Human Services, National Center for Health Statistics and Office of Disease Prevention and Health Promotion (Healthy People 2000).

For a more complete explanation of the age-adjusting methodology used in this report see the *Healthy People 2000 Statistical Notes* publication.⁷ Also, detailed information on data quality and limitations and the formulas used to calculate vital statistics rates are presented in the appendix of the *Vital Statistics of California*.⁸ Another source of information is the Department of Health Services, Center for Health Statistics, Home Page at [www.dhs.ca.gov/org/hisp/chs/chsindex.htm].

References

1. Fujitani L, HIV/AIDS Deaths, California, 1987-1996. *Data Summary*; No. DS98-10000. Center for Health Statistics, California Department of Health Services, October 1998.
2. Peters KD, Kochanek KD, Murphy SL. Deaths: Final Data for 1996. *National Vital Statistics Reports*. Hyattsville, Maryland: Public Health Services, DHHS Pub. No. (PHS) 99-1120 8-0761, November 1998.
3. Ventura SJ, Anderson RN, Martin J, Smith BL. Births and Deaths: Preliminary Data for 1997. *National Vital Statistics Reports*. Hyattsville, Maryland: Public Health Services, DHHS Pub. No. (PHS) 99-1120 8-0870, October 1998.
4. Centers for Disease Control and Prevention. *HIV/AIDS Surveillance Report*, Vol. 10, No.2, 1998.
5. Fujitani L, HIV/AIDS Deaths, California, 1997. *Data Summary*; No. DS99-07001. Center for Health Statistics, California Department of Health Services, July 1999.
6. Hahn RA, Mulinare J, Teutsch SM. Inconsistencies in Coding Race and Ethnicity Between Birth and Death in US Infants. *The Journal of the American Medical Association*, Vol. 267, No. 2, January 1992
7. Curtin LR, Klein RJ. Direct Standardization (Age-Adjusted Death Rates). *Healthy People 2000 Statistical Notes*. National Center for Health Statistics, DHHS Pub. No. (PHS) 95-1237, March 1995; No. 6- Revised.
8. Riedmiller K, Harms C, *Vital Statistics of California, 1998*. Center for Health Statistics, California Department of Health Services, November 2000.

TABLE 2
DEATHS DUE TO HIV/AIDS
CALIFORNIA COUNTIES, 1996-1998
(By Place of Residence)

COUNTY	DEATHS 1996-1998	1996-1998 DEATHS (AVERAGE)	PERCENT	1997 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
							LOWER	UPPER
CALIFORNIA	7,496	2,498.7	100.0	32,956,695	7.6	7.0	6.8	7.3
ALAMEDA	435	145.0	5.8	1,398,421	10.4	9.1	7.6	10.6
ALPINE	0	0.0	0.0	1,174	0.0 +	0.0 +	-	-
AMADOR	2	0.7	a	33,472	2.0 *	1.7 *	0.0	5.7
BUTTE	18	6.0	0.2	198,459	3.0 *	3.0 *	0.5	5.4
CALAVERAS	3	1.0	a	37,916	2.6 *	2.5 *	0.0	7.3
COLUSA	1	0.3	a	18,530	1.8 *	1.9 *	0.0	8.4
CONTRA COSTA	169	56.3	2.3	896,206	6.3	5.6	4.1	7.1
DEL NORTE	1	0.3	a	28,413	1.2 *	1.3 *	0.0	5.5
EL DORADO	12	4.0	0.2	147,409	2.7 *	2.8 *	0.0	5.8
FRESNO	108	36.0	1.4	778,674	4.6	4.8	3.2	6.3
GLENN	2	0.7	a	26,856	2.5 *	2.4 *	0.0	8.0
HUMBOLDT	11	3.7	0.1	126,137	2.9 *	2.6 *	0.0	5.3
IMPERIAL	9	3.0	0.1	142,759	2.1 *	2.3 *	0.0	4.9
INYO	2	0.7	a	18,272	3.6 *	1.1 *	0.0	4.1
KERN	57	19.0	0.8	634,404	3.0	3.0	1.6	4.4
KINGS	16	5.3	0.2	117,793	4.5 *	4.5 *	0.6	8.3
LAKE	11	3.7	0.1	55,047	6.7 *	7.0 *	0.0	14.5
LASSEN	0	0.0	0.0	33,861	0.0 +	0.0 +	-	-
LOS ANGELES	2,737	912.3	36.5	9,524,613	9.6	8.9	8.3	9.4
MADERA	13	4.3	0.2	113,525	3.8 *	3.8 *	0.2	7.4
MARIN	54	18.0	0.7	243,214	7.4	5.9	3.1	8.6
MARIPOSA	2	0.7	a	15,957	4.2 *	3.8 *	0.0	12.8
MENDOCINO	8	2.7	0.1	85,966	3.1 *	2.9 *	0.0	6.4
MERCED	17	5.7	0.2	201,905	2.8 *	3.0 *	0.5	5.4
MODOC	0	0.0	0.0	10,140	0.0 +	0.0 +	-	-
MONO	0	0.0	0.0	10,140	0.0 +	0.0 +	-	-
MONTEREY	60	20.0	0.8	377,744	5.3	4.9	2.7	7.1
NAPA	15	5.0	0.2	121,239	4.1 *	3.4 *	0.3	6.5
NEVADA	6	2.0	0.1	88,356	2.3 *	2.3 *	0.0	5.8
ORANGE	344	114.7	4.6	2,705,313	4.2	3.8	3.1	4.5
PLACER	18	6.0	0.2	215,634	2.8 *	2.7 *	0.4	4.9
PLUMAS	1	0.3	a	20,402	1.6 *	1.5 *	0.0	6.7
RIVERSIDE	298	99.3	4.0	1,423,699	7.0	7.0	5.6	8.4
SACRAMENTO	242	80.7	3.2	1,146,825	7.0	6.5	5.1	7.9
SAN BENITO	0	0.0	0.0	46,121	0.0 +	0.0 +	-	-
SAN BERNARDINO	224	74.7	3.0	1,617,262	4.6	4.5	3.5	5.5
SAN DIEGO	611	203.7	8.2	2,763,401	7.4	7.2	6.2	8.2
SAN FRANCISCO	1,119	373.0	14.9	777,368	48.0	38.7	34.7	42.6
SAN JOAQUIN	68	22.7	0.9	542,196	4.2	4.2	2.4	5.9
SAN LUIS OBISPO	27	9.0	0.4	234,813	3.8 *	3.8 *	1.3	6.3
SAN MATEO	111	37.0	1.5	711,699	5.2	4.7	3.2	6.3
SANTA BARBARA	49	16.3	0.7	400,751	4.1	3.8	1.9	5.6
SANTA CLARA	149	49.7	2.0	1,671,414	3.0	2.6	1.8	3.3
SANTA CRUZ	36	12.0	0.5	247,216	4.9	4.4	1.9	6.9
SHASTA	21	7.0	0.3	163,351	4.3 *	4.0 *	1.0	7.0
SIERRA	0	0.0	0.0	3,406	0.0 +	0.0 +	-	-
SISKIYOU	6	2.0	0.1	44,186	4.5 *	4.8 *	0.0	11.6
SOLANO	86	28.7	1.1	378,664	7.6	7.1	4.5	9.7
SONOMA	109	36.3	1.5	432,771	8.4	7.7	5.2	10.3
STANISLAUS	53	17.7	0.7	425,407	4.2	4.1	2.2	6.1
SUTTER	8	2.7	0.1	76,004	3.5 *	3.1 *	0.0	6.9
TEHAMA	7	2.3	0.1	54,702	4.3 *	4.5 *	0.0	10.5
TRINITY	2	0.7	a	13,230	5.0 *	4.2 *	0.0	14.4
TULARE	36	12.0	0.5	358,337	3.3	3.5	1.5	5.4
TUOLUMNE	5	1.7	0.1	52,280	3.2 *	3.4 *	0.0	8.6
VENTURA	73	24.3	1.0	727,154	3.3	3.1	1.9	4.4
YOLO	17	5.7	0.2	154,850	3.7 *	4.0 *	0.7	7.3
YUBA	7	2.3	0.1	61,246	3.8 *	3.8 *	0.0	8.6

Note: Rates are per 100,000 population; ICD-9 codes 042-044.

* Death rate unreliable (relative standard error is greater than or equal to 23%).

+ Standard error indeterminate, death rate based on no (zero) deaths.

a Represents a percentage of more than zero but less than 0.05.

- Confidence limit is not calculated for no (zero) deaths.

Source: State of California, Department of Finance, 1997 Population Estimates with Age, Sex and Race/Ethnic Detail, May 2000.
State of California, Department of Health Services, Death Records.