



CENTER FOR HEALTH STATISTICS
DATA SUMMARY

REPORT REGISTER NO.
(August 1998)

**CEREBROVASCULAR
DISEASE DEATHS,
CALIFORNIA, 1980-1996**

Introduction

Cerebrovascular disease has historically been one of the leading causes of death in the United States and in California. This report focuses on trends in cerebrovascular disease deaths during the period 1980 through 1996, and provides analysis of trend data on crude and age-adjusted death rates for California residents by sex, age, race/ethnicity, and county. Cerebrovascular disease death codes (ICD-9 codes 430-438) as used in this report are based on the cerebrovascular disease group traditionally presented in the National Center for Health Statistic's *Monthly Vital Statistics Report*.¹ These codes are also used in the national health objectives defined by the *Healthy People 2000* goals as they pertain to cerebrovascular disease.² Where a statistically significant trend was found in the age-adjusted death rates, linear regression was applied to ascertain whether or not California will meet the related year 2000 national health objective.

Cerebrovascular Disease Deaths, Crude and Age-Adjusted Death Rates by Sex

As shown in Table 1 (page 5), there was no significant trend in the total number of cerebrovascular disease deaths from 1980 (16,694) to 1996 (16,481). The average number of deaths among females (9,486.9) was 35% higher than the average number of deaths among males (6,140.8) for the 17-year period.

The overall crude death rate (Table 1) declined significantly during the time span of this report. Crude rates ranged from a high of 70.2 per 100,000 population in 1980 down to a low of 48.2 in 1993, a 31% drop, though in the following three years the rate increased 5% to 50.9 in 1996. Analysis of the data by sex shows that in 1980 the crude death rate for females (84.8) was significantly higher than for males (55.2), a difference of 35%. In 1996 the crude death rate for females (61.2) was still significantly higher than for males (40.6), with a 34% difference between the rates. From 1980 to 1996 the crude death rate declined 26% for males and 28% for females.

Differences between crude death rates and age-adjusted death rates for males and females can be attributed to the life expectancy and age distribution of their respective population groups. After age-adjusting death rates for males and females, the higher crude death rate for females is reversed, with males assuming the higher age-adjusted rate. In 1996 the United States age-adjusted cerebrovascular disease death rate (26.5) was slightly higher than the California rate (26.0).³ As shown in Figure 1 (page 1), California's age-adjusted death rate declined from 39.9 in 1980 down to 26.0 in 1996, a 35% drop. Regression analysis indicates this was a statistically significant decline. Among the sexes, male age-adjusted death rates were consistently greater than female rates, with the differences ranging from a high of 14% in 1995 to a low of 5% in 1981, and a 10% average differential overall. For the 17-year period, age-adjusted rates declined 34% for males and 36% for females. These declines were both statistically significant.

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Using linear regression analysis, if the past downward trend continues, California will likely meet the objective defined by *Healthy People 2000* of no more than 20 age-adjusted cerebrovascular disease deaths per 100,000 population in the year 2000.

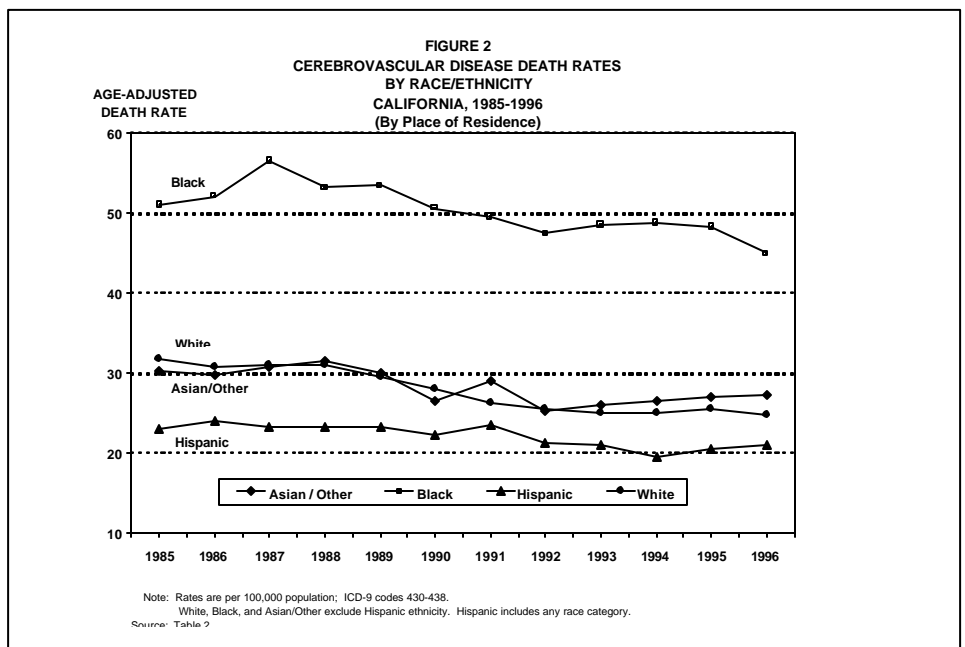
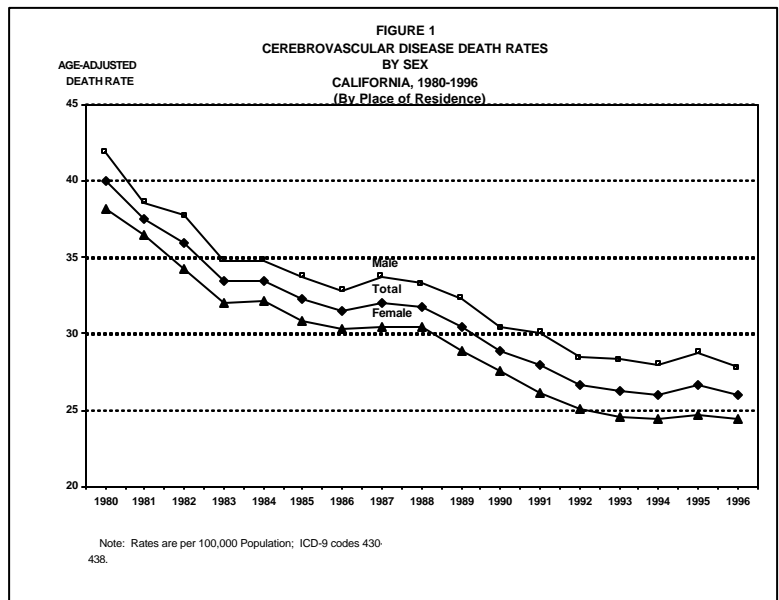
Cerebrovascular Disease Deaths, Crude and Age-Adjusted Death Rates by Race/Ethnicity

Table 2 (page 6) shows cerebrovascular disease death data by the four major race/ethnic groups from 1985 to 1996. During this period, the average number of cerebrovascular disease deaths among Whites (12,268.0) was approximately ten times higher than Hispanics (1,228.0), 10.6 times higher than Blacks (1,162.6) and 13.0 times higher than Asian/Other (942.1).

Table 2 also shows that the crude death rate for Asian/Other increased by 20%, from 29.4 per 100,000 population in 1985 up to 36.9 in 1996. The crude death rate for Whites decreased by 8% from 77.9 in 1985 down to 72.0 in 1996. Both trends were statistically significant. There was no significant trend in the crude rates among the Black or the Hispanic groups. The highest crude death rate for Whites occurred in 1985 (77.9), for Blacks in 1987 (58.8) and for Asian/Other (36.9) and Hispanics (17.0) in 1996.

As illustrated in Figure 2, from 1985 to 1996 the age-adjusted death rates among all four race/ethnic groups declined by 9% or more. Regression analysis showed all of the declines to be statistically significant. The highest age-adjusted death rate for Blacks (56.5) occurred in 1987, for Whites (31.9) in 1985, for Asian/Other (31.4) in 1988, and for Hispanics (23.9) in 1986. The lowest age-adjusted death rate for Blacks (44.9) and for Whites (24.8) occurred in 1996, for Asian/Other (25.4) in 1992, and for Hispanics (19.6) in 1994. In all years Blacks have consistently had higher age-adjusted death rates than the other three race/ethnic groups. Even at its lowest point in 1996 the Black rate of 44.9 was 64% higher than the next highest race/ethnic group, Asian/Other with a rate of 27.4.

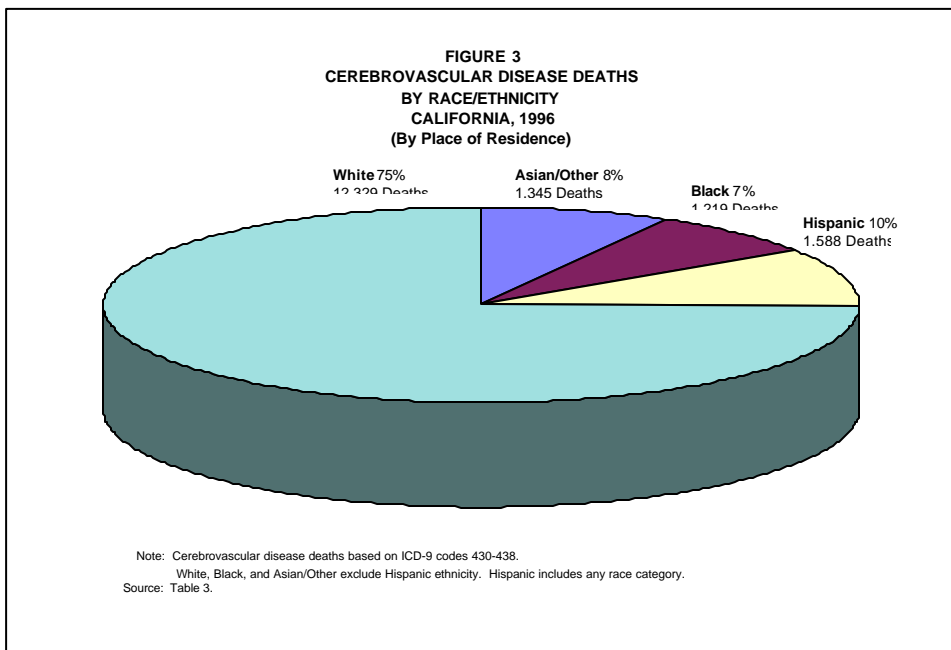
In noting the difference in age-adjusted cerebrovascular disease death rates between Blacks and other ethnic groups, *Healthy People 2000* created a special population target objective to emphasize this disparity. This special objective is an age-adjusted rate of no more than 27.0 cerebrovascular disease deaths per 100,000 in the Black population by the year 2000. Using linear regression analysis, California will not meet the *Healthy People 2000* objective if past trends continue.



Cerebrovascular Disease Death Rates by Age, Race/Ethnicity, and Sex, 1996

Table 3 (page 7) shows cerebrovascular disease death data by the four major race/ethnic groups, by age group, and by sex for 1996. Since cerebrovascular disease deaths occur predominantly among the elderly, it's not surprising that in 1996 72% of these deaths involved people 75 years of age and older. As shown in Figure 3, the number of cerebrovascular disease deaths among Whites (12,329) was 7.8 times higher than Hispanics (1,588), 9.2 times higher than Asian/Other (1,345) and 10.1 times higher than Blacks (1,219).

Figure 4 shows Black males had the highest age-adjusted death rate, 51.1 per 100,000 population, in 1996. This was significantly higher than male rates in the other three race/ethnic groups. Asian/Other males had a rate of 30.1, White males had a rate of 26.1, and Hispanic males had a rate of 23.2. The age-adjusted death rates for males were higher, by 10% or more, than for females in the corresponding race/ethnic groups. Black females had an age-adjusted death rate of 40.4, a rate significantly higher than both females and males in the other three race/ethnic groups. Asian/Other females had a rate of 25.1, White females had a rate of 23.5, and Hispanic females had a rate of 19.0.



In Table 3 (page 7) reliable age-specific rates showed that males in all four race/ethnic groups consistently had higher rates than females, except for Hispanic males age 25 to 34 and 85 & over, and White males age 85 & older. One notable pattern is the age-specific cerebrovascular disease death rate among Blacks. In 1996 Blacks in the age group 35 to 44 were 4.4 times more likely to die from cerebrovascular disease than Whites. This pattern continued through the 75 to 84 age group and though the difference declined, the death rate was still 1.4 times higher for Blacks.

Figure 5 graphically shows this pattern of higher age-specific death rates for Blacks in the age groups 55 to 64, 65 to 74 and 75 to 84 years. The difference between Blacks and the other race/ethnic groups was statistically significant for all three age groups. In the 85 and older age group, Whites had a rate significantly higher than Blacks, Asian/Other, and Hispanics.

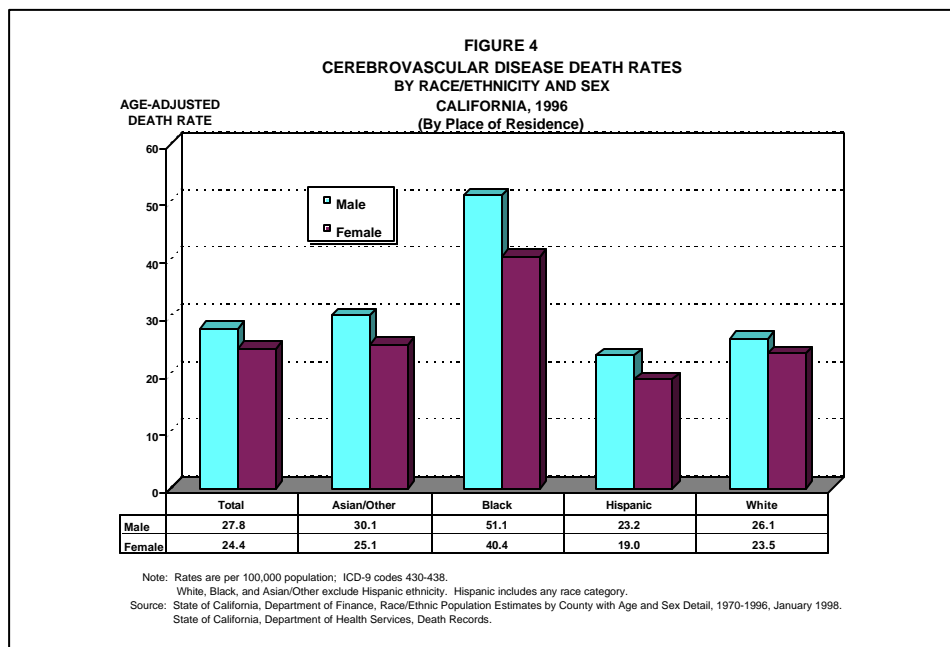
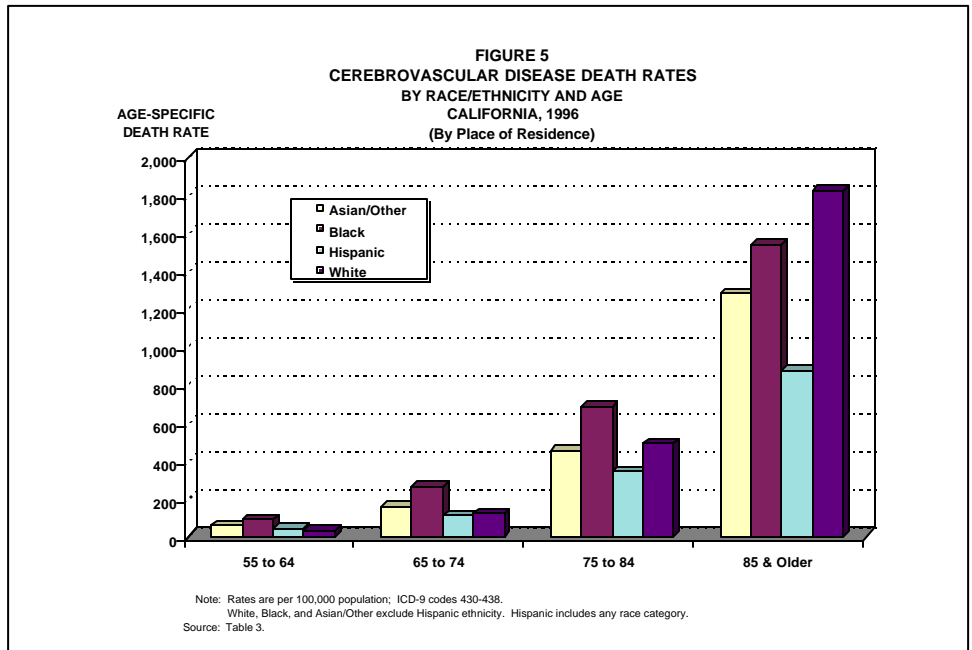


Figure 5 also shows that in the 55 to 64 age group, Whites had the lowest age-specific death rate though it was not significantly different from the Hispanic rate. Hispanics had the lowest age-specific death rate among the age groups 65 to 74, 75 to 84, and 85 & older, but there was no statistically significant difference between the rate for Hispanics and the rate for Whites in the 65 to 74 age group.

Cerebrovascular Disease Death Rates among California Counties

Table 4 (page 8) displays the number of deaths, crude death rates, and age-adjusted death rates by county averaged over a three-year period, 1994 to 1996. 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 cerebrovascular disease deaths occurred in Los Angeles County (4,109.0) and the lowest in Alpine County (0.0).



The highest and lowest reliable cerebrovascular disease crude death rates were Lake County (141.9 per 100,000 population) and San Bernardino County (40.6); Lake County was higher by a magnitude of 3.5 to 1.

Lake County also had the highest reliable age-adjusted cerebrovascular disease death rate (35.5); this was 2 times higher than San Benito County, which had the lowest reliable age-adjusted death rate (18.2).

As of 1996, of the 50 California counties with reliable rates, only San Benito County (18.2) met the year 2000 goal of no more than 20.0 age-adjusted cerebrovascular disease deaths per 100,000 population.

TABLE 1
DEATHS DUE TO CEREBROVASCULAR DISEASE
BY SEX
CALIFORNIA, 1980-1996
(By Place of Residence)

SEX	EVENT YEAR	DEATHS	POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS LOWER	UPPER
TOTAL							
	1996	16,481	32,383,811	50.9	26.0	25.6	26.5
	1995	16,176	32,062,912	50.5	26.6	26.2	27.1
	1994	15,703	31,790,557	49.4	26.1	25.6	26.5
	1993	15,195	31,515,753	48.2	26.3	25.8	26.8
	1992	15,111	31,186,559	48.5	26.7	26.2	27.1
	1991	15,350	30,563,276	50.2	27.9	27.4	28.4
	1990	15,462	29,942,397	51.6	28.9	28.4	29.4
	1989	15,725	29,142,106	54.0	30.5	30.0	31.0
	1988	15,994	28,393,094	56.3	31.8	31.2	32.3
	1987	15,714	27,716,860	56.7	32.0	31.4	32.5
	1986	15,075	27,052,291	55.7	31.5	31.0	32.1
	1985	15,222	26,402,633	57.7	32.3	31.7	32.8
	1984	15,368	25,816,294	59.5	33.5	32.9	34.1
	1983	14,939	25,336,301	59.0	33.4	32.9	34.0
	1982	15,605	24,805,011	62.9	35.9	35.3	36.6
	1981	15,858	24,277,674	65.3	37.6	36.9	38.2
	1980	16,694	23,780,068	70.2	39.9	39.2	40.6
MALE							
	1996	6,593	16,227,924	40.6	27.8	27.1	28.5
	1995	6,551	16,062,552	40.8	28.7	28.0	29.5
	1994	6,282	15,921,009	39.5	27.9	27.2	28.7
	1993	6,132	15,782,166	38.9	28.3	27.6	29.1
	1992	6,020	15,616,376	38.5	28.4	27.7	29.2
	1991	6,163	15,301,183	40.3	30.1	29.3	30.8
	1990	6,029	14,989,516	40.2	30.4	29.6	31.2
	1989	6,169	14,573,988	42.3	32.3	31.4	33.1
	1988	6,248	14,181,700	44.1	33.3	32.4	34.2
	1987	6,200	13,825,118	44.8	33.7	32.9	34.6
	1986	5,871	13,474,197	43.6	32.8	31.9	33.7
	1985	5,893	13,130,674	44.9	33.8	32.9	34.7
	1984	5,903	12,818,768	46.0	34.8	33.9	35.7
	1983	5,767	12,559,834	45.9	34.8	33.9	35.8
	1982	6,060	12,275,613	49.4	37.7	36.8	38.7
	1981	6,046	11,993,514	50.4	38.6	37.6	39.6
	1980	6,467	11,722,769	55.2	41.9	40.8	42.9
FEMALE							
	1996	9,888	16,155,887	61.2	24.4	23.9	25.0
	1995	9,625	16,000,360	60.2	24.7	24.2	25.3
	1994	9,421	15,869,548	59.4	24.4	23.8	25.0
	1993	9,063	15,733,587	57.6	24.6	24.0	25.2
	1992	9,091	15,570,183	58.4	25.1	24.5	25.7
	1991	9,187	15,262,093	60.2	26.1	25.5	26.8
	1990	9,433	14,952,881	63.1	27.5	26.9	28.2
	1989	9,556	14,568,118	65.6	28.9	28.2	29.5
	1988	9,746	14,211,394	68.6	30.4	29.7	31.1
	1987	9,514	13,891,742	68.5	30.4	29.7	31.1
	1986	9,204	13,578,094	67.8	30.3	29.5	31.0
	1985	9,329	13,271,959	70.3	30.8	30.0	31.5
	1984	9,465	12,997,526	72.8	32.1	31.4	32.9
	1983	9,172	12,776,467	71.8	32.1	31.3	32.8
	1982	9,545	12,529,398	76.2	34.2	33.4	35.0
	1981	9,812	12,284,160	79.9	36.5	35.7	37.3
	1980	10,227	12,057,299	84.8	38.2	37.4	39.1

Note : Rates are per 100,000 population; ICD-9 codes 430-438.

Source : State of California, Department of Finance, Race/Ethnic Population Estimates by County with Age and Sex Detail, 1970-1996, January 1998.
State of California, Department of Health Services, Death Records.

TABLE 2
DEATHS DUE TO CEREBROVASCULAR DISEASE
BY RACE/ETHNICITY
CALIFORNIA, 1985-1996
(By Place of Residence)

RACE/ ETHNICITY	EVENT YEAR	DEATHS	POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS LOWER	UPPER
ASIAN/OTHER							
	1996	1,345	3,645,998	36.9	27.4	25.8	28.9
	1995	1,234	3,530,931	34.9	26.9	25.3	28.5
	1994	1,152	3,429,125	33.6	26.6	25.0	28.2
	1993	1,046	3,323,013	31.5	26.2	24.5	27.8
	1992	947	3,209,399	29.5	25.4	23.7	27.0
	1991	992	3,068,424	32.3	29.0	27.1	30.8
	1990	842	2,930,570	28.7	26.6	24.8	28.5
	1989	864	2,774,167	31.1	30.1	28.1	32.1
	1988	835	2,616,586	31.9	31.4	29.3	33.6
	1987	744	2,465,134	30.2	30.8	28.5	33.0
	1986	670	2,313,141	29.0	29.8	27.5	32.1
	1985	634	2,158,886	29.4	30.4	28.0	32.8
BLACK							
	1996	1,219	2,275,401	53.6	44.9	42.3	47.6
	1995	1,247	2,250,502	55.4	48.3	45.5	51.2
	1994	1,238	2,232,841	55.4	48.7	45.9	51.6
	1993	1,197	2,214,376	54.1	48.5	45.6	51.4
	1992	1,150	2,192,451	52.5	47.5	44.6	50.3
	1991	1,174	2,147,691	54.7	49.5	46.6	52.5
	1990	1,164	2,105,207	55.3	50.6	47.6	53.7
	1989	1,169	2,061,823	56.7	53.5	50.3	56.7
	1988	1,148	2,024,779	56.7	53.2	50.0	56.4
	1987	1,172	1,992,361	58.8	56.5	53.2	59.9
	1986	1,057	1,958,844	54.0	52.1	48.9	55.4
	1985	1,016	1,923,209	52.8	51.0	47.8	54.3
HISPANIC							
	1996	1,588	9,330,740	17.0	21.0	19.9	22.1
	1995	1,453	9,100,994	16.0	20.5	19.4	21.6
	1994	1,318	8,882,966	14.8	19.6	18.4	20.7
	1993	1,325	8,658,118	15.3	21.0	19.8	22.2
	1992	1,278	8,421,133	15.2	21.3	20.1	22.6
	1991	1,337	8,097,870	16.5	23.5	22.2	24.9
	1990	1,191	7,774,789	15.3	22.4	21.1	23.7
	1989	1,151	7,419,574	15.5	23.2	21.8	24.6
	1988	1,101	7,077,579	15.6	23.3	21.9	24.8
	1987	1,047	6,754,398	15.5	23.3	21.8	24.8
	1986	1,004	6,428,436	15.6	23.9	22.4	25.5
	1985	943	6,103,662	15.4	23.1	21.6	24.6
WHITE							
	1996	12,329	17,131,672	72.0	24.8	24.2	25.3
	1995	12,242	17,180,485	71.3	25.5	24.9	26.0
	1994	11,995	17,245,625	69.6	24.9	24.4	25.5
	1993	11,627	17,320,246	67.1	25.0	24.4	25.5
	1992	11,736	17,363,576	67.6	25.6	25.0	26.1
	1991	11,847	17,249,291	68.7	26.3	25.8	26.9
	1990	12,265	17,131,831	71.6	28.1	27.5	28.6
	1989	12,541	16,886,542	74.3	29.5	28.9	30.1
	1988	12,910	16,674,150	77.4	31.1	30.5	31.7
	1987	12,751	16,504,967	77.3	31.1	30.5	31.7
	1986	12,344	16,351,870	75.5	30.7	30.1	31.4
	1985	12,629	16,216,876	77.9	31.9	31.2	32.5

Note : Rates are per 100,000 population; ICD-9 codes 430-438.

White, Black, and Asian/Other exclude Hispanic ethnicity. Hispanic includes any race category.

Source : State of California, Department of Finance, Race/Ethnic Population Estimates by County with Age and Sex Detail, 1970-1996, January 1998.
State of California, Department of Health Services, Death Records.

**TABLE 3
DEATHS DUE TO CEREBROVASCULAR DISEASE
BY RACE/ETHNICITY, AGE, AND SEX
CALIFORNIA, 1996
(By Place of Residence)**

RACE/ ETHNICITY	AGE GROUPS	1996 DEATHS			AGE-SPECIFIC DEATH RATE			95% CONFIDENCE LIMITS					
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL		MALE		FEMALE	
								LOWER	UPPER	LOWER	UPPER	LOWER	UPPER
TOTAL													
	Under 1	27	16	11	5.0	5.8	4.2	3.1	6.9	3.0	8.6	1.7	6.6
	1 to 4	6	3	3	0.3 *	0.3 *	0.3 *	0.1	0.5	0.0	0.5	0.0	0.6
	5 to 14	12	7	5	0.2	0.3 *	0.2 *	0.1	0.4	0.1	0.5	0.0	0.4
	15 to 24	18	9	9	0.4	0.4 *	0.4 *	0.2	0.6	0.1	0.7	0.2	0.7
	25 to 34	84	38	46	1.6	1.3	1.8	1.2	1.9	0.9	1.8	1.3	2.3
	35 to 44	312	175	137	5.8	6.4	5.1	5.1	6.4	5.4	7.3	4.3	6.0
	45 to 54	628	352	276	16.5	18.6	14.4	15.2	17.8	16.7	20.6	12.7	16.1
	55 to 64	1,006	556	450	42.6	48.5	37.1	40.0	45.3	44.4	52.5	33.7	40.5
	65 to 74	2,589	1,314	1,275	132.5	149.3	118.7	127.4	137.6	141.3	157.4	112.2	125.2
	75 to 84	5,619	2,376	3,243	483.7	510.2	466.0	471.0	496.3	489.6	530.7	449.9	482.0
	85 & Older	6,179	1,747	4,432	1,665.0	1,556.2	1,712.1	1,623.5	1,706.5	1,483.3	1,629.2	1,661.7	1,762.5
	Unknown	1	0	1									
	Total	16,481	6,593	9,888	50.9	40.6	61.2	50.1	51.7	39.6	41.6	60.0	62.4
ASIAN/OTHER													
	Under 1	5	3	2	8.2 *	9.6 *	6.8 *	1.0	15.5	0.0	20.5	0.0	16.2
	1 to 4	1	0	1	0.4 *	0.0 +	0.8 *	0.0	1.2	-	-	0.0	2.4
	5 to 14	1	0	1	0.2 *	0.0 +	0.4 *	0.0	0.5	-	-	0.0	1.1
	15 to 24	1	0	1	0.2 *	0.0 +	0.4 *	0.0	0.6	-	-	0.0	1.1
	25 to 34	9	6	3	1.5 *	2.0 *	1.0 *	0.5	2.5	0.4	3.6	0.0	2.1
	35 to 44	28	19	9	4.4	6.3	2.7 *	2.8	6.1	3.4	9.1	1.0	4.5
	45 to 54	98	49	49	22.4	23.6	21.3	17.9	26.8	17.0	30.2	15.3	27.3
	55 to 64	151	85	66	58.8	70.4	48.5	49.4	68.1	55.4	85.3	36.8	60.2
	65 to 74	295	149	146	156.5	182.2	136.8	138.6	174.4	152.9	211.4	114.6	159.0
	75 to 84	418	182	236	452.4	459.1	447.4	409.0	495.8	392.4	525.8	390.3	504.5
	85 & Older	338	146	192	1,283.4	1,300.0	1,271.1	1,146.6	1,420.2	1,089.1	1,510.8	1,091.3	1,450.9
	Unknown	0	0	0									
	Total	1,345	639	706	36.9	35.7	38.1	34.9	38.9	32.9	38.4	35.3	40.9
BLACK													
	Under 1	5	2	3	13.4 *	10.6 *	16.4 *	1.7	25.2	0.0	25.2	0.0	34.9
	1 to 4	1	0	1	0.6 *	0.0 +	1.2 *	0.0	1.7	-	-	0.0	3.5
	5 to 14	0	0	0	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
	15 to 24	1	0	1	0.3 *	0.0 +	0.6 *	0.0	0.9	-	-	0.0	1.8
	25 to 34	9	4	5	2.3 *	2.0 *	2.6 *	0.8	3.8	0.0	3.9	0.3	4.9
	35 to 44	74	39	35	19.9	21.7	18.2	15.4	24.4	14.9	28.5	12.2	24.3
	45 to 54	105	54	51	43.2	47.3	39.6	35.0	51.5	34.7	59.9	28.8	50.5
	55 to 64	141	86	55	92.6	120.6	67.9	77.3	107.9	95.1	146.0	50.0	85.9
	65 to 74	270	129	141	264.2	295.5	240.9	232.7	295.7	244.5	346.5	201.1	280.6
	75 to 84	368	148	220	688.8	752.2	651.8	618.4	759.1	631.0	873.4	565.6	737.9
	85 & Older	245	84	161	1,542.5	1,799.1	1,435.7	1,349.4	1,735.7	1,414.4	2,183.8	1,213.9	1,657.5
	Unknown	0	0	0									
	Total	1,219	546	673	53.6	48.7	58.3	50.6	56.6	44.6	52.8	53.9	62.7
HISPANIC													
	Under 1	11	9	2	4.4	7.0 *	1.6 *	1.8	6.9	2.4	11.6	0.0	3.8
	1 to 4	2	2	0	0.2 *	0.4 *	0.0 +	0.0	0.5	0.0	0.9	-	-
	5 to 14	3	3	0	0.2 *	0.3 *	0.0 +	0.0	0.4	0.0	0.7	-	-
	15 to 24	12	6	6	0.8	0.8 *	0.9 *	0.4	1.3	0.2	1.4	0.2	1.6
	25 to 34	34	18	16	1.9	1.8	2.0	1.2	2.5	1.0	2.6	1.0	3.0
	35 to 44	73	44	29	5.3	6.1	4.5	4.1	6.5	4.3	7.9	2.8	6.1
	45 to 54	157	95	62	21.0	25.3	16.7	17.7	24.3	20.2	30.3	12.5	20.9
	55 to 64	170	92	78	40.9	46.0	36.1	34.7	47.0	36.6	55.4	28.1	44.1
	65 to 74	320	157	163	114.2	124.2	106.1	101.7	126.8	104.7	143.6	89.8	122.4
	75 to 84	419	187	232	343.1	388.9	313.3	310.2	375.9	333.1	444.6	273.0	353.7
	85 & Older	387	131	256	877.5	847.7	893.6	790.1	964.9	702.5	992.8	784.1	1,003.0
	Unknown	0	0	0									
	Total	1,588	744	844	17.0	15.4	18.8	16.2	17.9	14.3	16.5	17.5	20.0
WHITE													
	Under 1	6	2	4	3.2 *	2.0 *	4.3 *	0.6	5.7	0.0	4.9	0.1	8.6
	1 to 4	2	1	1	0.2 *	0.2 *	0.2 *	0.0	0.6	0.0	0.7	0.0	0.7
	5 to 14	8	4	4	0.4 *	0.4 *	0.4 *	0.1	0.6	0.0	0.7	0.0	0.8
	15 to 24	4	3	1	0.2 *	0.3 *	0.1 *	0.0	0.4	0.0	0.6	0.0	0.3
	25 to 34	32	10	22	1.3	0.8 *	1.8	0.8	1.7	0.3	1.2	1.0	2.5
	35 to 44	137	73	64	4.5	4.7	4.3	3.8	5.3	3.7	5.8	3.2	5.4
	45 to 54	268	154	114	11.3	12.9	9.6	9.9	12.6	10.9	15.0	7.8	11.4
	55 to 64	544	293	251	35.5	38.8	32.2	32.5	38.4	34.4	43.3	28.2	36.2
	65 to 74	1,704	879	825	123.2	140.0	109.2	117.3	129.0	130.7	149.2	101.8	116.7
	75 to 84	4,414	1,859	2,555	493.9	518.8	477.2	479.3	508.4	495.2	542.4	458.7	495.7
	85 & Older	5,209	1,386	3,823	1,829.0	1,713.1	1,875.0	1,779.4	1,878.7	1,622.9	1,803.3	1,815.6	1,934.4
	Unknown	1	0	1									
	Total	12,329	4,664	7,665	72.0	55.0	88.6	70.7	73.2	53.4	56.5	86.7	90.6

Note: Rates are per 100,000 population; ICD-9 codes 430-438.
 White, Black, and Asian/Other exclude Hispanic ethnicity. Hispanic includes any race category.
 Source: State of California, Department of Finance, Race/Ethnic Population Estimates by County with Age and Sex Detail, 1970-1996, January 1998.
 State of California, Department of Health Services, Death Records.

* Death rate unreliable, relative standard error is greater than 30%.
 + Standard error indeterminate, death rate based on no (zero) deaths.
 - Upper and lower limits at the 95% confidence level are indeterminate.

TABLE 4
DEATHS DUE TO CEREBROVASCULAR DISEASE
BY COUNTY
CALIFORNIA, 1994-1996
(By Place of Residence)

COUNTY	1994-1996 DEATHS (Average)	PERCENT	1995 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS LOWER	UPPER
CALIFORNIA	16,120.0	100.0	32,062,912	50.3	26.3	25.8	26.7
ALAMEDA	754.0	4.7	1,347,739	55.9	29.8	27.4	32.2
ALPINE	0.0	0.0	1,185	0.0 +	0.0 +	-	-
AMADOR	28.0	0.2	32,572	86.0	21.8	12.4	31.2
BUTTE	165.7	1.0	196,108	84.5	25.9	20.8	31.0
CALAVERAS	24.7	0.2	36,907	66.8	21.4	11.7	31.1
COLUSA	11.3	0.1	17,799	63.7	33.4	10.9	55.8
CONTRA COSTA	510.0	3.2	867,315	58.8	28.2	25.5	30.9
DEL NORTE	14.0	0.1	27,597	50.7	25.2	10.3	40.2
EL DORADO	65.3	0.4	144,158	45.3	21.0	15.4	26.6
FRESNO	358.3	2.2	754,045	47.5	25.2	22.1	28.2
GLENN	18.0	0.1	26,523	67.9	28.3	12.7	43.9
HUMBOLDT	70.0	0.4	124,481	56.2	25.2	18.4	31.9
IMPERIAL	58.7	0.4	137,445	42.7	27.8	19.8	35.7
INYO	18.3	0.1	18,571	98.7	28.8	12.3	45.3
KERN	277.7	1.7	616,701	45.0	28.4	24.7	32.1
KINGS	59.0	0.4	114,902	51.3	33.8	24.2	43.4
LAKE	78.0	0.5	54,984	141.9	35.5	25.1	45.8
LASSEN	10.7	0.1	28,678	37.2 *	17.9 *	5.9	29.8
LOS ANGELES	4,109.0	25.5	9,352,192	43.9	25.9	25.1	26.8
MADERA	45.7	0.3	106,429	42.9	22.5	15.1	29.8
MARIN	164.0	1.0	238,981	68.6	26.0	21.5	30.6
MARIPOSA	10.0	0.1	15,903	62.9 *	19.6 *	5.2	34.1
MENDOCINO	75.3	0.5	84,269	89.4	34.6	25.7	43.4
MERCED	84.7	0.5	198,522	42.6	26.7	20.4	33.0
MODOC	7.0	a	10,064	69.6 *	30.0 *	3.6	56.5
MONO	2.0	a	10,624	18.8 *	16.1 *	0.0	38.5
MONTEREY	188.0	1.2	361,840	52.0	26.9	22.6	31.3
NAPA	115.7	0.7	117,735	98.2	30.7	23.9	37.5
NEVADA	63.7	0.4	86,506	73.6	21.7	15.0	28.4
ORANGE	1,080.0	6.7	2,614,851	41.3	23.6	22.0	25.1
PLACER	109.7	0.7	203,454	53.9	24.5	19.3	29.6
PLUMAS	7.7	a	20,484	37.4 *	12.8 *	1.8	23.9
RIVERSIDE	736.0	4.6	1,370,338	53.7	24.7	22.6	26.8
SACRAMENTO	591.0	3.7	1,117,748	52.9	28.9	26.4	31.5
SAN BENITO	18.0	0.1	42,604	42.2	18.2	8.6	27.9
SAN BERNARDINO	641.7	4.0	1,581,620	40.6	27.3	25.0	29.6
SAN DIEGO	1,374.3	8.5	2,669,280	51.5	25.8	24.2	27.4
SAN FRANCISCO	556.0	3.4	751,532	74.0	26.8	24.1	29.5
SAN JOAQUIN	315.7	2.0	524,611	60.2	30.8	26.8	34.7
SAN LUIS OBISPO	138.3	0.9	228,401	60.6	20.8	16.6	24.9
SAN MATEO	473.3	2.9	689,731	68.6	27.8	24.9	30.6
SANTA BARBARA	241.7	1.5	391,425	61.7	24.3	20.6	27.9
SANTA CLARA	666.3	4.1	1,603,340	41.6	24.7	22.7	26.7
SANTA CRUZ	136.0	0.8	241,510	56.3	24.7	19.7	29.7
SHASTA	97.7	0.6	160,877	60.7	23.8	18.4	29.3
SIERRA	2.0	a	3,410	58.7 *	12.8 *	0.0	34.8
SISKIYOU	33.7	0.2	44,616	75.5	26.4	15.9	36.8
SOLANO	183.0	1.1	370,556	49.4	34.2	29.0	39.5
SONOMA	311.7	1.9	419,459	74.3	28.0	24.3	31.7
STANISLAUS	218.3	1.4	413,806	52.8	27.1	22.9	31.2
SUTTER	62.0	0.4	73,721	84.1	34.9	25.1	44.8
TEHAMA	48.0	0.3	54,195	88.6	32.2	21.3	43.0
TRINITY	8.3	0.1	13,363	62.4 *	24.9 *	5.7	44.0
TULARE	220.0	1.4	349,860	62.9	33.5	28.4	38.6
TUOLUMNE	34.3	0.2	51,516	66.6	26.0	15.7	36.2
VENTURA	319.7	2.0	712,762	44.8	24.1	21.2	27.0
YOLO	78.3	0.5	150,812	51.9	29.0	21.7	36.2
YUBA	30.7	0.2	62,255	49.3	29.5	17.9	41.1

Note : Rates are per 100,000 population; ICD-9 codes 430-438.

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

* Death rate unreliable, relative standard error is greater than 30%.

- Upper and lower limits at the 95% confidence level are indeterminate.

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

**TABLE 5
POPULATION ESTIMATES
BY RACE/ETHNICITY, SEX, AND AGE
CALIFORNIA, 1996**

RACE/ ETHNICITY	TOTAL	AGE GROUPS										
		Under 1	1 to 4	5 to 14	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85 & Older
TOTAL	32,383,811	540,625	2,298,325	4,914,945	4,217,867	5,357,377	5,401,744	3,806,109	2,359,866	1,954,134	1,161,701	371,118
MALE	16,227,924	276,538	1,175,708	2,514,194	2,198,841	2,828,447	2,741,290	1,887,994	1,146,990	879,924	465,740	112,258
FEMALE	16,155,887	264,087	1,122,617	2,400,751	2,019,026	2,528,930	2,660,454	1,918,115	1,212,876	1,074,210	695,961	258,860
ASIAN/OTHER	3,645,998	60,717	254,397	564,354	533,767	599,056	631,504	438,067	256,917	188,491	92,392	26,336
MALE	1,791,148	31,247	131,069	288,489	274,693	301,165	303,109	207,939	120,782	81,782	39,642	11,231
FEMALE	1,854,850	29,470	123,328	275,865	259,074	297,891	328,395	230,128	136,135	106,709	52,750	15,105
BLACK	2,275,401	37,276	170,539	388,094	345,698	395,287	371,892	242,802	152,306	102,194	53,430	15,883
MALE	1,121,544	18,939	86,386	196,545	182,527	203,575	180,097	114,139	71,336	43,656	19,675	4,669
FEMALE	1,153,857	18,337	84,153	191,549	163,171	191,712	191,795	128,663	80,970	58,538	33,755	11,214
HISPANIC	9,330,740	252,617	1,034,656	1,816,510	1,436,639	1,808,376	1,372,005	747,447	416,154	280,103	122,130	44,103
MALE	4,830,901	128,626	527,237	925,990	749,483	1,012,882	720,340	376,227	200,126	126,447	48,089	15,454
FEMALE	4,499,839	123,991	507,419	890,520	687,156	795,494	651,665	371,220	216,028	153,656	74,041	28,649
WHITE	17,131,672	190,015	838,733	2,145,987	1,901,763	2,554,658	3,026,343	2,377,793	1,534,489	1,383,346	893,749	284,796
MALE	8,484,331	97,726	431,016	1,103,170	992,138	1,310,825	1,537,744	1,189,689	754,746	628,039	358,334	80,904
FEMALE	8,647,341	92,289	407,717	1,042,817	909,625	1,243,833	1,488,599	1,188,104	779,743	755,307	535,415	203,892

Note : White, Black, and Asian/Other exclude Hispanic ethnicity. Hispanic includes any race category.

Source : State of California, Department of Finance, Race/Ethnic Population Estimates with Age and Sex Detail, 1970-1996, January 1998.

Notes:

The cerebrovascular disease death data presented in this report include ICD-9 codes 430-438.

The term “significant” within the text indicates either statistically significant based on the slope of a least-squares 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% confidence intervals are provided in the data tables as a tool for measuring the reliability of the death rates. Also, rates with a relative standard error (coefficient of variation) greater than 30% 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. Race/ethnic data are not presented for years prior to 1985 due to the unavailability of mutually exclusive data for Hispanics and Whites. 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.

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, 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.

For a more complete explanation of the age-adjusting methodology see the *Healthy People 2000 Statistical Notes* publication.⁴ 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*.⁵ 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].

References:

1. 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.
2. Sutocky J. *Healthy California 2000: California's Experience in Achieving the National Health Promotion and Disease Prevention Objectives*. Center for Health Statistics, California Department of Health Services, July 1995.
3. Centers for Disease Control and Prevention. *Morbidity and Mortality Weekly Report*, October 10, 1997 / Vol. 46 / No.40. U.S. Department of Health and Human Services.
4. 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.
5. Riedmiller K, Ficene S, Jones R. *Vital Statistics of California, 1995*. Center for Health Statistics, California Department of Health Services, June 1997.