



# Center for Health Statistics



November 2006

DATA SUMMARY No. DS06-1100

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

## Highlights

- Alzheimer's disease was the eighth leading cause of death in California during 2004.
- Over 99 percent of Alzheimer's disease deaths in 2004 occurred among residents aged 65 and older.
- In 2004 California's age-adjusted death rate for Alzheimer's was 20.6, an increase of 4.6 percent over the 2003 rate.
- Humboldt (38.4) and Tulare (9.4) Counties had the highest and lowest reliable Alzheimer's age-adjusted death rates, respectively in 2004.

# Alzheimer's Disease Deaths in California, 2004

By Sally Jew-Lochman

## Introduction

Alzheimer's disease is the most common form of dementia, a group of conditions that affects memory, mood, and behavior. This irreversible disease causes a progressive decline in mental function through gradual changes to the brain and eventually destroys brain cells. Age is the greatest risk factor for Alzheimer's disease, although hereditary and lifestyle factors may also play a role.<sup>1</sup> One in 10 individuals over age 65 and nearly half of those over age 85 are affected by Alzheimer's disease.<sup>2</sup>

In 2000 an estimated 4.5 million Americans had Alzheimer's disease and the number is expected to rise due to the increase in life expectancy and the lack of effective preventative treatment or a cure.<sup>3</sup> By 2050, the number of Americans with Alzheimer's disease could range from 11.3 million to 16 million.<sup>2</sup>

In the United States (U.S.) Alzheimer's disease moved from eighth place to seventh place in the leading cause of death list as the number of deaths increased from 63,343 in 2003 to 65,829 in 2004.<sup>4</sup> The number of Alzheimer's disease deaths in California increased from 6,585 in 2003 to 6,962 in 2004, yet it remained the eighth leading cause of death.<sup>5</sup>

The U.S. Public Health Service established a number of health objectives as part of the Healthy People 2010 (HP 2010) Initiative.<sup>6</sup> They were designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats. Alzheimer's disease was not included in the set of objectives.

<sup>1</sup>Mayo Clinic Staff (2005). Alzheimer's Disease. Mayo Foundation for Medical Education and Research website at [www.mayoclinic.com](http://www.mayoclinic.com) Accessed September 2006.

<sup>2</sup>Alzheimer's Disease Statistics. Alzheimer's Association website at [www.alz.org](http://www.alz.org) Accessed September 2006.

<sup>3</sup>Hebert LE, et al. Alzheimer Disease in the US Population: Prevalence Estimates Using the 2000 Census. Archives of Neurology, Vol. 60, No. 8, August 2003.

<sup>4</sup>National Center for Health Statistics. Deaths: Preliminary Data for 2004. National Vital Statistics Reports; Vol 54, No 19. Hyattsville, Maryland. June 2006.

<sup>5</sup>State of California, Department of Health Services, Death Records 2004.

<sup>6</sup>United States Department of Health and Human Services. Healthy People 2010 Objectives (Second Edition, in Two Volumes). Washington, D.C. January 2001.

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

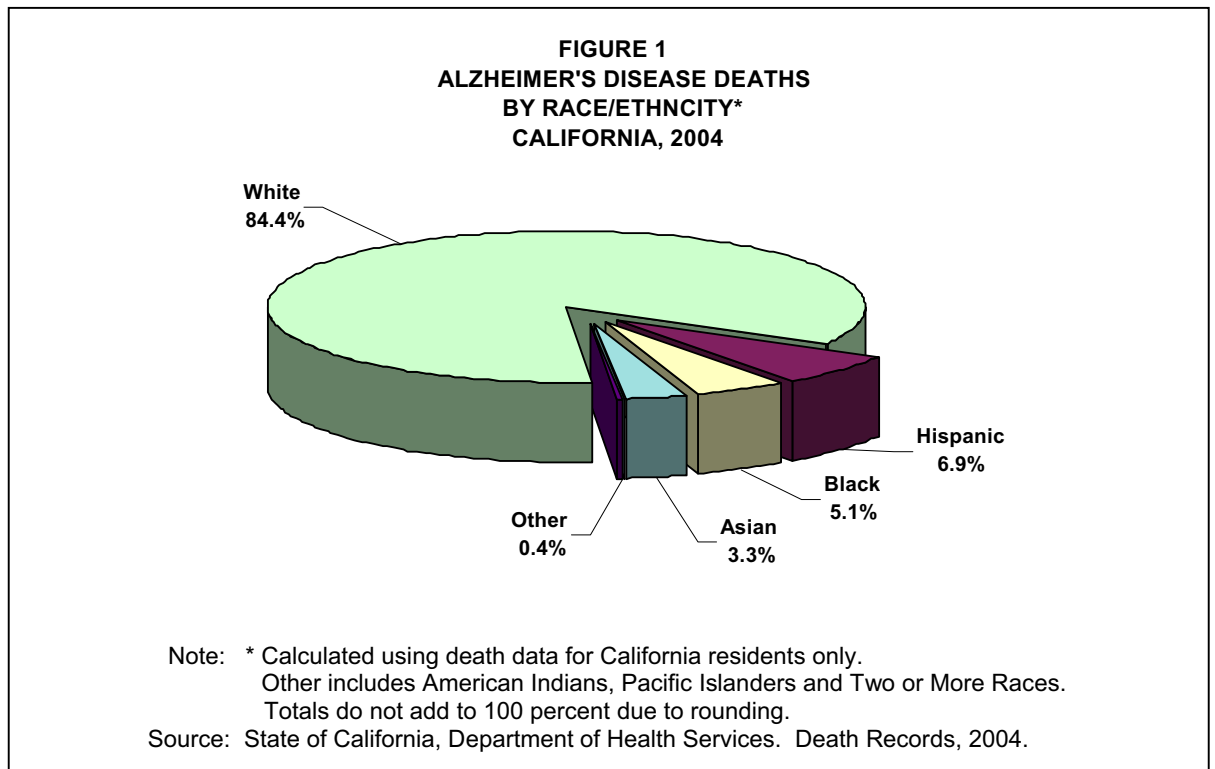
This report presents data on California's Alzheimer's disease deaths for 2004. It provides analysis of crude and age-adjusted death rates for California residents by sex, age, and race/ethnicity. Alzheimer's disease data are extracted from vital statistics records with deaths attributed to Alzheimer's disease as defined by the International Classification of Diseases, Tenth Revision (ICD-10) code G30 in accordance with the National Center for Health Statistics (NCHS).<sup>7</sup>

## Alzheimer's Disease Deaths

**Table 1** (page 11) shows Alzheimer's disease death data for 2004 among California residents by race/ethnicity, age, and sex. There were a total of 6,962 deaths due to Alzheimer's disease, of which 4,831 or 69.4 percent occurred among females and 2,131 or 30.6 percent occurred among males. Alzheimer's deaths among women outnumbered deaths among men by a ratio of 2.3 to 1.

Over 99 percent of the deaths attributed to Alzheimer's disease in 2004 occurred among residents aged 65 and older. The proportion of deaths increased with age as follows: 5.1 percent were aged 65 to 74; 33.2 percent were aged 75 to 84; and 61.0 percent were aged 85 and older.

**Figure 1** shows Whites had the highest percentage of Alzheimer's disease deaths with 84.4 percent followed by Hispanics with 6.9 percent, Blacks with 5.1 percent, Asians with 3.3 percent, and Other with 0.4 percent. Other includes American Indians (0.2 percent), Pacific Islanders (0.03 percent), and Two or More Races (0.2 percent). Totals do not add to 100 percent due to rounding.



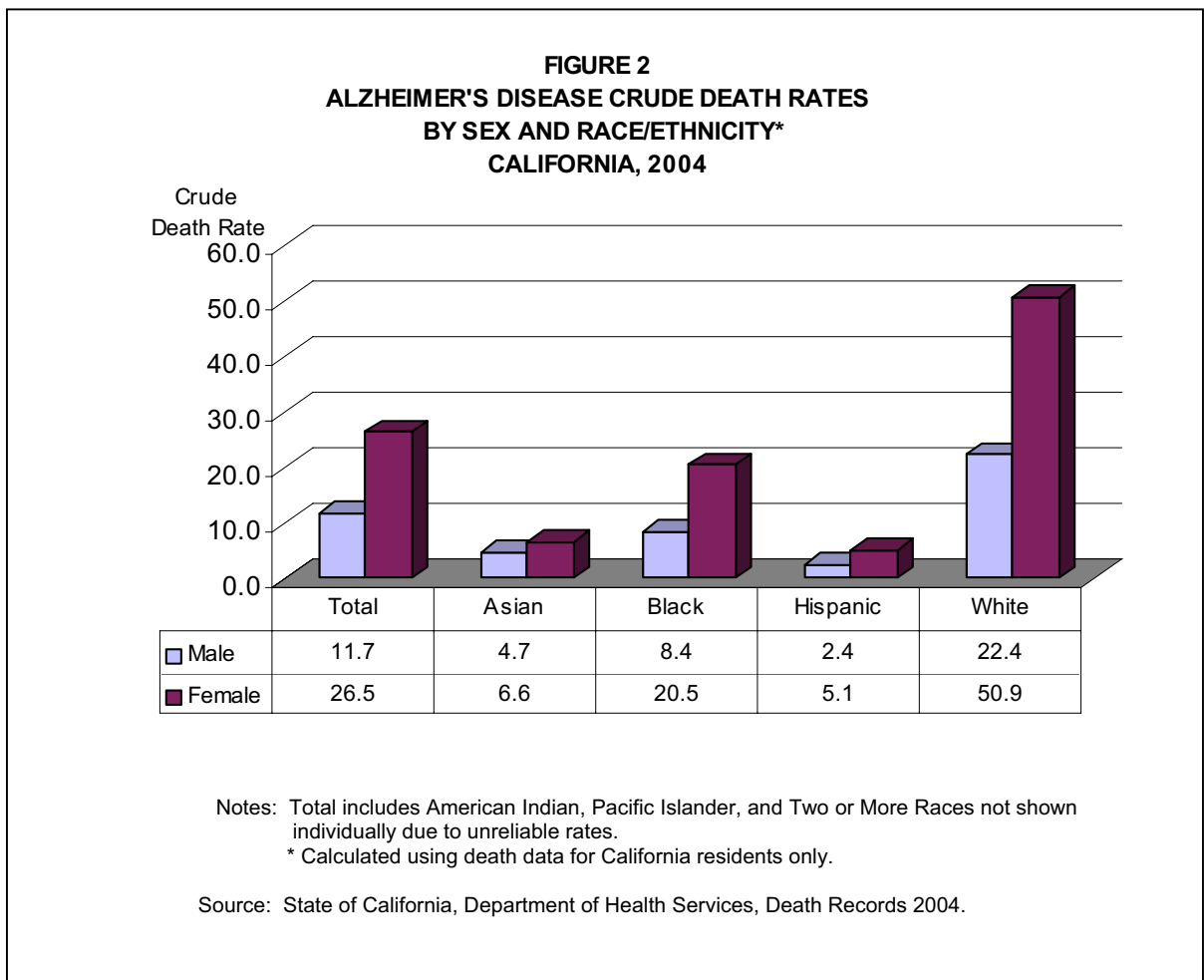
<sup>7</sup>National Center for Health Statistics. Vital Statistics, Instructions for Classifying the Underlying Cause of Death. NCHS Instruction Manual, Part 2a. Public Health Service, Hyattsville, Maryland. January 2006.

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

## Alzheimer's Disease Crude Death Rates

As shown in **Table 1** (page 11), California's Alzheimer's disease crude death rate in 2004 was 19.1 per 100,000 population, a statistically significant increase of 48.1 percent over the 2000 rate of 12.9.<sup>8</sup> In 2004 Whites had the highest crude rate (36.8) followed by Blacks (14.6), Asians (5.7), and Hispanics (3.8). The differences in reliable crude rates between all race/ethnic groups were significant.

**Figure 2** shows the 2004 overall female crude death rate (26.5) was significantly higher than the male rate (11.7). This pattern held true in each race/ethnic group with reliable rates. The greatest difference in crude death rates between males and females was found in Blacks where the rate of Black females was 144 percent higher than that of Black males. The crude death rate of White females was 127 percent higher than that of White males; the rate of Hispanic females was 113 percent higher than that of Hispanic males; and the rate of Asian females was 40 percent higher than that of Asian males.



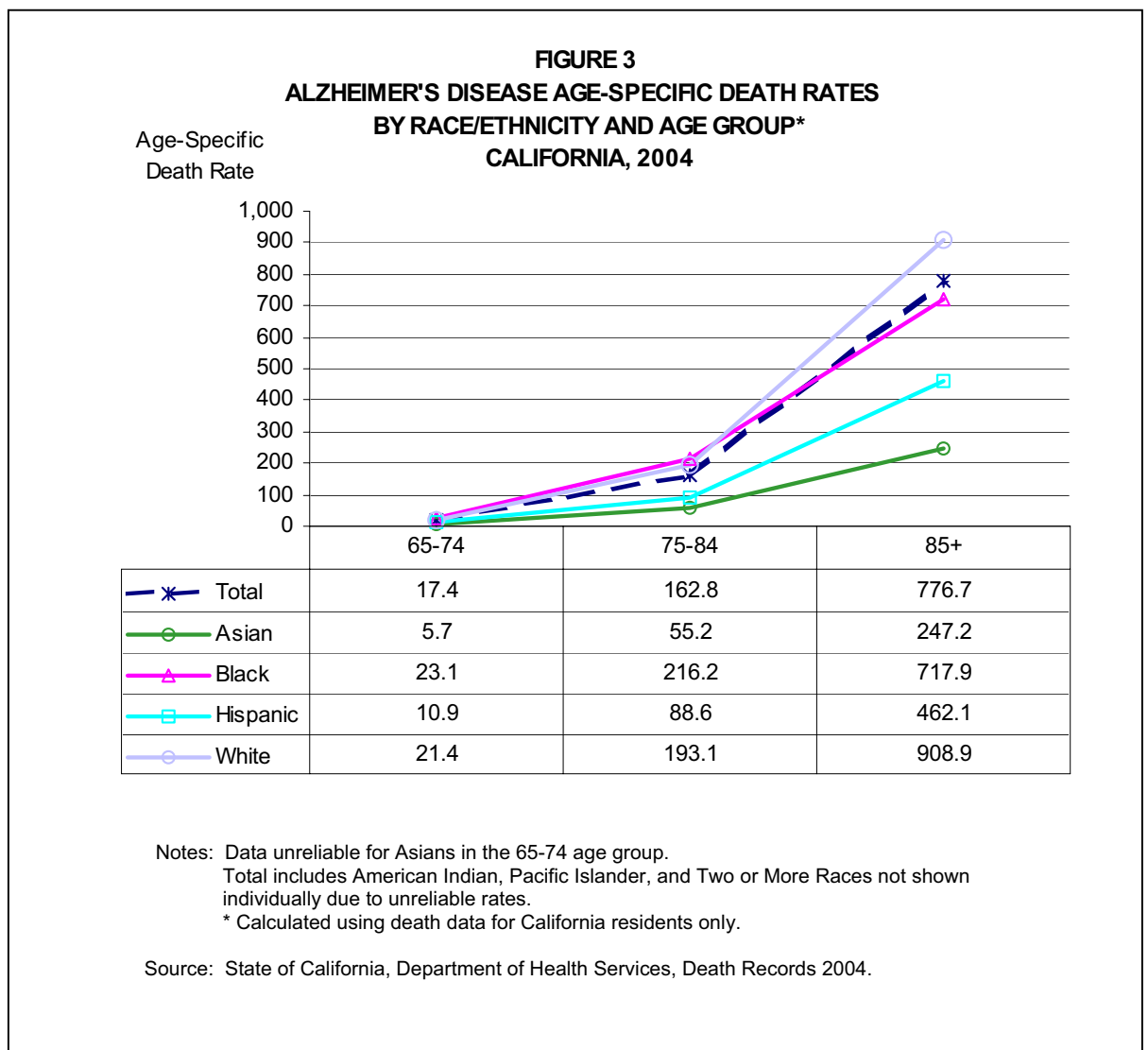
<sup>8</sup> Jew-Lochman S. Alzheimer's Disease Deaths in California, 2000-2003. Center for Health Statistics, California Department of Health Services, November 2005.

See the Vital Statistics Query System (VSQ) at our website [www.dhs.ca.gov/vsq](http://www.dhs.ca.gov/vsq) to create personalized California vital statistics tables.

## Alzheimer's Disease Age-Specific Death Rates

**Table 1** (page 11) shows the 2004 age-specific death rates by sex and race/ethnicity. As Alzheimer's disease deaths occur primarily in persons aged 65 and older, age-specific death rates for younger age groups are seldom reliable due to zero or small numbers of deaths. Among California residents aged 65 and older, males had higher age-specific death rates compared with females in the 65 to 74 age group. The death rate for females exceeded the rate for males in the 75 to 84 and 85 and older age groups.

**Figure 3** shows age-specific death rates by race/ethnicity for age groups 65 to 74, 75 to 84, and 85 and older. Blacks had the highest 2004 age-specific death rate for age groups 65 to 74 and 75 to 84. In the 65 to 74 age group, the death rate of Blacks was significantly higher than that of Hispanics but not Whites. No comparisons were made with the rate for Asians since the rate was not reliable. In the 75 to 84 age group, Blacks had a significantly higher death rate compared with the rates for Asians and Hispanics but not Whites. In the 85 and older age group, Whites had the highest age-specific death rate of 908.9, which was significantly higher than the rate for Asians at 247.2, Blacks at 717.9, and Hispanics at 462.1.



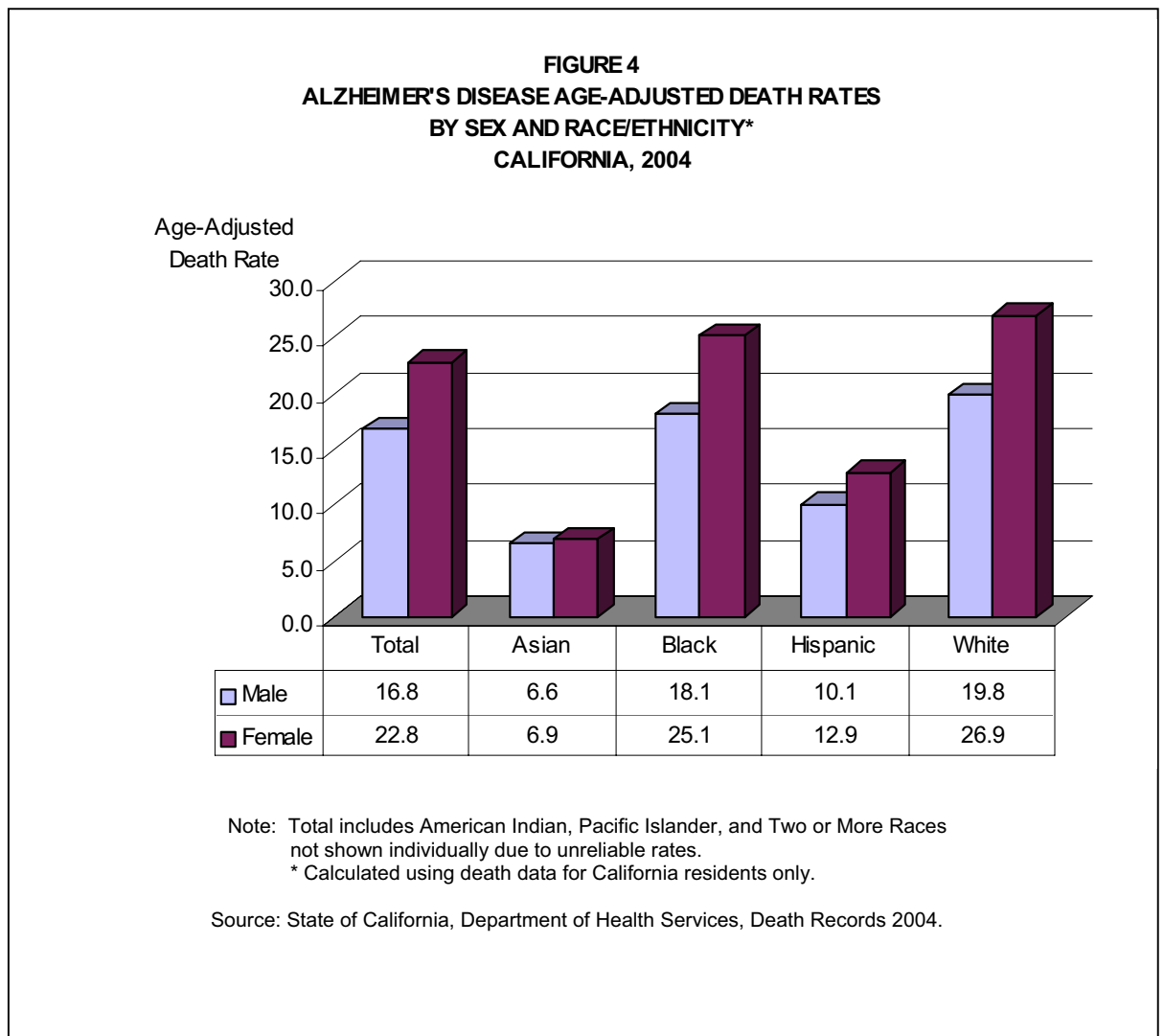
Read more about crude and age-adjusted rates on the National Center for Health Statistics website at [www.cdc.gov/nchs](http://www.cdc.gov/nchs)

## Alzheimer's Disease Age-Adjusted Death Rates

In 2004 California's Alzheimer's age-adjusted death rate was 20.6 deaths per 100,000 population, a 4.6 percent increase from the rate of 19.7 in 2003. The U.S. rate increased 1.4 percent from 21.4 in 2003 to 21.7 in 2004.<sup>4</sup> Although California's age-adjusted death rate was lower than the U.S. rate in 2004, the annual percentage increase was three times higher.

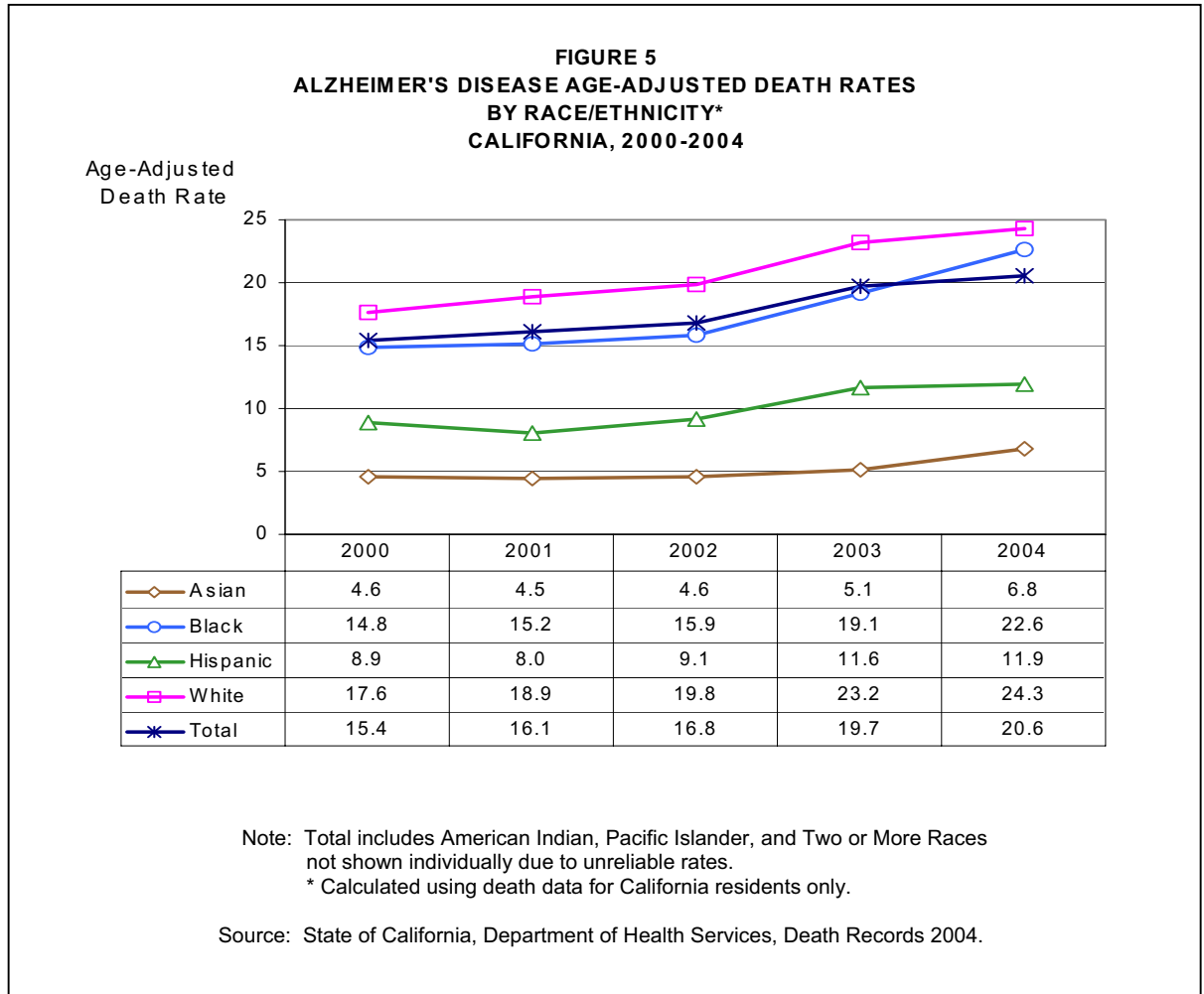
**Table 1** (page 11) shows the highest reliable age-adjusted death rate occurred in Whites (24.3) followed by Blacks (22.6), Hispanics (11.9), and Asians (6.8). Rate differences among the race/ethnic groups were significant except for the Black and White rate comparison.

**Figure 4** shows the 2004 California age-adjusted death rates by gender and race/ethnicity. For all race/ethnic groups combined, females (22.8) had a significantly higher death rate than males (16.8). This pattern held true among Blacks, Hispanics, and Whites. Although the age-adjusted rate of Asian females was higher than that of Asian males, the difference was not significant.



For more Data Summary reports, see DHS Center for Health Statistics website at: [www.dhs.ca.gov/hisp/chs/OHIR/reports](http://www.dhs.ca.gov/hisp/chs/OHIR/reports)

**Figure 5** shows Alzheimer’s disease age-adjusted death rates for California residents for the past five years by race/ethnicity.<sup>8</sup> Overall the Alzheimer’s age-adjusted death rate increased significantly from 15.4 in 2000 to 20.6 in 2004. All race/ethnic groups with reliable rates showed significant increases in rates over this time period. Blacks had the largest increase in age-adjusted death rates of 52.7 percent followed by Asians with a 47.8 percent increase, Whites with a 38.1 percent increase, and Hispanics with a 33.7 percent increase.



### Alzheimer’s Disease Death Rates for California Counties

**Table 2** (page 12) shows the average number of Alzheimer’s disease deaths during 2002 to 2004 with crude and age-adjusted death rates for California and its 58 counties. County crude and age-adjusted Alzheimer’s disease death rates were calculated using mid-year population denominators and are presented as rates per 100,000 population.

Los Angeles County had the highest average number of deaths (1,200.0) followed by San Diego County (1,006.3) and Orange County (508.7). Alpine County was the only county without any deaths attributed to Alzheimer’s disease from 2002 to 2004.

The highest reliable crude death rate was found in Napa County (54.0) while Tulare County (6.5) had the lowest reliable rate. Reliable age-adjusted rates ranged from a high of 38.4 in Humboldt County to a low of 9.4 in Tulare County. Fourteen counties had age-adjusted rates that were significantly different from the State rate; eight county rates were higher and six were lower than the State rate of 18.9.

**Figure 6** (page 13) shows a thematic map of the Alzheimer’s disease 2002 to 2004 average age-adjusted death rates for all California counties. The Jenks natural breaks classification was used to determine the interval breaks for the county rates.

Please refer to the Data Limitations and Qualifications section for an explanation regarding significance testing between the county and State age-adjusted rates.

### Alzheimer’s Disease Deaths for City Health Jurisdictions

**Table 3** shows the average number of Alzheimer’s disease deaths from 2002 to 2004 and crude death rates for California’s three city health jurisdictions.

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

Long Beach had the highest average number of deaths (48.0) followed by Pasadena (30.0) and Berkeley (21.0). The highest crude death rate among the city health jurisdictions

was found in Pasadena with 21.1 per 100,000 population, followed by Berkeley with 20.2 and Long Beach with 10.0. The death rates of Pasadena and Berkeley were not significantly different from each other. The crude death rate of Long Beach was significantly different from both Berkeley and Pasadena.

**TABLE 3  
ALZHEIMER'S DISEASE DEATHS  
AMONG THE CITY HEALTH JURISDICTIONS\*  
CALIFORNIA, 2002-2004**

CITY HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	2003 POPULATION	CRUDE DEATH RATE
BERKELEY	21.0	104,195	20.2
LONG BEACH	48.0	481,015	10.0
PASADENA	30.0	142,214	21.1

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

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

## 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 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.<sup>9</sup> 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 Alzheimer's disease death data presented in this report are based on the vital statistics records with ICD-10 code G30 as defined by the NCHS.<sup>7</sup> 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.<sup>10</sup>

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

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



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.<sup>11</sup> 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.

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.<sup>12</sup> 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.

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<sup>11</sup>World Health Organization. International Statistical Classification of Diseases and Related Health Problems. Tenth Revision. Geneva: World Health Organization. 1992.

<sup>12</sup>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.

The 2000 U.S. population standard was used for calculating age-adjustments in accordance with statistical policy implemented by NCHS.<sup>13</sup> 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 12). 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.<sup>14</sup> Detailed information on data quality and limitations is presented in the appendix of the annual report, "Vital Statistics of California."<sup>15</sup> Formulas used to calculate death rates are included in the technical notes of the "County Health Status Profiles" report.<sup>16</sup>

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<sup>13</sup>Anderson 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.

<sup>14</sup>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.

<sup>15</sup>Ficenec S, Bindra K. Vital Statistics of California, 2003. Center for Health Statistics, California Department of Health Services, August 2005.

<sup>16</sup>Shippen S. County Health Status Profiles 2006. Center for Health Statistics, California Department of Health Services, April 2006.

**TABLE 1**  
**ALZHEIMER'S 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
<b>TOTAL<sup>1</sup></b>															
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	0	0	0	5,369,098	2,750,853	2,618,245	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	0	0	0	5,294,261	2,757,217	2,537,044	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	0	0	0	5,231,086	2,701,183	2,529,903	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	1	1	0	5,672,590	2,883,426	2,789,164	0.0 *	0.0 *	0.0 +	0.0	0.1	0.0	0.1	-	-
45 to 54	8	1	7	4,931,148	2,440,823	2,490,325	0.2 *	0.0 *	0.3 *	0.0	0.3	0.0	0.1	0.1	0.5
55 to 64	41	18	23	3,303,083	1,594,612	1,708,471	1.2	1.1 *	1.3	0.9	1.6	0.6	1.7	0.8	1.9
65 to 74	353	171	182	2,025,575	936,610	1,088,965	17.4	18.3	16.7	15.6	19.2	15.5	21.0	14.3	19.1
75 to 84	2,312	832	1,480	1,420,413	590,956	829,457	162.8	140.8	178.4	156.1	169.4	131.2	150.4	169.3	187.5
85 & Older	4,247	1108	3,139	546,767	187,361	359,406	776.7	591.4	873.4	753.4	800.1	556.6	626.2	842.8	903.9
Unknown	0	0	0												
Total	6,962	2,131	4,831	36,376,411	18,161,654	18,214,757	19.1	11.7	26.5	18.7	19.6	11.2	12.2	25.8	27.3
Age-Adjusted							20.6	16.8	22.8	20.1	21.1	16.1	17.5	22.2	23.5
<b>ASIAN</b>															
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	0	0	0	618,710	302,916	315,794	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	0	0	0	671,272	321,320	349,952	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
45 to 54	0	0	0	609,567	284,594	324,973	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
55 to 64	5	3	2	385,197	179,303	205,894	1.3 *	1.7 *	1.0 *	0.2	2.4	0.0	3.6	0.0	2.3
65 to 74	14	8	6	245,629	107,974	137,655	5.7 *	7.4 *	4.4 *	2.7	8.7	2.3	12.5	0.9	7.8
75 to 84	85	32	53	154,086	64,809	89,277	55.2	49.4	59.4	43.4	66.9	32.3	66.5	43.4	75.3
85 & Older	125	49	76	50,569	20,013	30,556	247.2	244.8	248.7	203.9	290.5	176.3	313.4	192.8	304.6
Unknown	0	0	0												
Total	229	92	137	4,037,013	1,950,625	2,086,388	5.7	4.7	6.6	4.9	6.4	3.8	5.7	5.5	7.7
Age-Adjusted							6.8	6.6	6.9	5.9	7.7	5.3	8.0	5.7	8.0
<b>BLACK</b>															
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	0	0	0	408,879	208,120	200,759	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
15 to 24	0	0	0	395,238	205,416	189,822	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	0	0	0	326,490	160,606	165,884	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	1	1	0	399,615	199,186	200,429	0.3 *	0.5 *	0.0 +	0.0	0.7	0.0	1.5	-	-
45 to 54	1	0	1	329,298	160,793	168,505	0.3 *	0.0 +	0.6 *	0.0	0.9	-	-	0.0	1.8
55 to 64	3	1	2	199,142	92,418	106,724	1.5 *	1.1 *	1.9 *	0.0	3.2	0.0	3.2	0.0	4.5
65 to 74	28	11	17	121,222	55,208	66,014	23.1	19.9 *	25.8 *	14.5	31.7	8.1	31.7	13.5	38.0
75 to 84	140	41	99	64,749	25,309	39,440	216.2	162.0	251.0	180.4	252.0	112.4	211.6	201.6	300.5
85 & Older	180	46	134	25,074	7,615	17,459	717.9	604.1	767.5	613.0	822.7	429.5	778.6	637.6	897.5
Unknown	0	0	0												
Total	353	100	253	2,425,066	1,193,903	1,231,163	14.6	8.4	20.5	13.0	16.1	6.7	10.0	18.0	23.1
Age-Adjusted							22.6	18.1	25.1	20.2	24.9	14.5	21.7	22.0	28.2
<b>HISPANIC</b>															
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	0	0	0	2,275,634	1,199,542	1,076,092	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	0	0	0	2,332,753	1,244,497	1,088,256	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	0	0	0	1,954,969	1,014,652	940,317	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
45 to 54	3	1	2	1,228,904	607,654	621,250	0.2 *	0.2 *	0.3 *	0.0	0.5	0.0	0.5	0.0	0.8
55 to 64	1	1	0	636,784	298,857	337,927	0.2 *	0.3 *	0.0 +	0.0	0.5	0.0	1.0	-	-
65 to 74	39	20	19	357,389	157,978	199,411	10.9	12.7	9.5	7.5	14.3	7.1	18.2	5.2	13.8
75 to 84	169	64	105	190,758	78,695	112,063	88.6	81.3	93.7	75.2	102.0	61.4	101.3	75.8	111.6
85 & Older	270	74	196	58,423	20,677	37,746	462.1	357.9	519.3	407.0	517.3	276.3	439.4	446.6	592.0
Unknown	0	0	0												
Total	482	160	322	12,816,038	6,554,307	6,261,731	3.8	2.4	5.1	3.4	4.1	2.1	2.8	4.6	5.7
Age-Adjusted							11.9	10.1	12.9	10.8	13.0	8.5	11.7	11.5	14.3
<b>WHITE</b>															
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	0	0	0	1,856,335	960,424	895,911	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
25 to 34	0	0	0	1,808,165	922,586	885,579	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
35 to 44	0	0	0	2,502,123	1,278,269	1,223,854	0.0 +	0.0 +	0.0 +	-	-	-	-	-	-
45 to 54	4	0	4	2,639,194	1,328,451	1,310,743	0.2 *	0.0 +	0.3 *	0.0	0.3	-	-	0.0	0.6
55 to 64	32	13	19	2,005,398	987,820	1,017,578	1.6	1.3 *	1.9	1.0	2.1	0.6	2.0	1.0	2.7
65 to 74	270	132	138	1,260,712	596,472	664,240	21.4	22.1	20.8	18.9	24.0	18.4	25.9	17.3	24.2
75 to 84	1,908	690	1,218	988,209	412,295	575,914	193.1	167.4	211.5	184.4	201.7	154.9	179.8	199.6	223.4
85 & Older	3,659	937	2,722	402,581	135,267	267,314	908.9	692.7	1,018.3	879.4	938.3	648.3	737.1	980.0	1,056.5
Unknown	0	0	0												
Total	5,873	1,772	4,101	15,967,775	7,907,083	8,060,692	36.8	22.4	50.9	35.8	37.7	21.4	23.5	49.3	52.4
Age-Adjusted							24.3	19.8	26.9	23.7	25.0	18.9	20.7	26.0	27.7

Note : Rates are per 100,000 population. ICD-10 code G30.

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.

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.

\* 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.

<sup>1</sup> Includes American Indians (12), Pacific Islanders (2), and Two or More Races (11) not individually shown due to unreliable rates.

TABLE 2  
ALZHEIMER'S 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
<b>CALIFORNIA</b>	<b>6,317.3</b>	<b>100.0</b>	<b>35,934,967</b>	<b>17.6</b>	<b>18.9</b>	<b>18.4</b>	<b>19.4</b>
ALAMEDA <sup>1</sup>	204.0	3.2	1,495,367	13.6	16.0	13.8	18.2
ALPINE	0.0	0.0	1,268	0.0 +	0.0 +	-	-
AMADOR	9.3	0.1	37,074	25.2 *	19.7 *	7.0	32.4
BUTTE	70.3	1.1	212,473	33.1	23.2	17.8	28.6
CALAVERAS	10.0	0.2	43,566	23.0 *	19.0 *	7.2	30.9
COLUSA	7.0	0.1	20,026	35.0 *	37.7 *	9.7	65.7
CONTRA COSTA	202.7	3.2	1,003,704	20.2	20.8	17.9	23.7
DEL NORTE	5.0	0.1	28,192	17.7 *	17.9 *	2.2	33.7
EL DORADO	33.7	0.5	168,227	20.0	22.5	14.9	30.2
FRESNO	123.3	2.0	855,469	14.4	17.9	14.7	21.0
GLENN	6.0	0.1	27,626	21.7 *	19.6 *	3.9	35.4
HUMBOLDT <sup>1</sup>	50.0	0.8	129,515	38.6	38.4	27.8	49.1
IMPERIAL	10.7	0.2	153,673	6.9 *	10.0 *	3.9	16.1
INYO	1.7	a	18,617	9.0 *	4.4 *	0.0	11.1
KERN	119.7	1.9	717,332	16.7	17.5	14.3	20.7
KINGS	11.3	0.2	138,763	8.2 *	13.9 *	5.8	21.9
LAKE	12.3	0.2	62,359	19.8 *	13.7 *	6.1	21.4
LASSEN	3.0	a	34,633	8.7 *	10.2 *	0.0	21.8
LOS ANGELES <sup>1</sup>	1,200.0	19.0	10,047,236	11.9	12.3	11.6	13.0
MADERA	37.3	0.6	133,965	27.9	25.6	17.3	33.9
MARIN <sup>1</sup>	43.7	0.7	250,252	17.4	14.1	9.9	18.2
MARIPOSA	1.3	a	17,886	7.5 *	5.8 *	0.0	15.7
MENDOCINO	11.0	0.2	89,156	12.3 *	11.4 *	4.7	18.2
MERCED	27.0	0.4	230,696	11.7	18.0	11.2	24.8
MODOC	2.3	a	9,541	24.5 *	16.7 *	0.0	38.2
MONO	0.3	a	13,443	2.5 *	7.4 *	0.0	32.5
MONTEREY <sup>1</sup>	48.3	0.8	418,842	11.5	14.3	10.3	18.3
NAPA <sup>1</sup>	70.7	1.1	130,920	54.0	34.8	26.6	43.1
NEVADA	22.7	0.4	96,923	23.4	17.3	10.2	24.4
ORANGE	508.7	8.1	3,001,146	16.9	21.2	19.3	23.0
PLACER	73.0	1.2	285,336	25.6	22.6	17.4	27.8
PLUMAS	3.7	0.1	21,181	17.3 *	11.3 *	0.0	22.8
RIVERSIDE <sup>1</sup>	398.3	6.3	1,758,719	22.6	22.6	20.4	24.8
SACRAMENTO	248.7	3.9	1,331,563	18.7	20.3	17.8	22.8
SAN BENITO	3.0	a	56,605	5.3 *	8.5 *	0.0	18.1
SAN BERNARDINO	256.7	4.1	1,869,219	13.7	22.1	19.4	24.8
SAN DIEGO <sup>1</sup>	1,006.3	15.9	2,989,178	33.7	37.6	35.3	40.0
SAN FRANCISCO <sup>1</sup>	129.0	2.0	786,980	16.4	13.5	11.2	15.8
SAN JOAQUIN <sup>1</sup>	116.0	1.8	625,702	18.5	24.6	20.1	29.1
SAN LUIS OBISPO <sup>1</sup>	82.7	1.3	257,452	32.1	26.3	20.6	32.0
SAN MATEO	153.0	2.4	712,772	21.5	19.6	16.5	22.7
SANTA BARBARA	104.0	1.6	412,069	25.2	22.8	18.4	27.2
SANTA CLARA	242.7	3.8	1,723,819	14.1	18.1	15.8	20.3
SANTA CRUZ	36.7	0.6	259,220	14.1	15.4	10.4	20.5
SHASTA	41.7	0.7	175,421	23.8	14.2	9.8	18.5
SIERRA	0.7	a	3,563	18.7 *	11.9 *	0.0	40.7
SISKIYOU	11.0	0.2	45,081	24.4 *	16.5 *	6.7	26.2
SOLANO <sup>1</sup>	102.7	1.6	416,406	24.7	24.1	19.4	28.9
SONOMA <sup>1</sup>	137.3	2.2	473,274	29.0	23.4	19.4	27.3
STANISLAUS	86.7	1.4	489,491	17.7	20.1	15.8	24.3
SUTTER	9.3	0.1	84,978	11.0 *	11.6 *	4.1	19.0
TEHAMA	17.0	0.3	58,665	29.0 *	16.3 *	8.4	24.1
TRINITY	3.0	a	13,579	22.1 *	15.4 *	0.0	32.8
TULARE <sup>1</sup>	25.7	0.4	392,989	6.5	9.4	5.7	13.0
TUOLUMNE	14.3	0.2	57,120	25.1 *	18.2 *	8.8	27.7
VENTURA	119.7	1.9	799,114	15.0	16.8	13.8	19.8
YOLO	36.7	0.6	183,602	20.0	27.2	18.4	36.1
YUBA	4.7	0.1	63,979	7.3 *	9.5 *	0.8	18.1

Note : Rates are per 100,000 population. ICD-10 code G30.

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

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

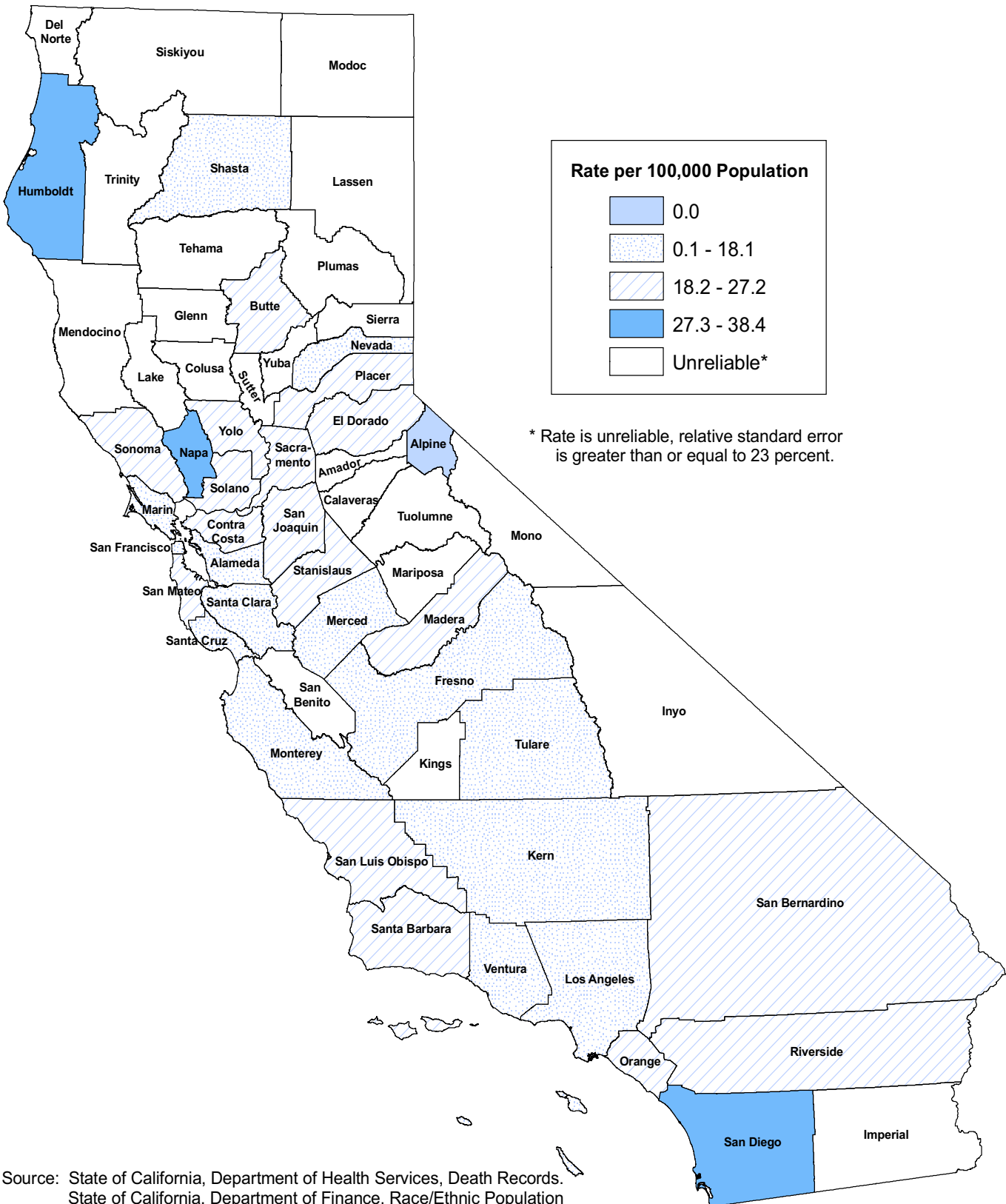
a Represents a percentage of more than zero but less than 0.05.

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

<sup>1</sup> County age-adjusted rate is significantly different from the state age-adjusted rate.

Source : State of California, Department of Finance; 2002 Population: Population Projections by Age, Race/Ethnicity and Sex, May 2004.  
State of California, Department of Health Services, Death Records.

FIGURE 6  
ALZHEIMER'S DISEASE AGE-ADJUSTED DEATH RATES  
CALIFORNIA, 2002-2004



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 2004.