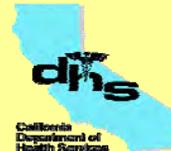




Center for Health Statistics



December 2006

DATA SUMMARY No. DS07-01000

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

Highlights

- **Cerebrovascular disease ranked third among the leading causes of death in California and in the U.S. in 2004.**
- **People aged 55 and older had more than 93 percent of all cerebrovascular disease deaths in California in 2004.**
- **In 2004 California's age-adjusted death rate was 50.3 per 100,000 population.**
- **Merced County had the highest age-adjusted death rate (72.8) and Madera had the lowest rate (40.8).**

Cerebrovascular Disease Deaths California, 2004

By Carol Lau

Introduction

A stroke or cerebrovascular accident occurs when the blood supply to the brain is cut off (an ischemic stroke) or when a blood vessel bursts (a hemorrhagic stroke).¹ Most strokes are ischemic and without oxygen the brain cells begin to die. Death or permanent disability can result.¹ In 2004 cerebrovascular disease, commonly known as stroke, ranked third among the leading causes of death in California and in the United States (U.S.), following heart disease and cancer.^{2,3} Each year in the U.S., approximately 700,000 people will suffer from a stroke. About 500,000 of these strokes are first attacks and 200,000 are recurrent attacks.¹ According to the American Heart Association, people of all age groups have strokes; however, the risk for stroke more than doubles with each decade of life after age 55.⁴

Preliminary data show from 2003 to 2004 cerebrovascular disease deaths in the U.S. decreased 4.8 percent from 157,689 deaths in 2003 to 150,147 deaths in 2004.^{3,5} Cerebrovascular disease deaths also decreased significantly among California residents (4.5 percent) from 17,686 deaths in 2003 to 16,884 deaths in 2004.²

Due to the prevalence of cerebrovascular disease in this country, the U.S. Public Health Service established a national health objective for Healthy People 2010 (HP2010) seeking to reduce the number of cerebrovascular disease deaths to an age-adjusted rate of no more than 48 deaths per 100,000 population. The HP2010 age-adjusted rate of no more than 48 deaths per 100,000 was changed to no more than 50 deaths per 100,000 due to midcourse review.⁶ Although California's age-adjusted death rate declined from 53.3 in 2003 to 50.3 in 2004, California has not yet met the HP2010 National Health Objective.

¹Centers for Disease Control. Cardiovascular Health: Know the Signs and Symptoms of a Stroke. URL: http://www.cdc.gov/dhdsp/library/fs_strokesigns.htm

²State of California, Department of Health Services. Death Records. 2003, 2004.

³National Center for Health Statistics. Deaths: Preliminary Data for 2004, National Vital Statistics Reports, DHHS Publication No. (PHS) 2005-1120, PRS 04-0536, Vol. 53, No. 5. October 2004.

⁴American Heart Association. Heart and Stroke Facts. 2005. URL: <http://www.americanheart.org>.

⁵National Center for Health Statistics. Deaths: Final Data for 2003, National Vital Statistics Reports, DHHS Publication No. (PHS) 2006-1120, PRS 06-0093, Vol. 54, No. 13. April 2006.

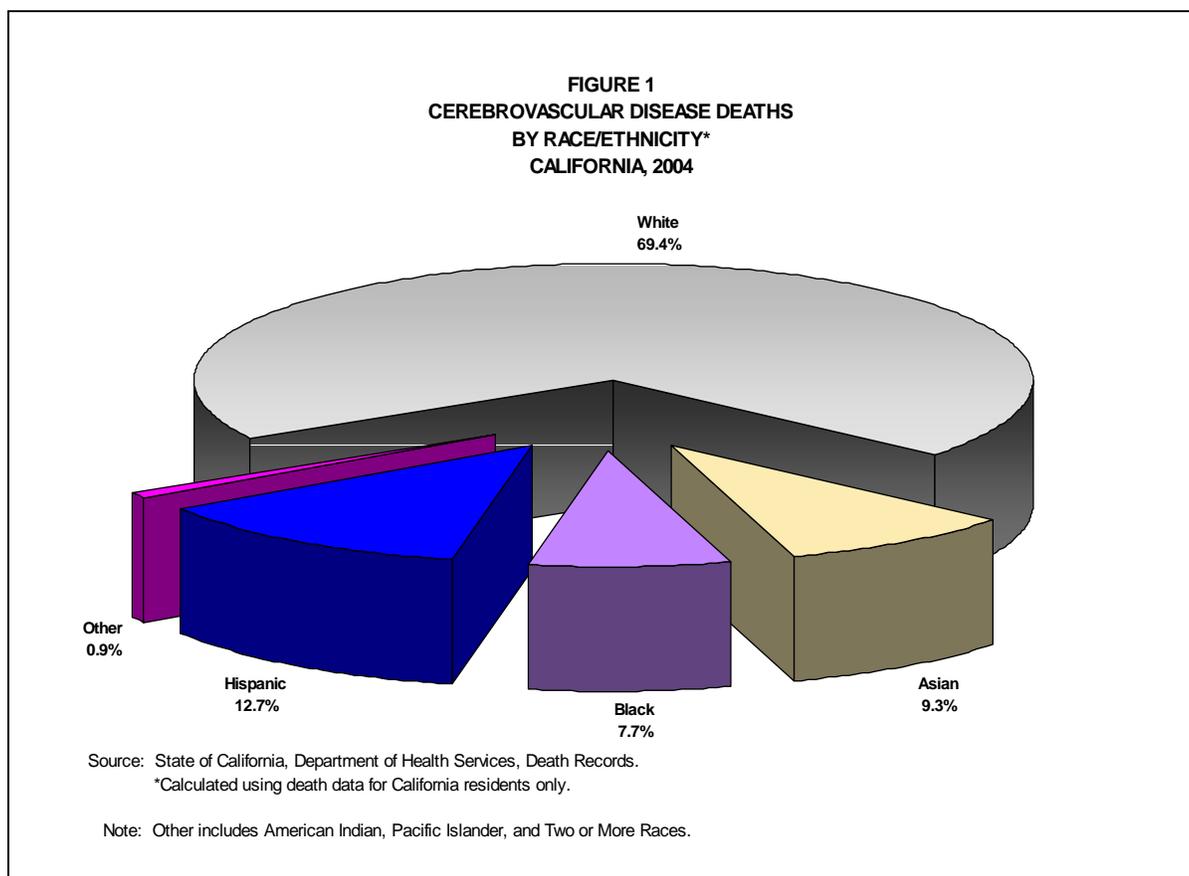
⁶U.S. Department of Health and Human Services. Healthy People 2010 Objectives. Midcourse Review. URL: <http://healthypeople.gov/data/midcourse/comments/falist.asp>.

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

This report presents data on California's cerebrovascular disease deaths that includes tables displaying the number of cerebrovascular disease deaths by race/ethnicity, age, and sex for 2004. The report also provides analysis of crude and age-adjusted death rates for California residents with data extracted from vital statistics records with deaths attributed to cerebrovascular disease as defined by the International Classification of Diseases, Tenth Revision (ICD-10) codes I60-I69 in accordance with the National Center for Health Statistics (NCHS) Reports.⁷

Cerebrovascular Disease Deaths

Table 1 (pages 11 and 12) shows California's cerebrovascular disease death data by race/ethnicity, age, and sex for 2004. There were a total of 16,884 deaths due to cerebrovascular disease of which 10,049 or 59.5 percent occurred among females and 6,835 or 40.5 percent occurred among males. Female cerebrovascular disease deaths were greater than male deaths at a ratio of 1.5 to 1. More than 93 percent of cerebrovascular disease deaths occurred among people aged 55 and older: 6.4 percent were in the 55 to 64 age group, 12.8 percent were in the age group 65 to 74, 33.4 percent were in the 75 to 84 age group, and 40.9 percent were in the 85 and older age group.



⁷National Center for Health Statistics. Vital Statistics, Instructions for Classifying the Underlying Cause of Death. NCHS Instruction Manual, Part 2A. Public Health Service, Hyattsville, Maryland. December 2005.

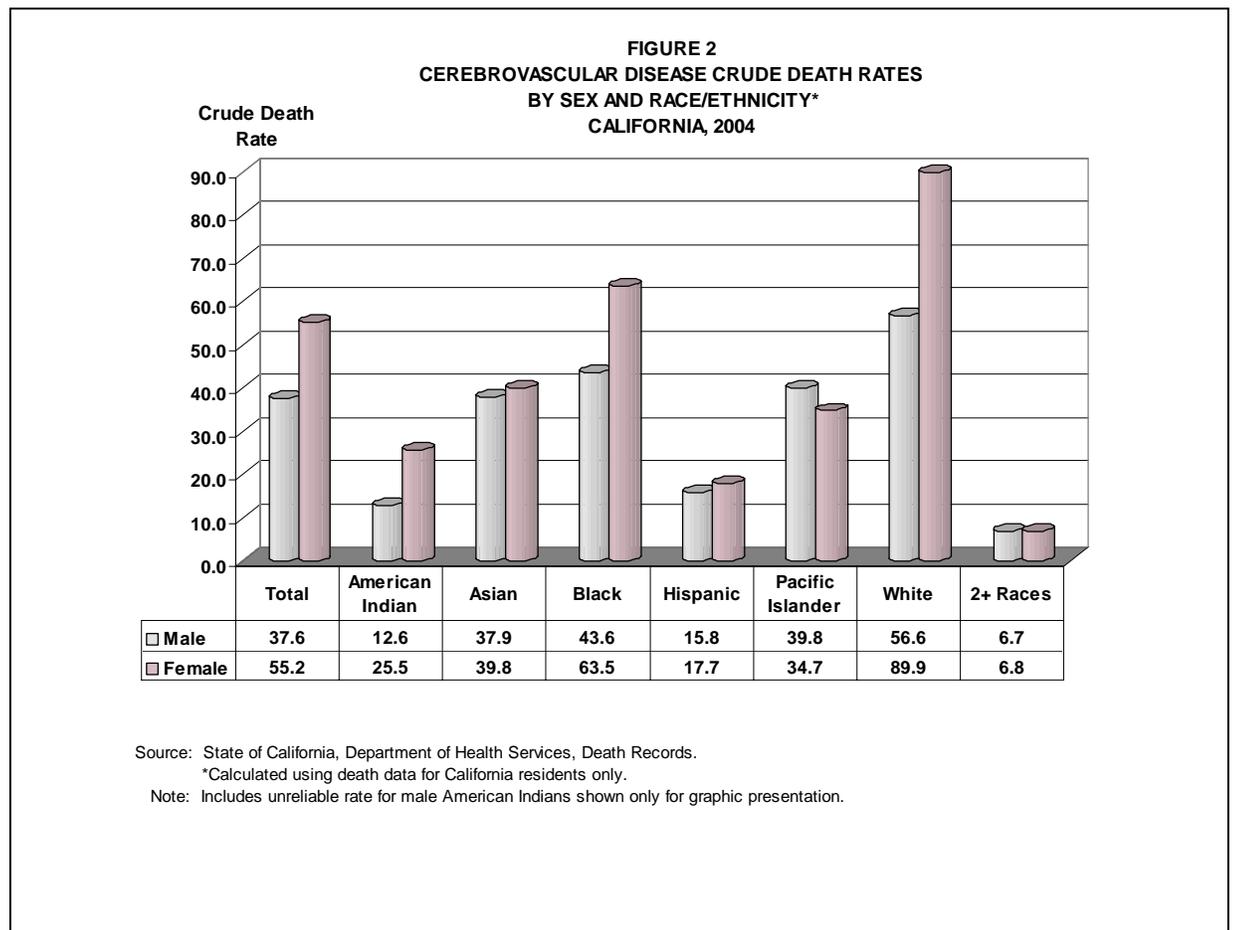
See the [Methodological Approach](#) section later in this report for an explanation of crude and age-specific death rates.

Figure 1 (page 2) shows Whites had the highest percentage of deaths with 69.4 percent followed by Hispanics with 12.7 percent, Asians with 9.3 percent, Blacks with 7.7 percent and Other with 0.9 percent. Other includes American Indians, Pacific Islanders, and Two or More Races.

Cerebrovascular Disease Crude Death Rates

Table 1 (pages 11 and 12) shows California's cerebrovascular disease crude death rates for 2004 by race/ethnicity, age, and sex. The crude death rate for this period was 46.4 per 100,000 population, which was significantly lower than the 2003 rate of 49.2.⁸

As shown in **Figure 2**, California's female residents had an overall crude death rate of 55.2 per 100,000 population, which was 1.5 times higher than the male crude death rate of 37.6 in 2004. Female rates also exceeded male rates within each of the race/ethnic groups, except for Pacific Islanders. The differences between reliable male and female rates within race/ethnic groups and overall were statistically significant, except for Asians, Pacific Islanders, and Two or More Races.



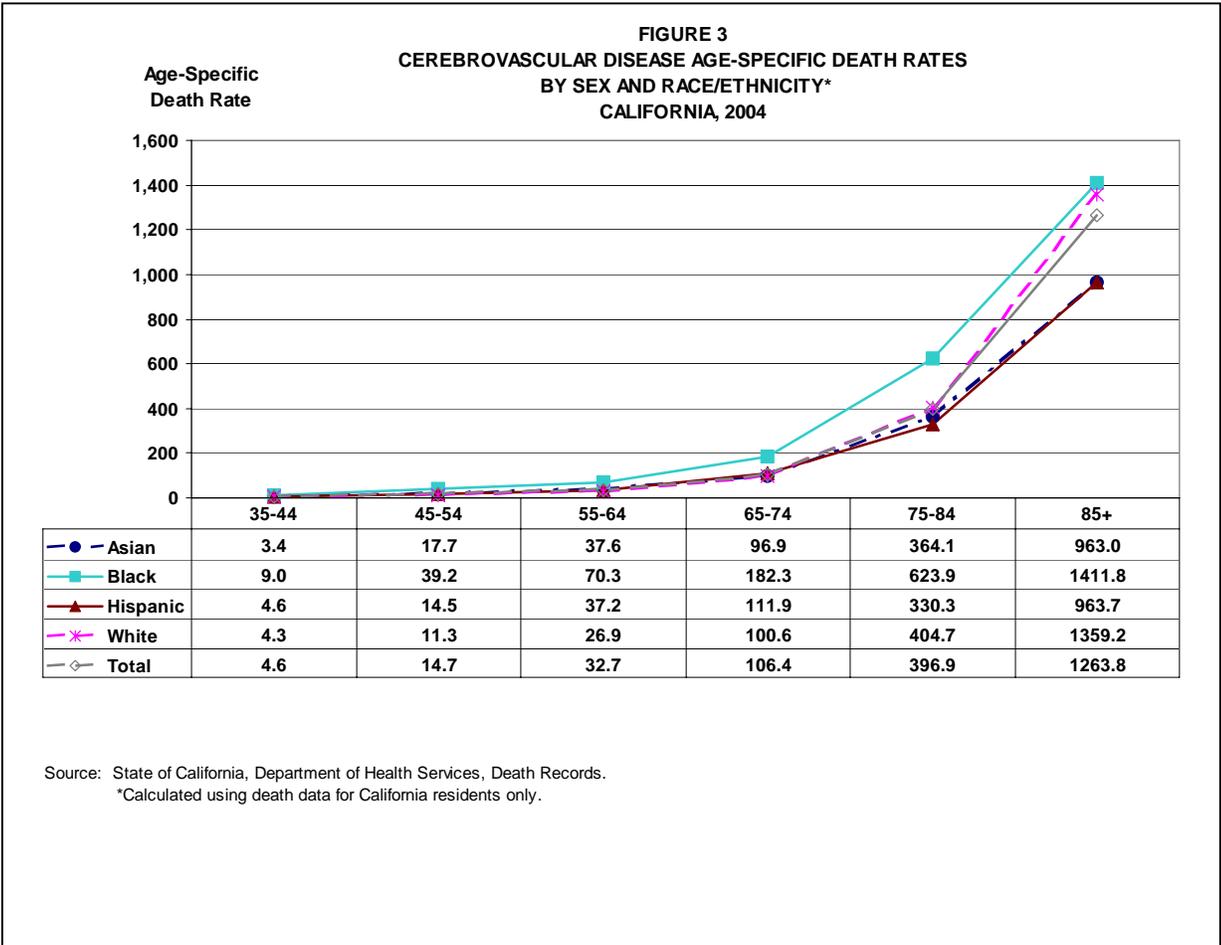
⁸Wilson, C. Cerebrovascular Deaths, California 2000-2003. Center for Health Statistics, California Department of Health Services. December 2005.

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

Cerebrovascular Disease Age-Specific Death Rates

Table 1 (pages 11 and 12) shows that among California residents and for each of the race/ethnic groups, reliable age-specific death rates increased with the age of the decedent.

Figure 3 shows the 2004 cerebrovascular disease age-specific death rates by race/ethnicity for age group 35 and older. Among the age groups listed, Blacks had significantly higher reliable age-specific death rates compared with the other race/ethnic groups with the exception of age 85 and older Whites. Asians had the lowest age-specific death rates in the 35 to 44, 65 to 74, and 85 and older age groups. Whites had the lowest rates in the 45 through 65 age groups. Whites had the lowest rates in the 75 to 84 age group. Rates for American Indians, Pacific Islanders, and Two or More Races were not displayed in this figure due to unreliability.



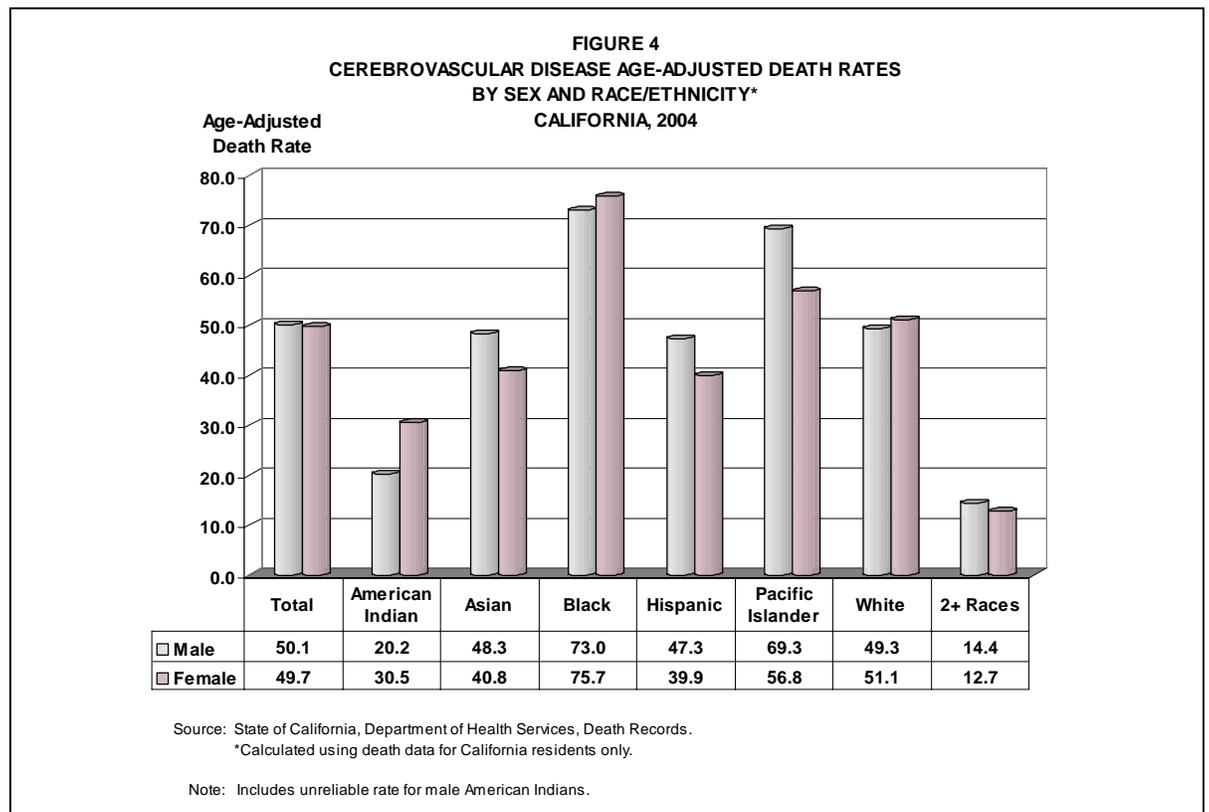
Cerebrovascular Disease Age-Adjusted Death Rates

You can read more about crude and age-adjusted death rates online at www.cdc.gov/nchs

Table 1 (pages 11 and 12) displays California's 2004 cerebrovascular disease age-adjusted death rates by sex and race/ethnicity. California's age-adjusted death rate of 50.3 per 100,000 population was higher than the U.S. age-adjusted death rate of 50.0 for 2004.³

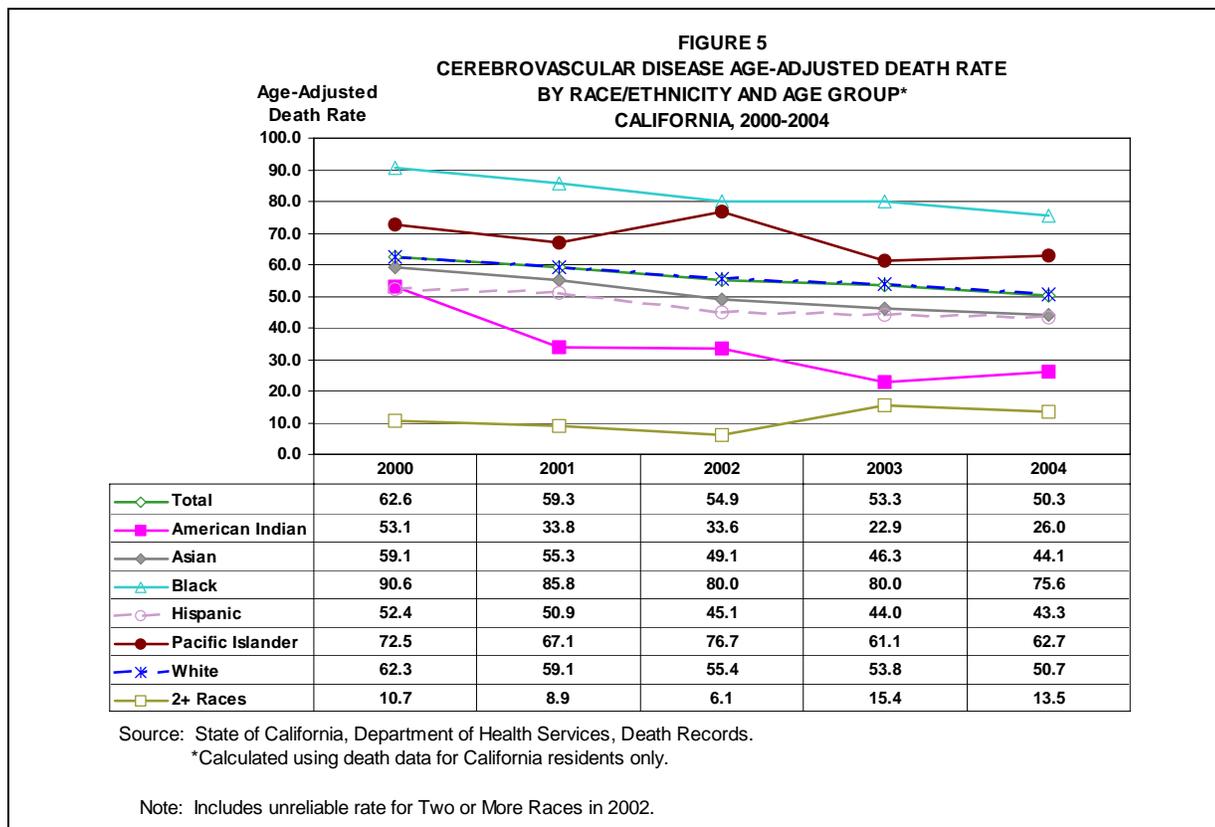
Among the race/ethnic groups in 2004, Blacks had the highest age-adjusted death rate (75.6 per 100,000 population), followed by Pacific Islanders (62.7), Whites (50.7), Asians (44.1), Hispanics (43.3), American Indians (26.0), and Two or More Races (13.5).

Figure 4 shows males had higher age-adjusted death rates than their female counterparts, with the exception of Whites and Blacks where females had the highest rates. American Indians were not compared because the age-adjusted death rate for American Indian males was unreliable. The gender rate differences among the race/ethnic groups with reliable rates were statistically significant for Asians and Hispanics, but not for the remaining race/ethnic groups.



For more data visit the DHS Center for Health Statistics, Office of Health Information and Research online at www.dhs.ca.gov/hisp/chs/ohir/reports

Figure 5 shows the overall age-adjusted cerebrovascular death rates decreased by 19.6 percent, from 62.6 deaths per 100,000 population in 2000 to 50.3 in 2004. The largest percentage decrease from 2000 to 2004 was seen in American Indians (51.0), followed by Asians (25.3), Whites (18.6), Hispanics (17.4) Blacks (16.6), and Pacific Islanders (13.5). Except for Pacific Islanders, the decreases in reliable death rates in race/ethnic groups were significant. Age-adjusted death rates for the Two or More Races group increased during this period.



Cerebrovascular Disease Death Rates for California Counties

Table 2 (page 13) shows the 2002 to 2004 three-year average number of cerebrovascular disease deaths with crude and age-adjusted death rates for California and its 58 counties.

The three counties with the highest average number of cerebrovascular disease deaths were Los Angeles County at 4,180.3 or 24.1 percent of the total cerebrovascular disease deaths in California, San Diego County with 1,467.7 deaths or 8.4 percent, and Orange County with 1,376.0 deaths or 7.9 percent.

Among the 45 counties with reliable rates, Nevada County had the highest crude death rate of 95.6 deaths per 100,000 population, which was three times higher than the lowest rate of 31.5 in Kings County. Among the reliable age-adjusted death rates, Merced County had the highest rate (72.8) and Madera County had the lowest rate (40.8). Fourteen counties had rates significantly different than the State rate; 10 of the counties had higher rates than the State rate of 52.4 and four had lower rates.

The HP2010 National Health Objective to reduce cerebrovascular disease deaths to an age-adjusted rate of no more than 50 deaths per 100,000 population was met by 21 counties (10 with reliable age-adjusted death rates).

Figure 6 (page 14) shows a thematic map of the 2002 to 2004 age-adjusted death rates for California counties. The Jenks natural breaks classification was used to determine the interval breaks for the counties.

Please refer to the data limitation and qualification sections for information regarding significance testing between the county and State age-adjusted rates.

Cerebrovascular Disease Deaths among the Three City Health Jurisdictions

Table 3 shows the 2004 average number of cerebrovascular disease deaths and 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.

Long Beach had the highest average number of cerebrovascular disease deaths (233.0) followed by Pasadena (102.7) and Berkeley (59.3). The crude death rates were 72.2 deaths per 100,000 population for Pasadena, 56.9 for Berkeley, and 48.4 for Long Beach.

CITY HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	2003 POPULATION	CRUDE DEATH RATE
BERKELEY	59.3	104,195	56.9
LONG BEACH	233.0	481,015	48.4
PASADENA	102.7	142,214	72.2

Note: Rates are per 100,000 population.
*Calculated using death data for California residents only.

Source: State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State, 2001-2006, with 2000 DRU Benchmark, May 2006.

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

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 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. The weighted average 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.

Age-adjusted rates are presented when the single, summary measure is needed, but data analysts should inspect age-specific rates first.⁹ Age-specific rates provide insights to important age-related mortality trends that can be masked by age-adjusted rates. For example, a shift in the number of deaths from one age group to another could produce very little change in the age-adjusted rate, but may warrant further investigation. In addition, analysis of age-specific rates can reveal that populations being compared do not show a consistent relationship (e.g., the trend is not in the same direction for all age-specific rates) in which case the analysis of age-specific rates is recommended over age-adjusted rates.

Data Limitations and Qualifications

The cerebrovascular disease death data presented in this report are based on the vital statistics records with ICD-10 codes I60-I69 as defined by the NCHS.³ Deaths by place of residence means that the data include only those deaths occurring among residents of California, regardless of the place of death.

The term “significant” within the text indicates statistical significance based on the difference between two independent rates ($p < .05$). Significant difference between the county and State age-adjusted death rates was determined by comparing the 95 percent confidence intervals (CI) of the two rates, which are based on the rate, standard deviation, and standard error. Rates were considered to be significantly different from each other when their CIs did not overlap. If the upper limit of the county CI fell below the lower limit of the State CI, the county rate was deemed to be significantly lower. If the lower limit of the county CI exceeded the higher limit of the State CI, the county rate was deemed to be significantly higher. Significant differences of overlapping CIs were not addressed in this report. Overlapping CIs require a more precise statistical measure to determine significant and non-significant differences in rates because CIs may overlap as much as 29 percent and still be significantly different.¹⁰

The county or State age-adjusted mortality rates that equaled or surpassed the HP2010 objective target rate were noted as achieved, regardless of rate reliability. Readers are cautioned that measuring progress toward target attainment for a HP2010 objective using only one data point is not recommended. HP2010 guidelines recommend using absolute differences between the target rate and the most recent data point as well as a progress quotient to measure relative changes over time in monitoring progress toward achieving the objective target rate.¹¹ See the guidelines for HP2010 objectives on the NCHS website at <http://www.cdc.gov/nchs/hphome.htm>

⁹Choi BCK, de Guia NA, and Walsh P. Look before you leap: Stratify before you standardize. *American Journal of Epidemiology*, 149: 1087-1096. 1999.

¹⁰van Belle G. *Statistical Rules of Thumb*, Rule 2.5. Wiley Publishing. March 2002.

¹¹Keppel KG, et al. *Measuring Progress in Healthy People 2010*. Healthy People 2010 Statistical Notes, No. 25. National Center for Health Statistics. Hyattsville, Maryland. September 2004.

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. To assist the reader, the 95 percent CIs 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 (*). The CIs represent the range of values likely to contain the “true” value 95 percent of the time.

Beginning in 1999 cause of death is reported using ICD-10.¹² Cause of death for 1979 through 1998 was coded using the International Classification of Diseases, Ninth Revision (ICD-9). Therefore, our analyses do not combine both ICD-9 and ICD-10 data.

To meet the U.S. Office of Management and Budget minimum standards for race and ethnicity data collection and reporting, the report presents the following race/ethnic groups: American Indian, Asian, Black, Hispanic, Pacific Islander, White, and Two or More Races. Hispanic origin of decedents is determined first and includes any race group. Second, decedents of the Two or More Races group are determined and are not reported in single race groups. In order to remain consistent with the population data obtained from the Department of Finance, the single race groups are defined as follows: the “American Indian” race group includes Aleut, American Indian, and Eskimo; the “Asian” race group includes Asian Indian, Asian (specified/unspecified), Cambodian, Chinese, Filipino, Hmong, Japanese, Korean, Laotian, Thai, and Vietnamese; the “Pacific Islander” race group includes Guamanian, Hawaiian, Samoan, and Other Pacific Islander; the “White” race group includes White, Other (specified), Not Stated, and Unknown.

Caution should be exercised in the interpretation of mortality data by race/ethnicity. Misclassification of race/ethnicity on death certificates may contribute to death rates that may be understated among American Indians, Asians, Hispanics, and Pacific Islanders.¹³ This problem could contribute to understatements of rates for the Two or More Races group as well.

Beginning in 2000 federal race/ethnicity reporting guidelines changed to allow reporting of more than one race on death certificates. California initiated use of the new guidelines on January 1, 2000, and collects up to three races. California’s population estimates recently added the multirace (Two or More Races) group. To be consistent with the population groups, current reports tabulate race of decedent using all races mentioned on the death certificate. Therefore, prior reports depicting race group statistics based on single race are not comparable with current reports.

¹²World Health Organization. International Statistical Classification of Diseases and Related Health Problems. Tenth Revision. Geneva: World Health Organization. 1992.

¹³Rosenberg 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.

The 2000 U.S. population standard was used for calculating age-adjustments in accordance with statistical policy implemented by NCHS.¹⁴ Age-adjusted death rates are not comparable when rates are calculated with different population standards, e.g., the 1940 standard population. Additionally, population data used to calculate city crude rates in **Table 3** (page 7) differ from population data used to calculate county crude rates in **Table 2** (page 13). Caution should be exercised when comparing the crude rates of the three city health jurisdictions with the crude rates of the 58 California counties. Age-adjusted rates for city health jurisdictions were not calculated.

A more complete explanation of age-adjustment methodology is available in the "Healthy People 2010 Statistical Notes" publication.¹⁵ Detailed information on data quality and limitations is presented in the appendix of the annual report, "Vital Statistics of California."¹⁶ Formulas used to calculate death rates are included in the technical notes of the "County Health Status Profiles" report.¹⁷

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¹⁴Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National Vital Statistics Reports; Vol. 47, No. 3. National Center for Health Statistics. Hyattsville, Maryland. 1998.

¹⁵Klein 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.

¹⁶Ficenec S, Bindra K, Vital Statistics of California, 2003. Center for Health Statistics, California Department of Health Services, April 2004.

¹⁷Shippen S. County Health Status Profiles 2006. Center for Health Statistics, California Department of Health Services, April 2006.

**TABLE 1
CEREBROVASCULAR DISEASE DEATHS
BY RACE/ETHNICITY, AGE, AND SEX
CALIFORNIA, 2004
(By Place of Residence)**

AGE GROUPS	DEATHS			POPULATION			RATES			95% CONFIDENCE LIMITS					
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL		MALE		FEMALE	
										LOWER	UPPER	LOWER	UPPER	LOWER	UPPER
TOTAL															
Under 1	11	6	5	534,769	272,800	261,969	2.1 *	2.2 *	1.9 *	0.8	3.3	0.4	4.0	0.2	3.6
1 to 4	5	3	2	2,047,621	1,045,813	1,001,808	0.2 *	0.3 *	0.2 *	0.0	0.5	0.0	0.6	0.0	0.5
5 to 14	8	5	3	5,369,098	2,750,853	2,618,245	0.1 *	0.2 *	0.1 *	0.0	0.3	0.0	0.3	0.0	0.2
15 to 24	23	16	7	5,294,261	2,757,217	2,537,044	0.4	0.6 *	0.3 *	0.3	0.6	0.3	0.9	0.1	0.5
25 to 34	66	36	30	5,231,086	2,701,183	2,529,903	1.3	1.3	1.2	1.0	1.6	0.9	1.8	0.8	1.6
35 to 44	260	161	99	5,672,590	2,883,426	2,789,164	4.6	5.6	3.5	4.0	5.1	4.7	6.4	2.9	4.2
45 to 54	725	419	306	4,931,148	2,440,823	2,490,325	14.7	17.2	12.3	13.6	15.8	15.5	18.8	10.9	13.7
55 to 64	1,081	594	487	3,303,083	1,594,612	1,708,471	32.7	37.3	28.5	30.8	34.7	34.3	40.2	26.0	31.0
65 to 74	2,156	1,102	1,054	2,025,575	936,610	1,088,965	106.4	117.7	96.8	101.9	110.9	110.7	124.6	90.9	102.6
75 to 84	5,638	2,380	3,258	1,420,413	590,956	829,457	396.9	402.7	392.8	386.6	407.3	386.6	418.9	379.3	406.3
85 & Older	6,910	2,112	4,798	546,767	187,361	359,406	1,263.8	1,127.2	1,335.0	1,234.0	1,293.6	1,079.2	1,175.3	1,297.2	1,372.8
Unknown	1	1	0												
Total	16,884	6,835	10,049	36,376,411	18,161,654	18,214,757	46.4	37.6	55.2	45.7	47.1	36.7	38.5	54.1	56.2
Age-Adjusted							50.3	50.1	49.7	49.5	51.1	48.9	51.3	48.7	50.7
AMERICAN INDIAN															
Under 1	1	0	1	3,420	1,749	1,671	29.2 *	0.0 +	59.8 *	0.0	86.5	-	-	0.0	177.1
1 to 4	0	0	0	10,132	5,219	4,913	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	0	0	0	44,098	22,317	21,781	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	0	0	0	45,586	23,211	22,375	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	0	0	0	36,784	18,309	18,475	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	0	0	0	43,965	21,368	22,597	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
45 to 54	4	1	3	42,504	20,200	22,304	9.4 *	5.0 *	13.5 *	0.2	18.6	0.0	14.7	0.0	28.7
55 to 64	4	2	2	26,857	12,754	14,103	14.9 *	15.7 *	14.2 *	0.3	29.5	0.0	37.4	0.0	33.8
65 to 74	13	4	9	12,903	5,996	6,907	100.8 *	66.7 *	130.3 *	46.0	155.5	1.3	132.1	45.2	215.4
75 to 84	15	6	9	6,734	2,840	3,894	222.8 *	211.3 *	231.1 *	110.0	335.5	42.2	380.3	80.1	382.1
85 & Older	16	4	12	3,868	1,435	2,433	413.7 *	278.7 *	493.2 *	211.0	616.3	5.6	551.9	214.2	772.3
Unknown	0	0	0												
Total	53	17	36	276,851	135,398	141,453	19.1	12.6 *	25.5	14.0	24.3	6.6	18.5	17.1	33.8
Age-Adjusted							26.0	20.2 *	30.5	18.8	33.3	10.3	30.2	20.2	40.8
ASIAN															
Under 1	2	1	1	48,115	24,552	23,563	4.2 *	4.1 *	4.2 *	0.0	9.9	0.0	12.1	0.0	12.6
1 to 4	0	0	0	188,290	96,379	91,911	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	1	0	1	498,432	257,125	241,307	0.2 *	0.0 +	0.4 *	0.0	0.6	-	-	0.0	1.2
15 to 24	2	1	1	567,146	291,640	275,506	0.4 *	0.3 *	0.4 *	0.0	0.8	0.0	1.0	0.0	1.1
25 to 34	4	1	3	618,710	302,916	315,794	0.6 *	0.3 *	0.9 *	0.0	1.3	0.0	1.0	0.0	2.0
35 to 44	23	18	5	671,272	321,320	349,952	3.4	5.6 *	1.4 *	2.0	4.8	3.0	8.2	0.2	2.7
45 to 54	108	71	37	609,567	284,594	324,973	17.7	24.9	11.4	14.4	21.1	19.1	30.8	7.7	15.1
55 to 64	145	79	66	385,197	179,303	205,894	37.6	44.1	32.1	31.5	43.8	34.3	53.8	24.3	39.8
65 to 74	238	116	122	245,629	107,974	137,655	96.9	107.4	88.6	84.6	109.2	87.9	127.0	72.9	104.4
75 to 84	561	259	302	154,086	64,809	89,277	364.1	399.6	338.3	334.0	394.2	351.0	448.3	300.1	376.4
85 & Older	487	194	293	50,569	20,013	30,556	963.0	969.4	958.9	877.5	1,048.6	833.0	1,105.8	849.1	1,068.7
Unknown	0	0	0												
Total	1,571	740	831	4,037,013	1,950,625	2,086,388	38.9	37.9	39.8	37.0	40.8	35.2	40.7	37.1	42.5
Age-Adjusted							44.1	48.3	40.8	41.9	46.3	44.8	51.8	38.0	43.5
BLACK															
Under 1	2	0	2	32,707	16,671	16,036	6.1 *	0.0 +	12.5 *	0.0	14.6	-	-	0.0	29.8
1 to 4	2	1	1	122,652	62,561	60,091	1.6 *	1.6 *	1.7 *	0.0	3.9	0.0	4.7	0.0	4.9
5 to 14	0	0	0	408,879	208,120	200,759	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	3	2	1	395,238	205,416	189,822	0.8 *	1.0 *	0.5 *	0.0	1.6	0.0	2.3	0.0	1.6
25 to 34	12	5	7	326,490	160,606	165,884	3.7 *	3.1 *	4.2 *	1.6	5.8	0.4	5.8	1.1	7.3
35 to 44	36	15	21	399,615	199,186	200,429	9.0	7.5 *	10.5	6.1	12.0	3.7	11.3	6.0	15.0
45 to 54	129	72	57	329,298	160,793	168,505	39.2	44.8	33.8	32.4	45.9	34.4	55.1	25.0	42.6
55 to 64	140	77	63	199,142	92,418	106,724	70.3	83.3	59.0	58.7	81.9	64.7	101.9	44.5	73.6
65 to 74	221	109	112	121,222	55,208	66,014	182.3	197.4	169.7	158.3	206.3	160.4	234.5	138.2	201.1
75 to 84	404	155	249	64,749	25,309	39,440	623.9	612.4	631.3	563.1	684.8	516.0	708.8	552.9	709.8
85 & Older	354	85	269	25,074	7,615	17,459	1,411.8	1,116.2	1,540.8	1,264.7	1,558.9	878.9	1,353.5	1,356.6	1,724.9
Unknown	0	0	0												
Total	1,303	521	782	2,425,066	1,193,903	1,231,163	53.7	43.6	63.5	50.8	56.6	39.9	47.4	59.1	68.0
Age-Adjusted							75.6	73.0	75.7	71.4	79.7	66.4	79.6	70.4	81.1
HISPANIC															
Under 1	3	2	1	273,401	139,443	133,958	1.1 *	1.4 *	0.7 *	0.0	2.3	0.0	3.4	0.0	2.2
1 to 4	1	1	0	1,003,339	512,381	490,958	0.1 *	0.2 *	0.0 +	0.0	0.3	0.0	0.6	-	-
5 to 14	3	2	1	2,503,684	1,279,931	1,223,753	0.1 *	0.2 *	0.1 *	0.0	0.3	0.0	0.4	0.0	0.2
15 to 24	6	5	1	2,275,634	1,199,542	1,076,092	0.3 *	0.4 *	0.1 *	0.1	0.5	0.1	0.8	0.0	0.3
25 to 34	28	19	9	2,332,753	1,244,497	1,088,256	1.2	1.5	0.8 *	0.8	1.6	0.8	2.2	0.3	1.4
35 to 44	89	62	27	1,954,969	1,014,652	940,317	4.6	6.1	2.9	3.6	5.5	4.6	7.6	1.8	4.0
45 to 54	178	115	63	1,228,904	607,654	621,250	14.5	18.9	10.1	12.4	16.6	15.5	22.4	7.6	12.6
55 to 64	237	136	101	636,784	298,857	337,927	37.2	45.5	29.9	32.5	42.0	37.9	53.2	24.1	35.7
65 to 74	400	216	184	357,389	157,978	199,411	111.9	136.7	92.3	101.0	122.9	118.5	155.0	78.9	105.6
75 to 84	630	284	346	190,758	78,695	112,063	330.3	360.9	308.8	304.5	356.1	318.9	402.9	276.2	341.3
85 & Older	563	190	373	58,423	20,677	37,746	963.7	918.9	988.2	884.1	1,043.3	788.2	1,049.6	887.9	1,088.5
Unknown	1	1	0												
Total	2,139	1,033	1,106	12,816,038	6,554,307	6,261,731	16.7	15.8	17.7	16.0	17.4	14.8	16.7	16.6	18.7
Age-Adjusted							43.3	47.3	39.9	41.4	45.2	44.2	50.4	37.5	42.2

Note : Rates are per 100,000 population. ICD-10 codes I60-I69.
 Year 2000 U.S. Standard Population is used for age-adjusted rates.
 American Indian, Asian, Black, Pacific Islander, White and Two or More Races exclude Hispanic ethnicity.
 Hispanic includes any race category.
 Deaths reported under Two or More Races are not duplicated in single race/ethnic groups.

* Death rate unreliable, relative standard error is greater than or equal to 23 percent.
 + Standard error indeterminate, death rate based on no (zero) deaths.
 - Confidence limit is not calculated for no (zero) deaths.

Source : State of California, Department of Finance; Population Projections with Age, Sex, and Race/Ethnic Detail, 2000-2050, May 2004.
 State of California, Department of Health Services, Death Records.

TABLE 1 (Continued)
CEREBROVASCULAR DISEASE DEATHS
BY RACE/ETHNICITY, AGE, AND SEX
CALIFORNIA, 2004
(By Place of Residence)

AGE GROUPS	DEATHS			POPULATION			RATES			95% CONFIDENCE LIMITS					
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL		MALE		FEMALE	
										LOWER	UPPER	LOWER	UPPER	LOWER	UPPER
TOTAL															
Under 1	11	6	5	534,769	272,800	261,969	2.1 *	2.2 *	1.9 *	0.8	3.3	0.4	4.0	0.2	3.6
1 to 4	5	3	2	2,047,621	1,045,813	1,001,808	0.2 *	0.3 *	0.2 *	0.0	0.5	0.0	0.6	0.0	0.5
5 to 14	8	5	3	5,369,098	2,750,853	2,618,245	0.1 *	0.2 *	0.1 *	0.0	0.3	0.0	0.3	0.0	0.2
15 to 24	23	16	7	5,294,261	2,757,217	2,537,044	0.4	0.6 *	0.3 *	0.3	0.6	0.3	0.9	0.1	0.5
25 to 34	66	36	30	5,231,086	2,701,183	2,529,903	1.3	1.3	1.2	1.0	1.6	0.9	1.8	0.8	1.6
35 to 44	260	161	99	5,672,590	2,883,426	2,789,164	4.6	5.6	3.5	4.0	5.1	4.7	6.4	2.9	4.2
45 to 54	725	419	306	4,931,148	2,440,823	2,490,325	14.7	17.2	12.3	13.6	15.8	15.5	18.8	10.9	13.7
55 to 64	1,081	594	487	3,303,083	1,594,612	1,708,471	32.7	37.3	28.5	30.8	34.7	34.3	40.2	26.0	31.0
65 to 74	2,156	1,102	1,054	2,025,575	936,610	1,088,965	106.4	117.7	96.8	101.9	110.9	110.7	124.6	90.9	102.6
75 to 84	5,638	2,380	3,258	1,420,413	590,956	829,457	396.9	402.7	392.8	386.6	407.3	386.6	418.9	379.3	406.3
85 & Older	6,910	2,112	4,798	546,767	187,361	359,406	1,263.8	1,127.2	1,335.0	1,234.0	1,293.6	1,079.2	1,175.3	1,297.2	1,372.8
Unknown	1	1	0												
Total	16,884	6,835	10,049	36,376,411	18,161,654	18,214,757	46.4	37.6	55.2	45.7	47.1	36.7	38.5	54.1	56.2
Age-Adjusted							50.3	50.1	49.7	49.5	51.1	48.9	51.3	48.7	50.7
PACIFIC ISLANDER															
Under 1	1	1	0	1,651	840	811	60.6 *	119.0 *	0.0 +	0.0	179.3	0.0	352.4	-	-
1 to 4	0	0	0	5,973	3,062	2,911	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	0	0	0	20,060	10,247	9,813	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	1	1	0	21,713	11,142	10,571	4.6 *	9.0 *	0.0 +	0.0	13.6	0.0	26.6	-	-
25 to 34	0	0	0	21,154	10,412	10,742	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	3	2	1	21,764	10,687	11,077	13.8 *	18.7 *	9.0 *	0.0	29.4	0.0	44.7	0.0	26.7
45 to 54	4	3	1	15,953	7,886	8,067	25.1 *	38.0 *	12.4 *	0.5	49.6	0.0	81.1	0.0	36.7
55 to 64	9	5	4	9,434	4,586	4,848	95.4 *	109.0 *	82.5 *	33.1	157.7	13.5	204.6	1.7	163.4
65 to 74	11	4	7	5,288	2,517	2,771	208.0 *	158.9 *	252.6 *	85.1	330.9	3.2	314.7	65.5	439.8
75 to 84	13	7	6	2,362	1,053	1,309	550.4 *	664.8 *	458.4 *	251.2	849.6	172.3	1,157.2	91.6	825.1
85 & Older	5	2	3	872	370	502	573.4 *	540.5 *	597.6 *	70.8	1,076.0	0.0	1,289.7	0.0	1,273.9
Unknown	0	0	0												
Total	47	25	22	126,224	62,802	63,422	37.2	39.8	34.7	26.6	47.9	24.2	55.4	20.2	49.2
Age-Adjusted							62.7	69.3	56.8	43.8	81.6	39.8	98.7	32.3	81.4
WHITE															
Under 1	2	2	0	164,750	84,066	80,684	1.2 *	2.4 *	0.0 +	0.0	2.9	0.0	5.7	-	-
1 to 4	2	1	1	617,372	315,162	302,210	0.3 *	0.3 *	0.3 *	0.0	0.8	0.0	0.9	0.0	1.0
5 to 14	4	3	1	1,722,936	886,271	836,665	0.2 *	0.3 *	0.1 *	0.0	0.5	0.0	0.7	0.0	0.4
15 to 24	10	6	4	1,856,335	960,424	895,911	0.5 *	0.6 *	0.4 *	0.2	0.9	0.1	1.1	0.0	0.9
25 to 34	20	10	10	1,808,165	922,586	885,579	1.1	1.1 *	1.1 *	0.6	1.6	0.4	1.8	0.4	1.8
35 to 44	108	63	45	2,502,123	1,278,269	1,223,854	4.3	4.9	3.7	3.5	5.1	3.7	6.1	2.6	4.8
45 to 54	297	153	144	2,639,194	1,328,451	1,310,743	11.3	11.5	11.0	10.0	12.5	9.7	13.3	9.2	12.8
55 to 64	540	292	248	2,005,398	987,820	1,017,578	26.9	29.6	24.4	24.7	29.2	26.2	33.0	21.3	27.4
65 to 74	1,268	650	618	1,260,712	596,472	664,240	100.6	109.0	93.0	95.0	106.1	100.6	117.4	85.7	100.4
75 to 84	3,999	1,664	2,335	988,209	412,295	575,914	404.7	403.6	405.4	392.1	417.2	384.2	423.0	389.0	421.9
85 & Older	5,472	1,631	3,841	402,581	135,267	267,314	1,359.2	1,205.8	1,436.9	1,323.2	1,395.2	1,147.2	1,264.3	1,391.4	1,482.3
Unknown	0	0	0												
Total	11,722	4,475	7,247	15,967,775	7,907,083	8,060,692	73.4	56.6	89.9	72.1	74.7	54.9	58.3	87.8	92.0
Age-Adjusted							50.7	49.3	51.1	49.8	51.7	47.8	50.7	49.9	52.3
TWO OR MORE RACES															
Under 1	0	0	0	10,725	5,479	5,246	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
1 to 4	0	0	0	99,863	51,049	48,814	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	0	0	0	171,009	86,842	84,167	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	1	1	0	132,609	65,842	66,767	0.8 *	1.5 *	0.0 +	0.0	2.2	0.0	4.5	-	-
25 to 34	2	1	1	87,030	41,857	45,173	2.3 *	2.4 *	2.2 *	0.0	5.5	0.0	7.1	0.0	6.6
35 to 44	1	1	0	78,882	37,944	40,938	1.3 *	2.6 *	0.0 +	0.0	3.8	0.0	7.8	-	-
45 to 54	5	4	1	65,728	31,245	34,483	7.6 *	12.8 *	2.9 *	0.9	14.3	0.3	25.3	0.0	8.6
55 to 64	6	3	3	40,271	18,874	21,397	14.9 *	15.9 *	14.0 *	3.0	26.8	0.0	33.9	0.0	29.9
65 to 74	5	3	2	22,432	10,465	11,967	22.3 *	28.7 *	16.7 *	2.8	41.8	0.0	61.1	0.0	39.9
75 to 84	16	5	11	13,515	5,955	7,560	118.4 *	84.0 *	145.5 *	60.4	176.4	10.4	157.6	59.5	231.5
85 & Older	13	6	7	5,380	1,984	3,396	241.6 *	302.4 *	206.1 *	110.3	373.0	60.4	544.4	53.4	358.8
Unknown	0	0	0												
Total	49	24	25	727,444	357,536	369,908	6.7	6.7	6.8	4.8	8.6	4.0	9.4	4.1	9.4
Age-Adjusted							13.5	14.4	12.7	9.6	17.3	8.4	20.4	7.7	17.8

Note: Rates are per 100,000 population. ICD-10 codes I60-I69.

Year 2000 U.S. Standard Population is used for age-adjusted rates.

American Indian, Asian, Black, Pacific Islander, White and Two or More Races exclude Hispanic ethnicity.

Hispanic includes any race category.

Deaths reported under Two or More Races are not duplicated in single race/ethnic groups.

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

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

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

Source: State of California, Department of Finance; Population Projections with Age, Sex, and Race/Ethnic Detail, 2000-2050, May 2004.
State of California, Department of Health Services, Death Records.

TABLE 2
CEREBROVASCULAR DISEASE DEATHS
CALIFORNIA, 2002-2004
(By Place of Residence)

COUNTY	2002-2004 DEATHS (AVERAGE)	PERCENT	2003 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
						LOWER	UPPER
CALIFORNIA	17,373.7	100.0	35,934,967	48.3	52.4	51.6	53.2
ALAMEDA ¹	748.3	4.3	1,495,367	50.0	58.1	53.9	62.2
ALPINE	1.7	a	1,268	131.4 *	159.0 *	0.0	400.4
AMADOR	28.7	0.2	37,074	77.3	58.2	36.7	79.7
BUTTE	171.7	1.0	212,473	80.8	59.8	50.8	68.8
CALAVERAS	32.3	0.2	43,566	74.2	57.7	37.5	77.8
COLUSA ²	8.7	a	20,026	43.3 *	47.5 *	15.8	79.1
CONTRA COSTA	561.0	3.2	1,003,704	55.9	57.9	53.1	62.7
DEL NORTE ²	11.7	0.1	28,192	41.4 *	40.5 *	17.2	63.9
EL DORADO ²	74.0	0.4	168,227	44.0	46.5	35.8	57.1
FRESNO ¹	461.0	2.7	855,469	53.9	66.7	60.6	72.8
GLENN ²	11.0	0.1	27,626	39.8 *	38.4 *	15.6	61.1
HUMBOLDT	74.7	0.4	129,515	57.7	57.2	44.2	70.2
IMPERIAL	66.7	0.4	153,673	43.4	60.3	45.6	75.0
INYO ²	14.0	0.1	18,617	75.2 *	41.7 *	19.7	63.7
KERN ²	316.7	1.8	717,332	44.1	48.4	43.0	53.8
KINGS	43.7	0.3	138,763	31.5	50.8	35.6	66.0
LAKE	52.0	0.3	62,359	83.4	58.6	42.6	74.6
LASSEN ²	10.3	0.1	34,633	29.8 *	35.2 *	13.7	56.8
LOS ANGELES ^{1,2}	4,180.3	24.1	10,047,236	41.6	44.6	43.3	46.0
MADERA ^{1,2}	56.3	0.3	133,965	42.1	40.8	30.1	51.6
MARIN ²	145.0	0.8	250,252	57.9	47.5	39.8	55.3
MARIPOSA ²	11.0	0.1	17,886	61.5 *	46.3 *	18.8	73.9
MENDOCINO	61.3	0.4	89,156	68.8	63.3	47.4	79.2
MERCED ¹	116.3	0.7	230,696	50.4	72.8	59.5	86.2
MODOC	8.0	a	9,541	83.8 *	58.9 *	18.0	99.8
MONO ²	3.0	a	13,443	22.3 *	28.8 *	0.0	62.4
MONTEREY	183.3	1.1	418,842	43.8	53.5	45.7	61.2
NAPA	120.7	0.7	130,920	92.2	63.4	51.8	74.9
NEVADA ¹	92.7	0.5	96,923	95.6	70.7	56.3	85.2
ORANGE ¹	1,376.0	7.9	3,001,146	45.8	56.3	53.3	59.3
PLACER ¹	202.7	1.2	285,336	71.0	63.2	54.5	71.9
PLUMAS ²	14.3	0.1	21,181	67.7 *	44.0 *	21.2	66.9
RIVERSIDE	971.0	5.6	1,758,719	55.2	55.1	51.6	58.6
SACRAMENTO ¹	795.3	4.6	1,331,563	59.7	65.2	60.7	69.8
SAN BENITO ²	18.7	0.1	56,605	33.0 *	49.7 *	27.0	72.4
SAN BERNARDINO	709.0	4.1	1,869,219	37.9	57.1	52.9	61.4
SAN DIEGO	1,467.7	8.4	2,989,178	49.1	54.8	52.0	57.6
SAN FRANCISCO	532.7	3.1	786,980	67.7	58.1	53.2	63.1
SAN JOAQUIN ¹	350.0	2.0	625,702	55.9	72.3	64.7	79.8
SAN LUIS OBISPO ²	153.7	0.9	257,452	59.7	49.2	41.4	57.0
SAN MATEO	406.3	2.3	712,772	57.0	52.7	47.6	57.9
SANTA BARBARA	229.7	1.3	412,069	55.7	51.9	45.1	58.6
SANTA CLARA ^{1,2}	656.7	3.8	1,723,819	38.1	47.2	43.5	50.8
SANTA CRUZ ²	117.3	0.7	259,220	45.3	48.7	39.8	57.6
SHASTA ²	120.3	0.7	175,421	68.6	45.9	37.5	54.4
SIERRA ²	1.7	a	3,563	46.8 *	28.3 *	0.0	72.0
SISKIYOU	33.7	0.2	45,081	74.7	51.0	33.6	68.4
SOLANO	213.3	1.2	416,406	51.2	53.1	45.9	60.4
SONOMA ¹	345.0	2.0	473,274	72.9	61.4	54.8	68.0
STANISLAUS	223.3	1.3	489,491	45.6	52.5	45.6	59.4
SUTTER	49.3	0.3	84,978	58.1	60.7	43.7	77.7
TEHAMA	50.0	0.3	58,665	85.2	53.2	38.0	68.4
TRINITY ²	6.3	a	13,579	46.6 *	33.1 *	7.2	58.9
TULARE ¹	181.0	1.0	392,989	46.1	63.7	54.4	73.0
TUOLUMNE	41.3	0.2	57,120	72.4	52.0	36.1	68.0
VENTURA ^{1,2}	320.7	1.8	799,114	40.1	44.5	39.6	49.4
YOLO	88.0	0.5	183,602	47.9	64.0	50.6	77.4
YUBA	32.7	0.2	63,979	51.1	61.3	40.1	82.5

Note : Rates are per 100,000 population. ICD-10 codes I60-I69.
Year 2000 U.S. Standard Population is used for age-adjusted rates.
* Death rate unreliable, relative standard error is greater than or equal to 23 percent.

¹ County age-adjusted rate is significantly different from the state age-adjusted rate.
² Met or surpassed HP2010 target rate.
a Represents a percentage of more than zero but less than 0.05.

Source: State of California, Department of Finance; 2003 Population: Population Projections by Age, Race/Ethnicity and Sex, May 2004.
State of California, Department of Health Services, Death Records.

Figure 6
Cerebrovascular Disease Deaths
Age-Adjusted Death Rates
California Counties, 2002-2004

