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

Highlights

- **In 2004, 85.1 percent of all hypertension deaths in California occurred among people over age 64.**
- **The hypertension crude death rate for California was 7.9 deaths per 100,000 population in 2004.**
- **During 2004 the California hypertension age-adjusted death rate of 8.5 was higher than the U.S. rate of 7.6.**
- **In 2004 Blacks had a significantly higher hypertension age-adjusted death rate than the other three race/ethnic groups displayed in this report.**

Hypertension Deaths in California, 2004

By Daniel H. Cox

Introduction

Hypertension, also known as essential (primary) hypertension and hypertensive renal disease or high blood pressure, is a leading cause of death in the United States (U.S.) and in California. Hypertension increases the risk for heart disease and stroke, two other leading causes of death. Approximately one in three American adults have hypertension and approximately 28 percent of those affected are unaware of their condition.[1] In 2004 there were 22,953 hypertension deaths in the U.S.; 2,860 of those deaths occurred in California.[2, 3]

This report presents data on hypertension deaths for 2004. It provides analysis of crude and age-adjusted death rates for California residents by sex, age, race/ethnicity, and county. The definition of hypertension used in this report is based on the International Classification of Diseases, Tenth Revision (ICD-10) codes I10 and I12 presented in National Center for Health Statistics (NCHS) reports.[4] The national health objective for hypertension, as defined by the Healthy People 2010 initiative, pertains only to morbidity, so an assessment of California's progress in meeting this objective cannot be accomplished with the mortality data presented in this report.

Hypertension Deaths

Table 1 (page 9) displays hypertension death data for 2004 by race/ethnicity, age, and sex. During this period, the number of deaths attributed to hypertension was higher among females (1,749) than among males (1,111). As shown in **Figure 1** (page 2), the number of hypertension deaths among Whites (1,869) was higher than Hispanics (358), Blacks (350), and Asians (251).

Hypertension deaths occur predominantly among the older population, and this held true in 2004 with 85.1 percent of all hypertension deaths involving people aged 65 years and older. This age group, within each respective race/ethnic

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[1] National Center for Chronic Disease Prevention and Health Promotion. High Blood Pressure Facts, August 2006. Available online at: http://www.cdc.gov/bloodpressure/facts.htm

[2] National Center for Health Statistics. Deaths: Preliminary Data for 2004. National Vital Statistics Reports, DHHS Publication Number (PHS) 2006-1120, PRS 06-0130, Volume 54, Number 19, June 2006.

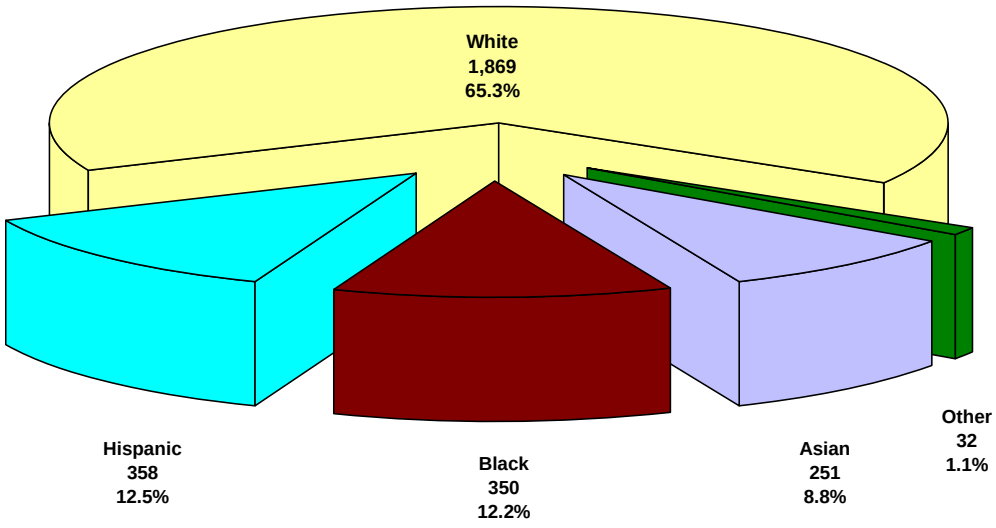
[3] State of California. Department of Health Services, Death Records.

[4] National Center for Health Statistics. Deaths: Preliminary Data for 1999. National Vital Statistics Reports, DHHS Publication Number (PHS) 2001-1120, PRS 01-0358, Volume 49, Number 3, June 2001.

A brief overview of data limitations and qualifications is provided at the end of this report.

group, accounted for 89.7 percent of all hypertension deaths among Whites, 85.3 percent among Asians, 79.6 percent among Hispanics, and 68.6 percent among Blacks.

FIGURE 1
HYPERTENSION DEATHS
BY RACE/ETHNICITY *
CALIFORNIA 2004



Source: State of California, Department of Health Services, Death Records.
* Calculated using death data for California residents only.
Percents do not add to 100 due to rounding.
Other includes American Indian (11), Pacific Islander (11), and Two or More Races (10).

Hypertension Crude Death Rates

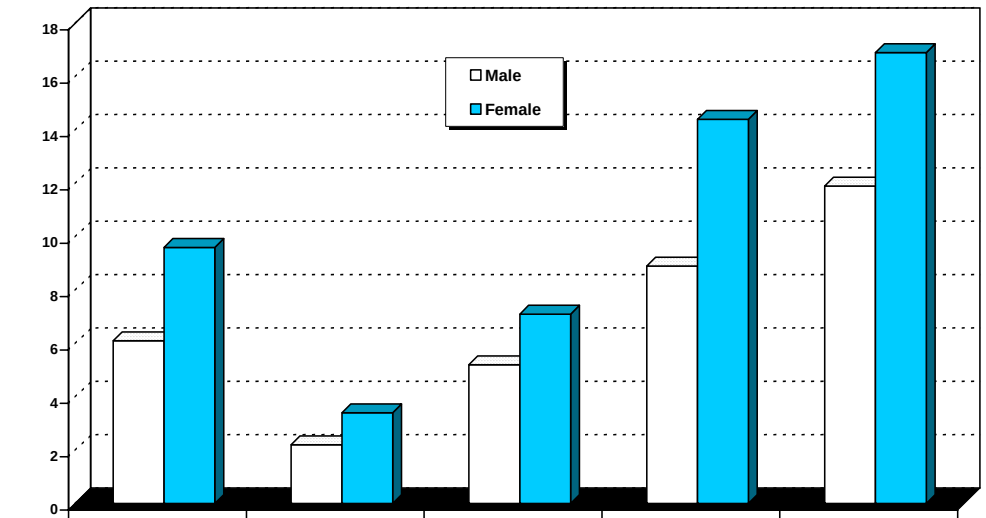
The hypertension crude death rate for California increased significantly from 5.9 deaths per 100,000 population in 2000 to 7.9 in 2004.[5] As shown in **Table 1** (page 9), Blacks had the highest crude death rate in 2004, a rate of 14.4 that was followed by Whites with a rate of 11.7, Asians with a rate of 6.2, and Hispanics with a rate of 2.8. All of these rates increased from 2000 when Blacks had a rate of 13.2, Whites had 8.4, Asians had 3.8, and Hispanics had 2.0.[5] The differences in the hypertension crude death rates from 2000 to 2004 were statistically significant for Asians, Hispanics, and Whites.

Figure 2 (page 3) shows females had higher hypertension crude death rates than males in their corresponding race/ethnic groups and overall. Black females had a rate of 16.9 deaths per 100,000 population and Black males had a rate of 11.9. White females had a rate of 14.4 and White males had a rate of 8.9. Asian females had a rate of 7.1 compared with Asian males at 5.2. The Hispanic female rate of 3.4 was higher than the Hispanic male rate of 2.2. These differences between females compared with their respective male counterparts were statistically significant.

[5] Cox DH. Hypertension Deaths in California, 2000-2003. Data Summary. Center for Health Statistics, California Department of Health Services, December 2005.

See the Methodological Approach Section later in this report for an explanation of crude, age-specific, and age-adjusted death rates.

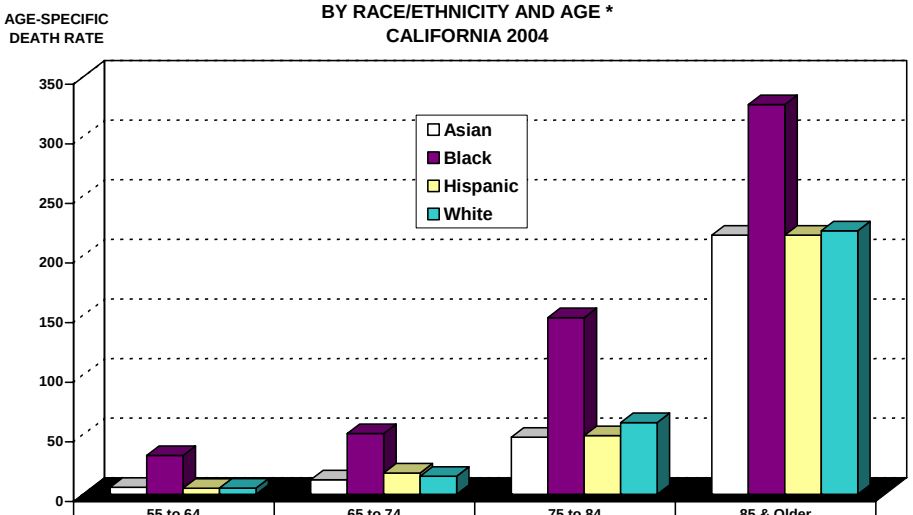
FIGURE 2
HYPERTENSION CRUDE DEATH RATES
BY RACE/ETHNICITY AND SEX *
CALIFORNIA 2004



	Total	Hispanic	Asian	White	Black
Male	6.1	2.2	5.2	8.9	11.9
Female	9.6	3.4	7.1	14.4	16.9

Source: State of California, Department of Health Services, Death Records.
* Calculated using death data for California residents only.
Total includes American Indian, Pacific Islander and Two or More Races, not shown individually due to unreliable rates.

FIGURE 3
HYPERTENSION AGE-SPECIFIC DEATH RATES
BY RACE/ETHNICITY AND AGE *
CALIFORNIA 2004



	55 to 64	65 to 74	75 to 84	85 & Older
Asian	6.0	12.2	48.0	217.5
Black	32.6	51.1	148.3	327.0
Hispanic	5.2	17.9	49.3	217.4
White	5.4	15.2	60.2	221.1

Source: State of California, Department of Health Services, Death Records.
* Calculated using death data for California residents only.
Because of unreliability age-specific rates for American Indian, Pacific Islander, and Two or More Races were not included in Figure 3.

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

Hypertension Age-Specific Death Rates

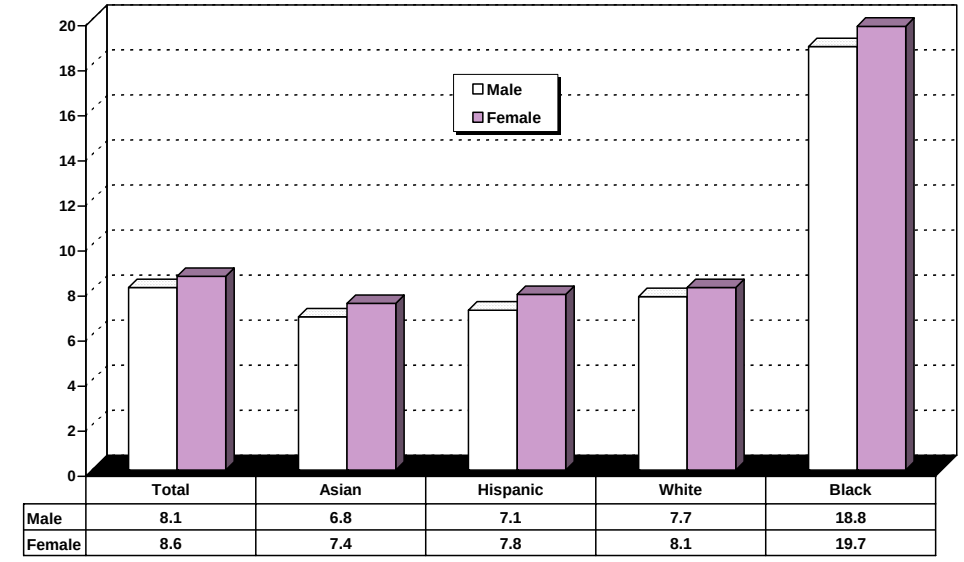
Figure 3 (page 3) shows that in 2004, among the age groups with reliable rates, Blacks had higher hypertension age-specific death rates than the other three race/ethnic groups. These rate differences were statistically significant in every age group displayed in **Figure 3**. Not shown in **Figure 3,** but displayed in **Table 1** (page 9) are the age-specific death rates for the 45 to 54 age group where Blacks had a significantly higher rate than Whites and Hispanics. The rate for Asians was not reliable in the 45 to 54 age group.

Hypertension Age-Adjusted Death Rates

In 2004 the California hypertension age-adjusted death rate of 8.5 deaths per 100,000 population was higher than the U.S. rate of 7.6.[2] The California rate increased significantly from 2000 when the hypertension age-adjusted death rate was 7.0.[5]

Displayed in **Table 1** (page 9), a comparison among the race/ethnic groups shows that in 2004 Blacks had a hypertension age-adjusted death rate of 19.8, which was significantly higher than the rate of 8.1 deaths per 100,000 population for Whites, followed by Hispanics with 7.6, and by Asians with 7.2. Rates for all four of the race/ethnic groups increased from 2000 when Blacks were at 19.7, Whites were 6.3, Hispanics were 6.2, and Asians were 5.6.[5] These differences in the rates between 2000 and 2004 were statistically significant for Asians, Hispanics, and Whites.

FIGURE 4
HYPERTENSION AGE-ADJUSTED DEATH RATES
BY RACE/ETHNICITY AND SEX *
CALIFORNIA 2004



	Total	Asian	Hispanic	White	Black
Male	8.1	6.8	7.1	7.7	18.8
Female	8.6	7.4	7.8	8.1	19.7

Source: State of California, Department of Health Services, Death Records.
* Calculated using death data for California residents only.
Total includes American Indian, Pacific Islander and Two or More Races not shown individually due to unreliable rates.

As shown in **Figure 4**, in 2004 the hypertension age-adjusted death rate for females was higher than for males in all of the four race/ethnic groups. Black females with a rate of 19.7 had the highest rate among the four race/ethnic groups though it was not significantly higher than the Black male rate of 18.8. White females with a rate of 8.1 had

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

a higher rate than White males at 7.7 and Hispanic females at 7.8 had a higher rate than Hispanic males at 7.1. Asian females at 7.4 deaths per 100,000 population had a higher rate than Asian males at 6.8; the lowest age-adjusted death rate among the four race/ethnic groups. None of these gender differences were statistically significant.

Hypertension Death Data for California Counties

Table 2 (page 10) displays the number of deaths, crude death rates, and age-adjusted death rates by county averaged over a three-year period, 2002 to 2004. 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.

Los Angeles County (744.7) had the highest average number of hypertension deaths for the three-year period and Alpine, Mariposa, Mono, and Sierra Counties had the lowest (0.0).

The highest reliable hypertension crude death rate occurred in Butte County (20.2 deaths per 100,000 population) and the lowest occurred in San Mateo County (5.9).

The status of hypertension age-adjusted death rates among the counties showed Butte County with the highest reliable rate (15.8 deaths per 100,000 population) and San Francisco County with the lowest (5.3).

As seen in **Table 2**, in 2004 four counties with reliable rates had significantly different hypertension age-adjusted death rates than the California rate of 7.8; two of these counties had lower rates and two had higher rates. Please refer to the data limitations and qualifications section for information regarding significance testing between the county and state age-adjusted death rates.

Figure 6 (page 11) graphically presents 2004 hypertension age-adjusted death rates for California counties. The Jenks natural breaks classification was used to determine the interval breaks for the county rates.

TABLE 3
HYPERTENSION DEATHS
AMONG THE CITY HEALTH JURISDICTIONS*
CALIFORNIA, 2002-2004

CITY HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	2003 POPULATION	CRUDE DEATH RATE
BERKELEY	9.7	104,195	9.3 +
LONG BEACH	31.0	481,015	6.4
PASADENA	8.7	142,214	6.1 +

Note: Rates are per 100,000 population. Data is ICD-10 codes I10, I12.
* Calculated using death data for California residents only.
\+ Death rate unreliable, relative standard error is greater than or equal to 23 percent.

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

For more data, see DHS Center for Health Statistics, Office of Health Information and Research website at www.dhs.ca.gov/ohir

Hypertension Death Data by City Health Jurisdiction

Table 3 (page 5) displays the number of deaths and crude death rates for California's three city health jurisdictions averaged over a three-year period, 2002 to 2004. Age-adjusted death rates were not calculated for the city health jurisdictions because city population estimates by age were not available.

The city of Long Beach had an annual average of 31.0 hypertension deaths for the three-year period, Berkeley had 9.7, and Pasadena had 8.7.

The city of Berkeley had a hypertension crude death rate of 9.3 deaths per 100,000 population, Long Beach had a rate of 6.4, and Pasadena had a rate of 6.1, though the rates for Berkeley and Pasadena were unreliable.

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.[6] 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 hypertension death data presented in this report are based on vital statistics records with ICD-10 codes I10 and I12 as defined by the NCHS.[4]

Deaths by place of residence means that the data include only those deaths occurring among residents of California, regardless of the place of death.

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

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.[7]

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.[8] 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 numbers 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.

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.

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[7] van Belle G. Statistical Rules of Thumb, Rule 2.5. Wiley Publishing. March 2002.

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

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.[9] This problem could contribute to understatements of rates for the Two or More Races group as well. All race groups may not be individually displayed on the tables due to unreliable rates, but the State totals do include their data.

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.

The 2000 U.S. population standard was used for calculating age-adjustments in accordance with statistical policy implemented by NCHS.[10] 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 5) differ from population data used to calculate county crude rates in **Table 2** (page 10). 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.[11] Detailed information on data quality and limitations is presented in the appendix of the annual report, "Vital Statistics of California."[12] Formulas used to calculate death rates are included in the technical notes of the "County Health Status Profiles" report.[13]

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[9] Rosenberg 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.

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

[11] Klein 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.

[12] Ficenec S, Bindra K. Vital Statistics of California, 2003. Center for Health Statistics, California Department of Health Services. August 2005.

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

TABLE 1
HYPERTENSION 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[1]															
Under 1	0	0	0	534,769	272,800	261,969	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
1 to 4	0	0	0	2,047,621	1,045,813	1,001,808	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	1	0	1	5,369,098	2,750,853	2,618,245	0.0 *	0.0 +	0.0 *	0.0	0.1	-	-	0.0	0.1
15 to 24	4	2	2	5,294,261	2,757,217	2,537,044	0.1 *	0.1 *	0.1 *	0.0	0.1	0.0	0.2	0.0	0.2
25 to 34	15	10	5	5,231,086	2,701,183	2,529,903	0.3 *	0.4 *	0.2 *	0.1	0.4	0.1	0.6	0.0	0.4
35 to 44	31	18	13	5,672,590	2,883,426	2,789,164	0.5	0.6 *	0.5 *	0.4	0.7	0.3	0.9	0.2	0.7
45 to 54	137	92	45	4,931,148	2,440,823	2,490,325	2.8	3.8	1.8	2.3	3.2	3.0	4.5	1.3	2.3
55 to 64	237	125	112	3,303,083	1,594,612	1,708,471	7.2	7.8	6.6	6.3	8.1	6.5	9.2	5.3	7.8
65 to 74	353	168	185	2,025,575	936,610	1,088,965	17.4	17.9	17.0	15.6	19.2	15.2	20.6	14.5	19.4
75 to 84	869	359	510	1,420,413	590,956	829,457	61.2	60.7	61.5	57.1	65.2	54.5	67.0	56.1	66.8
85 & Older	1,213	337	876	546,767	187,361	359,406	221.8	179.9	243.7	209.4	234.3	160.7	199.1	227.6	259.9
Total	2,860	1,111	1,749	36,376,411	18,161,654	18,214,757	7.9	6.1	9.6	7.6	8.2	5.8	6.5	9.2	10.1
Age-Adjusted							8.5	8.1	8.6	8.2	8.8	7.6	8.5	8.2	9.0
ASIAN															
Under 1	0	0	0	48,115	24,552	23,563	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
1 to 4	0	0	0	188,290	96,379	91,911	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	0	0	0	498,432	257,125	241,307	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	0	0	0	567,146	291,640	275,506	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	2	1	1	618,710	302,916	315,794	0.3 *	0.3 *	0.3 *	0.0	0.8	0.0	1.0	0.0	0.9
35 to 44	2	1	1	671,272	321,320	349,952	0.3 *	0.3 *	0.3 *	0.0	0.7	0.0	0.9	0.0	0.8
45 to 54	10	5	5	609,567	284,594	324,973	1.6 *	1.8 *	1.5 *	0.6	2.7	0.2	3.3	0.2	2.9
55 to 64	23	13	10	385,197	179,303	205,894	6.0	7.3 *	4.9 *	3.5	8.4	3.3	11.2	1.8	7.9
65 to 74	30	13	17	245,629	107,974	137,655	12.2	12.0 *	12.3 *	7.8	16.6	5.5	18.6	6.5	18.2
75 to 84	74	34	40	154,086	64,809	89,277	48.0	52.5	44.8	37.1	59.0	34.8	70.1	30.9	58.7
85 & Older	110	35	75	50,569	20,013	30,556	217.5	174.9	245.5	176.9	258.2	116.9	232.8	189.9	301.0
Total	251	102	149	4,037,013	1,950,625	2,086,388	6.2	5.2	7.1	5.4	7.0	4.2	6.2	6.0	8.3
Age-Adjusted							7.2	6.8	7.4	6.3	8.1	5.5	8.2	6.2	8.5
BLACK															
Under 1	0	0	0	32,707	16,671	16,036	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
1 to 4	0	0	0	122,652	62,561	60,091	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	1	0	1	408,879	208,120	200,759	0.2 *	0.0 +	0.5 *	0.0	0.7	-	-	0.0	1.5
15 to 24	0	0	0	395,238	205,416	189,822	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	3	2	1	326,490	160,606	165,884	0.9 *	1.2 *	0.6 *	0.0	2.0	0.0	3.0	0.0	1.8
35 to 44	10	4	6	399,615	199,186	200,429	2.5 *	2.0 *	3.0 *	1.0	4.1	0.0	4.0	0.6	5.4
45 to 54	31	21	10	329,298	160,793	168,505	9.4	13.1	5.9 *	6.1	12.7	7.5	18.6	2.3	9.6
55 to 64	65	28	37	199,142	92,418	106,724	32.6	30.3	34.7	24.7	40.6	19.1	41.5	23.5	45.8
65 to 74	62	32	30	121,222	55,208	66,014	51.1	58.0	45.4	38.4	63.9	37.9	78.0	29.2	61.7
75 to 84	96	42	54	64,749	25,309	39,440	148.3	165.9	136.9	118.6	177.9	115.8	216.1	100.4	173.4
85 & Older	82	13	69	25,074	7,615	17,459	327.0	170.7 *	395.2	256.2	397.8	77.9	263.5	302.0	488.5
Total	350	142	208	2,425,066	1,193,903	1,231,163	14.4	11.9	16.9	12.9	15.9	9.9	13.9	14.6	19.2
Age-Adjusted							19.8	18.8	19.7	17.7	21.9	15.6	22.1	17.0	22.4
HISPANIC															
Under 1	0	0	0	273,401	139,443	133,958	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
1 to 4	0	0	0	1,003,339	512,381	490,958	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	0	0	0	2,503,684	1,279,931	1,223,753	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	3	2	1	2,275,634	1,199,542	1,076,092	0.1 *	0.2 *	0.1 *	0.0	0.3	0.0	0.4	0.0	0.3
25 to 34	3	3	0	2,332,753	1,244,497	1,088,256	0.1 *	0.2 *	0.0 +	0.0	0.3	0.0	0.5	-	-
35 to 44	6	3	3	1,954,969	1,014,652	940,317	0.3 *	0.3 *	0.3 *	0.1	0.6	0.0	0.6	0.0	0.7
45 to 54	28	18	10	1,228,904	607,654	621,250	2.3	3.0 *	1.6 *	1.4	3.1	1.6	4.3	0.6	2.6
55 to 64	33	19	14	636,784	298,857	337,927	5.2	6.4	4.1 *	3.4	7.0	3.5	9.2	2.0	6.3
65 to 74	64	27	37	357,389	157,978	199,411	17.9	17.1	18.6	13.5	22.3	10.6	23.5	12.6	24.5
75 to 84	94	39	55	190,758	78,695	112,063	49.3	49.6	49.1	39.3	59.2	34.0	65.1	36.1	62.1
85 & Older	127	36	91	58,423	20,677	37,746	217.4	174.1	241.1	179.6	255.2	117.2	231.0	191.6	290.6
Total	358	147	211	12,816,038	6,554,307	6,261,731	2.8	2.2	3.4	2.5	3.1	1.9	2.6	2.9	3.8
Age-Adjusted							7.6	7.1	7.8	6.8	8.4	5.9	8.4	6.7	8.9
WHITE															
Under 1	0	0	0	164,750	84,066	80,684	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
1 to 4	0	0	0	617,372	315,162	302,210	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
5 to 14	0	0	0	1,722,936	886,271	836,665	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	1	0	1	1,856,335	960,424	895,911	0.1 *	0.0 +	0.1 *	0.0	0.2	-	-	0.0	0.3
25 to 34	6	4	2	1,808,165	922,586	885,579	0.3 *	0.4 *	0.2 *	0.1	0.6	0.0	0.9	0.0	0.5
35 to 44	12	9	3	2,502,123	1,278,269	1,223,854	0.5 *	0.7 *	0.2 *	0.2	0.8	0.2	1.2	0.0	0.5
45 to 54	65	45	20	2,639,194	1,328,451	1,310,743	2.5	3.4	1.5	1.9	3.1	2.4	4.4	0.9	2.2
55 to 64	108	61	47	2,005,398	987,820	1,017,578	5.4	6.2	4.6	4.4	6.4	4.6	7.7	3.3	5.9
65 to 74	192	93	99	1,260,712	596,472	664,240	15.2	15.6	14.9	13.1	17.4	12.4	18.8	12.0	17.8
75 to 84	595	240	355	988,209	412,295	575,914	60.2	58.2	61.6	55.4	65.0	50.8	65.6	55.2	68.1
85 & Older	890	253	637	402,581	135,267	267,314	221.1	187.0	238.3	206.5	235.6	164.0	210.1	219.8	256.8
Total	1,869	705	1,164	15,967,775	7,907,083	8,060,692	11.7	8.9	14.4	11.2	12.2	8.3	9.6	13.6	15.3
Age-Adjusted							8.1	7.7	8.1	7.7	8.4	7.1	8.3	7.7	8.6

Note : Rates are per 100,000 population. ICD-10 codes I10, I12.
The year 2000 U.S. standard population is used for age-adjusted rates.
White, Black, and Asian 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.

[1] Includes deaths for American Indian (11), Pacific Islander (11), and Two or More Races (10) which are not individually shown due to unreliable rates..

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

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

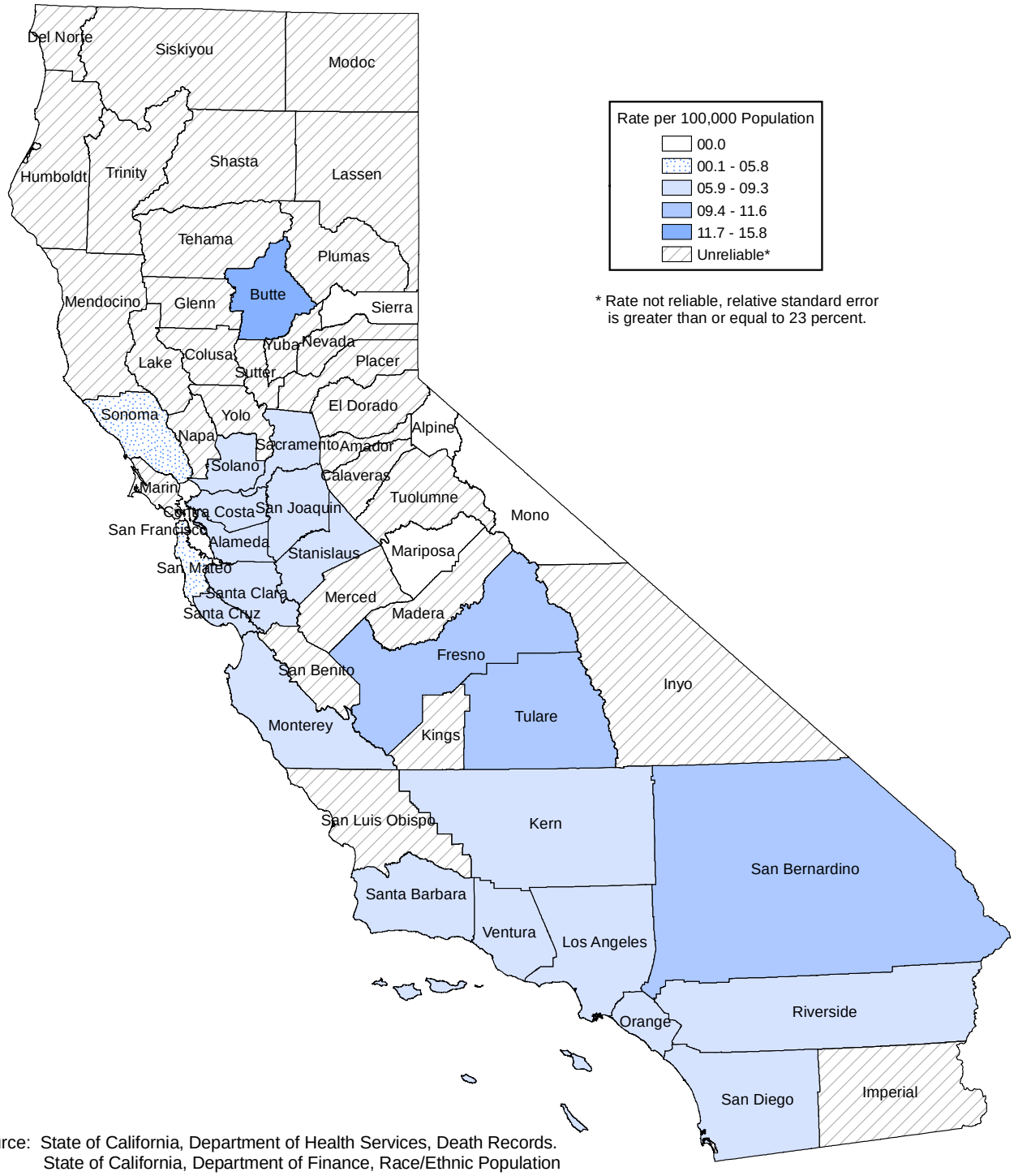
COUNTY	2002-2004 DEATHS (Average)	PERCENT	2003 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
						LOWER	UPPER
CALIFORNIA	2,589.3	100.0	35,934,967	7.2	7.8	7.5	8.1
ALAMEDA	121.3	4.7	1,495,367	8.1	9.3	7.6	11.0
ALPINE	0.0	0.0	1,268	0.0 +	0.0 +	-	-
AMADOR	1.0	a	37,074	2.7 *	2.3 *	0.0	6.7
BUTTE[1]	43.0	1.7	212,473	20.2	15.8	11.0	20.6
CALAVERAS	3.0	0.1	43,566	6.9 *	5.7 *	0.0	12.2
COLUSA	2.7	0.1	20,026	13.3 *	14.7 *	0.0	32.3
CONTRA COSTA	70.0	2.7	1,003,704	7.0	7.2	5.5	8.9
DEL NORTE	2.3	0.1	28,192	8.3 *	8.0 *	0.0	18.3
EL DORADO	7.7	0.3	168,227	4.6 *	4.9 *	1.4	8.4
FRESNO	70.7	2.7	855,469	8.3	10.2	7.8	12.6
GLENN	4.7	0.2	27,626	16.9 *	15.3 *	1.4	29.2
HUMBOLDT	6.3	0.2	129,515	4.9 *	4.8 *	1.0	8.6
IMPERIAL	7.3	0.3	153,673	4.8 *	6.8 *	1.8	11.8
INYO	1.3	0.1	18,617	7.2 *	3.8 *	0.0	10.4
KERN	55.3	2.1	717,332	7.7	8.4	6.2	10.6
KINGS	6.7	0.3	138,763	4.8 *	8.0 *	1.9	14.1
LAKE	5.0	0.2	62,359	8.0 *	5.9 *	0.7	11.2
LASSEN	0.7	a	34,633	1.9 *	2.4 *	0.0	8.3
LOS ANGELES	744.7	28.8	10,047,236	7.4	7.9	7.4	8.5
MADERA	13.0	0.5	133,965	9.7 *	9.0 *	4.1	14.0
MARIN	14.3	0.6	250,252	5.7 *	4.6 *	2.2	7.0
MARIPOSA	0.0	0.0	17,886	0.0 +	0.0 +	-	-
MENDOCINO	8.0	0.3	89,156	9.0 *	8.4 *	2.6	14.2
MERCED	12.3	0.5	230,696	5.3 *	8.0 *	3.5	12.4
MODOC	0.3	a	9,541	3.5 *	2.5 *	0.0	11.0
MONO	0.0	0.0	13,443	0.0 +	0.0 +	-	-
MONTEREY	27.0	1.0	418,842	6.4	8.0	5.0	11.0
NAPA	6.0	0.2	130,920	4.6 *	3.0 *	0.6	5.4
NEVADA	7.7	0.3	96,923	7.9 *	5.8 *	1.7	10.0
ORANGE	183.3	7.1	3,001,146	6.1	7.5	6.4	8.6
PLACER	17.3	0.7	285,336	6.1 *	5.4 *	2.9	8.0
PLUMAS	2.7	0.1	21,181	12.6 *	8.0 *	0.0	17.7
RIVERSIDE	122.7	4.7	1,758,719	7.0	7.0	5.8	8.3
SACRAMENTO	90.0	3.5	1,331,563	6.8	7.4	5.8	8.9
SAN BENITO	2.7	0.1	56,605	4.7 *	7.1 *	0.0	15.6
SAN BERNARDINO[1]	145.0	5.6	1,869,219	7.8	11.6	9.7	13.5
SAN DIEGO	236.3	9.1	2,989,178	7.9	8.8	7.7	10.0
SAN FRANCISCO[1]	48.3	1.9	786,980	6.1	5.3	3.8	6.8
SAN JOAQUIN	42.3	1.6	625,702	6.8	8.6	6.0	11.2
SAN LUIS OBISPO	18.7	0.7	257,452	7.3 *	6.0 *	3.3	8.7
SAN MATEO[1]	42.3	1.6	712,772	5.9	5.5	3.9	7.2
SANTA BARBARA	30.3	1.2	412,069	7.4	6.9	4.4	9.4
SANTA CLARA	105.0	4.1	1,723,819	6.1	7.5	6.1	8.9
SANTA CRUZ	22.0	0.8	259,220	8.5	9.1	5.3	13.0
SHASTA	14.0	0.5	175,421	8.0 *	5.1 *	2.3	7.9
SIERRA	0.0	0.0	3,563	0.0 +	0.0 +	-	-
SISKIYOU	4.7	0.2	45,081	10.4 *	7.0 *	0.6	13.3
SOLANO	35.0	1.4	416,406	8.4	8.8	5.8	11.7
SONOMA	33.0	1.3	473,274	7.0	5.8	3.8	7.8
STANISLAUS	31.0	1.2	489,491	6.3	7.3	4.7	9.9
SUTTER	6.0	0.2	84,978	7.1 *	7.4 *	1.5	13.2
TEHAMA	4.7	0.2	58,665	8.0 *	5.2 *	0.4	9.9
TRINITY	0.3	a	13,579	2.5 *	1.7 *	0.0	7.3
TULARE	32.7	1.3	392,989	8.3	11.6	7.6	15.5
TUOLUMNE	5.3	0.2	57,120	9.3 *	6.6 *	1.0	12.2
VENTURA	55.3	2.1	799,114	6.9	7.7	5.6	9.7
YOLO	10.3	0.4	183,602	5.6 *	7.5 *	2.9	12.1
YUBA	5.7	0.2	63,979	8.9 *	11.2 *	1.9	20.5

Note : Rates are per 100,000 population. ICD-10 codes I10, I12.
The year 2000 U.S. standard population is used for age-adjusted rates.

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

1 County age-adjusted rate is significantly different from California age-adjusted rate.
- Confidence limit is not calculated for no (zero) deaths.
a Represents a percentage of more than zero but less than 0.05.
* Death rate unreliable, relative standard error is greater than or equal to 23 percent.
+ Standard error indeterminate, death rate based on no (zero) deaths.

Figure 5
Deaths Due to Hypertension
Age-Adjusted Death Rates
California Counties, 2002-2004



* Rate not reliable, relative standard error is greater than or equal to 23 percent.

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