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**Trends in COPD (Chronic Bronchitis and Emphysema):  
Morbidity and Mortality**

**American Lung Association  
Epidemiology and Statistics Unit  
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## **Introduction**

Chronic obstructive pulmonary disease (COPD) is a term which refers to a large group of lung diseases characterized by obstruction of air flow that interferes with normal breathing. Emphysema and chronic bronchitis are the most important conditions that compose COPD and they frequently coexist.

The following tables delineate information available from national surveys and statistics on the mortality, prevalence, hospitalization and economic costs attributable to COPD. Please note that the following tables and narrative refer exclusively to data on chronic bronchitis, emphysema and other chronic lower respiratory diseases; data on asthma are not included.

## **COPD Mortality**

Beginning with 1999 mortality data, the population standard used for calculating age-adjusting death rates was changed from the 1940 population to the 2000 population.<sup>I</sup> <sup>1</sup> In addition, starting with 1999 data, the tenth revision of International Classification of Diseases (ICD-10) has replaced ICD-9 in coding and classifying mortality data from death certificates.<sup>II</sup> Due to decennial revisions of the International Classification of Diseases (ICD) coding system and the change in age-adjusted standard population, the number and rate of COPD deaths for 1999-2007 are not directly comparable to those reported from 1979-1998. **Figure 1** compares the COPD age-adjusted death rates based on the 1940 and 2000 standard populations from 1979-2007.

### *Sex and Race Specific Mortality Rates*

**Table 1** documents the number of deaths by race and sex between 1979 and 2007. In 2007, 124,477 people died of COPD,<sup>2</sup> compared to 120,970 in 2006; 51.8% of deaths were in women. This was the seventh consecutive year in which the number of deaths due to COPD was higher among women than men.<sup>3</sup>

**Table 2** displays the age-adjusted death rate per 100,000 population by race and sex. COPD is the fourth-ranked cause of death in the United States with an age-adjusted death rate of 39.7 per 100,000 population,<sup>4</sup> although preliminary data shows that it has increased to third.<sup>5</sup> In 2007, the

<sup>I</sup> This change had three important outcomes: (i) provided age-adjusted rates that are less divergent from crude rates (ii) ensured that all government agencies use the same standard and (iii) corrected the public perception that age adjustment to the 1940 population provided out-of-date statistics. Use of the 2000 standard has placed more weight on deaths at older ages and less weight on death at younger ages. Because most lung disease rates increase with age, death rates using the new standard are higher than those using the old standard. Age-adjusted deaths rates for COPD are approximately 2 times greater using the 2000 standard population than those based on the 1940 standard population.

<sup>II</sup> The ICD is periodically revised to incorporate changes in the medical field. This change has several consequences: (i) new cause-of-death titles and corresponding cause-of-death codes, i.e. ICD-10 has alphanumeric categories rather than numeric categories, (ii) breaks in comparability of cause-of-death statistics, and (iii) restructuring of the leading causes of deaths. In order to assess the net effect of the new revision on death statistics, a comparability ratio is derived. The comparability ratio is calculated by dividing the number of deaths for a selected cause of death classified by the new revision by the number of deaths classified to the most nearly comparable cause of death by the previous revision. A comparability ratio of 1 denotes no change between revisions; a ratio of less than 1 signifies a decrease and a ratio of greater than 1 symbolizes an increase in deaths. The comparability ratio for COPD is 1.056, indicating a 6% increase in assignments of deaths due to COPD when using ICD-10.

age-adjusted death rate in men was 1.4 times greater than the rate seen in women. Although there were more deaths due to COPD among women, the age-adjusted death rate for women is lower due to the higher number of women in the general U.S. population. Age-adjusted death rates differ from crude death rates as a result of statistical correction to remove the distorting effect of age when comparing populations of different age structures. The age-adjusted death rate in whites (42.1 per 100,000) was 1.6 times greater than the rate in blacks (25.6 per 100,000) in 2007. Non-white women had the lowest age-adjusted death rates in 2007 with 16.4 per 100,000 population.<sup>6</sup>

**Table 3** delineates the number of deaths and mortality rate per 100,000 population by Hispanic origin. In 2007, 3,292 Hispanics died of COPD — an age-adjusted mortality rate of 16.7 per 100,000 population. Age-adjusted death rates in Hispanics were much lower than other ethnic groups.<sup>7</sup>

Unlike morbidity estimates, which are drawn from sample populations and extrapolated to the overall population, mortality data is obtained from the general population by death certificates. Therefore, the sex- and race-specific numbers and rates denote actual counts, not estimates.

### **COPD Prevalence**

The National Health Interview Survey (NHIS) is a multi-purpose health survey conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). It is the principal source of information on the health of the civilian, non-institutionalized, household population of the United States.

Despite the periodic revision of the NHIS Core questionnaire, Supplements began to play an increasingly important role in the survey as a means of enhancing topic coverage in the Core section. The unintended result was an increasingly unwieldy survey instrument and longer interviewing sessions: recent questionnaires (Core and Supplements combined) ran almost 300 pages, while the interviews averaged two hours. This imposed an unacceptable burden on NCHS staff, US Bureau of Census interviewers, the data collection budget, and on the NHIS respondents. Furthermore, the excessive length of NHIS interviews contributed to declines in both response rate and data quality. For all these reasons, NCHS implemented a redesigned NHIS questionnaire in 1997.

The new questionnaire design has made it impossible to compare current chronic bronchitis and emphysema estimates with those prior to 1997 and to each other. Survey respondents were formerly asked if any family member had chronic bronchitis and/or emphysema in the past 12 months (point prevalence). After the 1997 revision, respondents are asked if they had been diagnosed with chronic bronchitis in the past 12 months (point prevalence) and if they had **ever** been told by a health professional that they had emphysema (period prevalence). In contrast with the prior questionnaire, the redesigned survey measures physician-diagnosed chronic bronchitis and emphysema and produces a more specific estimate than self-report. In addition, the change to the emphysema question will increase estimates but will reflect the true prevalence of the disease since it is incurable. Moreover, since children historically do not suffer from COPD, these questions have been removed from the child questionnaire.

**Data between 1983 and 1996 should not be compared to 1997-2009 estimates.**

## ***COPD***

**Figure 2** displays the number of reported COPD cases in adults 18 years of age and older from 1997 to 2008. In 2009, 13.1 million U.S. adults aged 18 years and older were estimated to have COPD. The total number of COPD conditions in adults is calculated as the estimated number of chronic bronchitis and emphysema cases together while taking into account the overlap of persons who have both diseases. Therefore, the COPD total number will be lower than the sum of individual disease estimates. Between 1997 and 2008, fluctuations in yearly COPD prevalence estimates occurred; therefore, overall trends cannot currently be assessed.<sup>8</sup>

### ***Chronic Bronchitis***

**Table 4** displays age-specific prevalence estimates for chronic bronchitis. In 2009, it was estimated that 9.9 million Americans reported a physician diagnosis of chronic bronchitis: 3.1 million 18-44 year olds, 4.4 million 45-64 year olds and 2.4 million people over 65. The highest prevalence rate was seen among those 65 years and older at 63.5 per 1,000 persons, while those 18-44 had the lowest rate estimated at 28.0 per 1,000 persons. The rate in the 18-44 age group was significantly different than that in any other age group.<sup>9</sup>

Race-specific trends are displayed in **Table 5**. In 2009, 8.5 million whites (45.7 per 1,000) and 1.1 million blacks (39.4 per 1,000) were diagnosed with chronic bronchitis. The rate in blacks had decreased in recent years but increased again in 2005 and was higher than the rate in whites for the first time since 2002. Rates increased for both races in 2009 with whites having a higher rate than blacks. The highest prevalence rate among whites was in the over 65 population (65.7 per 1,000) and the highest prevalence rate among blacks in the 45-64 age group (54.3 per 1,000).<sup>10</sup>

Sex specific prevalence trends are shown in **Table 6**. Women were almost twice as likely to be diagnosed with chronic bronchitis as men. In 2009, 3.2 million men were diagnosed with chronic bronchitis compared to 6.7 million women. The difference in prevalence rates between men (29.0 per 1,000) and women (57.2 per 1,000) was statistically significant.<sup>11</sup>

**Table 10** displays the number of conditions and prevalence rates of COPD by Hispanic origin. Over 819,000 Hispanic Americans (26.2 per 1,000 persons) were diagnosed with chronic bronchitis in 2009. The prevalence rate seen in Hispanics was significantly lower than that of non-Hispanic whites and non-Hispanic blacks (49.4 per 1,000 and 39.8 per 1,000, respectively).<sup>12</sup>

### ***Percentage Distribution of Conditions, 2009***

The percentage distribution of chronic bronchitis is displayed in **Figure 3**. Four pie charts describe the distribution of chronic bronchitis by geographic region, ethnicity, age and sex. The overall percentage of chronic bronchitis sufferers is highest among non-Hispanic whites, 45-64 year olds, women, and those residing in the South of the United States.<sup>13</sup>

## ***Emphysema***

Age specific prevalence trends are displayed in **Table 7**. The emphysema prevalence rate is very low in those under age 45. Of the estimated 4.9 million Americans ever diagnosed with emphysema, 92% were 45 or older. In 2009, the reported emphysema lifetime prevalence rate was 21.5 per 1,000 population. Differences were statistically significant between the rates for all age groups.<sup>14</sup>

Race specific prevalence trends are displayed in **Table 8**. In 2009, an estimated 4.4 million whites had emphysema; a prevalence rate of 23.8 per 1,000 population. The rate in whites over age 65 (68.6 per 1,000 persons) was 2.4 times higher than that in the white population between 45 and 64 (28.5 per 1,000). Age-specific prevalence rates among blacks were based on the reporting of much smaller numbers, which produced less reliable estimates. In 2009, an estimated 366,000 blacks had emphysema; a prevalence rate of 13.0 per 1,000 population. The difference between this rate and the rate for whites (23.8 per 1,000) was statistically significant.<sup>15</sup>

Sex specific prevalence trends are delineated in **Table 9**. Women have had lower emphysema prevalence rates than men for every year since 1983. However, in 2008 the rates converged and switched, although the difference between them was not statistically significant. In 2009, almost 2.6 million men (23.5 per 1,000) had emphysema, compared to over 2.3 million women (19.7 per 1,000). From 1997 to 2009, the prevalence rate of emphysema among men has increased by 16.3%, while the rate among women has increased by 50.4%.<sup>16</sup>

**Table 10** displays the number of conditions and prevalence rates of COPD by Hispanic origin. Approximately 200,000 Hispanics (6.4 per 1,000 persons) have been diagnosed with emphysema in their lifetime. The prevalence rate seen in Hispanics was significantly lower than the rate in non-Hispanic whites.<sup>17</sup>

### *Percentage Distribution of Conditions, 2009*

The percentage distribution of emphysema is displayed in **Figure 4**. Four pie charts describe the distribution of emphysema by geographic region, ethnicity, age and sex. The overall percentage of emphysema sufferers is highest among non-Hispanic whites, those 65 years or older, men and those who reside in the South of the United States.<sup>18</sup>

## **COPD Hospital Discharges**

**Table 11** delineates the number of first-listed hospital discharges and hospital discharge rate by age between 1979-2006. The first listed diagnosis is identified as the principal diagnosis on the medical record. An estimated 672,000 discharges were reported in 2006; a discharge rate of 22.5 per 10,000 population.<sup>19</sup>

Differences may exist between data reported for 1988-2006 and earlier years because of the redesign of the survey in 1988. Also in 1992, a jump in hospital discharges occurred due to a change in the ICD code for chronic bronchitis. A new sub-classification (chronic bronchitis with acute exacerbations, ICD code 491.21) was introduced. It appears that many discharges previously coded as acute bronchitis (ICD code 466) were coded as 491.21 beginning in 1992. Thus the growth seen in 1992 probably does not reflect an increase in COPD morbidity but

rather indicates an underestimation in previous years. Both chronic bronchitis and emphysema as well as other lower chronic obstructive pulmonary disease, including bronchiectasis but not asthma, are part of the COPD diagnosis codes.<sup>20, III</sup>

Between 1992 and 2006, the overall discharge rate increased by 33.1% from 16.9 per 10,000 population to 22.5 per 10,000 population.<sup>21</sup>

COPD is an important cause of hospitalization in our aged population. Approximately 64% of discharges were in the 65 years and older population in 2006. The discharge rate for the population over age 65 (116.4 per 10,000) was much higher than the rate for any other age group. For instance, the rate in the over age 65 group was over four times higher than that in the 45-64 age group (27.7 per 10,000). This trend is shown in **Figure 5**.<sup>22</sup>

The trend in hospital discharges by race is shown in **Table 12** and **Figure 6**. The 2006 discharge rate for COPD was higher among whites (19.4 per 10,000) than blacks (15.0 per 10,000). These rates however, should be used with caution due to the large percentage of discharges (21.1% in 2006) for which race was not reported. It appears that the number of hospital discharges in whites may be disproportionately underestimated, due to the high number of those diagnosed with impaired lung function making it difficult to draw comparisons between races using these data.<sup>23</sup>

**Table 13** displays the trend in COPD hospital discharges by sex. Between 1988 and 1992, men had slightly higher discharge rates than women. Since 1993, the rate in women has surpassed the rate for men. In 2006, the discharge rates among men and women were 21.7 and 23.3 per 10,000, respectively.<sup>24</sup>

### **Economic Costs**

Chronic bronchitis and emphysema take a heavy toll on our economy. According to the National Heart Lung and Blood Institute, the national projected annual cost for COPD in 2010 was \$49.9 billion. This includes \$29.5 billion in direct health care expenditures, \$8.0 billion in indirect morbidity costs and \$12.4 billion in indirect mortality costs.<sup>25</sup>

### **Summary**

COPD is a major cause of morbidity and mortality in the United States. COPD includes both chronic bronchitis and emphysema as these conditions often coexist. In 2009, an estimated 13.1 million adults aged 18 and over have reported a physician diagnosis of COPD<sup>26</sup>. However, as many as 24 million U.S. adults had some evidence of impaired lung function in earlier surveys, indicating an under diagnosis of the disease.<sup>27</sup> The number of women dying from the disease has surpassed the number seen in men with women twice as likely to be diagnosed with chronic bronchitis as men, although men are still more likely to receive a diagnosis of emphysema. COPD has moved from the fourth leading cause of death to the third according to preliminary data (not shown).<sup>28</sup>

<sup>III</sup> ICD-9 codes 490, 491.0, 491.1, 491.2, 491.8, 491.9, 492, 494, 495 and 496. Please note that ICD-10 mortality codes may differ slightly from hospital discharge codes. Caution should be used when comparing rates.

## **GLOSSARY**

- Prevalence: The number of existing cases of a particular condition, disease, or other occurrence (e.g., persons smoking) at a given time.
- Period Prevalence: The proportion of cases that exist within a population at any point during a specified period of time.
- Point Prevalence: The proportion of cases that exist within a population at a single point in time.
- Crude Rate: Cases in a particular population quantity- e.g., per hundred.
- Age-Adjusted Rate: A figure that is statistically corrected to remove the distorting effect of age when comparing populations of different age structures.

## Sources

- <sup>1</sup> Age Standardization of Rates: Implementation of the Year 2000 standard. National Vital Statistics Reports, Vol 47 No 3. Additional Calculations Performed by the American Lung Association, Research and Program Services Division.
- <sup>2</sup> Centers for Disease Control and Prevention. National Center for Health Statistics. National Vital Statistics Report. Deaths: Final Data for 2007. April 22, 2011. Vol 57 No 14.
- <sup>3</sup> Ibid.
- <sup>4</sup> Ibid.
- <sup>5</sup> Centers for Disease Control and Prevention. National Center for Health Statistics. National Vital Statistics Report. Deaths: Preliminary Data for 2009. March 16, 2011. Vol 59 No 4.
- <sup>6</sup> Centers for Disease Control and Prevention. National Center for Health Statistics. National Vital Statistics Report. Deaths: Final Data for 2007. April 22, 2011. Vol 57 No 14.
- <sup>7</sup> Ibid.
- <sup>8</sup> Centers for Disease Control and Prevention. National Center for Health Statistics: National Health Interview Survey Raw Data, 1997-2009. Analysis performed by American Lung Association Research and Program Services using SPSS/PASW and SUDAAN software.
- <sup>9</sup> Centers for Disease Control and Prevention. National Center for Health Statistics: National Health Interview Survey Raw Data, 1983-2009. Analysis performed by American Lung Association Research and Program Services using SPSS/PASW and SUDAAN software.
- <sup>10</sup> Ibid.
- <sup>11</sup> Ibid.
- <sup>12</sup> Ibid.
- <sup>13</sup> Ibid.
- <sup>14</sup> Ibid.
- <sup>15</sup> Ibid.
- <sup>16</sup> Ibid.
- <sup>17</sup> Ibid.
- <sup>18</sup> Ibid.
- <sup>19</sup> Centers for Disease Control and Prevention. National Center for Health Statistics: National Hospital Discharge Survey, 1979-2004, 2005 and 2006 unpublished data provided upon special request.
- <sup>20</sup> Ibid.
- <sup>21</sup> Ibid.
- <sup>22</sup> Ibid.
- <sup>23</sup> Ibid.
- <sup>24</sup> Ibid.
- <sup>25</sup> National Heart Lung and Blood Institute. Morbidity and Mortality: 2009 Chart Book on Cardiovascular, Lung and Blood Diseases.
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- <sup>27</sup> Centers for Disease Control and Prevention. Chronic Obstructive Pulmonary Disease Surveillance — United States, 1971—2000. *Morbidity and Mortality Weekly Report*. August 2, 2002. 51(SS06):1-16.
- <sup>28</sup> Centers for Disease Control and Prevention. National Center for Health Statistics. National Vital Statistics Report. Deaths: Preliminary Data for 2009. March 16, 2011. Vol 59 No 4.

**Table 1: COPD - Number of Deaths by Race and Sex, 1979-1998, 1999-2007 <sup>(1)</sup>**

Year	Total			White			All Other <sup>(2)</sup>					
	Both Sexes	Male	Female	Both Sexes	Male	Female	Total			Black		
							Both Sexes	Male	Female	Both Sexes	Male	Female
1979 <sup>(3)</sup>	47,335	34,162	13,173	44,597	32,044	12,553	2,738	2,118	620	2,487	1,952	535
1980	53,159	37,333	15,826	50,084	34,969	15,115	3,075	2,364	711	2,823	2,169	654
1981	55,778	38,486	17,292	52,556	36,014	16,542	3,222	2,472	750	2,941	2,264	677
1982	56,715	38,388	18,327	53,437	35,987	17,450	3,278	2,401	877	2,984	2,188	796
1983	62,685	41,664	21,021	58,958	38,894	20,064	3,727	2,770	957	3,336	2,477	859
1984	65,536	42,546	22,990	61,497	39,622	21,875	4,039	2,924	1,115	3,592	2,610	982
1985	70,782	45,045	25,737	66,412	41,934	24,478	4,370	3,111	1,259	3,881	2,783	1,098
1986	72,604	45,474	27,130	68,086	42,163	25,923	4,518	3,311	1,207	4,028	2,942	1,086
1987	74,020	45,309	28,711	69,341	42,046	27,295	4,679	3,263	1,416	4,132	2,891	1,241
1988	78,256	47,117	31,139	73,200	43,528	29,672	5,056	3,589	1,467	4,464	3,184	1,280
1989	79,475	46,330	33,145	74,120	42,694	31,426	5,355	3,636	1,719	4,687	3,159	1,528
1990	81,860	47,531	34,329	76,483	43,876	32,607	5,377	3,655	1,722	4,669	3,168	1,501
1991	85,544	48,558	36,986	80,036	44,928	35,108	5,508	3,630	1,878	4,773	3,149	1,624
1992	86,974	48,596	38,378	81,442	44,993	36,449	5,532	3,603	1,929	4,821	3,136	1,685
1993	95,910	52,443	43,467	89,705	48,428	41,277	6,205	4,105	2,190	5,323	3,448	1,875
1994	96,141	51,628	44,513	89,939	47,734	42,205	6,202	3,894	2,308	5,325	3,332	1,993
1995	97,262	51,859	45,403	90,869	47,866	43,003	6,393	3,993	2,400	5,420	3,379	2,041
1996	100,360	52,410	47,950	93,779	48,396	45,383	6,581	4,014	2,567	5,599	3,388	2,211
1997	103,595	53,998	49,597	96,768	49,801	46,967	6,827	4,197	2,630	5,708	3,468	2,240
1998	107,146	55,018	52,128	100,114	50,806	49,308	7,032	4,212	2,820	5,915	3,503	2,412
1999 <sup>(4)</sup>	119,524	60,795	58,729	111,407	55,954	55,453	8,117	4,841	3,276	6,770	4,019	2,751
2000	117,522	58,372	59,150	109,636	53,759	55,937	7,826	4,613	3,213	6,449	3,757	2,692
2001	118,744	58,218	60,526	110,829	53,624	57,205	7,915	4,594	3,321	6,481	3,728	2,753
2002	120,555	59,133	61,422	112,381	54,392	57,989	8,174	4,741	3,433	6,735	3,844	2,891
2003	122,283	59,321	63,062	114,029	54,436	59,593	8,254	4,785	3,469	6,679	3,802	2,877
2004	118,171	57,260	60,911	110,256	52,771	57,485	7,915	4,489	3,426	6,392	3,591	2,801
2005	127,049	61,120	65,929	118,170	56,068	62,102	8,879	5,052	3,827	7,213	4,053	3,160
2006	120,970	57,964	63,006	112,496	53,238	59,258	8,474	4,726	3,748	6,773	3,713	3,060
2007	124,477	59,961	64,516	115,705	55,145	60,560	8,772	4,816	3,956	6,499	3,801	3,198

**Sources: Centers for Disease Control and Prevention. National Center for Health Statistics. National Vital Statistics Reports. Deaths: Final Data for 1979-2007.**

Notes:

(1) This table refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.

(2) All races other than White.

(3) Deaths from 1979-1998 are coded by the 9th revision of International Classification of Diseases, codes 490-492, 494-496.

(4) Deaths from 1999-2007 are coded by the 10th revision of International Classification of Diseases, codes J40-J44, J47.

--- Data not available.

**Table 2: COPD - Age-Adjusted Death Rate per 100,000 Population by Race and Sex, 1979-1998, 1999-2007** <sup>(1,2,3)</sup>

Year	Total			White			All Other <sup>(4)</sup>					
	Both Sexes	Male	Female	Both Sexes	Male	Female	Total			Black		
							Both Sexes	Male	Female	Both Sexes	Male	Female
1979 <sup>(5)</sup>	14.0	23.8	7.0	14.5	24.7	7.3	8.9	15.7	3.7	9.6	17.2	3.7
1980	14.9	25.1	7.9	15.5	25.9	8.4	9.5	17.1	3.9	10.3	18.7	4.1
1981	15.3	25.2	8.4	15.8	26.0	8.9	9.6	17.4	4.0	10.3	19.0	4.2
1982	15.2	24.5	8.7	15.7	25.4	9.1	9.5	16.4	4.5	10.3	18.1	4.8
1983	16.2	25.9	9.6	17.0	26.7	10.3	10.2	18.0	4.6	10.9	19.4	4.8
1984	16.6	25.9	10.2	17.2	26.7	10.8	10.8	18.6	5.2	11.6	20.3	5.5
1985	17.5	26.8	11.2	18.2	27.6	11.7	11.3	19.1	5.8	12.2	20.9	6.0
1986	17.6	26.5	11.5	18.2	27.2	12.2	11.4	19.7	5.3	12.5	21.7	5.9
1987	17.4	25.7	11.8	18.1	26.4	12.5	11.2	18.7	5.9	12.3	20.7	6.3
1988	18.0	26.3	12.5	18.7	26.8	13.3	11.8	20.0	6.0	13.1	22.5	6.6
1989	18.0	25.2	13.1	18.6	25.8	13.9	12.1	19.6	6.8	13.3	21.7	7.6
1990	18.3	25.9	13.2	18.9	26.4	13.9	12.3	20.6	6.8	13.5	23.0	7.4
1991	18.6	25.7	13.9	19.4	26.4	14.7	12.2	19.8	7.1	13.6	22.4	7.8
1992	18.5	25.2	14.0	19.3	25.9	14.8	11.9	19.0	7.0	13.3	21.7	7.7
1993	20.0	26.5	15.5	20.7	27.2	16.5	13.0	20.8	7.8	14.3	23.3	8.5
1994	19.5	25.5	15.4	20.4	26.3	16.4	12.5	19.5	7.8	14.0	22.1	8.7
1995	19.3	25.0	15.4	20.0	25.6	16.3	12.4	19.4	7.8	13.8	21.8	8.6
1996	19.5	24.6	15.9	20.3	25.3	16.9	12.3	18.6	7.9	13.9	21.2	9.0
1997	19.7	25.9	16.1	20.6	25.5	17.2	12.3	18.8	8.0	13.9	21.3	9.1
1998	19.9	24.7	16.5	20.9	25.5	17.6	12.3	18.1	8.3	14.0	20.9	9.5
1999 <sup>(6)</sup>	44.0	56.8	36.2	46.1	58.6	38.5	16.9	21.1	13.0	29.8	46.5	19.7
2000	42.7	53.6	36.1	44.8	55.3	38.5	25.3	38.4	17.1	27.8	42.5	18.9
2001	42.2	52.8	35.9	44.4	54.6	38.3	24.6	38.1	16.7	27.3	43.1	18.6
2002	42.0	52.3	35.7	44.2	54.0	38.3	24.5	37.6	16.8	27.8	43.0	19.2
2003	41.9	51.2	36.2	44.3	52.9	39.0	23.9	36.6	16.3	26.9	41.5	18.7
2004	39.9	48.4	34.5	42.2	50.3	37.2	22.2	32.9	15.7	25.1	37.9	17.8
2005	42.0	50.3	36.6	44.4	52.1	39.4	23.9	35.5	16.9	27.6	41.4	19.5
2006	39.3	46.7	34.6	41.6	48.5	37.3	22.1	32.0	16.1	25.3	37.0	18.5
2007	39.7	47.2	34.8	42.1	49.2	37.5	22.1	31.5	16.4	25.6	37.1	18.9

**Sources: Centers for Disease Control and Prevention. National Center for Health Statistics. National Vital Statistics Reports. Deaths: Final Data for 1979-2007.**

**Notes:**

(1) This table refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.

(2) Rates for the years 1979-1998 are age-adjusted to the 1940 U.S. standard population.

(3) Rates for 1999-2007 are age-adjusted to the 2000 U.S. standard population.

(4) All races other than White.

(5) Deaths from 1979-1998 are coded by the 9th revision of International Classification of Diseases, codes 490-492, 494-496.

(6) Deaths from 1999-2007 are coded by the 10th revision of International Classification of Diseases, codes J40-J44, J47.

--- Data not available.

**Table 3: COPD - Number of Deaths and Age-Adjusted Death Rate per 100,000 Population by Ethnic Origin and Sex, 1999-2007** <sup>(1,2,3)</sup>

Year/Sex	Total		Hispanic		Non-Hispanic <sup>(4)</sup>		Non-Hispanic White		Non-Hispanic Black	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
<b>Both Sexes</b>										
1999	119,524	44.1	2,539	18.2	116,644	45.4	108,609	47.5	6,706	30.4
2000	117,522	42.7	2,397	16.2	114,799	44.2	107,065	46.4	6,383	28.4
2001	118,744	42.2	2,558	19.3	115,863	43.4	108,036	45.8	6,412	27.7
2002	120,555	42.0	2,771	19.3	117,474	43.3	109,408	45.7	6,647	28.0
2003	122,283	41.9	2,875	18.9	119,110	43.3	110,952	45.9	6,613	27.3
2004	118,171	39.9	2,826	17.3	115,126	41.2	107,293	43.8	6,330	25.5
2005	127,049	42.0	3,209	18.3	123,627	43.5	114,862	46.2	7,134	28.0
2006	120,970	39.3	3,053	16.4	117,692	40.8	109,313	43.5	6,714	25.8
2007	124,477	39.7	3,292	16.7	121,010	41.3	112,329	44.1	6,937	26.1
<b>Male</b>										
1999	60,795	56.7	1,428	26.1	56,863	55.3	54,384	60.3	3,978	47.7
2000	58,372	53.6	1,322	22.3	59,174	58.4	52,311	57.1	3,712	43.5
2001	58,218	52.8	1,379	26.6	56,663	54.2	52,118	56.0	3,693	43.7
2002	59,133	52.3	1,511	26.2	57,448	53.7	52,767	55.6	3,794	43.4
2003	59,221	51.2	1,566	26.0	57,492	52.5	52,762	54.5	3,763	42.1
2004	57,260	48.4	1,520	22.9	55,612	49.9	51,166	52.0	3,558	38.5
2005	61,120	50.3	1,733	24.2	59,257	51.9	54,272	54.0	4,003	42.0
2006	57,964	46.7	1,614	21.2	56,224	48.4	51,555	50.5	3,677	37.7
2007	59,961	47.2	1,785	22.0	58,070	48.9	53,303	51.2	3,765	37.9
<b>Female</b>										
1999	58,729	36.2	1,111	13.3	57,470	37.4	54,225	39.8	2,728	20.2
2000	59,150	36.1	1,075	12.2	57,936	37.3	54,754	40.0	2,671	19.5
2001	60,526	35.9	1,179	14.8	59,200	36.9	55,918	39.7	2,719	18.7
2002	61,422	35.7	1,260	14.7	60,026	36.9	56,641	39.8	3,853	19.4
2003	63,062	36.2	1,309	14.4	61,618	37.5	58,190	40.5	2,850	18.9
2004	60,911	34.5	1,306	13.5	59,514	35.8	56,127	38.8	2,772	18.1
2005	65,929	36.6	1,476	14.3	64,370	38.1	60,590	41.2	3,131	19.8
2006	63,006	34.6	1,439	13.1	61,468	36.0	57,758	39.1	3,037	18.9
2007	34,516	34.8	1,507	13.0	62,940	36.3	59,026	39.4	3,172	19.2

**Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Vital Statistics Reports. Deaths: Final Data for 1999-2007.**

Notes:

- (1) This table refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.
- (2) Number of deaths are coded by the 10th revision of International Classification of Diseases, code J40-J44, J47.
- (3) Rates are age-adjusted to the 2000 U.S. standard population.
- (4) Includes races other than White and Black.

**Table 4: Chronic Bronchitis - Number of Conditions and Prevalence Rate per 1,000 Population by Age, 1983-1996, 1997-2009**

Year	Total <sup>(1)</sup>		<18		18-44		45-64		65+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1983	10,864,000	47.4	3,711,000	59.3	3,667,000	37.9	1,976,000	44.7	1,510,000	58.3
1984	10,925,000	47.2	3,097,000	49.5	3,881,000	39.5	2,283,000	51.6	1,664,000	63.0
1985	11,618,000	49.7	3,483,000	55.5	4,022,000	40.5	2,415,000	54.3	1,697,000	62.7
1986	11,379,000	48.1	3,987,000	63.2	3,690,000	36.5	2,049,000	45.8	1,652,000	60.0
1987	12,749,000	53.4	3,927,000	62.1	4,125,000	40.4	2,561,000	56.9	2,136,000	75.9
1988	11,894,000	49.4	3,453,000	54.3	4,024,000	39.0	2,558,000	56.1	1,859,000	64.8
1989	11,974,000	49.2	3,235,000	50.5	4,641,000	44.5	2,476,000	53.7	1,622,000	55.5
1990	12,584,000	51.1	3,447,000	53.3	4,365,000	41.5	2,674,000	57.4	2,098,000	70.4
1991	12,549,000	50.5	3,480,000	53.1	4,938,000	46.7	2,542,000	53.9	1,589,000	52.5
1992	13,494,000	53.7	3,561,000	53.6	4,962,000	47.0	2,828,000	58.3	2,143,000	69.6
1993	13,820,000	54.3	3,997,000	59.3	4,845,000	45.8	3,048,000	61.2	1,930,000	61.7
1994	14,021,000	54.0	3,873,000	55.3	5,047,000	46.7	3,223,000	63.9	1,878,000	60.5
1995	14,533,000	55.5	3,789,000	53.6	5,422,000	50.2	3,305,000	63.9	2,018,000	64.1
1996	14,150,000	53.5	4,087,000	57.3	4,904,000	45.4	3,142,000	59.1	2,017,000	63.5
1997 <sup>(2,3)</sup>	9,667,981	49.5	NA	NA	4,491,715	41.4	3,050,580	55.6	2,125,686	66.4
1998	8,977,160	45.5	NA	NA	3,825,345	35.3	3,117,842	55.0	2,033,973	63.1
1999	8,847,646	44.3	NA	NA	3,978,344	36.7	2,962,010	50.5	1,907,292	58.7
2000	9,354,982	46.4	NA	NA	3,876,505	35.7	3,353,176	55.4	2,125,301	65.0
2001	11,198,602	54.9	NA	NA	4,913,277	45.3	4,073,615	65.1	2,211,710	67.3
2002	9,113,581	44.3	NA	NA	3,761,235	34.8	3,563,498	55.1	1,788,848	54.1
2003	8,560,342	40.2	NA	NA	3,253,728	29.4	3,310,933	48.5	1,995,681	58.3
2004	9,047,481	42.0	NA	NA	3,483,038	31.5	3,412,969	48.6	2,151,474	62.2
2005	8,912,375	40.9	NA	NA	3,504,174	31.7	3,543,899	49.0	1,864,302	53.2
2006	9,463,082	43.0	NA	NA	3,182,026	28.8	4,107,558	55.4	2,173,498	60.9
2007	7,604,098	34.1	NA	NA	2,515,141	22.7	3,225,607	42.4	1,863,350	51.5
2008	9,832,089	43.7	NA	NA	3,486,419	31.5	4,251,214	54.9	2,094,456	56.3
2009	9,901,580	43.6	NA	NA	3,092,989	28.0	4,411,101	55.7	2,403,490	63.5

**Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 1999-2009. Analysis by the American Lung Association Research and Program Services Division using SPSS and SUDAAN software.**

Notes:

(1) Due to rounding, numbers across may not sum up to totals.

(2) In 1997, the National Health Interview Survey completely redesigned their questionnaire. Therefore, estimates prior to 1997 cannot be compared with later estimates.

(3) The revised questionnaire now asks respondents about chronic bronchitis diagnosis over the past 12 months. Starting in 1997 estimates on children under 18 were eliminated. Overall estimates will be smaller.

NA - Not Available

**Table 5: Chronic Bronchitis - Number of Conditions and Prevalence Rate per 1,000 Population by Race and Age, 1983-1996, 1997-2009**

Year	White									
	All Ages		Under 45		18-44		45-64		65+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1983	9,903,000	50.4	6,667,000	49.8	NA	NA	1,766,000	45.2	1,470,000	62.8
1984	9,885,000	50.0	6,281,000	46.6	NA	NA	2,021,000	51.6	1,583,000	66.2
1985	10,428,000	52.3	6,627,000	48.8	NA	NA	2,152,000	55.0	1,649,000	67.4
1986	10,320,000	51.5	6,857,000	50.2	NA	NA	1,901,000	48.8	1,562,000	63.1
1987	11,358,000	56.3	7,118,000	51.8	NA	NA	2,298,000	58.7	1,942,000	76.4
1988	10,480,000	51.6	6,501,000	47.2	NA	NA	2,259,000	57.0	1,720,000	66.6
1989	10,705,000	52.1	6,891,000	49.6	NA	NA	2,275,000	56.8	1,539,000	58.5
1990	11,407,000	55.1	7,022,000	50.2	NA	NA	2,409,000	59.7	1,976,000	73.8
1991	11,503,000	53.1	7,322,000	52.2	NA	NA	2,228,000	54.8	1,503,000	55.3
1992	11,908,000	56.8	7,417,000	52.9	NA	NA	2,491,000	59.7	2,000,000	72.6
1993	12,143,000	57.5	7,693,000	54.7	NA	NA	2,660,000	62.1	1,790,000	64.0
1994	12,568,000	58.6	7,800,000	54.3	NA	NA	3,077,000	71.3	1,691,000	60.9
1995	12,651,000	58.2	7,965,000	55.0	NA	NA	2,875,000	65.0	1,811,000	64.4
1996	11,970,000	54.4	7,348,000	50.4	NA	NA	2,810,000	61.4	1,812,000	63.4
1997 <sup>(1,2)</sup>	8,283,171	50.9	NA	NA	3,833,017	43.8	2,526,463	54.2	1,923,691	67.1
1998	7,878,552	48.2	NA	NA	3,246,698	37.5	2,743,051	56.9	1,888,803	66.2
1999	7,649,714	46.5	NA	NA	3,408,042	39.5	2,493,763	50.4	1,747,909	60.9
2000	8,056,940	49.0	NA	NA	3,277,216	38.6	2,845,300	56.2	1,934,424	66.9
2001	9,488,244	57.1	NA	NA	4,080,695	48.2	3,411,379	65.1	1,996,170	68.9
2002	7,651,391	45.7	NA	NA	3,006,514	35.6	2,999,901	55.5	1,644,976	56.6
2003	7,434,117	41.6	NA	NA	2,738,922	30.4	2,890,044	49.6	1,808,151	59.3
2004	7,921,554	44.1	NA	NA	2,984,240	33.3	2,977,827	50.1	1,959,487	63.6
2005	7,578,330	41.7	NA	NA	2,873,245	32.1	3,030,029	49.5	1,675,056	54.1
2006	7,896,061	43.7	NA	NA	2,501,525	28.6	3,434,019	55.3	1,960,517	63.1
2007	6,487,446	35.5	NA	NA	2,021,141	23.0	2,808,286	44.5	1,658,019	52.5
2008	8,520,561	46.3	NA	NA	2,957,076	33.8	3,635,409	56.5	1,928,076	59.7
2009	8,470,649	45.7	NA	NA	2,533,494	29.2	3,779,140	57.6	2,158,015	65.7
Year	Black									
	All Ages		Under 45		18-44		45-64		65+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1983	920,000	33.7	699,000	33.4	NA	NA	182,000	43.1*	39,000	18.3*
1984	872,000	31.4	633,000	29.7	NA	NA	182,000	42.7*	57,000	26.1*
1985	1,093,000	38.8	782,000	36.4	NA	NA	263,000	59.3	48,000	21.2*
1986	819,000	28.7	659,000	30.3	NA	NA	95,000	21.1*	65,000	28.3*
1987	1,111,000	38.4	773,000	35.1	NA	NA	190,000	41.7	148,000	62.9*
1988	1,159,000	39.4	802,000	35.9	NA	NA	240,000	51.8	117,000	48.7*
1989	996,000	33.3	760,000	33.4	NA	NA	153,000	32.5	83,000	33.8*
1990	1,044,000	34.4	673,000	29.2	NA	NA	264,000	55.2	107,000	42.7*
1991	1,251,000	40.5	906,000	38.6	NA	NA	275,000	56.6	70,000	27.3*
1992	1,231,000	39.1	859,000	36.0	NA	NA	241,000	48.3	131,000	50.0*
1993	1,432,000	44.7	968,000	40.0	NA	NA	324,000	63.1	140,000	52.4*
1994	1,056,000	32.0	825,000	32.5	NA	NA	108,000	21.1*	123,000	48.7*
1995	1,414,000	43.2	963,000	38.5	NA	NA	311,000	59.6	140,000	55.1*
1996	1,672,000	50.4	1,290,000	51.3	NA	NA	280,000	51.7*	102,000	39.1*
1997 <sup>(1,2)</sup>	1,083,064	48.9	NA	NA	522,663	37.6	402,813	71.8	157,588	59.9
1998	820,345	36.6	NA	NA	427,130	30.6	282,765	48.8	110,450	41.5
1999	810,771	35.7	NA	NA	393,716	28.1	296,919	49.5	120,136	45.3
2000	924,784	40.0	NA	NA	388,925	27.5	398,626	63.5	137,233	51.0
2001	1,232,444	52.5	NA	NA	580,681	40.8	489,330	75.0	162,433	60.0
2002	1,101,118	46.1	NA	NA	590,549	41.2	384,497	56.3	126,072	45.8
2003	931,798	37.9	NA	NA	453,317	31.6	338,598	45.9	139,533	49.0
2004	913,572	36.4	NA	NA	398,623	27.4	373,996	48.9	140,953	49.0
2005	1,089,579	43.0	NA	NA	493,843	34.1	438,100	55.5	157,636	53.2
2006	1,170,216	43.6	NA	NA	513,449	33.4	506,912	61.7	149,855	46.6
2007	862,984	32.0	NA	NA	368,831	24.2	360,641	42.0	133,512	42.7
2008	1,033,245	37.9	NA	NA	433,297	28.3	474,748	54.0	125,200	39.0
2009	1,110,600	39.4	NA	NA	455,229	29.1	497,901	54.3	157,470	46.9

**Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 1999-2009. Analysis by the American Lung Association Research and Program Services Division using SPSS and SUDAAN software.**

Notes:

(1) In 1997, the National Health Interview Survey completely redesigned their questionnaire. Therefore, estimates prior to 1997 cannot be compared with later estimates.

(2) The revised questionnaire now asks respondents about chronic bronchitis diagnosis over the past 12 months. Starting in 1997 estimates on children under 18 were eliminated. Overall estimates will be smaller.

\* Estimate for which the numerator has a relative standard error of more than 30%.

NA - Not Available

**Table 6: Chronic Bronchitis - Number of Conditions and Prevalence Rate per 1,000 Population by Sex, 1983-1996, 1997-2009**

Year	Male		Female	
	Number	Rate	Number	Rate
1983	4,645,000	42.0	6,218,000	52.4
1984	4,180,000	37.4	6,745,000	56.3
1985	4,326,000	38.3	7,293,000	60.3
1986	4,708,000	41.2	6,671,000	54.7
1987	5,276,000	45.7	7,473,000	60.7
1988	4,763,000	40.8	7,130,000	57.4
1989	4,446,000	37.7	7,528,000	60.0
1990	4,841,000	40.6	7,743,000	61.0
1991	5,160,000	42.7	7,389,000	57.7
1992	5,359,000	43.9	8,135,000	62.9
1993	5,676,000	45.9	8,144,000	62.4
1994	5,624,000	44.5	8,396,000	63.1
1995	5,587,000	43.8	8,945,000	66.6
1996	6,049,000	47.0	8,101,000	59.8
1997 <sup>(1,2)</sup>	3,094,373	33.0	6,573,608	64.7
1998	2,767,839	29.2	6,209,321	60.5
1999	2,661,435	27.8	6,186,211	59.4
2000	3,013,616	31.2	6,341,366	60.4
2001	3,718,647	38.0	7,479,955	70.5
2002	2,891,596	29.3	6,221,985	58.1
2003	2,740,594	26.8	5,819,748	52.6
2004	2,756,777	26.6	6,290,704	56.3
2005	2,886,344	27.5	6,026,031	53.4
2006	2,912,124	27.4	6,550,958	57.5
2007	2,558,623	23.7	5,045,475	43.7
2008	3,120,941	28.7	6,711,148	57.6
2009	3,189,161	29.0	6,718,419	57.2

**Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 1999-2009. Analysis by the American Lung Association Research and Program Services Division using SPSS and SUDAAN software.**

Notes:

(1) In 1997, the National Health Interview Survey completely redesigned their questionnaire. Therefore, estimates prior to 1997 cannot be compared with later estimates.

(2) The revised questionnaire now asks respondents about chronic bronchitis diagnosis over the past 12 months. Starting in 1997 estimates on children under 18 were eliminated. Overall estimates will be smaller.

**Table 7: Emphysema - Number of Conditions and Prevalence Rate per 1,000 Population by Age, 1983-1996, 1997-2009**

Year	Total <sup>(1)</sup>		<18		18-44		45-64		65+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1983	2,038,000	8.9	0	-- *	110,000	1.1 *	911,000	20.6	1,017,000	39.3
1984	2,184,000	9.4	0	-- *	118,000	1.2 *	956,000	21.6	1,110,000	42.0
1985	2,075,000	8.9	0	-- *	161,000	1.6 *	676,000	15.2	1,238,000	45.8
1986	1,998,000	8.5	0	-- *	74,000	0.7 *	822,000	18.4	1,101,000	40.0
1987	2,037,000	8.5	0	-- *	101,000	1.0 *	761,000	16.9	1,174,000	41.7
1988	1,905,000	7.9	0	-- *	64,000	0.6 *	764,000	16.8	1,077,000	37.5
1989	1,993,000	8.2	13,000	0.2 *	123,000	1.2 *	795,000	17.2	1,062,000	36.3
1990	2,017,000	8.2	0	-- *	70,000	0.7 *	595,000	12.8	1,352,000	45.4
1991	1,646,000	6.6	0	-- *	64,000	0.6 *	602,000	12.8	981,000	32.4
1992	1,915,000	7.6	0	-- *	122,000	1.2 *	727,000	15.0	1,066,000	34.6
1993	1,931,000	7.6	45,000	0.7 *	179,000	1.7 *	775,000	15.6	932,000	29.8
1994	2,028,000	7.8	0	-- *	117,000	1.1 *	497,000	9.9	1,413,000	45.5
1995	1,870,000	7.1	0	-- *	127,000	1.2 *	671,000	13.0	1,072,000	34.1
1996	1,821,000	6.9	0	-- *	90,000	0.8 *	701,000	13.2	1,030,000	32.4
1997 <sup>(2,3)</sup>	3,217,737	16.5	NA	NA	284,160	2.6 *	1,228,655	22.4	1,704,922	53.3
1998	2,959,516	15.0	NA	NA	272,158	2.5 *	1,058,625	18.7	1,628,733	50.6
1999	2,798,963	14.0	NA	NA	224,033	2.1 *	936,939	16.0	1,637,991	50.4
2000	3,124,699	15.5	NA	NA	256,030	2.4 *	1,141,600	18.9	1,727,069	52.8
2001	2,983,598	14.6	NA	NA	200,259	1.8 *	1,099,638	17.6	1,683,701	51.2
2002	3,131,410	15.2	NA	NA	287,302	2.7 *	1,271,992	19.7	1,572,116	47.6
2003	3,114,666	14.6	NA	NA	154,649	1.4 *	1,261,139	18.5	1,698,878	49.6
2004	3,575,684	16.6	NA	NA	309,071	2.8 *	1,393,431	19.9	1,873,182	54.2
2005	3,791,006	17.4	NA	NA	340,694	3.1	1,429,606	19.8	2,020,706	57.7
2006	4,068,667	18.5	NA	NA	290,075	2.6	1,764,620	23.8	2,013,972	56.5
2007	3,736,000	16.7	NA	NA	226,384	2.0	1,765,325	23.2	1,744,291	48.2
2008	3,789,224	16.8	NA	NA	222,120	2.0	1,572,766	20.3	1,994,338	53.6
2009	4,895,246	21.5	NA	NA	369,226	3.3	2,064,627	26.1	2,461,393	65.0

**Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 1999-2009. Analysis by the American Lung Association Research and Program Services Division using SPSS and SUDAAN software.**

Notes:

(1) Due to rounding, numbers across may not sum up to totals.

(2) In 1997, the National Health Interview Survey completely redesigned their questionnaire. Therefore, estimates prior to 1997 cannot be compared with later estimates.

(3) The revised questionnaire now asks respondents about emphysema diagnosis over their lifetime. Therefore, overall estimates will be higher.

\* Estimate for which the numerator has a relative standard error of more than 30%.

-- No cases in sample.

NA - Not Available

**Table 8: Emphysema - Number of Conditions and Prevalence Rate per 1,000 Population by Race and Age, 1983-1996, 1997-2009**

Year	White									
	All Ages		Under 45		18-44		45-64		65+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1983	1,908,000	9.7	78,000	0.6*	NA	NA	851,000	21.8	979,000	41.8
1984	2,047,000	10.3	105,000	0.8*	NA	NA	907,000	23.2	1,035,000	43.3
1985	1,942,000	9.7	134,000	1.0*	NA	NA	626,000	16.0	1,182,000	48.3
1986	1,847,000	9.2	74,000	0.5*	NA	NA	774,000	19.9	999,000	40.4
1987	1,945,000	9.6	95,000	0.7*	NA	NA	732,000	18.7	1,118,000	44.0
1988	1,771,000	8.7	53,000	0.4*	NA	NA	705,000	17.8	1,013,000	39.2
1989	1,896,000	9.2	132,000	0.9*	NA	NA	743,000	18.6	1,021,000	38.8
1990	1,863,000	9.0	70,000	0.5*	NA	NA	557,000	13.8	1,236,000	46.1
1991	1,555,000	7.5	64,000	0.5*	NA	NA	544,000	13.4	947,000	34.8
1992	1,818,000	8.7	108,000	0.8*	NA	NA	675,000	16.2	1,035,000	37.6
1993	1,730,000	8.2	212,000	1.5	NA	NA	684,000	16.0	834,000	29.8
1994	1,918,000	8.9	104,000	0.7*	NA	NA	464,000	10.7	1,350,000	48.7
1995	1,748,000	8.0	110,000	0.8*	NA	NA	643,000	14.5	995,000	35.4
1996	1,685,000	7.7	58,000	0.4*	NA	NA	623,000	13.6	1,004,000	35.2
1997 <sup>(1,2)</sup>	2,918,108	17.9	NA	NA	237,027	2.7	1,090,690	23.4	1,590,391	55.5
1998	2,709,559	16.6	NA	NA	237,971	2.7	967,893	20.1	1,503,697	52.7
1999	2,619,122	15.9	NA	NA	197,279	2.3	878,758	17.8	1,543,085	53.8
2000	2,863,081	17.4	NA	NA	223,389	2.6	1,037,890	20.5	1,601,802	55.4
2001	2,732,272	16.5	NA	NA	163,230	1.9	1,009,097	19.3	1,559,945	53.9
2002	2,863,277	17.1	NA	NA	254,282	3.0	1,188,007	22.0	1,420,988	48.9
2003	2,874,772	16.1	NA	NA	131,094	1.5	1,160,204	19.9	1,583,474	51.9
2004	3,231,333	18.0	NA	NA	263,568	2.9	1,206,949	20.3	1,760,816	57.1
2005	3,538,799	19.5	NA	NA	283,315	3.2	1,344,651	22.0	1,910,833	61.7
2006	3,725,628	20.6	NA	NA	221,805	2.5	1,635,668	26.3	1,868,155	60.1
2007	3,379,023	18.5	NA	NA	183,595	2.1	1,569,456	24.9	1,625,972	51.5
2008	3,471,660	18.9	NA	NA	197,042	2.3	1,395,565	21.7	1,879,053	58.1
2009	4,419,917	23.8	NA	NA	298,181	3.4	1,867,249	28.5	2,254,487	68.6
Year	Black									
	All Ages		Under 45		18-44		45-64		65+	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1983	130,000	4.8	32,000	1.5*	NA	NA	60,000	14.2*	38,000	17.8*
1984	124,000	4.5	--	--*	NA	NA	49,000	11.5*	75,000	34.4*
1985	115,000	4.1	9,000	0.4*	NA	NA	50,000	11.3*	56,000	24.8*
1986	128,000	4.5	--	--*	NA	NA	48,000	10.7*	80,000	34.8*
1987	58,000	2.0	7,000	0.3*	NA	NA	29,000	6.4*	22,000	9.4*
1988	125,000	4.3	11,000	0.5*	NA	NA	60,000	12.9*	54,000	22.5*
1989	97,000	3.3	4,000	0.2*	NA	NA	52,000	11.0*	41,000	16.7*
1990	121,000	4.0	--	--*	NA	NA	17,000	3.6*	104,000	41.5*
1991	81,000	2.6	--	--*	NA	NA	57,000	11.7*	24,000	9.4*
1992	78,000	2.5	14,000	0.6*	NA	NA	33,000	6.6*	31,000	11.8*
1993	180,000	5.6	12,000	0.5*	NA	NA	70,000	13.6*	98,000	36.7*
1994	60,000	1.8	--	--*	NA	NA	22,000	4.3*	38,000	15.1*
1995	86,000	2.6	17,000	0.7*	NA	NA	14,000	2.7*	55,000	21.7*
1996	105,000	3.2	--	--*	NA	NA	79,000	14.6*	26,000	10.0*
1997 <sup>(1,2)</sup>	220,753	10.0	NA	NA	44,651	3.2*	86,144	15.4*	89,958	34.2*
1998	194,432	8.7	NA	NA	31,103	2.2*	68,064	11.8*	95,265	35.8*
1999	117,378	5.2	NA	NA	24,796	1.8*	35,889	6.0	56,693	21.4*
2000	212,267	9.2	NA	NA	30,795	2.2*	68,135	10.8*	113,337	42.1*
2001	164,628	7.0	NA	NA	9,682	0.7*	74,530	11.4*	80,416	29.7*
2002	197,404	8.3	NA	NA	27,642	1.9*	38,261	5.6*	131,501	47.8*
2003	196,768	8.0	NA	NA	14,699	1.0*	81,462	11.0*	100,607	35.3*
2004	241,016	9.6	NA	NA	32,789	2.3	121,612	15.9	86,615	30.1
2005	192,838	7.6	NA	NA	32,620	2.2	59,376	7.5	100,842	34.0
2006	192,718	7.2	NA	NA	52,742	3.4	69,881	8.5	70,095	21.8
2007	228,915	8.5	NA	NA	11,540	0.8	131,018	15.3	86,357	27.6
2008	217,265	8.0	NA	NA	25,078	1.6	123,770	14.1	68,417	21.3
2009	366,352	13.0	NA	NA	65,452	4.2	131,106	14.3	169,794	50.6

Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 1999-2009. Analysis by the American Lung Association Research and Program Services Division using SPSS and SUDAAN software.

Notes:

(1) In 1997, the National Health Interview Survey completely redesigned their questionnaire. Therefore, estimates prior to 1997 cannot be compared with later estimates.

(2) The revised questionnaire now asks respondents about emphysema diagnosis over their lifetime. Therefore, overall estimates will be higher.

\* Estimate for which the numerator has a relative standard error of more than 30%.

-- No cases in sample.

NA - Not Available

**Table 9: Emphysema - Number of Conditions and Prevalence Rate per 1,000 Population by Sex, 1983-1996, 1997-2009**

Year	Male		Female	
	Number	Rate	Number	Rate
1983	1,462,000	13.2	576,000	4.9
1984	1,484,000	13.3	700,000	5.8
1985	1,448,000	12.8	627,000	5.2
1986	1,201,000	10.5	797,000	6.5
1987	1,264,000	10.9	772,000	6.3
1988	1,308,000	11.2	597,000	4.8
1989	1,244,000	10.5	749,000	6.0
1990	1,275,000	10.7	743,000	5.9
1991	1,058,000	8.8	588,000	4.6
1992	1,160,000	9.5	754,000	5.8
1993	1,061,000	8.6	870,000	6.7
1994	1,232,000	9.7	796,000	6.0
1995	1,037,000	8.1	833,000	6.2
1996	956,000	7.4	866,000	6.4
1997 <sup>(1,2)</sup>	1,890,807	20.2	1,326,930	13.1
1998	1,693,146	17.9	1,266,370	12.3
1999	1,637,536	17.1	1,161,367	11.2
2000	1,690,500	17.5	1,434,199	13.7
2001	1,678,868	17.2	1,304,730	12.3
2002	1,821,630	18.4	1,309,780	12.2
2003	1,701,065	16.6	1,413,601	12.8
2004	1,871,241	18.1	1,704,443	15.3
2005	2,060,742	19.6	1,730,264	15.3
2006	2,481,386	23.4	1,587,281	13.9
2007	2,017,689	18.7	1,718,311	14.9
2008	1,769,048	16.3	2,020,176	17.3
2009	2,578,428	23.5	2,316,818	19.7

**Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 1999-2009. Analysis by the American Lung Association Research and Program Services Division using SPSS and SUDAAN software.**

Notes:

(1) In 1997, the National Health Interview Survey completely redesigned their questionnaire. Therefore, estimates prior to 1997 cannot be compared with later estimates.

(2) The revised questionnaire now asks respondents about emphysema diagnosis over their lifetime. Therefore, overall estimates will be higher.

**Table 10: Chronic Bronchitis and Emphysema - Number of Conditions, Prevalence Rate Per 1,000 Population and 95% Confidence Interval by Race and Ethnic Origin, 1999-2009**

Year		Chronic Bronchitis <sup>(1)</sup>					Emphysema <sup>(2)</sup>				
		Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Others	Total	Hispanic	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Others	Total
1999	<i>Number</i>	531,322	7,272,319	805,128	238,877	8,847,646	89,451	2,539,202	117,378	52,932	2,798,963
	<i>Rate</i>	25.9	48.8	35.8	31.2	44.3	4.4	17.0	5.2	6.9	14.0
	<i>CI of Rate</i>	(20.3-31.5)	(45.5-52.1)	(29.7-42.0)	(19.4-43.0)	(41.6-47.1)	(2.3-6.5)	(15.0-19.1)	(2.9-7.5)	(1.3-12.5)	(12.4-15.6)
2000	<i>Number</i>	566,394	7,680,117	922,045	186,426	9,354,982	90,873	2,792,954	208,025	32,847	3,124,699
	<i>Rate</i>	26.7	51.4	40.4	22.4	46.4	4.3	18.7	9.1	4	15.5
	<i>CI of Rate</i>	(21.6-31.7)	(48.2-54.6)	(34-46.8)	(14-30.9)	(43.8-48.9)	(2.5-6.0)	(16.8-20.6)	(6.6-11.6)	(-0.7-8.6)	(14.0-16.9)
2001	<i>Number</i>	679,957	9,066,921	1,193,632	258,092	11,198,602	130,698	2,632,331	164,628	55,941	2,983,598
	<i>Rate</i>	31.0	60.5	51.6	29.0	54.9	6.0	17.6	7.1	6.3	14.6
	<i>CI of Rate</i>	(25.7-36.2)	(56.9-64.1)	(44.5-58.7)	(18.7-39.3)	(52.0-57.8)	(3.0-8.9)	(15.7-19.4)	(4.6-9.7)	(1.6-11.0)	(13.2-16.1)
2002	<i>Number</i>	629,579	7,177,946	1,081,002	225,054	9,113,581	79,170	2,809,643	197,404	45,193	3,131,410
	<i>Rate</i>	27.7	47.7	46.1	24.7	44.3	3.5	18.7	8.4	5.0	15.2
	<i>CI of Rate</i>	(22.7-32.8)	(44.3-51.0)	(38.1-54.1)	(13.9-35.5)	(41.4-47.1)	(2.3-4.6)	(16.7-20.6)	(5.5-11.4)	(1.0-8.9)	(13.7-16.7)
2003	<i>Number</i>	603,595	6,847,649	924,572	184,526	8,560,342	79,846	2,798,537	193,157	43,126	3,114,666
	<i>Rate</i>	23.0	44.5	38.6	20.6	40.2	3.0	18.2	8.1	4.8	14.6
	<i>CI of Rate</i>	(18.1-27.8)	(41.3-47.7)	(31.8-45.5)	(11.9-29.3)	(37.6-42.8)	(1.6-4.4)	(16.0-20.4)	(4.7-11.4)	(0.8-8.8)	(13.0-16.3)
2004	<i>Number</i>	603,595	7,302,106	899,836	184,526	9,047,481	155,311	3,086,086	238,734	95,553	3,575,481
	<i>Rate</i>	25.0	47.3	37.1	18.1	42.0	5.8	20.0	9.8	9.8	16.6
	<i>CI of Rate</i>	(20.5-29.4)	(44.0-50.6)	(30.5-43.6)	(10.3-25.8)	(39.4-44.7)	(3.1-8.5)	(17.8-22.2)	(7.0-12.6)	(4.1-15.5)	(14.9-18.3)
2005	<i>Number</i>	665,786	6,953,547	1,074,702	218,340	8,912,375	131,787	3,412,355	192,838	54,026	3,791,006
	<i>Rate</i>	24.0	44.8	43.6	21.9	40.9	4.7	22.0	7.8	5.4	17.4
	<i>CI of Rate</i>	(20.0-28.0)	(41.3-48.2)	(36.3-50.8)	(12.6-31.2)	(38.2-43.6)	(2.5-7.0)	(19.7-24.2)	(5.3-10.4)	(1.6-9.3)	(15.7-19.1)
2006	<i>Number</i>	644,069	7,315,058	1,145,153	358,802	9,463,082	112,100	3,619,091	190,398	147,078	4,068,667
	<i>Rate</i>	22.5	47.4	44.6	30.6	43.0	3.9	23.5	7.4	12.5	18.5
	<i>CI of Rate</i>	(16.8-28.1)	(43.4-51.5)	(37.6-51.6)	(19.2-42.0)	(39.7-46.2)	(1.9-5.9)	(20.8-26.1)	(3.8-11.0)	(5.5-19.6)	(16.5-20.5)
2007	<i>Number</i>	503,049	6,008,449	843,346	249,254	7,604,098	261,818	3,131,359	217,083	125,740	3,736,000
	<i>Rate</i>	16.8	38.8	32.3	20.1	34.1	8.8	20.2	8.3	10.1	16.7
	<i>CI of Rate</i>	(12.1-21.6)	(35.2-42.4)	(25.8-38.8)	(11.9-28.2)	(31.3-36.8)	(5.7-11.8)	(17.6-22.9)	(4.3-12.3)	(4.9-15.3)	(14.7-18.7)
2008	<i>Number</i>	630,651	7,905,680	1,023,702	272,056	9,832,089	191,484	3,286,507	214,072	97,161	3,789,224
	<i>Rate</i>	20.6	50.8	38.6	21.9	43.7	6.3	21.1	8.1	7.8	16.8
	<i>CI of Rate</i>	(15.1-26.1)	(46.5-55.0)	(31.5-45.7)	(12.3-30.8)	(40.3-47.0)	(3.0-9.7)	(18.1-24.1)	(5.1-11.0)	(2.5-12.6)	(14.6-19.0)
2009	<i>Number</i>	819,628	7,723,276	1,073,307	291,369	9,907,580	199,618	4,232,303	357,281	106,044	4,895,246
	<i>Rate</i>	26.2	49.4	39.8	23.1	43.6	6.4	27.0	13.3	8.4	21.5
	<i>CI of Rate</i>	(19.7-32.7)	(45.3-53.4)	(31.8-47.9)	(14.3-31.9)	(40.5-46.7)	(4.3-8.5)	(23.9-30.1)	(9.3-17.2)	(2.9-13.9)	(19.2-23.8)

Source: Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 1999-2009. Analysis by the American Lung Association Research and Program Services Division using SPSS and SUDAAN software.

Notes:

(1) Chronic Bronchitis prevalence was defined as answering "yes" to "Have you been told by a doctor or other health professional that you had chronic bronchitis in the past 12 months?"

(2) Emphysema prevalence was defined as answering yes to "Have you EVER been told by a doctor or other health professional that you had emphysema?"

**Table 11: COPD - Number of First-Listed Hospital Discharges and Rate per 10,000 Population by Age, 1979-2006 <sup>(1)</sup>**

Year	<15		15-44		45-64		65+		Total <sup>(4,5)</sup>	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1979	53,000	10.5	40,000	4.0	172,000	39.5	255,000	109.1	520,000	24.1
1980	46,000	9.0	40,000	3.8	186,000	42.1	266,000	103.7	539,000	24.0
1981	56,000	10.9	40,000	3.8	189,000	42.5	335,000	127.6	617,000	27.1
1982	28,000	5.5	40,000	3.7	205,000	46.1	332,000	123.9	605,000	26.3
1983	51,000	9.8	32,000	2.9	185,000	41.5	358,000	130.6	625,000	26.9
1984	28,000	5.4	33,000	3.0	159,000	35.5	299,000	106.7	520,000	22.2
1985	29,000	5.5	15,000	1.3	154,000	34.4	285,000	99.8	489,000	20.6
1986	24,000	4.6	17,000	1.5	116,000	25.7	266,000	91.0	416,000	17.4
1987	21,000	4.0	15,000	1.3	105,000	23.3	205,000	68.7	341,000	14.1
1988 <sup>(2)</sup>	12,000	2.3	6,000	0.5	71,000	15.5	129,000	42.2	237,000	9.7
1989	11,000	2.0	8,000	0.7	67,000	14.4	132,000	42.6	234,000	9.5
1990	13,000	2.4	5,000	0.4	70,000	14.7	156,000	49.1	259,000	10.4
1991	10,000	1.8	12,000	1.0	86,000	18.4	173,000	54.5	296,000	11.9
1992 <sup>(3)</sup>	9,000	1.6	7,000	0.6	111,000	23.0	277,000	85.8	428,000	16.9
1993	7,000	1.2	16,000	1.4	130,000	26.2	337,000	102.8	506,000	19.7
1994	6,000	1.0	11,000	0.9	140,000	27.5	378,000	114.0	552,000	21.3
1995	*	*	17,000	1.4	149,000	28.6	371,000	110.6	553,000	21.2
1996	6,000	1.0	21,000	1.8	160,000	29.8	386,000	114.0	573,000	21.7
1997	*	*	24,000	2.0	170,000	30.7	418,000	122.2	635,000	23.5
1998	*	*	27,174	2.2	181,614	31.8	454,633	133.3	668,362	24.5
1999	*	*	28,000	2.3	193,000	32.7	479,000	139.9	713,000	25.9
2000	*	*	18,000	1.5	188,000	30.8	432,000	125.3	661,000	23.8
2001	*	*	21,935	1.8	176,824	27.4	458,242	129.8	662,637	23.4
2002	*	*	30,668	2.5	200,212	30.0	440,185	123.6	675,878	23.5
2003	*	*	29,000	2.3	199,000	29.0	457,000	127.3	694,000	24.0
2004	*	*	21,000	1.7	193,000	27.3	415,000	114.2	638,000	21.8
2005	*	*	22,000	1.8	229,000	31.4	467,000	126.9	721,000	24.4
2006	*	*	25,000	2.0	207,000	27.7	433,000	116.4	672,000	22.5

**Source: National Center for Health Statistics. National Hospital Discharge Survey, 1979-2006, and unpublished data provided upon special request.**

Notes:

\* Figure does not meet standard of reliability or precision.

(1) This table refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.

(2) Data from 1988-2006 may not be comparable to earlier years due to a redesign of the survey.

(3) In 1992, obstructive chronic bronchitis (ICD code 491.21) was introduced. Many discharges previously coded as acute bronchitis (ICD code 466) were attributed to this new code in 1992. Therefore, the large increase in the hospital discharge rate may be due to a change in the ICD code for chronic bronchitis.

(4) These are sample estimates and may differ from figures that would be obtained from a census of the population. Each data point reported is subject to sampling variability.

(5) Due to rounding, numbers across may not add to the total number of hospital discharges.

**Table 12: COPD - Number of First-Listed Hospital Discharges and Rate per 10,000 Population by Race, 1988-2006 <sup>(1)</sup>**

Year	White		Black		All Other Races <sup>(2)</sup>		Not Reported <sup>(3)</sup>	Total <sup>(4)</sup>	
	Number	Rate	Number	Rate	Number	Rate	Number	Number	Rate
1988	187,000	9.1	22,000	7.6	8,000*	9.8	19,000	237,000	9.7
1989	188,000	9.1	22,000	7.4	--	--	23,000	234,000	9.5
1990	202,000	9.7	20,000	6.5	--	--	34,000	259,000	10.4
1991	233,000	11.1	18,000	5.9	--	--	42,000	298,000	11.9
1992 <sup>(5)</sup>	321,000	15.1	28,000	8.9	6,000*	6.0	74,000	428,000	16.9
1993	367,000	17.2	37,000	11.7	8,000*	7.4	94,000	506,000	19.7
1994	405,000	18.8	55,000	16.9	11,000	9.7	82,000	552,000	21.3
1996	418,000	19.1	52,000	15.5	14,000	11.5	108,000	592,000	22.4
1997	463,000	23.2	48,000	13.1	12,000	7.9	112,000	635,000	23.5
1998	479,788	21.4	55,808	15.7	19,645	15.0	113,121	668,362	24.5
1999	507,108	22.2	47,943	12.6	7,418	5.5	132,979	713,000	25.9
2000	447,527	19.7	49,434	13.9	11,737	6.6	152,302	661,000	23.8
2001	465,641	20.3	54,642	15.2	9,677	5.3	132,677	662,637	23.4
2002	471,118	20.3	54,684	15.0	13,278	7.0	136,696	675,878	23.5
2003	474,000	20.3	51,000	13.8	14,000	7.3	155,000	694,000	24.0
2004	437,000	18.6	46,000	12.4	14,000	7.1	140,000	638,000	21.8
2005	511,000	21.6	51,000	13.5	14,000	6.7	145,000	721,000	24.4
2006	463,000	19.4	57,000	15.0	--	--	142,000	672,000	22.5

**Source: National Center for Health Statistics. National Hospital Discharge Survey, 1979-2006, and unpublished data provided upon special request.**

Notes:

-- Estimates of less than 5,000 are considered unreliable.

\* Estimates of 5,000-10,000 to be used with caution.

(1) This table refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.

(2) All races other than Black and White.

(3) Between 1988 and 2006, the number of discharges not reporting race increased dramatically. It appears that hospital discharges in Whites might be disproportionately underestimated, particularly in later years. For this reason, comparisons between races should be made with caution.

(4) Due to rounding, numbers across may not add to the total number of hospital discharges.

(5) In 1992, obstructive chronic bronchitis (ICD code 491.21) was introduced. Many discharges previously coded as acute bronchitis (ICD code 466) were attributed to this new code in 1992. Therefore, the large increase in the hospital discharge rate may be due to a change in the ICD code for chronic bronchitis.

**Table 13: COPD - Number of First-Listed Hospital Discharges and Rate per 10,000 Population by Sex, 1988-2006 <sup>(1)</sup>**

Year	Male		Female		Total <sup>(2)</sup>	
	Number	Rate	Number	Rate	Number	Rate
1988	114,000	9.6	115,000	9.1	237,000	9.7
1989	118,000	9.9	110,000	8.7	234,000	9.5
1990	134,000	11.1	114,000	8.9	259,000	10.4
1991	152,000	12.5	141,000	10.9	298,000	11.9
1992 <sup>(3)</sup>	210,000	17.1	211,000	16.2	428,000	16.9
1993	239,000	19.2	265,000	20.1	506,000	19.7
1994	257,000	20.4	290,000	21.8	552,000	21.3
1995	248,000	19.5	305,000	22.7	553,000	21.2
1996 <sup>(4)</sup>	265,000	20.6	318,000	23.5	583,000	22.1
1997 <sup>(4)</sup>	272,000	20.8	355,000	25.9	635,000	23.5
1998 <sup>(4)</sup>	297,902	22.3	370,460	26.5	668,362	24.5
1999 <sup>(4)</sup>	303,000	22.5	404,000	28.7	713,000	25.9
2000	300,000	22.1	357,000	25.1	661,000	23.8
2001	293,520	21.1	369,117	25.5	662,637	23.4
2002	296,220	21.1	379,658	25.9	675,878	23.5
2003	315,000	22.2	378,000	25.6	694,000	24.0
2004	296,000	20.6	342,000	22.9	638,000	21.8
2005	328,000	22.6	393,000	26.1	721,000	24.4
2006	318,000	21.7	354,000	23.3	672,000	22.5

**Source: National Center for Health Statistics. National Hospital Discharge Survey, 1979-2006, and unpublished data provided upon special request.**

Notes:

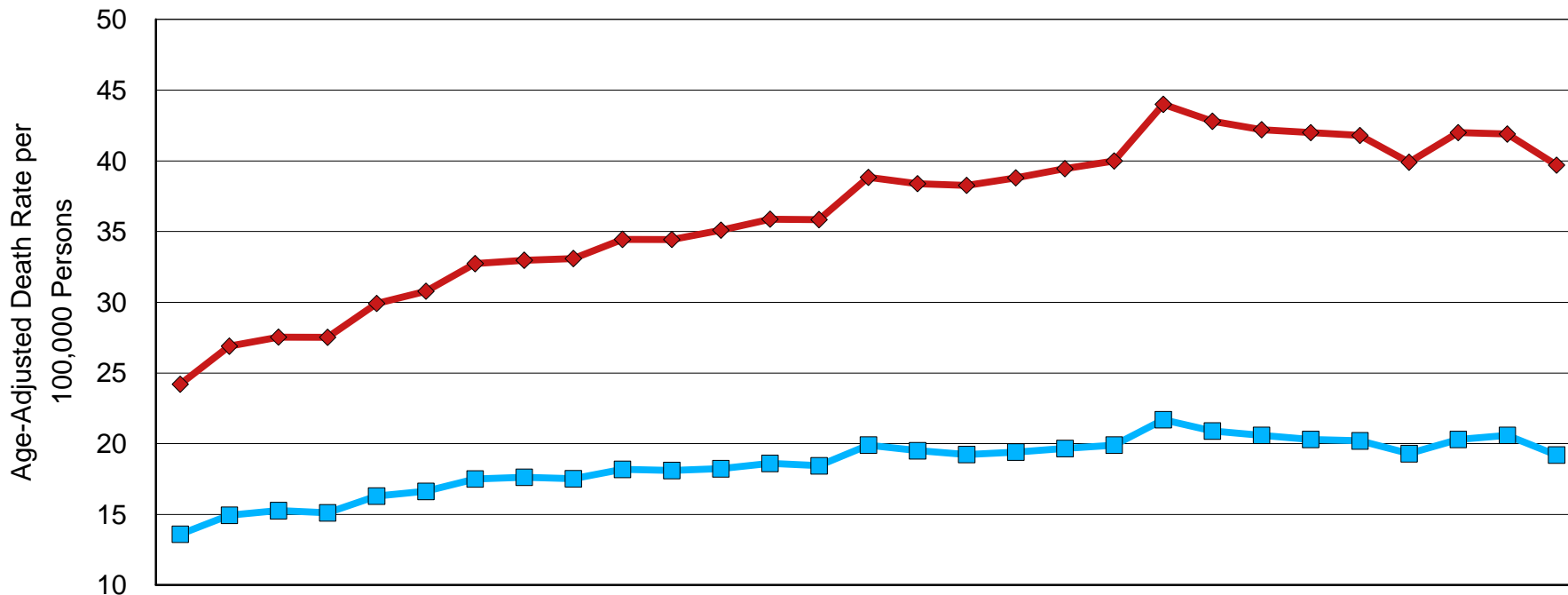
(1) (1) This table refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.

(2) Due to rounding, numbers across may not add to the total number of hospital discharges.

(3) In 1992, obstructive chronic bronchitis (ICD code 491.21) was introduced. Many discharges previously coded as acute bronchitis (ICD code 466) were attributed to this new code in 1992. Therefore, the large increase in the hospital discharge rate may be due to a change in the ICD code for chronic bronchitis.

(4) No estimate available for ICD-9 code 495.

**Figure 1: COPD - Age-Adjusted Death Rates Based on the 1940 and 2000 Standard Populations, 1979-2007 <sup>(1)</sup>**



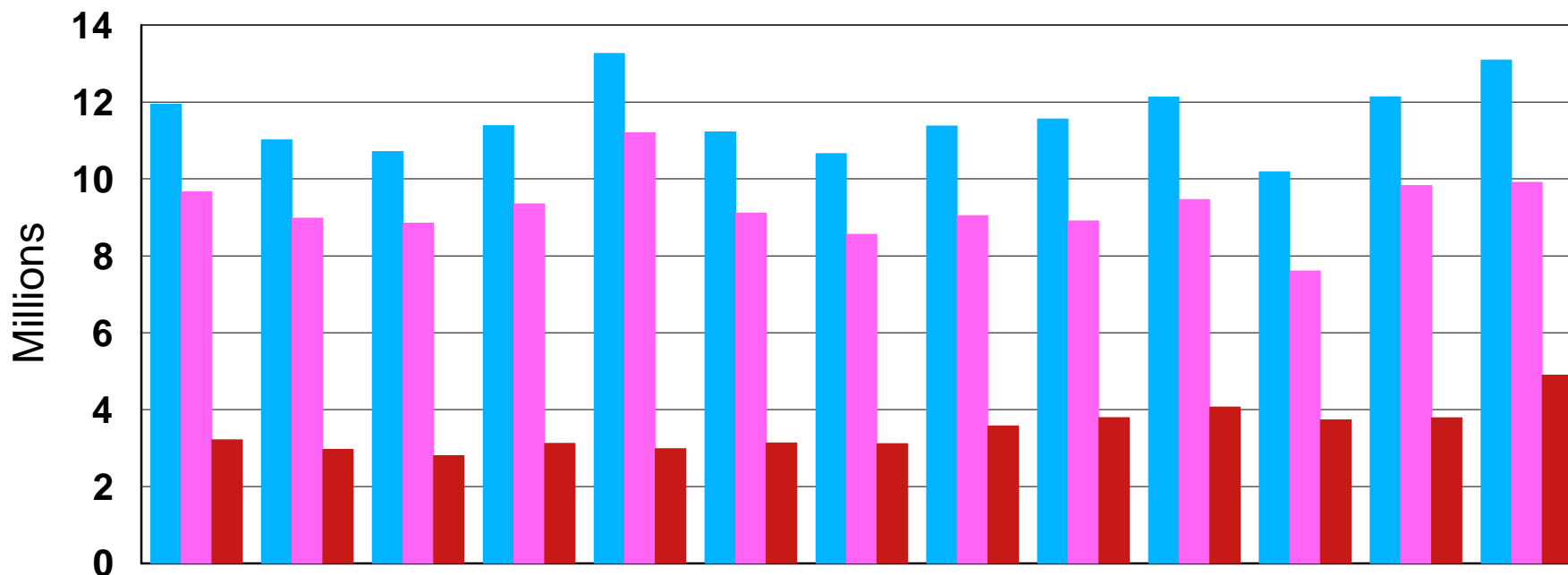
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
■ 1940	13.6	14.9	15.3	15.1	16.3	16.6	17.5	17.6	17.5	18.2	18.1	18.2	18.6	18.4	19.9	19.5	19.2	19.4	19.7	19.9	21.7	20.9	20.6	20.3	20.2	19.3	20.3	20.6	19.2
◆ 2000	24.2	26.9	27.5	27.5	29.9	30.8	32.7	33.0	33.1	34.4	34.4	35.1	35.9	35.8	38.8	38.4	38.3	38.8	39.4	40.0	44.0	42.8	42.2	42.0	41.8	39.9	42.0	41.9	39.7

Source: Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National Vital Statistics Reports Vol. 47 No. 3 and CDC Wonder On-line Database, compiled from Compressed Mortality File 1999-2007 Series 20 No. 2L, 2009. Accessed on April 22, 2011.

Notes:

1) 1979-1998 rates reflect the International Classification of Diseases, 9th Revision (ICD9) Code 490-492, 494-496. 1999-2007 rates reflect the International Classification of Diseases, 10th Revision (ICD10) Codes J40-J44, J47.

## Figure 2: COPD - Number of Conditions in Adults, Aged 18 Years and Older, 1997-2009



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
■ COPD	11,944,469	11,016,953	10,710,142	11,388,478	13,266,334	11,226,294	10,659,800	11,376,779	11,561,956	12,124,713	10,189,084	12,136,873	13,090,395
■ Chronic Bronchitis	9,667,981	8,977,160	8,847,646	9,354,982	11,198,602	9,113,581	8,560,342	9,047,481	8,912,375	9,463,082	7,604,098	9,827,555	9,907,580
■ Emphysema	3,217,737	2,959,516	2,798,963	3,124,699	2,983,598	3,131,410	3,114,666	3,575,684	3,791,006	4,068,667	3,736,000	3,787,948	4,895,246

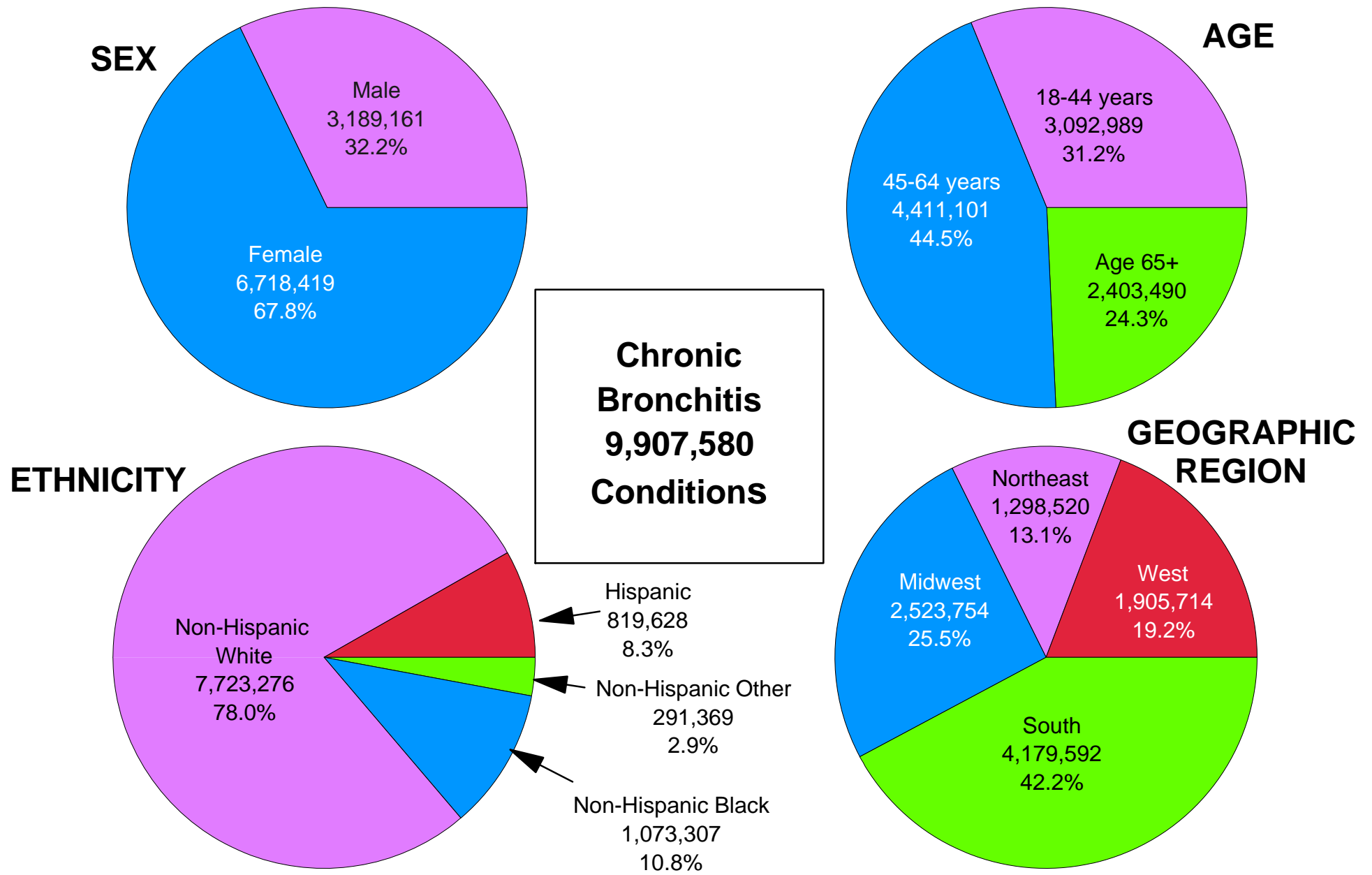
Source: National Center for Health Statistics. National Health Interview Survey, 1997-2009

Notes:

(1) COPD totals take into account the overlap of persons with both diseases. Therefore, COPD totals will be lower than the sum of chronic bronchitis and emphysema estimates.

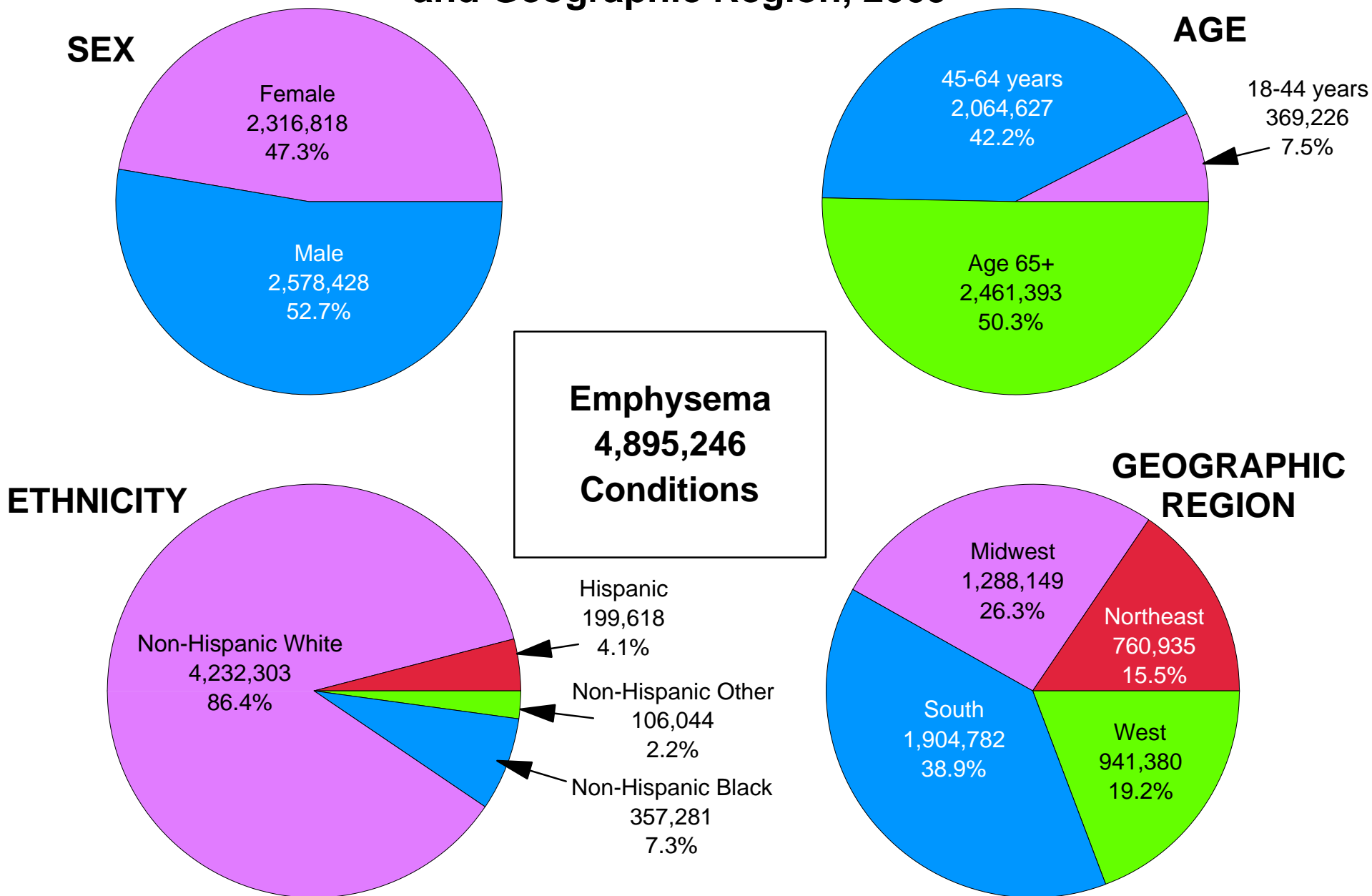
(2) Chronic bronchitis estimates indicate point (current) prevalence and emphysema estimates represent period (lifetime) prevalence.

**Figure 3: Chronic Bronchitis - Percentage Distribution By Sex, Age, Ethnicity and Geographic Region, 2009**



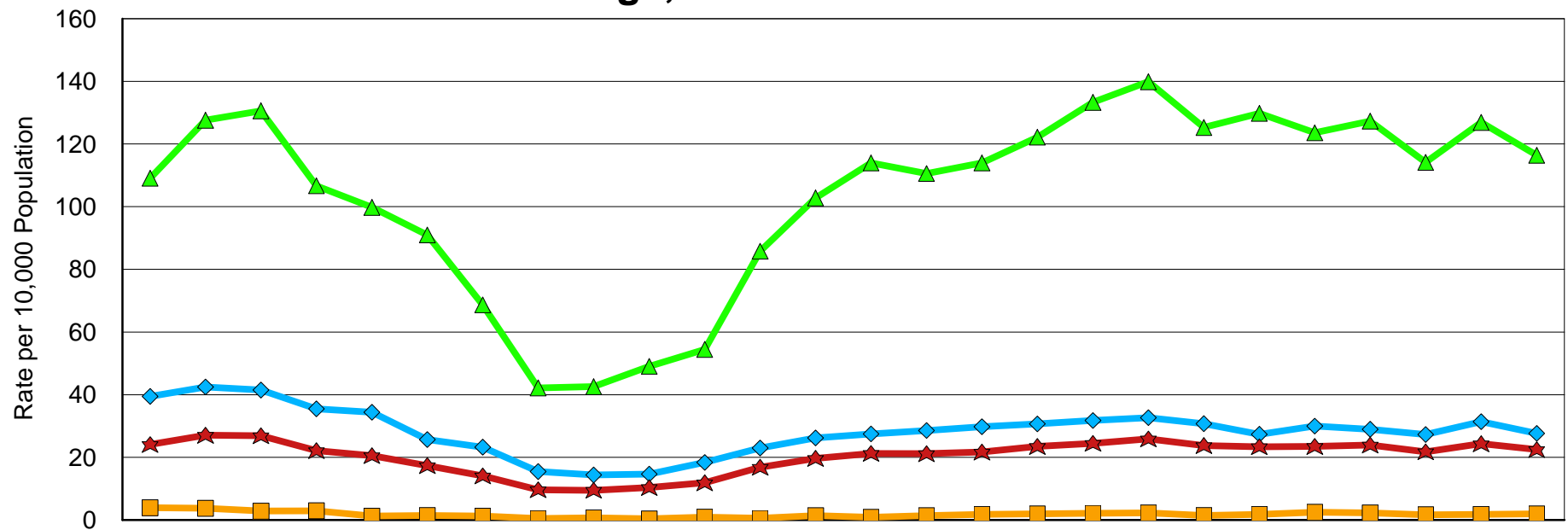
Source: National Center for Health Statistics. National Health Interview Survey, 2009

**Figure 4: Emphysema - Percentage Distribution By Sex, Age, Ethnicity and Geographic Region, 2009**



Source: National Center for Health Statistics. National Health Interview Survey, 2009

**Figure 5: COPD - First-Listed Hospital Discharge Rates per 10,000 Population by Age, 1979-2006** <sup>(1,2,3,4)</sup>



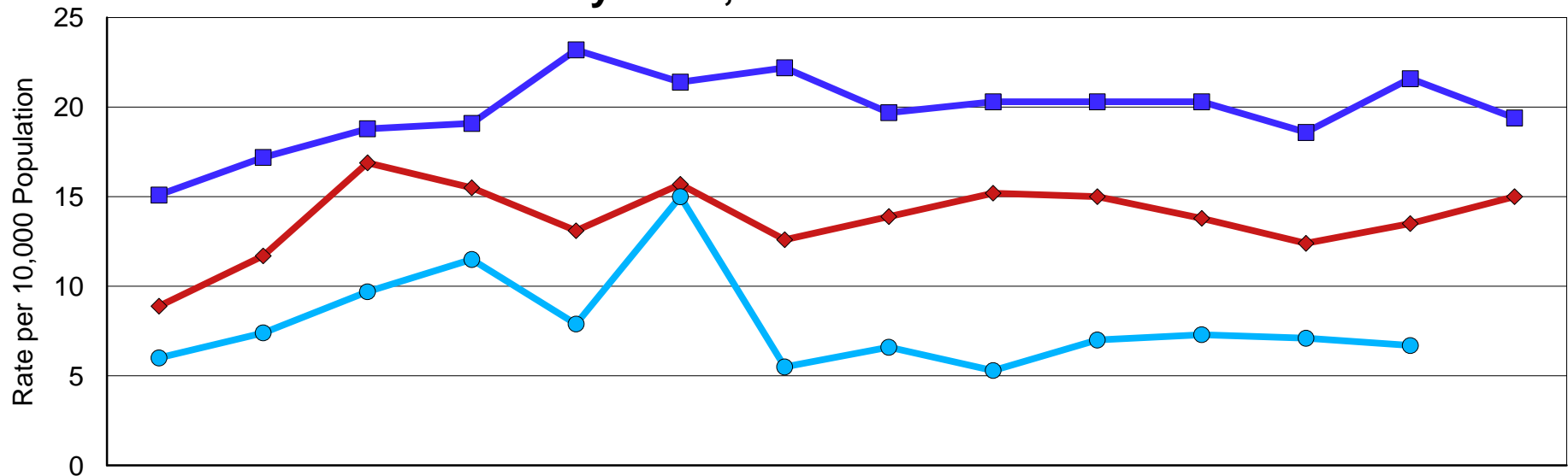
	1979	1981	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
■ 15-44	4.0	3.8	2.9	3.0	1.3	1.5	1.3	0.5	0.7	0.4	1.0	0.6	1.4	0.9	1.4	1.8	2.0	2.2	2.3	1.5	1.8	2.5	2.3	1.7	1.8	2.0
◆ 45-64	39.5	42.5	41.5	35.5	34.4	25.7	23.3	15.5	14.4	14.7	18.4	23.0	26.2	27.5	28.6	29.8	30.7	31.8	32.7	30.8	27.4	30.0	29.0	27.3	31.4	27.7
▲ 65+	109.1	127.6	130.6	106.7	99.8	91.0	68.7	42.2	42.6	49.1	54.5	85.8	102.8	114.0	110.6	114.0	122.2	133.3	139.9	125.3	129.8	123.6	127.3	114.2	126.9	116.4
★ Total	24.1	27.1	26.9	22.2	20.6	17.4	14.1	9.7	9.5	10.4	11.9	16.9	19.7	21.3	21.2	21.7	23.5	24.5	25.9	23.8	23.4	23.5	24.0	21.8	24.4	22.5

Source: National Center for Health Statistics. National Hospital Discharge Survey, 1979-2006, and unpublished data provided upon special request.

Notes:

- (1) This figure refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.
- (2) Differences may exist between data for before and after 1988 due to the redesign of the survey in 1988.
- (3) The large increase in the hospital discharge rate seen in 1992 may be due to a change in the ICD Code for chronic bronchitis. A new classification, obstructive chronic bronchitis with acute exacerbations (ICD Code 491.21) was introduced at this time. Many discharges previously coded as acute bronchitis (ICD Code 466) were attributed to this new code in 1992.
- (4) Because these estimates are based on a sample, they may differ from figures that would be obtained from a census of the population. Each data point reported is an estimate of the true population value and subject to sampling variability.

**Figure 6: COPD - First-Listed Hospital Discharge Rates per 10,000 Population by Race, 1992-2006 <sup>(1,2)</sup>**



	1992	1993	1994	1996 <sup>(4)</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
■ White <sup>(3)</sup>	15.1	17.2	18.8	19.1	23.2	21.4	22.2	19.7	20.3	20.3	20.3	18.6	21.6	19.4
◆ Black	8.9	11.7	16.9	15.5	13.1	15.7	12.6	13.9	15.2	15.0	13.8	12.4	13.5	15.0
● Other <sup>(5)</sup>	6.0	7.4	9.7	11.5	7.9	15.0	5.5	6.6	5.3	7.0	7.3	7.1	6.7	*

Source: National Center For Health Statistics. National Hospital Discharge Survey, 1988-2006, and unpublished data provided upon special request.

Notes:

\* Figure for this age group does not meet standard for reliability or precision and, therefore, is not reported

(1) This figure refers exclusively to data on chronic bronchitis, emphysema and other lower chronic obstructive pulmonary diseases including bronchiectasis. Data on asthma are not included.

(2) Because these estimates are based on a sample, they may differ from figures that would be obtained from a census of the population. Each data point reported is an estimate of the true population value and subject to sampling variability.

(3) Between 1992 and 2006, the number of hospital discharges not reporting race increased dramatically. It appears that hospital discharges in Whites might be disproportionately underestimated, particularly in later years. For this reason, comparison between races should be made with caution.

(4) Data for 1995 is not available.

(5) Includes races other than White and Black.