CENTER FOR HEALTH STATISTICS

DATA SUMMARY

REPORT REGISTER NO. D500-03002
(March 2000)

CHRONIC OBSTRUCTIVE PULMONARY DISEASE DEATHS CALIFORNIA, 1997

Introduction

This report presents data on chronic obstructive pulmonary disease (COPD) for 1997 with analysis of crude and age-adjusted death rates for California residents by sex, age, race/ethnicity, county and three city health departments. The definition of chronic obstructive pulmonary disease used in this report is based on the ICD-9 codes 490-496 as traditionally presented in National Center for Health Statistics reports.[1]

Chronic obstructive pulmonary disease was the 4th leading cause of death overall nationally (109,029 deaths)[2] and the 5th leading cause of death in California in 1997 (11,737 deaths).[3] Whites had the highest number of deaths at 9,937 or 84.7 percent of the total COPD deaths in 1997. Hispanics followed with 624 deaths or 5.3 percent, Blacks with 607 deaths or 5.2 percent and Asian/Others with 569 deaths or 4.8 percent, **Table 1** (page 6). Chronic obstructive pulmonary disease is a clinical term applied to persons with a permanent airflow obstruction. The majority of deaths from COPD are caused by cigarette smoking and predominantly affect those over the age of 55, and Whites.[4]

Cigarette smoking is the leading cause of preventable disease and death in the United States. Due to the prevalence of smoking-related morbidity and mortality in our nation, the U.S. Public Health Service has established a number of health objectives, including one for COPD, which are published in Healthy People 2000.[5] California's progress in meeting the COPD objective is presented in this report.

Chronic Obstructive Pulmonary Disease Crude Death Rates

As shown in **Table 1** (page 6), California's crude death rate due to COPD for 1997 was 35.6 per 100,000 population, about a one percent increase from the 1996 rate of 35.1.[4]

As shown in **Figure 1** (page 2) Females experienced a higher crude death rate from COPD in 1997 at 37.0 per 100,000 population than males (34.2), which was a statistically significant difference.

Whites had the highest crude death rate for COPD (57.7 per 100,000 population), double the next highest rate and a statistically significant difference from Blacks at 26.2, followed by Asian/Others at 15.0, again a statistically significant difference, and Hispanics at 6.5 per 100,000 population also a statistically significant difference in rates.

Males had the highest crude death rates from COPD among all race/ethnic categories except among Whites where females had the higher crude death rate. White males had the highest crude rate (54.2 per 100,000 population) while Hispanic males had the lowest (7.3). Among females, Whites had the highest crude rate (61.2), and Hispanics had the lowest (5.6). The differences in gender rates among the four race/ethnic groups were statistically significant except for Blacks.

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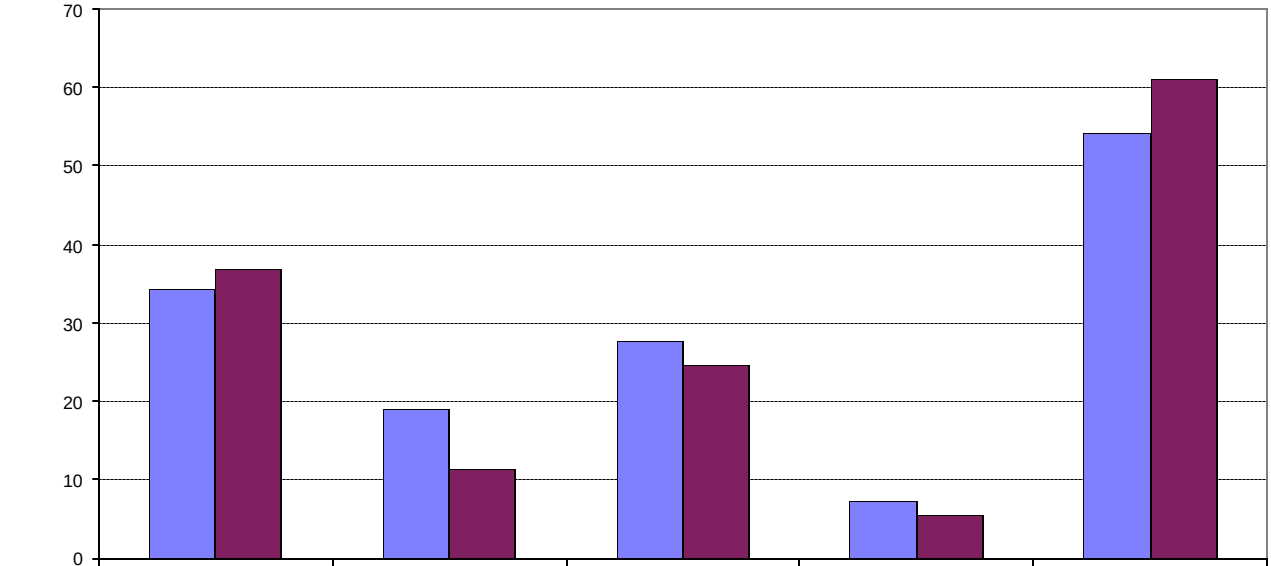
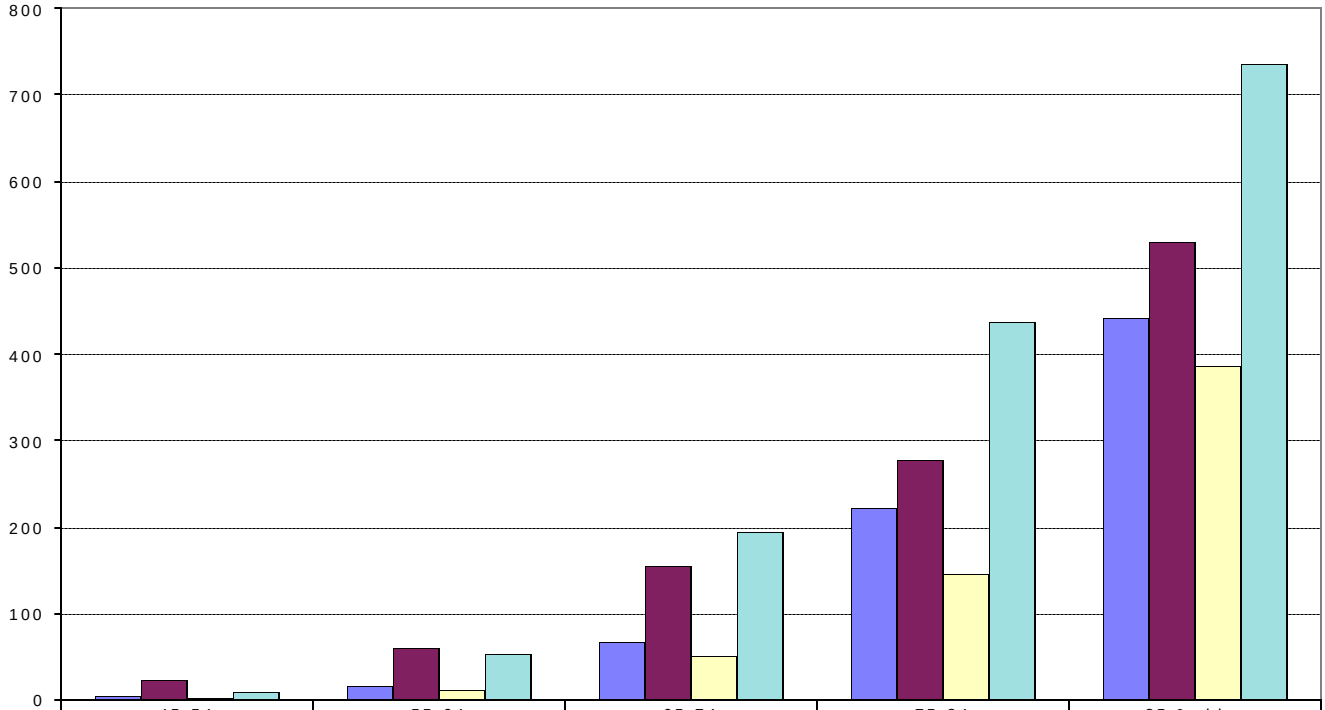
FIGURE 1
CHRONIC OBSTRUCTIVE PULMONARY DISEASE
CRUDE DEATH RATES BY RACE/ETHNICITY
CALIFORNIA, 1997
(By Place of Residence)



	Total	Asian/Other	Black	Hispanic	White
Male	34.2	18.9	27.7	7.3	54.2
Female	37.0	11.3	24.7	5.6	61.2

Source: Table 1

FIGURE 2
CHRONIC OBSTRUCTIVE PULMONARY DISEASE
DEATH RATES BY RACE/ETHNICITY AND AGE
California, 1997
(By Place of Residence)



	45-54	55-64	65-74	75-84	85 & older
Asian/Other	3.6	16.6	66.2	221.5	441.8
Black	23.1	58.9	154.8	276.8	529.4
Hispanic	1.8	10.9	50.9	146.3	386.0
White	9.6	52.4	193.6	436.2	736.1

Source: Table 1

Chronic Obstructive Pulmonary Disease Age-Specific Death Rates

Table 1 (page 6) displays age-specific rates for all groups combined and the four major race/ethnic groups. Reliable age-specific rates indicate that males have higher COPD death rates than females overall and for each race/ethnic group. **Figure 2** (page 2) displays the age-specific COPD death rates by age and race/ethnicity for age groups 45 years and older. Blacks had the highest age-specific death rate in the 45 to 54 age group at 23.1 per 100,000 population, significantly higher than the rate among Whites (9.6), Asian/Others (3.6) and Hispanics (1.8). Blacks also had the highest age-specific rate among those aged 55 to 64 (58.9), followed by Whites (52.4), Asian/Others (16.6) and Hispanics (10.9). Whites had the highest COPD death rates in the 65 to 74, 75 to 84 and 85 plus age groups, followed by Blacks, Asian/Others and Hispanics respectively.

Chronic Obstructive Pulmonary Disease Age-Adjusted Death Rates

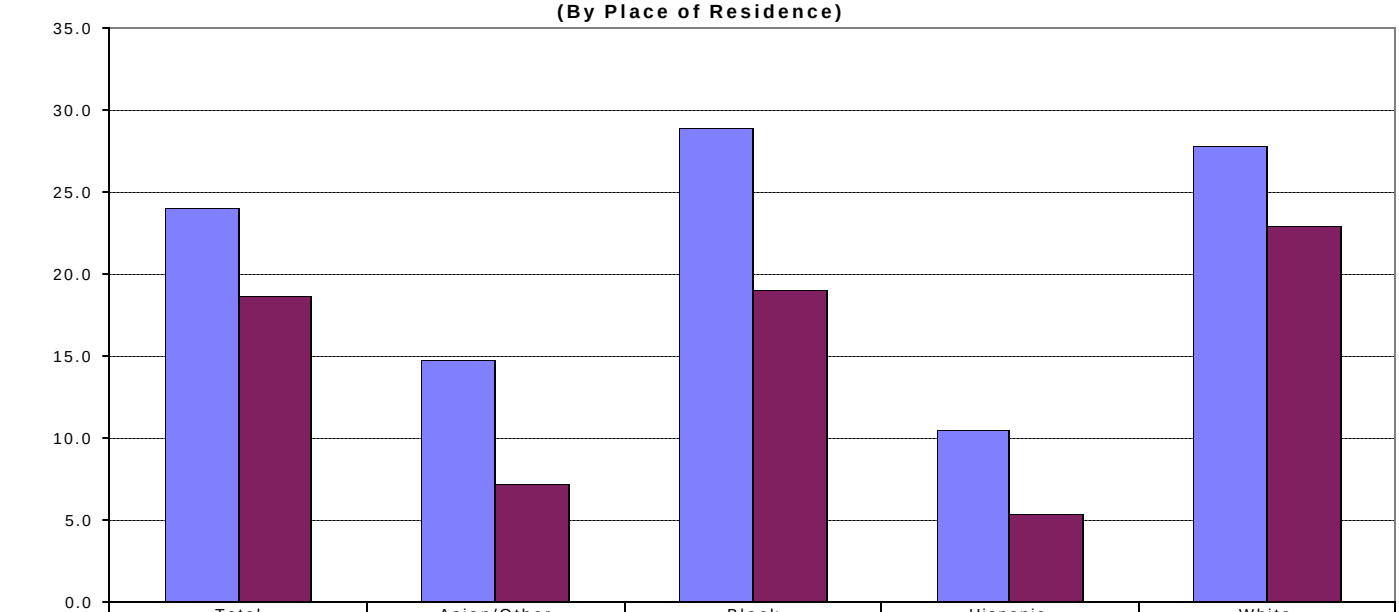
Table 1 (page 6) displays age-adjusted death rates for the total population and the four major race/ethnic groups. The 1997 California age-adjusted rate of 20.8 deaths per 100,000 population remains the same as it was in 1996.

The national healthy people 2000 objective for COPD is an age-adjusted 25 deaths per 100,000 population, the objective has been met by California for many years. Although the COPD rates have been gradually increasing since 1980, statistical projection indicates California will meet the healthy people objective for the year 2000. Department of Health Services programs to reduce smoking prevalence will be increasingly important if the COPD upward trend is to be reversed. [6]

The difference between COPD age-adjusted death rates for males and females in California is statistically significant. As shown in **Figure 3** the male rate for 1997 is 24.0 per 100,000 population and the rate for females is 18.6. Long term trends show male COPD rates trending lower since 1985 while female rates are trending higher since 1980 and are therefore converging as California approaches the year 2000.[6,7]

Whites had the highest age-adjusted COPD death rate at 24.8 per 100,000 population followed by Blacks at 22.9, Asian/Others at 10.5 and Hispanics at 7.4, **Table 1** (page 6).

FIGURE 3
CHRONIC OBSTRUCTIVE PULMONARY DISEASE
AGE-ADJUSTED DEATH RATES BY RACE/ETHNICITY AND SEX
California, 1997
(By Place of Residence)



	Total	Asian/Other	Black	Hispanic	White
Male	24.0	14.7	28.9	10.4	27.8
Female	18.6	7.2	19.0	5.3	22.9

Source: Table 1

Figure 3 (page 3) shows age-adjusted COPD death rates by gender and race/ethnicity. Male age-adjusted COPD death rates were significantly higher than female rates in all race/ethnic groups. The biggest gender difference was in the Asian/Other and Hispanic groups where the male rates were approximately double that of female rates. Blacks had the third highest difference in gender specific rates and Whites had the lowest gender difference of all the race/ethnic groups.

Chronic Obstructive Pulmonary Disease Death Rates among California Counties

Table 2 (page 7) displays the number of deaths, crude death rates and age-adjusted death rates by county averaged over a three-year period, 1995 to 1997.

The highest and lowest reliable crude death rates due to COPD were in Lake County (113.0 per 100,000 population) and Imperial County (19.1) respectively.

Of the counties with reliable age-adjusted death rates due to COPD, Shasta County had the highest rate (37.5 per 100,000 population) while Imperial County had the lowest rate (12.0). California counties meeting the year 2000 national healthy people objective numbered 26 with reliable rates and 15 counties with unreliable rates.

Chronic Obstructive Pulmonary Disease Death Data among City Health Departments

Table 3 shows the 1995-1997 average death numbers and crude death rates for COPD for California's three city health departments. Among these city health departments, Berkeley had 29 deaths due to COPD with a crude death rate of 27.7 per 100,000 population, while Long Beach had 207 deaths with a crude death rate of 47.3, the highest of the three city health departments and Pasadena had 61 deaths with a crude death rate of 44.5.

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

TABLE 3
DEATHS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASE
AMONG CITY HEALTH DEPARTMENTS
CALIFORNIA, 1995-1997
(By Place of Residence)

CITY HEALTH DEPARTMENTS	NUMBER OF DEATHS (Average)	1996 POPULATION	CRUDE DEATH RATE	95% CONFIDENCE LIMITS	
				LOWER	UPPER
BERKELEY	29.0	104,700	27.7	17.6	37.8
LONG BEACH	207.0	437,900	47.3	40.8	53.7
PASADENA	61.0	137,200	44.5	33.3	55.6

Note: Rates are per 100,000 population; ICD-9 codes 490-496.

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.

Technical Notes:

In accordance with the National Center for Health Statistics, the COPD data presented in this report are based on ICD-9 codes 490-496.

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/Others 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]

The methods used to analyze vital statistics data are also 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, 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. The 1940 United States (standard million) population was used as the basis for age-adjusting in this report.

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 local health jurisdictions 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. Morgenstern H, Bursic ES. A Method for Using Epidemiologic Data to Estimate the Potential Impact of an Intervention on the Health Status of a Target Population. *J Community Health*; Vol. 7, 1982.

5. 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.

6. Fujitani L. COPD Deaths, California, 1980-1996. *Data Summary*; No.DS98-11001. Center for Health Statistics, California Department of Health Services, October 1998.

7. Richards F. Healthy California 2000 Midcourse Review; No.R99-02000. Center for Health Statistics, California Department of Health Services, June 1999.

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 CHRONIC OBSTRUCTIVE PULMONARY DISEASE BY RACE/ETHNICITY, AGE, AND SEX
CALIFORNIA, 1997
(By 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	2	2	0	526,869	269,593	257,276	0.4	0.7	0.0	-0.1	0.9	-0.3	1.8	-	-
1 to 4	2	2	0	2,247,883	1,150,084	1,097,799	0.1	0.2	0.0	0.0	0.2	-0.1	0.4	-	-
5 to 14	11	7	4	5,126,482	2,623,174	2,503,308	0.2	0.3	0.2	0.1	0.3	0.1	0.5	0.0	0.3
15 to 24	25	15	10	4,287,123	2,231,053	2,056,070	0.6	0.7	0.5	0.4	0.8	0.3	1.0	0.2	0.8
25 to 34	37	22	15	5,295,965	2,801,042	2,494,923	0.7	0.8	0.6	0.5	0.9	0.5	1.1	0.3	0.9
35 to 44	110	53	57	5,520,289	2,806,428	2,713,861	2.0	1.9	2.1	1.6	2.4	1.4	2.4	1.6	2.6
45 to 54	326	179	147	3,972,821	1,971,051	2,001,770	8.2	9.1	7.3	7.3	9.1	7.8	10.4	6.2	8.5
55 to 64	1,008	515	493	2,432,927	1,183,049	1,249,878	41.4	43.5	39.4	38.9	44.0	39.8	47.3	36.0	42.9
65 to 74	3,070	1,560	1,510	1,949,636	882,049	1,067,587	157.5	176.9	141.4	151.9	163.0	168.1	185.6	134.3	148.6
75 to 84	4,563	2,164	2,399	1,205,134	486,886	718,248	378.6	444.5	334.0	367.6	389.6	425.7	463.2	320.6	347.4
85 & Older	2,582	1,137	1,445	391,566	120,167	271,399	659.4	946.2	532.4	634.0	684.8	891.2	1,001.2	505.0	559.9
Unknown	1	1													
Total	11,737	5,657	6,080	32,956,695	16,524,576	16,432,119	35.6	34.2	37.0	35.0	36.3	33.3	35.1	36.1	37.9
Age-Adjusted							20.8	24.0	18.6	20.5	21.2	23.4	24.6	18.2	19.1
							ASIAN/OTHER								
Under 1	0	0	0	60,238	31,180	29,058	0.0	0.0	0.0	-	-	-	-	-	-
1 to 4	0	0	0	254,370	130,902	123,468	0.0	0.0	0.0	-	-	-	-	-	-
5 to 14	1	0	1	591,663	303,064	288,599	0.2	0.0	0.3	-0.2	0.5	-	-	-0.3	1.0
15 to 24	5	4	1	548,570	281,839	266,731	0.9	1.4	0.4	0.1	1.7	0.0	2.8	-0.4	1.1
25 to 34	4	4	0	612,830	309,144	303,686	0.7	1.3	0.0	0.0	1.3	0.0	2.6	-	-
35 to 44	7	3	4	651,237	313,355	337,882	1.1	1.0	1.2	0.3	1.9	-0.1	2.0	0.0	2.3
45 to 54	17	8	9	467,272	221,503	245,769	3.6	3.6	3.7	1.9	5.4	1.1	6.1	1.3	6.1
55 to 64	45	24	21	270,964	127,874	143,090	16.6	18.8	14.7	11.8	21.5	11.3	26.3	8.4	21.0
65 to 74	130	86	44	196,266	85,253	111,013	66.2	100.9	39.6	54.9	77.6	79.6	122.2	27.9	51.3
75 to 84	225	139	86	101,593	43,544	58,049	221.5	319.2	148.2	192.5	250.4	266.1	372.3	116.8	179.5
85 & Older	135	84	51	30,556	13,077	17,479	441.8	642.3	291.8	367.3	516.3	505.0	779.7	211.7	371.9
Unknown	0	0	0												
Total	569	352	217	3,785,559	1,860,735	1,924,824	15.0	18.9	11.3	13.8	16.3	16.9	20.9	9.8	12.8
Age-Adjusted							10.5	14.7	7.2	9.6	11.3	13.2	16.3	6.2	8.1
							BLACK								
Under 1	1	1	0	36,610	18,680	17,930	2.7	5.4	0.0	-2.6	8.1	-5.1	15.8	-	-
1 to 4	0	0	0	162,632	82,532	80,100	0.0	0.0	0.0	-	-	-	-	-	-
5 to 14	7	6	1	402,151	203,623	198,528	1.7	2.9	0.5	0.5	3.0	0.6	5.3	-0.5	1.5
15 to 24	6	3	3	349,439	184,772	164,667	1.7	1.6	1.8	0.3	3.1	-0.2	3.5	-0.2	3.9
25 to 34	8	4	4	389,632	201,917	187,715	2.1	2.0	2.1	0.6	3.5	0.0	3.9	0.0	4.2
35 to 44	21	8	13	382,112	185,435	196,677	5.5	4.3	6.6	3.1	7.8	1.3	7.3	3.0	10.2
45 to 54	59	28	31	255,815	120,369	135,446	23.1	23.3	22.9	17.2	28.9	14.6	31.9	14.8	30.9
55 to 64	93	48	45	157,984	73,960	84,024	58.9	64.9	53.6	46.9	70.8	46.5	83.3	37.9	69.2
65 to 74	161	91	70	104,036	44,736	59,300	154.8	203.4	118.0	130.8	178.7	161.6	245.2	90.4	145.7
75 to 84	158	87	71	57,082	21,249	35,833	276.8	409.4	198.1	233.6	320.0	323.4	495.5	152.1	244.2
85 & Older	93	41	52	17,567	5,225	12,342	529.4	784.7	421.3	421.8	637.0	544.5	1,024.9	306.8	535.8
Unknown	0	0	0												
Total	607	317	290	2,315,060	1,142,498	1,172,562	26.2	27.7	24.7	24.1	28.3	24.7	30.8	21.9	27.6
Age-Adjusted							22.9	28.9	19.0	21.1	24.8	25.7	32.0	16.8	21.2
							HISPANIC								
Under 1	1	1	0	249,820	127,321	122,499	0.4	0.8	0.0	-0.4	1.2	-0.8	2.3	-	-
1 to 4	1	1	0	1,028,081	524,193	503,888	0.1	0.2	0.0	-0.1	0.3	-0.2	0.6	-	-
5 to 14	1	0	1	1,940,843	989,960	950,883	0.1	0.0	0.1	0.0	0.2	-	-	-0.1	0.3
15 to 24	4	1	3	1,466,796	761,756	705,040	0.3	0.1	0.4	0.0	0.5	-0.1	0.4	-0.1	0.9
25 to 34	12	5	7	1,820,565	1,021,849	798,716	0.7	0.5	0.9	0.3	1.0	0.1	0.9	0.2	1.5
35 to 44	10	6	4	1,432,765	755,866	676,899	0.7	0.8	0.6	0.3	1.1	0.2	1.4	0.0	1.2
45 to 54	14	7	7	795,482	401,656	393,826	1.8	1.7	1.8	0.8	2.7	0.5	3.0	0.5	3.1
55 to 64	47	30	17	432,489	208,812	223,677	10.9	14.4	7.6	7.8	14.0	9.2	19.5	4.0	11.2
65 to 74	148	93	55	290,567	131,786	158,781	50.9	70.6	34.6	42.7	59.1	56.2	84.9	25.5	43.8
75 to 84	194	111	83	132,632	53,301	79,331	146.3	208.3	104.6	125.7	166.9	169.5	247.0	82.1	127.1
85 & Older	192	110	82	49,737	17,451	32,286	386.0	630.3	254.0	331.4	440.6	512.5	748.1	199.0	309.0
Unknown	0	0	0												
Total	624	365	259	9,639,777	4,993,951	4,645,826	6.5	7.3	5.6	6.0	7.0	6.6	8.1	4.9	6.3
Age-Adjusted							7.4	10.4	5.3	6.8	8.0	9.3	11.4	4.7	6.0
							WHITE								
Under 1	0	0	0	180,201	92,412	87,789	0.0	0.0	0.0	-	-	-	-	-	-
1 to 4	1	1	0	802,800	412,457	390,343	0.1	0.2	0.0	-0.1	0.4	-0.2	0.7	-	-
5 to 14	2	1	1	2,191,825	1,126,527	1,065,298	0.1	0.1	0.1	0.0	0.2	-0.1	0.3	-0.1	0.3
15 to 24	10	7	3	1,922,318	1,002,686	919,632	0.5	0.7	0.3	0.2	0.8	0.2	1.2	0.0	0.7
25 to 34	13	9	4	2,472,938	1,268,132	1,204,806	0.5	0.7	0.3	0.2	0.8	0.2	1.2	0.0	0.7
35 to 44	72	36	36	3,054,175	1,551,772	1,502,403	2.4	2.3	2.4	1.8	2.9	1.6	3.1	1.6	3.2
45 to 54	236	136	100	2,454,252	1,227,523	1,226,729	9.6	11.1	8.2	8.4	10.8	9.2	12.9	6.6	9.7
55 to 64	823	413	410	1,571,490	772,403	799,087	52.4	53.5	51.3	48.8	55.9	48.3	58.6	46.3	56.3
65 to 74	2,631	1,290	1,341	1,358,767	620,274	738,493	193.6	208.0	181.6	186.2	201.0	196.6	219.3	171.9	191.3
75 to 84	3,986	1,827	2,159	913,827	368,792	545,035	436.2	495.4	396.1	422.6	449.7	472.7	518.1	379.4	412.8
85 & Older	2,162	902	1,260	293,706	84,414	209,292	736.1	1,068.5	602.0	705.1	767.1	998.8	1,138.3	568.8	635.3
Unknown	1	1	0												
Total	9,937	4,623	5,314	17,216,299	8,527,392	8,688,907	57.7	54.2	61.2	56.6	58.9	52.7	55.8	59.5	62.8
							24.8	27.8	22.9	24.3	25.3	27.0	28.6	22.2	23.5

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%.
\+ Standard error indeterminate, death rate based on no (zero) deaths.
\- Confidence limit is not calculate for 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 CHRONIC OBSTRUCTIVE PULMONARY DISEASE BY RACE/ETHNICITY 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	UPPER
CALIFORNIA	11,291.7	100.0	32,383,811	34.9	20.7	20.3	21.2
ALAMEDA	425.7	3.8	1,365,041	31.2	19.0	17.0	20.9
ALPINE	0.3	a	1,194	27.9*	9.2*	0.0	40.6
AMADOR	16.0	0.1	32,925	48.6*	14.0*	6.4	21.6
BUTTE	150.7	1.3	196,522	76.7	29.4	23.7	35.1
CALAVERAS	21.0	0.2	36,881	56.9	18.0*	9.6	26.4
COLUSA	8.0	0.1	18,197	44.0*	24.0*	5.5	42.5
CONTRA COSTA	302.7	2.7	877,965	34.5	18.6	16.4	20.9
DEL NORTE	13.7	0.1	27,527	49.6*	26.9*	10.3	43.5
EL DORADO	50.3	0.4	144,710	34.8	18.3	12.9	23.8
FRESNO	255.3	2.3	769,709	33.2	21.9	18.9	24.8
GLENN	17.3	0.2	26,699	64.9*	29.0*	13.8	44.2
HUMBOLDT	77.0	0.7	125,100	61.6	32.8	24.7	40.8
IMPERIAL	27.0	0.2	141,229	19.1	12.0	7.0	17.0
INYO	14.0	0.1	18,225	76.8*	24.3*	8.9	39.6
KERN	233.3	2.1	624,092	37.4	25.2	21.7	28.7
KINGS	38.0	0.3	115,774	32.8	26.5	17.4	35.7
LAKE	62.0	0.5	54,884	113.0	33.4	23.1	43.7
LASSEN	16.0	0.1	32,631	49.0*	29.8*	13.7	45.8
LOS ANGELES	2,678.7	23.7	9,396,389	28.5	18.2	17.5	19.0
MADERA	43.0	0.4	110,298	39.0	22.4	15.0	29.7
MARIN	103.0	0.9	239,630	43.0	19.7	15.6	23.9
MARIPOSA	12.3	0.1	15,965	77.3*	29.5*	8.7	50.2
MENDOCINO	36.7	0.3	84,817	43.2	21.3	13.7	28.9
MERCED	70.0	0.6	198,390	35.3	25.4	19.0	31.8
MODOC	5.7	0.1	10,028	56.5*	19.1*	1.2	37.0
MONO	2.7	0.0	10,565	25.2*	21.0*	0.0	46.7
MONTEREY	108.7	1.0	360,253	30.2	18.7	14.9	22.6
NAPA	65.3	0.6	118,949	54.9	21.2	15.2	27.2
NEVADA	54.3	0.5	87,001	62.5	19.7	13.6	25.8
ORANGE	790.3	7.0	2,649,846	29.8	19.1	17.7	20.6
PLACER	104.0	0.9	209,167	49.7	25.5	20.1	30.8
PLUMAS	17.3	0.2	20,239	85.6*	30.4*	12.2	48.7
RIVERSIDE	673.7	6.0	1,393,289	48.4	23.9	21.9	26.0
SACRAMENTO	494.3	4.4	1,132,189	43.7	26.2	23.7	28.7
SAN BENITO	13.0	0.1	44,008	29.5*	16.6*	7.0	26.2
SAN BERNARDINO	630.3	5.6	1,592,711	39.6	30.3	27.7	32.8
SAN DIEGO	997.0	8.8	2,694,956	37.0	21.7	20.2	23.2
SAN FRANCISCO	260.3	2.3	768,263	33.9	14.8	12.7	16.9
SAN JOAQUIN	206.3	1.8	533,177	38.7	23.5	19.9	27.1
SAN LUIS OBISPO	120.0	1.1	230,691	52.0	22.7	18.0	27.4
SAN MATEO	220.3	2.0	698,042	31.6	15.1	12.9	17.3
SANTA BARBARA	143.3	1.3	393,716	36.4	18.4	15.0	21.8
SANTA CLARA	384.0	3.4	1,638,352	23.4	15.8	14.1	17.4
SANTA CRUZ	92.7	0.8	243,657	38.0	21.5	16.6	26.5
SHASTA	124.0	1.1	161,688	76.7	37.5	30.2	44.8
SIERRA	2.7	a	3,401	78.4*	29.0*	0.0	68.5
SISKIYOU	31.0	0.3	43,945	70.5	30.4	18.3	42.4
SOLANO	126.7	1.1	372,493	34.0	25.4	20.8	30.1
SONOMA	192.7	1.7	424,481	45.4	22.0	18.4	25.5
STANISLAUS	182.3	1.6	418,455	43.6	26.8	22.5	31.1
SUTTER	34.3	0.3	74,591	46.0	25.1	16.0	34.1
TEHAMA	39.0	0.3	54,353	71.8	29.6	18.7	40.4
TRINITY	10.0	0.1	13,328	75.0*	33.6*	11.2	56.0
TULARE	134.7	1.2	353,645	38.1	24.2	19.6	28.7
TUOLUMNE	27.7	0.2	51,583	53.6	20.0	11.4	28.6
VENTURA	234.7	2.1	714,845	32.8	20.1	17.3	22.8
YOLO	61.7	0.5	152,535	40.4	28.1	20.5	35.8
YUBA	34.7	0.3	60,575	57.2	36.7	23.3	50.0

Note : Rates are per 100,000 population. ICD-9 codes 490-496.
* 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 1996, Race/Ethnic Population Estimates by County with Age and Sex Detail, June 1999. State of California, Department of Health Services, Death Records.