

4. Disease Statistics

Cardiovascular, lung, and blood diseases constitute a large morbidity, mortality, and economic burden on individuals, families, and the Nation. Common forms are atherosclerosis, hypertension, COPD, and blood-clotting disorders—embolisms and thromboses. The most serious atherosclerotic diseases are CHD, as manifested by heart attack and angina pectoris, and cerebrovascular disease, as manifested by stroke.

In 2002, cardiovascular, lung, and blood diseases accounted for 1,162,000 deaths and 48 percent of all deaths in the United States (p. 37). The projected economic cost in 2005 for these diseases is expected to be \$545 billion, 23 percent of the total economic costs of illness, injuries, and death (p. 53). Of all diseases, heart disease is the leading cause of death, cerebrovascular disease is third (behind cancer), and COPD (including asthma) ranks fourth (p. 40). Cardiovascular and lung diseases account for 3 of the 4 leading causes of death (p. 40) and 5 of the 10 leading causes of infant death (p. 46). Hypertension, heart disease, asthma, and chronic bronchitis are especially prevalent and account for substantial morbidity in Americans (p. 49). Increases in prevalence have been greatest for asthma and CHF.

The purpose of the biomedical research conducted by the NHLBI is to contribute to the prevention and treatment of cardiovascular, lung, and blood diseases. National disease statistics show that by mid-century, morbidity and mortality from these diseases had reached record high levels. Since then, however, substantial improvements have been achieved, especially over the past 40 years, as shown by the significant decline in mortality rates. Because many of these diseases begin early in life, their early detection and control can reduce the risk of disability and can delay death. Although important advances have been made in the treatment and control of cardiovascular, lung, and blood diseases, these diseases continue to be a major burden on the Nation.

Cardiovascular Diseases

- In 2002, CVD caused 927,000 deaths—38 percent of all deaths.
- Heart disease is the leading cause of death; the main form, CHD, caused 495,000 deaths in 2002.
- The annual number of deaths from CVD increased substantially between 1900 and 1970 and remains high.
- The death rate (not age-adjusted) for CVD increased from 1920 until it peaked in 1968. Since then, the trend has been downward. In 2002, the rate was similar to the rate in 1930.
- Cerebrovascular disease, the third leading cause of death, accounted for 163,000 deaths in 2002.
- Heart disease is second only to all cancers combined in years of potential life lost.
- Among minority groups, heart disease ranks first, and stroke ranks fifth or higher as the leading causes of death.
- The rapid increase in deaths due to CHF between 1968 and 2002 is a major exception to the mortality decline in CVD.
- Between 1985 and 2002, death rates for heart disease and stroke declined in men and women of all racial/ethnic groups with one exception— the death rate for stroke in American Indian females.

- Because of the rapid decline in mortality from CHD since the peak in 1968, there were 900,000 fewer deaths from CHD in 2002 than would have occurred if there had been no decline.
- Substantial improvements have been made in the treatment of CVD. Since 1975, case-fatality rates from hospitalized acute myocardial infarction (AMI) stroke, cardiac dysrhythmia, and CHF patients declined appreciably.
- The decline in CHD mortality began earlier in the United States than in most countries and outpaced that in most countries (only selected countries are shown).
- Between 1992 and 2002, the percent decline in death rates for CHD was greatest among white males and least among black females.
- In 2002, an estimated 70.1 million persons in the United States had some form of CVD; 65 million had hypertension, and 13 million had CHD.
- Since the 1960s, there has been a substantial reduction in the prevalence of CVD risk factors: hypertension, smoking, and high cholesterol, but not overweight. The decline in prevalence of hypertension ceased in 1990; since then the prevalence has increased.
- Between 1976–80 and 1999–2002, the percent of persons with hypertension that were aware of their condition, on treatment for it, and having their blood pressure under control increased substantially.
- A 1999–2002 national survey showed only about one-third of hypertensive patients (systolic BP > 140 mm Hg or diastolic BP > 90 mm Hg or on antihypertensive medication) had their condition under control.
- Hospitalization rates for CHF increased between 1971 and 2000.
- The estimated economic cost of CVD for 2005 is approximately \$393 billion:
 - \$242 billion in direct health expenditures
 - \$35 billion in indirect cost of morbidity
 - \$117 billion in indirect cost of mortality.

Lung Diseases

- Lung diseases, excluding lung cancer, caused an estimated 239,000 deaths in 2002.
- COPD caused 121,000 deaths in 2002 and is the fourth leading cause of death.
- Between 1992 and 2002, death rates for COPD increased substantially in women and decreased slightly in men; mortality for asthma decreased appreciably.
- Between 1980 and 2002, infant death rates for various lung diseases declined markedly.
- Of the seven leading causes of infant mortality, four are lung diseases or have a lung disease component. Between 1992 and 2002, changes in mortality for the causes were:
 - Congenital anomalies (-17 percent)
 - Disorders of short gestation (-3 percent)
 - Sudden infant death syndrome (-57 percent)
 - Respiratory distress syndrome (-54 percent).
- Lung diseases accounted for 21 percent of all deaths under 1 year of age in 2002.
- The COPD death rate for women in the United States is increasing significantly compared with the rates in several other countries.
- Between 1985 and 2002, death rates for COPD increased for women in all racial/ethnic groups. For men, they increased in blacks, American Indians, and Hispanics, and were essentially flat in whites and Asians.
- Sleep disorders are increasingly being recognized as an important health problem. The number of physician office visits for sleep apnea, insomnia, restless legs syndrome,

narcolepsy, and other major sleep disorders increased from 1,046,927 in 1990 to 6,216,000 in 2001.

- Asthma is a common chronic condition, particularly in children.
- The economic cost of lung diseases is expected to be \$140 billion in 2005—\$81 billion in direct health expenditures and \$59 billion in indirect cost of morbidity and mortality.

Blood Diseases

- An estimated 251,000 deaths, 10 percent of all deaths, were attributed to blood diseases in 2002. These include the following:
 - 241,000 due to blood-clotting disorders
 - 10,000 to diseases of the red blood cell and bleeding disorders.
- A large proportion of deaths from acute MI and cerebrovascular disease involve blood-clotting problems.
- In 2005, blood-clotting disorders are expected to cost the Nation’s economy \$92 billion, and other blood diseases will cost \$12 billion.
- The mean age at death for persons with sickle cell anemia increased from about 28 years in 1979 to 37.7 years in 2001 (not shown).

Deaths From All Causes and Deaths From Cardiovascular, Lung, and Blood Diseases, U.S., 1982 and 2002

Number of Cause of Death	1982		2002	
	Deaths	Percent of Total	Number of Deaths	Percent of Total
All Causes	1,975,000	100	2,443,000	100
All Cardiovascular, Lung, and Blood Diseases	1,121,000	57	1,162,000	48
Cardiovascular Diseases	979,000	50	927,000	38
Blood	335,000*	17	251,000*	10
Lung	147,000**	7	239,000**	10
All Other Causes	854,000	43	1,281,000	52

* Includes 329,000 CVD deaths involving blood clotting disease.

** Includes 246,000 CVD deaths involving blood-clotting disease.

*** Includes 10,000 CVD deaths due to pulmonary heart disease in 1981 and 14,000 in 2001.

Source: Vital Statistics of the United States, National Center for Health Statistics (NCHS).

Deaths by Major Causes, U.S., 2002

Major Causes	Percent
Other	52.4
Blood**	0.4
CVD	37.9
Lung*	9.2

* Excludes deaths from pulmonary heart disease (14,000).

** Excludes deaths from blood-clotting disorders and pulmonary embolism (241,000).

Deaths From Cardiovascular, Lung, and Blood Diseases, U.S., 2002

Disease	Percent
Lung	19.4
Blood	0.9
CVD*	79.8

* CVD involving blood clotting (20.7%).

Deaths From Specific Cardiovascular, Lung, and Blood Diseases, U.S., 2002

Deaths (Thousands)

Cause of Death	Cardiovascular	Lung	Blood
Acute Myocardial Infarction	180		122*
Other Coronary Heart Disease	315		
Congestive Heart Failure	56		
Cerebrovascular Diseases (Stroke)	163		106*
Other Atherosclerosis	39		4*
Pulmonary Embolism	9	9*	9*
Other Cardiovascular Diseases	165	5*	
Bleeding and Red Blood Cell Diseases			10
Chronic Obstructive Pulmonary Disease		121	
Asthma		4	
Other Airway Diseases		1	
Pneumonia		65	
Neonatal Pulmonary Disorders		5	
Interstitial Lung Diseases		5	
Lung Diseases Due to External Agents		18	
Other Lung Diseases		6	
Total	927	239	251

* Deaths from clotting or pulmonary disorders also are included as cardiovascular deaths.

Note: Total, excluding overlap, is 1,162,000.

Source: Estimated by the NHLBI from Vital Statistics of the United States, NCHS.

Deaths From Cardiovascular Diseases, U.S., 2002

Disease	Percent
Stroke	17.6
AMI	19.4
Other CHD	34
CHF	6.0
Other CVD*	17.8
Pulmonary Embolism	1
Other Atherosclerosis	4.2

* Includes cardiac dysrhythmias, hypertensive disease, and other heart and blood vessel diseases.

Deaths From Lung Diseases, U.S., 2002

Disease	Percent
Airway Diseases	52.7
Pulmonary Circulation	5.9
Neonatal	2.1
Pneumonia	27.2
Interstitial/Other	12.1

Deaths From Blood Diseases, U.S. 2002

Disease	Percent
Other Atherosclerosis	1.6
Pulmonary Embolism	3.6
Stroke	42.2
Bleeding and Red Cell Diseases	4.0
AMI	48.6

Source: Estimated by the NHLBI from Vital Statistics of the United States, NCHS.

Deaths From Cardiovascular Diseases, U.S., 1900–2002

Deaths per 100,000 Population

Year	Total CVD	Heart Disease	CHD	Stroke
1900	52.766	27.427		21.353
1910	136.357	75.429		45.461
1920	243.18	137.374		80.019
1930	384.765	251.153		104.345
1940	538.47	385.191		119.753
1950	745.074	537.629	396.055	156.751
1960	923.635	661.712	546.366	193.588
1970	1024.501	735.542	666.665	207.166
1980	993.348	761.085	635.677	170.225
1990	920.245	720.058	558.291	144.088
2000	941.526	710.76	515.203	167.661
	929	710	503	154
	923	697	494	163

Source: Vital Statistics of the United States, NCHS.

Death Rates* for Cardiovascular Diseases, U.S., 1900–2002

Deaths per 100,000 Population

Year	CVD	Heart Disease	CHD	Stroke
1900	264.3	137.4		106.9
1910	287.2	158.9		95.8
1920	282.5	159.6		93
1930	327.8	214.2		89
1940	406.6	292.5		90.9
1950	494.4	356.8	262.8	104
1960	515.1	369	304.7	108
1970	504.2	362	328.1	101.9
1980	438.5	336	280.5	75.1
1990	370	289.5	224.3	57.9
2000	342	258.2	187.2	60.9

* Not age-adjusted.

Source: Vital Statistics of the United States, NCHS.

Ten Leading Causes of Death: Death Rates, U.S., 2002

Cause of Death	Deaths per 100,000 Population	Years of Potential Life Lost (millions)***
1 = Heart*	70.3	3.3
2 = Cancer	193.2	4.3
3 = Cerebrovascular	56.4	0.5
4 = COPD**	43.3	0.5
5 = Accidents	37	2.9
6 = Diabetes	25.4	0.5
7 = Influenza and Pneumonia	22.8	0.2
8 = Alzheimer's Disease	20.4	<0.1
9 = Nephritis	14.2	0.2
10 = Septicemia	11.7	0.2

* Includes 177.4 deaths per 100,000 population from CHD.

** COPD and allied conditions (including asthma); the term in the ICD/10 is “chronic lower respiratory diseases.”

*** Based on the average remaining years of life up to age 75 years.

Source: Vital Statistics of the United States, NCHS (preliminary).

Ten Leading Causes of Death Among Minority Groups, U.S., 2002

Black	
Septicemia	2.1
Nephritis	2.6
COPD	2.7
HIV Infection	2.7
Homicide	2.8
Diabetes	4.3
Accidents	4.4
Stroke	6.5
Cancer	21.6
Heart	27.8
Hispanic	
Perinatal	2
Pneumonia	2.4
COPD	2.6
Cirrhosis	2.7
Homicide	2.9
Diabetes	5.1
Stroke	5.5
Accidents	8.6
Cancer	19.8
Heart	23.9
Asian*	
Homicide	1.1
Nephritis	1.7
Suicide	1.7
Pneumonia	3
COPD	3
Diabetes	3.5
Accidents	4.9
Stroke	9.2
Cancer	26
Heart	26.1
American Indian**	
Nephritis	2.2
Pneumonia	2.4
Suicide	2.6
COPD	3.6

Cirrhosis	4.4
Stroke	4.6
Diabetes	6
Accidents	12
Cancer	17.5
Heart	19.9

* Includes deaths among individuals of Asian extraction and Asian-Pacific Islanders.

** Includes deaths among Aleuts and Eskimos.

Note: Bolded causes of death are those addressed in institute programs

Source: Vital Statistics of the United States, NCHS.

Death Rates* for Cardiovascular and Noncardiovascular Diseases, U.S., 1982 and 2002

Cause of Death	Rate*		Rate Change	Percent Change
	1982	2002		
All Causes	985	845	-140	-14
Cardiovascular Diseases	505	319	-186	-37
Coronary Heart Disease	320	171	-149	-47
Stroke	89**	56	-33	-37
Other	95	92	-3	-8
Noncardiovascular Diseases	480	526	+46	+10

* Age-adjusted; rate per 100,000 population.

** Comparability ratio (1.0588) applied.

Source: Vital Statistics of the United States, NCHS.

Deaths From Congestive Heart Failure, U.S., 1968–2002

Deaths (Thousands)

Year	Amount
1968	10.318
1969	11.007
1970	11.425
1971	12.176
1972	13.47
1973	14.499
1974	14.599
1975	15.048
1976	16.046
1977	16.979
1978	18.374
1979	19.936
1980	21.804
1981	23.297
1982	25.09
1983	27.274
1984	29.429
1985	31.807
1986	34.271
1987	35.387
1988	37.371
1989	34.348
1990	34.156
1991	35.393
1992	36.387
1993	41.819
1994	41.406
1995	43.01
1996	43.837
1997	45.419
1998	46.98
1999	50.824
2000	51.546
2001	52.8
2002	52.42

Note: The sharp drop occurring in 1989 is attributed to the revision of the death certificate.

Source: Vital Statistics of the United States, NCHS.

Death Rates* for Heart Disease by Gender, Race, and Ethnicity, U.S., 1985–2002

Deaths per 100,000 Population

Male

Year	Black	White**	American Indian	Hispanic	Asian
1985	111.40	71.50	50.00	52.20	65.00
1986	109.57	70.48	49.54	51.95	64.41
1987	107.73	69.46	49.08	51.71	63.83
1988	105.90	68.44	48.62	51.46	63.24
1989	104.07	67.42	48.16	51.21	62.65
1990	102.23	66.40	47.70	50.97	62.07
1991	100.40	65.38	47.24	50.72	61.48
1992	98.57	64.36	46.78	50.47	60.89
1993	96.73	63.34	46.32	50.23	60.31
1994	94.90	62.32	45.86	49.98	59.72
1995	93.07	61.30	45.40	49.73	59.13
1996	91.23	60.28	44.94	49.49	58.55
1998	89.40	59.26	44.48	49.24	57.96
1999	87.57	58.24	44.02	48.99	57.37
2000	85.73	57.22	43.56	48.75	56.79
2002	83.90	56.20	43.10	48.50	56.20

Female

Year	Black	White**	American Indian	Hispanic	Asian
1985	93	64.9	40.6	43.8	53.2
1986	91.51334	64.2	40.94666	43.56	52.80667
1987	90.02668	63.5	41.29332	43.32	52.41334
1988	88.54002	62.8	41.63998	43.08	52.02001
1989	87.05336	62.1	41.98664	42.84	51.62668
1990	85.5667	61.4	42.3333	42.6	51.23335
1991	84.08004	60.7	42.67996	42.36	50.84002
1992	82.59338	60	43.02662	42.12	50.44669
1993	81.10672	59.3	43.37328	41.88	50.05336
1994	79.62006	58.6	43.71994	41.64	49.66003
1995	78.1334	57.9	44.0666	41.4	49.2667
1996	76.64674	57.2	44.41326	41.16	48.87337
1998	75.16008	56.5	44.75992	40.92	48.48004
1999	73.67342	55.8	45.10658	40.68	48.08671
2000	72.18676	55.1	45.45324	40.44	47.69338
2002	70.7001	54.4	45.8	40.2	47.3

* Age-adjusted.

** Non-Hispanic.

Note: Each line is a log linear regression derived from the actual rates.

Source: Vital Statistics of the United States, NCHS.

Death Rates* for Stroke by Gender, Race, and Ethnicity, U.S., 1985–2000

Deaths per 100,000 Population

Male

Year	Black	White***	American Indian	Hispanic	Asian
1985	111.40	71.50	50.00	52.20	65.00
	109.57	70.48	49.54	51.95	64.41
	107.73	69.46	49.08	51.71	63.83
	105.90	68.44	48.62	51.46	63.24
	104.07	67.42	48.16	51.21	62.65
1990	102.23	66.40	47.70	50.97	62.07
	100.40	65.38	47.24	50.72	61.48
	98.57	64.36	46.78	50.47	60.89
	96.73	63.34	46.32	50.23	60.31
	94.90	62.32	45.86	49.98	59.72
1995	93.07	61.30	45.40	49.73	59.13
	91.23	60.28	44.94	49.49	58.55
	89.40	59.26	44.48	49.24	57.96
	87.57	58.24	44.02	48.99	57.37
	85.73	57.22	43.56	48.75	56.79
2002	83.90	56.20	43.10	48.50	56.20

Female

Year	Black	White***	American Indian	Hispanic	Asian
1985	93.0	64.9	40.6	43.8	53.2
	91.5	64.2	40.9	43.6	52.8
	90.0	63.5	41.3	43.3	52.4
	88.5	62.8	41.6	43.1	52.0
	87.1	62.1	42.0	42.8	51.6
1990	85.6	61.4	42.3	42.6	51.2
	84.1	60.7	42.7	42.4	50.8
	82.6	60.0	43.0	42.1	50.4
	81.1	59.3	43.4	41.9	50.1
	79.6	58.6	43.7	41.6	49.7
1995	78.1	57.9	44.1	41.4	49.3
	76.6	57.2	44.4	41.2	48.9
	75.2	56.5	44.8	40.9	48.5
	73.7	55.8	45.1	40.7	48.1
	72.2	55.1	45.5	40.4	47.7
2002	70.7	54.4	45.8	40.2	47.3

* Age-adjusted.

*** Non-Hispanic.

Note: Each line is a log linear regression derived from the actual rates.

Source: Vital Statistics of the United States, NCHS.

Death Rates* for Coronary Heart Disease, U.S., 1950–2002

Actual Rate and Expected Rates if Rise Had Continued or Reached a Plateau

Year	Actual Rate	Rate if Rise Continued	Peak Rate
1950	439.5		
1951	433.6		
1952	431.2		
1953	439.5		
1954	426		
1955	440.1		
1956	446.7		
1957	457.6		
1958	458.2		
1959	455.8		
1960	463.8		
1961	455.9		
1962	469.7		
1963	478.4		
1964	463.2		
1965	466.4		
1966	465.1		
1967	453.9		
1968	482.6		
1969	469.8	469.8	482.6
1970	448	479	482.6
1971	448.5	481.4	482.6
1972	445.5	483.8	482.6
1973	437	486.2	482.6
1974	415	489	483
1975	388.1	491.1	482.6
1976	382.2	493.5	482.6
1977	368.5	496	482.6
1978	362	498.5	482.6
1979	339.1	501	482.6
1980	345.2	503.5	482.6
1981	329.5	506	482.6
1982	320.4	508.5	482.6
1983	316.1	511	482.6
1984	304.1	513.6	482.6
1985	296.2	516.2	482.6
1986	283.3	518.7	482.6
1987	273.9	521.3	482.6
1988	268.5	524	482.6

Year	Actual Rate	Rate if Rise Continued	Peak Rate
1989	257.5	526.6	482.6
1990	249.6	529.2	482.6
1991	241.5	531.8	482.6
1992	234.2	534.5	482.6
1993	234.6	537.2	482.6
1994	226	540	483
1995	219.7	542.6	482.6
1996	214	545.3	482.6
1997	205.6	548	482.6
1998	197.9	550.7	482.6
1999	195.8	553.5	482.6
2000	186.6	556.3	482.6

* Age-adjusted.

Source: Vital Statistics of the United States, NCHS.

Common Cardiovascular and Lung Diseases With High Percentage Discharged Dead From Hospitals, U.S., 1975, 1985, and 2002

Percent Discharged Dead

Disease	2002	1985	1975
Cardiac Dysrhythmia	2.9	7.9	
Pneumonia	4.9	7.6	6.4
Congestive Heart Failure	3.6	8.1	
Stroke	6.4	8.7	16.4
AMI	8.2	15.5	19.3

Source: National Hospital Discharge Survey, NCHS.

Death Rates* for Coronary Heart Disease in Men Ages 35–74 Years, Selected Countries, 1970–2002

Deaths per 100,000 Population

Year	Finland	Australia	USA	England	Poland	France	Japan
1970	701.7	652.3	651.5	509.3	177.4	148.7	93.5
1971	727.8	636.1	636.5	514.3	194.3	156.5	88.3
1972	680.1	623.3	633.5	539.3	204.8	159.6	83.7
1973	695.2	609.7	618.2	532.6	210.3	158.1	85.6
1974	699.5	609.1	587.3	535.8	212.3	163.9	84.5
1975	679.9	565.1	557.5	530.7	230.6	167.2	80.1
1976	699.8	553.4	540.5	526.3	244.4	160.5	77.6
1977	693.2	527.8	519.8	521.2	253.4	152.5	76.5
1978	664.1	499.2	504.1	535.9	262.8	153.8	74
1979	638.5	477.5	473.2	522.6	255.6	149.6	71.7

Year	Finland	Australia	USA	England	Poland	France	Japan
1980	616.1	449.1	465	508.8	277.2	148.3	74.5
1981	602.8	442.6	448	491.9	261.9	145	69.6
1982	598.6	427.6	433.7	484.1	265.5	145.5	66.6
1983	573.6	402.2	420.6	489.4	261.4	144.4	65
1984	561.5	380.3	401.1	477.3	283.6	143	62.5
1985	575.7	376.6	388.2	475.8	297.5	142.4	59.8
1986	530.7	347.9	367.7	455.7	306.8	140.1	54.5
1987	506.4	333.1	351.3	439.9	316.6	127.1	52.2
1988	477.2	318.7	337.4	420.3	310	118.5	52.2
1989	471	304.6	322.7	394.4	324	109.7	48.4
1990	434.5	274.9	310.5	382.7	326.4	105.7	48.9
1991	416.9	256.7	301.1	368.5	343.9	104.6	46.6
1992	407	242.6	290.3	353.1	326	100.5	44.7
1993	377.3	230.3	286.9	346.3	304.2	98.7	44.5
1994	346.4	217	276.7	315.1	280.6	94.4	48.7
1995	339.7	202.4	269	304.5	273.1	92	48.7
1996	319.9	195.5	259.1	288.1	266.7	90.7	57.7
1997	292.3	183.2	247.8	267	274.8	86.6	56.8
1998	287.5	171.5	236.4	257.5	282.9	85.3	56
1999	276.4	160.9	229.9	241	291	81.7	56.7
2000	250.1	143.6	218.1	225.1	272.1	81.7	56.7
2001	238.1	138.4	203.9	211.1	255.2		
2002	230.9		129.4	196.3	235.7		

* Age-adjusted to the European Standard Population.

Source: World Health Statistics Annual, World Health Organization (WHO).

Death Rates* for Coronary Heart Disease in Women Ages 35–74 Years, Selected Countries, 1970–2002

Deaths per 100,000 Population

Year	Finland	Australia	USA	England	Poland	France	Japan
1970	193	255.4	252.2	164.5	54.9	50.2	46.9
1971	205.4	249.1	244.3	164.4	58.3	51.7	42.9
1972	193	235.2	241	175.1	58.6	52.1	41.3
1973	187.9	225.9	231.8	175.8	62	50.1	43
1974	184.3	234.3	218.6	176.4	61.4	49.6	42.2
1975	179.1	213.5	205.4	173.2	66.3	51	38.1
1976	188.2	199.9	197.2	173.8	69.2	47.6	37.3
1977	171.3	199.2	190.2	169.8	70.8	44.7	35.4
1978	177	185.6	185	173.4	75.6	43.8	33.5

Year	Finland	Australia	USA	England	Poland	France	Japan
1989	176	169.6	170.8	170.6	71.9	41.7	31.8
1980	161.3	159.6	172.9	165.8	73.9	41	32.3
1981	166.1	159.2	166.9	162.5	70.5	41.6	31.7
1982	162.5	155.4	162.3	161.8	70.8	42	29.3
1983	154.6	149.6	159.8	164.6	70.2	40.2	28.6
1984	155	141.6	154.6	165.9	96.6	41.2	26.9
1985	154.9	138.9	148.4	164.6	79.8	39.8	25.2
1986	151.2	137.4	142.2	160.1	83	37.7	23.2
1987	153	126.2	137.8	154.8	87.6	34	21.4
1988	140.8	118.1	133.2	148	83.3	30.4	21.2
1989	129.8	113.4	126.2	143	89.5	28.2	19.5
1990	125.6	105.6	122	138.5	83.3	26.7	18.9
1991	113.9	95.9	118.5	134.9	94.4	25.6	17.9
1992	109.4	91.8	114.8	128.4	93.8	25.5	16.8
1993	104.9	85.4	114.3	125	89	24.6	16.7
1994	98.4	78.9	110.1	114.4	83	23.6	17.6
1995	92.7	72.8	107.9	109.1	82.2	22.4	17.6
1996	84.1	68.7	105.4	103.1	78.5	21.9	20.8
1997	74	65.8	100.2	96	82.6	20.3	19.7
1998	81.1	60.5	96.7	92.8	86.7	20.6	18.6
1999	69.6	53.9	95.4	85.1	90.8	19.1	18.9
2000	65.1	52.4	90.1	79.5	85.5	18.1	17.2
2001	59.5	46.9	84.4	73.3	80.5		
2002	57.7		73.6	67.9	70.3		

* Age-adjusted to the European Standard Population.

Source: World Health Statistics Annual, WHO

Change in Death Rates* for Selected Causes by Race and Gender, U.S., 1992–2002

Percent

	COPD	Asthma	CHD	Stroke
White Men	-8.7	-39	-29.2	-21.1
Black Men	-6.9	-14.2	-22	-22.4
White Women	25.8	-22.6	-26.8	-14.4
Black Women	28.3	-11	-19.2	-17

* Age-adjusted.

Source: Vital Statistics of the United States, NCHS.

Death Rates for Lung Diseases in Infants, U.S., 1980–2002

Deaths per 100,000 Population

Year	Respiratory Distress Syndrome	Sudden Infant Death Syndrome	Other Neonatal Respiratory Disorder	Hypoxia	Pneumonia
1980	138.1	152.5	102.3	41.4	28
1981	119	145.9	99.4	38.7	21.9
1982	109.7	143.4	95.5	40.5	20.5
1983	101.2	145.8	94.5	32.9	21.1
1984	96.9	142.9	95.3	31.9	18.7
1985	98.2	141.3	99.6	30.8	18.6
1986	90.6	140.5	95.2	26.2	17.5
1987	86.2	137.3	93.3	20.8	17.7
1988	81.4	140.1	91.8	19.9	16.2
1989	89.9	139.4	82.8	17.9	15.7
1990	68.5	130.3	71.1	18.3	15.2
1991	62.5	130.1	65.6	14.6	14.8
1992	50.8	120.3	60.2	15.1	14.8
1993	45.4	116.7	55.5	13.7	13.2
1994	39.6	103	53.1	13.6	14.1
1995	37.3	87.1	47.6	12.2	12.6
1996	34.9	74.2	46.8	11	12.4
1997	33.5	77.1	44.7	11.6	10.8
1998	32.9	71.6	43.2	11.7	11.2
1999	27.3	64.6	51.3	10.7	10.6
2000	24.4	51	43.2	10.9	8.4
2001	24.5	53.6	44.1	9.2	9.7
2002	22.8	55.1	36.7	10	8.5

Source: Vital Statistics of the United States, NCHS.

Ten Leading Causes of Infant Mortality, U.S., 2002

Cause of Mortality	Deaths Under Age 1 per 100,000 Live Births	Percent Change 1992–2002
Congenital Anomalies*	80.9	-17**
Disorders Relating to Short Gestation	115.3	-3
Sudden Infant Death Syndrome	57.1	-57
Newborns Affected By Maternal Complications Of Pregnancy	42.5	+11
Newborns Affected By Complications Of Placenta, Cord, And Membrane	26.6	+1
Respiratory Distress Syndrome	23.5	-54
Accidents And Adverse Effects	23.4	+6
Bacterial Sepsis Of Newborn	18.6	NA
Diseases Of The Circulatory System	16.6	-5
Intrauterine Hypoxia	14.5	-34

* Congenital CVD and congenital anomalies of the respiratory system represented 42 percent of all infant deaths due to congenital anomalies.

** Between 1992 and 2002, congenital CVD declined 35 percent; congenital anomalies of the respiratory system declined 41 percent; other congenital anomalies declined 17 percent.

NA: Not available.

Note: Capitalization indicates diseases addressed in Institute programs.

Source: Vital Statistics of the United States, NCHS.

Deaths Under Age 1 Year Due to Cardiovascular and Lung Diseases, U.S., 2002

Cause of Death	Deaths Under Age 1
All Causes	28,034
Cardiovascular Diseases	2,400*
Congenital Anomalies	1,733
Other	667
Lung Diseases	5,922
Sudden Infant Death Syndrome	2,295*
Respiratory Distress Syndrome	943*
Pneumonia	263
Bronchopulmonary Dysplasia (BPD)	296
Atelectasis of Newborn	400
Congenital Anomalies	638*
Other Lung Diseases	1,087
Other Diseases	19,712

* NHLBI programs address these diseases.

Source: Vital Statistics of the United States, NCHS.

By Percent

Congenital Anomalies of the Respiratory System	2.3
Atelectasis and Other Lung Diseases	5.3
BPD	1
RDS	3.4
Pneumonia	0.9
SIDS	8.2
Other CVD	2.4
Congenital Anomalies of the CV System	6.2
Other Diseases	70.39

Death Rates* for Chronic Obstructive Pulmonary Disease in Men Ages 35+ Years, Selected Countries, 1980–2002

Deaths per 100,000 Population

Year	England	Australia	Poland	Germany	USA	Finland	France	Japan
1980	146.5	136.4	121.2		83.6		56.9	44.3
1981	137.6	131.3	113.1		84.1		60.7	42.9
1982	144.3	150.4	110.8		82.3		57.8	42.3
1983	140.8	129.2	124.6		88.4		60.9	44.1
1984	144	129.5	128.8		88.3		61.3	42.1
1985	155.6	139	139.9		91.7		65	44.1
1986	147.9	119.6	126.4		90.8		66.8	40.5
1987	131.7	123.9	115.1		88.9	75.8	56.7	38.4
1988	133	125.5	100.7		91	74.1	54.9	39.2
1989	137.1	136	100.3		86.6	73.8	56.6	36.6
1990	122.9	110.8	93.8	96.2	89.25	69.4	56.1	37.5
1991	124.4	105.3	90	95.6	88.7	63.6	55.5	36.8
1992	118.5	112.9	76.7	93.1	86.8	67.7	55.6	35.6
1993	118.8	99.4	78.4	95.4	91.7	68.6	59.4	36.1
1994	104.6	102.6	67.3	90	88.7	57.2	56.1	36
1995	110	92.8	67.9	91.7	87.1	63.3	57.5	43.9
1996	100.5	88.3	67.9	88.6	85.9	67.4	50.1	36.5
1997	99.2	83.7	68.4	76.8	86.6	67.8	43.1	35.6
1998	97.9	79.2	69	71.4	86	72.2	38.5	33.5
1999	96.6	76.3	69.5	69.6	92.5	65.3	34.1	35.2
2000	95.3	71.8	66.1	67.4	89.1	63.5	33.1	31.4
2001	84.2	66.5	61.6	59.7	85.2	60.8		
2002	82.5		61.9		85	58.3		

* Age-adjusted to the European Standard Population.

Source: World Health Statistics Annual, WHO.

Death Rates* for Chronic Obstructive Pulmonary Disease in Women Ages 35+ Years, Selected Countries, 1980–2002

Deaths per 100,000 Population

Year	England	Australia	Poland	Germany	USA	Finland	France	Japan
1980	38.5	33.8	30.4		26.7		18.5	18.1
1981	37.8	33.8	26.6		28.5		18.9	17.6
1982	41.5	37	26.7		29.4		18.4	17
1983	40.7	37.7	30.7		33.2		19.9	17.7
1984	43.1	37.5	32.7		35		20.1	16.4

Year	England	Australia	Poland	Germany	USA	Finland	France	Japan
1985	50.5	44.6	34.2		38.4		22.1	16.6
1986	48.1	38.9	30		39.6		23.3	15.6
1987	45	43.4	26.5		41.1	14.9	20.2	14.4
1988	48.5	45.8	22.8		43.6	14.3	20.3	14.4
1989	51.4	52.4	23.7		45.6	13.3	21.8	13.4
1990	48	42.6	22.3	27.2	46.1	11	22.2	13.9
1991	50.4	41.5	22	28.3	48.7	12.9	21.9	13.5
1992	51.4	48.9	18.5	27	49	14.9	23.1	13.1
1993	52.6	44.4	19.3	29.7	54.3	14.8	25.8	13.2
1994	48	47.7	16.7	29	54.6	13.6	23.3	12.5
1995	53.1	44.8	16.1	30.1	54.8	14.8	24.7	15.2
1996	51.2	43.7	16.3	29.8	56.6	13.9	20.1	12.7
1997	52.3	42.7	17.1	26.4	57.4	16.3	18.1	12.1
1998	51.5	41.6	17.9	26.6	58.8	17.8	17	11.3
1999	51.2	39.7	18.7	26.4	64.2	16.7	15.1	11.4
2000	51	38.5	17.5	25.3	63.7	16	13	9.8
2001	50.9	38.3	16.3	23.6	63.1	15.8		
2002	51.7		15.2		63.1	14.9		

* Age-adjusted to the European Standard Population.

Source: World Health Statistics Annual, WHO.

Death Rates* for Chronic Obstructive Pulmonary Disease by Gender, Race, and Ethnicity, U.S., 1985–2002

Deaths per 100,000 Population

Male

Year	Black	White**	American Indian	Hispanic	Asian
1985	45.0	57.0	31.3	27.3	27.7
1986	45.2	57.1	32.1	27.5	27.7
1987	45.5	57.1	32.8	27.8	27.7
1988	45.7	57.2	33.6	28.0	27.7
1989	45.9	57.3	34.4	28.3	27.6
1990	46.2	57.3	35.2	28.5	27.6
1991	46.4	57.4	35.9	28.8	27.6
1992	46.6	57.5	36.7	29.0	27.6
1993	46.9	57.5	37.5	29.3	27.6
1994	47.1	57.6	38.3	29.5	27.6
1995	47.3	57.7	39.0	29.8	27.6
1996	47.6	57.7	39.8	30.0	27.6
1997	47.8	57.8	40.6	30.3	27.5
1998	48.0	57.9	41.4	30.5	27.5

Year	Black	White**	American Indian	Hispanic	Asian
1999	48.3	57.9	42.1	30.8	27.5
2000	48.5	58.0	42.9	31.0	27.5
2001					
2002					

Female

Year	Black	White**	American Indian	Hispanic	Asian
1985	14.2	24.1	12.2	11.9	10.0
1986	14.9	25.3	13.4	12.3	10.1
1987	15.6	26.6	14.7	12.7	10.2
1988	16.2	27.8	15.9	13.1	10.3
1989	16.9	29.0	17.1	13.5	10.4
1990	17.6	30.2	18.3	13.9	10.5
1991	18.3	31.5	19.6	14.3	10.6
1992	18.9	32.7	20.8	14.7	10.7
1993	19.6	33.9	22.0	15.1	10.9
1994	20.3	35.1	23.2	15.4	11.0
1995	21.0	36.4	24.5	15.8	11.1
1996	21.6	37.6	25.7	16.2	11.2
1997	22.3	38.8	26.9	16.6	11.3
1998	23.0	40.0	28.1	17.0	11.4
1999	23.7	41.3	29.4	17.4	11.5
2000	24.3	42.5	30.6	17.8	11.6
2001	25.0	43.7	31.8	18.2	11.7
2002					

* Age-adjusted.

** Non-Hispanic.

Note: Each line is a log linear regression derived from the actual rates.

Source: Vital Statistics of the United States, NCHS.

Physician Office Visits for Sleep Disorders, U.S., 1990–2002

Year	Visits (Millions)
1990	1,046,927
1991	1,331,879
1992	1,418,702
1993	1,234,703
1994	1,587,218
1995	2,386,158
1996	2,752,231
1997	3,244,039

Year	Visits (Millions)
1998	3,974,866
1999	3,378,591
2000	4,689,916
2001	5,287,835
2002	6,215,688

Source: National Ambulatory Medical Care Survey, NCHS.

Prevalence of Common Cardiovascular, Lung, and Blood Diseases, U.S., 2002

Disease	Number
Total Cardiovascular Diseases	70,100,000
Hypertension*	65,000,000
Coronary Heart Disease	13,000,000
Congestive Heart Failure	4,900,000
Stroke	5,400,000
Congenital Heart Disease	1,000,000
Asthma	20,600,000
COPD	10,800,000
Chronic Bronchitis only (age 25+)	8,200,000
Emphysema only (age 25+)	1,700,000
Chronic Bronchitis and Emphysema (age 25+)	900,000
Anemias (all forms)***	3,500,000

* Systolic blood pressure > 140 mm Hg, diastolic blood pressure > 90 mm Hg, on antihypertensive medication, or told twice of having hypertension.

Note: Some persons are included in more than one diagnostic group, and persons with more than one form of anemia are counted more than once.

Sources: Extrapolated to United States from National Health and Nutrition Examination Survey (NHANES), 1999–2002, and National Health Interview Survey

Prevalence of Cardiovascular Diseases* in Adults by Age, U.S., 1999–2002

Age	Percent
20–34	8.7
35–44	20
45–54	35.7
55–64	54.5
64–74	71.8
75+	83

* Hypertension, CHD, cerebrovascular disease, CHF, rheumatic heart disease, or congenital CVD.

Hypertension = systolic blood pressure \geq 140 mm Hg, diastolic blood pressure \geq 90, or on antihypertensive medication.

Source: NHANES, 1992–2002.

Prevalence of Common Cardiovascular and Lung Diseases by Age, U.S., 2002

Age	Percent
Age <18 Years	
Asthma	8.7
Age 18-44 Years	
Anemias	2
CHD	1.2
COPD	3.6
Asthma	7.1
Hypertension	13
Age 45-64 Years	
Stroke	2.2
CHF	2.5
COPD	6.5
Asthma	7.2
CHD	8.4
Hypertension	40.5
Age 65+ Years	
Anemias	2
Asthma	5.9
Congestive Heart Failure	7.6
Stroke	8.4
COPD	8.7
Coronary Heart Disease	20.5
Hypertension	72.4

Note: Numbers depicted in bars are not additive by disease because some persons have more than one disease.

Source: NHIS 1996 for amnmias, 2002 for lung disease, and NHANES, 1999-2002 for CVD.

Prevalence of Cardiovascular Disease Risk Factors* in Adults, U.S., 1961–2001

Year	Hypertension	Smoking	High Cholesterol	Overweight
1961	38.1		33.6	44.8
1962				
1963				
1964				
1965		41.9		
1966				
1967				
1968				
1969				
1970				

Year	Hypertension	Smoking	High Cholesterol	Overweight
1971				
1972	39.8		28.6	47.7
1973				
1974		37		
1975				
1976				
1977				
1978	40.4		27.8	47.4
1979		33.3		
1980				
1981				
1982				
1983		31.9		
1984				
1985		29.9		
1986				
1987				
1988				
1989				
1990		25.3		
1991	23.9		19.7	56
1992		26.3		
1993				
1994		25.3		
1995		24.6		
1996				
1997		24.6		
1998	28.7	24	18	
1999		23.3		
2000		23.1		64
2001	65.2	28.7	22.7	17

* Age-adjusted.

Note: Hypertension is systolic blood pressure > 140, diastolic blood pressure is > 90 mmHg, or on antihypertensive medication. High cholesterol is 240+ mg/dl. Overweight is BMI 25+ kg/m².

Source: NHIS for smoking (age 18+) and NHANES for the other risk factors (ages 20–74).

Hypertensive Population Aware, Treated, and Controlled, Age 18+, U.S., 1971–72 to 1999–2002

Percent of Hypertensive Population*

	1988–94	1999–02
Aware	73.5	72.7
Treated	60.5	63.3
Controlled	37.9	39

Percent of Hypertensive Population**

	1976–80	1988–91	1991–94	1999–02
Aware	51	73	68	69.09
Treated	31	55	53	59.6
Controlled	10	29	27	32.9

* Systolic blood pressure \geq 160 mmHg, diastolic blood pressure \geq 95 mmHg, or on antihypertensive medication.

** Systolic blood pressure \geq 140 mmHg, diastolic blood pressure \geq 90 mmHg, or on antihypertensive medication.

Source: NHANES, NCHS.

Adult Population With Hypertension* by Age, Gender, and Race, U.S., 1999–2002

Percent of Population

Age	Mexican-American Men	Black Men	White Men	Mexican-American Women	Black Women	White Women
20–39	-9.2	-17.8	-13.1	7.2	14.7	6.8
40–59	-29.1	-44	-29.1	31.3	52.6	31.3
60+	-57.7	-79.1	-60.3	68.2	86.4	72

* Systolic blood pressure \geq 140 mmHg, diastolic blood pressure $>$ 90 mmHg, or on antihypertensive medication.

Source: NHANES, NCHS, and personal communication.

Hospitalization Rates for Congestive Heart Failure, Ages 45–64 Years and 65+ Years, U.S., 1971–2002

Deaths per 100,000 Population

Year	Ages 45-64 Years	Ages 65+ Years
1971	9.5	60.1
1972	11.3	73.3
1973	12	78.2
1974	12.8	82.7
1975	13.2	88.4

Year	Ages 45-64 Years	Ages 65+ Years
1976	13.7	97.4
1977	14.2	106.4
1978	14.9	112.5
1979	15.5	127.7
1980	14.3	133.5
1981	15.6	130.8
1982	16.2	132.6
1983	20.1	132.7
1984	20.6	151.7
1985	21.4	156.3
1986	23.1	158.2
1987	22.7	161.8
1988	24.4	175.5
1989	25.6	168.5
1990	26	182
1991	27	193.6
1992	31.5	206.4
1993	34.1	207.7
1994	29.8	210
1995	27.2	208.1
1996	28.5	202.7
1997	31.3	223.2
1998	30.6	226.7
1999	29.4	221.1
2000	31.9	220.2
2001		
2002	32.9	201.4

Source: National Hospital Discharge Survey, NCHS.

Persons Experiencing Asthma Episodes in Previous 12 Months by Age, U.S., 1997–2003

	1997	1998	1999	2000	2001	2002	2003
<15	5.39	5.42	5.19	5.52	5.54	5.83	5.44
15–34	4.43	3.76	4.23	4.0	4.5	4.32	3.86
35+	3.47	3.41	3.8	3.36	3.56	3.59	3.2

Source: NHIS, NCHS.

Direct and Indirect Economic Costs of Illness by Major Diagnosis, U.S., 2005

	Amount (Dollars in Billions) Indirect Costs				Percent Distribution Indirect Costs			
	Direct Costs*	Morbidity**	Mortality***	Total	Direct Costs	Morbidity	Mortality	Total
Cardiovascular Disease	241.8	34.8	116.8	393.4	15.0	17.0	20.6	16.5
(including Blood Clotting) ****	(56.8)	(7.7)	(27.2)	(91.7)	(3.5)	(3.7)	(4.8)	(3.8)
Lung Diseases****	80.7	26.8	32.1	139.6	5.0	13.1	5.7	5.9
Blood Diseases	8.4	0.7	3.1	12.2	0.6	0.4	0.5	0.5
Subtotal	330.9	62.4	152.0	545.3	20.6	30.4	26.8	22.9
Diseases of the Digestive System	168.5	10.6	25.4	204.5	10.5	5.2	4.5	8.6
Neoplasms	74.0	17.5	118.4	209.9	4.6	8.5	20.9	8.8
Mental Disorders	133.2	27.0	8.6	168.8	8.3	13.1	1.5	7.1
Diseases of the Nervous System	137.5	8.0	12.5	158.0	8.5	3.9	2.2	6.6
Diseases of the Musculoskeletal System	94.4	20.9	3.0	118.3	5.9	10.2	0.5	5.0
Diseases of the Genitourinary System	70.1	5.4	6.4	81.9	4.4	2.6	1.1	3.4
Endocrine, Nutritional, and								
Metabolic Diseases	66.2	6.7	19.4	92.3	4.1	3.3	3.4	3.9
Infectious and Parasitic Diseases	33.9	12.4	28.1	74.4	2.1	6.1	5.0	3.1
Diseases of the Skin	37.2	1.6	0.6	39.4	2.3	0.8	0.1	1.6
Other Respiratory Diseases	47.1	8.3	3.2	58.6	2.9	4.0	0.6	2.5
Other and Unallocated to Diseases	415.7	24.2	188.5	628.4	25.8	11.8	33.3	26.4
Total	1,608.7	205.0	566.1	2,379.8	100%	100%	100%	100%

* Direct costs are personal health care expenditures for hospital and nursing home care, drugs, home care, and physician and other professional services. The estimation method is based on Centers for Medicare & Medicaid Services (CMS) projections for total 2005 health expenditures by type of direct costs and NCHS estimates of direct costs in 1995 for each of the major diagnostic groups. The proportion of costs for 1995 for each diagnostic group is applied to the equivalent 2005 total by type of direct cost.

** Morbidity costs were estimated for 2005 by multiplying NCHS estimates for 1980 by a 1980–2005 percent inflation factor derived from the increase in mean earnings estimated by the Bureau of the Census.

*** The mortality cost for each disease group was estimated for 2005 by first multiplying the number of deaths in 2001 in each age- and sex-specific group by the 2001 present value of lifetime earnings (latest