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DATA
SUMMARY
No.
DS08-01000

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

Highlights

- **Influenza and pneumonia ranked eighth among the leading causes of death in California in 2005.**
- **In 2005 89.4 percent of influenza and pneumonia deaths occurred among California residents aged 65 and older.**
- **California's age-adjusted death rate for influenza and pneumonia decreased by 17.7 percent from 2001 to 2005.**
- **Yolo County (40.4) had the highest reliable influenza and pneumonia age-adjusted death rate, while Monterey County had the lowest (14.3).**

Influenza and Pneumonia Deaths California, 2005

By Sally Jew-Lochman

Introduction

In 2005 influenza and pneumonia ranked eighth among the leading causes of death in California and eighth in the United States (U.S.).^{1,2} The two diseases are traditionally reported together, as influenza frequently progresses to pneumonia. Influenza is a contagious respiratory disease caused by the influenza virus. The number of influenza deaths can fluctuate considerably from one year to the next as the influenza virus constantly mutates and is more virulent in some years than others. Pneumonia is a serious infection of the lungs that is caused by bacteria, viruses, mycoplasmas, and other infectious agents.³ Typically there are more deaths from pneumonia than influenza.

Persons most at risk for influenza and pneumonia and their complications are those with weakened defenses against the diseases. These include the elderly, the very young, and those with underlying health problems such as chronic respiratory or circulatory problems, diabetes, and those with compromised immune systems from medications or Acquired Immune Deficiency Syndrome (AIDS).³ Final 2004 U.S. data showed that 88.4 percent of influenza and pneumonia deaths occurred in persons over the age of 65.⁴

Vaccinations are effective in preventing influenza as well as some strains of bacterial pneumonia and are recommended for high risk groups. The U.S. Department of Health and Human Services developed a 10-year plan to improve the health of the nation. Known as Healthy People 2010 (HP2010), the plan includes objectives related to increasing the number of people vaccinated against influenza and pneumonia.⁵ These objectives require specific data collection methods not covered in this report.

¹ State of California, Department of Public Health. Death Records, 2005.

² National Center for Health Statistics. Deaths: Preliminary Data for 2005. URL: <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimdeaths05/prelimdeaths05.htm> Accessed September 12, 2007.

³ American Lung Association. Pneumonia Fact Sheet. April 2006. URL: <http://www.lungusa.org/> Accessed August 16, 2007.

⁴ Centers for Disease Control and Prevention. Deaths: Final Data for 2004. *National Vital Statistics Reports*, Vol. 55, No. 19. National Center for Health Statistics. Hyattsville, Maryland. August 2007.

⁵ U.S. Department of Health and Human Services. *Healthy People 2010 Objectives* (Second Edition, in Two Volumes). Washington, D.C. January 2001.

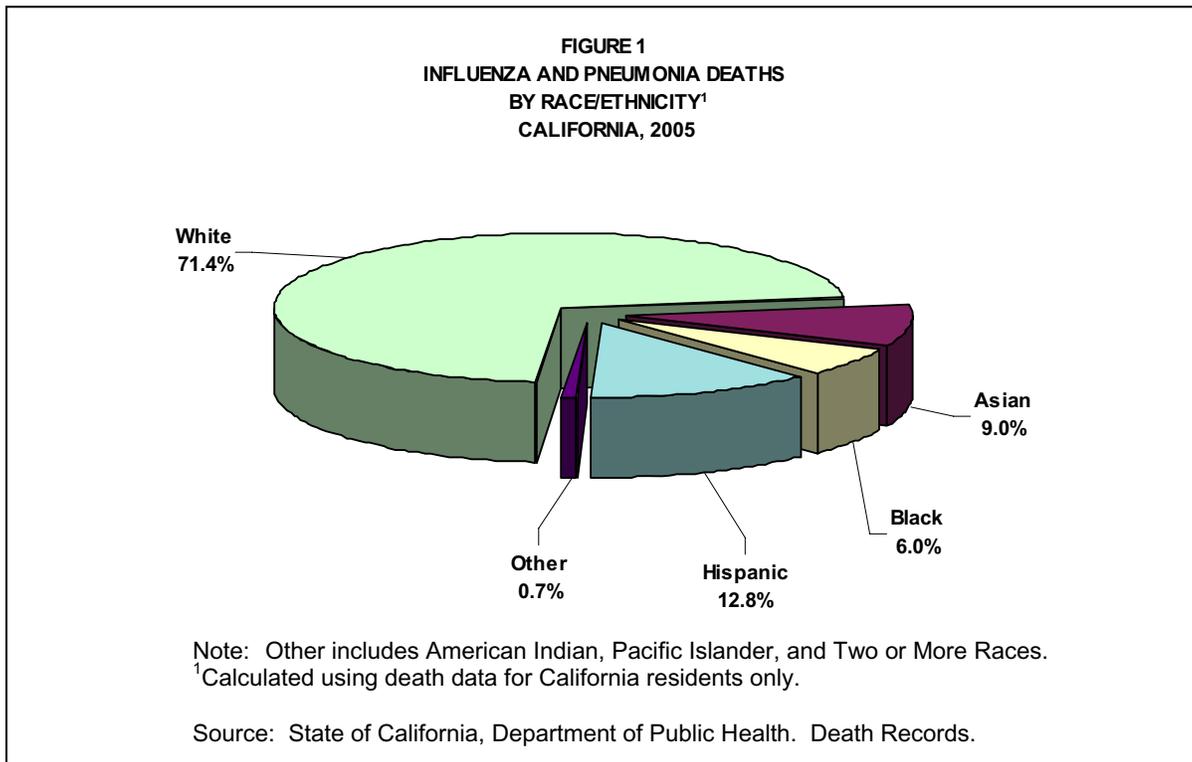
A brief overview of [data limitations](#) and [qualifications](#) is provided at the end of this report.

This report presents data on California resident deaths due to influenza and pneumonia for 2005. The analyses include presentations of crude and age-specific rates and comparisons of age-adjusted death rates by sex, age, race/ethnicity, and county. The data were extracted from vital statistics records with deaths attributed to these diseases as defined by the International Classification of Diseases, Tenth Revision (ICD-10) codes J10 to J18 in accordance with the National Center for Health Statistics (NCHS).⁶

Influenza and Pneumonia Deaths

Table 1 (pages 11 to 12) shows the number of influenza and pneumonia deaths for 2005 among California residents by race/ethnicity, age, and sex. There were a total of 7,537 deaths of which females made up 4,067 or 54.0 percent and males made up 3,470 or 46.0 percent. In 2005 89.4 percent of influenza and pneumonia deaths occurred among Californians aged 65 and older. The proportion of deaths increased with age as follows: 10.2 percent were aged 65 to 74; 30.4 percent were aged 75 to 84; and 48.8 percent were aged 85 and older.

Figure 1 shows that Whites had the highest percentage of deaths with 71.4 percent followed by Hispanics with 12.8 percent, Asians with 9.0 percent, Blacks with 6.0 percent, and Other with 0.7 percent. Other includes American Indians (0.3 percent), Pacific Islanders (0.2 percent), and Two or More Races (0.2 percent). Percentages may not add to 100 percent due to rounding.



Analyzing only the number of deaths can be misleading because larger subpopulations have higher numbers of deaths. For example, for influenza and pneumonia deaths, the

⁶Centers for Disease Control and Prevention. Instructions for Classifying the Underlying Cause of Death, 2007. NCHS Instruction Manual, Part 2a. National Center for Health Statistics. Hyattsville, Maryland. January 2007.

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

highest number of deaths was found among older White women. Using age-adjusted death rates (presented later in this report) corrects for differences in the make up of the population and provides for more useful comparisons between groups.

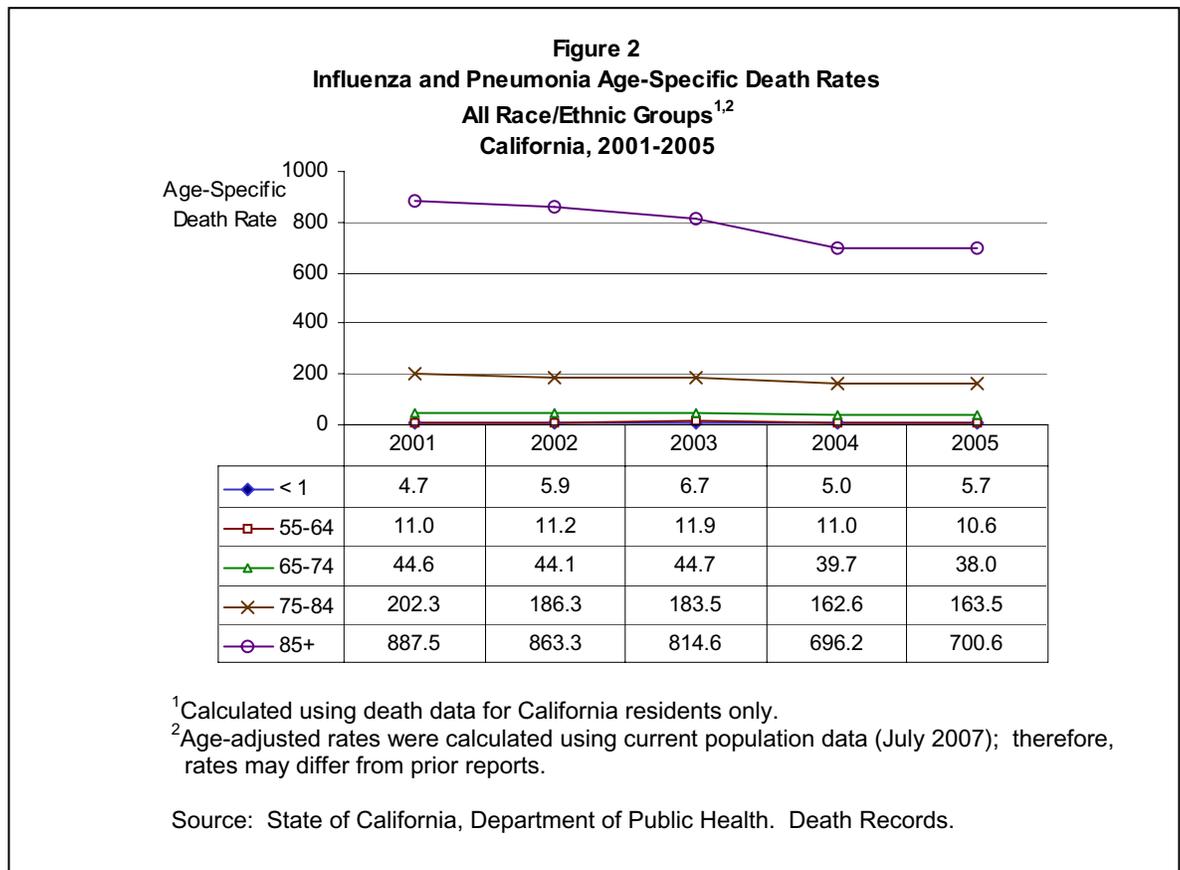
Influenza and Pneumonia Crude Death Rates

California's influenza and pneumonia crude death rate in 2005 of 20.4 per 100,000 population (**Table 1**, pages 11 to 12) was lower than the U.S. rate of 21.2.² An examination by race/ethnic group shows Whites had the highest rate (32.8) followed by Blacks (20.1), Asians (15.9), American Indians (11.6), and Hispanics (7.5). The differences in reliable crude rates among all race/ethnic groups were significant except among American Indians compared with Asians and Hispanics.

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.

Influenza and Pneumonia Age-Specific Death Rates

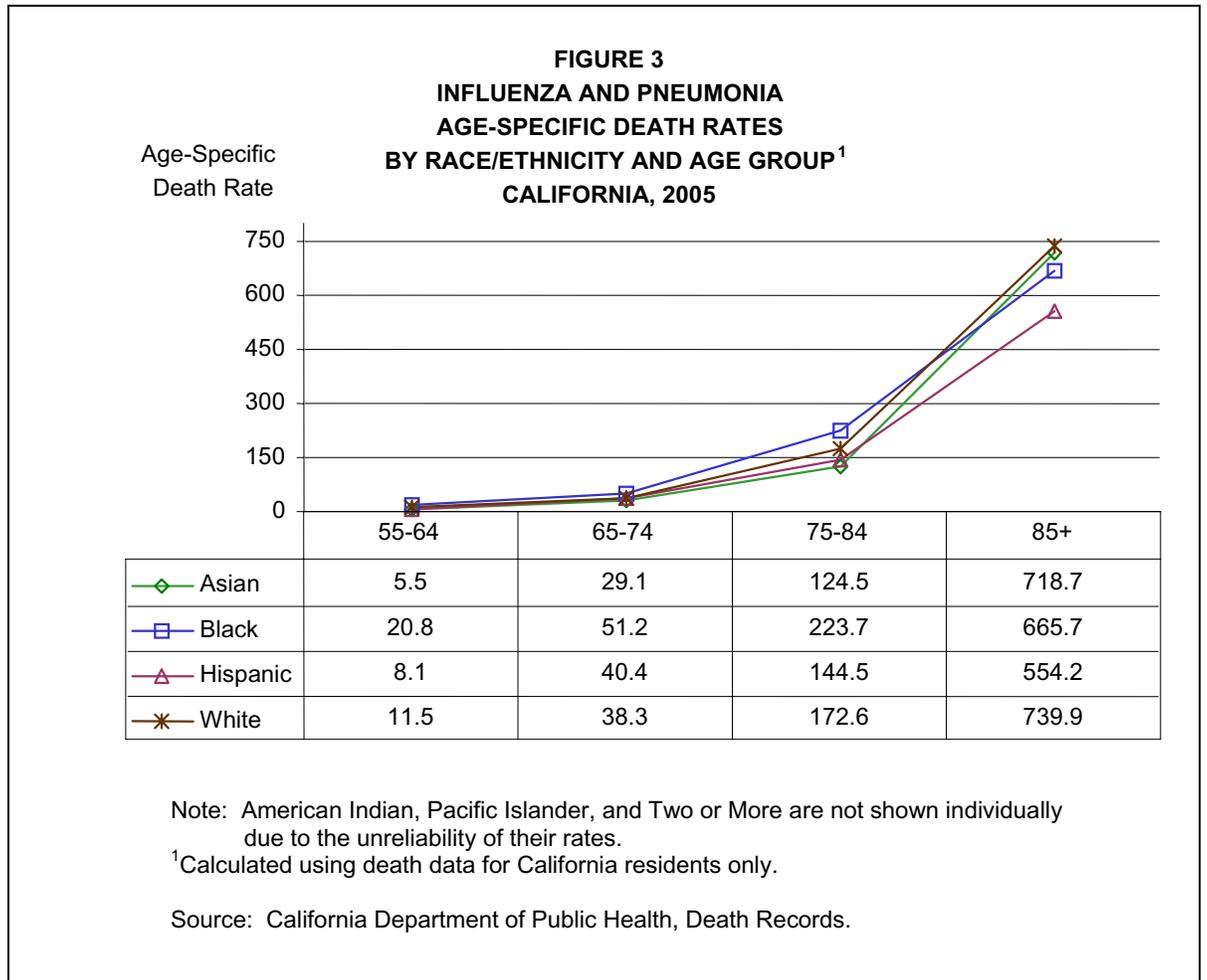
Table 1 (pages 11 to 12) displays 2005 age-specific death rates by sex and race/ethnicity. In general, deaths due to influenza and pneumonia occur predominately among the very young and the elderly and increase with age for Californians 25 and older. During 2005 males in all race/ethnic groups combined had higher age-specific death rates than their female counterparts in the 45 and older age groups.



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 with the five highest rates. The rates for residents 55 years of age and older decreased over this five year period but increased for residents under 1 year of age. From 2004 to 2005, the rates slightly decreased in the 55 to 64 and 65 to 74 age groups and increased for the under 1, 75 to 84, and 85 and older age groups.

Figure 3 shows the age-specific death rates for 2005 by race/ethnicity for residents 55 and older. Among those 85 and older, Whites had the highest rate (739.9) followed by Asians (718.7), Blacks (665.7), and Hispanics (554.2). In the 55 to 64, 65 to 74, and 75 to 84 age groups, Blacks had the highest rates (20.8, 51.2, 223.7) and Asians had the lowest rates (5.5, 29.1, 124.5).



Influenza and Pneumonia Age-Adjusted Death Rates

Table 1 (pages 11 to 12) displays 2005 influenza and pneumonia age-adjusted death rates by sex and race/ethnicity. California's 2005 age-adjusted death rate of 22.8 per 100,000 population was higher than the U.S. rate of 20.3.² Blacks had the highest age-adjusted death rate (28.5) followed by Whites (24.0), Asians (19.7), Hispanics (19.2), and American Indians (15.8). Reliable death rates were significantly different between all race/ethnic groups except within comparisons of Hispanics, Asians, and American Indians.

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

Figure 4 shows the overall age-adjusted influenza and pneumonia death rates decreased by 17.7 percent, from 27.7 deaths per 100,000 population in 2001 to 22.8 in 2005. The largest percentage decrease over this five-year period was seen in Hispanics (21.0) followed by Asians (19.6), Whites (16.1), and Blacks (14.9). The decreases in death rates were significant within each race/ethnic group with reliable rates.

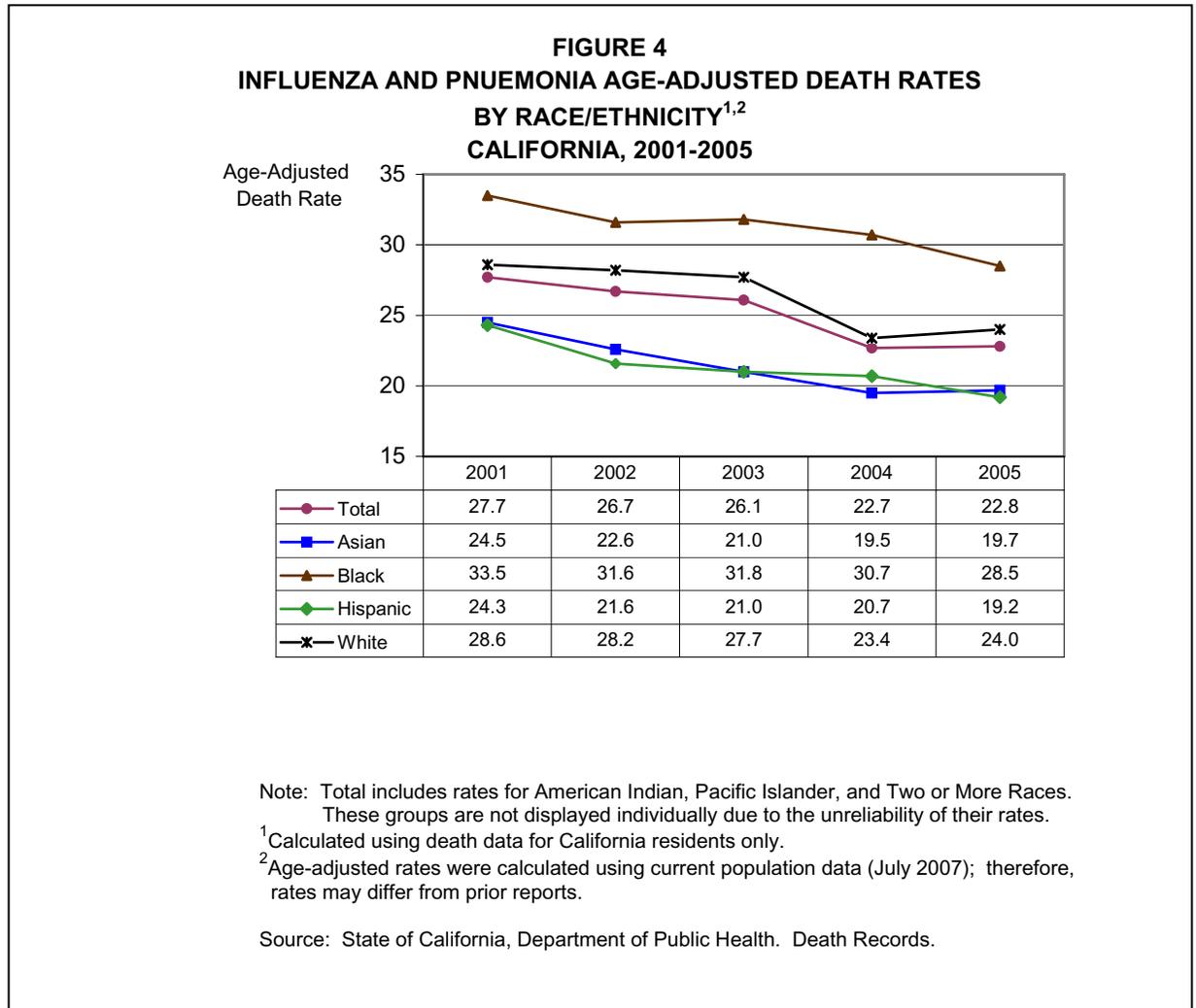
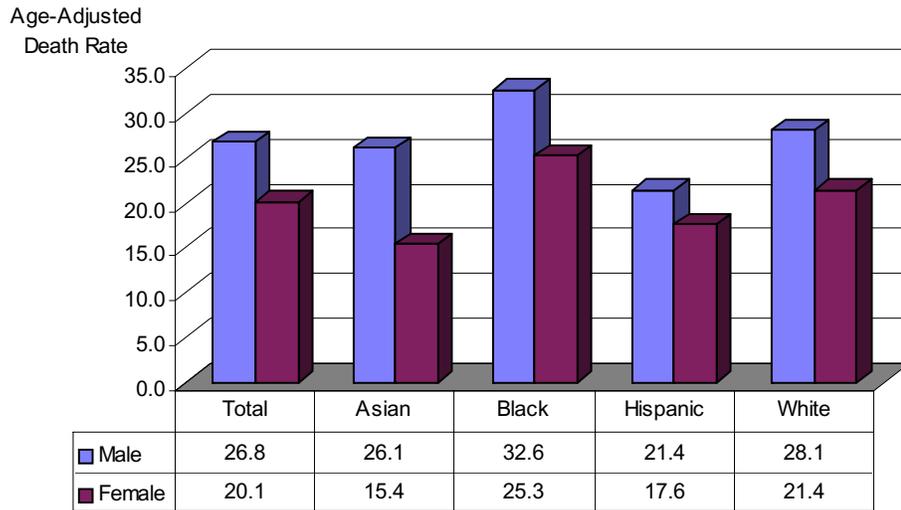


Figure 5 (page 6) shows the 2005 age-adjusted death rates by sex and race/ethnicity. Influenza and pneumonia age-adjusted death rates were significantly higher among males than females in all race/ethnic groups. The rate for Black males (32.6) was significantly higher than all other sex-specific rates for the race/ethnic groups except for White males (28.1) who had the second highest rate. Asian males (26.1) had the third highest rate followed by Black females (25.3), White females and Hispanic males (both 21.4), Hispanic females (17.6), and Asian females (15.4).

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

FIGURE 5
INFLUENZA AND PNEUMONIA AGE-ADJUSTED DEATH RATES
BY SEX AND RACE/ETHNICITY¹
CALIFORNIA, 2005



Note: Total includes rates for American Indian, Pacific Islander, and Two or More Races. These groups are not displayed individually due to the unreliability of their rates.

¹Calculated using death data for California residents only.

Source: State of California, Department of Public Health. Death Records.

Influenza and Pneumonia Rates for California Counties

Table 2 (page 13) shows the three-year average numbers of influenza and pneumonia deaths during 2003 to 2005 with crude and age-adjusted death rates for California and its 58 counties. County crude and age-adjusted influenza and pneumonia 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 40.4 in Yolo County to a low of 14.3 in Monterey County. Seventeen counties had age-adjusted rates that were significantly different from the State rate; seven county rates were higher and ten were lower than the State rate of 23.8. **Figure 6** (page 14) shows a thematic map of the 2003-2005 age-adjusted death rates for all California counties.

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

Influenza and Pneumonia Deaths for City Health Jurisdictions

Table 3 shows the 2003 to 2005 average numbers of influenza and pneumonia deaths and crude death rates for California's three city health jurisdictions. Long Beach had the highest average number of deaths (98.0) followed by Pasadena (55.7) and Berkeley (13.7). Pasadena had the highest crude death rate at 38.7 per 100,000 population, followed by Long Beach with 20.1. The rate for Berkeley was not reliable.

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

**TABLE 3
INFLUENZA AND PNEUMONIA DEATHS
AMONG THE CITY HEALTH JURISDICTIONS¹
CALIFORNIA, 2003-2005**

CITY HEALTH JURISDICTION	NUMBER OF DEATHS (Average)	2004 POPULATION	CRUDE DEATH RATE
BERKELEY	13.7	104,193	13.1 *
LONG BEACH	98.0	487,079	20.1
PASADENA	55.7	143,995	38.7

Note: Rates are per 100,000 population. ICD-10 codes J10-J18.

¹Calculated 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 DRU Benchmark, May 2007.

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.⁷ Age-specific rates provide insights to important age-related mortality trends that can be masked by age-adjusted rates. For

⁷Choi 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 influenza and pneumonia death data presented in this report are based on the vital statistics records with ICD-10 code J10-J18 as defined by the NCHS.⁶ Deaths by place of residence means that the data include only those deaths occurring among residents of that geographic 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.⁸

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-10.⁹ 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

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

⁹World Health Organization. *International Statistical Classification of Diseases and Related Health Problems. Tenth Revision*. Geneva: World Health Organization. 1992.

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.¹⁰ 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.¹¹ Age-adjusted death rates are not comparable when rates are calculated with different population standards, e.g., the 1940 standard population. 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 13). 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.¹² Detailed information on data quality and limitations is presented in the appendix of the annual report, "Vital Statistics of California."¹³ Formulas used to calculate death rates are included in the technical notes of the "County Health Status Profiles" report.¹⁴

¹⁰Rosenberg 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.

¹¹Anderson 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.

¹²Klein 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.

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

¹⁴Shippen S. *County Health Status Profiles 2006*. Center for Health Statistics, Department of Health Services (now Department of Public Health), State of California. April 2006.

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TABLE 1 (Page 1 of 2)
INFLUENZA AND PNEUMONIA 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
TOTAL¹															
Under 1	31	24	7	543,197	277,034	266,163	5.7	8.7	2.6 *	3.7	7.7	5.2	12.1	0.7	4.6
1 to 4	17	10	7	2,162,671	1,103,176	1,059,495	0.8 *	0.9 *	0.7 *	0.4	1.2	0.3	1.5	0.2	1.2
5 to 14	15	8	7	5,563,406	2,844,855	2,718,551	0.3 *	0.3 *	0.3 *	0.1	0.4	0.1	0.5	0.1	0.4
15 to 24	10	5	5	5,344,828	2,764,795	2,580,033	0.2 *	0.2 *	0.2 *	0.1	0.3	0.0	0.3	0.0	0.4
25 to 34	29	17	12	5,002,559	2,580,156	2,422,403	0.6	0.7 *	0.5 *	0.4	0.8	0.3	1.0	0.2	0.8
35 to 44	107	54	53	5,746,279	2,928,529	2,817,750	1.9	1.8	1.9	1.5	2.2	1.4	2.3	1.4	2.4
45 to 54	216	138	78	5,147,574	2,558,524	2,589,050	4.2	5.4	3.0	3.6	4.8	4.5	6.3	2.3	3.7
55 to 64	369	192	177	3,487,509	1,689,518	1,797,991	10.6	11.4	9.8	9.5	11.7	9.8	13.0	8.4	11.3
65 to 74	772	435	337	2,032,694	940,470	1,092,224	38.0	46.3	30.9	35.3	40.7	41.9	50.6	27.6	34.1
75 to 84	2,291	1,145	1,146	1,401,490	581,188	820,302	163.5	197.0	139.7	156.8	170.2	185.6	208.4	131.6	147.8
85 & Older	3,680	1,442	2,238	525,229	177,444	347,785	700.6	812.7	643.5	678.0	723.3	770.7	854.6	616.8	670.2
Total	7,537	3,470	4,067	36,957,436	18,445,689	18,511,747	20.4	18.8	22.0	19.9	20.9	18.2	19.4	21.3	22.6
Age-Adjusted							22.8	28.8	20.1	22.2	23.3	25.9	27.7	19.4	20.7
AMERICAN INDIAN															
Under 1	0	0	0	769	395	374	-	-	-	-	-	-	-	-	-
1 to 4	0	0	0	3,764	1,940	1,824	-	-	-	-	-	-	-	-	-
5 to 14	0	0	0	31,941	16,295	15,646	-	-	-	-	-	-	-	-	-
15 to 24	0	0	0	35,705	18,333	17,372	-	-	-	-	-	-	-	-	-
25 to 34	0	0	0	29,521	14,806	14,715	-	-	-	-	-	-	-	-	-
35 to 44	1	1	0	34,616	17,113	17,503	2.9 *	5.8 *	-	0.0	8.6	0.0	17.3	-	-
45 to 54	0	0	0	35,130	16,695	18,435	-	-	-	-	-	-	-	-	-
55 to 64	3	1	2	23,631	11,229	12,402	12.7 *	8.9 *	16.1 *	0.0	27.1	0.0	26.4	0.0	38.5
65 to 74	4	2	2	11,544	5,471	6,073	34.7 *	36.6 *	32.9 *	0.7	68.6	0.0	87.2	0.0	78.6
75 to 84	10	5	5	5,883	2,497	3,386	170.0 *	200.2 *	147.7 *	64.6	275.3	24.7	375.8	18.2	277.1
85 & Older	7	3	4	2,540	937	1,603	275.6 *	320.2 *	249.5 *	71.4	479.8	0.0	682.5	5.0	494.1
Total	25	12	13	215,044	105,711	109,333	11.6	11.4 *	11.9 *	7.1	16.2	4.9	17.8	5.4	18.4
Age-Adjusted							15.8	18.1 *	14.1 *	9.5	22.1	7.6	28.6	6.3	21.9
ASIAN															
Under 1	1	1	0	49,237	25,114	24,123	2.0 *	4.0 *	-	0.0	6.0	0.0	11.8	-	-
1 to 4	2	2	0	196,209	100,294	95,915	1.0 *	2.0 *	-	0.0	2.4	0.0	4.8	-	-
5 to 14	2	0	2	510,921	263,092	247,829	0.4 *	-	0.8 *	0.0	0.9	-	-	0.0	1.9
15 to 24	1	1	0	600,459	308,166	292,293	0.2 *	0.3 *	-	0.0	0.5	0.0	1.0	-	-
25 to 34	1	0	1	670,404	325,288	345,116	0.1 *	-	0.3 *	0.0	0.4	-	-	0.0	0.9
35 to 44	5	2	3	707,330	335,157	372,173	0.7 *	0.6 *	0.8 *	0.1	1.3	0.0	1.4	0.0	1.7
45 to 54	15	7	8	637,063	294,728	342,335	2.4 *	2.4 *	2.3 *	1.2	3.5	0.6	4.1	0.7	4.0
55 to 64	23	15	8	419,901	193,246	226,655	5.5	7.8 *	3.5 *	3.2	7.7	3.8	11.7	1.1	6.0
65 to 74	76	51	25	260,846	113,982	146,864	29.1	44.7	17.0	22.6	35.7	32.5	57.0	10.3	23.7
75 to 84	203	112	91	163,066	68,137	94,929	124.5	164.4	95.9	107.4	141.6	133.9	194.8	76.2	115.6
85 & Older	347	174	173	48,284	18,635	29,649	718.7	933.7	583.5	643.0	794.3	795.0	1,072.5	496.5	670.4
Total	676	365	311	4,263,720	2,045,839	2,217,881	15.9	17.8	14.0	14.7	17.0	16.0	19.7	12.5	15.6
Age-Adjusted							19.7	26.1	15.4	18.2	21.2	23.4	28.8	13.7	17.1
BLACK															
Under 1	7	5	2	25,199	12,843	12,356	27.8 *	38.9 *	16.2 *	7.2	48.4	4.8	73.1	0.0	38.6
1 to 4	1	0	1	106,784	54,437	52,347	0.9 *	-	1.9 *	0.0	2.8	-	-	0.0	5.7
5 to 14	2	1	1	360,722	183,297	177,425	0.6 *	0.5 *	0.6 *	0.0	1.3	0.0	1.6	0.0	1.7
15 to 24	1	1	0	378,701	195,916	182,785	0.3 *	0.5 *	-	0.0	0.8	0.0	1.5	-	-
25 to 34	7	3	4	305,865	150,542	155,323	2.3 *	2.0 *	2.6 *	0.6	4.0	0.0	4.2	0.1	5.1
35 to 44	16	8	8	362,335	178,384	183,951	4.4 *	4.5 *	4.3 *	2.3	6.6	1.4	7.6	1.3	7.4
45 to 54	32	19	13	317,604	153,768	163,836	10.1	12.4	7.9 *	6.6	13.6	6.8	17.9	3.6	12.2
55 to 64	41	21	20	196,909	91,007	105,902	20.8	23.1	18.9	14.4	27.2	13.2	32.9	10.6	27.2
65 to 74	60	36	24	117,087	53,068	64,019	51.2	67.8	37.5	38.3	64.2	45.7	90.0	22.5	52.5
75 to 84	138	71	67	61,691	23,969	37,722	223.7	296.2	177.6	186.4	261.0	227.3	365.1	135.1	220.1
85 & Older	149	40	109	22,384	6,516	15,868	665.7	613.9	686.9	558.8	772.5	423.6	804.1	558.0	815.9
Total	454	205	249	2,255,281	1,103,747	1,151,534	20.1	18.6	21.6	18.3	22.0	16.0	21.1	18.9	24.3
Age-Adjusted							28.5	32.6	25.3	25.8	31.2	27.9	37.4	22.1	28.4
HISPANIC															
Under 1	17	13	4	279,284	142,428	136,856	6.1 *	9.1 *	2.9 *	3.2	9.0	4.2	14.1	0.1	5.8
1 to 4	11	6	5	1,089,780	555,829	533,951	1.0 *	1.1 *	0.9 *	0.4	1.6	0.2	1.9	0.1	1.8
5 to 14	4	4	0	2,650,982	1,350,760	1,300,222	0.2 *	0.3 *	-	0.0	0.3	0.0	0.6	-	-
15 to 24	0	0	0	2,148,302	1,115,705	1,032,597	-	-	-	-	-	-	-	-	-
25 to 34	8	5	3	2,079,681	1,114,291	965,390	0.4 *	0.4 *	0.3 *	0.1	0.7	0.1	0.8	0.0	0.7
35 to 44	28	16	12	2,001,344	1,059,515	941,829	1.4	1.5 *	1.3 *	0.9	1.9	0.8	2.3	0.6	2.0
45 to 54	35	24	11	1,324,898	667,089	657,809	2.6	3.6	1.7 *	1.8	3.5	2.2	5.0	0.7	2.7
55 to 64	56	31	25	689,035	330,377	358,658	8.1	9.4	7.0	6.0	10.3	6.1	12.7	4.2	9.7
65 to 74	150	84	66	371,279	166,361	204,918	40.4	50.5	32.2	33.9	46.9	39.7	61.3	24.4	40.0
75 to 84	298	143	155	206,295	85,200	121,095	144.5	167.8	126.0	128.1	160.9	140.3	195.3	107.8	148.1
85 & Older	360	127	233	64,960	22,556	42,404	554.2	563.0	549.5	496.9	611.4	465.1	661.0	478.9	620.0
Total	967	453	514	12,905,840	6,610,111	6,295,729	7.5	6.9	8.2	7.0	8.0	6.2	7.5	7.5	8.9
Age-Adjusted							19.2	21.4	17.6	18.0	20.5	19.3	23.5	16.0	19.1

Note: Rates are per 100,000 population. ICD-10 codes J10-J18
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
1 Includes deaths for Pacific Islander (15) and Two or More Races (15) not individually shown 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 1 (Page 2 of 2)
INFLUENZA AND PNEUMONIA 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
TOTAL¹															
Under 1	31	24	7	543,197	277,034	266,163	5.7	8.7	2.6 *	3.7	7.7	5.2	12.1	0.7	4.6
1 to 4	17	10	7	2,162,671	1,103,176	1,059,495	0.8 *	0.9 *	0.7 *	0.4	1.2	0.3	1.5	0.2	1.2
5 to 14	15	8	7	5,563,406	2,844,855	2,718,551	0.3 *	0.3 *	0.3 *	0.1	0.4	0.1	0.5	0.1	0.4
15 to 24	10	5	5	5,344,828	2,764,795	2,580,033	0.2 *	0.2 *	0.2 *	0.1	0.3	0.0	0.3	0.0	0.4
25 to 34	29	17	12	5,002,559	2,580,156	2,422,403	0.6	0.7 *	0.5 *	0.4	0.8	0.3	1.0	0.2	0.8
35 to 44	107	54	53	5,746,279	2,928,529	2,817,750	1.9	1.8	1.9	1.5	2.2	1.4	2.3	1.4	2.4
45 to 54	216	138	78	5,147,574	2,558,524	2,589,050	4.2	5.4	3.0	3.6	4.8	4.5	6.3	2.3	3.7
55 to 64	369	192	177	3,487,509	1,689,518	1,797,991	10.6	11.4	9.8	9.5	11.7	9.8	13.0	8.4	11.3
65 to 74	772	435	337	2,032,694	940,470	1,092,224	38.0	46.3	30.9	35.3	40.7	41.9	50.6	27.6	34.1
75 to 84	2,291	1,145	1,146	1,401,490	581,188	820,302	163.5	197.0	139.7	156.8	170.2	185.6	208.4	131.6	147.8
85 & Older	3,680	1,442	2,238	525,229	177,444	347,785	700.6	812.7	643.5	678.0	723.3	770.7	854.6	616.8	670.2
Total	7,537	3,470	4,067	36,957,436	18,445,689	18,511,747	22.8	18.8	22.0	19.9	20.9	18.2	19.4	21.3	22.6
Age-Adjusted							22.8	26.8	20.1	22.2	23.3	25.9	27.7	19.4	20.7
WHITE															
Under 1	6	5	1	151,110	77,067	74,043	4.0 *	6.5 *	1.4 *	0.8	7.1	0.8	12.2	0.0	4.0
1 to 4	3	2	1	623,971	318,134	305,837	0.5 *	0.6 *	0.3 *	0.0	1.0	0.0	1.5	0.0	1.0
5 to 14	5	1	4	1,817,035	933,830	883,205	0.3 *	0.1 *	0.5 *	0.0	0.5	0.0	0.3	0.0	0.9
15 to 24	7	2	5	2,028,198	1,049,934	978,264	0.3 *	0.2 *	0.5 *	0.1	0.6	0.0	0.5	0.1	1.0
25 to 34	12	8	4	1,814,390	925,536	888,854	0.7 *	0.9 *	0.5 *	0.3	1.0	0.3	1.5	0.0	0.9
35 to 44	56	26	30	2,544,695	1,292,034	1,252,661	2.2	2.0	2.4	1.6	2.8	1.2	2.8	1.5	3.3
45 to 54	130	85	45	2,750,632	1,386,760	1,363,872	4.7	6.1	3.3	3.9	5.5	4.8	7.4	2.3	4.3
55 to 64	242	122	120	2,106,739	1,039,368	1,067,371	11.5	11.7	11.2	10.0	12.9	9.7	13.8	9.2	13.3
65 to 74	477	260	217	1,243,912	588,425	655,487	38.3	44.2	33.1	34.9	41.8	38.8	49.6	28.7	37.5
75 to 84	1,636	811	825	947,877	394,001	553,876	172.6	205.8	149.0	164.2	181.0	191.7	220.0	138.8	159.1
85 & Older	2,811	1,095	1,716	379,918	126,136	253,782	739.9	868.1	676.2	712.5	767.2	816.7	919.5	644.2	708.2
Total	5,385	2,417	2,968	16,408,477	8,131,225	8,277,252	32.8	29.7	35.9	31.9	33.7	28.5	30.9	34.6	37.1
Age-Adjusted							24.0	28.1	21.4	23.4	24.6	26.9	29.2	20.6	22.2

Note: Rates are per 100,000 population. ICD-10 codes J10-J18.
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.
¹ Includes deaths for Pacific Islander (15) and Two or More Races (15) not individually shown 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
INFLUENZA AND PNEUMONIA 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	7,684.0	100.0	36,525,947	21.0	23.8	23.3	24.3
ALAMEDA ¹	274.3	3.6	1,497,316	18.3	20.2	17.8	22.6
ALPINE	0.0	-	1,304	-	-	-	-
AMADOR	11.7	0.2	37,507	31.1 *	22.0 *	9.3	34.7
BUTTE	59.7	0.8	213,143	28.0	22.3	16.6	28.1
CALAVERAS	11.7	0.2	44,243	26.4 *	17.6 *	7.4	27.7
COLUSA	5.3	0.1	20,927	25.5 *	29.1 *	4.4	53.8
CONTRA COSTA	226.3	2.9	1,014,992	22.3	23.2	20.2	26.2
DEL NORTE	8.7	0.1	29,162	29.7 *	31.4 *	10.5	52.4
EL DORADO	30.0	0.4	172,320	17.4	17.3	11.1	23.5
FRESNO ¹	189.7	2.5	874,745	21.7	28.4	24.4	32.5
GLENN	8.7	0.1	28,115	30.8 *	29.7 *	9.8	49.5
HUMBOLDT	34.0	0.4	130,859	26.0	26.7	17.7	35.7
IMPERIAL	18.7	0.2	159,844	11.7 *	15.7 *	8.5	22.9
INYO	6.0	0.1	18,923	31.7 *	23.9 *	3.1	44.7
KERN ¹	165.0	2.1	744,489	22.2	33.2	28.1	38.4
KINGS	12.7	0.2	143,970	8.8 *	15.6 *	6.8	24.3
LAKE	20.0	0.3	62,994	31.7	24.4	13.4	35.4
LASSEN	6.7	0.1	35,626	18.7 *	27.5 *	6.5	48.5
LOS ANGELES ¹	2,342.3	30.5	10,152,410	23.1	27.3	26.2	28.4
MADERA	25.0	0.3	139,398	17.9	21.0	12.7	29.2
MARIN ¹	56.7	0.7	251,812	22.5	16.6	12.2	21.0
MARIPOSA	3.7	a	18,066	20.3 *	14.7 *	0.0	29.8
MENDOCINO	19.7	0.3	89,966	21.9	19.1	10.6	27.7
MERCED	35.0	0.5	237,550	14.7	21.2	14.2	28.3
MODOC	2.0	a	10,178	19.7 *	15.1 *	0.0	36.0
MONO	2.0	a	13,727	14.6 *	20.1 *	0.0	48.9
MONTEREY ¹	53.3	0.7	423,137	12.6	14.3	10.5	18.2
NAPA	47.0	0.6	132,753	35.4	25.5	18.1	32.9
NEVADA	26.3	0.3	98,436	26.8	20.2	12.4	28.1
ORANGE	601.3	7.8	3,038,670	19.8	23.6	21.7	25.5
PLACER ¹	64.7	0.8	302,199	21.4	18.6	14.0	23.1
PLUMAS	7.7	0.1	21,478	35.7 *	26.7 *	7.4	46.0
RIVERSIDE ¹	339.3	4.4	1,845,185	18.4	20.4	18.2	22.6
SACRAMENTO ¹	330.0	4.3	1,357,367	24.3	27.9	24.9	30.9
SAN BENITO	9.7	0.1	57,307	16.9 *	24.7 *	9.0	40.4
SAN BERNARDINO ¹	336.3	4.4	1,922,467	17.5	27.4	24.4	30.4
SAN DIEGO ¹	494.7	6.4	3,031,055	16.3	17.9	16.3	19.4
SAN FRANCISCO	259.0	3.4	793,564	32.6	26.6	23.3	29.8
SAN JOAQUIN	117.3	1.5	645,560	18.2	22.9	18.7	27.0
SAN LUIS OBISPO ¹	48.0	0.6	259,709	18.5	14.5	10.4	18.6
SAN MATEO	205.3	2.7	720,229	28.5	25.4	21.9	28.9
SANTA BARBARA ¹	91.7	1.2	416,662	22.0	19.2	15.3	23.2
SANTA CLARA ¹	311.7	4.1	1,747,295	17.8	20.6	18.3	22.8
SANTA CRUZ	49.7	0.6	259,942	19.1	20.5	14.7	26.3
SHASTA	46.0	0.6	177,465	25.9	22.9	16.2	29.5
SIERRA	0.7	a	3,716	17.9 *	11.0 *	0.0	37.9
SISKIYOU	17.7	0.2	45,644	38.7 *	27.2 *	14.3	40.0
SOLANO	81.3	1.1	418,097	19.5	24.7	19.3	30.1
SONOMA ¹	98.3	1.3	477,419	20.6	18.0	14.4	21.5
STANISLAUS ¹	119.7	1.6	499,864	23.9	30.0	24.6	35.3
SUTTER	26.7	0.3	87,881	30.3	33.0	20.5	45.6
TEHAMA	15.0	0.2	59,942	25.0 *	21.0 *	10.4	31.7
TRINITY	4.3	0.1	13,961	31.0 *	24.7 *	1.1	48.3
TULARE	69.0	0.9	406,003	17.0	22.7	17.3	28.1
TUOLUMNE	16.3	0.2	57,186	28.6 *	19.7 *	10.0	29.4
VENTURA	150.7	2.0	808,735	18.6	21.6	18.2	25.1
YOLO ¹	56.0	0.7	186,751	30.0	40.4	29.8	51.0
YUBA	14.0	0.2	66,682	21.0 *	27.9 *	13.1	42.6

Note : Rates are per 100,000 population. ICD-10 codes J10-J18.
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 Health Services, Death Records.

¹ 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
 Influenza and Pneumonia Age-Adjusted Death Rates
 California, 2003-2005

