



Center for Health Statistics



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DATA SUMMARY
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This Data Summary is one of a series of leading cause of death reports.

Highlights

- Unintentional injuries were the 6th leading cause of death in California.
- Of all unintentional injury deaths, 41.3 percent were caused by motor vehicle accidents.
- White males had the highest number of unintentional injury deaths.
- For the last eight years, California has met the national health objective of reducing unintentional injury deaths in the U.S. to an age-adjusted rate of no more than 29.3 per 100,000 population.

Unintentional Injury Deaths California 1998

By Cheryl Wilson

Introduction

Annually, more than 90,000 people die from unintentional injuries in the United States.¹ In 1998, unintentional injury deaths were the 6th leading cause of death in California and 5th leading cause of death in the U.S. Among people in the age group 1 to 24, unintentional injuries ranked first among the leading causes of death in California and in the nation.^{2,3}

In 1998, 82.1 percent of all unintentional injury deaths among California residents were due to four major causes: motor vehicle accidents, poisoning, falls, and drowning/submersion. Of these major causes, motor vehicle accidents accounted for 41.3 percent of the total unintentional injury deaths, followed by poisoning (20.6), falls (14.2), and drowning/submersion (5.9). All remaining causes of unintentional injury deaths totaled 17.9 percent.⁴

Among California residents, motor vehicle accidents were the leading cause of unintentional injury deaths among males in the age group 5 to 34 and females 1 to 24. In the U.S., motor vehicle accidents ranked first among the leading causes of unintentional injury deaths for males and females in the 1 to 24 age group.^{2,3} Among elderly people in the age group 65 and older, falls and motor vehicle accidents ranked first and second respectively for both California and U.S. residents.⁵

Due to the prevalence of unintentional injuries in this country, the U.S. Public Health Service established a national health objective (9.1) for *Healthy People 2000*, seeking to reduce the number of unintentional injury deaths to an age-adjusted rate of no more than 29.3 per 100,000 population.⁶

This report presents data on California's unintentional injury deaths for 1998, and provides analysis of crude and age-adjusted death rates for California

¹ Centers for Disease Control, Division of Unintentional Injury Prevention. National Center for Injury Prevention and Control. *Unintentional Injury Prevention*. June 1, 2001.

² Riedmiller, K., Bindra K. *Vital Statistics of California*, 1998. Center for Health Statistics, California Department of Health Services, April 2001.

³ National Centers for Health Statistics, Deaths: Final Data for 1998, *National Vital Statistics Reports*, DHHS Pub. No. (PHS) 2000-1120, 0-0487, July 2000; vol 48, No.11.

⁴ State of California, Department of Health Services Death Records. 1998.

⁵ Centers for Disease Control, National Center for Injury Prevention and Control, *Ten Leading Causes of Death, California and United States, 1998*.

⁶ U.S. Department of Health and Human Services. *Healthy Promotion and Disease Prevention Objective*. Washington, D.C.: DHHS Pub. No. (PHS) 99-1256, June 1999.

A description of [methods](#) and a brief overview of [data limitations](#) and [qualifications](#) are provided at the end of this report.

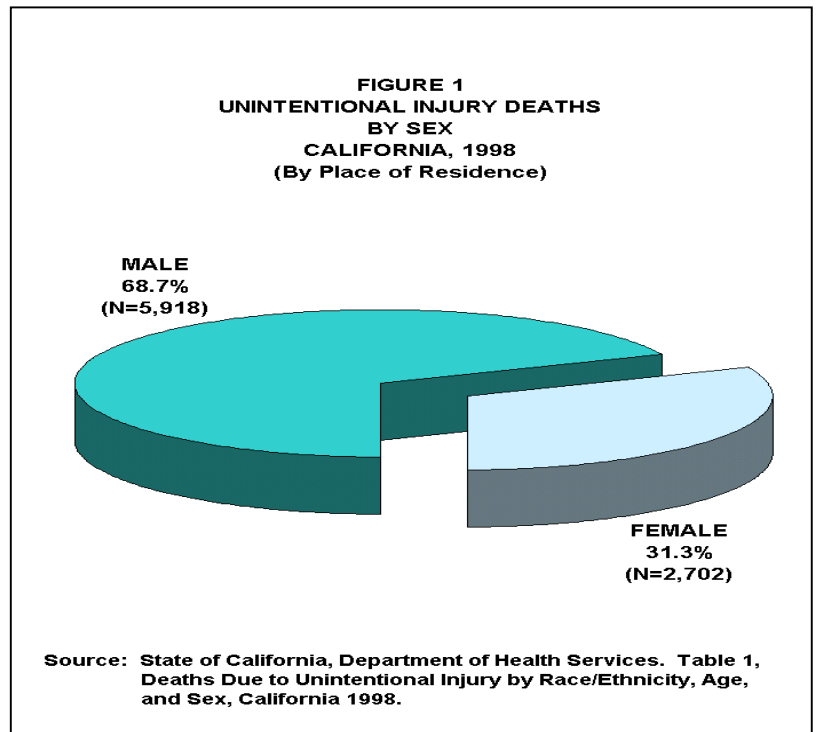
residents by sex, age, and race/ethnicity. The unintentional injury data included in this report are extracted from vital statistics records with death attributed to unintentional injuries as defined by ICD-9 codes E800-949 in accordance with the National Center for Health Statistics Reports.^{3,7}

Unintentional Injury Deaths

Table 1 (page 8) shows California's unintentional injury death data by race/ethnicity, age, and sex. In 1998 there were 8,620 deaths from unintentional injuries, which represented a 1.6 percent decrease from the prior year deaths (8,762). Approximately 60 percent of the unintentional injury deaths occurred among people in the 15 to 54 age group. Among the major race/ethnic groups, Whites had the highest number of unintentional injury deaths (5,208), followed by Hispanics (2,095), Blacks (710), and Asian/Other (607).

Among all four major race/ethnic groups, unintentional injury deaths were higher for males than for females. Overall, White males had the highest number of unintentional injury deaths (3,414) or 39.6 percent of all deaths, and Asian/Other females had the lowest number of unintentional injury deaths (212), or 2.5 percent.

Figure 1 shows males (68.7 percent) were more than twice as likely to die from unintentional injuries than females (31.3 percent) in 1998.



Unintentional Injury Crude Death Rates

As displayed in **Table 1** (page 8), California's unintentional injury crude death rate was 25.7 per 100,000 population in 1998, which represented a 3.4 percent decrease from the 1997 rate of 26.6. The decrease in crude death rate from 1997 to 1998 was statistically significant.

The crude death rates among males and females declined in 1998 from their prior year rates. Rates for males declined 2.5 percent from 36.1 to 35.2 per 100,000 population, and rates for females declined 5.3 percent from 17.1 to 16.2. Although the rate of decline from 1997 to 1998 was not statistically significant, the declining trend since 1980 has been significant and continuous for each sex.⁸

⁷National Center for Health Statistics. *Vital Statistics, Instructions for Classifying the Underlying Cause of Death*. NCHS Instruction Manual, Part 2a. Hyattsville, Maryland: Public Health Service, 1998.

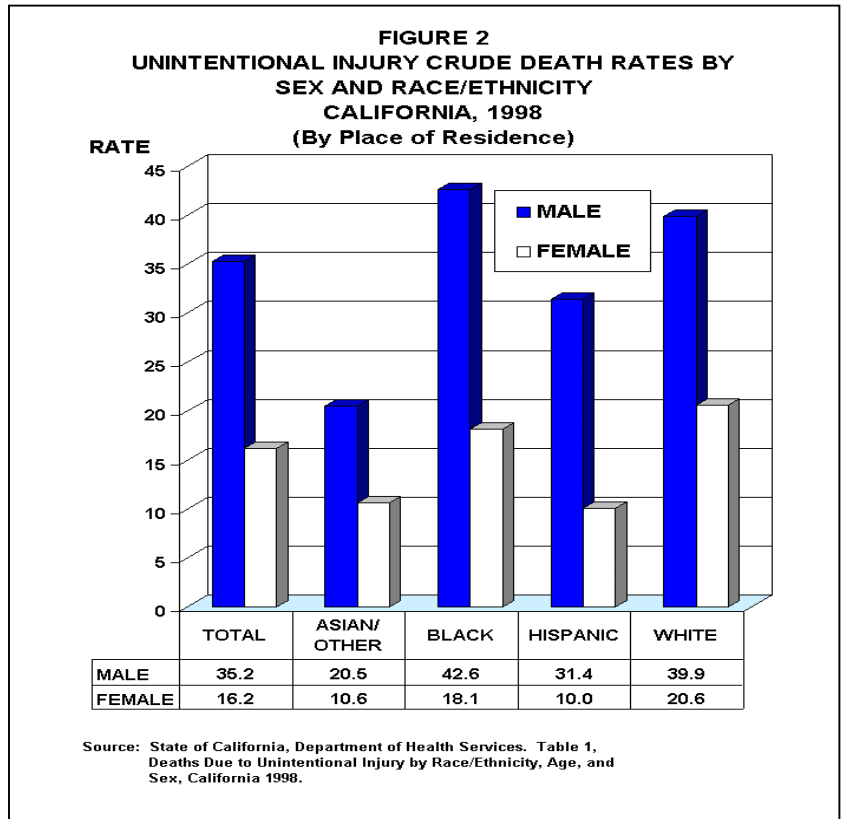
⁸Perrin HJ. Unintentional Injury Deaths, California 1980-1996. Center for Health Statistics, California Department of Health Services. February 1999.

See the [Methodological Approach](#)

Section later in this report for an explanation of crude and age-specific death rates.

Among the four race/ethnic groups, Blacks (30.2) and Whites (30.1) had the highest unintentional injury crude death rates. Hispanics followed with 21.1 per 100,000 population and Asian/Other with 15.5.

As shown in **Figure 2**, Black males had the highest crude death rate at 42.6 per 100,000 population, followed by White males (39.9), Hispanic males (31.4), and Asian/Other males (20.5). Among females, Whites had the highest crude death rate (20.6), followed by Blacks (18.1), Asian/Other (10.6), and Hispanics (10.0). Males had consistently higher rates than females. The difference between crude death rates for males and females for each of the major race/ethnic groups was statistically significant.



Unintentional Injury Age-Specific Death Rates

Of the reliable age-specific death rates, males had higher rates than females overall and for each race/ethnic group (**Table 1**). Males (252.6) and females (132.1) aged 85 and older had the highest age-specific death rates due to unintentional injuries. The lowest age-specific death rates were for the 5-14 age group for both females (3.7) and males (6.1).

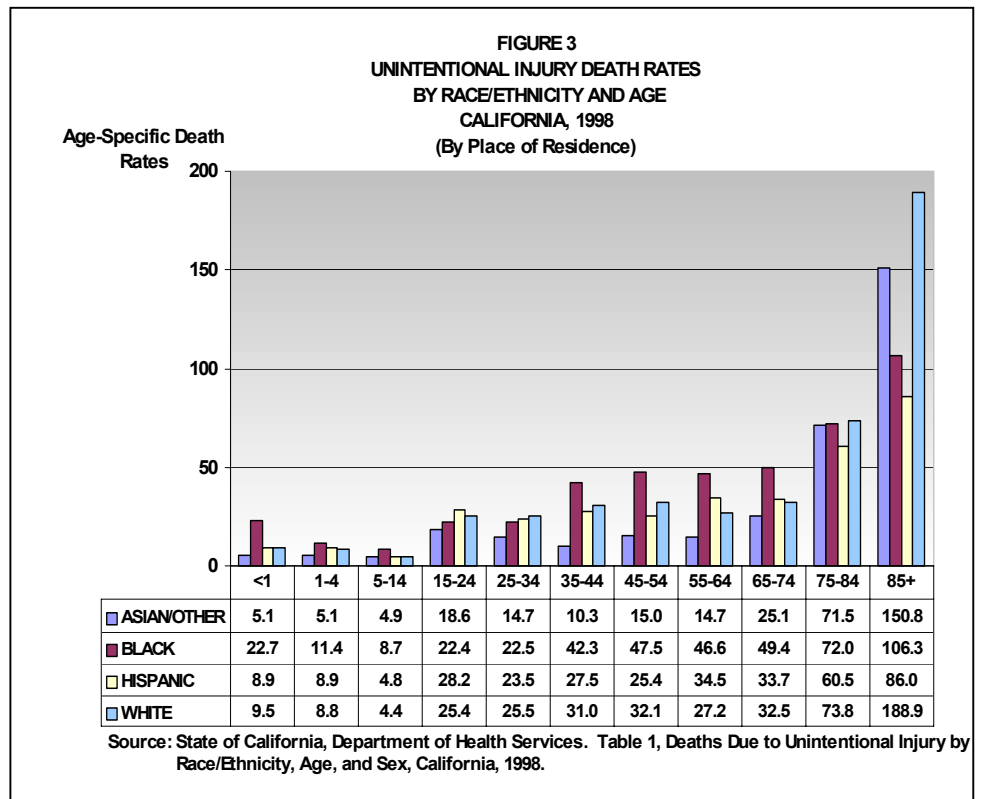


Figure 3 shows the age-specific death

See the Vital Statistics Query System (VSQ) at our web site www.dhs.ca.gov/hisp/Applications/vsq/vsq.cfm to create your own vital statistics tables.

rates by race/ethnicity and age group. Among the race/ethnic groups with reliable rates, Blacks had significantly higher death rates among people in age groups 5-14 and 35-74, while Whites had significantly higher rates among people in the 85 and older age group.

Unintentional Injury Age-Adjusted Death Rates

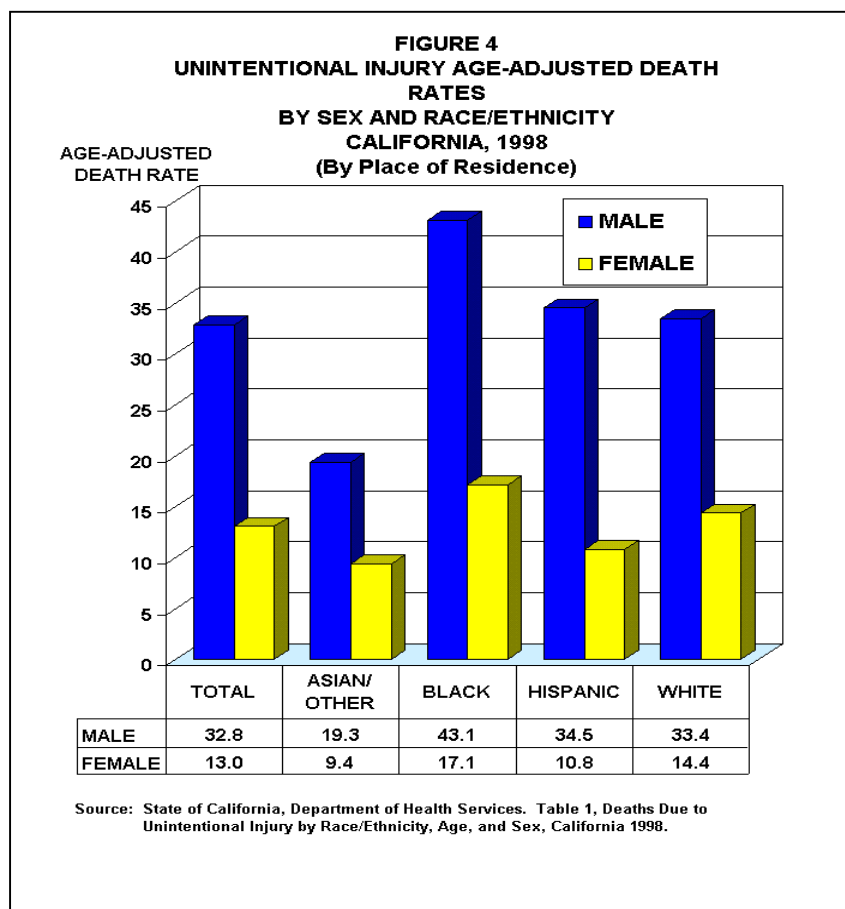
Table 1 (page 8) shows California's age-adjusted death rate for 1998 was 22.9 deaths per 100,000 population, a 3.8 percent decrease from the 1997 rate of 23.8. During the last eight years, California has met the national health objective of reducing the number of unintentional injury deaths in the U.S. to an age-adjusted rate of no more than 29.3 per 100,000 population.

In 1998, the age-adjusted death rate for both males and females declined from their 1997 rate. Males declined 3.2 percent from 33.9 to 32.8 and females declined 5.1 percent from 13.7 to 13.0 per 100,000 population. The age-adjusted death rate among males was significantly greater than for females. The male rate of 32.8 was 2.5 times greater than the 13.0 rate for females. The age-adjusted death rates for unintentional injuries have also declined significantly from their 1980 rates for both males (61.3) and females (22.2).⁸

Among the major race/ethnic groups, Blacks had the highest age-adjusted death rate (29.4) per 100,000 population, followed by Whites (23.9), Hispanics (23.0), and Asian/Other (14.2). While all the rates decreased from the 1997 rates, Asian/Other experienced the largest percent decline at 16.0.

Figure 4 displays age-adjusted death rates by race/ethnicity and sex. In 1998, the age-adjusted death rates among males in all the race/ethnic groups were significantly greater than the rates among their female counterparts. The male age-adjusted death rates for Whites, Blacks, Hispanics, and Asian/Other were 2.3, 2.5, 3.2, and 2.1 times greater than the age-adjusted death rates among females for the same race/ethnic group.

Black males had a significantly higher age-adjusted death rate (43.1) than Hispanic males (34.5), White males (33.4), and Asian/Other males (19.3). Similarly, the age-adjusted



For more data, see DHS Center for Health Statistics, Home Page at www.dhs.ca.gov/org/hisp/chs/chsindex.htm

death rate among Black females (17.1) was significantly greater than the rates for White females (14.4), Hispanic females (10.8), and Asian/Other females (9.4).

In 1998, age-adjusted rates for males of specific race/ethnic groups declined from 1997 rates as follows: Asian/Other down 12.3 percent, Whites down 2.9 percent, and Hispanics down 2.5 percent. The rate for Black males increased .5 percent. Age-adjusted death rates declined for females of all four race/ethnic groups from 1997 rates as follows: Asian/Other (23 percent), followed by Hispanics (2.7), Whites (0.7), and Blacks (0.6).

Unintentional Injury Death Data for California Counties

You can create your own tables for different age groups from our Internet Query System at www.dhs.ca.gov/hisp/applications/vsq/vsq.cfm

Table 2 (page 9) shows the number of unintentional injury deaths averaged over a three-year period from 1997-1998 with crude and age-adjusted death rates for California's 58 counties.

Among the 45 counties with reliable crude death rates, Del Norte County had the highest rate (70.4 per 100,000), which was 3.8 times higher than the lowest rate of 18.6 in Santa Clara County. Humboldt County had the highest reliable age-adjusted death rate (49.3), and Marin County had the lowest rate (15.6).

California's age-adjusted death rate was 24.2 per 100,000 population. California as a whole and 22 counties (20 with reliable rates) met the year 2000 national health objective to reduce the unintentional injury death rate to no more than 29.3 per 100,000 population.

Unintentional Injury Death Data by City Health Jurisdiction

Table 3 shows the three-year average (1996-1998) number of unintentional injury deaths and crude death rates for California's local (city) health jurisdictions. Long Beach had the highest average number of deaths (101.7), followed by Pasadena (34.3), and Berkeley (23.0). The crude death rates were 24.8 per 100,000 population for Pasadena, 23.1 for Long Beach, and 21.6 for Berkeley.

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

CITY HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	1997 POPULATION	CRUDE DEATH RATE	95% CONFIDENCE LIMITS	
				LOWER	UPPER
BERKELEY	23.0	106,300	21.6	12.8	30.5
LONG BEACH	101.7	440,800	23.1	18.6	27.5
PASADENA	34.3	138,600	24.8	16.5	33.1

Note: Rates are per 100,000 population; ICD-9 codes E800-949.

Source: State of California, Department of Finance, E-4 Historical *City/County Population Estimates 1991-2000, with 1990 Census Counts*, May 2000
State of California, Department of Health Services, Death Records.

Methodological Approach

You can read more about crude and age-adjusted death rates on the National Center for Health Statistics web site at www.cdc.gov

The methods used to analyze vital statistics data are 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, demographic groups, 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 for measuring death rates over time. The 1940 United States (standard million) population is used as the basis for age-adjustment in this report.

Data Limitations and Qualifications

This unintentional injury death data presented in this report are based on the vital statistics records with ICD-9 codes E800-949 as defined by the National Center for Health Statistics.

The term “significant” within the text indicates either statistically significant based on the slope of a least squared line not equal to zero ($p < .05$) for regression analysis, or statistically significant based on the difference between two independent rates ($p < .05$).

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. To assist the reader, 95 percent confidence intervals are provided in the data tables as a tool 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 population (standard million) is utilized in this report for age-adjustments because it corresponds to prior statistical reports produced on unintentional injuries 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).

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 “Asian/Other race/ethnic group” includes: Aleut, American

[Reports from prior periods](#) are available on this subject.

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.⁹

For a more complete explanation of the age adjusting methodology included in this report see the *Healthy People 2000 Statistical Notes* publication.¹⁰ Detailed information on data quality and limitations, as well as the formulas used to calculate vital statistics rates are presented in the appendix of the annual report, *Vital Statistics of California*.² Formulas for death rates are provided in the *County Health Status Profiles* Report.¹¹

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⁹Rosenberg HM, et al. Quality of Death Rates by Race and Hispanic Origin: A Summary of Current Research, 1999. *Vital and Health Statistics*, Series 2, No. 128, National Center for Health Statistics, DHHS Pub. No. (PHS) 99-1328, September 1999.

¹⁰Curtin 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.

¹¹Fujitani L. County Health Status Profiles 2000. Center for Health Statistics, California Department of Health Services, April 2000.

TABLE 2
DEATHS DUE TO UNINTENTIONAL INJURIES
CALIFORNIA COUNTIES, 1996-1998
(By Place of Residence)

COUNTY	1996-1998 DEATHS (AVERAGE)	PERCENT	1997 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
						LOWER	UPPER
CALIFORNIA	8,866.3	100.0	32,956,695	26.9	24.2	23.7	24.7
ALAMEDA	323.3	3.6	1,398,421	23.1	20.2	17.9	22.6
ALPINE	0.3	a	1,174	28.4 *	22.0 *	0.0	96.7
AMADOR	14.3	0.2	33,472	42.8 *	32.7 *	12.0	53.4
BUTTE	96.7	1.1	198,459	48.7	41.8	32.4	51.1
CALAVERAS	17.7	0.2	37,916	46.6 *	43.2 *	19.8	66.6
COLUSA	10.3	0.1	18,530	55.8 *	48.3 *	16.3	80.3
CONTRA COSTA	208.0	2.3	896,206	23.2	20.3	17.4	23.3
DEL NORTE	20.0	0.2	28,413	70.4	61.8 *	32.6	90.9
EL DORADO	53.7	0.6	147,409	36.4	32.2	22.9	41.4
FRESNO	309.3	3.5	778,674	39.7	37.8	33.5	42.2
GLENN	15.0	0.2	26,856	55.9 *	46.7 *	20.8	72.6
HUMBOLDT	66.0	0.7	126,137	52.3	49.3	36.8	61.8
IMPERIAL	84.0	0.9	142,759	58.8	46.0	34.6	57.4
INYO	12.0	0.1	18,272	65.7 *	52.1 *	17.2	86.9
KERN	250.0	2.8	634,404	39.4	37.4	32.6	42.2
KINGS	47.7	0.5	117,793	40.5	38.3	27.1	49.5
LAKE	23.7	0.3	55,047	43.0	31.8 *	16.4	47.3
LASSEN	11.7	0.1	33,861	34.5 *	29.8 *	11.8	47.7
LOS ANGELES	2,059.0	23.2	9,524,613	21.6	20.2	19.3	21.1
MADERA	54.0	0.6	113,525	47.6	42.2	30.2	54.1
MARIN	51.7	0.6	243,214	21.2	15.6	10.7	20.6
MARIPOSA	10.7	0.1	15,957	66.8 *	61.5 *	20.3	102.8
MENDOCINO	45.3	0.5	85,966	52.7	46.4	31.6	61.2
MERCED	76.3	0.9	201,905	37.8	37.0	28.4	45.5
MODOC	7.0	0.1	10,140	69.0 *	46.6 *	2.4	90.8
MONO	4.3	a	10,531	41.1 *	37.4 *	1.1	73.7
MONTEREY	107.0	1.2	377,744	28.3	26.5	21.3	31.8
NAPA	33.3	0.4	121,239	27.5	21.0	12.8	29.3
NEVADA	33.0	0.4	88,356	37.3	31.2	18.6	43.8
ORANGE	565.0	6.4	2,705,313	20.9	18.8	17.1	20.4
PLACER	62.3	0.7	215,634	28.9	24.6	17.9	31.3
PLUMAS	7.7	0.1	20,402	37.6 *	26.4 *	4.3	48.4
RIVERSIDE	487.7	5.5	1,423,699	34.3	31.5	28.5	34.5
SACRAMENTO	317.0	3.6	1,146,825	27.6	25.2	22.3	28.2
SAN BENITO	19.3	0.2	46,121	41.9	40.5 *	21.9	59.2
SAN BERNARDINO	427.3	4.8	1,617,262	26.4	25.6	23.1	28.1
SAN DIEGO	699.0	7.9	2,763,401	25.3	22.7	20.9	24.5
SAN FRANCISCO	295.3	3.3	777,368	38.0	29.9	26.1	33.7
SAN JOAQUIN	201.0	2.3	542,196	37.1	34.0	29.1	28.9
SAN LUIS OBISPO	84.7	1.0	234,813	36.1	28.6	21.8	25.3
SAN MATEO	137.7	1.6	711,699	19.3	16.0	13.1	19.0
SANTA BARBARA	129.7	1.5	400,751	32.4	24.8	20.1	29.6
SANTA CLARA	311.0	3.5	1,671,414	18.6	17.0	15.0	19.0
SANTA CRUZ	66.3	0.7	247,216	26.8	23.6	17.5	29.8
SHASTA	79.3	0.9	163,351	48.6	41.2	31.1	51.2
SIERRA	1.0	a	3,406	29.4 *	33.5 *	0.0	110.3
SISKIYOU	20.0	0.2	44,186	45.3	38.1 *	19.1	57.0
SOLANO	101.7	1.1	378,664	26.8	25.2	20.1	30.3
SONOMA	126.0	1.4	432,771	29.1	25.2	20.4	30.0
STANISLAUS	165.0	1.9	425,407	38.8	35.7	30.0	41.5
SUTTER	31.7	0.4	76,004	41.7	36.6	23.0	50.2
TEHAMA	24.0	0.3	54,702	43.9	35.7 *	19.5	51.8
TRINITY	8.0	0.1	13,230	60.5 *	54.4 *	12.3	96.6
TULARE	165.3	1.9	358,337	46.1	44.8	37.7	51.9
TUOLUMNE	25.0	0.3	52,280	47.8	37.4	20.9	53.9
VENTURA	188.7	2.1	727,154	25.9	22.5	19.1	25.9
YOLO	45.0	0.5	154,850	29.1	24.2	16.7	31.8
YUBA	29.3	0.3	61,246	47.9	46.9	29.3	64.4

Note: Rates are per 100,000 population; ICD-9 codes E800-E949.
* Death rate unreliable (relative standard error is greater than or equal to 23%).
a Represents a percentage of more than zero but less than 0.05.

Source: State of California, Department of Finance, Race/Ethnic Population Estimates by County with Age and Sex Detail, 1970-1998, May 2000.
State of California, Department of Health Services, Death Records.