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This data summary is one of a series in leading cause of death reports.

## Alzheimer's Disease Deaths California, 2005

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. One in eight individuals over age 65 and nearly half of those over age 85 are affected by Alzheimer's disease.<sup>1</sup>

In 2007 an estimated 5.1 million Americans have 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>1</sup> By 2050, the number of Americans with Alzheimer's disease could range from 11.3 million to 16 million.<sup>2</sup>

Alzheimer's disease remained the seventh leading cause of death in the United States (U.S.) in 2005.<sup>3</sup> In California, Alzheimer's disease moved from eighth place to sixth place as the number of deaths increased from 6,962 in 2004 to 7,694 in 2005.<sup>4</sup>

The U.S. Public Health Service established a number of health objectives as part of the Healthy People 2010 (HP 2010) Initiative.<sup>5</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.

This report presents data on California's Alzheimer's disease deaths for 2005. The analyses include presentations of crude and age-specific rates and

### Highlights

- Nearly 64 percent of California's 2005 Alzheimer's disease deaths occurred among residents 85 years of age and older.
- California's 2005 age-adjusted Alzheimer's disease death rate was 23.4 deaths per 100,000, an increase of 39.3 percent over the 2001 rate of 16.8.
- Humboldt County (42.0) had the highest reliable age-adjusted Alzheimer's disease death rate and Tulare County (10.0) had the lowest.

<sup>1</sup> Alzheimer's Association. *Alzheimer's Disease Facts and Figures*. Chicago, Illinois. 2007.

<sup>2</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>3</sup> National Center for Health Statistics. Deaths: Preliminary Data for 2005. URL: <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimdeaths05/prelimdeaths05.htm> Accessed February 6, 2008.

<sup>4</sup> State of California, Department of Health Services, Death Records.

<sup>5</sup> United States Department of Health and Human Services. Healthy People 2010 Midcourse Review. December 2006. URL: <http://www.healthypeople.gov/data/midcourse/> Accessed February 6, 2008.

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

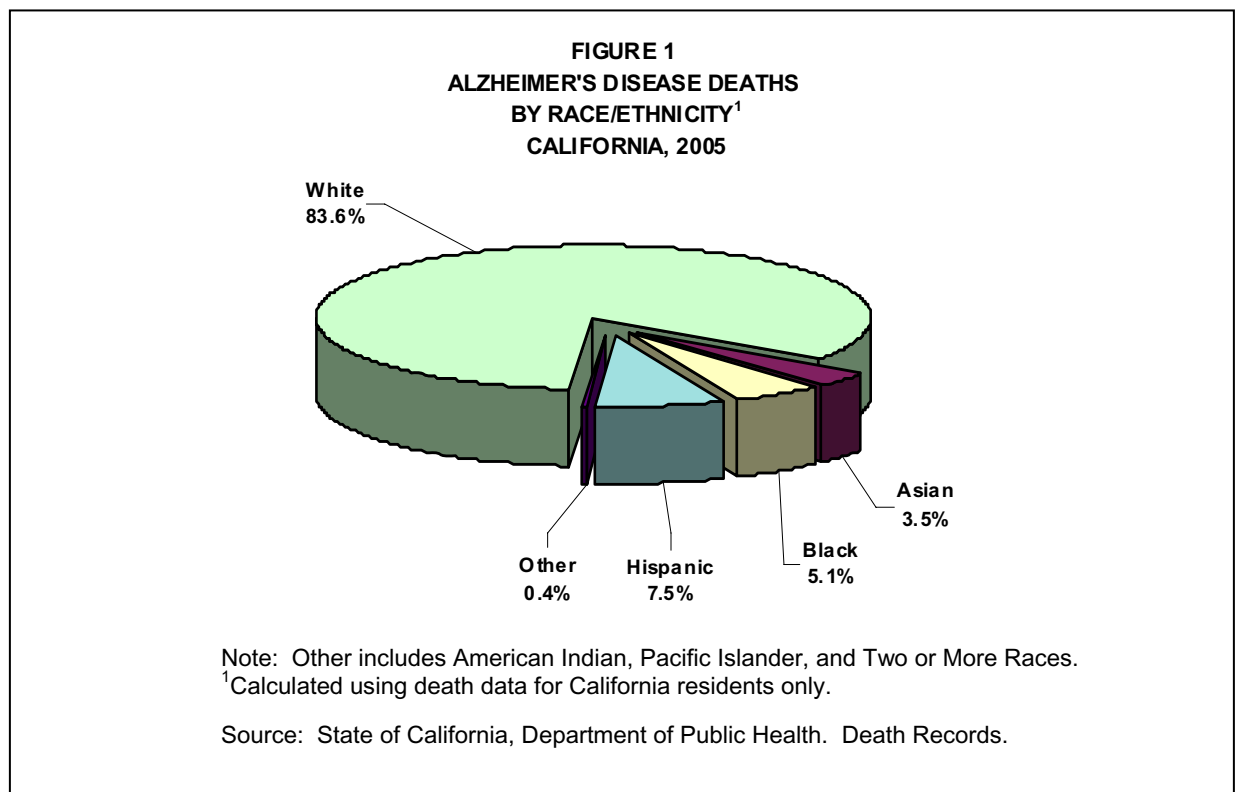
comparisons of age-adjusted death rates by sex, age, race/ethnicity, and county. Crude rates reflect mortality risk of a current or real population, age-specific rates are the most useful method for comparing risk among age groups, and age-adjusted rates allow comparison among groups and over time while controlling for differences in the age structures of comparison groups.

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>6</sup>

## Alzheimer's Disease Deaths

**Table 1** (page 11) shows Alzheimer's disease death data for 2005 among California residents by race/ethnicity, age, and sex. A total of 7,694 deaths were recorded due to Alzheimer's disease, consisting of 5,387 females (70.0 percent) and 2,307 males (30.0 percent). Nearly 64 percent of the deaths attributed to Alzheimer's disease in 2005 occurred among residents aged 85 and older.

**Figure 1** shows Whites had the highest percentage of Alzheimer's disease deaths with 83.6 percent followed by Hispanics with 7.5 percent, Blacks with 5.1 percent, Asians with 3.5 percent, and Other with 0.4 percent. Other includes American Indians (0.1 percent), Pacific Islanders (0.1 percent), and Two or More Races (0.2 percent). Totals do not add to 100 percent due to rounding.



<sup>6</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 2008.

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

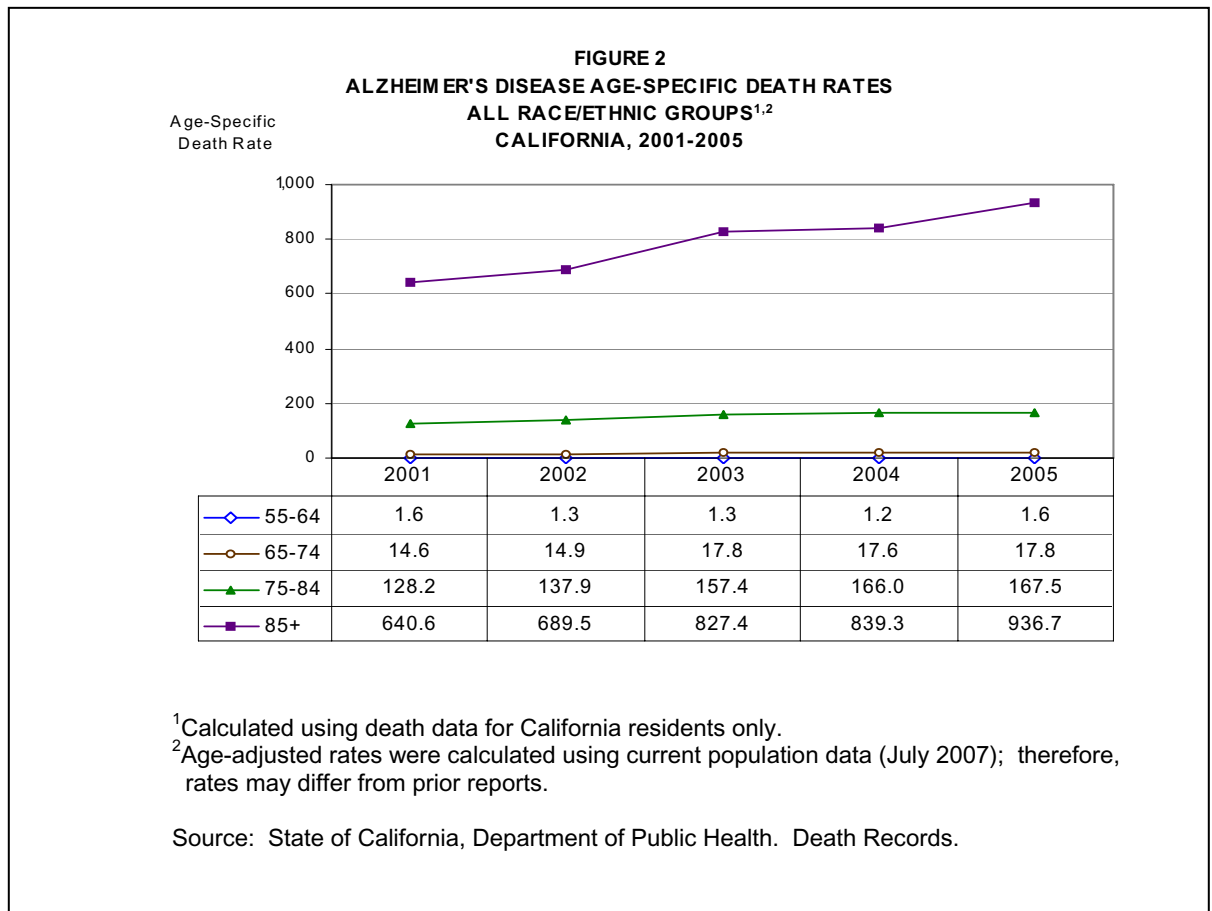
## Alzheimer's Disease Crude Death Rates

As shown in **Table 1** (page 11), California's Alzheimer's disease crude death rate in 2005 was 20.8 deaths per 100,000 population, lower than the U.S. rate of 24.2 deaths per 100,000 population.<sup>3</sup> Whites had the highest crude rate (39.2) followed by Blacks (17.5), Asians (6.3), and Hispanics (4.5). The differences in reliable crude rates between all race/ethnic groups were significant.

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 sex or race/ethnic groups, geographic areas, or multiple reporting periods.

## Alzheimer's Disease Age-Specific Death Rates

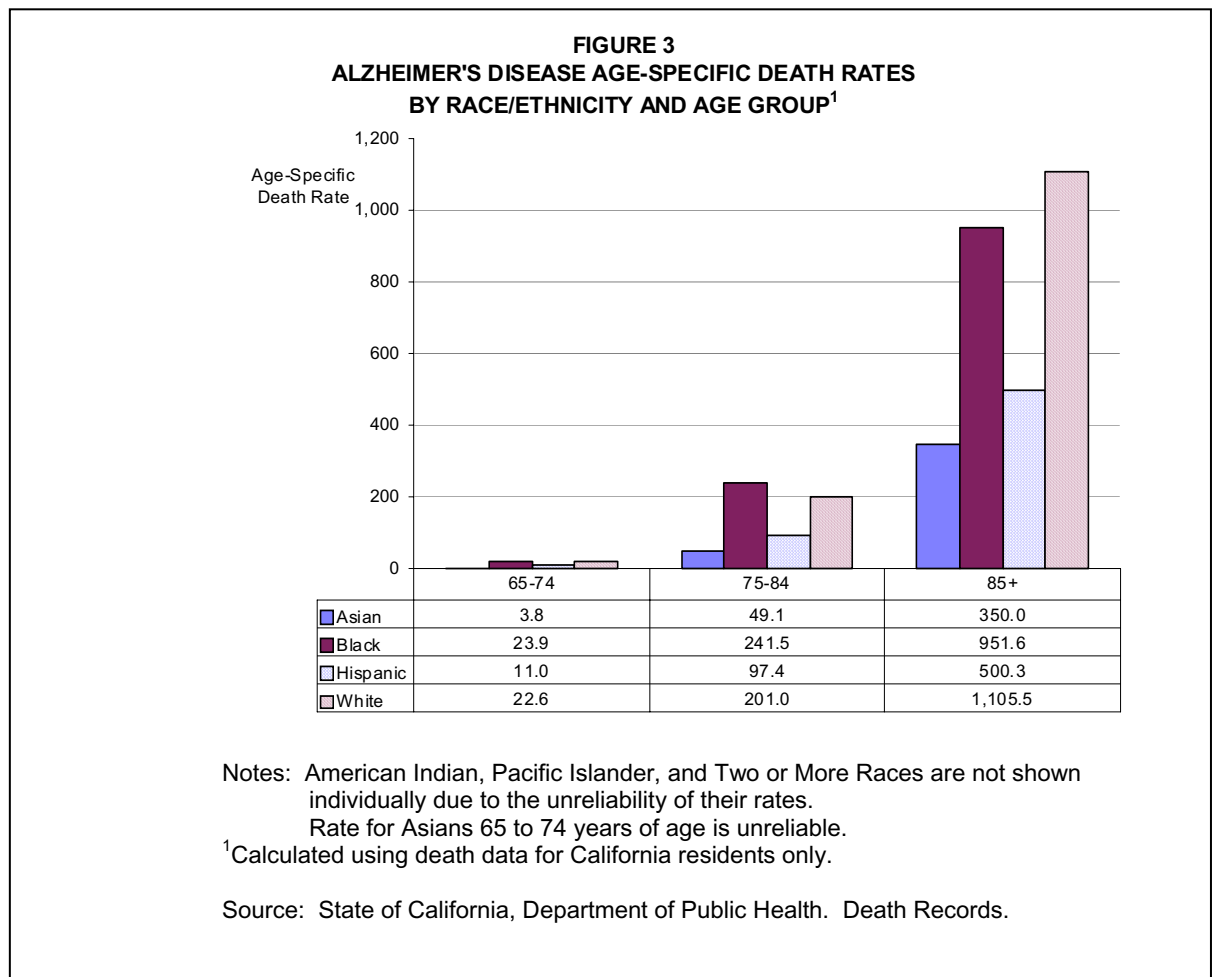
**Table 1** (page 11) shows the 2005 age-specific death rates by sex and race/ethnicity. For all race/ethnic groups combined, females aged 75 and older had significantly higher age-specific death rates than their male counterparts. As Alzheimer's disease deaths occur primarily in persons aged 65 and older, age-specific death rates for younger age groups are seldom reliable due to zero or small numbers of deaths.



See the CHS Vital Statistics Query System (VSQ) at <http://www.applications.dhs.ca.gov/vsq/default.asp> to create customized statistical tables.

**Figure 2** (page 3) shows the 2001 to 2005 age-specific death rates for California residents 55 years of age and older. From 2001 to 2005, the rates increased significantly in all age groups with reliable rates except in the 55 to 64 age group. A 21.9 percent increase was seen among individuals in the 65 to 74 age group, a 30.7 percent increase among the 75 to 84 age group, and a 46.2 percent increase among the 85 and older age group. Between 2004 and 2005, increases were observed in all age groups with reliable rates.

**Figure 3** shows the 2005 age-specific death rates by race/ethnicity for residents 65 years of age and older. Blacks had the highest 2005 age-specific death rate in the 65 to 74 age group (23.9) and in the 75 to 84 age group (241.5) while Whites had the highest rate in the 85 and older group (1,105.5). Asians had the lowest rates in the 75 to 84 and 85 and older groups (49.1 and 350.0, respectively), but the rate was unreliable in the 65 to 74 age group.

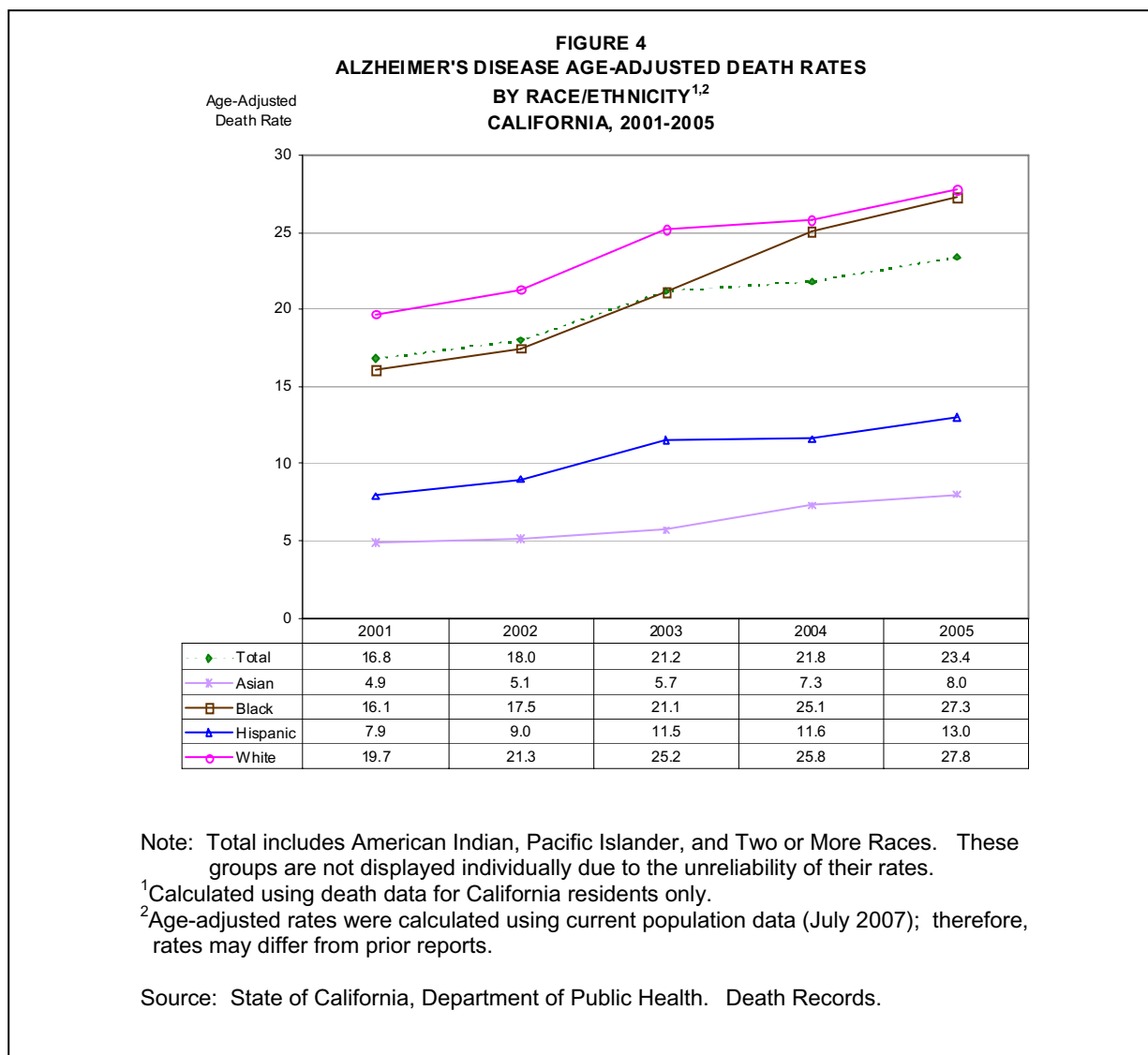


Read more about crude and age-adjusted death rates on the National Center for Health Statistics site found at <http://www.cdc.gov/nchs>

## Alzheimer's Disease Age-Adjusted Death Rates

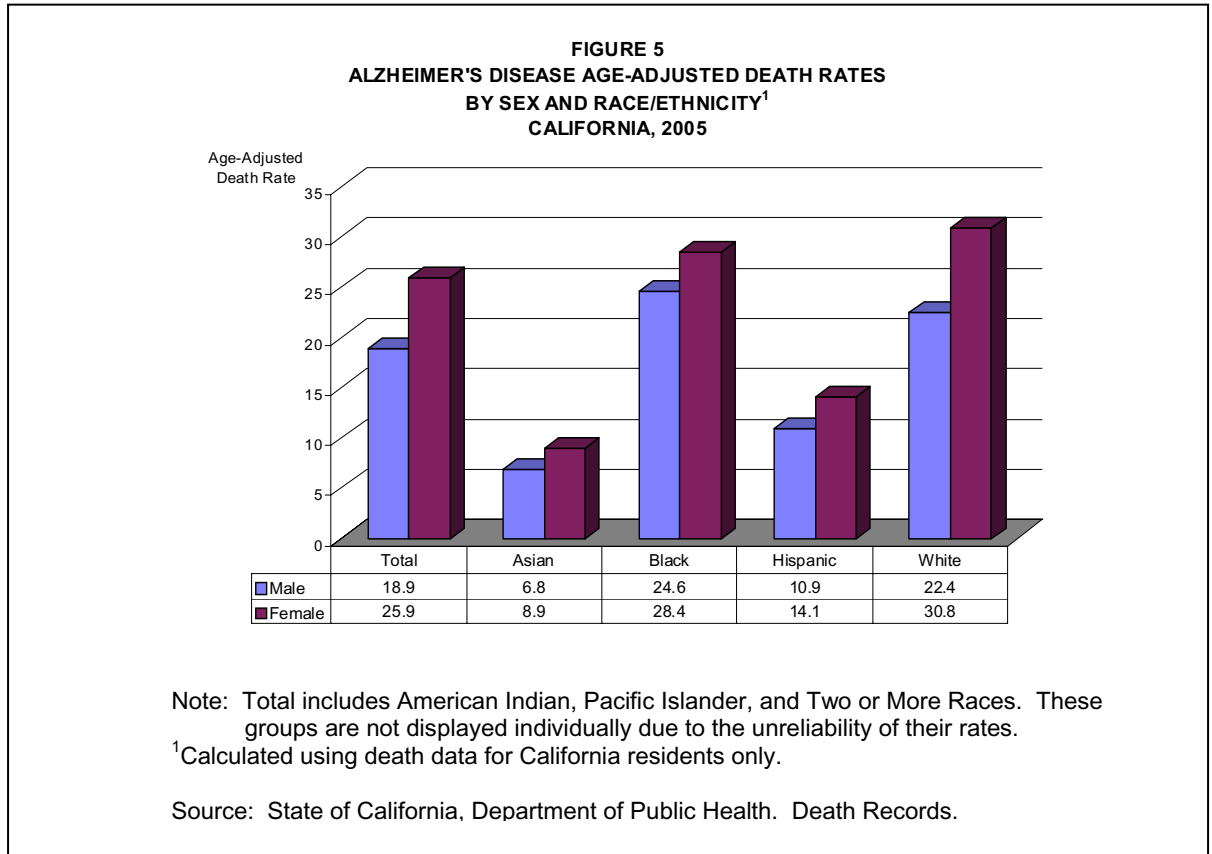
**Table 1** (page 11) displays the Alzheimer's disease age-adjusted death rates by sex and race/ethnicity. In 2005 California's Alzheimer's age-adjusted death rate was 23.4 deaths per 100,000 population, higher than the U.S. rate of 22.9. Whites had the highest reliable age-adjusted death rate (27.8) followed by Blacks (27.3), Hispanics (13.0), and Asians (8.0). Rate differences among the race/ethnic groups were significant except for the Black and White rate comparison.

**Figure 4** shows Alzheimer's disease age-adjusted death rates for California residents for the past five years by race/ethnicity. Overall, the Alzheimer's age-adjusted death rate increased significantly by 39.3 percent from 16.8 deaths per 100,000 in 2001 to 23.4 deaths in 2005. 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 69.6 percent followed by Hispanics with a 64.6 percent increase, Asians with a 63.3 percent increase, and Whites with a 41.1 percent increase.



Additional CHS data and reports can be found at: <http://www.dhs.ca.gov/ohir/reports>

**Figure 5** shows the 2005 California age-adjusted death rates by gender and race/ethnicity. For all race/ethnic groups combined, females (25.9) had a significantly higher death rate than males (18.9). This pattern held true among Asians, Hispanics, and Whites. Although the age-adjusted rates of Asian and Black females were higher than that of their male counterparts, the differences were not significant.



## Alzheimer's Disease Death Rates for California Counties

**Table 2** (page 12) shows the average number of Alzheimer's disease deaths during 2003 to 2005 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 2004 mid-year population denominators and are presented as rates per 100,000 population.

Reliable age-adjusted rates ranged from a high of 42.0 in Humboldt County to a low of 10.0 in Tulare County. Sixteen counties had age-adjusted rates that were significantly different from the state rate; ten county rates were higher and six were lower than the state rate of 22.1. **Figure 6** (page 13) shows a thematic map of the Alzheimer's disease 2003 to 2005 average age-adjusted death rates for all California counties.

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 2003 to 2005 and crude death rates for California's three city health jurisdictions. Long Beach had the highest average number of deaths (58.3) followed by Pasadena (28.0) and Berkeley (18.7). Among the city health jurisdictions only Long Beach and Pasadena had reliable crude death rates (12.0 and 19.4, respectively).

**TABLE 3  
ALZHEIMER'S DISEASE DEATHS  
AMONG THE CITY HEALTH JURISDICTIONS<sup>1</sup>  
CALIFORNIA, 2003-2005**

CITY HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	2004 POPULATION	CRUDE DEATH RATE
BERKELEY	18.7	104,193	17.9 *
LONG BEACH	58.3	487,079	12.0
PASADENA	28.0	143,995	19.4

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

<sup>1</sup>Calculated using death data for California residents only.

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

Sources: State of California, Department of Public Health. Death Records. State of California, Department of Finance, E-4 Population Estimates for Cities, Counties and the State, 2001-2007, with 2000 Benchmark, May 2007.

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

### 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 sex or race/ethnic groups, geographic areas 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.<sup>7</sup> Age-specific rates provide insights to important age-related mortality trends that can be masked by age-adjusted rates. For

<sup>7</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.

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>6</sup> Deaths by place of residence means that the data include only those deaths occurring among residents of that geographical area within 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 (rounded to the nearest hundredth) 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>8</sup>

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 has been reported using ICD-10.<sup>9</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.

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<sup>8</sup>van Belle G. *Statistical Rules of Thumb, Rule 2.5*. Wiley Publishing. March 2002.

<sup>9</sup>World Health Organization. *International Statistical Classification of Disease and Related Health Problems. Tenth Revision*. Geneva: World Health Organization. 1992.

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>10</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. 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. standard population was used for calculating age-adjustments in accordance with statistical policy implemented by NCHS.<sup>11</sup> Age-adjusted death rates are not comparable when rates are calculated with different population standards, e.g., the 1940 standard population. Age-adjusted rates for city health jurisdictions were not calculated. Caution should be exercised when comparing the crude rates of the three city health jurisdictions with the crude rates of the 58 California counties. 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).

A more complete explanation of age-adjustment methodology is available in the "Healthy People 2010 Statistical Notes" publication.<sup>12</sup> Detailed information on data

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<sup>10</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. September 1999.

<sup>11</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>12</sup>Klein RJ, Schoenborn CA. Age Adjustment using the 2000 Projected U.S. Population. *Healthy People 2010 Statistical Notes*, No. 20. National Center for Health Statistics. Hyattsville, Maryland. January 2001.

quality and limitations is presented in the appendix of the annual report, "Vital Statistics of California."<sup>13</sup> Formulas used to calculate death rates are included in the technical notes of the "County Health Status Profiles" report.<sup>14</sup>

This data summary was prepared by Sally Jew-Lochman, Office of Health Information and Research, Center for Health Statistics, California Department of Public Health, 1616 Capitol Avenue, Suite 74.165, MS 5101, P.O. Box 997410, Sacramento, CA 95814, telephone (916) 650-6898, fax (916) 650-6889, [Sally.Jew-Lochman@cdph.ca.gov](mailto:Sally.Jew-Lochman@cdph.ca.gov)

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<sup>13</sup>Springborn, R. *Vital Statistics of California, 2004*. Center for Health Statistics, Department of Health Services (now Department of Public Health), State of California. June 2007.

<sup>14</sup>Shippen S. *County Health Status Profiles 2007*. Center for Health Statistics, Department of Health Services (now Department of Public Health), State of California. December 2007.

**TABLE 1  
ALZHEIMER'S DISEASE DEATHS  
BY RACE/ETHNICITY, AGE, AND SEX  
CALIFORNIA, 2005  
(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	543,197	277,034	266,163	-	-	-	-	-	-	-	-	-
1 to 4	0	0	0	2,162,671	1,103,176	1,059,495	-	-	-	-	-	-	-	-	-
5 to 14	0	0	0	5,563,406	2,844,855	2,718,551	-	-	-	-	-	-	-	-	-
15 to 24	0	0	0	5,344,828	2,764,795	2,580,033	-	-	-	-	-	-	-	-	-
25 to 34	0	0	0	5,002,559	2,580,156	2,422,403	-	-	-	-	-	-	-	-	-
35 to 44	2	1	1	5,746,279	2,928,529	2,817,750	0.0 *	0.0 *	0.0 *	0.0	0.1	0.0	0.1	0.0	0.1
45 to 54	8	3	5	5,147,574	2,558,524	2,589,050	0.2 *	0.1 *	0.2 *	0.0	0.3	0.0	0.2	0.0	0.4
55 to 64	56	27	29	3,487,509	1,689,518	1,797,991	1.6	1.6	1.6	1.2	2.0	1.0	2.2	1.0	2.2
65 to 74	361	158	203	2,032,694	940,470	1,092,224	17.8	16.8	18.6	15.9	19.6	14.2	19.4	16.0	21.1
75 to 84	2,347	865	1,482	1,401,490	581,188	820,302	167.5	148.8	180.7	160.7	174.2	138.9	158.8	171.5	189.9
85 & Older	4,920	1,253	3,667	525,229	177,444	347,785	936.7	706.1	1,054.4	910.6	962.9	667.0	745.2	1,020.3	1,088.5
<b>Total</b>	<b>7,694</b>	<b>2,307</b>	<b>5,387</b>	<b>36,957,436</b>	<b>18,445,689</b>	<b>18,511,747</b>	<b>20.8</b>	<b>12.5</b>	<b>29.1</b>	<b>20.4</b>	<b>21.3</b>	<b>12.0</b>	<b>13.0</b>	<b>28.3</b>	<b>29.9</b>
<b>Age-Adjusted</b>							<b>23.4</b>	<b>18.9</b>	<b>25.9</b>	<b>22.9</b>	<b>23.9</b>	<b>18.1</b>	<b>19.7</b>	<b>25.2</b>	<b>26.5</b>
<b>ASIAN</b>															
Under 1	0	0	0	49,237	25,114	24,123	-	-	-	-	-	-	-	-	-
1 to 4	0	0	0	196,209	100,294	95,915	-	-	-	-	-	-	-	-	-
5 to 14	0	0	0	510,921	263,092	247,829	-	-	-	-	-	-	-	-	-
15 to 24	0	0	0	600,459	308,166	292,293	-	-	-	-	-	-	-	-	-
25 to 34	0	0	0	670,404	325,288	345,116	-	-	-	-	-	-	-	-	-
35 to 44	0	0	0	707,330	335,157	372,173	-	-	-	-	-	-	-	-	-
45 to 54	2	0	2	637,063	294,728	342,335	0.3 *	-	0.6 *	0.0	0.7	-	-	0.0	1.4
55 to 64	6	3	3	419,901	193,246	226,655	1.4 *	1.6 *	1.3 *	0.3	2.6	0.0	3.3	0.0	2.8
65 to 74	10	4	6	260,846	113,982	146,864	3.8 *	3.5 *	4.1 *	1.5	6.2	0.1	6.9	0.8	7.4
75 to 84	80	34	46	163,066	68,137	94,929	49.1	49.9	48.5	38.3	59.8	33.1	66.7	34.5	62.5
85 & Older	169	50	119	48,284	18,635	29,649	350.0	268.3	401.4	297.2	402.8	193.9	342.7	329.2	473.5
<b>Total</b>	<b>267</b>	<b>91</b>	<b>176</b>	<b>4,263,720</b>	<b>2,045,839</b>	<b>2,217,881</b>	<b>6.3</b>	<b>4.4</b>	<b>7.9</b>	<b>5.5</b>	<b>7.0</b>	<b>3.5</b>	<b>5.4</b>	<b>6.8</b>	<b>9.1</b>
<b>Age-Adjusted</b>							<b>8.0</b>	<b>6.8</b>	<b>8.9</b>	<b>7.1</b>	<b>9.0</b>	<b>5.4</b>	<b>8.2</b>	<b>7.5</b>	<b>10.2</b>
<b>BLACK</b>															
Under 1	0	0	0	25,199	12,843	12,356	-	-	-	-	-	-	-	-	-
1 to 4	0	0	0	106,784	54,437	52,347	-	-	-	-	-	-	-	-	-
5 to 14	0	0	0	360,722	183,297	177,425	-	-	-	-	-	-	-	-	-
15 to 24	0	0	0	378,701	195,916	182,785	-	-	-	-	-	-	-	-	-
25 to 34	0	0	0	305,865	150,542	155,323	-	-	-	-	-	-	-	-	-
35 to 44	0	0	0	362,335	178,384	183,951	-	-	-	-	-	-	-	-	-
45 to 54	0	0	0	317,604	153,768	163,836	-	-	-	-	-	-	-	-	-
55 to 64	4	1	3	196,909	91,007	105,902	2.0 *	1.1 *	2.8 *	0.0	4.0	0.0	3.3	0.0	6.0
65 to 74	28	9	19	117,087	53,068	64,019	23.9	17.0 *	29.7	15.1	32.8	5.9	28.0	16.3	43.0
75 to 84	149	64	85	61,691	23,969	37,722	241.5	267.0	225.3	202.7	280.3	201.6	332.4	177.4	273.2
85 & Older	213	48	165	22,384	6,516	15,868	951.6	736.6	1,039.8	823.8	1,079.4	528.2	945.0	881.2	1,198.5
<b>Total</b>	<b>394</b>	<b>122</b>	<b>272</b>	<b>2,255,281</b>	<b>1,103,747</b>	<b>1,151,534</b>	<b>17.5</b>	<b>11.1</b>	<b>23.6</b>	<b>15.7</b>	<b>19.2</b>	<b>9.1</b>	<b>13.0</b>	<b>20.8</b>	<b>26.4</b>
<b>Age-Adjusted</b>							<b>27.3</b>	<b>24.6</b>	<b>28.4</b>	<b>24.6</b>	<b>30.1</b>	<b>20.2</b>	<b>29.0</b>	<b>25.0</b>	<b>31.8</b>
<b>HISPANIC</b>															
Under 1	0	0	0	279,284	142,428	136,856	-	-	-	-	-	-	-	-	-
1 to 4	0	0	0	1,089,780	555,829	533,951	-	-	-	-	-	-	-	-	-
5 to 14	0	0	0	2,650,982	1,350,760	1,300,222	-	-	-	-	-	-	-	-	-
15 to 24	0	0	0	2,148,302	1,115,705	1,032,597	-	-	-	-	-	-	-	-	-
25 to 34	0	0	0	2,079,681	1,114,291	965,390	-	-	-	-	-	-	-	-	-
35 to 44	2	1	1	2,001,344	1,059,515	941,829	0.1 *	0.1 *	0.1 *	0.0	0.2	0.0	0.3	0.0	0.3
45 to 54	2	0	2	1,324,898	667,089	657,809	0.2 *	-	0.3 *	0.0	0.4	-	-	0.0	0.7
55 to 64	6	2	4	689,035	330,377	358,658	0.9 *	0.6 *	1.1 *	0.2	1.6	0.0	1.4	0.0	2.2
65 to 74	41	22	19	371,279	166,361	204,918	11.0	13.2	9.3	7.7	14.4	7.7	18.8	5.1	13.4
75 to 84	201	75	126	206,295	85,200	121,095	97.4	88.0	104.1	84.0	110.9	68.1	108.0	85.9	122.2
85 & Older	325	88	237	64,960	22,556	42,404	500.3	390.1	558.9	445.9	554.7	308.6	471.7	487.8	630.1
<b>Total</b>	<b>577</b>	<b>188</b>	<b>389</b>	<b>12,905,840</b>	<b>6,610,111</b>	<b>6,295,729</b>	<b>4.5</b>	<b>2.8</b>	<b>6.2</b>	<b>4.1</b>	<b>4.8</b>	<b>2.4</b>	<b>3.3</b>	<b>5.6</b>	<b>6.8</b>
<b>Age-Adjusted</b>							<b>13.0</b>	<b>10.9</b>	<b>14.1</b>	<b>11.9</b>	<b>14.0</b>	<b>9.3</b>	<b>12.5</b>	<b>12.7</b>	<b>15.5</b>
<b>WHITE</b>															
Under 1	0	0	0	151,110	77,067	74,043	-	-	-	-	-	-	-	-	-
1 to 4	0	0	0	623,971	318,134	305,837	-	-	-	-	-	-	-	-	-
5 to 14	0	0	0	1,817,035	933,830	883,205	-	-	-	-	-	-	-	-	-
15 to 24	0	0	0	2,028,198	1,049,934	978,264	-	-	-	-	-	-	-	-	-
25 to 34	0	0	0	1,814,390	925,536	888,854	-	-	-	-	-	-	-	-	-
35 to 44	0	0	0	2,544,695	1,292,034	1,252,661	-	-	-	-	-	-	-	-	-
45 to 54	4	3	1	2,750,632	1,386,760	1,363,872	0.1 *	0.2 *	0.1 *	0.0	0.3	0.0	0.5	0.0	0.2
55 to 64	39	21	18	2,106,739	1,039,368	1,067,371	1.9	2.0	1.7 *	1.3	2.4	1.2	2.9	0.9	2.5
65 to 74	281	123	158	1,243,912	588,425	655,487	22.6	20.9	24.1	19.9	25.2	17.2	24.6	20.3	27.9
75 to 84	1,905	687	1,218	947,877	394,001	553,876	201.0	174.4	219.9	192.0	210.0	161.3	187.4	207.6	232.3
85 & Older	4,200	1,061	3,139	379,918	126,136	253,782	1,105.5	841.2	1,236.9	1,072.1	1,138.9	790.5	891.8	1,193.6	1,280.2
<b>Total</b>	<b>6,429</b>	<b>1,895</b>	<b>4,534</b>	<b>16,408,477</b>	<b>8,131,225</b>	<b>8,277,252</b>	<b>39.2</b>	<b>23.3</b>	<b>54.8</b>	<b>38.2</b>	<b>40.1</b>	<b>22.3</b>	<b>24.4</b>	<b>53.2</b>	<b>56.4</b>
<b>Age-Adjusted</b>							<b>27.8</b>	<b>22.4</b>	<b>30.8</b>	<b>27.1</b>	<b>28.5</b>	<b>21.4</b>	<b>23.5</b>	<b>29.9</b>	<b>31.7</b>

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.

\* Death rate unreliable, relative standard error is greater than or equal to 23 percent.  
- Percentages, rates, and confidence limits are not calculated for zero events.  
<sup>1</sup> Total includes American Indian (7), Pacific Islander (5), and Two or More Races (15) not shown individually due to unreliable rates.

Source: State of California, Department of Finance. Race/Ethnic Population with Age and Sex Detail, 2000-2050, July 2007.  
State of California, Department of Public Health. Death Records.

TABLE 2  
ALZHEIMER'S DISEASE DEATHS  
CALIFORNIA, 2003-2005  
(By Place of Residence)

COUNTY	2003-2005 DEATHS (AVERAGE)	PERCENT	2004 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS	
						LOWER	UPPER
CALIFORNIA	7,080.3	100.0	36,525,947	19.4	22.1	21.6	22.6
ALAMEDA <sup>1</sup>	212.3	3.0	1,497,316	14.2	15.8	13.6	17.9
ALPINE	0.0	-	1,304	-	-	-	-
AMADOR	10.0	0.1	37,507	26.7 *	19.3 *	7.3	31.2
BUTTE <sup>1</sup>	85.3	1.2	213,143	40.0	29.6	23.3	35.9
CALAVERAS	9.0	0.1	44,243	20.3 *	14.0 *	4.8	23.2
COLUSA	8.7	0.1	20,927	41.4 *	45.2 *	15.1	75.4
CONTRA COSTA	229.7	3.2	1,014,992	22.6	23.9	20.8	26.9
DEL NORTE	5.0	0.1	29,162	17.1 *	18.2 *	2.2	34.2
EL DORADO	36.7	0.5	172,320	21.3	22.0	14.8	29.1
FRESNO	153.0	2.2	874,745	17.5	23.4	19.7	27.1
GLENN	7.0	0.1	28,115	24.9 *	23.4 *	6.0	40.7
HUMBOLDT <sup>1</sup>	52.3	0.7	130,859	40.0	42.0	30.6	53.4
IMPERIAL	10.7	0.2	159,844	6.7 *	9.5 *	3.7	15.2
INYO	1.3	a	18,923	7.0 *	4.3 *	0.0	11.5
KERN <sup>1</sup>	140.3	2.0	744,489	18.8	31.4	26.2	36.6
KINGS	13.0	0.2	143,970	9.0 *	17.6 *	8.0	27.2
LAKE	12.7	0.2	62,994	20.1 *	14.8 *	6.6	22.9
LASSEN	2.7	a	35,626	7.5 *	11.3 *	0.0	25.0
LOS ANGELES <sup>1</sup>	1,391.7	19.7	10,152,410	13.7	16.3	15.4	17.1
MADERA <sup>1</sup>	41.0	0.6	139,398	29.4	35.5	24.6	46.3
MARIN <sup>1</sup>	57.7	0.8	251,812	22.9	16.8	12.4	21.2
MARIPOSA	3.0	a	18,066	16.6 *	12.2 *	0.0	26.0
MENDOCINO	12.7	0.2	89,966	14.1 *	12.3 *	5.5	19.1
MERCED	27.3	0.4	237,550	11.5	17.6	11.0	24.1
MODOC	3.0	a	10,178	29.5 *	21.9 *	0.0	46.7
MONO	1.0	a	13,727	7.3 *	12.9 *	0.0	38.3
MONTEREY <sup>1</sup>	50.0	0.7	423,137	11.8	13.6	9.8	17.3
NAPA <sup>1</sup>	73.0	1.0	132,753	55.0	39.1	30.0	48.2
NEVADA	21.3	0.3	98,436	21.7	16.2	9.3	23.1
ORANGE	564.7	8.0	3,038,670	18.6	22.2	20.4	24.0
PLACER	85.0	1.2	302,199	28.1	24.1	19.0	29.3
PLUMAS	4.3	0.1	21,478	20.2 *	14.9 *	0.8	29.0
RIVERSIDE <sup>1</sup>	474.3	6.7	1,845,185	25.7	28.6	26.1	31.2
SACRAMENTO	283.0	4.0	1,357,367	20.8	24.5	21.7	27.4
SAN BENITO	3.3	a	57,307	5.8 *	8.9 *	0.0	18.4
SAN BERNARDINO <sup>1</sup>	299.3	4.2	1,922,467	15.6	26.1	23.2	29.1
SAN DIEGO <sup>1</sup>	1,068.0	15.1	3,031,055	35.2	38.6	36.3	41.0
SAN FRANCISCO <sup>1</sup>	134.3	1.9	793,564	16.9	13.3	11.1	15.6
SAN JOAQUIN	126.3	1.8	645,560	19.6	25.0	20.6	29.3
SAN LUIS OBISPO	79.7	1.1	259,709	30.7	23.4	18.3	28.6
SAN MATEO	156.0	2.2	720,229	21.7	18.9	15.9	21.9
SANTA BARBARA	107.3	1.5	416,662	25.8	22.2	18.0	26.4
SANTA CLARA	311.0	4.4	1,747,295	17.8	20.8	18.5	23.2
SANTA CRUZ	42.3	0.6	259,942	16.3	17.4	12.1	22.7
SHASTA	46.3	0.7	177,465	26.1	23.2	16.5	29.9
SIERRA	0.3	a	3,716	9.0 *	4.4 *	0.0	19.4
SISKIYOU	10.3	0.1	45,644	22.6 *	15.1 *	5.9	24.2
SOLANO <sup>1</sup>	119.0	1.7	418,097	28.5	38.3	31.4	45.2
SONOMA <sup>1</sup>	150.0	2.1	477,419	31.4	27.5	23.0	31.9
STANISLAUS	94.0	1.3	499,864	18.8	24.0	19.2	28.9
SUTTER	11.7	0.2	87,881	13.3 *	14.3 *	6.1	22.6
TEHAMA	19.7	0.3	59,942	32.8	27.8	15.5	40.1
TRINITY	2.0	a	13,961	14.3 *	10.6 *	0.0	25.2
TULARE <sup>1</sup>	29.0	0.4	406,003	7.1	10.0	6.3	13.6
TUOLUMNE	13.3	0.2	57,186	23.3 *	15.4 *	7.1	23.6
VENTURA	136.0	1.9	808,735	16.8	20.0	16.6	23.4
YOLO	33.0	0.5	186,751	17.7	24.1	15.9	32.3
YUBA	5.3	0.1	66,682	8.0 *	11.7 *	1.7	21.6

Note : Rates are per 100,000 population. ICD-10 codes G30.  
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, July 2007.  
State of California, Department of Public Health, Death Records.

<sup>1</sup> County age-adjusted rate is significantly different from the state age-adjusted rate.  
a Represents a percentage of more than zero but less than 0.05.  
- Percentages, rates, and confidence limits are not calculated for zero events.  
\* Death rate unreliable, relative standard error is greater than or equal to 23 percent.

FIGURE 6  
ALZHEIMER'S DISEASE AGE-ADJUSTED DEATH RATES  
CALIFORNIA, 2003-2005

