



CENTER FOR HEALTH STATISTICS  
**DATA SUMMARY**

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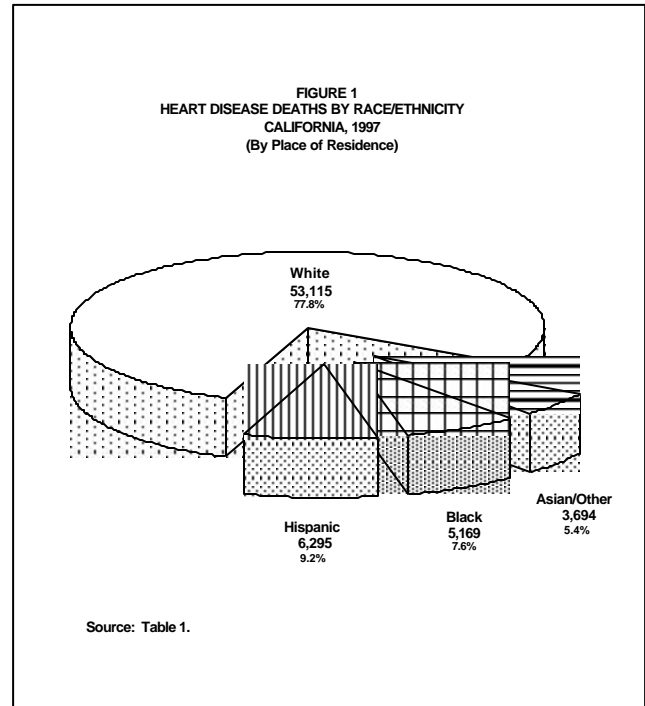
**HEART DISEASE  
DEATHS, CALIFORNIA  
1997**

### Introduction

Heart disease has historically been the leading cause of death in the United States and in California. In the United States an estimated 12 million people have coronary heart disease; the morbidity and mortality related cost of this disease is estimated at \$183.1 billion for 1999.<sup>1</sup> This report presents data on heart disease deaths during 1997, and provides analysis of crude and age-adjusted death rates for California residents by sex, age, race/ethnicity, and county. The definition of heart disease used in this report is based on the ICD-9 codes 390-398, 402, 404-429 traditionally presented in National Center for Health Statistics reports.<sup>2</sup>

### Heart Disease Deaths

**Table 1** (page 5) displays heart disease death data for 1997 by the four major race/ethnic groups, by age group, and by sex. Heart disease deaths occur predominantly among the older population, and this held true in 1997 with 84 percent of all heart disease deaths involving people 65 years and older. This age group, within each respective race/ethnic group, accounted for 87 percent of all deaths among Whites, 81 percent of deaths among Asian/Other, 75 percent of deaths among Hispanics, and 68 percent of deaths among Blacks. During this period, the number of deaths attributed to heart disease was slightly higher among females (34,520) than among males (33,753). As shown in **Figure 1**, the number of heart disease deaths among Whites (53,115) was much higher than Hispanics (6,295), Blacks (5,169), and Asian/Other (3,694).



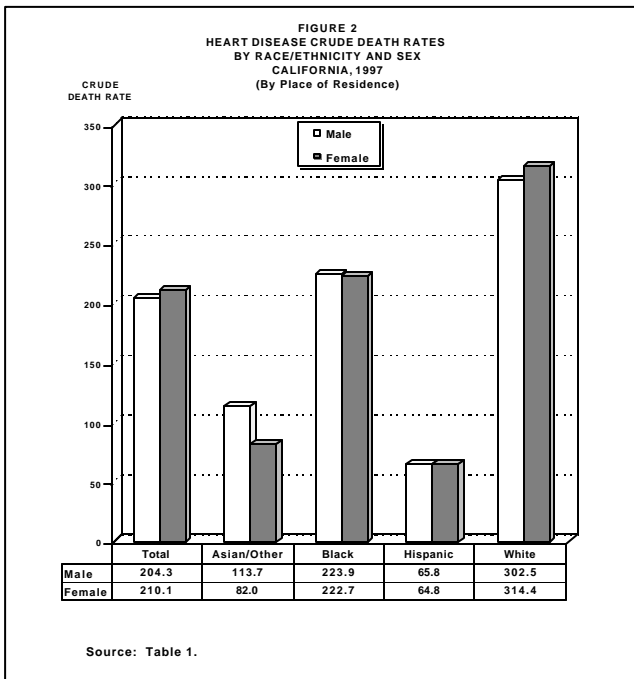
### Heart Disease Crude Death Rates

The overall heart disease crude death rate declined slightly from 209.0 deaths per 100,000 population in 1996 to 207.2 in 1997. As shown in **Table 1** (page 5), Whites had the highest crude death rate in 1997, a rate of 308.5. Blacks were next with a crude rate of 223.3. Asian/Other and Hispanics were last with rates of 97.6 and 65.3 respectively. **Figure 2** (page 2) shows that among the sexes, within each race/ethnic group, only Asian/Other and White had statistically significant differences in their crude death rates. Asian/Other males had a crude rate of 113.7 and Asian/Other females had a rate of 82.0. Among Whites, females had a rate of 314.4 and males had a rate of 302.5.

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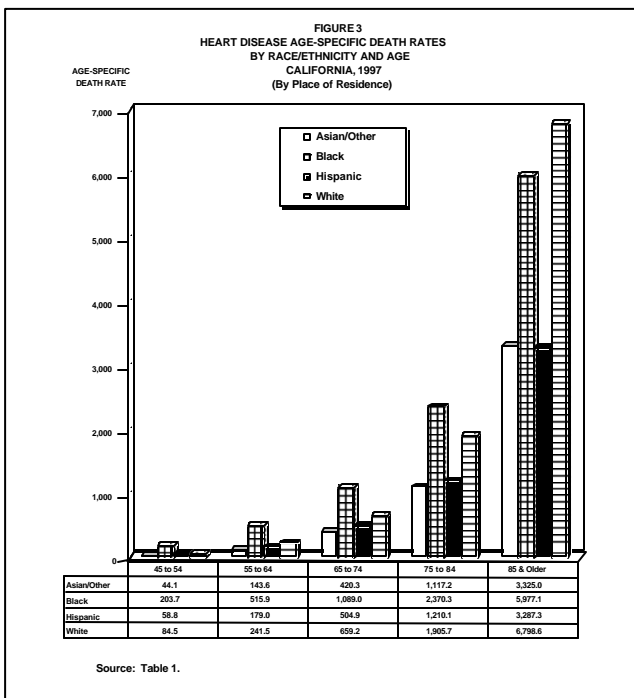
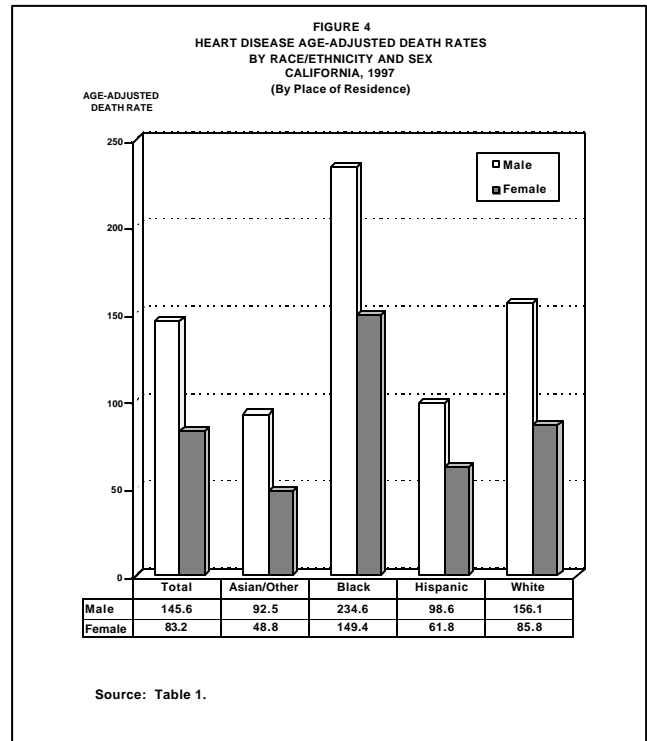
## Heart Disease Age-Adjusted Death Rates

In 1997 the United States heart disease age-adjusted death rate (130.5) was higher than the California rate (111.7).<sup>3</sup> A comparison among the races shows that Blacks had an age-adjusted death rate (187.2) significantly higher than Whites (117.8), Hispanics (79.0), or Asian/Other (68.5). As shown in **Figure 4**, the death rate for males was significantly higher than for females in all four of the race/ethnic groups.



## Heart Disease Age-Specific Death Rates

In **Table 1** (page 5) reliable age-specific rates show that males in all four race/ethnic groups consistently had higher rates than females, except for Black males age 85 and over. **Table 1** also shows that Blacks had higher age-specific death rates than the other three race/ethnic groups, except in the 85 & older group where Whites had the highest rate. **Figure 3** graphically shows this pattern of higher age-specific death rates for Blacks in the age groups 45 to 54, 55 to 64, 65 to 74, and 75 to 84 years.



## Heart Disease Death Data for California Counties

**Table 2** (page 6) displays the number of deaths, crude death rates, and age-adjusted death rates by county averaged over a three-year period, 1995 to 1997. This averaging is done to reduce the large fluctuations in the death rates that are inherent among counties with a small number of events and/or population.

The highest average number of heart disease deaths occurred in Los Angeles County (19,695.7) and the lowest in Alpine County (1.3).

The highest and lowest reliable crude death rates due to heart disease were in Inyo County (428.0 per 100,000 population) and San Benito County (132.6), respectively.

## Heart Disease Death Data for California Counties (continued)

The rankings for age-adjusted death rates due to heart disease were Kings County with the highest reliable age-adjusted death rate (145.9 per 100,000 population) and San Benito County with the lowest (69.3).

## Heart Disease Death Data by Local Health Jurisdiction

**Table 3** displays the number of deaths, crude death rates, and age-adjusted death rates for California's three local health jurisdictions averaged over a three-year period, 1995 to 1997.

The city of Long Beach had 1,166.3 heart disease deaths, Pasadena had 418.7 heart disease deaths, and Berkeley had 198.3 heart disease deaths.

Pasadena had a heart disease crude death rate of 305.2 deaths per 100,000 population, Long Beach had a crude rate of 266.3, and Berkeley had a crude rate of 189.4.

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

**TABLE 3  
DEATHS DUE TO HEART DISEASE  
AMONG THE LOCAL HEALTH JURISDICTIONS  
CALIFORNIA, 1995-1997  
(By Place of Residence)**

LOCAL HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	1996 POPULATION	CRUDE DEATH RATE
BERKELEY	198.3	104,700	189.4
LONG BEACH	1,166.3	437,900	266.3
PASADENA	418.7	137,200	305.2

Note: Rates are per 100,000 population; ICD-9 codes 390-398, 402, 404-429.

Source: State of California, Department of Finance, Report Hist E-4, 1996 Historical Estimates of California Cities and Counties, May 1999. State of California, Department of Health Services, Death records.

## Technical Notes

The heart disease death data presented in this report are ICD-9 codes 390-398, 402, 404-429.

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. 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 as a tool for measuring the reliability of the death rates. Rates with a relative standard error (coefficient of variation) greater than or equal to 23 percent are indicated with an "\*" (asterisk).

The four race/ethnic groups presented in the tables 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, Vietnamese, Other Pacific Islander, Samoan, Thai, and Laotian. 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.<sup>4</sup>

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.

## Technical Notes (continued)

Crude death rates, on the other hand, show the actual rate of dying in a given population, but the age composition of that population is not taken into consideration. Therefore, the use of age-adjusted death rates becomes the preferred method for measuring death rates over time, and for comparing death rates between race/ethnic groups, sex, and geographic areas. The 1940 United States (standard million) population was used as the basis for age-adjusting in this report.

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.

For a more complete explanation of the age-adjusting methodology see the *Healthy People 2000 Statistical Notes* publication.<sup>5</sup> 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*.<sup>6</sup> Another source of information is the Department of Health Services, Center for Health Statistics Home Page [[www.dhs.ca.gov/org/hisp/chs/chsindex.htm](http://www.dhs.ca.gov/org/hisp/chs/chsindex.htm)].

## References:

1. American Heart Association. *1999 Heart and Stroke Statistical Update*. Dallas, Tex.: American Heart Association, 1998.
2. National Center for Health Statistics, Births and Deaths: United States, 1996, *Monthly Vital Statistics Report*, DHHS Pub. No. (PHS) 97-1120, Supplement 2, September 1997; Vol. 46, No. 1, pp. 24-25.
3. National Center for Health Statistics, Births and Deaths: Final Data for 1997, *National Vital Statistics Reports*, DHHS Pub. No. (PHS) 99-1120, 9-0472, June 1999; Vol. 47, No. 19, pp. 24-26.
4. 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.
5. Curtin LR, Klein RJ. Direct Standardization (Age-Adjusted Death Rates), *Healthy People 2000 Statistical Notes*, No. 6 – Revised, National Center for Health Statistics, DHHS Pub. No. (PHS) 95-1237, March 1995.
6. Riedmiller K, Harms C. *Vital Statistics of California, 1996*. Center for Health Statistics, California Department of Health Services, September 1998.



TABLE 2  
DEATHS DUE TO HEART DISEASE BY COUNTY  
CALIFORNIA, 1995-1997  
(By Place of Residence)

COUNTY	1995-1997 DEATHS (Average)	PERCENT	1996 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
						LOWER	UPPER
CALIFORNIA	67,979.7	100.0	32,383,811	209.9	115.1	114.1	116.1
ALAMEDA	2,856.7	4.2	1,365,041	209.3	115.1	110.3	119.9
ALPINE	1.3	a	1,194	111.7 *	90.5 *	0.0	246.5
AMADOR	117.0	0.2	32,925	355.4	120.9	94.7	147.1
BUTTE	553.3	0.8	196,522	281.6	100.4	89.5	111.2
CALAVERAS	102.3	0.2	36,881	277.5	103.8	79.8	127.8
COLUSA	42.3	0.1	18,197	232.6	115.5	74.5	156.4
CONTRA COSTA	1,748.7	2.6	877,965	199.2	100.4	95.2	105.7
DEL NORTE	69.0	0.1	27,527	250.7	129.5	93.6	165.4
EL DORADO	284.0	0.4	144,710	196.3	95.3	83.0	107.5
FRESNO	1,537.0	2.3	769,709	199.7	115.2	108.5	121.9
GLENN	58.7	0.1	26,699	219.7	94.2	64.9	123.4
HUMBOLDT	304.7	0.4	125,100	243.5	117.7	102.4	133.0
IMPERIAL	242.0	0.4	141,229	171.4	119.8	102.9	136.6
INYO	78.0	0.1	18,225	428.0	136.5	98.5	174.5
KERN	1,419.7	2.1	624,092	227.5	137.9	129.8	146.0
KINGS	218.7	0.3	115,774	188.9	145.9	124.6	167.2
LAKE	209.0	0.3	54,884	380.8	139.0	114.8	163.2
LASSEN	49.0	0.1	32,631	150.2	94.0	65.0	123.0
LOS ANGELES	19,695.7	29.0	9,396,389	209.6	126.1	124.1	128.0
MADERA	217.3	0.3	110,298	197.0	105.6	89.5	121.6
MARIN	486.7	0.7	239,630	203.1	85.5	76.8	94.2
MARIPOSA	45.3	0.1	15,965	284.0	104.1	66.4	141.9
MENDOCINO	224.3	0.3	84,817	264.5	117.2	99.5	134.9
MERCED	350.3	0.5	198,390	176.6	119.4	105.6	133.2
MODOC	28.0	a	10,028	279.2	108.4 *	57.0	159.9
MONO	12.3	a	10,565	116.7 *	79.2 *	31.6	126.8
MONTEREY	599.3	0.9	360,253	166.4	92.1	83.7	100.5
NAPA	360.7	0.5	118,949	303.2	102.4	89.3	115.6
NEVADA	205.0	0.3	87,001	235.6	74.7	62.3	87.1
ORANGE	5,027.3	7.4	2,649,846	189.7	109.9	106.6	113.2
PLACER	433.7	0.6	209,167	207.3	96.7	86.4	107.0
PLUMAS	59.0	0.1	20,239	291.5	106.5	74.8	138.2
RIVERSIDE	3,706.7	5.5	1,393,289	266.0	126.5	121.6	131.4
SACRAMENTO	2,451.3	3.6	1,132,189	216.5	123.0	117.6	128.4
SAN BENITO	58.3	0.1	44,008	132.6	69.3	48.9	89.6
SAN BERNARDINO	3,321.0	4.9	1,592,711	208.5	145.3	139.8	150.7
SAN DIEGO	5,441.7	8.0	2,694,956	201.9	109.3	105.9	112.7
SAN FRANCISCO	2,042.3	3.0	768,263	265.8	104.9	99.4	110.5
SAN JOAQUIN	1,224.0	1.8	533,177	229.6	124.2	116.1	132.3
SAN LUIS OBISPO	612.0	0.9	230,691	265.3	105.9	95.6	116.3
SAN MATEO	1,424.0	2.1	698,042	204.0	90.8	85.4	96.2
SANTA BARBARA	864.0	1.3	393,716	219.4	97.4	89.6	105.2
SANTA CLARA	2,582.7	3.8	1,638,352	157.6	95.9	91.9	99.9
SANTA CRUZ	501.3	0.7	243,657	205.8	93.7	83.8	103.6
SHASTA	438.7	0.6	161,688	271.3	118.2	105.6	130.8
SIERRA	8.0	a	3,401	235.2 *	62.9 *	7.3	118.4
SISKIYOU	144.7	0.2	43,945	329.2	125.0	100.1	149.8
SOLANO	591.3	0.9	372,493	158.8	114.2	104.4	124.0
SONOMA	1,013.7	1.5	424,481	238.8	100.1	92.6	107.5
STANISLAUS	979.3	1.4	418,455	234.0	132.7	123.2	142.2
SUTTER	168.0	0.2	74,591	225.2	111.3	92.2	130.4
TEHAMA	166.0	0.2	54,353	305.4	117.2	95.7	138.8
TRINITY	31.7	a	13,328	237.6	103.1	62.6	143.7
TULARE	826.7	1.2	353,645	233.8	135.1	124.4	145.8
TUOLUMNE	146.7	0.2	51,583	284.3	101.0	81.4	120.7
VENTURA	1,213.7	1.8	714,845	169.8	94.0	88.1	99.9
YOLO	253.3	0.4	152,535	166.1	102.6	88.3	116.9
YUBA	132.3	0.2	60,575	218.5	144.5	117.1	171.9

Note : Rates are per 100,000 population. ICD-9 codes 390-398, 402, 404-429.

\* 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, 1970-1996, December 1998.

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