



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

- **Suicide was the tenth leading cause of death in California and eleventh in the United States.**
- **In 2002 firearms accounted for 46.2 percent of the total suicide deaths in California.**
- **Among California residents, Whites had 73.1 percent of all suicide deaths in 2002.**
- **California has not yet met the Healthy People 2010 National Objective of an age-adjusted death rate of no more than 5 deaths per 100,000 population.**

Suicide Deaths California, 2002

By Cheryl Wilson

Introduction

Suicide continued to rank tenth among the leading causes of death in California and eleventh in the nation.^{1,2} In 2002 there were 3,210 suicide deaths among California residents, a decrease of 46 deaths (1.4 percent) from the 3,256 deaths reported in 2001.^{1,3} During this same period, preliminary data shows that the number of suicide deaths among all Americans increased by 24 deaths (0.1 percent) from 30,622 deaths in 2001 to 30,646 in 2002.^{2,4}

Suicide is a complex behavior that has been related to multiple risk factors, which vary with age, gender, and race/ethnicity. Persons who commit suicide often suffer from depression or another diagnosable mental or substance abuse disorder.⁵

From 2001 to 2002 suicide deaths by firearms increased 0.1 percent among all Americans and decreased 2.4 percent among California residents.^{1,2,3,4} In 2002 firearms accounted for more than half (55.1 percent) of all suicide deaths in the United States and 46.2 percent of the total suicide deaths in California.^{1,2} Males and females in California differed in their predominant methods used in suicide deaths. In 2002 the largest proportion of male suicide deaths (52.5 percent) was by firearm, while females used poisoning (43.0 percent) as the most common method, followed by firearms (24.2 percent). Between 2001 and 2002 firearm-related suicide deaths among California males were down 2.1 percent and among females down 4.4 percent. Some of the other methods used to commit suicide include strangulation, jumping, cutting, and piercing.^{1,3}

¹State of California, Department of Health Services. Death Records. 2002.

²National Center for Health Statistics, Deaths: Preliminary Data for 2002, *National Vital Statistics Reports*, DHHS Publication No. (PHS) 2004-1120, PRS 04-0167, February 2004.

³State of California, Department of Health Services. Death Records. 2001.

⁴National Center for Health Statistics, Deaths: Final Data for 2001, *National Vital Statistics Reports*, DHHS Publication No. (PHS) 2003-1120, PRS 03-0436, September 2003.

⁵National Institute of Mental Health. Suicide. *In Harm's Way: Suicide In America*. NIH Publication No. 03-4594. Printed January 2001; Revised April 2003.

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

Due to the prevalence of suicide in this country, the United States Public Health Service established a health objective for Healthy People 2010 seeking to reduce the number of suicide deaths to an age-adjusted rate of no more than 5.0 per 100,000 population.^{6,7} California, with an age-adjusted rate of 9.4, did not meet this objective.

This report presents data on California's suicide deaths for 2002, and provides analysis of crude and age-adjusted death rates for California residents by sex, age, and race/ethnicity. The suicide data included in this report are extracted from vital statistics records with death attributed to suicide as defined by the International Classification of Diseases, Tenth Revision (ICD-10) codes U03, X60-X84, and Y87.0 in accordance with the National Center for Health Statistics Reports.⁸

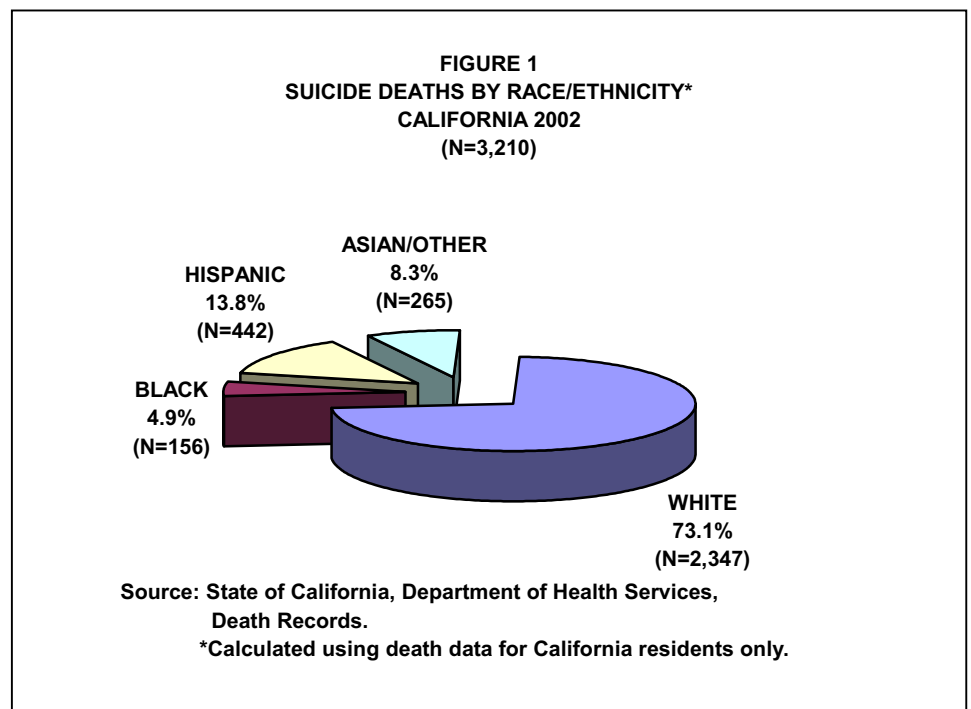
Suicide Deaths

Table 1 (page 10) shows California's suicide death data by race/ethnicity, age group, and sex. In 2002 California residents in the age group 35 to 44 had the largest number of suicide deaths (640), followed by those in the 45 to 54 age group (619), and the 25 to 34 age group (501). These three age groups combined represented 54.8 percent of all suicide deaths in 2002.

Males had 77.9 percent of the total suicide deaths and females had 22.1 percent in California. Among the age groups listed in **Table 1** (page 10), the gender difference was greatest between males and females in the age group 85 and older, with males having 6.2 suicide deaths for every female death. Overall, the suicide death ratio was 3.5 male deaths for every female death.

As shown in **Figure 1**, Whites had 73.1 percent of the total suicide deaths in California, followed by Hispanics (13.8), Asian/Other (8.3), and Blacks (4.9).

Among the major race/ethnic groups, suicide deaths were higher for males than for females in almost every age group, except in the



⁶U.S. Department of Health and Human Services. *Healthy People 2010 Objectives* (Second Edition, in Two Volumes). Washington, D.C., January 2001.

⁷Klein RJ, Schoenborn, CA. *Healthy People 2010 Statistical Notes: Age Adjustment using the 2000 Projected U.S. Population*. National Center for Health Statistics, DHHS Publication No. 20. January 2001.

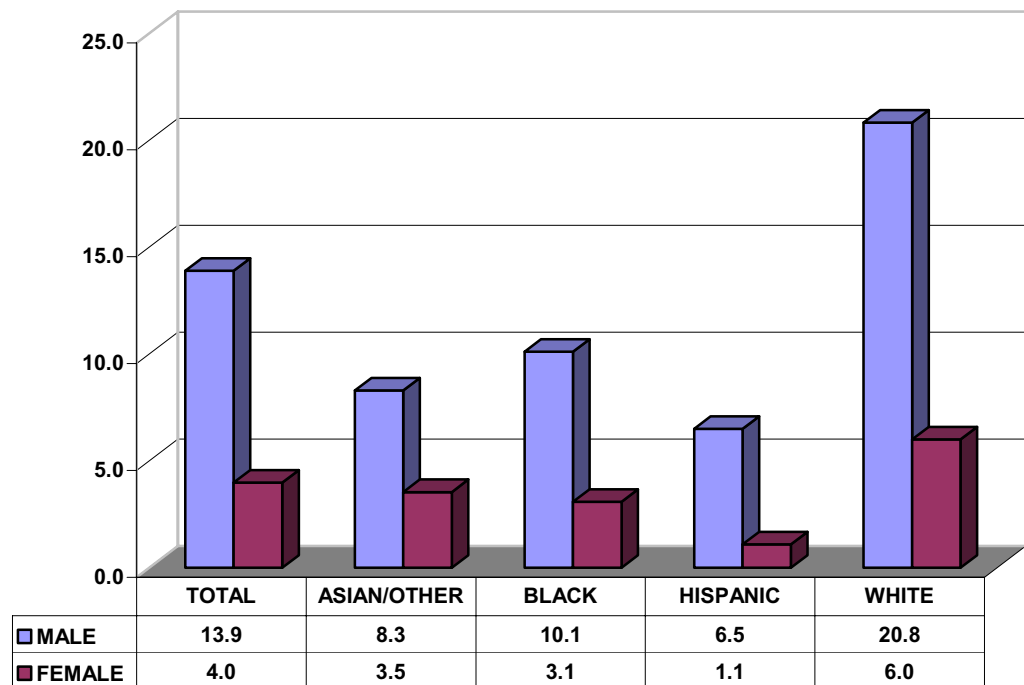
⁸National Center for Health Statistics. *Vital Statistics, Instructions for Classifying the Underlying Cause of Death ICD-10, 2004*. NCHS Instruction Manual, Part 2A. Hyattsville, Maryland: Public Health Service, 2004.

See the [Methodological Approach](#) section later in this report for an explanation of crude, age-specific, and age-adjusted death rates.

5 to 14 age group for Asian/Other. In this age group males and females had one suicide death each.

Among males, Whites had the highest number of suicide deaths (1,815), followed by Hispanics (382), Asian/Other (184), and Blacks (119). Among females, Whites had the highest number of suicide deaths (532), followed by Asian/Other (81), Hispanics (60), and Blacks (37). In 2002 the suicide death ratio between males and females within each specific race/ethnic group was highest among Hispanics with 6.4 male deaths for every female death. For Whites, Blacks, and Asian/Other, the male to female suicide death ratio was 3.4 to 1, 3.2 to 1, and 2.3 to 1 respectively.

**FIGURE 2
SUICIDE CRUDE DEATH RATES
BY SEX AND RACE/ETHNICITY*
CALIFORNIA 2002**



Source: State of California, Department of Health Services, Death Records.
*Calculated using death data for California residents only.

Suicide Crude Death Rates

As displayed in **Table 1** (page 10), California's suicide crude death rate in 2002 was 9.0 per 100,000 population. Among the major race/ethnic groups, Whites had the highest crude death rate (13.4) followed by Blacks (6.6), Asian/Other (5.9), and Hispanics (3.9).

Figure 2 shows that among California residents, males had an overall crude death rate of 13.9 per 100,000 population, which was 3.5 times higher than the crude death rate for females (4.0).

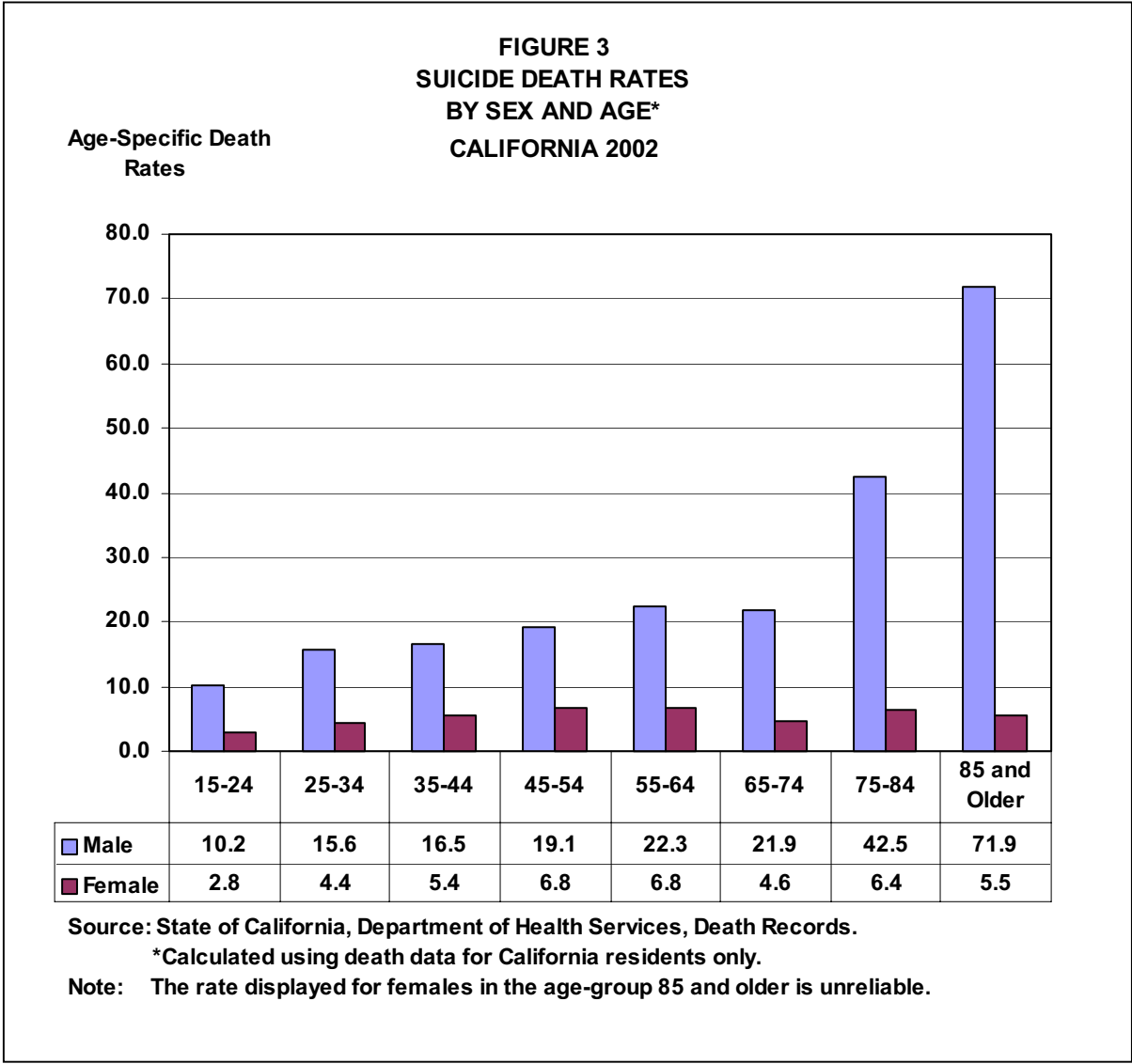
See the Vital Statistics Query System (VSQ) at our Web site www.dhs.ca.gov/hisp/Applications/vsq/vsq.cfm to create your own vital statistics tables.

White males had the highest crude death rate (20.8), followed by Black males (10.1), Asian/Other males (8.3), and Hispanic males (6.5). Among females Whites had the highest rate (6.0), followed by Asian/Other (3.5), Blacks (3.1), and Hispanics (1.1). In 2002 males had significantly higher crude death rates than females among California residents overall and within each specific race/ethnic group.

Suicide Age-Specific Death Rates

Table 1 (page 9) shows that among the reliable age-specific death rates in California, the highest rate (26.9 per 100,000 population) occurred among people in the age group 85 and older and the lowest reliable rate (0.3) occurred in the age group 5 to 14.

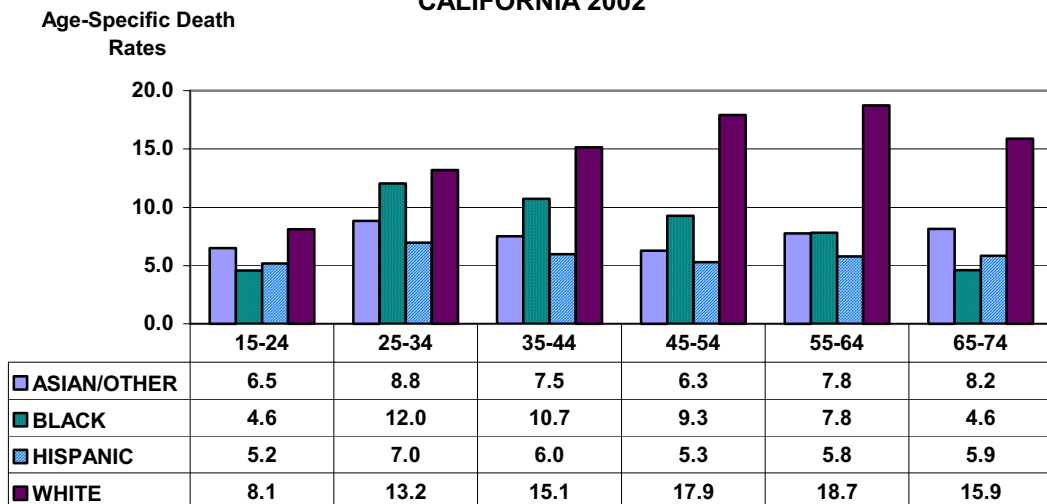
Figure 3 shows among California’s male residents, the highest reliable age-specific death rate also occurred in the 85 and older age group (71.9 per 100,000 population) and the lowest reliable rate (10.2) occurred in the 15 to 24 age group. Among California’s female residents, the highest reliable age-specific rate (6.8) was in the 45 to 54 and the 55 to 64 age groups, and the lowest reliable rate (2.8) was in the 15 to 24 age group. The age-specific rate (5.5) for females in the age group 85 and older was unreliable.



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

Figure 4 shows among the major race/ethnic groups, Whites had the highest reliable age-specific death rates in the 15 to 24 through 65 to 74 age groups. The second highest reliable rates were among Blacks in the 25 to 34 through 45 to 54 age groups, and among Asian/Other in the 15 to 24, 55 to 64, and 65 to 74 age groups. Hispanics had the lowest reliable age-specific death rates among all race/ethnic groups in the 15 to 24 through 65 to 74 age groups. Blacks had unreliable rates in the 15 to 24, 55 to 64, and 65 to 74 age groups. Not displayed in **Figure 4**, but shown in **Table 1** (page 10), Whites had the only reliable rates in the 75 to 84 and 85 and older age groups.

**FIGURE 4
SUICIDE DEATH RATES
BY RACE/ETHNICITY AND AGE*
CALIFORNIA 2002**



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

*Calculated using death data for California residents only.

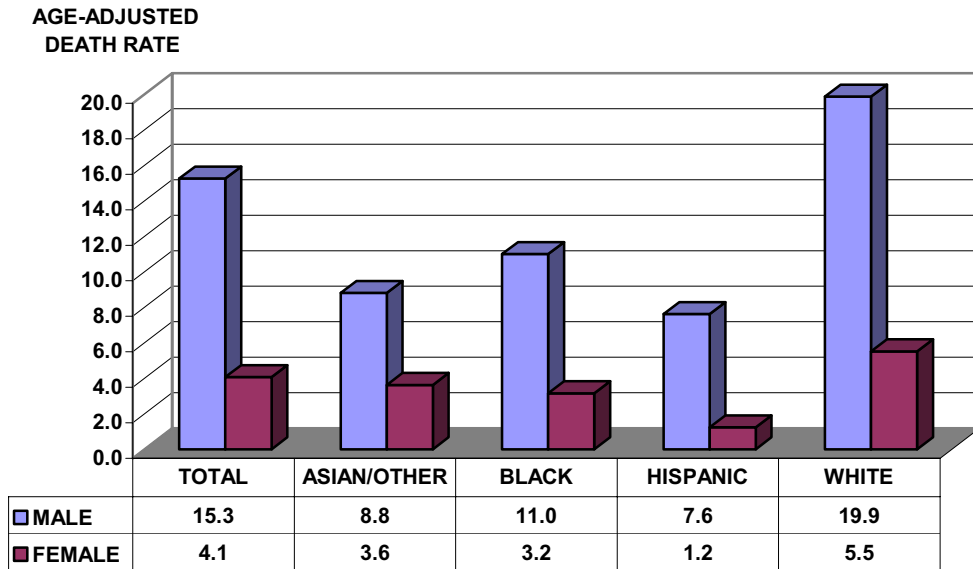
Note: The rates displayed for Blacks in the 15 to 24, 55 to 64, and 65 to 74 age groups are unreliable. All of the other rates displayed in this table are reliable.

Suicide Age-Adjusted Death Rates

As shown in **Table 1** (page 10), California's age-adjusted death rate was 9.4 per 100,000 population in 2002, a decrease of 2.1 percent from the 2001 age-adjusted death rate of 9.6.³ Among the major race/ethnic groups, Whites had the highest age-adjusted death rate (12.3), which was significantly greater than the rates for Blacks (6.9), Asian/Other (6.1), and Hispanics (4.5).

Figure 5 (page 6) shows suicide age-adjusted death rates among California residents by race/ethnicity and sex. In 2002 the male age-adjusted death rate of 15.3 was 3.7 times greater than the female rate (4.1). The male to female rate difference was significant.

**FIGURE 5
SUICIDE AGE-ADJUSTED DEATH RATES
BY SEX AND RACE/ETHNICITY*
CALIFORNIA 2002**



Source: State of California, Department of Health Services, Death Records.
*Calculated using death data for California residents only.

Among the major race/ethnic groups, males had significantly higher age-adjusted death rates than their female counterparts. The ratios of male to female age-adjusted death rates were 2.4 to 1 among Asian/Other, 3.4 to 1 among Blacks, 6.3 to 1 among Hispanics, and 3.6 to 1 among Whites.

Suicide Death Rates for California Counties

Table 2 (page 11) shows the average number of suicide deaths, crude death rates, and age-adjusted rates for California and by county for 2000-2002.

The three counties with the highest average number of deaths were Los Angeles County at 733.3, followed by San Diego County (318.3), and Orange County (237.3).

Among the 29 counties with reliable rates, Humboldt County had the highest crude death rate (20.4) per 100,000 population, which was 3.2 times higher than the lowest rate of 6.4 in San Mateo County.

Humboldt and San Mateo Counties also had the highest and lowest reliable age-adjusted death rates, 19.9 and 6.3 respectively.

Suicide Deaths Among the Three City Health Jurisdictions

Table 3 shows the three-year average (2000-2002) number of suicide deaths with crude death rates for California's three city health jurisdictions.

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

TABLE 3
SUICIDE DEATHS
AMONG THE CITY HEALTH JURISDICTIONS*
CALIFORNIA 2000-2002

CITY HEALTH JURISDICTION	AVERAGE NUMBER OF DEATHS	2001 POPULATION	CRUDE DEATH RATE
BERKELEY	7.7	103,600	7.4 **
LONG BEACH	50.3	466,500	10.8
PASADENA	13.3	135,300	9.9 **

Note: Rates are per 100,000 population; ICD-10 codes U03, X60-X84, Y87.0.

*Calculated using death data for California residents only.

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

Source: State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State, 2001-2003 with 2000 DRU Benchmark. State of California, Department of Health Services, Death Records.

Long Beach had the highest average number of deaths (50.3), followed by Pasadena (13.3), and Berkeley (7.7).

Among the crude death rates, Long Beach had the only reliable rate at 10.8 per 100,000 population.

Methodological Approach

The methods used to analyze vital statistics data are 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 differing age compositions of various populations, crude rates do not provide a statistically valid method for comparing geographic areas, demographic groups, 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 comparing different race/ethnic groups, sexes, and geographic areas and for measuring death rates over time. The 2000 population standard is used as the basis for age-adjustments in this report.

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

Data Limitations and Qualifications

The suicide death data presented in this report are based on the vital statistics records with ICD-10 codes U03, X60-X84, and Y87.0 as defined by the National Center for Health Statistics.⁹ Deaths by place of residence means that the data include only those deaths occurring among residents of California and its counties, regardless of the place of death.

The term “significant” within the text indicates 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 (*).

Beginning in 1999 cause of death is reported using ICD-10.¹⁰ Cause of death for 1979 through 1998 was coded using the International Classification of Diseases, Ninth Revision (ICD-9). Depending on the specific cause of death, the number of deaths and death rates are not comparable between ICD-9 and ICD-10. Therefore, our analyses do not combine both ICD-9 and ICD-10 data.

The four race/ethnic groups presented in the table 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 Indian, Asian Indian, Asian (specified/unspecified), Cambodian, Chinese, Eskimo, Filipino, Guamanian, Hawaiian, Hmong, 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 under estimates of Hispanics and Asian/Other.¹¹

Beginning in 2000 federal race/ethnicity reporting guidelines changed to allow the reporting of up to three races on death certificates. The race/ethnic groups in this report were tabulated based on the first listed race on those certificates where more than one race was listed. Race groups for 2000 are therefore not strictly compatible with prior years and trends should be viewed with caution.

Effective with 1999 mortality data, the standard population for calculating age-adjustments was changed from the 1940 population standard to the year 2000 population standard in accordance with new statistical policy implemented by the National Center for Health Statistics. The new population standard affects measurement

⁹Kochanek KD, Smith BL, Anderson RN. *Deaths: Preliminary Data for 1999*. National Vital Statistics Reports; Vol. 49, No. 3. Hyattsville, Maryland: National Center for Health Statistics, 2001.

¹⁰World Health Organization. *International Statistical Classification of Diseases and Related Health Problems. Tenth Revision*. Geneva: World Health Organization, 1992.

¹¹Rosenberg 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 Publication No. (PHS) 99-1328, September 1999.

of mortality trends and group comparisons. Of particular note are the effects on race comparison of mortality.¹² Age-adjusted rates presented in this report are not comparable to rates calculated with different population standards.

In addition, the population data used to calculate the crude rates in **Table 3** (page 7) differ from the population data used to calculate the crude rates in **Table 2** (page 11). Consequently, caution should be exercised when comparing the crude rates among the three health jurisdictions with the rates among the 58 California counties. Age-adjusted rates for city health jurisdictions were not calculated.

For a more complete explanation of the age-adjustment methodology used in this report, see the "Healthy People 2010 Statistical Notes" publication.⁷ Detailed information on data quality and limitations is presented in the appendix of the annual report "Vital Statistics of California."¹³ Formulas used to calculate death rates are included in the technical notes of the "County Health Status Profiles" report.¹⁴

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¹²Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National Vital Statistics Reports; Vol. 47, No.3. Hyattsville, Maryland: National Center for Health Statistics. 1998.

¹³Ficenec S, Bindra K, Christensen J. *Vital Statistics of California, 2001*. Center for Health Statistics, California Department of Health Services, April 2004.

¹⁴Shippen S, Wilson C. *County Health Status Profiles 2004*. Center for Health Statistics, California Department of Health Services, April 2004.

TABLE 2
DEATHS DUE TO SUICIDE
CALIFORNIA COUNTIES, 2000-2002
(By Place of Residence)

COUNTY	2000-2002 DEATHS (AVERAGE)	PERCENT	2001 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
						LOWER	UPPER
CALIFORNIA	3,193.0	100.0	35,233,335	9.1	9.5	9.1	9.8
ALAMEDA	117.0	3.7	1,492,004	7.8	8.0	6.6	9.5
ALPINE	0.3	a	1,268	26.3 *	27.5 *	0.0	120.9
AMADOR	5.7	0.2	35,242	16.1 *	15.6 *	2.4	28.8
BUTTE	34.0	1.1	213,040	16.0	15.3	10.1	20.5
CALAVERAS	6.3	0.2	43,392	14.6 *	13.8 *	2.7	24.9
COLUSA	3.0	0.1	22,012	13.6 *	15.3 *	0.0	32.9
CONTRA COSTA	85.0	2.7	942,662	9.0	9.0	7.1	10.9
DEL NORTE	6.3	0.2	31,801	19.9 *	19.8 *	4.3	35.4
EL DORADO	22.0	0.7	168,912	13.0	12.9	7.5	18.3
FRESNO	63.7	2.0	825,365	7.7	8.4	6.3	10.5
GLENN	6.3	0.2	30,291	20.9 *	19.8 *	4.2	35.5
HUMBOLDT	26.3	0.8	129,211	20.4	19.9	12.3	27.5
IMPERIAL	8.7	0.3	161,177	5.4 *	6.3 *	2.0	10.5
INYO	4.3	0.1	18,510	23.4 *	20.3 *	0.6	40.1
KERN	69.0	2.2	694,749	9.9	10.9	8.3	13.5
KINGS	10.7	0.3	129,375	8.2 *	8.7 *	3.3	14.1
LAKE	14.3	0.4	62,080	23.1 *	20.2 *	9.1	31.2
LASSEN	7.0	0.2	36,759	19.0 *	19.7 *	4.9	34.4
LOS ANGELES	733.3	23.0	9,925,413	7.4	7.9	7.3	8.5
MADERA	11.7	0.4	131,052	8.9 *	9.8 *	4.1	15.4
MARIN	33.3	1.0	249,634	13.4	12.8	8.4	17.2
MARIPOSA	1.7	0.1	17,218	9.7 *	7.0 *	0.0	18.0
MENDOCINO	14.3	0.4	91,963	15.6 *	15.0 *	7.2	22.9
MERCED	18.3	0.6	219,936	8.3 *	9.7 *	5.2	14.3
MODOC	0.7	a	10,589	6.3 *	7.1 *	0.0	24.2
MONO	1.3	a	11,081	12.0 *	11.5 *	0.0	31.2
MONTEREY	27.3	0.9	409,511	6.7	7.2	4.5	9.9
NAPA	11.0	0.3	129,130	8.5 *	7.7 *	3.1	12.3
NEVADA	17.7	0.6	99,670	17.7 *	15.5 *	7.9	23.2
ORANGE	237.3	7.4	2,872,632	8.3	8.8	7.7	10.0
PLACER	32.0	1.0	252,688	12.7	12.8	8.4	17.3
PLUMAS	3.7	0.1	21,044	17.4 *	17.9 *	0.0	37.1
RIVERSIDE	168.3	5.3	1,626,134	10.4	10.8	9.2	12.5
SACRAMENTO	137.3	4.3	1,236,054	11.1	11.4	9.5	13.3
SAN BENITO	3.3	0.1	53,577	6.2 *	6.5 *	0.0	13.6
SAN BERNARDINO	165.7	5.2	1,771,707	9.4	10.6	8.9	12.2
SAN DIEGO	318.3	10.0	3,005,038	10.6	11.5	10.2	12.8
SAN FRANCISCO	93.3	2.9	794,342	11.7	10.9	8.6	13.1
SAN JOAQUIN	57.7	1.8	593,538	9.7	10.2	7.5	12.8
SAN LUIS OBISPO	35.0	1.1	262,123	13.4	13.6	9.0	18.2
SAN MATEO	48.3	1.5	759,313	6.4	6.3	4.5	8.0
SANTA BARBARA	46.3	1.5	417,331	11.1	11.3	8.1	14.6
SANTA CLARA	122.7	3.8	1,795,132	6.8	7.1	5.8	8.3
SANTA CRUZ	31.7	1.0	264,525	12.0	12.0	7.8	16.2
SHASTA	34.0	1.1	179,892	18.9	18.8	12.4	25.2
SIERRA	0.7	a	3,465	19.2 *	19.4 *	0.0	67.7
SISKIYOU	9.0	0.3	45,624	19.7 *	19.5 *	6.3	32.7
SOLANO	39.0	1.2	408,095	9.6	10.5	7.1	13.9
SONOMA	51.0	1.6	468,682	10.9	10.4	7.5	13.3
STANISLAUS	41.7	1.3	472,096	8.8	9.3	6.5	12.2
SUTTER	11.7	0.4	83,999	13.9 *	14.2 *	6.0	22.3
TEHAMA	11.0	0.3	57,642	19.1 *	17.2 *	6.8	27.6
TRINITY	3.0	0.1	13,605	22.1 *	22.6 *	0.0	49.4
TULARE	26.7	0.8	388,730	6.9	7.7	4.8	10.7
TUOLUMNE	9.3	0.3	57,497	16.2 *	14.1 *	4.8	23.3
VENTURA	69.0	2.2	763,586	9.0	9.5	7.2	11.7
YOLO	17.0	0.5	167,259	10.2 *	11.3 *	5.8	16.8
YUBA	8.3	0.3	64,938	12.8 *	14.7 *	4.7	24.7

Note: ICD-10 codes U03, X60-X84, Y87.0; rates are per 100,000 population.

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

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

Source: State of California, Department of Finance, 2002 Population Projections with Age, Sex, and Race/Ethnic Detail, December, 1998.
State of California, Department of Health Services, Death Records.