

Statistical Notes

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Healthy People 2000: An Assessment Based on the Health Status Indicators for the United States and Each State

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Abstract

The Health Status Indicators (HSIs) were developed as part of the Healthy People 2000 process to facilitate the comparison of health status measures at national, State, and local levels (1). In this report, the number of HSIs where the national target has been attained and the number of HSIs that have improved significantly are enumerated for the United States, the District of Columbia, and each State. Based on data for 1998, the United States had attained targets for 6 of the 17 HSIs with national targets. Twenty-three States had attained targets for 9 or more of the HSIs and 37 States had either attained the target for, or had made significant progress on, at least 12 of the indicators. Substantial progress has therefore been made since the *Healthy People 2000 National Health Promotion and Disease Prevention Objectives* were published in 1991 (2).

Introduction

The importance of assessment and surveillance activities for ensuring the Nation's health was emphasized in the Institute of Medicine's report on *The Future of Public Health* (3). One of the basic techniques of assessment involves comparing health status measures between populations and over time. These comparisons call for

standardization in the measurement of indicators. In response to the need for standardized measures, *Healthy People 2000 National Health Promotion and Disease Prevention Objectives* (2) included Objective 22.1, which called for the development of a set of HSIs appropriate for use by Federal, State, and local health agencies.

Under the auspices of the Centers for Disease Control and Prevention, a group of public health professionals, known as Committee 22.1, was convened to identify a set of HSIs. Through a rigorous consensus process, a list of 18 HSIs was developed and published in 1991 (1,4). These indicators have been employed to monitor trends over time for the United States (5), to compare race and Hispanic origin groups at the national level (5,6), and to distinguish differences among counties or regions within States (7). Since 1997, the National Center for Health Statistics (NCHS) has made tabulations of the HSIs by State, race, and Hispanic origin available on its Web site under Healthy People 2000 (HP2000) (www.cdc.gov/nchs/datawh/ftpserv/hstatus/hstatus.htm#s).

The HSIs were intended to be broadly representative of the domains of public health and can be used to identify problems or successes. Each indicator provides a limited basis to determine whether health status is improving over time. When an indicator is going in the "wrong" direction



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or seems “too high” by comparison, it is indicative of the need for further investigation. When an indicator is improving faster than expected, it may signal a changing trend, a successful policy, or an effective intervention. These indicators are subject to measurement error, and they may be affected by factors beyond the influence of public health agencies. The interpretation of findings is also subject to the limits of the analytic techniques chosen. The purpose of this report is to stimulate further investigation of ways to improve health in areas with limited improvement and/or in areas that are in some way disadvantaged.

Health Status Indicator (HSI) targets for the United States

The 18 indicators employed in this study are described in detail under the heading, Analytic techniques. One of the original 18 indicators, cardiovascular disease deaths, was divided into two components, heart disease and stroke. Another of the original indicators, the incidence rate for acquired immunodeficiency syndrome (AIDS), was excluded because the case definition and the course of the disease have changed since the HSIs were developed (see Analytic techniques). Although year 2000 targets for the HSIs were not specified by Committee 22.1, most of the HSIs correspond to HP2000 objectives with targets. For those HSIs without corresponding HP2000 targets, targets were derived for purposes of this report (see Analytic techniques). Eighteen HSIs are examined here; 17 have targets and 1, the percent of 5–17-year-old children in poverty, does not.

Progress toward attainment of the 17 indicators with targets is illustrated in [figure 1](#) for the total United States. Progress was measured for each indicator by

1. computing the difference between the baseline value for the HSI (usually for 1987) and the national target value for the year 2000;
2. computing the difference between the baseline value and the annual value for 1998; and
3. dividing the second difference by the first to determine the percent of the targeted difference that has been achieved.

For example, the baseline age-adjusted total death rate in 1987 was 539.2 deaths per 100,000 standard population (8), the rate for 1998 was 471.7 (9), and the age-adjusted target for the year 2000 is 475.0. In this case, the target (475.0) has been surpassed, and 105 percent of the national target had been achieved in 1998.

The six dark blue bars on the right side of [figure 1](#) represent the indicators for which 100 percent or more of the target had already been attained: the age-adjusted total death rate; the age-adjusted death rates for heart disease, lung cancer, breast cancer, and suicide; and the incidence rate for syphilis. Nearly 100 percent of the change required to meet national targets was achieved for three of the HSIs: the measles incidence rate (99.6 percent), the infant mortality rate (94 percent), and the homicide rate (92 percent). Seventy-two

percent of the target for the age-adjusted motor vehicle crash death rate was achieved in 1998. About one-half of the change required to meet national targets was achieved for five HSIs: the age-adjusted stroke death rate, the tuberculosis case rate, the percent of women beginning prenatal care in the first trimester, the live birth rate for females ages 15–17, and the percent of persons living in counties that do not meet EPA National Ambient Air Quality Standards. Only 20 percent of the targeted difference in the work-related injury death rate had been achieved in 1998. It is unlikely that the objectives for which less than 60 percent of the difference between the baseline and the target had been achieved in 1998 will be attained by the year 2000.

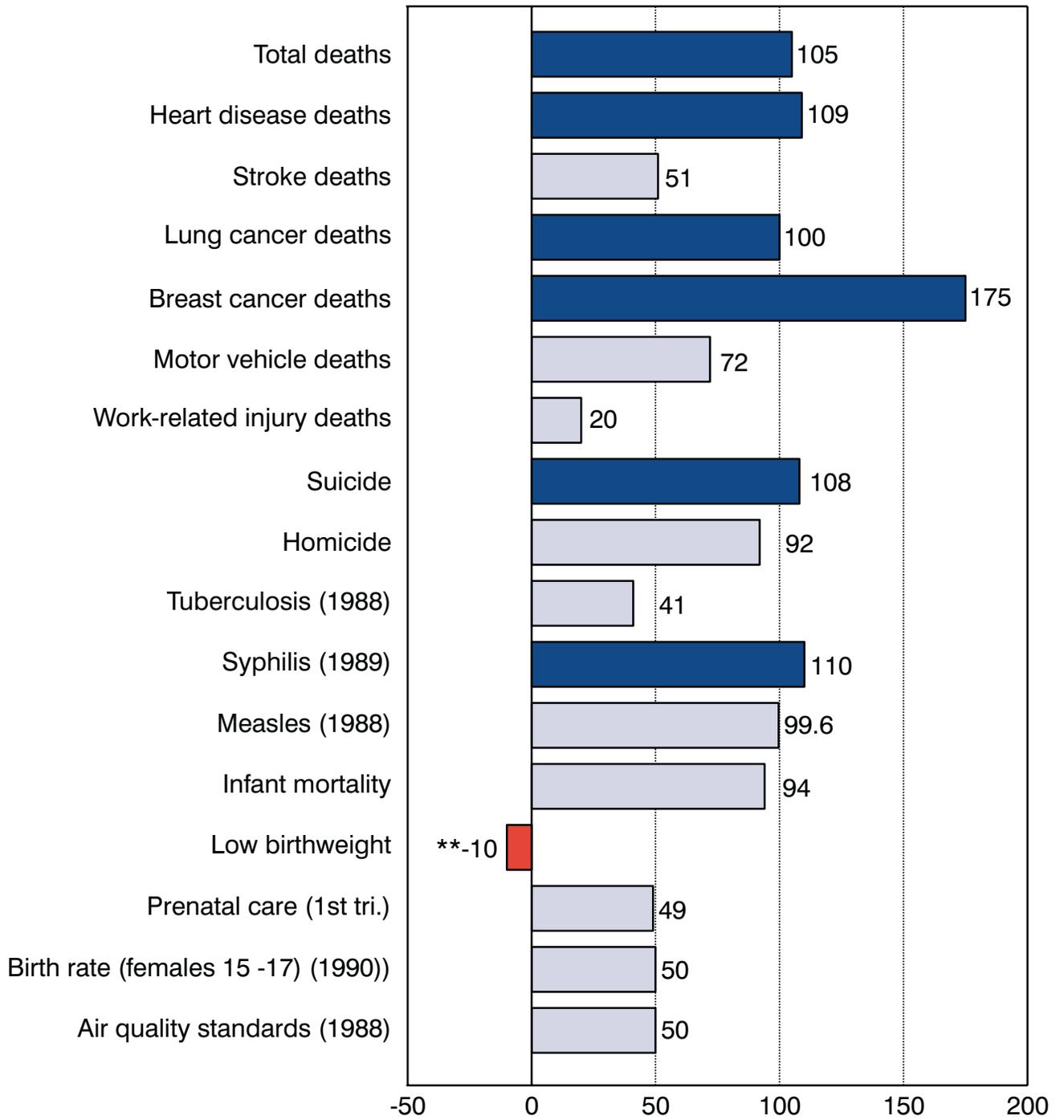
Finally, the red bar on the left side of [figure 1](#) represents a change that is not in the intended direction. The baseline percent of low birthweight (less than 2500 grams) infants in 1987 was 6.9 percent (5), the percentage for 1998 was 7.6 (10), and the target for the year 2000 was 5 percent. Instead of declining, the percent low birth weight increased from 6.9 to 7.6, a relative increase of 10.1 percent. This change in percent is shown in [figure 1](#) instead of the measure of progress shown for indicators with improvement.

Health Status Indicators (HSIs) by State

In the analysis that follows, States are assessed in terms of whether they have attained the national targets for the HSIs. It should be noted that many States developed objectives and targets for their own populations. These State-specific objectives and targets may differ from those in the Healthy People 2000 Objectives for the Nation. Use of the national target is convenient because it provides a single standard against which all States can be compared. However, some States had already achieved the national target at the beginning of the period. Other States had rates so much higher than those of the United States at the baseline that they could not realistically expect to achieve the national target. For this reason, States are also assessed in terms of whether or not each of the HSIs has changed significantly since the baseline value for each indicator (usually for 1987). This assessment is based on 3-year moving averages for rates and percentages ending with 1997 or 1998. Trends are therefore examined for rates or percentages based on 3-year moving averages beginning with the baseline.

The direction and statistical significance of trends in the indicators were assessed with Kendall’s coefficient of rank correlation (tau). This statistic is sensitive to consistency in the direction of trends over time; it is minimized when a trend is irregular or when there is a reversal in the trend midway in the period studied; and it is not sensitive to the magnitude of the change. The findings presented here concerning the attainment of targets and the significance of trends should be interpreted with these limitations in mind. The methods employed in this analysis and the derivation of targets for the HSIs are described in more detail under Analytic techniques.

■ More than 100% achieved
 ■ Less than 100% achieved
 ■ Percent increase



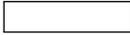
*Baseline 1987, except as noted.

**Change in this indicator was not in the targeted direction.

Figure 1. Health status indicators for the United States, percent of targeted change achieved from the baseline year* to 1998

Figures 2–19 summarize information on the attainment of targets and the statistical significance of trends in the HSI for the United States, each State, and the District of Columbia. Data for Puerto Rico, Virgin Islands, and Guam are not included in this report because data for some indicators are not complete for the period under consideration. For convenience, the 50 States and the District of Columbia are referred to simply as “States.” The first two columns in each figure present data for 1997 and 1998. The heading for the third column “Target attained” specifies the national target for the year 2000 for each HSI. The column itself indicates whether the United States and each State had attained the target. Attainment of the target at the State level is based on the two most recent years of data. This column is color-coded so that dark blue indicates that the target was attained in both 1997 and 1998. Attainment based on data for 2 successive years provide some assurance that attainment was not just a function of the year-to-year variability in rates. A light blue box indicates that the target was attained only in 1998. Attainment of the target in a single year could be primarily a function of the variability in rates. A white box indicates that the target was not attained in both 1997 and 1998 or in 1998. The fourth column contains the Z statistic for Kendall’s tau. The Z statistic indicates the magnitude of the association and its sign indicates the direction of the trend. The fifth column indicates whether the Z statistic is significant at the 0.05 level: significant in the direction of improvement (dark blue), no significant trend (white), or significant in a direction away from the target (red). (Data for the 3-year averages on which this trend analysis is based are not shown in the figures; these data are available on the Web site.)

A summary of the findings for each indicator appears on the right side of each page. States are classified according to whether or not they attained the target (dark blue, light blue, or white) and then according to the direction of the trend in the indicator (dark blue, white, or red). The most favorable classification would be “**target attained**” and “**trend indicative of significant improvement.**” However, it is possible for States to attain the target without any statistically significant trend, and it is also possible for a State to have attained the target and have a significant trend away from the target. Similarly, States that had not attained the target are classified according to their trends. These summaries are based on the color codes for the targets and trends in each table as illustrated.

	Target attained in both 1997 and 1998 (dark blue) or provisionally attained based on 1998 only (light blue).
	For States where the target was attained, the trends are shown as: Trend indicative of significant improvement based on 3-year averages from baseline to most recent.
	No significant trend based on the 3-year averages from baseline to most recent.
	Significant trend away from the target , based on the 3-year averages from baseline to most recent.
	Target not attained in both 1997 and 1998 or in 1998 (white).
	For States where the target was not attained, the trends are shown as: Trend indicative of significant improvement based on 3-year averages from baseline to most recent.
	No significant trend based on the 3-year averages from baseline to most recent.
	Significant trend away from the target , based on the 3-year averages from baseline to most recent.

Color codes

Figure 2. Age-adjusted **total death** rates (all causes) for the United States and each State

	Age-adjusted death rates per 100,000		Target attained (475.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	478.1	471.7		-4.02	
Alabama	566.6	565.9		-3.49	
Alaska	458.2	441.9		-4.02	
Arizona	463.5	461.7		-2.24	
Arkansas	569.2	551.0		-1.88	
California	434.1	425.4		-4.02	
Colorado	416.2	419.0		-3.85	
Connecticut	429.4	425.6		-2.77	
Delaware	506.6	496.9		-3.85	
District of Columbia	714.0	684.8		-0.27	
Florida	461.7	458.4		-3.13	
Georgia	545.1	539.8		-3.85	
Hawaii	373.2	370.1		-3.67	
Idaho	430.0	424.4		-3.85	
Illinois	481.2	480.5		-3.85	
Indiana	500.1	496.5		-3.49	
Iowa	420.2	421.6		-3.31	
Kansas	448.9	447.8		-3.13	
Kentucky	544.4	533.6		-3.31	
Louisiana	581.2	575.2		-2.59	
Maine	463.9	462.4		-3.31	
Maryland	503.3	494.8		-3.31	
Massachusetts	425.3	421.9		-4.02	
Michigan	484.1	484.6		-4.02	
Minnesota	398.4	394.5		-3.85	
Mississippi	608.1	606.6		0.09	
Missouri	513.1	511.1		-2.06	
Montana	455.8	449.9		-3.85	
Nebraska	436.5	431.9		-4.02	
Nevada	525.9	539.1		-3.31	
New Hampshire	441.7	440.0		-3.85	
New Jersey	461.1	445.3		-4.02	
New Mexico	464.9	457.5		-3.85	
New York	460.1	443.5		-4.02	
North Carolina	518.4	518.6		-3.67	
North Dakota	410.7	414.8		-3.67	
Ohio	495.0	489.8		-3.85	
Oklahoma	540.4	529.5		1.52	
Oregon	449.3	451.4		-3.13	
Pennsylvania	492.0	475.4		-4.02	
Rhode Island	452.4	433.5		-3.85	
South Carolina	551.4	550.8		-3.85	
South Dakota	437.9	442.6		-3.13	
Tennessee	560.3	557.0		-1.16	
Texas	489.1	475.3		-4.02	
Utah	402.9	404.5		-3.67	
Vermont	449.9	434.4		-3.67	
Virginia	487.9	480.0		-4.02	
Washington	424.2	423.2		-4.02	
West Virginia	551.5	547.9		-3.85	
Wisconsin	428.8	433.9		-3.85	
Wyoming	461.1	464.8		-2.59	

United States

Target

The target for the total death rate (an age-adjusted rate of 475.0 deaths per 100,000) was attained for the first time in 1998. The baseline in 1987 was 539.2. Based on the rate for 1998 (471.7), 105 percent of the targeted difference was attained as shown in figure 1 (9).

Trend

There was significant improvement in the total death rate for the United States from 1986–88 through 1995–97.

States

Target
28

Twenty-eight States attained the target in both 1997 and 1998.

Trend
28

In all 28 of these States the rate declined significantly from 1986–88 through 1995–97.

23

Twenty-three States did not attain the target in 1997–98 or 1998.

18
5

Eighteen States had significant improvement. Five States (Arkansas, District of Columbia, Mississippi, Oklahoma, and Tennessee) had no significant trend.

Total States with significant improvement

46

A total of 46 States had significant improvements in the age-adjusted total death rate from 1986–88 through 1995–97.

Figure 3. Age-adjusted death rates for **heart disease** (ICD-9 Codes: 390-398, 402, 404-429) for the United States and each State

	Age-adjusted death rates per 100,000		Target attained (130.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	130.1	126.6		-4.02	
Alabama	156.5	152.3		-4.02	
Alaska	99.6	96.5		-4.02	
Arizona	109.4	109.2		-3.85	
Arkansas	148.8	147.6		-3.67	
California	114.1	113.1		-4.02	
Colorado	93.8	92.9		-4.02	
Connecticut	119.7	115.9		-4.02	
Delaware	137.6	127.4		-4.02	
District of Columbia	156.3	161.5		-4.02	
Florida	118.3	118.0		-4.02	
Georgia	148.1	147.2		-4.02	
Hawaii	101.4	100.4		-3.67	
Idaho	104.8	96.8		-4.02	
Illinois	132.4	131.5		-4.02	
Indiana	138.6	134.5		-4.02	
Iowa	118.8	117.4		-4.02	
Kansas	116.4	114.8		-4.02	
Kentucky	159.3	148.7		-4.02	
Louisiana	153.3	150.0		-4.02	
Maine	125.5	118.1		-3.85	
Maryland	128.2	124.2		-4.02	
Massachusetts	112.2	106.6		-4.02	
Michigan	138.3	138.8		-4.02	
Minnesota	92.7	88.4		-4.02	
Mississippi	187.5	181.4		-3.31	
Missouri	149.1	142.7		-3.85	
Montana	106.0	100.2		-3.85	
Nebraska	120.2	111.5		-4.02	
Nevada	138.4	139.7		-3.85	
New Hampshire	113.8	114.8		-3.85	
New Jersey	124.8	121.4		-4.02	
New Mexico	101.9	96.6		-3.85	
New York	145.9	138.8		-4.02	
North Carolina	135.8	132.9		-4.02	
North Dakota	113.2	107.5		-4.02	
Ohio	142.8	136.5		-4.02	
Oklahoma	156.0	150.8		-4.02	
Oregon	101.3	96.5		-4.02	
Pennsylvania	138.3	132.3		-4.02	
Rhode Island	123.0	117.7		-4.02	
South Carolina	146.2	143.0		-4.02	
South Dakota	117.1	114.3		-4.02	
Tennessee	157.2	153.5		-3.85	
Texas	134.9	127.9		-4.02	
Utah	94.7	87.4		-4.02	
Vermont	118.9	105.2		-3.31	
Virginia	129.0	128.0		-4.02	
Washington	100.6	100.7		-4.02	
West Virginia	160.2	160.9		-4.02	
Wisconsin	114.2	112.9		-4.02	
Wyoming	112.6	111.6		-4.02	

United States

Target

The target for heart disease deaths (an age-adjusted rate of 130.0 deaths per 100,000) was attained for the first time in 1998. The baseline in 1987 was 169.6. Based on the rate for 1998 (126.6), 109 percent of the targeted difference was attained as shown in figure 1 (9).

Trend

There was statistically significant improvement in the heart disease death rate for the United States from 1986-88 through 1995-97.

As the leading cause of death in the United States, the pattern for heart disease is very similar to that for the total death rate.

States

Target
29 2

Twenty-nine States attained the target in both 1997 and 1998. Two additional States attained the target for the first time in 1998.

Trend
31

All 31 of these States had significant improvements from 1986-88 through 1995-97.

20

Twenty States did not attain the target in 1997-98 or in 1998.

20

However, all of these States had significant improvements in heart disease death rates from 1986-88 through 1995-97.

Total States with significant improvement

51

All 51 States had significant improvements in the heart disease death rate from 1986-88 through 1995-97.

Figure 4. Age-adjusted death rates for **stroke** (ICD-9 Codes: 430-438) for the United States and each State

	Age-adjusted death rates per 100,000		Target attained (20.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	25.8	25.1		-3.31	
Alabama	31.1	30.6		-3.49	
Alaska	22.7	25.2		-1.52	
Arizona	23.3	22.5		1.16	
Arkansas	38.2	35.3		-1.88	
California	25.9	25.0		-4.02	
Colorado	22.2	21.8		-2.77	
Connecticut	20.5	20.9		-2.17	
Delaware	22.0	23.2		-1.88	
District of Columbia	31.2	28.4		-1.52	
Florida	22.3	22.0		-2.77	
Georgia	34.0	31.6		-3.13	
Hawaii	28.2	24.1		-1.16	
Idaho	25.5	24.7		-2.41	
Illinois	26.2	25.4		-2.77	
Indiana	27.9	28.1		-2.59	
Iowa	23.1	23.1		-2.24	
Kansas	23.2	24.7		-2.41	
Kentucky	27.8	27.6		-3.13	
Louisiana	30.0	30.0		-3.85	
Maine	23.0	22.6		-3.31	
Maryland	25.2	25.1		-1.70	
Massachusetts	19.9	18.6		-4.02	
Michigan	26.2	25.9		-2.41	
Minnesota	24.4	21.9		-2.95	
Mississippi	35.1	33.4		-2.95	
Missouri	26.2	27.3		-1.34	
Montana	23.7	23.2		1.52	
Nebraska	22.9	25.2		-2.24	
Nevada	26.0	25.3		-0.27	
New Hampshire	24.4	20.5		-2.95	
New Jersey	21.2	21.1		-3.31	
New Mexico	21.5	19.6		-0.27	
New York	19.2	18.3		-4.02	
North Carolina	32.0	33.1		-2.77	
North Dakota	23.6	22.5		1.34	
Ohio	25.6	24.3		-2.41	
Oklahoma	28.5	27.7		-1.52	
Oregon	28.9	29.0		0.63	
Pennsylvania	24.4	23.5		-2.59	
Rhode Island	23.1	20.0		-2.41	
South Carolina	38.7	37.0		-3.49	
South Dakota	25.4	24.3		-3.13	
Tennessee	33.5	32.6		-1.16	
Texas	27.8	26.4		-2.95	
Utah	24.3	22.0		-2.77	
Vermont	23.7	23.2		-1.52	
Virginia	29.7	27.2		-2.95	
Washington	25.5	25.6		-1.52	
West Virginia	25.0	24.7		-2.77	
Wisconsin	26.3	26.0		-1.88	
Wyoming	21.4	26.2		-2.24	

United States

Target

The United States has achieved about one-half of the targeted reduction in stroke deaths. The baseline rate in 1987 was 30.4 and the rate for 1998 was 25.1. Fifty-one percent of the difference between the baseline and the target (20.0) was achieved in 1998 (9).

Trend

There was a statistically significant improvement in the age-adjusted death rate for stroke from 1986-88 through 1995-97.

States

Target	2	2
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Massachusetts and New York attained the target in both 1997 and 1998. New Mexico and Rhode Island attained the target for the first time in 1998.

Trend	3	1
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The Stroke death rate improved significantly in three of these States between 1986-88 and 1995-97. New Mexico had no significant trend.

47

The remaining 47 States did not attain the target in 1997-98 or 1998.

29	18
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Twenty-nine States had significant improvement. Eighteen States had no significant trend.

Total States with significant improvement

32

A total of 32 States had significant improvements in the stroke death rate from 1986-88 through 1995-97.

Figure 5. Age-adjusted death rates for lung cancer (ICD-9 Code: 162) for the United States and each State

	Age-adjusted death rates per 100,000		Target attained (42.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	37.3	37.0		-1.16	
Alabama	43.0	42.7		-1.52	
Alaska	37.9	36.9		-2.41	
Arizona	32.1	31.8		-1.16	
Arkansas	47.9	46.8		1.34	
California	31.1	29.9		-3.85	
Colorado	24.7	25.6		-1.16	
Connecticut	33.7	33.3		-2.41	
Delaware	42.9	42.8		2.06	
District of Columbia	40.7	40.1		-2.95	
Florida	39.4	37.9		-1.52	
Georgia	41.6	41.3		-1.09	
Hawaii	25.8	27.3		-2.24	
Idaho	29.7	30.4		-1.52	
Illinois	37.1	37.3		-0.27	
Indiana	41.8	43.6		0.63	
Iowa	34.4	33.6		1.16	
Kansas	37.1	34.5		-0.09	
Kentucky	53.2	52.3		1.27	
Louisiana	45.5	45.3		-0.63	
Maine	40.9	41.1		1.52	
Maryland	39.5	39.9		-2.77	
Massachusetts	36.0	36.6		1.52	
Michigan	38.1	37.5		0.45	
Minnesota	30.8	30.6		1.52	
Mississippi	45.8	47.2		-1.52	
Missouri	43.0	43.9		1.70	
Montana	31.6	34.8		-0.09	
Nebraska	32.6	32.7		-0.98	
Nevada	42.5	43.2		-2.95	
New Hampshire	38.9	40.2		0.98	
New Jersey	35.4	35.4		-2.41	
New Mexico	27.8	24.7		-0.80	
New York	32.6	32.5		-1.88	
North Carolina	41.7	41.2		1.88	
North Dakota	29.7	30.9		2.77	
Ohio	40.5	41.2		0.27	
Oklahoma	44.1	43.3		0.09	
Oregon	38.1	37.6		-1.88	
Pennsylvania	37.7	37.0		-0.45	
Rhode Island	43.9	39.3		3.31	
South Carolina	41.7	40.2		-0.98	
South Dakota	30.8	30.1		1.34	
Tennessee	47.3	46.9		2.59	
Texas	37.6	36.8		0.09	
Utah	14.5	16.6		-1.52	
Vermont	39.9	38.0		1.52	
Virginia	40.0	38.7		-3.31	
Washington	34.8	36.1		-1.70	
West Virginia	48.0	47.6		0.80	
Wisconsin	32.2	33.3		0.27	
Wyoming	29.6	30.5		1.52	

United States

Target

The HP2000 target sought only to limit what had been an increasing trend in lung cancer deaths. The age-adjusted death rate for lung cancer was 38.5 at baseline in 1987 (5). It increased to 39.9 in 1990, after which it declined to 37.3 in 1997 and 37.0 in 1998 (5,9). The United States therefore attained Objective 16.2, which called for a limit in the age-adjusted death rate for lung cancer of 42 deaths per 100,000 population.

Trend

There was, however, no statistically significant improvement in the lung cancer death rate for the United States from 1986-88 through 1995-97.

States

Target
38
1

Thirty-eight States attained the target based on data for both 1997 and 1998. One additional State attained the target for the first time in 1998.

Trend
8
29
2

Eight States had significant improvement. Twenty-nine States had no significant trend. North Dakota and Rhode Island attained the target but had an increasing trend from 1986-88 through 1995-97.

12

Twelve States did not attain the target in 1997-98 or in 1998.

1
9
2

One State had significant improvement. Nine States had no significant trend. Delaware and Tennessee had significant increases in rates from 1986-88 through 1995-97.

Total States with significant improvement

9

A total of nine States had significant improvements in lung cancer death rates from 1986-88 through 1995-97.

Figure 6. Age-adjusted death rates for **female breast cancer** (ICD-9 Code 174) for the United States and each State

	Age-adjusted death rates per 100,000 females		Target attained (20.6)	Trend	
	1997	1998		Z	Stat. sign.
United States	19.4	18.8		-4.02	
Alabama	18.3	18.4		-3.31	
Alaska	15.0	16.4		-2.24	
Arizona	18.4	17.6		-3.13	
Arkansas	20.1	16.6		-0.63	
California	18.6	18.2		-4.02	
Colorado	15.6	15.4		-2.77	
Connecticut	19.8	20.0		-3.31	
Delaware	22.9	22.4		-3.31	
District of Columbia	26.9	30.8		-1.70	
Florida	18.6	17.9		-2.59	
Georgia	20.4	19.3		-3.85	
Hawaii	13.0	15.2		-1.88	
Idaho	18.2	18.6		-1.34	
Illinois	21.5	20.0		-2.95	
Indiana	19.1	19.1		-3.31	
Iowa	17.5	19.0		-3.49	
Kansas	17.2	17.5		-2.06	
Kentucky	19.4	19.2		-1.52	
Louisiana	21.0	20.1		-0.45	
Maine	18.2	18.2		-3.31	
Maryland	21.1	20.3		-3.85	
Massachusetts	20.2	19.2		-3.67	
Michigan	19.6	18.4		-3.85	
Minnesota	17.5	17.8		-3.85	
Mississippi	20.2	18.5		-1.52	
Missouri	18.3	19.2		-2.41	
Montana	15.3	16.5		-1.70	
Nebraska	17.1	17.1		-2.77	
Nevada	17.7	18.0		-2.95	
New Hampshire	19.6	18.6		-2.77	
New Jersey	22.8	20.5		-2.77	
New Mexico	16.7	17.8		-1.70	
New York	20.8	20.2		-4.02	
North Carolina	20.8	19.6		-3.49	
North Dakota	15.8	19.8		-1.16	
Ohio	19.6	19.6		-3.85	
Oklahoma	19.4	17.8		-0.98	
Oregon	18.9	18.8		-3.49	
Pennsylvania	21.1	19.0		-3.31	
Rhode Island	18.2	21.5		-3.67	
South Carolina	19.6	19.7		-2.77	
South Dakota	14.5	17.3		-2.95	
Tennessee	19.4	19.8		-1.70	
Texas	18.0	18.0		-0.63	
Utah	15.3	17.8		-3.31	
Vermont	17.2	18.2		-3.85	
Virginia	21.0	19.5		-2.95	
Washington	18.6	17.6		-3.31	
West Virginia	18.7	19.7		-3.49	
Wisconsin	17.2	18.0		-3.85	
Wyoming	20.4	17.7		-3.13	

United States

Target

The age-adjusted death rate for female breast cancer at baseline in 1987 was 23.0 (5). The rates in 1997 and 1998 (19.4 and 18.8) were lower than the target of 20.6. As shown in figure 1, 175 percent of the targeted change was achieved.

Trend

There was significant improvement in the breast cancer death rate for the United States from 1986-88 through 1995-97.

States

Target
40 8

Forty States attained the target for 1997 and 1998. Eight additional States attained the target in 1998 only.

Trend
36
12

Thirty-six States had significant improvement. Twelve States had no significant trend.

3

Three States did not attain the target in 1997-98 or in 1998.

2
1

Two States had significant improvement. Only the District of Columbia did not attain the target and had no significant trend.

Total States with significant improvement

38

A total of 38 States had significant improvements in the lung cancer death rate from 1986-88 through 1995-97.

Figure 7. Age-adjusted death rates for **motor vehicle crash deaths** (ICD-9 Codes: E810-E825) for the United States and each State

	Age-adjusted death rates per 100,000		Target attained (14.2)	Trend	
	1997	1998		Z	Stat. sign.
United States	15.9	15.6		-3.13	
Alabama	27.9	24.6		-1.88	
Alaska	14.3	12.0		-1.88	
Arizona	20.5	19.8		-2.41	
Arkansas	28.7	26.0		-1.70	
California	11.7	11.3		-4.02	
Colorado	16.1	16.8		-0.27	
Connecticut	11.1	10.1		-3.13	
Delaware	18.2	15.2		-2.41	
District of Columbia	8.9	9.8		-0.80	
Florida	18.4	19.0		-2.59	
Georgia	21.2	21.0		-2.06	
Hawaii	11.3	10.6		-1.70	
Idaho	20.2	21.3		-3.49	
Illinois	11.9	12.6		-2.41	
Indiana	16.8	17.4		-3.13	
Iowa	16.5	15.2		-1.52	
Kansas	19.5	20.1		-1.52	
Kentucky	21.4	20.2		-3.49	
Louisiana	21.3	22.1		-2.24	
Maine	13.7	13.4		-3.49	
Maryland	12.4	12.3		-3.67	
Massachusetts	8.0	7.7		-3.85	
Michigan	15.3	14.5		-2.24	
Minnesota	12.1	13.6		-1.88	
Mississippi	31.3	34.3		2.95	
Missouri	21.2	20.6		-1.52	
Montana	26.9	23.6		-2.95	
Nebraska	17.8	19.6		-2.95	
Nevada	21.5	20.0		-1.52	
New Hampshire	10.7	11.9		-2.41	
New Jersey	9.8	9.3		-3.49	
New Mexico	25.1	22.3		-3.31	
New York	9.6	8.7		-3.80	
North Carolina	20.6	21.9		-1.70	
North Dakota	16.2	18.2		-2.77	
Ohio	12.8	12.8		-3.67	
Oklahoma	25.2	22.5		1.70	
Oregon	17.0	16.3		-2.24	
Pennsylvania	13.7	13.3		-3.49	
Rhode Island	10.8	8.7		-3.31	
South Carolina	23.4	25.2		-2.77	
South Dakota	20.3	22.4		-0.63	
Tennessee	22.7	22.1		-0.98	
Texas	19.2	18.9		-2.41	
Utah	18.0	18.3		-1.52	
Vermont	12.4	13.4		-3.13	
Virginia	13.8	13.2		-3.31	
Washington	13.4	13.1		-3.13	
West Virginia	20.4	20.2		-3.49	
Wisconsin	13.9	13.9		-2.95	
Wyoming	25.2	27.6		0.80	

United States

Target

The age-adjusted rate for the United States was 15.9 in 1997 and 15.6 in 1998 (9). As shown in figure 1, the United States had achieved 72 percent of the target of 14.2 motor vehicle crash deaths per 100,000. The baseline in 1987 was 19.2 deaths per 100,000 (age-adjusted).

Trend

There was significant improvement in the motor vehicle crash death rate for the United States from 1986-88 through 1995-97.

States

Target
19 1

Nineteen States attained the target in both 1997 and 1998. Alaska attained the target for the first time in 1998.

Trend
16
4

Sixteen States had significant improvement. Four States had no significant trend.

31

Thirty-one States did not attain the target in 1997-98 or in 1998.

17
13
1

Seventeen States had significant improvement. Thirteen States had no significant trend. In Mississippi there was a significant increase from 1986-88 through 1995-97.

Total States with significant improvement

33

A total of 33 States had significant improvements in the motor vehicle crash death rate from 1986-88 through 1995-97.

Figure 8. Age-adjusted death rates for **work-related injury** (ICD-9 Codes: E800–E999 and other criteria, see Analytic Techniques) for the United States and each State

	Age-adjusted death rates per 100,000 population 16 years and over		Target attained (2.1)	Trend	
	1997	1998		Z	Stat. sign.
United States	3.0	2.9		-0.08	
Alabama	4.1	4.0		-0.39	
Alaska	11.6	9.7		-2.88	
Arizona	1.8	2.0		2.72	
Arkansas	5.2	4.4		0.08	
California	2.7	2.5		0.08	
Colorado	4.0	2.5		1.17	
Connecticut	1.3	2.1		1.32	
Delaware	2.9	1.9		1.95	
District of Columbia	5.3	3.0		1.95	
Florida	3.2	3.3		-1.63	
Georgia	4.2	3.3		2.41	
Hawaii	2.1	1.3		-2.41	
Idaho	6.2	5.5		-1.01	
Illinois	2.6	2.3		-0.86	
Indiana	4.2	3.4		1.17	
Iowa	3.6	3.0		-2.88	
Kansas	4.7	4.9		1.79	
Kentucky	4.7	3.8		2.1	
Louisiana	4.2	4.8		2.57	
Maine	1.9	2.6		-1.48	
Maryland	2.1	2.0		0.08	
Massachusetts	1.4	0.9		-1.17	
Michigan	2.3	2.4		0.39	
Minnesota	2.0	2.3		1.79	
Mississippi	5.0	5.4		-0.54	
Missouri	2.9	3.5		2.41	
Montana	8.2	8.5		-0.54	
Nebraska	3.6	4.4		-0.39	
Nevada	4.3	4.5		-0.7	
New Hampshire	2.5	2.5		-1.32	
New Jersey	1.6	1.6		1.32	
New Mexico	3.9	3.7		1.48	
New York	1.9	1.7		2.26	
North Carolina	3.6	3.9		1.32	
North Dakota	7.0	4.8		-0.54	
Ohio	2.3	2.1		0.7	
Oklahoma	4.1	2.9		0.86	
Oregon	3.3	2.8		-3.5	
Pennsylvania	2.7	2.5		1.17	
Rhode Island	1.4	1.5		-2.57	
South Carolina	4.4	3.7		0.7	
South Dakota	4.1	5.0		-2.72	
Tennessee	4.0	3.5		1.01	
Texas	3.2	3.5		-3.04	
Utah	4.5	4.5		1.17	
Vermont	1.9	3.4		-2.72	
Virginia	3.1	3.3		-0.54	
Washington	2.6	2.6		-1.79	
West Virginia	3.6	3.9		-2.88	
Wisconsin	2.8	2.4		-1.01	
Wyoming	7.9	8.9		-1.63	

United States

Target

Based on the baseline for 1987 (3.1) and the rate for 1998 (2.9), the United States has achieved 20 percent of the targetted reduction to 2.1 work-related injury deaths per 100,000 (age-adjusted).

Trend

There was no statistically significant improvement in the work-related injury death rate for the United States from 1986–88 through 1996–98.

States

Target
8 2

Eight States attained the target in both 1997 and 1998. Two States attained the target only in 1998.

Trend
2
6
2

Two States had significant improvement. Six States had no significant trend. Arizona and New York had significantly increasing trends in the rate of work-related injury deaths during this period.

41

Forty-one States did not attain the target in 1997–98 or in 1998.

7
30
4

Seven States had significant improvement. Thirty States had no significant trend. Georgia, Kentucky, Louisiana, and Missouri had significant increases in work-related injury death rates.

Total States with significant improvement

9

A total of nine States had significant improvements in the age-adjusted rate of work-related injury deaths.

Figure 9. Age-adjusted death rates for **suicide** (ICD-9 Codes: E950-E959) for the United States and each State

	Age-adjusted death rates per 100,000		Target attained (10.5)	Trend	
	1997	1998		Z	Stat. sign.
United States	10.6	10.4		-3.85	
Alabama	10.7	12.0		1.52	
Alaska	21.3	22.1		3.13	
Arizona	15.7	16.0		-2.41	
Arkansas	13.4	13.1		1.88	
California	9.9	9.6		-3.85	
Colorado	14.9	14.2		-1.81	
Connecticut	7.1	7.2		1.16	
Delaware	10.8	8.0		-3.13	
District of Columbia	7.0	7.3		-1.70	
Florida	12.4	12.6		-3.49	
Georgia	11.2	10.0		-2.95	
Hawaii	11.0	9.2		3.67	
Idaho	16.8	15.2		-2.77	
Illinois	7.1	8.1		-4.02	
Indiana	11.6	11.1		0.09	
Iowa	11.6	10.7		-0.63	
Kansas	11.7	11.9		-1.16	
Kentucky	11.3	11.8		-2.06	
Louisiana	11.6	10.4		-3.67	
Maine	10.1	14.5		-1.16	
Maryland	9.3	8.9		-1.52	
Massachusetts	7.4	7.5		-3.13	
Michigan	9.5	9.1		-3.49	
Minnesota	9.4	9.4		-3.85	
Mississippi	11.7	11.5		1.70	
Missouri	12.1	12.1		-0.63	
Montana	19.7	16.3		0.80	
Nebraska	10.0	11.6		-1.16	
Nevada	22.0	21.2		-0.45	
New Hampshire	10.6	12.7		-1.52	
New Jersey	6.6	6.4		0.45	
New Mexico	17.2	16.4		-3.85	
New York	7.1	6.9		0.27	
North Carolina	11.5	10.4		0.09	
North Dakota	12.3	10.6		1.88	
Ohio	9.3	9.0		-3.31	
Oklahoma	14.3	13.1		2.41	
Oregon	14.7	14.8		-0.63	
Pennsylvania	10.8	10.4		-2.24	
Rhode Island	7.1	8.1		-2.59	
South Carolina	10.7	10.7		2.06	
South Dakota	16.6	15.4		2.77	
Tennessee	12.4	12.6		-0.36	
Texas	10.7	10.3		-3.67	
Utah	15.0	16.6		-0.63	
Vermont	10.9	12.9		-3.31	
Virginia	10.4	11.0		-3.85	
Washington	12.1	11.4		-1.52	
West Virginia	12.8	11.5		2.95	
Wisconsin	10.3	10.7		-3.13	
Wyoming	18.4	16.8		1.34	

United States

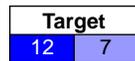


The age-adjusted suicide rate for the United States was 10.8 in 1997 and 10.4 1998 (9). The target (10.5) was therefore attained for the first time in 1998. In figure 1 we see that 108 percent of the target was achieved from a baseline of 11.7 in 1987.



There was significant improvement in the suicide rate for the United States from 1986-88 through 1995-97.

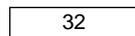
States



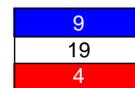
Twelve States attained the target in both 1997 and 1998. Seven States attained the target only in 1998.



Twelve States had significant improvement. Six States had no significant trend. Hawaii attained the target in 1998. However, over the period from 1986-88 through 1995-97 a significant increase was evident.



Thirty States did not attain the target in 1997-98 or in 1998.



Nine States had significant improvement. Nineteen States had no significant trend. Four States (Alaska, Oklahoma, South Dakota, and West Virginia) had significant increases in rates from 1986-88 through 1995-97.

Total States with significant improvement



A total of 21 States had significant improvements in the suicide death rate from 1986-88 to 1995-97.

Figure 10. Age-adjusted death rates for **homicide** (ICD-9 Codes: E960-E978) for the United States and each State

	Age-adjusted death rates per 100,000		Target attained (7.2)	Trend	
	1997	1998		Z	Stat. sign
United States	8.0	7.3		0.27	
Alabama	12.4	10.9		1.52	
Alaska	8.6	8.1		2.59	
Arizona	10.3	10.5		3.31	
Arkansas	12.3	10.0		1.88	
California	9.5	7.9		0.98	
Colorado	4.9	5.2		0.27	
Connecticut	4.7	5.1		1.88	
Delaware	4.6	4.1		0.72	
District of Columbia	61.7	46.7		2.24	
Florida	8.5	8.0		-3.49	
Georgia	8.8	8.9		-2.59	
Hawaii	4.2	2.5		-0.09	
Idaho	3.7	2.7		1.70	
Illinois	10.8	10.5		1.88	
Indiana	7.9	7.3		3.49	
Iowa	2.7	2.5		2.77	
Kansas	6.7	6.6		2.77	
Kentucky	6.8	6.5		0.27	
Louisiana	17.1	14.5		2.24	
Maine	2.2	2.4		-2.41	
Maryland	12.1	12.6		2.77	
Massachusetts	2.5	2.3		0.09	
Michigan	8.6	8.4		-2.24	
Minnesota	3.0	2.7		3.85	
Mississippi	14.8	13.2		2.06	
Missouri	8.6	8.5		1.16	
Montana	4.7	3.3		2.06	
Nebraska	4.1	3.7		2.24	
Nevada	10.9	10.6		2.24	
New Hampshire	2.4	*		-2.77	
New Jersey	5.2	4.5		0.45	
New Mexico	10.0	10.3		0.63	
New York	6.9	5.9		-0.80	
North Carolina	9.4	9.4		0.80	
North Dakota	1.4	*		0.27	
Ohio	4.6	4.3		-0.63	
Oklahoma	9.3	7.3		2.77	
Oregon	4.3	4.7		-0.27	
Pennsylvania	7.5	6.1		2.41	
Rhode Island	3.4	2.8		-1.88	
South Carolina	9.6	9.6		-0.27	
South Dakota	3.2	*		-2.41	
Tennessee	10.8	9.5		0.98	
Texas	8.0	7.6		-1.52	
Utah	3.0	3.1		-0.27	
Vermont	1.8	*		-1.52	
Virginia	8.0	6.7		0.63	
Washington	4.9	4.4		0.63	
West Virginia	5.6	5.0		-0.09	
Wisconsin	4.4	4.0		1.34	
Wyoming	4.7	*		-0.09	

*Figure does not meet standards of reliability or precision.

United States

Target

The age-adjusted homicide rate for the United States was 8.0 in 1997 and 7.3 in 1998 (9). As shown in figure 1, the United States has achieved 92 percent of the difference between the baseline value in 1987 (8.5) and the year 2000 target of 7.2 homicide deaths per 100,000 (age-adjusted).

Trend

There was no statistically significant improvement in the homicide rate for the United States from 1986–88 through 1995–97 because early increases were followed by a gradual decrease. Although not tested for significance here, relatively consistent declines have been observed since 1991. If this trend continues, a statistically significant decline should be expected.

States

Target
27 2

Twenty-seven States attained the target for both 1997 and 1998. Two States attained the target in 1998.

Trend
3
20
6

Three States had significant improvement. Twenty States had no significant trend. Six States attained the target during 1997–98 but had significant trends in the wrong direction.

22

Twenty-two States did not attain the target in 1997-98 or in 1998.

3
10
9

Three States had significant improvement. Ten States had no significant trend. Nine States had significant increases in rates from 1986–88 through 1995–97.

There have been marked declines in homicide rates in a number of States in recent years. If these trends continue, significant declines should become evident.

Total States with significant improvement

6

A total of six States had significant improvements in the homicide death rate from 1986–88 through 1995–97.

Figure 11. Reported incidence of tuberculosis per 100,000 population: United States and each State

	Reported cases per 100,000 population		Target attained (3.5)	Trend	
	1997	1998		Z	Stat. sign.
United States	7.4	6.8		-1.99	
Alabama	9.4	8.8		-4.02	
Alaska	12.8	9.0		2.35	
Arizona	6.5	5.4		-2.59	
Arkansas	7.9	6.7		-3.49	
California	12.6	11.8		-0.80	
Colorado	2.4	2.0		0.10	
Connecticut	3.9	3.9		-2.92	
Delaware	5.3	4.8		-0.54	
District of Columbia	20.8	20.5		-2.95	
Florida	9.5	8.7		-3.80	
Georgia	9.3	8.3		-3.57	
Hawaii	14.0	15.2		-0.45	
Idaho	1.2	1.1		-3.33	
Illinois	8.1	7.1		-1.56	
Indiana	2.9	3.2		-4.02	
Iowa	2.6	1.9		0.86	
Kansas	3.0	2.1		1.41	
Kentucky	5.1	4.5		-3.08	
Louisiana	9.3	8.7		1.67	
Maine	1.7	1.0		-3.09	
Maryland	6.7	6.3		-3.52	
Massachusetts	4.4	4.6		-2.84	
Michigan	3.8	3.9		-3.80	
Minnesota	3.4	3.4		2.53	
Mississippi	9.0	8.2		-3.98	
Missouri	4.6	3.4		-3.89	
Montana	2.0	2.3		-2.72	
Nebraska	1.3	1.9		-0.52	
Nevada	6.7	7.3		2.59	
New Hampshire	1.5	1.2		-0.69	
New Jersey	8.9	7.9		-2.24	
New Mexico	4.1	3.9		-3.39	
New York	12.5	11.0		-1.34	
North Carolina	6.2	6.6		-4.02	
North Dakota	1.9	1.6		-2.17	
Ohio	2.6	2.1		-4.02	
Oklahoma	6.4	5.9		-2.41	
Oregon	5.0	4.8		-0.56	
Pennsylvania	4.4	3.7		-2.47	
Rhode Island	3.8	6.4		-1.99	
South Carolina	8.7	7.5		-4.02	
South Dakota	2.6	3.1		-2.77	
Tennessee	8.7	8.1		-4.02	
Texas	10.3	9.2		-0.72	
Utah	1.7	2.5		-0.90	
Vermont	1.0	0.8		-3.39	
Virginia	5.2	5.0		-2.71	
Washington	5.4	4.7		-1.85	
West Virginia	3.0	2.3		-2.47	
Wisconsin	2.5	2.1		-0.11	
Wyoming	0.4	0.8		1.37	

United States

Target

The case rate per 100,000 population in 1998 was 6.8. The decline in the tuberculosis rate from the baseline in 1988 (9.1) was less than half that required to reach the target of 3.5 for Objective 20.4.

Trend

There was statistically significant improvement in the tuberculosis rate for the United States from 1987-89 through 1996-98.

States

Target
18
1

Eighteen States attained the target for tuberculosis in both 1997 and 1998. Missouri attained the target for the first time in 1998.

Trend
10
8
1

In 10 States the rate declined significantly. Eight States had no significant trend. Minnesota attained the target in 1997-98 but the long-term trend was in the wrong direction.

32

Thirty-two States did not attain the target in 1997-98 or in 1998.

19
11
2

Nineteen States had significant improvement. Eleven States had no significant trend. Alaska and Nevada had significant increases in rates from 1987-89 through 1996-98.

Total States with significant improvement

29

A total of 29 States had significant improvements in the tuberculosis case rate from 1987-89 through 1996-98.

Figure 12. Reported incidence of **syphilis** per 100,000 population: United States and each State

	Reported cases per 100,000 population		Target attained (4.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	3.2	2.6		-3.31	
Alabama	9.5	6.3		-2.24	
Alaska	0.2	0.2		-3.31	
Arizona	2.9	4.0		-0.63	
Arkansas	6.9	4.3		-1.88	
California	1.2	0.9		-4.02	
Colorado	0.4	0.3		-0.98	
Connecticut	1.9	0.8		-3.67	
Delaware	3.0	2.8		-2.77	
District of Columbia	22.1	15.5		-3.31	
Florida	2.0	2.0		-4.02	
Georgia	6.9	4.4		-3.31	
Hawaii	0.1	0.3		-3.67	
Idaho	0.1	0.2		-1.88	
Illinois	3.6	3.5		-1.52	
Indiana	2.6	3.6		1.70	
Iowa	0.2	0.2		-0.80	
Kansas	1.1	0.5		-1.16	
Kentucky	3.5	2.7		1.52	
Louisiana	8.4	9.8		-1.88	
Maine	0.2	0.1		-3.85	
Maryland	17.5	12.6		-0.63	
Massachusetts	1.3	0.7		-3.31	
Michigan	1.6	2.1		-2.41	
Minnesota	0.3	0.2		-1.88	
Mississippi	14.3	9.5		0.98	
Missouri	2.1	2.0		0.45	
Montana	0.0	0.0		-3.31	
Nebraska	0.3	0.5		-3.49	
Nevada	0.6	0.9		-4.02	
New Hampshire	0.0	0.2		-1.70	
New Jersey	1.9	1.3		-3.31	
New Mexico	0.5	0.8		-3.67	
New York	0.8	0.7		-3.85	
North Carolina	9.7	9.6		-1.16	
North Dakota	0.0	0.0		-3.15	
Ohio	1.9	1.2		1.16	
Oklahoma	3.5	2.9		-0.80	
Oregon	0.3	0.2		-3.85	
Pennsylvania	1.0	0.8		-3.31	
Rhode Island	0.2	0.1		-2.77	
South Carolina	10.0	7.1		-2.06	
South Dakota	0.1	0.1		-3.13	
Tennessee	13.9	10.4		-2.77	
Texas	3.5	2.2		-3.13	
Utah	0.2	0.2		-3.49	
Vermont	0.0	0.7		-3.26	
Virginia	3.5	2.2		-1.70	
Washington	0.3	0.8		-3.31	
West Virginia	0.1	0.2		-2.59	
Wisconsin	1.7	1.1		-0.63	
Wyoming	0.0	0.2		-2.59	

United States

Target

The reported incidence of syphilis per 100,000 population was 18.1 at baseline in 1989. The rate in 1997 was 3.2 and the rate in 1998 2.6. The United States has attained the year 2000 target with a 110 percent reduction in the rate.

Trend

There was significant improvement in the incidence rate for syphilis for the United States from 1987–89 through 1996–98.

States

Target
41

Forty-one States attained the target in both 1997 and 1998.

Trend
26
15

Twenty-six States had significant improvement. Fifteen States had no significant trend.

10

Ten States did not attain the target in 1997–98 or in 1998.

5
5

Five States had significant improvement. Five States had no significant trend.

Total States with significant improvement

31

A total of 31 States had significant improvements in the syphilis case rate from 1987–89 through 1996–98.

Figure 13. Reported incidence of **measles**: United States and each State

	Reported cases per 100,000 population		Target attained (0)	Trend	
	1997	1998		Z	Stat. sign.
United States	138	100		-3.22	
Alabama	1	1		-2.23	
Alaska	0	33		0.00	
Arizona	5	11		-1.98	
Arkansas	0	0		-2.47	
California	24	9		-3.22	
Colorado	0	0		-2.47	
Connecticut	1	0		-3.46	
Delaware	0	1		-1.98	
District of Columbia	2	0		-0.88	
Florida	8	2		-3.46	
Georgia	1	2		-2.72	
Hawaii	4	0		-2.47	
Idaho	0	0		-2.47	
Illinois	7	1		-2.72	
Indiana	0	3		-2.72	
Iowa	0	0		-3.22	
Kansas	0	0		-3.46	
Kentucky	0	0		-2.23	
Louisiana	0	0		-0.99	
Maine	1	0		-3.22	
Maryland	2	1		-3.46	
Massachusetts	16	2		-2.72	
Michigan	2	10		-3.22	
Minnesota	8	0		-1.73	
Mississippi	0	0		-3.07	
Missouri	1	0		-0.74	
Montana	0	0		-2.36	
Nebraska	0	0		-2.65	
Nevada	2	0		-2.72	
New Hampshire	1	0		-3.22	
New Jersey	3	8		-3.46	
New Mexico	0	0		-1.98	
New York	16	4		-3.46	
North Carolina	2	1		-2.72	
North Dakota	0	0		*	
Ohio	0	1		-2.97	
Oklahoma	1	0		-2.39	
Oregon	0	0		-1.98	
Pennsylvania	8	4		-1.48	
Rhode Island	0	0		-3.22	
South Carolina	1	0		-1.89	
South Dakota	8	0		-0.84	
Tennessee	0	1		-1.98	
Texas	7	0		-2.97	
Utah	1	0		-2.72	
Vermont	0	1		-1.73	
Virginia	1	2		-3.22	
Washington	2	1		-1.73	
West Virginia	1	0		-1.24	
Wisconsin	1	1		-2.23	
Wyoming	0	0		-2.47	

* North Dakota has had no reported cases of measles since 1987.

United States

Target

The United States did not attain the target of zero cases of measles in 1998. Based on measles case rates of 11.14 per 100,000 population in 1990 and 0.04 in 1998, the United States has achieved 99.6 percent of the targeted reduction in measles cases.

Trend

In 1987, 1988, and 1989 there were 3,656, 3,396, and 18,197 measles cases reported, respectively. Measles cases reached their peak in 1990 with 27,786 cases and dropped to 100 cases in 1998. The significance of this trend was assessed based on the 3-year averages from 1989–91 through 1996–98.

States

Target
15 14

Fifteen States had zero cases in both 1997 and 1998 and 14 States had no cases in 1998 but not in 1997.

Trend
22
7

Twenty-two States had consistent reductions in measles case rates from 1989–91 through 1996–98. Seven States had no significant trends in measles cases. It should be remembered that Kendall's tau is sensitive to the consistency of a trend over time.

22

Twenty-two States did not attain the target of zero cases either in 1997–98 or in 1998.

18
3
1

Eighteen States had substantial declines in the measles case rate. Three States had an inconsistent trend for the period 1989–91 through 1996–98. Alaska had increases in measles case rates from 1989–91 through 1996–98.

Total States with significant improvement

40

A total of 40 States had significant improvements in the measles case rate from 1989–91 through 1996–98.

Figure 14. **Infant mortality rates** (total for all causes) for the United States and each State

	Infant deaths per 100,000 live births		Target attained (7.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	7.2	7.2		-4.02	
Alabama	9.5	10.2		-3.85	
Alaska	7.5	5.9		-3.85	
Arizona	7.1	7.5		-3.85	
Arkansas	8.7	8.9		-3.31	
California	5.9	5.8		-4.02	
Colorado	7.0	6.7		-3.67	
Connecticut	7.2	7.0		-3.67	
Delaware	7.8	9.6		-3.49	
District of Columbia	13.2	12.5		-3.31	
Florida	7.1	7.2		-4.02	
Georgia	8.6	8.5		-4.02	
Hawaii	6.6	6.9		-3.67	
Idaho	6.8	7.2		-3.67	
Illinois	8.4	8.4		-4.02	
Indiana	8.2	7.6		-4.02	
Iowa	6.2	6.6		-3.49	
Kansas	7.4	7.0		-2.59	
Kentucky	7.3	7.5		-4.02	
Louisiana	9.5	9.1		-3.31	
Maine	5.1	6.3		-3.31	
Maryland	8.8	8.6		-3.67	
Massachusetts	5.2	5.1		-4.02	
Michigan	8.2	8.2		-4.02	
Minnesota	5.9	5.9		-3.67	
Mississippi	10.6	10.1		-3.85	
Missouri	7.6	7.7		-3.85	
Montana	6.9	7.4		-3.49	
Nebraska	7.4	7.3		-1.88	
Nevada	6.5	7.0		-3.67	
New Hampshire	4.3	4.4		-3.85	
New Jersey	6.3	6.4		-4.02	
New Mexico	6.1	7.2		-3.67	
New York	6.7	6.3		-4.02	
North Carolina	9.2	9.3		-4.02	
North Dakota	6.2	8.6		-4.02	
Ohio	7.8	8.0		-3.67	
Oklahoma	7.5	8.5		-2.77	
Oregon	5.8	5.4		-4.02	
Pennsylvania	7.6	7.1		-4.02	
Rhode Island	7.0	7.0		-3.31	
South Carolina	9.6	9.6		-3.85	
South Dakota	7.7	9.1		-3.31	
Tennessee	8.6	8.2		-4.02	
Texas	6.4	6.4		-4.02	
Utah	5.8	5.6		-3.67	
Vermont	6.1	7.0		-0.98	
Virginia	7.8	7.7		-4.02	
Washington	5.6	5.7		-4.02	
West Virginia	9.6	8.0		-3.31	
Wisconsin	6.5	7.2		-3.85	
Wyoming	5.8	7.2		-4.02	

United States

Target

The infant mortality rate at baseline in 1987 was 10.1, in both 1997 and 1998 the rate was 7.2 infant deaths per 1,000 live births (5.9). Ninety-four percent of the change required to attain the target had occurred. The fact that there was no decline from 1997 to 1998 is, however, cause for concern.

Trend

There was significant improvement in the infant mortality rate for the United States from 1986–88 through 1995–97.

States

Target
17
3

Seventeen States attained the target for infant mortality in 1997 and 1998. Three attained the target only in 1998.

Trend
19
1

Nineteen of these States improved significantly. Only Vermont had no significant decline over the period studied. However, Vermont has had rates less than 7.0 in 7 of the last 10 years.

31

Thirty-one States did not attain the target in 1997–98 or in 1998.

30
1

Thirty States had significant declines. Only Nebraska had not attained the target and had no significant trend.

Total States with significant improvement

49

A total of 49 States had significant improvements in infant mortality rates from 1986–88 through 1995–97.

Figure 15. Percent of live births of **low birthweight**: United States and each State

	Percent low birthweight		Target attained (5.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	7.5	7.6		4.02	
Alabama	9.2	9.3		4.02	
Alaska	5.9	6.0		2.77	
Arizona	6.9	6.8		3.85	
Arkansas	8.4	8.9		2.24	
California	6.2	6.2		1.52	
Colorado	8.8	8.6		3.85	
Connecticut	7.3	7.8		3.49	
Delaware	8.7	8.4		3.49	
District of Columbia	13.4	13.1		-1.52	
Florida	8.0	8.1		0.98	
Georgia	8.8	8.5		3.67	
Hawaii	7.2	7.5		2.06	
Idaho	6.3	6.0		2.24	
Illinois	7.9	8.0		3.67	
Indiana	7.7	7.9		4.02	
Iowa	6.4	6.4		4.02	
Kansas	6.9	7.0		2.95	
Kentucky	7.8	8.1		3.67	
Louisiana	10.2	10.1		4.02	
Maine	5.9	5.8		3.49	
Maryland	8.8	8.7		3.49	
Massachusetts	7.0	6.9		3.49	
Michigan	7.7	7.8		2.95	
Minnesota	5.9	5.8		3.67	
Mississippi	10.1	10.1		3.13	
Missouri	7.7	7.8		4.02	
Montana	6.3	7.0		2.95	
Nebraska	7.0	6.5		2.95	
Nevada	7.6	7.6		2.24	
New Hampshire	5.8	5.7		3.13	
New Jersey	7.9	8.0		3.67	
New Mexico	7.8	7.6		3.31	
New York	7.8	7.8		0.45	
North Carolina	8.8	8.8		4.02	
North Dakota	6.2	6.5		3.49	
Ohio	7.7	7.7		3.85	
Oklahoma	7.3	7.2		3.13	
Oregon	5.5	5.4		1.52	
Pennsylvania	7.6	7.6		4.02	
Rhode Island	7.4	7.6		2.95	
South Carolina	9.2	9.5		3.31	
South Dakota	5.5	5.8		3.31	
Tennessee	8.8	9.1		3.85	
Texas	7.3	7.4		3.67	
Utah	6.6	6.7		3.49	
Vermont	6.3	6.5		3.85	
Virginia	7.7	7.9		4.02	
Washington	5.6	5.7		0.63	
West Virginia	8.3	8.0		3.49	
Wisconsin	6.4	6.5		4.02	
Wyoming	9.0	8.9		2.41	

United States

Target

The percent low birthweight was 7.5 in 1997 and 7.6 in 1998 (10). The percent low birthweight has risen slowly since 1986 when it was 6.8 and it was 6.9 at baseline in 1987 (11). This is the one HSI for which both national and State trends have been in the wrong direction.

Trend

The increase in the percent low birthweight from 1986–88 through 1995–97 was statistically significant.

States

Target
51

None of the States attained the target in 1997 or 1998.

Trend
45
6

In 45 States there was a significant increase in the percent low birthweight from 1986–88 through 1995–97. In six States there was no significant trend in the percent low birthweight from 1986–88 through 1995–97. The dramatic increase in multiple births is responsible for part of the increase in low birthweight nationwide and for essentially all of the increase in Massachusetts (12).

Total States with significant improvement

0

None of the States had significant improvements in the percent low birthweight from 1986–88 through 1995–97.

Figure 16. Percent of mothers who began prenatal care in the first trimester: United States and each State

	Percent beginning care in first trimester		Target attained (90.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	82.5	82.8		3.31	
Alabama	82.2	82.4		3.49	
Alaska	80.4	81.4		2.77	
Arizona	75.4	75.1		2.95	
Arkansas	75.7	77.8		4.02	
California	81.8	82.4		2.41	
Colorado	82.9	82.2		3.67	
Connecticut	89.2	88.0		3.49	
Delaware	82.5	83.4		3.13	
District of Columbia	66.6	72.0		-0.27	
Florida	83.9	83.6		4.02	
Georgia	85.8	86.4		3.67	
Hawaii	83.4	85.4		1.34	
Idaho	78.6	78.7		2.59	
Illinois	82.4	82.7		2.24	
Indiana	80.1	79.9		2.24	
Iowa	87.4	87.3		3.13	
Kansas	85.6	85.8		3.31	
Kentucky	85.8	86.4		4.02	
Louisiana	81.3	82.2		2.95	
Maine	88.9	88.9		3.67	
Maryland	88.8	87.8		4.02	
Massachusetts	88.9	89.5		2.77	
Michigan	84.2	84.3		2.77	
Minnesota	84.1	84.5		4.02	
Mississippi	80.1	80.6		1.16	
Missouri	86.0	86.1		2.77	
Montana	82.6	82.3		2.77	
Nebraska	83.9	83.9		2.59	
Nevada	76.1	74.6		1.88	
New Hampshire	89.6	89.7		4.02	
New Jersey	81.3	81.6		3.13	
New Mexico	70.2	67.6		3.85	
New York	80.6	81.2		3.67	
North Carolina	83.9	84.5		3.13	
North Dakota	84.8	85.6		3.67	
Ohio	85.1	85.5		2.77	
Oklahoma	78.5	78.6		2.77	
Oregon	81.1	80.2		4.02	
Pennsylvania	83.8	84.8		4.02	
Rhode Island	89.5	89.7		3.85	
South Carolina	80.5	81.4		4.02	
South Dakota	82.1	82.7		4.02	
Tennessee	83.7	84.1		4.02	
Texas	78.5	79.3		4.02	
Utah	83.7	82.1		2.41	
Vermont	88.0	87.4		4.02	
Virginia	85.1	85.2		3.13	
Washington	83.3	83.0		3.67	
West Virginia	82.0	83.7		4.02	
Wisconsin	84.6	84.3		1.34	
Wyoming	82.5	81.3		3.49	

United States

Target

In 1997, 82.5 percent of women began prenatal care in the first trimester and in 1998, 82.8 percent began care in the first trimester (10). As shown in figure 1, the United States had achieved about one-half of the desired increase in the percent of women who begin care in the first trimester from the baseline in 1987 (76.0).

Trend

There was significant improvement in this indicator from 1986–88 through 1995–97 in the United States.

States

Target
51

None of the States attained the national target during 1997 or 1998.

Trend
46
5

Forty-six States had significant improvements in the percent beginning care in the first trimester from 1986–88 through 1995–97. Five States had no significant trend.

Total States with significant improvement

46

A total of 46 States had significant improvements in the percent of women beginning prenatal care in the first trimester from 1986–88 through 1995–97.

Figure 17. Live birth rates for females ages 15–17: United States and each State

	Live birth rates per 1,000 females ages 15–17		Target attained (23.3)	Trend	
	1997	1998		Z	Stat. sign.
United States	32.1	30.4		-2.44	
Alabama	43.4	40.7		-0.19	
Alaska	25.1	24.8		-2.07	
Arizona	44.0	45.2		-2.07	
Arkansas	42.9	41.4		-1.32	
California	36.2	33.4		-2.07	
Colorado	29.9	29.0		-1.69	
Connecticut	22.5	21.4		-0.19	
Delaware	36.8	33.9		0.19	
District of Columbia	65.9	65.5		-2.82	
Florida	35.1	33.3		-2.82	
Georgia	44.0	40.3		-2.82	
Hawaii	25.3	29.5		-2.44	
Idaho	23.3	24.5		-1.32	
Illinois	34.4	32.7		-0.56	
Indiana	32.1	28.9		-2.07	
Iowa	20.1	18.6		0.94	
Kansas	27.5	24.8		0.19	
Kentucky	35.4	31.5		-2.07	
Louisiana	42.1	40.4		-1.32	
Maine	15.4	14.9		-2.82	
Maryland	28.2	26.4		-2.82	
Massachusetts	19.1	18.2		-2.44	
Michigan	25.4	23.9		-2.82	
Minnesota	17.8	16.5		-2.07	
Mississippi	50.2	47.2		-2.07	
Missouri	29.6	28.6		-2.82	
Montana	20.1	19.8		-1.32	
Nebraska	21.3	20.5		-1.32	
Nevada	42.2	38.2		-0.19	
New Hampshire	14.0	13.1		-1.69	
New Jersey	21.3	20.2		-2.07	
New Mexico	44.4	44.2		-0.19	
New York	23.4	22.4		-0.19	
North Carolina	37.7	36.2		-2.82	
North Dakota	14.3	16.1		-0.56	
Ohio	28.6	26.7		-2.44	
Oklahoma	37.3	35.0		-1.69	
Oregon	27.0	26.3		-2.82	
Pennsylvania	21.9	21.8		-2.44	
Rhode Island	27.6	24.4		-0.94	
South Carolina	40.0	39.6		-2.44	
South Dakota	21.8	19.6		-2.07	
Tennessee	38.5	37.7		-2.82	
Texas	47.1	45.2		0.19	
Utah	23.7	22.2		-2.44	
Vermont	12.1	11.4		-2.82	
Virginia	26.1	24.3		-2.82	
Washington	24.5	23.2		-2.44	
West Virginia	27.5	26.2		-0.94	
Wisconsin	21.4	19.6		-2.82	
Wyoming	23.3	22.8		-1.32	

United States

Target

The live birth rate for females ages 15–17 in 1997 was 32.1 and the rate in 1998 was 30.4 (10). As shown in figure 1, about 50 percent of the difference between the baseline of 37.5 in 1990 and the target of 23.3 live births per 1,000 women 15–17 for the year 2000 had been achieved in 1998.

Trend

There was significant improvement in the live birth rate for teenagers 15–17 between 1990–92 and 1995–97. The decline in birth rates for teens has been documented in other reports (13–16).

States

Target
15 3

Fifteen States attained the target in both 1997 and 1998. Three additional States attained the target in 1998.

Trend
10
8

In 10 of these States the rate declined significantly from 1990–92 through 1995–97. In the eight other States there was no significant trend for the period studied.

33

Thirty-three States did not attain the target in 1997–98 or in 1998.

19
14

Nineteen States had significant improvement. Fourteen States had no significant trend based on the 3-year averages from 1990–92 through 1995–97.

Total States with significant improvement

29

A total of 29 States had significant improvements in the live birth rate for females 15–17 from 1990–92 through 1995–97.

Figure 18. Percent of children 5–17 years old in poverty: United States and each State

	Percent in poverty		Trend	
	1990–92	1996–98	Z	Stat. sign.
United States	19.7	18.5	-1.95	
Alabama	24.1	22.8	-0.45	
Alaska	13.3	9.8	-1.65	
Arizona	21.0	26.0	2.77	
Arkansas	21.0	19.0	-0.45	
California	22.5	23.4	-0.15	
Colorado	14.7	11.1	-1.85	
Connecticut	13.2	16.1	1.65	
Delaware	11.5	14.5	2.15	
District of Columbia	31.3	40.3	0.45	
Florida	24.4	19.8	-2.77	
Georgia	25.8	23.1	-1.05	
Hawaii	16.1	16.4	1.05	
Idaho	18.4	17.9	-0.15	
Illinois	19.9	14.5	-3.08	
Indiana	16.7	11.3	-2.85	
Iowa	12.8	12.7	0.75	
Kansas	13.8	12.3	-1.35	
Kentucky	21.6	23.0	0.15	
Louisiana	31.0	26.5	-1.35	
Maine	19.1	13.0	-2.55	
Maryland	15.2	11.2	-1.65	
Massachusetts	16.8	16.2	-0.92	
Michigan	19.6	14.9	-2.46	
Minnesota	17.4	13.8	-1.35	
Mississippi	31.3	22.5	-2.05	
Missouri	17.2	14.8	-1.35	
Montana	17.8	21.6	1.95	
Nebraska	12.2	12.3	-1.05	
Nevada	15.4	12.1	-1.95	
New Hampshire	8.4	11.3	-0.15	
New Jersey	14.8	14.1	-1.54	
New Mexico	28.0	28.8	1.65	
New York	22.2	24.4	2.85	
North Carolina	20.0	17.7	-2.25	
North Dakota	15.4	15.4	0.62	
Ohio	17.5	15.7	-1.35	
Oklahoma	19.0	20.3	0.75	
Oregon	12.9	17.2	2.77	
Pennsylvania	15.4	16.4	0.75	
Rhode Island	13.8	18.4	0.45	
South Carolina	24.0	19.1	-1.23	
South Dakota	17.5	10.8	-2.25	
Tennessee	21.4	17.3	-1.95	
Texas	23.3	21.7	-1.05	
Utah	13.0	10.8	-1.95	
Vermont	14.8	13.6	-0.15	
Virginia	14.0	14.4	0.92	
Washington	12.2	13.1	1.35	
West Virginia	26.0	22.9	-2.25	
Wisconsin	13.8	11.0	-2.25	
Wyoming	11.0	11.9	1.05	

United States

Target

There is no target for this indicator.

Trend

The percent of children 5–17 in poverty increased from 19.0 in 1990 to 20.8 in 1993 and then declined gradually to 17.8 in 1998. Based on the 3-year averages, this trend was statistically significant.

States

Target

There is no target for this indicator.

Trend
13
33
5

Thirteen States also experienced significant declines in the percent of children 15–17 in poverty. Thirty-three States had no statistically significant trend in the percent of children in poverty (based on 3-year averages) from 1990–92 through 1996–98. Five States had significant increases in the percent of children 15–17 in poverty (based on 3-year averages) from 1990–92 through 1996–98.

51

Total

Figure 19. Percent of persons in counties exceeding EPA standards for air quality: United States and each State

	Percent in areas exceeding EPA air quality standards		Target attained (25.0)	Trend	
	1997	1998		Z	Stat. sign.
United States	33.2	40.6		-3.35	
Alabama	24.5	39.0		-1.48	
Alaska	13.9	64.4		-1.48	
Arizona	60.3	59.6		-2.57	
Arkansas	2.0	13.8		-0.96	
California	68.7	89.3		-2.72	
Colorado	0.3	4.9		-3.35	
Connecticut	91.3	91.3		-2.41	
Delaware	100.0	100.0		-3.50	
District of Columbia	100.0	0.0		-1.02	
Florida	5.0	42.2		-2.41	
Georgia	20.6	30.5		0.70	
Hawaii	11.9	12.0		2.10	
Idaho	23.5	1.1		-2.88	
Illinois	50.6	48.5		-3.66	
Indiana	19.9	13.7		-3.19	
Iowa	5.5	12.6		1.63	
Kansas	0.0	5.8		-1.12	
Kentucky	21.0	28.7		-1.17	
Louisiana	18.2	33.3		-1.95	
Maine	44.1	41.3		-3.35	
Maryland	59.8	67.6		-2.41	
Massachusetts	18.1	37.5		-3.19	
Michigan	8.0	17.3		-1.32	
Minnesota	0.0	0.0		-3.93	
Mississippi	3.4	7.4		0.57	
Missouri	32.1	37.7		-1.32	
Montana	9.3	14.1		-3.66	
Nebraska	26.6	28.2		-0.39	
Nevada	68.8	66.5		-2.57	
New Hampshire	32.0	2.8		-2.41	
New Jersey	56.0	29.6		-2.10	
New Mexico	9.6	9.7		-1.95	
New York	35.7	29.3		-3.04	
North Carolina	10.8	27.0		-1.17	
North Dakota	0.0	0.0		-1.31	
Ohio	17.2	37.0		-2.72	
Oklahoma	16.1	42.3		0.86	
Oregon	0.0	15.5		-3.35	
Pennsylvania	52.8	40.1		-2.88	
Rhode Island	16.4	0.0		-1.17	
South Carolina	5.3	17.5		-2.26	
South Dakota	11.8	0.0		1.37	
Tennessee	20.1	43.6		-1.17	
Texas	46.7	50.0		-1.63	
Utah	0.0	51.6		-3.04	
Vermont	0.0	0.0		-3.61	
Virginia	22.8	25.4		-1.01	
Washington	4.1	46.2		-3.35	
West Virginia	7.1	7.1		-3.35	
Wisconsin	30.1	29.0		-1.95	
Wyoming	5.2	0.0		-1.35	

United States

Target

The percent of persons living in counties exceeding EPA air quality standards at baseline in 1988 was 56.2. In 1998 the comparable percent was 40.6, although the percent had been lower in intervening years (see Web site for annual percents). Based on the target employed in this report (25.0 percent) the United States has achieved 50 percent of the desired reduction in the percent of persons living in counties exceeding EPA air quality standards.

Trend

There was significant improvement in the percent of persons living in counties exceeding EPA air quality standards from 1986–88 through 1996–98 in the United States.

States

Target
20
2

Twenty States attained the target in both 1997 and 1998. Two States attained the target only in 1998.

Trend
10
11
1

In 10 of these States the percent declined significantly from 1986–88 through 1996–98. In 11 other States there was no significant trend for the period studied. In Hawaii there was an increasing trend in the percent of persons living in counties exceeding EPA air quality standards. Hawaii's air quality is subject to changes in both weather and volcanic activity.

29

Twenty-nine States did not attain the target in 1997–98 or in 1998.

16
13

Sixteen States had significant improvement. Thirteen States had no significant trend based on the 3-year averages from 1986–88 through 1996–98.

Total States with significant improvement

26

Altogether 26 States had significant reductions in the percent of persons living in counties exceeding EPA air quality standards.

Summary of Health Status Indicators (HSIs) for the United States and each State

The targets attained and the significance of trends for the HSIs are summarized for each State in [figure 20](#). In this figure, the States are grouped according to nine geographic regions in order to examine regional patterns. A summary of each State's experience with the HSIs is shown on the far right. The first column in the summary on the right shows the number of HSI targets attained, based on both 1997 and 1998 or provisionally based on 1998 alone for the United States and for each State. The total number of HSIs with targets was 17. The second column shows the number of HSIs for which statistically significant improvement occurred based on 3-year averages from baseline to most recent. Trends were assessed for all 18 indicators. The third column shows the total number of HSIs for which the target has been attained or the trend was significant. Excluded from the totals in this column were any HSIs for which the target was attained but the trend was in the wrong direction.

Targets attained

The counts in this figure are based on the information in [figures 2–19](#). When the criteria of attainment based on two successive years of data (1997–98) are applied to the United States, we find that three objectives were attained: lung cancer deaths, breast cancer deaths, and reported syphilis cases. When the less restrictive criteria of attainment for the most recent year (1998) is applied, we find that three additional objectives were attained: total deaths, heart disease deaths, and suicide deaths. The sum of these two numbers of objectives (6) is equal to the number of objectives for which at least 100 percent of the target was attained as shown in [figure 1](#).

Six States (Connecticut, Hawaii, Massachusetts, Minnesota, New Hampshire, and Rhode Island) had attained the national targets for 12 or more of the 17 indicators with targets ([figure 21](#), map). Seventeen States had attained 9–11 targets. Fifteen States had attained 5–8 targets and 13 States had attained 4 or fewer targets.

Significant trends

Trends were assessed in terms of whether they were statistically significant and in the desired direction. The statistical significance and direction of trends were assessed for all 18 HSIs. The United States had significant improving trends for 14 of the indicators. No significant improvement was evident for lung cancer deaths, work-related injury deaths, homicide deaths, and the percent of low-birthweight infants was increasing significantly. Among the States, only nine had significant improvements in lung cancer death rates, six had improvements in homicide rates, and none had improvements in the percent of low-birthweight infants. In addition to these three HSIs, less than one-half of the States

had significant improvements in suicide and the percent of children 5–17 living in poverty. With these exceptions, the United States, the District of Columbia, and the 50 States have made substantial strides in improving health status.

Florida had significant improvement on 15 indicators, and Maine and Michigan had significant improvement on 14. These three States illustrate the fact that attainment of the national targets and the statistical significance of trends over time are distinct dimensions. While both Florida and Michigan had many significant improvements, they each attained only 5 targets while Maine attained 11 targets. Thirty-five States had significant improvement for 9 or more indicators, and 16 States had significant improvements for fewer than 9 indicators.

Targets, trends, and regional differences

The comparative success of the New England States is evident in the numbers of targets attained (at least 11 for each State in the region) and in the numbers of indicators with significant improving trends (at least 10) or combined targets and trends (at least 14). When targets and trends are combined, all of the States in the Middle Atlantic and East North Central regions had attained targets or had significant improvements on 12 or more HSIs. Eight out of nine States in the South Atlantic region, seven out of eight States in the Mountain Region, four out of seven States in the West North Central Region, two out of five States in the Pacific Region, and one out of four States in the East South Central region and the West South Central region had attained targets or made significant improvements on 12 or more HSIs.

Conclusions

Monitoring health measures over time provides an indication of whether or not health status is improving. Comparisons among geographic areas provide an indication of how much improvement is possible. Committee 22.1 made a valuable contribution to public health by identifying the 18 Health Status Indicators. This analysis has demonstrated the fact that some States had already achieved the national HP2000 target in the late 80's. Many more States attained the target during the decade and still more States have made significant improvements. On the other hand, while a few States were close to the HP2000 target for the percent of low-birthweight infants from 1986–88, most of the States (45) have had significant increases in this indicator.

Experience has shown that the HSIs should be examined for specific race and Hispanic origin groups. There are substantial and persistent disparities among groups in the HSIs based on race and Hispanic origin. The race-ethnic composition of States therefore affects the absolute and relative levels of the indicators. Originally, Committee 22.1 recommended that only infant mortality be examined by race and Hispanic origin (3). Subsequently, the committee

Figure 20. Summary of targets attained and significance of trends in the **Health Status Indicators (HSIs)** for the United States and each State

	Total deaths		Heart disease deaths		Stroke deaths		Lung cancer deaths		Breast cancer deaths		Motor vehicle deaths		Work-related injury deaths		Suicide deaths		Homicide deaths		Tuberculosis	
	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend
United States	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue			Blue	Blue				
New England																				
Maine	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue						Blue	Blue	Blue
New Hampshire	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue						Blue	Blue	Blue
Vermont	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Massachusetts	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Rhode Island	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Connecticut	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Middle Atlantic																				
New York	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red	Blue		Blue	Blue
New Jersey	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Pennsylvania	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Blue	Blue	Blue	Red	Blue
East North Central																				
Ohio	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Indiana	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Red
Illinois	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Michigan	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Wisconsin	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
West North Central																				
Minnesota	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Iowa	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Red
Missouri	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red		Blue	Blue	Blue
North Dakota	Blue	Blue	Blue	Blue		Blue	Blue	Red	Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
South Dakota	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red		Blue	Blue	Blue
Nebraska	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Red
Kansas	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
South Atlantic																				
Delaware	Blue	Blue	Blue	Blue		Blue	Blue	Red	Blue	Blue		Blue		Blue	Blue	Blue	Blue	Blue	Blue	Blue
Maryland	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Red
District of Columbia	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Red
Virginia	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
West Virginia	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red		Blue	Blue	Blue
North Carolina	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
South Carolina	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Georgia	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red	Blue	Blue	Blue	Blue
Florida	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
East South Central																				
Kentucky	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red	Blue	Blue	Blue	Blue
Tennessee	Blue	Blue	Blue	Blue		Blue	Blue	Red	Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Alabama	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Mississippi	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue	Red	Blue	Blue			Blue	Blue	Red
West South Central																				
Arkansas	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red	Blue	Blue	Blue	Blue
Louisiana	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red	Blue	Blue	Blue	Blue
Oklahoma	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red	Blue	Blue	Blue	Blue
Texas	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Blue	Blue	Blue	Blue	Blue
Mountain																				
Montana	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Red
Idaho	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Wyoming	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Colorado	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
New Mexico	Blue	Blue	Blue	Blue	Blue	Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Arizona	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Red	Blue	Blue	Blue	Blue
Utah	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Nevada	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Red
Pacific																				
Washington	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Oregon	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
California	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue			Blue	Blue	Blue
Alaska	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue	Blue	Blue		Blue	Blue	Red	Blue	Blue	Red	Blue
Hawaii	Blue	Blue	Blue	Blue		Blue	Blue		Blue	Blue		Blue		Blue	Blue	Blue	Red	Blue	Blue	Blue

Figure 20. Summary of targets attained and significance of trends in the **Health Status Indicators (HSIs)** for the United States and each State (continued)

																	Number of HSIs		
	Syphilis		Measles cases		Infant mortality		Low birth-weight		Prenatal care		Birth rate 15-17		Children 5-17 in poverty	Poor air quality		Target attained	Trend imp. sign.	Target attained* or imp. sign.	
	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Target	Trend	Trend	Target	Trend				
United States	Blue	Blue		Blue		Blue		Red		Blue		Blue		Blue	Blue	6	14	15	
New England																			
Maine	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	11	14	15	
New Hampshire	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	12	10	14	
Vermont	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	11	11	14	
Massachusetts	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	12	13	16	
Rhode Island	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	12	12	14	
Connecticut	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	12	12	16	
Middle Atlantic																			
New York	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	11	10	14	
New Jersey	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	11	12	15	
Pennsylvania	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	7	12	13	
East North Central																			
Ohio	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	8	12	16	
Indiana	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	4	11	12	
Illinois	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	5	11	13	
Michigan	Blue	Blue		Blue		Blue		Red		Blue		Blue		Blue	Blue	5	14	16	
Wisconsin	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	9	9	13	
West North Central																			
Minnesota	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	13	9	13	
Iowa	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	11	8	13	
Missouri	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	4	7	9	
North Dakota	Blue	Blue		Blue		Blue		Red		Blue		Blue		Blue	Blue	10	8	12	
South Dakota	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	10	12	15	
Nebraska	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	9	8	11	
Kansas	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	10	7	11	
South Atlantic																			
Delaware	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	5	10	12	
Maryland	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	6	11	13	
District of Columbia	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	5	6	10	
Virginia	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	6	12	14	
West Virginia	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	6	12	14	
North Carolina	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	3	10	12	
South Carolina	Blue	Blue		Blue		Blue		Red		Blue		Blue		Blue	Blue	4	12	14	
Georgia	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	3	13	14	
Florida	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	5	15	16	
East South Central																			
Kentucky	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	4	10	13	
Tennessee	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	1	8	9	
Alabama	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	1	9	9	
Mississippi	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	3	7	9	
West South Central																			
Arkansas	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	3	5	7	
Louisiana	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	3	7	9	
Oklahoma	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	3	5	7	
Texas	Blue	Blue		Blue		Blue		Red		Blue		Blue		Blue	Blue	7	10	12	
Mountain																			
Montana	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	10	9	12	
Idaho	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	9	10	14	
Wyoming	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	10	8	13	
Colorado	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	10	8	12	
New Mexico	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	8	8	12	
Arizona	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	6	11	13	
Utah	Blue	Blue		Blue		Blue		Red		Blue		Blue		Blue	Blue	10	11	14	
Nevada	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	4	9	9	
Pacific																			
Washington	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	9	9	11	
Oregon	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	9	11	13	
California	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	8	13	13	
Alaska	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	7	9	10	
Hawaii	Blue		Blue	Blue		Blue		Red		Blue		Blue		Blue	Blue	12	8	11	

*Excludes HSIs for which the target was achieved but the trend was significant in the wrong direction.

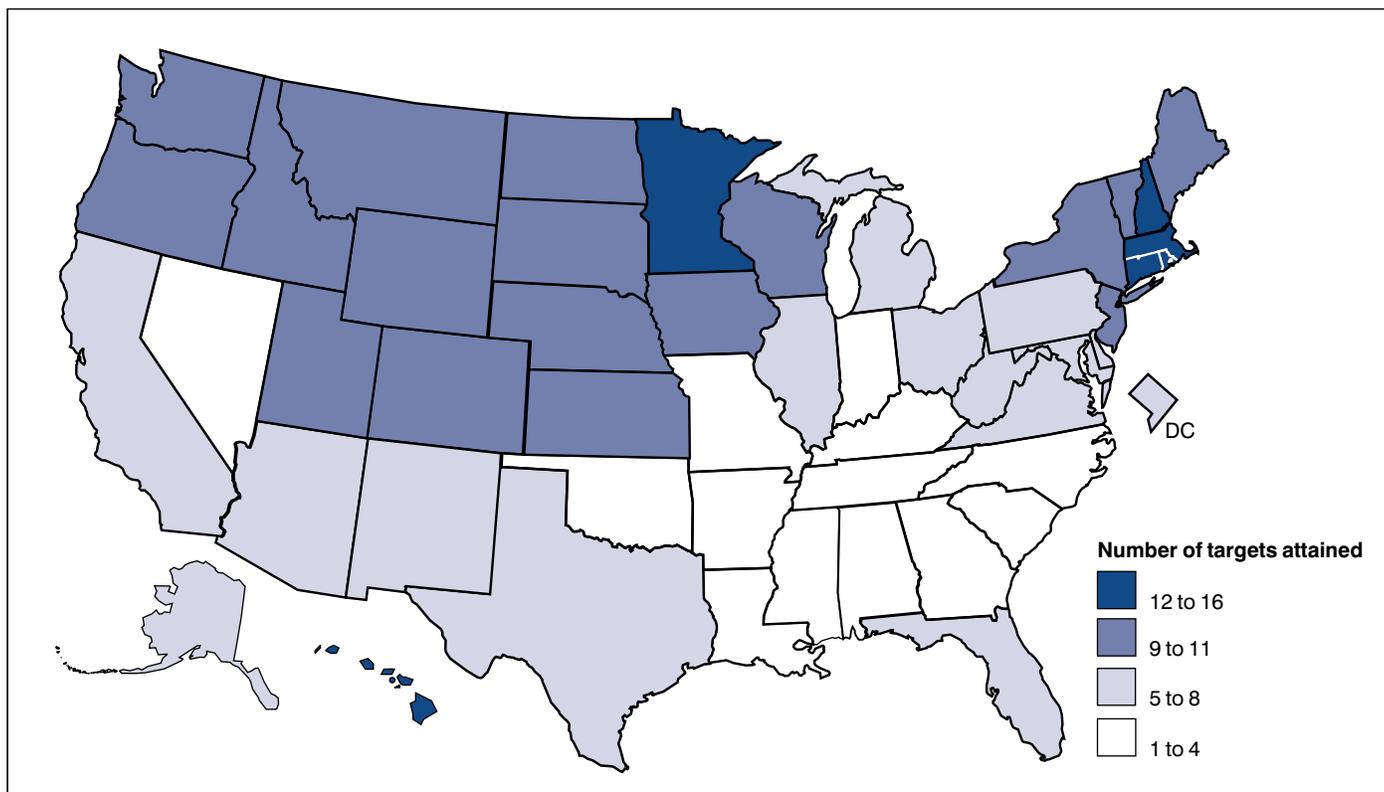


Figure 21. Number of HSI targets attained for each State, 1997–98

recommended that, whenever data were available to provide reliable estimates, that the HSIs be examined for specific groups (6,16).

Experience has also shown that it would have been desirable to link all of the HSIs directly to the Healthy People 2000 objectives. In Healthy People 2010 an additional set of indicators has been adopted, the Leading Health Indicators (LHI) (17). The LHIs (physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to health care) encompass 22 measures that are seen as determinants of health. These measures are linked directly to HP2010 objectives, and the need to examine these measures by race and Hispanic origin is recognized. Both the Health Status Indicators and the Leading Health Indicators will play a part in the ongoing effort to identify places or populations where improvements are apparently limited and populations are disadvantaged.

It should be emphasized once again that indicators represent a place to begin further investigation. Such investigations may lead to the conclusion that data are unreliable or invalid, or that the analytic approach has limitations. Or they may lead to the identification of real problems caused by known risk factors, which can be addressed by changes in public health programs and policies. The periodic monitoring of indicators is part of, not a substitute for, an ongoing assessment process (18).

Analytic techniques

Health Status Indicators (HSIs) and comparability

The HSIs were selected and defined to be comparable among geographic areas. They are based on established data collection systems with standardized definitions and collection procedures. The HSIs are based on percentages or rates that permit comparisons among populations or geographic areas with populations of different size. The death rates are age-adjusted to the 1940 standard population to eliminate the effects of differences in age composition from comparisons among populations (19). These rates represent the number of deaths that would occur per 100,000 persons if the standard population had the age-specific death rates of the population of interest. It should be remembered that these age-adjusted rates are appropriate for comparison purposes and that they have no inherent meaning for most other purposes.

A number of the HSIs are based on rates where age-specific or sex- and age-specific populations are required. A set of State population estimates from the Census Bureau was used to promote consistency in rates. This set of estimates was prepared for 1998 and includes revisions in estimates for earlier years. Computing rates in this way promotes internal consistency among the rates on which this analysis is based; however, the rates themselves may differ slightly from those published previously based on other/earlier population estimates. The population data on

which these analyses are based appear on the U.S. Census Bureau Web site: http://www.census.gov/population/www/estimates/st_sasrh.html (revised September 15, 1999). Corresponding population estimates for 1986–89 were drawn from: U.S. Census Bureau; http://www.census.gov/population/www/estimates/st_81asrh.html.

Health Status Indicators (HSIs) included in this report

Committee 22.1 designated 18 HSIs. The indicator for cardiovascular disease deaths included two subcategories, heart disease and stroke. Since the trends in these subcategories are distinguishable, the findings are presented for the two subcategories. Reported cases of AIDS were also included as one of the HSIs. Because the case definition for AIDS changed in 1993 and because the transition from HIV infection to AIDS has been altered substantially by the introduction of drug therapies, this measure is no longer a reliable indicator of trends or a valid indicator of HIV infection. Reported cases of HIV infection would make a much better indicator at this point in time; however, the data are not available for all States. Omitting AIDS as an indicator and subdividing cardiovascular disease into two indicators, this report presents findings for 18 indicators.

Targets for the Health Status Indicators (HSIs)

For purposes of this report, States were compared according to whether or not they had attained the national targets for the HSIs. Twelve of the HSIs correspond directly to Healthy People 2000 objectives for which targets were specified for attainment by the year 2000 for the Nation. For several additional indicators, the operational definitions differ slightly from those employed in the Healthy People 2000 objectives. The HSIs for total deaths and the percent of children living in poverty have no corresponding Healthy People 2000 objectives. The origins of the targets employed in this report are described below for each of the HSIs.

Total deaths: The total (all causes) death rate has no corresponding HP2000 objective. There are, however, objectives and targets for some specific causes of death. For purposes of this report, a target was derived by summing the mutually exclusive age-adjusted death rates for causes with HP2000 targets and adding a residual rate for all of the causes without targets. The sum of the mutually exclusive age-adjusted death rates at the baseline in 1987 was 396.0 out of a total death rate of 539.2 (a difference of 143.2 deaths per 100,000). The sum of the corresponding rates in 1996 was 356.2 out of a total of 491.6 (a difference of 135.4). The target was set by summing the targets for the HP2000 objectives (339.8) and adding a constant of 135 to account for those causes without targets, for which there has been essentially no decline. For purposes of this report, the age-adjusted target is **475 deaths from all causes per 100,000 population in the year 2000**.

Heart disease deaths: The HSI includes ICD–9 codes: 390–398, 402, and 404–429. These codes are used in

standard mortality tabulations by cause of death. HP2000 Objective 15.1 for coronary heart disease includes codes 402, 410–14, and 429.2. The target for coronary heart disease deaths is an age-adjusted rate of 100 deaths per 100,000 population. The age-adjusted rate for the additional causes has remained at about 30 per 100,000 since 1990. Assuming no reduction in these additional causes, the resulting age-adjusted target for the HSI is **130 deaths due to heart disease per 100,000 population in the year 2000**.

Stroke deaths: The HSI for stroke corresponds directly to HP2000 Objective 15.2, which calls for a 34 percent reduction in the age-adjusted death rate for stroke (ICD–9 codes: 430–438) from 30.4 in 1987 to **20 deaths due to stroke per 100,000 population in the year 2000**.

Lung cancer deaths: The HSI is based on ICD–9 code 162—cancer of trachea, bronchus, and lung. The HP2000 Objective 16.2 excludes cancer of the trachea (ICD–9 code 162.0). Cancer of the trachea accounts for only 0.1 percent of the deaths coded to 162. Therefore, the target for Objective 16.2 is used as the target for this HSI, a limit in the age-adjusted rate of **42 deaths due to lung cancer per 100,000 population in the year 2000**.

Female breast cancer deaths: This HSI corresponds directly to Objective 16.3, which calls for a reduction in the age-adjusted death rate for female breast cancer (ICD–9 code 174) per 100,000 females in the population. The baseline rate in 1987 was 23.0, and the target for the year 2000 is **20.6 deaths due to breast cancer per 100,000 females**.

Motor vehicle crash deaths: This HSI corresponds directly to HP2000 Objective 2.4, which calls for a reduction in the age-adjusted death rate for motor vehicle crash deaths (ICD codes E810–E825) per 100,000 population. The baseline for the United States in 1987 was 19.2, and the target for the year 2000 is **14.2 motor vehicle crash deaths per 100,000 population**.

Work-related injury deaths: This HSI is related to HP2000 Objective 10.1, which calls for a one-third reduction in the rate of work-related injury deaths to those 16 and older (per 100,000 full-time workers) from 6.0 at baseline for 1983–87 to 4.0 in 2000. The HSI is defined as a rate per 100,000 population 16 years and over. This measure does not control for the population at risk as effectively as the number of full-time workers. Differences in age composition will, therefore, be responsible for some of the variation among States in this rate. A one-third reduction in the rate of work-related injury deaths from the baseline for 1986–88 (3.1) would result in a target for the year 2000 of **2.1 work-related injury deaths per 100,000 population 16 years and over**.

Suicide deaths: This HSI corresponds directly to HP2000 Objective 7.2, which calls for a reduction in the age-adjusted death rate for suicide (ICD–9 codes E950–E959) per 100,000 population. The baseline in 1987 was 11.7, and the target for the year 2000 is **10.5 suicide deaths per 100,000 population**.

Homicide deaths: The HSI is defined in terms of ICD-9 codes E960–E978 in accordance with standard cause of death tabulations. HP2000 Objective 7.1 is being tracked using ICD-9 codes E960–E969 and does not include the categories E970–E978 (legal intervention including legal execution). Legal intervention accounts for only about 1 percent of all deaths from homicide and legal intervention. The target for HP2000 Objective 7.1 is therefore employed as the target for this HSI, an age-adjusted rate of **7.2 homicide deaths per 100,000 population in the year 2000.**

Tuberculosis: The HSI corresponds directly to HP2000 Objective 20.4, which calls for a reduction in tuberculosis cases per 100,000 population from a baseline of 9.1 in 1988 to **3.5 tuberculosis cases per 100,000 population in the year 2000.**

Syphilis: The HSI corresponds directly to HP2000 Objective 19.3, which calls for a reduction in the number of primary and secondary syphilis cases per 100,000 from a baseline of 18.1 to **4 primary and secondary syphilis cases per 100,000 in the year 2000.**

Measles: The HSI corresponds directly to HP2000 Objective 20.1, which calls for a reduction in the number of measles cases to **zero cases of measles in the year 2000.**

Infant mortality: The HSI corresponds directly to HP2000 Objective 14.1, which calls for a reduction in the infant mortality rate from a baseline of 10.1 infant deaths per 1,000 live births in 1987 to a rate of **7 infant deaths per 1,000 live births in the year 2000.**

Low birthweight: The HSI corresponds directly to HP2000 Objective 14.5, which calls for a reduction in the percent of low-birthweight infants (less than 2,500 grams) from the baseline of 6.9 percent in 1987 to **5 percent low birthweight in the year 2000.**

Prenatal care: The HSI was initially defined in terms of the percent of women who did not begin prenatal care during the first trimester. In order to make it comparable with HP2000 Objective 14.11, the complementary percentage of women who began prenatal care during the first trimester is used. The target for Objective 14.11 calls for an increase in the percent of live births where the mother began care in the first trimester from a baseline of 76 percent in 1987 to **90 percent beginning prenatal care in the first trimester in the year 2000.**

Live births to females ages 15–17: This HSI was originally defined by Committee 22.1 as the percent of all live births that occur to teenage women 10–17 years of age. This indicator is easily measured from birth certificate data, however, it does not provide an adequate basis for comparing teenage fertility among different populations or geographic areas. The percent of births to teens is affected by the fertility of older women. A population with high birth rates at all ages might have a smaller percentage of births to teens than a population with only high teenage birth rates.

The live birth rate for teenagers 15–17 is a much better measure of teenage fertility for comparative purposes. Committee 22.1 was concerned that the population data needed to calculate this rate would not be available except in

Census years. For purposes of this report, however, the live birth rate for teenagers is employed as the basis for comparison. The rates on which this analysis is based have been published previously (14,15). An obvious nationwide reversal in the upward trend in live birth rates for teens began in 1991. This analysis is therefore based on rates beginning in 1990. The year 1990 is also the baseline year for Objective 5.1 (5).

While HP2000 Objective 5.1 calls for monitoring the live birth rate for females 15–17 years of age, there is no target specified. There is, however, a target for reducing the pregnancy rate for females 15–17 from a baseline of 80.3 pregnancies per 1,000 females 15–17 in 1990 to a target of 50 pregnancies per 1,000 females 15–17 in the year 2000. Assuming that a similar 38 percent reduction would apply to the three components of the pregnancy rate (live births, fetal deaths, and abortions), a target for the live birth rate was derived by reducing the live birth rate for females 15–17 in 1990 (37.5) by 38 percent. The resulting target is **23.3 live births per 1,000 females ages 15–17 in the year 2000.**

Children in poverty: There is no corresponding objective in Healthy People 2000. For purposes of this report, only the trend in the percent of related children 5–17 in poverty is monitored.

Air quality: Objective 11.5 called for an increase to at least 85 percent in the proportion of people who live in counties that have not exceeded any Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) for criteria air pollutants in the previous 12 months. Criteria air pollutants include carbon monoxide, nitrogen dioxide, ozone, lead, particulate matter, and sulfur dioxide. The HSI calls for monitoring the proportion of persons living in counties that did not meet EPA NAAQS during the previous year and is the complement of Objective 11.5.

Data on NAAQS used to measure Objective 11.5 for the Healthy People baseline and progress reviews has been provided by the EPA Office of Air and Radiation. For the purpose of this report, estimates of persons living in counties that did not meet any NAAQS were calculated directly from the interim database maintained by EPA Office of Air Quality Planning & Standards, Information Transfer & Program Integration Division, which can be found at: <http://www.epa.gov/aqspub11/select.html>. This was done to ensure continuity of data from a common source and to provide for a more accurate trend analysis using the most current annual estimates of county populations.

Counties where one or more of the six criteria pollutants exceeded NAAQS were tabulated by State and year. So-called “secondary exceedences” were used so that a county had to have at least two recorded values in excess of the NAAQS to be in exceedence. Any county with one or more secondary exceedences was considered in exceedence of the standards. Annual estimates of the population in the counties that exceeded any standard were used to calculate the percent of persons living in counties exceeding EPA air quality standards for each State.

Based on this computation procedure, 56 percent of the population lived in counties that did not meet air quality standards for the baseline in 1988, and 44 percent of the population lived in counties that met standards. Previously published Healthy People air quality data provided directly from EPA indicated that 49.7 percent of the population lived in counties that did not exceed NAAQS in 1988.

Objective 11.5 called for an increase in the percent of persons living in counties that meet the standards (from 49.7 percent in 1988 to 85 percent in 2000, an increase of 71 percent). A 71 percent increase in the measure employed here (44 percent) would produce a target of 75 percent of the population in counties that did not exceed standards. Accordingly, the target for the air quality HSI was set at **no more than 25 percent of the population living in counties that did not meet EPA air quality standards.**

While interpreting the results, it is important to remember that the national network of air quality monitors is not uniformly distributed among counties and that many counties have no monitors at all. Also not accounted for in the data are effects of weather and climate on the concentration and distribution of pollutants in counties where monitors are located or adjacent counties which have no monitors.

Target attainment

The determination of whether or not the United States attained the HP2000 targets for the HSIs in [figure 1](#) was based on a comparison of rates for the HP2000 baseline year and data for 1998. The difference between the baseline and the target was calculated; the difference between the most recent value and the target was calculated; and the second difference was divided by the first and multiplied by 100 to determine the percent of the change called for by the target that had actually been achieved. The target for lung cancer called for a limit in the increase in the age-adjusted death rate due to lung cancer. Since the target was not exceeded, 100 percent of the objective was achieved.

In [figures 2–19](#), two sets of criteria have been used to determine whether targets have been attained. The primary criteria calls for attainment of the target in both of the two most recent years of data (1997 and 1998). The requirement for attainment in 2 years compensates for the annual variability in rates necessarily greater in areas with smaller populations. Attainment of the target in the two most recent years is identified by the color dark blue. Dark blue represents the color associated with the document *Healthy People 2000: Objectives for the Nation (2)*. A secondary criteria called for attainment of the target in only the most recent year of data (1998). This gives provisional credit to any State that has attained the target in the most recent year. Attainment in this way is identified by the color light blue. If these States were to attain the target for a second year, they would satisfy the primary criteria.

Significance of trends in the Health Status Indicators (HSIs)

The direction and statistical significance of trends in the HSIs was measured using Kendall's tau, a rank-order

correlation. This statistic is well suited to the measurement of associations between time as an ordinal variable and other ordinal or interval variables. Kendall's tau measures the consistency of increases or decreases over time without any assumption about the linearity of the association. If a trend was in one direction for several years and then changed to the opposite direction, the value of Kendall's tau would be reduced. If the direction of the association was up one year and down the next over the period studied, the value of tau would be zero. This statistic is not sensitive to the magnitude of changes in rates. An annual decline of two-tenths in an infant mortality rate over 10 years would be just as significant as an annual decline of one-tenth. The direction of the association is indicated by the sign of the Z statistic, significance is based on the probability level for the occurrence of Z. Z statistics with a probability level of 0.05 or less are considered significant in this analysis.

Rates are subject to year-to-year variability, and this variability increases with the rarity of the events and is greater for smaller populations (in this case, States). In order to reduce this variability in rates, 3-year moving averages were computed for each HSI beginning with the 3 years centered on the HP2000 baseline year (usually 1986–88) and ending with 1995–97 or 1996–98 depending upon the availability of data. Kendall's tau was applied to these 3-year averages. The trend in total death rates, for example, is assessed from 1986–88 through 1995–97. The disadvantage of this approach is that it does not take full advantage of the most recent year of data. In this application, Kendall's tau is employed to measure the consistency of the trend over the entire period. It is not sensitive to the magnitude of recent changes. The State-specific data for the 3-year averages employed in this analysis are available on the NCHS Web site (<http://www.cdc.gov/nchs/dataawh/ftpserv/hstatus/hstatus.htm#status>).

Sources of Data

Most of the data on which these analyses were based are available on the NCHS Web site referenced above. These data files include the raw frequencies used to calculate the rates and percentages shown here. They do not include the age-specific detail that was required to compute age-adjusted rates. As noted earlier, these rates may differ slightly from rates that have been published previously because of the population denominators employed here.

Death rates (except work-related injury): Numbers of deaths by cause of death, age, State of residence, and in the case of breast cancer for females only, were extracted from annual mortality files from the National Vital Statistics System (9). The data were extracted for 11 age groups so that age-adjusted rates could be computed (18). Age-specific population denominator data for each State were extracted from Census Bureau estimates for the year 1998 along with corresponding adjustments in estimates going back to 1990: U.S. Census Bureau; http://www.census.gov/population/www/estimates/st_sasrh.html (revised September 15, 1999).

Corresponding population estimates for 1986–89 were drawn from: U.S. Census Bureau; (http://www.census.gov/population/www/estimates/st_81asrh.html).

Work-related injury death rates: Data on injury-related deaths to workers 16 years of age and older for the years 1994–98 were drawn from the Census of Fatal Occupational Injuries (CFOI) database maintained by the Bureau of Labor Statistics. Data for 1986 to 1993 were provided by the National Institute for Occupational Safety and Health from the National Traumatic Occupational Fatalities Surveillance System (NTOFSS). The latter system relies solely on death certificates. Because of the limitation of death certificates, and the lack of nationwide guidelines for determination of work injuries prior to 1993, the frequencies should be viewed as the minimum number of occupational fatalities through 1993. The sources of annual population data by State cited previously were also employed as denominators here. The denominator was also limited to the population 16 and older.

Tuberculosis, syphilis, and measles incidence rates: The numbers of reported cases of tuberculosis, primary and secondary syphilis, and indigenous and imported measles were drawn from the following publications: *MMWR* Summary of Notifiable Diseases, United States, (1998) vol 47 no. 53, 1999; (1997) vol 46 no. 54, 1998; (1996) vol 45 no. 53, 1997; (1995) vol 44 no. 53, 1996; (1994) vol 43 no. 53, 1995; (1993) vol 42 no. 53, 1994; (1992) vol 41 no. 55, 1993; (1991) vol 40 no. 53, 1992; (1990) vol 39 no. 54, 1991; (1989) vol 38 no. 54, 1990; (1987) vol 37 no. 54, 1988; (1987) vol 36 no. 54, 1988. These statistics are compiled from reports to the National Notifiable Diseases Surveillance System. The population data cited above were used to calculate case rates.

Infant mortality rates: Numbers of infant deaths by mother's State of residence were drawn from the annual mortality files of the National Vital Statistics System. The numbers of live births by mother's State of residence used to calculate the infant mortality rate were drawn from the annual natality files for the National Vital Statistics System (10).

Low birthweight and prenatal care: The percent of low birthweight infants was based on the number of live-born infants weighing less than 2,500 grams by State of residence, divided by the total number of live-born infants by State of residence. Infants with no birthweight recorded were excluded from both the numerator and the denominator. The percent of women beginning prenatal care in the first trimester was based on the number of live births where the woman began care in the first trimester by place of residence and the total number of live births by State of residence. Live births for which the month care began was not stated were excluded from both the numerator and denominator. These frequencies were extracted from the annual natality files from the National Vital Statistics System (10).

Live birth rates for females 15–17: These rates were based on the numbers of live births to women 15–17 years old by State of residence extracted from the annual natality

files from the National Vital Statistics System (9). The numbers of females 15–17 years old by State were supplied by Stephanie Ventura, Division of Vital Statistics, based on previously published reports on birth rates for teenagers (14,15).

Children 5–17 in poverty: Data on the number of related children 5–17 and the number of such children in poverty are collected by the Census Bureau in the Current Population Survey and State estimates of the percent in poverty are reported annually. These data are available from the Census Bureau Web site: U.S. Census Bureau; 1998, (http://ferret.bls.census.gov/macro/031999/pov/new25_002.htm); 1996, (http://ferret.bls.census.gov/macro/031997/pov/25_000.htm); 1995, (http://ferret.bls.census.gov/macro/031996/pov/25_000.htm); and 1994, (http://ferret.bls.census.gov/macro/031995/pov/25_000.htm). Comparable data for 1997, 1993, 1992, 1991, and 1990 were provided in unpublished tabulations from the U.S. Census Bureau, HHES/Poverty & Health Statistics Branch.

Air quality standards: The Environmental Protection Agency (EPA) monitors the occurrence of air pollutants (carbon monoxide, nitrogen dioxide, ozone, lead, particulate matter, and sulfur dioxide) during the previous 12 months. Counties that did not meet EPA National Ambient Air Quality Standards (NAAQS) are identified in a database maintained by the Office of Air Quality Planning & Standards, Information Transfer & Program Integration Division which can be found at: (<http://www.epa.gov/aqspub1/select.html>). Annual population estimates (as described above) for the counties that exceeded any standard were used to calculate the percent of persons living in counties exceeding EPA air quality standards for each State.

References

1. Freedman, MA. Health Status Indicators for the year 2000. Statistical notes; vol 1 no.1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
2. U.S. Department of Health and Human Services. Healthy people 2000: National health promotion and disease prevention objectives. Washington: Public Health Service. 1991.
3. Institute of Medicine. The future of public health. Washington, D.C.: National Academy Press. 1988.
4. Klein RJ, Hawk SA. Health Status Indicators: Definitions and national data. Statistical notes; vol 1 no. 3. Hyattsville, Maryland: National Center for Health Statistics. 1992.
5. National Center for Health Statistics. Healthy People 2000 Review, 1998–99. Hyattsville, Maryland: Public Health Service. 1999.
6. Plepys C, Klein R. Health Status Indicators: Differentials by race and Hispanic origin. Statistical notes; no. 10. Hyattsville, Maryland: National Center for Health Statistics. 1995.
7. National Center for Health Statistics. Health Status Indicator reports: "State of the art." Statistics and surveillance; no. 8. Hyattsville, Maryland: Public Health Service. 1996.
8. National Center for Health Statistics. Vital Statistics of the United States, 1987, vol II, mortality, part A. Hyattsville, Maryland: Public Health Service. 1990.

9. Murphy SL. Deaths: Final data for 1998. National vital statistics reports; vol 48 no. 11. Hyattsville, Maryland: National Center for Health Statistics. 2000.
10. Ventura SJ, Martin JA, Curtin SC, Mathews TJ, Park MM. Births: Final data for 1998. National vital statistics reports; vol 48 no. 3. Hyattsville, Maryland: National Center for Health Statistics. 2000.
11. Ventura SJ, Martin JA, Curtin SC, Mathews TJ. Births: Final data for 1997. National vital statistics reports; vol 47 no. 18. Hyattsville, Maryland: National Center for Health Statistics. 1998.
12. Centers for Disease Control and Prevention. Impact of Multiple Birth on Low Birthweight—Massachusetts, 1989–96. *MMWR* 48(14): 289–92. 1999.
13. Ventura SJ, Curtin SC, Mathews TJ. Teenage births in the United States: National and State trends, 1990–96. National vital statistics system. Hyattsville, Maryland: National Center for Health Statistics. 1998.
14. Ventura SJ, Mathews TJ, Curtin SC. Declines in teenage birth rates, 1991–98: Update of national and State trends. National vital statistics reports. vol 47 no. 26. Hyattsville, Maryland: National Center for Health Statistics. 1999.
15. Ventura SJ, Curtin SC, Mathews TJ. Variations in teenage birth rates, 1991–98: National and State trends. National vital statistics reports; vol 48 no. 6. Hyattsville, Maryland: National Center for Health Statistics. 2000.
16. National Center for Health Statistics. Recommendations from Committee 22.1. Statistics and surveillance; no 4. Hyattsville, Maryland: Public Health Service. 1995.
17. U.S. Department of Health and Human Services. Healthy People 2010: Understanding and improving health. Washington, D.C.: U.S. Department of Health and Human Services, Government Printing Office. 2000.
18. Keppel KG, Freedman MA. What Is Assessment? *Journal of public health management and practice*; vol 1 no. 2. 1995.
19. Curtin LR, Klein RJ. Direct standardization (Age-adjusted death rates). *Statistical notes*: no. 6—revised. Hyattsville, Maryland. March 1995.

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