CENTER FOR HEALTH STATISTICS

DATA SUMMARY

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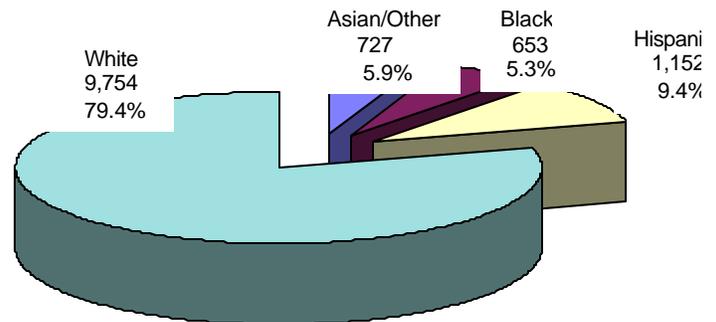*PNEUMONIA AND
INFLUENZA DEATHS
CALIFORNIA, 1997*

Introduction

This report presents data on pneumonia and influenza for 1997 with analysis of crude and age-adjusted death rates for California residents by sex, age, race/ethnicity, and county. The definition of pneumonia and influenza used in this report is based on the ICD-9 codes 480-487 as traditionally presented in National Center for Health Statistics reports.[1]

Pneumonia and influenza is the 6th leading cause of death overall nationally (83,383 deaths)[2] and the 4th leading cause of death in California for 1997 (12,286 deaths).[3] Pneumonia and influenza normally claim the lives of the very young, the elderly and those persons with compromised immunity systems. Female deaths outnumber male deaths, probably due to females tending to live longer. As **Figure 1** shows, Whites had the highest number of deaths (9,754) or 79.4 percent of all deaths from pneumonia and influenza. The remaining 2,532 pneumonia and influenza deaths (20.6 percent) were collectively among Hispanics, Blacks, and Asian/Others.

Pneumonia alone encompasses many different diseases that involve infection or inflammation of the lungs. Because pneumonia is frequently a complication of influenza, the two diseases are traditionally reported together. Though there are typically more pneumonia deaths each year than influenza deaths, the number of influenza deaths still varies considerably during epidemics. Influenza can be represented by more virulent strains in some years than others as the viruses mutate constantly.[4] Together the number of pneumonia and influenza deaths have fluctuated considerably over the years reflecting the cyclic nature of communicable diseases.

Figure 1
PNEUMONIA AND INFLUENZA DEATHS BY RACE/ETHNICITY
CALIFORNIA, 1997
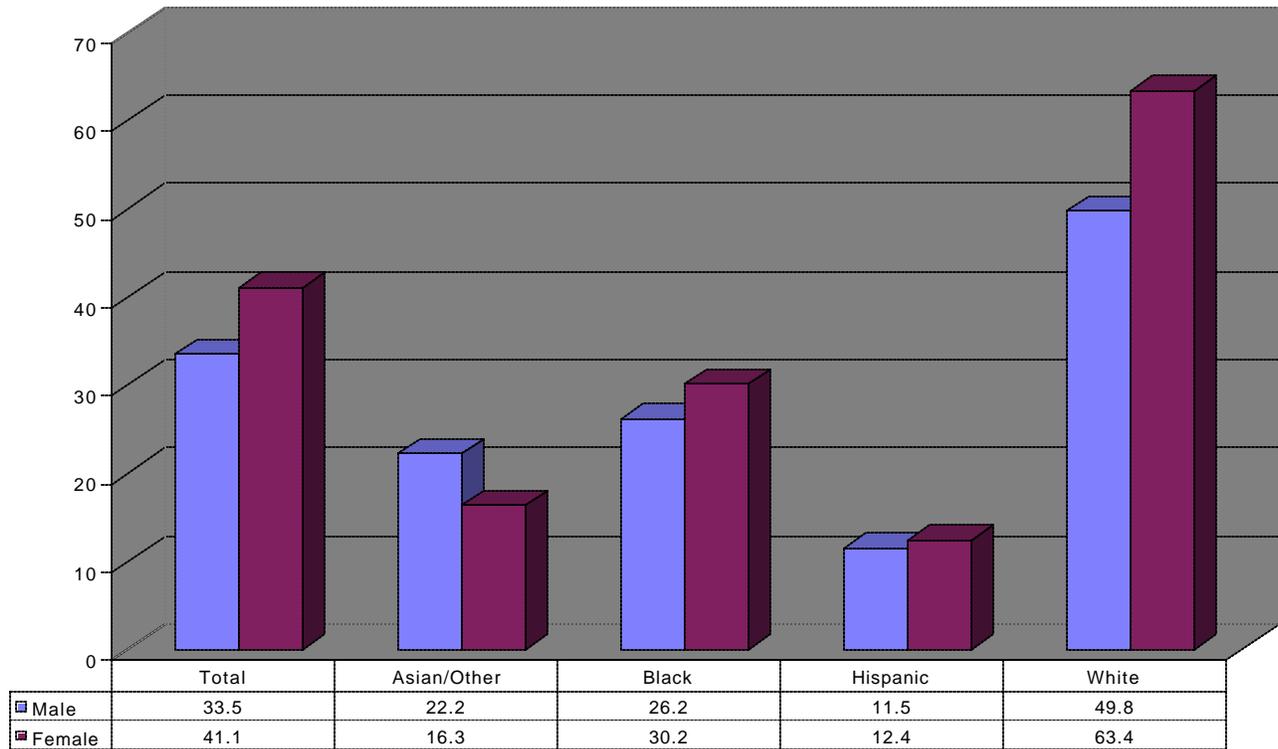(By Place of Residence)

Source: Table 1

There were 5.1 million reported cases of pneumonia and 108 million cases of influenza in the United States in 1995.[5] The high mortality rate and low immunization rate among high risk populations led the United States Public Health Service to establish a number of national *Healthy People 2000*[6] objectives related to pneumonia and influenza.

The methods used to analyze vital statistics data are also important. Analyzing only the number of deaths can be misleading because the population at risk is not taken into consideration. Crude death rates, on the other hand, show the actual rate of dying in a given population, but the age composition of that population is not taken into consideration. Therefore, the use of age-adjusted death rates becomes the preferred method for measuring death rates over time, and for comparing rates between race/ethnic groups, gender, and geographic areas.

Figure 2
**PNEUMONIA AND INFLUENZA CRUDE DEATH RATES BY RACE/ETHNICITY AND SEX
CALIFORNIA, 1997
(By Place of Residence)**

	Total	Asian/Other	Black	Hispanic	White
Male	33.5	22.2	26.2	11.5	49.8
Female	41.1	16.3	30.2	12.4	63.4

Source: Table 1

The United States (standard million) population was used as the basis for age-adjusting in this report.

Pneumonia and Influenza Crude Death Rates

As shown in **Table 1** (page 7), California's crude death rate due to pneumonia and influenza for 1997 was 37.3 per 100,000 population, an 8.4 percent increase from the 1996 rate of 34.4.[7] The national crude death rate in 1997 was lower than California's at 33.0.[2]

California females had the higher crude death rate at 41.1 per 100,000 population in 1997 compared to 33.5 for males. Whites had the highest crude death rate at 56.7, nearly twice as high as the rate among Blacks at 28.2. Asian/Others followed with a rate of 19.2 and Hispanics had the lowest at 12.0. The difference in crude death rates between the four race/ethnic groups were statistically significant.

As shown in **Figure 2**, White males and females had the highest rates, 49.8 and 63.4 per 100,000 population. Black males and females had the next highest rates (26.2 and 30.2) followed by Asian/Other males and females (22.2 and 16.3), and Hispanic males and females (11.5 and 12.4). The difference between the male and female rates among Whites was statistically significant. The difference between the male and female rates among Asian/Others was also significant, whereas Blacks and Hispanics had no significant differences between their male and female rates. In addition, although the pneumonia and influenza crude death rates are generally higher among females than males, the rate among Asian/Other males was higher than Asian/Other females.
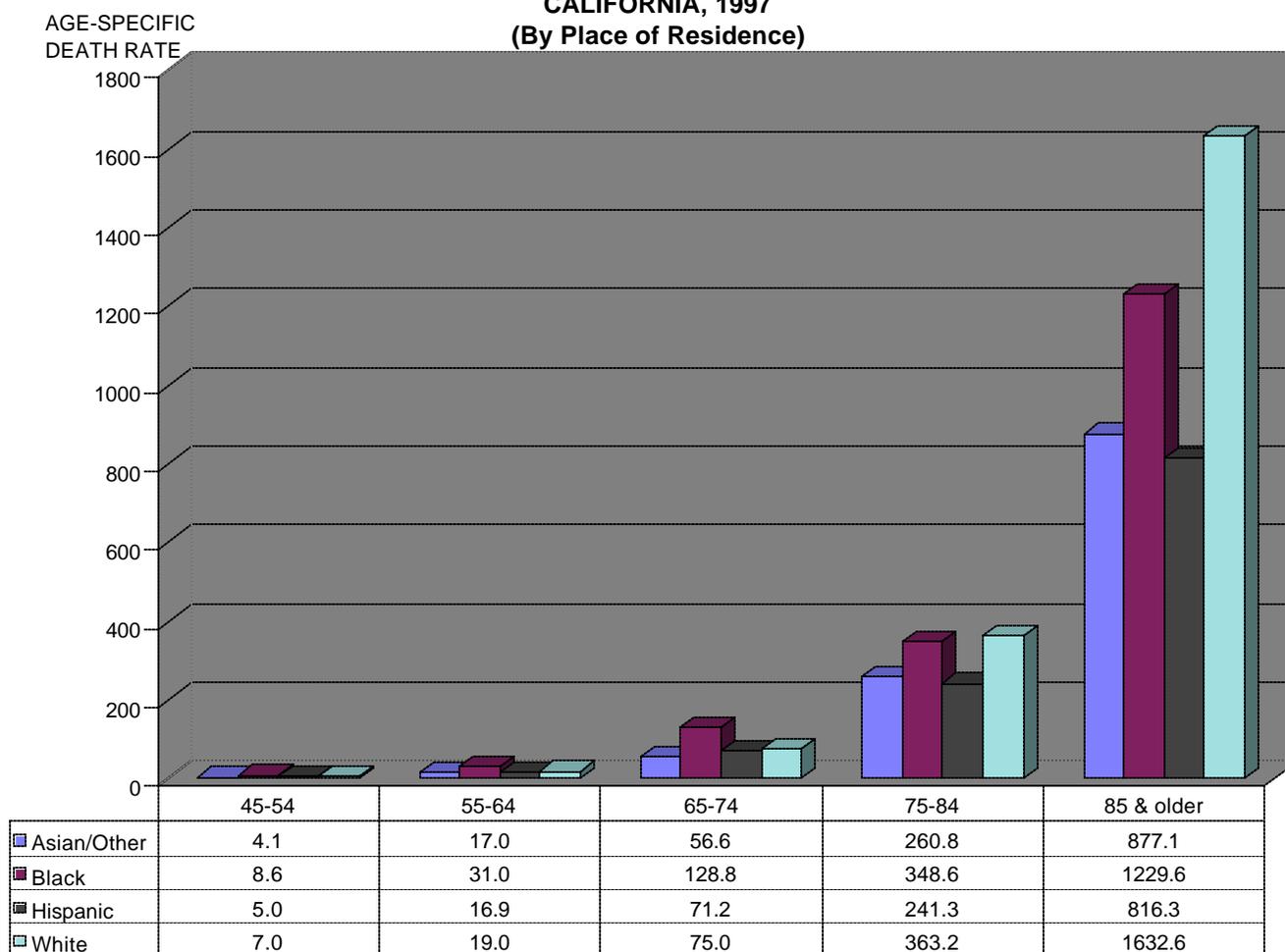
Pneumonia and Influenza Age-Specific Death Rates

In general, the age-specific pneumonia-influenza death rates were significantly higher in the under one year group, and the older groups 55 and over, with the highest rates being among the 85 and over group.

Where age-specific rates were reliable, the male rates were higher than female rates in all age groups. This pattern is opposite from the gender differences in the total crude death rates where females had higher crude death rates than males in all race/ethnic groups except Asian/Others where the male rate was higher than the female rate.

Hispanics had the highest and only reliable age specific death rate for the under 1 age group at 12.8 per 100,000 population, although for the total crude death rate Hispanics as a group had the lowest rate of the four race/ethnic groups. Blacks had the highest rates in the 45-54, 55-64 and 65-74 age groups and Whites had the highest rates in the 75-84 and 85 and over age groups **(Figure 3).**

Figure 3
PNEUMONIA AND INFLUENZA AGE-SPECIFIC DEATH RATES
BY RACE/ETHNICITY AND AGE
CALIFORNIA, 1997
(By Place of Residence)

AGE-SPECIFIC DEATH RATE

	45-54	55-64	65-74	75-84	85 & older
Asian/Other	4.1	17.0	56.6	260.8	877.1
Black	8.6	31.0	128.8	348.6	1229.6
Hispanic	5.0	16.9	71.2	241.3	816.3
White	7.0	19.0	75.0	363.2	1632.6

Source: Table 1.

Pneumonia and Influenza Age-Adjusted Death Rates

In 1997 the national pneumonia and influenza age-adjusted death rate was 13.2 per 100,000 population. The rate for California in 1997 was 16.7, up 5.7 percent from 15.8 in 1996.

The difference in age-adjusted rates between males and females was statistically significant, the male rate being higher at 20.3 versus 14.2 for females.

Blacks had the highest age-adjusted death rates from pneumonia and influenza at 20.4, a statistically significant difference from Whites the next highest at 17.7, followed by Hispanics at 12.7, again a statistically significant difference and Asian/Others at 12.0, not a statistically significant difference between Hispanics and Asian/Others.

Male age-adjusted death rates were greater than those of females within all of the race/ethnic groups by statistically significant margins, the

male/female differential was the lowest at 4.7 (**Figure 4**).

Pneumonia and Influenza Death Rates among California Counties

Table 2 (page 8) displays the number of deaths, crude death rates, and age-adjusted death rates by county, averaged over a three-year period, from 1995 to 1997.

Lake County had the highest reliable pneumonia and influenza <u>crude death rate</u> at 79.0 deaths per 100,000 population, and Imperial County had the lowest reliable crude death rate at 19.6.

However, the county with the highest reliable <u>age-adjusted death rate</u> was Stanislaus at 25.6 deaths per 100,000 population and the county with the lowest reliable age-adjusted rate was San Luis Obispo at 10.9 per 100,000 population.

Figure 4
PNEUMONIA AND INFLUENZA AGE- ADJUSTED DEATH RATES
BY RACE/ETHNICITY AND SEX
CALIFORNIA, 1997
(By place of Residence)

Age-Adjusted
Death Rate

	Total	Asian/Other	Black	Hispanic	White
Male	20.3	15.9	25.2	15.4	21.4
Female	14.2	9.0	17.3	10.7	15.1
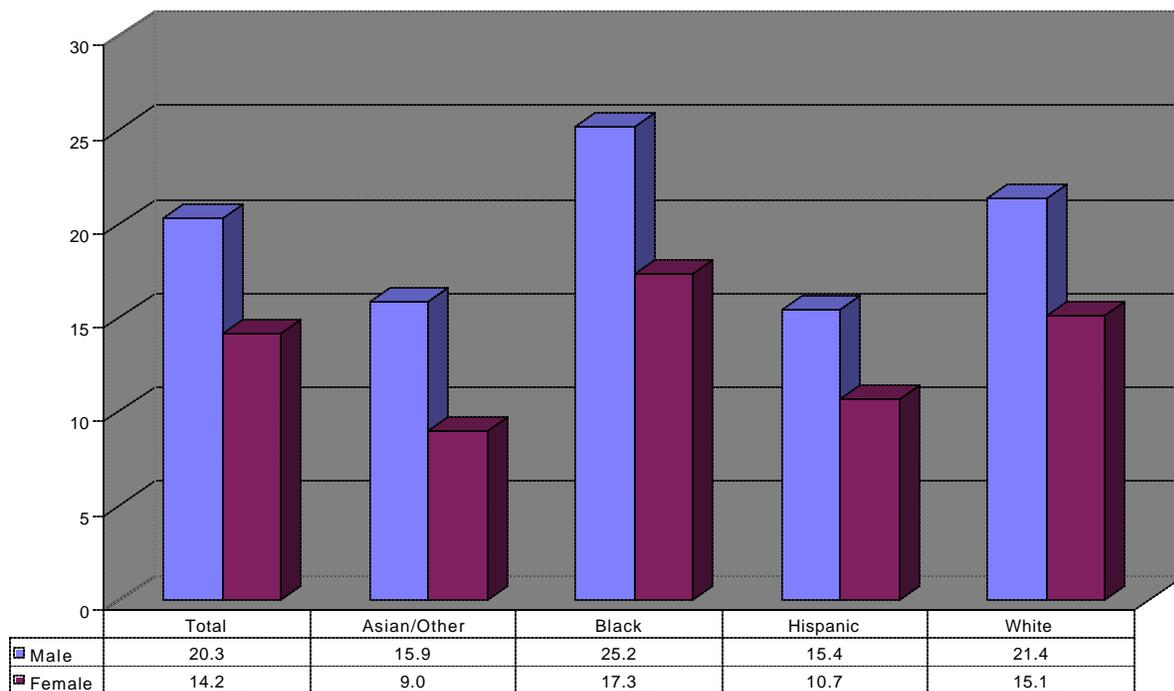
Source: Table 1

Black male/female age-adjusted rate differential was the highest at 7.9 and the Hispanic

TABLE 3
DEATHS DUE TO PNEUMONIA AND INFLUENZA
AMONG THE CITY HEALTH DEPARTMENTS
CALIFORNIA, 1995-1997
(By Place of Residence)

CITY HEALTH DEPARTMENT	NUMBER OF DEATHS (Average)	1996 POPULATION	CRUDE DEATH RATE	95% CONFIDENCE LIMITS	
				LOWER	UPPER
BERKELEY	26.3	104,700	25.1	15.5	34.7
LONG BEACH	167.7	437,900	38.3	32.5	44.1
PASADENA	79.7	137,200	58.1	45.3	70.8

Note: Rates are per 100,000 population; ICD-9 codes 480-487.

Source: State of California, Department of Finance, Report Hist.
E-4, 1996 Historical Estimates of California Cities and
Counties, May 1999.
State of California, Department of Health Services,
Death Records.

Pneumonia and Influenza Death Data by City Health Departments

Table 3 shows the 1995-1997 three-year average death numbers and rates due to pneumonia and influenza for California's three city health departments. Among these city health departments, Berkeley had 26.3 deaths due to pneumonia and influenza during 1995-1997, while Long Beach had 167.7 deaths and Pasadena had 79.7 deaths. The crude death rates due to pneumonia and influenza were 25.1 per 100,000 population in Berkeley, 38.3 in Long Beach, and 58.1 in Pasadena.

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

Technical Notes:

In accordance with the National Center for Health Statistics, the pneumonia and influenza death data presented in this report are ICD-9 codes 480-487. 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 substantial variation from one year to the next. Consequently, **Tables 2 and 3** present three-year annual average death data to increase the reliability of the data by county and local health jurisdiction. Also, 95 percent confidence intervals and an indicator, "*" (asterisk), denoting rates that have a relative standard error (coefficient of variation) greater than or equal to 23 percent are provided in the data tables as a tool for measuring the reliability of the death rates.

The four race/ethnic groups presented in Table 1 are mutually exclusive. White, Black, and Asian/Other exclude Hispanic ethnicity, while Hispanic includes any race/ethnic group. In order to remain consistent with the population data obtained from the Department of Finance, the "White race/ethnic group" includes: White, Other (specified), Not Stated, and Unknown; and the "Asian/Other race/ethnic group" includes: Aleut, American Indian, Asian Indian, Asian (specified/unspecified), Cambodian, Chinese, Eskimo, Filipino, Guamanian, Hawaiian, Japanese, Korean, Vietnamese, other Pacific Islander, Samoan, Thai, and Laotian. In addition, caution should be exercised in the interpretation of

mortality data by race/ethnicity. Misclassification of race/ethnicity on the death certificate may contribute to death rates that may be underestimated among Hispanics and Asian/Other.[8]

For a more complete explanation of the age-adjusting methodology, see the *Healthy People 2000 Statistical Notes* publication. Detailed information on data quality and limitations as well as the formulas used to calculate vital statistics rates are presented in the appendix of the annual report, *Vital Statistics of California*.[3] Another source of information is the Department of Health Services, Center for Health Statistics Home Page [www.dhs.ca.gov/org/hisp/chs/chsindex.htm].

The Department of Finance utilizes different methodologies in estimating the populations of cities versus counties, therefore the population data used to calculate the crude rates in **Table 3** differ from the population data used to calculate the crude rates in **Table 2.** Consequently, caution should be exercised when comparing the crude rates among the three city health departments with the rates among the 58 California counties**.**

References:

1. National Center for Health Statistics, Births and Deaths: United States, 1996, *Monthly Vital Statistics Report*, DHHS Pub. No. (PHS) 97-1120, Supplement 2, September 1997: Vol. 46, No. 1, pp. 24-25.

2. National Center for Health Statistics, Births and Deaths: Preliminary Data for 1997, *Monthly Vital Statistics Report*, DHHS Pub. No. (PHS) 99-1120, October 1998: Vol. 47, No. 4, pp. 7.

3. Riedmiller K, Harms C. *Vital Statistics of California, 1997*. Center for Health Statistics, California Department of Health Services, November 1999.

4. See: The American Lung Association, *Fact Sheet* @ http://www.lungusa.org/diseases/ for more information on Pneumonia and Influenza.

5. See: Centers For Disease Control, FASTATS@ http://www.cdc.gov/nchswww/fastats/flu.htr for more information on Pneumonia and Influenza.

6. U.S. Department of Health and Human Services *Healthy People 2000*. Washington, D.C.: Public Health Service, DHHS Pub. No. (PHS) 91-50212, September 1991.

7. Quinn M. Pneumonia and Influenza Deaths, California, 1980-1996. *Data Summary*; No. DS98-12001. Center for Health Statistics, California Department of Health Services, October 1998.

8. Hahn RA, Mulinare J, Teutsh SM. Inconsistencies in Coding Race and Ethnicity between Birth and Death in U.S. Infants. *The Journal of the American Medical Association,* Vol. 267, No. 2, January 1992.

TABLE 1
DEATHS DUE TO PNEUMONIA AND INFLUENZA BY RACE/ETHNICITY. AGE. AND SEX
CALIFORNIA. 1997
(Bv Place of Residence)

AGE GROUPS	1997 DEATHS			POPULATION			AGE-SPECIFIC DEATH RATE			95% CONFIDENCE LIMITS					
										TOTAL		MALE		FEMALE	
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER
TOTAL															
Under 1	47	30	17	526,869	269,593	257,276	8.9	11.1	6.6*	6.4	11.5	7.1	15.1	3.5	9.7
1 to 4	26	10	16	2,247,883	1,150,084	1,097,799	1.2	0.9*	1.5*	0.7	1.6	0.3	1.4	0.7	2.2
5 to 14	18	8	10	5,126,482	2,623,174	2,503,308	0.4*	0.3*	0.4*	0.2	0.5	0.1	0.5	0.2	0.6
15 to 24	24	18	6	4,287,123	2,231,053	2,056,070	0.6	0.8*	0.3*	0.3	0.8	0.4	1.2	0.1	0.5
25 to 34	48	34	14	5,295,965	2,801,042	2,494,923	0.9	1.2	0.6*	0.6	1.2	0.8	1.6	0.3	0.9
35 to 44	143	85	58	5,520,289	2,806,428	2,713,861	2.6	3.0	2.1	2.2	3.0	2.4	3.7	1.6	2.7
45 to 54	253	143	110	3,972,821	1,971,051	2,001,770	6.4	7.3	5.5	5.6	7.2	6.1	8.4	4.5	6.5
55 to 64	467	244	223	2,432,927	1,183,049	1,249,878	19.2	20.6	17.8	17.5	20.9	18.0	23.2	15.5	20.2
65 to 74	1,471	839	632	1,949,636	882,049	1,067,587	75.4	95.1	59.2	71.6	79.3	88.7	101.6	54.6	63.8
75 to 84	4,103	2,095	2,008	1,205,134	486,886	718,248	340.5	430.3	279.6	330.0	350.9	411.9	448.7	267.3	291.8
85 & Older	5,685	2,027	3,658	391,566	120,167	271,399	1,451.9	1,686.8	1,347.8	1,414.1	1,489.6	1,613.4	1,760.3	1,304.2	1,391.5
Unknown	1	1													
Total	12,286	5,534	6,752	32,956,695	16,524,576	16,432,119	37.3	33.5	41.1	36.6	37.9	32.6	34.4	40.1	42.1
Age-Adjusted							16.7	20.3	14.2	16.4	17.0	19.7	20.8	13.9	14.6
ASIAN/OTHER															
Under 1	2	2	0	60,238	31,180	29,058	3.3*	6.4 *	0.0+	0.0	7.9	0.0	15.3	-	-
1 to 4	2	0	2	254,370	130,902	123,468	0.8*	0.0+	1.6*	0.0	1.9	-	-	0.0	3.9
5 to 14	1	0	1	591,663	303,064	288,599	0.2*	0.0+	0.3*	0.0	0.5	-	-	0.0	1.0
15 to 24	3	1	2	548,570	281,839	266,731	0.5*	0.4*	0.7*	0.0	1.2	0.0	1.1	0.0	1.8
25 to 34	4	3	1	612,830	309,144	303,686	0.7*	1.0*	0.3*	0.0	1.3	0.0	2.1	0.0	1.0
35 to 44	6	3	3	651,237	313,355	337,882	0.9*	1.0*	0.9*	0.2	1.7	0.0	2.0	0.0	1.9
45 to 54	19	10	9	467,272	221,503	245,769	4.1*	4.5*	3.7*	2.2	5.9	1.7	7.3	1.3	6.1
55 to 64	46	28	18	270,964	127,874	143,090	17.0	21.9	12.6*	12.1	21.9	13.8	30.0	6.8	18.4
65 to 74	111	68	43	196,266	85,253	111,013	56.6	95.1	59.2	46.0	67.1	60.8	98.7	27.2	50.3
75 to 84	265	161	104	101,593	43,544	58,049	260.8	369.7	179.2	229.4	292.3	312.6	426.9	144.7	213.6
85 & Older	268	137	131	30,556	13,077	17,479	877.1	1,047.6	749.5	772.1	982.1	872.2	1,223.1	621.1	877.8
Unknown	0	0	0												
Total	727	413	314	3,785,559	1,860,735	1,924,824	19.2	22.2	16.3	17.8	20.6	20.1	24.3	14.5	18.1
Age-Adjusted							12.0	15.9	9.0	11.1	12.9	14.4	17.4	8.0	10.0
BLACK															
Under 1	4	1	3	36,610	18,680	17,930	10.9*	5.4*	16.7*	0.2	21.6	0.0	15.8	0.0	35.7
1 to 4	3	1	2	162,632	82,532	80,100	1.8*	1.2*	2.5*	0.0	3.9	0.0	3.6	0.0	6.0
5 to 14	1	1	0	402,151	203,623	198,528	0.2*	0.5*	0.0+	0.0	0.7	0.0	1.5	-	-
15 to 24	1	1	0	349,439	184,772	164,667	0.3*	0.5*	0.0+	0.0	0.8	0.0	1.6	-	-
25 to 34	7	4	3	389,632	201,917	187,715	1.8*	2.0*	1.6*	0.5	3.1	0.0	3.9	0.0	3.4
35 to 44	16	6	10	382,112	185,435	196,677	4.2*	3.2*	5.1*	2.1	6.2	0.6	5.8	1.9	8.2
45 to 54	22	11	11	255,815	120,369	135,446	8.6	9.1*	8.1*	5.0	12.2	3.7	14.5	3.3	12.9
55 to 64	49	27	22	157,984	73,960	84,024	31.0	36.5	26.2	22.3	39.7	22.7	50.3	15.2	37.1
65 to 74	134	72	62	104,036	44,736	59,300	128.8	160.9	104.6	107.0	150.6	123.8	198.1	78.5	130.6
75 to 84	199	107	92	57,082	21,249	35,833	348.6	503.6	256.7	300.2	397.1	408.1	599.0	204.3	309.2
85 & Older	216	67	149	17,567	5,225	12,342	1,229.6	1,282.3	1,207.3	1,065.6	1,393.6	975.2	1,589.3	1,013.4	1,401.1
Unknown	1	1	0												
Total	653	299	354	2,315,060	1,142,498	1,172,562	28.2	26.2	30.2	26.0	30.4	23.2	29.1	27.0	33.3
Age-Adjusted							20.4	25.2	17.3	18.9	22.0	22.3	28.0	15.5	19.1
HISPANIC															
Under 1	32	20	12	249,820	127,321	122,499	12.8	15.7	9.8*	8.4	17.2	8.8	22.6	4.3	15.3
1 to 4	14	6	8	1,028,081	524,193	503,888	1.4*	1.1*	1.6*	0.6	2.1	0.2	2.1	0.5	2.7
5 to 14	9	5	4	1,940,843	989,960	950,883	0.5*	0.5*	0.4*	0.2	0.8	0.1	0.9	0.0	0.8
15 to 24	8	8	0	1,466,796	761,756	705,040	0.5*	1.1*	0.0+	0.2	0.9	0.3	1.8	-	-
25 to 34	11	8	3	1,820,565	1,021,849	798,716	0.6*	0.8*	0.4*	0.2	1.0	0.2	1.3	0.0	0.8
35 to 44	32	20	12	1,432,765	755,866	676,899	2.2	2.6	1.8*	1.5	3.0	1.5	3.8	0.8	2.8
45 to 54	40	21	19	795,482	401,656	393,826	5.0	5.2	4.8*	3.5	6.6	3.0	7.5	2.7	7.0
55 to 64	73	40	33	432,489	208,812	223,677	16.9	19.2	14.8	13.0	20.8	13.2	25.1	9.7	19.8
65 to 74	207	117	90	290,567	131,786	158,781	71.2	88.8	56.7	61.5	80.9	72.7	104.9	45.0	68.4
75 to 84	320	160	160	132.632	53.301	79.331	241.3	300.2	201.7	214.8	267.7	253.7	346.7	170.4	232.9
85 & Older	406	169	237	49,737	17,451	32,286	816.3	968.4	734.1	736.9	895.7	822.4	1,114.4	640.6	827.5
Unknown	0	0	0												
Total	1,152	574	578	9,639,777	4,993,951	4,645,826	12.0	11.5	12.4	11.3	12.6	10.6	12.4	11.4	13.5
Age-Adjusted							12.7	15.4	10.7	12.0	13.4	14.2	16.7	9.8	11.5
WHITE															
Under 1	9	7	2	180,201	92,412	87,789	5.0*	7.6*	2.3*	1.7	8.3	2.0	13.2	0.0	5.4
1 to 4	7	3	4	802,800	412,457	390,343	0.9*	0.7*	1.0*	0.2	1.5	0.0	1.6	0.0	2.0
5 to 14	7	2	5	2,191,825	1,126,527	1,065,298	0.3*	0.2*	0.5*	0.1	0.6	0.0	0.4	0.1	0.9
15 to 24	12	8	4	1,922,318	1,002,686	919,632	0.6*	0.8*	0.4*	0.3	1.0	0.2	1.4	0.0	0.9
25 to 34	26	19	7	2,472,938	1,268,132	1,204,806	1.1	1.5*	0.6*	0.6	1.5	0.8	2.2	0.2	1.0
35 to 44	89	56	33	3,054,175	1,551,772	1,502,403	2.9	3.6	2.2	2.3	3.5	2.7	4.6	1.4	2.9
45 to 54	172	101	71	2,454,252	1,227,523	1,226,729	7.0	8.2	5.8	6.0	8.1	6.6	9.8	4.4	7.1
55 to 64	299	149	150	1,571,490	772,403	799,087	19.0	19.3	18.8	16.9	21.2	16.2	22.4	15.8	21.8
65 to 74	1,019	582	437	1,358,767	620,274	738,493	75.0	93.8	59.2	70.4	79.6	86.2	101.5	53.6	64.7
75 to 84	3,319	1,667	1,652	913,827	368,792	545,035	363.2	452.0	303.1	350.8	375.6	430.3	473.7	288.5	317.7
85 & Older	4,795	1,654	3,141	293,706	84,414	209,292	1,632.6	1,959.4	1,500.8	1,586.4	1,678.8	1,865.0	2,053.8	1,448.3	1,553.3
Unknown	0	0	0												
Total	9,754	4,248	5,506	17,216,299	8,527,392	8,688,907	56.7	49.8	63.4	55.5	57.8	48.3	51.3	61.7	65.0
Age-Adjusted							17.7	21.4	15.1	17.3	18.0	20.8	22.0	14.7	15.5

Note : Rates are per 100,000 population. ICD-9 codes 480-487.

White, Black, and Asian/Other exclude Hispanic ethnicity. Hispanic includes any race category.

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

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

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

Source : State of California, Department of Finance, Race/Ethnic 1997 Population Estimates for Counties with
Age and Sex Detail. December 1998.
State of California, Department of Health Services, Death Records.

TABLE 2
DEATHS DUE TO PNUMONIA AND INFLUENZA BY COUNTY
CALIFORNIA. 1995-1997
(By Place of Residence)

COUNTY	1995-1997 DEATHS (Average)	PERCENT	1996 POPULATION	CRUDE RATE	AGE-ADJUSTED RATE	95% CONFIDENCE LIMITS LOWER	95% CONFIDENCE LIMITS UPPER
CALIFORNIA	11,322.7	100.0	32,383,811	35.0	16.0	15.7	16.4
ALAMEDA	460.3	4.1	1,365,041	33.7	16.0	14.3	17.6
ALPINE	0.3	a	1,194	27.9*	23.1*	0.0	101.3
AMADOR	19.7	0.2	32,925	59.7	16.1*	7.3	24.8
BUTTE	99.3	0.9	196,522	50.5	14.7	10.7	18.6
CALAVERAS	13.0	0.1	36,881	35.2*	11.1*	2.6	19.6
COLUSA	4.7	a	18,197	25.6*	10.7*	0.0	22.3
CONTRA COSTA	303.3	2.7	877,965	34.5	15.3	13.4	17.3
DEL NORTE	14.0	0.1	27,527	50.9*	17.1*	6.4	27.8
EL DORADO	53.7	0.5	144,710	37.1	15.1	10.6	19.6
FRESNO	226.0	2.0	769,709	29.4	14.1	12.0	16.3
GLENN	7.3	0.1	26,699	27.5*	11.8*	1.2	22.5
HUMBOLDT	38.3	0.3	125,100	30.6	13.2	8.2	18.2
IMPERIAL	27.7	0.2	141,229	19.6	11.6	6.7	16.6
INYO	10.0	0.1	18,225	54.9*	10.9*	2.5	19.4
KERN	239.3	2.1	624,092	38.3	20.8	17.8	23.9
KINGS	26.3	0.2	115,774	22.7	15.9	9.1	22.6
LAKE	43.3	0.4	54,884	79.0	21.4	13.0	29.7
LASSEN	7.7	0.1	32,631	23.5*	11.5*	1.7	21.3
LOS ANGELES	3,087.7	27.3	9,396,389	32.9	16.0	15.4	16.7
MADERA	31.3	0.3	110,298	28.4	14.6	8.7	20.5
MARIN	106.7	0.9	239,630	44.5	14.9	11.7	18.1
MARIPOSA	9.7	0.1	15,965	60.5*	15.4*	1.4	29.5
MENDOCINO	40.7	0.4	84,817	47.9	19.7	12.5	26.9
MERCED	61.7	0.5	198,390	31.1	18.5	13.4	23.6
MODOC	9.7	0.1	10,028	96.4*	24.7*	4.9	44.4
MONO	1.0	a	10,565	9.5*	4.6*	0.0	14.0
MONTEREY	98.7	0.9	360,253	27.4	13.6	10.6	16.7
NAPA	93.0	0.8	118,949	78.2	20.8	15.4	26.1
NEVADA	44.7	0.4	87,001	51.3	13.6	8.4	18.7
ORANGE	787.3	7.0	2,649,846	29.7	15.0	13.9	16.2
PLACER	98.7	0.9	209,167	47.2	18.1	14.0	22.2
PLUMAS	9.3	0.1	20,239	46.1*	14.1*	3.3	24.9
RIVERSIDE	457.0	4.0	1,393,289	32.8	13.3	11.8	14.7
SACRAMENTO	596.7	5.3	1,132,189	52.7	25.4	23.1	27.6
SAN BENITO	15.3	0.1	44,008	34.8*	15.2*	6.2	24.1
SAN BERNARDINO	421.0	3.7	1,592,711	26.4	15.4	13.7	17.0
SAN DIEGO	906.3	8.0	2,694,956	33.6	15.0	13.9	16.2
SAN FRANCISCO	431.0	3.8	768,263	56.1	17.0	15.0	19.0
SAN JOAQUIN	176.0	1.6	533,177	33.0	15.4	12.7	18.1
SAN LUIS OBISPO	70.0	0.6	230,691	30.3	10.9	7.7	14.1
SAN MATEO	297.3	2.6	698,042	42.6	16.0	13.9	18.1
SANTA BARBARA	120.3	1.1	393,716	30.6	11.5	8.9	14.0
SANTA CLARA	529.7	4.7	1,638,352	32.3	17.8	16.2	19.5
SANTA CRUZ	95.0	0.8	243,657	39.0	14.6	11.0	18.1
SHASTA	86.0	0.8	161,688	53.2	21.5	16.1	26.8
SIERRA	2.3	a	3,401	68.6*	12.1*	0.0	33.2
SISKIYOU	21.7	0.2	43,945	49.3	15.2*	7.2	23.2
SOLANO	98.7	0.9	372,493	26.5	16.4	13.0	19.9
SONOMA	198.7	1.8	424,481	46.8	15.8	13.1	18.5
STANISLAUS	219.7	1.9	418,455	52.5	25.6	21.7	29.5
SUTTER	39.7	0.4	74,591	53.2	21.8	13.8	29.7
TEHAMA	22.3	0.2	54,353	41.1	14.7*	7.0	22.4
TRINITY	5.0	a	13,328	37.5*	8.8*	0.7	16.9
TULARE	123.7	1.1	353,645	35.0	18.4	14.6	22.2
TUOLUMNE	24.7	0.2	51,583	47.8	14.5*	7.3	21.7
VENTURA	191.0	1.7	714,845	26.7	13.5	11.3	15.6
YOLO	75.7	0.7	152,535	49.6	25.3	18.8	31.8
YUBA	23.7	0.2	60,575	39.1	20.9*	11.4	30.5

Note : Rates are per 100,000 population. ICD-9 codes 480-487.
   * Death rate unreliable, relative standard error is greater than or equal to 23%.
   a Represents a percentage of more than zero but less than 0.05.

Source : State of California, Department of Finance, Race/Ethnic Population Estimates by County with Age and Sex Detail,
   1970-1996, December 1998. State of California, Department of Health Services, Death Records.